DOE/EA-1658

PROPOSED DEVELOPMENT AND DEMONSTRATION OF A BIOMASS ENERGY CENTER FOR FOOD PROCESSING APPLICATIONS TOPEKA, KANSAS

FINAL ENVIRONMENTAL ASSESSMENT

U.S. DEPARTMENT OF ENERGY
National Energy Technology Laboratory

APRIL 2010

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National Environmental Policy Act (NEPA) Compliance
Cover Sheet

Proposed Action:
The United States Department of Energy (DOE) proposes through a cooperative agreement with Burns & McDonnell Engineering, to partially fund project activities to design, install, and demonstrate an innovative biomass boiler pilot project that would offset a significant percentage of the natural gas consumption used for steam generation at the Frito-Lay manufacturing plant. Supporting research efforts would identify and document biomass boiler controls, sizing, integration, and cost competitiveness issues to promote wider replication and adoption of this technology within Frito-Lay's facilities and the wider food processing industry. This research will ultimately aim to reduce the food processing industry's large natural gas consumption through the development and demonstration of biomass boiler applications that can be widely commercialized throughout the industry in an effective and cost-competitive manner.

Type of Statement: Final Environmental Assessment

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Abstract:
DOE prepared this Environmental Assessment (EA) to assess the potential impacts to the human and natural environment of its Proposed Action - providing financial assistance to Burns & McDonnell Engineering under a cooperative agreement. DOE's objective is to support the development of innovative technologies that when deployed commercially, will enable industry to reduce natural gas requirements for chemical feedstocks and increase opportunity fuels.

Under the terms of the cooperative agreement, DOE would provide $1,655,945 for Burns & McDonnell Engineering to facilitate the development and demonstration of a biomass energy center at the Frito-Lay manufacturing plant. It would consist of a fuel storage area, a

boiler building, and a pipe rack to connect the center to existing plant utilities. The center would use a traditional stoker fired (saturated steam) boiler, which would burn a combination of dried wood waste, green wood waste, and less than 7% of tire derived fuel. The boiler would have an output of up to 78.3 Million British Thermal Units per hour.

The proposed biomass energy center would be integrated into the Frito-Lay manufacturing plant's existing site procedures and operations. The plant's existing air emissions permit would be revised and resubmitted to include the energy center. No other permit changes are anticipated to be needed. Currently undeveloped land (0.137 acres) would be developed to accommodate the energy center. This EA concluded with no significant adverse impacts for the Proposed Project.

Public Participation:
DOE encourages public participation in the NEPA process. The Draft EA was released for public review and comment on January 19, 2010. The public was invited to provide oral, written, or e-mail comments on the Draft EA to DOE by the close of the comment period on February 19, 2010. Copies of the Draft EA were also distributed to cognizant Federal and State agencies. Comments received by the close of the comment period were considered in preparing this Final EA for the proposed DOE action. The EA is also available on the DOE website at http://www.netl.doe.gov/publications/others/nepa/ea.html.

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ACRONYMS AND ABBREVIATIONS

AQCR	Air-Quality Control Region
BACT	Best Available Control Technology
BMP	Best Management Practice
Btu	British Thermal Units
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, Liability Act
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CWA	Clean Water Act
dB	Decibels
dBA	A-weighted Decibel
DNL	Day-night Average Sound Level
DOE	Department of Energy
EA	Environmental Assessment
EPACT	Energy Policy Act
EO	Executive Order
ESA	Endangered Species Act
gpd	gallons per day
HAPS	Hazardous Air Pollutants
HAZMAT	Hazardous Material
KAR	Kansas Administrative Regulation
KDHE	Kansas Department of Health and Environment
L_{eq}	Equivalent Sound Level
LEED	Leadership in Energy and Environmental Design
MACT	Maximum Achievable Control Technology
mg/l	milligrams per liter
MMBtu	Million British Thermal Units
MSDS	material safety data sheets
msl	mean sea level
MTPO	Metropolitan Topeka Planning Organization
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NHPA	National Historic Preservation Act
NO_2	Nitrogen Dioxide
NOA	Notice of Availability
NPDES	National Pollutant Discharge Elimination System
NPL	National Priority List
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NSPS	New Source Performance Standards
NSR	New Source Review

O_3	Ozone
OSHA	Occupational Safety and Health
PM_{10}	Particulate Matter less than 10 microns in diameter
$PM_{2.5}$	Particulate Matter less than 2.5 microns in diameter
PPA	Pollution Prevention Act
pph	pounds per hour
ppm	parts per million
PSD	Prevention of Significant Deterioration
PTE	Potential to Emit
RCRA	Resource Conservation Recovery Act
sf	square foot
SHPO	State Historic Preservation Office
SIP	State Implementation Plans
SO_2	Sulfur Dioxide
SPCC	Spill Prevention Control and Countermeasure
SWPPP	Stormwater Pollution Prevention Plan
TDF	Tire Derived Fuel
tpd	tons per day
tpy	tons per year
$\mu g/m^3$	micrograms per cubic meter
µm	micrometer
USACE	U.S. Army Corps of Engineers
USC	United States Code
USCB	U.S. Census Bureau
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
VOC	Volatile Organic Compound
VPP	Voluntary Protection Programs
YMRF	Yard Materials Recycling Facility

1.0 INTRODUCTION

The United States Department of Energy, National Energy Technology Laboratory (DOE NETL) prepared this Environmental Assessment (EA) to analyze the potential environmental impacts of providing funding for the proposed development and demonstration of a biomass energy center to be located at the Frito-Lay manufacturing plant in Topeka, Kansas.

The goal of the proposed project is to reduce the food processing industry's large natural gas consumption through the research, development, and demonstration of biomass boiler applications that can be widely commercialized throughout the industry in an effective and cost-competitive manner.

1.1 BACKGROUND

The Department of Energy's (DOE's) National Energy Technology Laboratory (NETL) manages the research and development portfolio of the Industrial Technologies Program (ITP) on behalf of the Office of Energy Efficiency and Renewable Energy. A key objective is developing technologies that enable utilization of opportunity fuels and non-traditional feedstocks in industrial processes, as well as enable the use of combined heat and power (CHP) in under-utilized applications.

Boilers are a critical element of industrial operations in the United States, consuming roughly 20% of the natural gas used in the manufacturing sector. Within the U.S. manufacturing sector, the food processing industry alone utilizes over 10,000 boilers to serve its heating and power needs. More than 70% of these boilers consume natural gas, amounting to an annual consumption of 237 trillion British Thermal Units (Btu) annually.

This project aims to reduce the food processing industry's large natural gas consumption through the research, development, and demonstration of biomass boiler applications that can be widely commercialized throughout the industry in an effective and cost-competitive manner. The project will include the design and pilot demonstration of an innovative biomass boiler system utilizing a combination of wood waste and tire-derived fuel (TDF) waste.

It is estimated that up to 20% of the 10,000 boilers currently utilized in the food processing industry can be replaced by the proposed biomass boiler technology. Successful project development and demonstration is expected to have major energy, cost, and environmental benefits, including the potential for a reduction of over 50 trillion Btu of natural gas consumption annually (if 20% of all food industry boilers are converted to a biomass boiler technology) and the diversion of industrial and commercial waste streams from landfills to provide useful work as a biomass fuel source.

Through combustion and emissions controls optimization, packaging engineering, scaling development, and economic analysis, the end result of this project will be the offset of 100% of the natural gas consumption necessary to produce process steam at Frito-Lay's

Topeka, Kansas, manufacturing plant. Additional research will be performed to assess alternative renewable fuel sources, particularly on-site food processing waste streams, alternate feedstock combustibility, boiler sizing, and controls and process system integration issues.

The proposed biomass energy center would be located on the existing Frito-Lay manufacturing plant property in Topeka, Kansas. Frito-Lay is a wholly-owned subsidiary of PepsiCo, Inc.

1.2 PURPOSE AND NEED

1.2.1 DOE's Purpose and Need

The overall purpose and need for DOE action pursuant to the Industrial Technologies Program is to fund cost-shared R&D projects to develop innovative technologies that, when deployed commercially, will enable industry to reduce natural gas requirements for chemical feedstocks, increase use of opportunity fuels, and expand combined heat and power applications. The technologies contribute toward the following ITP programmatic goals objectives of (1) achieving a 25% reduction in U.S. industrial energy intensity by 2017 in support of EPACT 2005; and (2) contributing to an 18% reduction in U.S. carbon intensity by 2012 as established by the Administration's "National Goal to Reduce Emissions Intensity." The proposed project would use biomass (wood waste) as the primary fuel source. It would support the ITP mission by using opportunity fuels and non-traditional feedstocks. The increased use of biofuels would result in a variety of benefits to the nation, such as improved energy security, increased economic growth, and broad-based environmental benefits.

1.2.2 Burns & McDonnell Engineering's Purpose and Need

The purpose of this project, the development and demonstration of a biomass energy center, is to offset 100% of the natural gas consumption necessary to produce process steam at Frito-Lay's Topeka, Kansas, manufacturing plant. Additional research will be performed to assess alternative renewable fuel sources, particularly on-site food processing waste streams, alternate feedstock combustibility, boiler sizing, and controls and process system integration issues. This research will ultimately aim to reduce the food processing industry's large natural gas consumption through the development and demonstration of biomass boiler applications that can be widely commercialized throughout the industry in an effective and cost-competitive manner.

The need for the project is to generate energy through more efficient and environmentally preferable means by supporting innovative technologies that provide fuel flexibility options for manufacturers, and reduce natural gas requirements and emissions. The U.S. industrial sector is the largest user of energy domestically, and is chiefly dependent on natural gas as a single major source of fuel. Volatile natural gas prices and environmental concerns are necessitating an increase in the research and development of using alternative fuels for industrial processes.

1.3 LOCATION AND GENERAL DESCRIPTION OF THE AFFECTED AREA

The Frito-Lay manufacturing plant in Topeka, Kansas, is located on an approximately 160-acre property. The site is secured, and access is through a monitored gate located off of Kirklawn Avenue, immediately south of the intersection of I-335 and I-470 **(see Figure 1-1).** The site is located south of downtown Topeka in Shawnee County.

Frito-Lay has had a manufacturing presence in the Topeka area since 1956, and has operated its plant at the current location since 1971. Approximately 685 employees work at the plant, which produces over 125 million pounds of product each year, including Lay's® potato chips, Cheetos® cheese flavored snacks, Doritos® tortilla chips, Fritos® corn chips and SunChips® multigrain snacks.

1.4 SCOPE OF THE EA

This Environmental Assessment (EA) analyzes the environmental impacts that would result from the Proposed Project and its alternative, the No Action alternative. This DOE EA was prepared in compliance with the National Environmental Policy Act of 1969 (P.L. 91-190), the Council of Environmental Quality Regulations dated 28 November 1978 (40 CFR Parts 1500-1508), and the DOE NEPA Implementing Procedures (10 CFR Part 1021).

Key goals of NEPA are to help Federal agency officials make well-informed decisions about agency actions and to provide a role for the general public in the decision-making process. The study and documentation mechanisms associated with NEPA seek to provide decision-makers with sound knowledge of the comparative environmental consequences of the several courses of action available to them. NEPA studies, and the documents recording their results, such as this EA, focus on providing input to the particular decisions faced by the relevant officials.

This EA identifies, describes, and evaluates the potential environmental impacts that would result from the implementation of the Proposed Project and the no action alternative, taking into consideration possible cumulative impacts from other actions. As appropriate, the affected environment and environmental consequences of the action will be described in both site-specific and regional contexts. In instances where mitigation measures may lessen any potentially adverse impacts, this EA identifies such measures that should be implemented to further minimize environmental impacts.

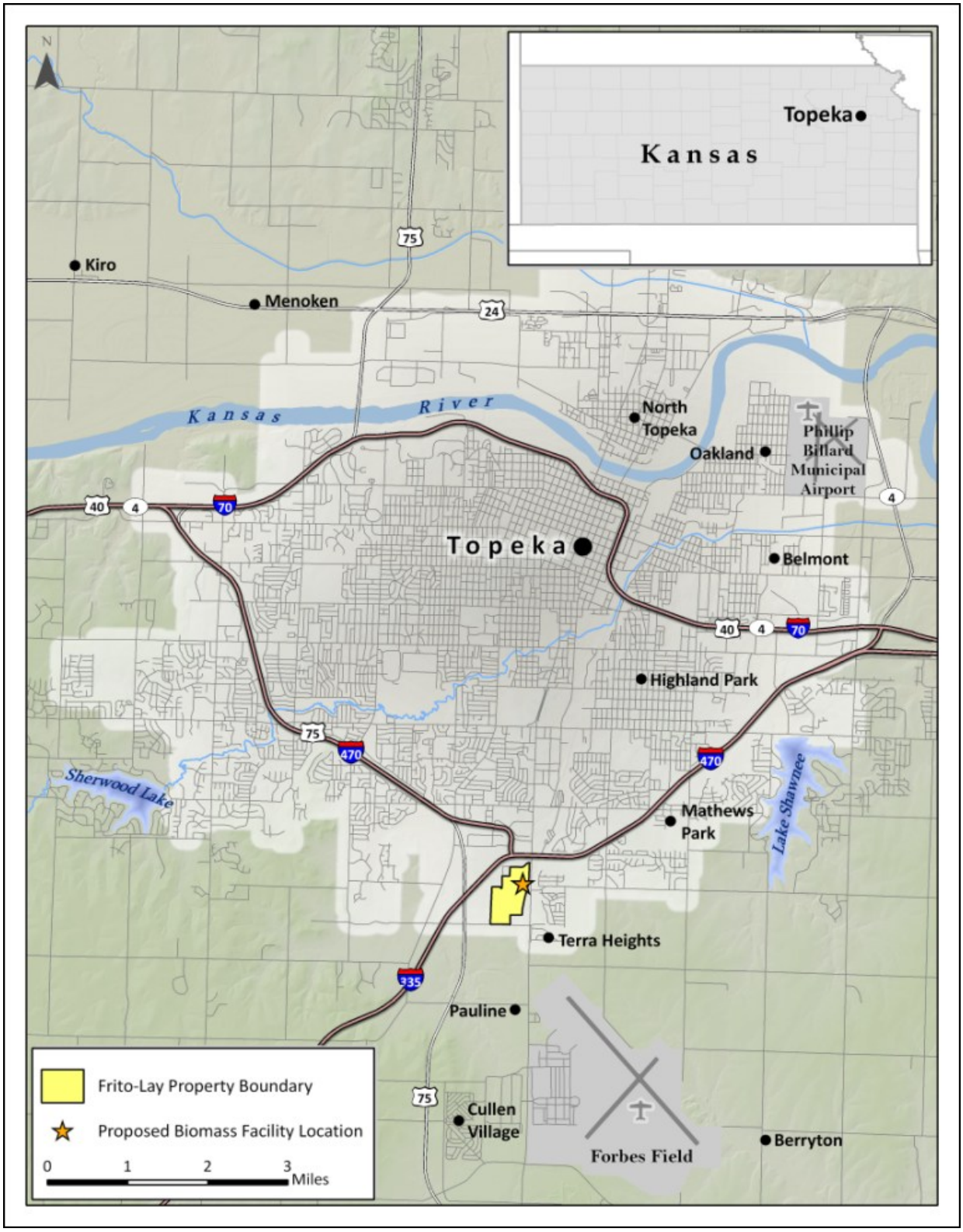

Figure 1-1. Project Vicinity Map

The following resource areas have been identified for study within this EA: soil and land use, water resources (including surface water, wetlands, floodplains), air quality, noise, biological resources (including threatened and endangered species), cultural and historic resources, infrastructure, human health, safety, and security, and, socioeconomic resources. Resource areas considered but dismissed for further analysis are discussed below.

1.4.1 Resource Topics Dismissed from Further Analysis

Several resource topics and issues were raised during internal DOE scoping for this project that were not considered to warrant detailed analysis in this EA because they were: 1) outside the scope of the Proposed Project; 2) already decided by law, regulation, or other higher level decisions; 3) irrelevant to the decision to be made; or 4) conjectural and not supported by scientific or factual evidence. The rationale for eliminating these issues is provided in the descriptions below.

Wild and Scenic Rivers

The National Wild and Scenic Rivers Act is administered by four federal agencies; the Bureau of Land Management, the National Park Service, the U.S. Fish and Wildlife Service, and the U.S. Forest Service. The Act protects selected rivers, and their immediate environments, which possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values. There are no designated National Wild and Scenic River in the State of Kansas. Therefore, this topic is dismissed from further analysis.

Environmental Justice

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations,* requires all federal agencies to identify and address disproportionately high and adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities. Although the greater Topeka area has elevated levels of both low-income and high-minority populations, the Proposed Project is not anticipated to disproportionately impact any of these populations due to the distance of these areas from the plant site, the minimal changes to the physical and socioeconomic environment anticipated to result from implementation of the Proposed Project, and the high dispersion rate of air emissions in the area. Therefore, this topic is dismissed from further analysis.

Recreation

The project area is contained entirely within the Frito-Lay manufacturing property; public access and use of the natural resources at the property is strictly limited, and the Proposed Project is not anticipated to impact any public or recreational uses of the land. Furthermore, the offsite impacts of the Proposed Project (e.g. air emissions from facility operations) are not anticipated to have any impact on recreation activities offsite of the

proposed project area. Because the proposed project would not appreciably diminish recreation opportunities or the quality of recreation activities in the vicinity of the project area, this topic is dismissed from further analysis.

Cultural and Historic Resources

Cultural and historic resources are protected by a variety of laws and regulations, including the National Historic Preservation Act, as amended, and the Archaeological Resources Protection Act. Section 106 of the National Historic Preservation Act and implementing regulations (36 CFR 800) outline the procedures to be followed in the documentation, evaluation, and mitigation of impacts to cultural resources. The Section 106 process applies to any federal undertaking that has the potential to affect cultural resources.

Shawnee County has 73 properties that are included on the national and/or state historic properties database; these properties include numerous buildings, five bridges, one cemetery, and two archaeological sites (KSHS, 2009). None of the buildings on or adjacent to the Frito-Lay property are included in the historic properties database. Additionally, there are no known archaeological resources on the property. In a letter dated November 16, 2009, the Kansas State Historic Preservation Officer (SHPO) indicated that the proposed project will not adversely affect any property listed or eligible for listing in the National Register for Historic Places (see **Appendix B**).

The Kansas SHPO would be notified immediately if any item of potential archaeological significance is discovered during site development. The construction contractors should be observant when excavating any previously undisturbed ground. If any historically or culturally significant materials or artifacts were to be unearthed, activities would halt immediately and not resume until consultation with the SHPO has been completed, in accordance with 36 CFR 800.13. With the understanding that the preceding steps will be taken, and that the potential for the discovery of any significant cultural resources is low at the proposed biomass energy center site, the impact topic of cultural and historic resources is dismissed from further analysis.

Traffic and Transportation

The Frito-Lay manufacturing plant is accessed through a monitored gate located off of Kirklawn Avenue, immediately south of the intersection of I-335 and I-470 **(see Figure 2-1).** A railroad which services the plant bisects the northern end of the property. Under the Proposed Project, the plant would receive an average of 5 deliveries of boiler fuel (wood waste) per work day. The plant currently receives an average of 200 truck deliveries per day. This increase of truck traffic would be negligible. Additionally, during the construction phase of the project, a peak amount of approximately 125 construction workers would access the site Monday-Friday. Currently, approximately 685 works per day access the site in up to three shifts each day. This would not appreciably increase the traffic in the vicinity of the plant site, and Frito-Lay staff would ensure that ample parking would be available onsite to all construction workers. No impacts to regional

traffic or transportation are anticipated to result from the Proposed Project. Therefore, this impact topic is dismissed from further analysis.

Human Health and Safety

It is assumed that the contractors responsible for site development and construction activities will also be responsible for compliance with the applicable Occupational Safety and Health Act (OSHA) regulations and all Frito-Lay site-specific safety measures that concern occupational hazards and specifying appropriate protective measures for all employees and site visitors. The Frito-Lay plant has been approved into OSHA's Voluntary Protection Programs (VPP), which promotes effective worksite-based safety and health. In the VPP, management, labor, and OSHA establish cooperative relationships at workplaces that have implemented a comprehensive safety and health management system. Approval into VPP is OSHA's official recognition of the outstanding efforts of employers and employees who have achieved exemplary occupational safety and health (OSHA, 2009).

Health and safety impacts generated from air emissions, noise, or hazardous waste associated with the proposed biomass energy center, are evaluated under those respective resource sections within this EA. Therefore, this resource area is dismissed from further analysis as an independent resource area.

1.4.2 Compliance with Laws and Executive Orders

This EA complies with the NEPA, CEQ regulations (40 CFR Parts 1500-1508), and DOE regulations for compliance with NEPA (10 CFR Part 1021). The EA also addresses all applicable laws and regulations, including but not limited to the following:

- Energy Policy Act (EPACT),
- National Historic Preservation Act (NHPA),
- Archeological Resources Protection Act (ARPA),
- The Noise Control Act of 1972, as amended,
- Addressing Environmental Justice (EO 12898)
- Clean Air Act (CAA),
- Clean Water Act (CWA),
- Coastal Zone Management Act,
- Protection of Wetlands (EO 11990),
- Floodplain Management (EO 11988),
- Endangered Species Act (ESA),
- Pollution Prevention Act (PPA),
- Resource Conservation and Recovery Act (RCRA), and
- Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).

Implementation of the Proposed Project will meet the new emission standards promulgated under 40 CFR Part 60, Subpart Dc "Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units". The Proposed Project will

help DOE meet the provisions set forth in the Energy Independence and Security Act of 2007 and is consistent with the intent of the American Recovery and Reinvestment Act of 2009.

2.0 PROPOSED ACTION AND ALTERNATIVES

2.1 DOE'S PROPOSED ACTION

DOE's proposed action is to provide funding through a cooperative agreement with Burns & McDonnell Engineering to partially fund a bioenergy center at the Frito-Lay manufacturing plant in Topeka, Kansas. DOE would provide $1,655,945 for the project. The total cost of the project is estimated to be $13,010,587. Private industry partners would provide the remaining project cost. The project would be considered a permanent installation, and would have a minimum 30-year operating life.

2.2 BURNS & MCDONNELL ENGINEERING'S PROPOSED PROJECT – DEVELOPMENT AND DEMONSTRATION OF A BIOMASS ENERGY CENTER

Burns & McDonnell Engineering's proposed project would develop and demonstrate a biomass energy center to be located at the Frito-Lay manufacturing plant in Topeka, Kansas, is consistent with DOE's goal to increase the use and amount of renewable energy generation projects. The proposed biomass energy center would primarily consist of a fuel storage area, a boiler building, and a pipe rack to connect the center to existing plant utilities (**see Figure 2-1**). The center would use a traditional stoker fired (saturated steam) boiler, which would burn a combination of dried wood waste (scrap pallets), green wood waste, and less than 7% of tire derived fuel (TDF). The boiler would have an output of up to 78.3 Million British Thermal Units (MMBtu) per hour.

The proposed biomass energy center would offset 100% of the natural gas consumption currently used for process steam generation at Frito-Lay's Topeka, Kansas processing facility. Additionally, supporting research efforts would identify and document biomass boiler controls, sizing, integration, and cost-competitiveness issues to promote wider replication and adoption of this technology within Frito-Lay's facilities and the wider food processing industry.

Biomass Energy

Biomass energy, or bioenergy, would be generated at the proposed energy center facility in the form of steam energy. The biomass combusted to produce the energy would consist primarily of wood waste. Wood waste is the most common form of biomass and is available from several sources, including waste from manufacturers such as furniture mills, paper mills and other wood product manufacturers, cleared forest resides, lumbering waste, and landscaping waste. Wood waste is typically found in the form of sawdust, woodchips, pellets, and wood scraps such as crates and pallets, and is regularly used as an energy source for heating and power generation.

The majority of all bioenergy (63%) generated in the U.S. is derived from wood products (DOE, 2008). Bioenergy, in turn, is the third largest source of domestic renewable energy following hydroelectric and wind energy generation. Of all energy consumed in the U.S., approximately 10% currently comes from renewable energy sources (DOE, 2008). This

estimate is predicted to increase in the foreseeable future. Bioenergy had an installed capacity of 10,100 megawatts (MW) in the U.S in 2006, which amounted to 10% of all renewable energy consumed (DOE, 2008). Hydroelectric (76%), wind (11%), geothermal (2%), and solar (0.5%) sources account for the other sources of renewable energy used in the U.S. (DOE, 2008).

Approximately 35,000 tons per year (~96 tons per day) of wood waste fuel would be used in the proposed biomass energy center operations. The source of this wood waste would primarily be green wood waste (chipped) from the City of Topeka's Forestry - Yard Materials Recycling Facility (YMRF). The City of Topeka possesses a readily available, potentially low cost, source of biomass material at its YMRF. On occasion, if the YMRF does not have enough wood waste to supply the biomass energy center, dry wood waste in the form of pallets and sawdust would be obtained from area sawmills and recycling operations. The wide range of moistures and varying wood types is well suited for a stoker fired boiler.

Wood waste sources typically have a heating value of 8,600 British thermal units per pound (Btu/lb) on a dry basis and are made up of carbon, water, hydrogen, oxygen, ash, and nitrogen. The received heating value is impacted by the amount of moisture and type of wood. Most of the proposed wood sources are green wood sources and therefore have a lower heating value (higher moisture content). The fuel consumption is calculated using fuel content with 50% moisture content and a heating value of 4,529 Btu/lb. The proposed equipment would be able to handle high moisture fuels.

Tire Derived Fuel (TDF) would make up to 7% of the heat input source for the biomass energy center. TDF would be used to increase the heat of combustion when the wood waste is particularly moist (e.g. low in heating value). TDF is produced by grinding automobile tires after the metal bead wire has been removed. The tires are ground into ~1 inch cube chunks and provided as fuel. The USEPA encourages the use of TDF as a viable alternative to fossil fuels and as an alternative to prevent scrap tires from inappropriate disposal in tire piles (USEPA, 2008).

The biomass fuel supplies would be transported from the supplier(s) to the Frito-Lay manufacturing plant using trucks with a 20 ton loading capacity. The fuel would automatically unload into an outside walking-floor storage area using the live-bottom feeder to move the fuel. From this storage area, the fuel would be further screened and mixed before being transferred into the boiler feed metering bin.

An average of 5 deliveries of wood waste (96 tons of per day) would be delivered to the site via trucks on a daily basis Monday through Friday.

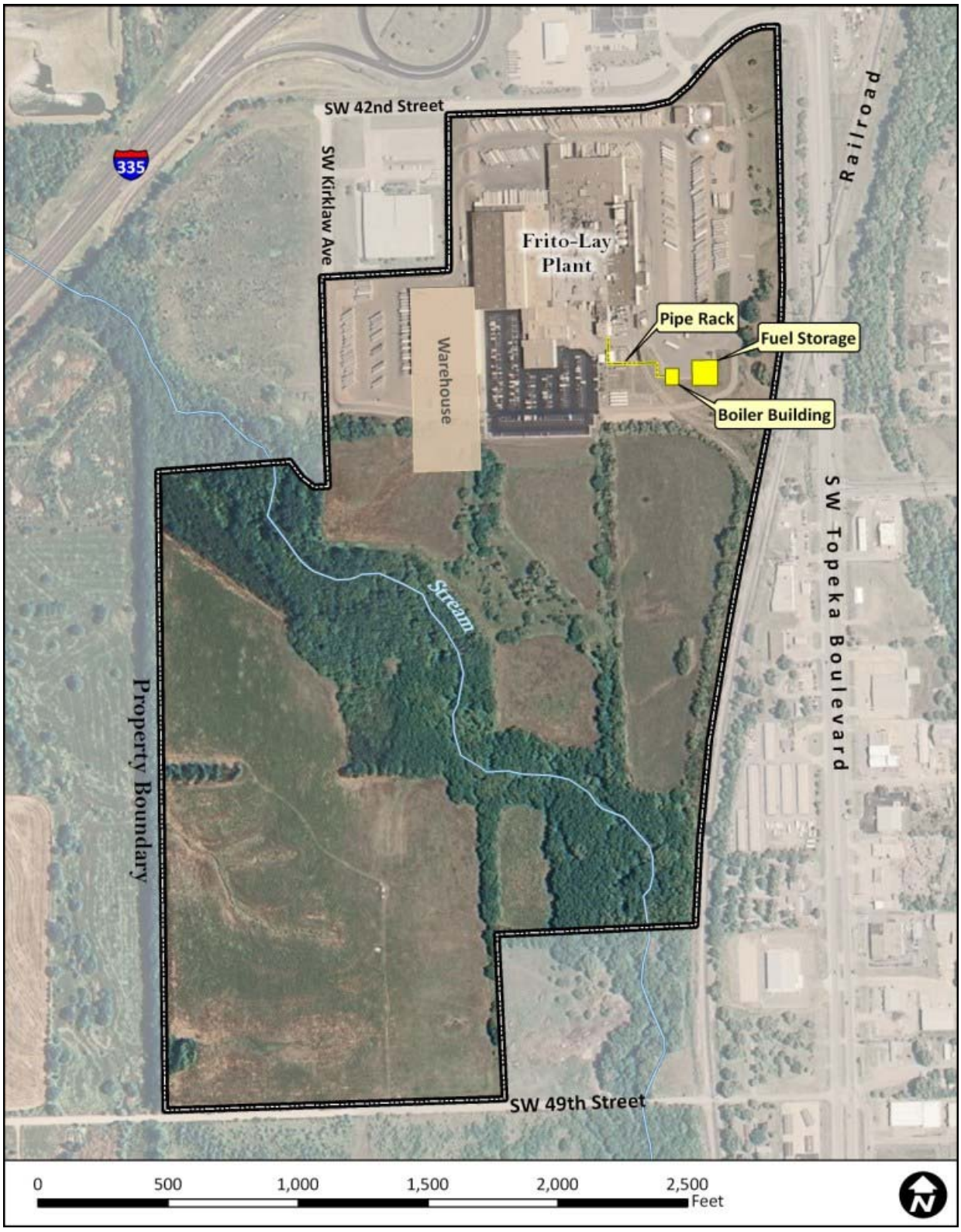

Figure 2-1. Proposed Biomass Energy Center Location

Energy Center Components

The biomass energy center would use a traditional 60,000 lb/hr stoker fired (saturated steam) boiler, with fixed inclined floor. Biomass fuel would be transferred from the fuel storage area to the boiler by way of mechanical conveying (**see Figure 2-2).** The boiler would be able to accept fuel of varying type, size, and moisture content. The system would utilize a combustion air pre-heater to drive moisture from the fuel on the grates, so drying the fuel as part of the preparation is not necessary. The boiler would have an average output of up to 78.3 MMBtu per hour.

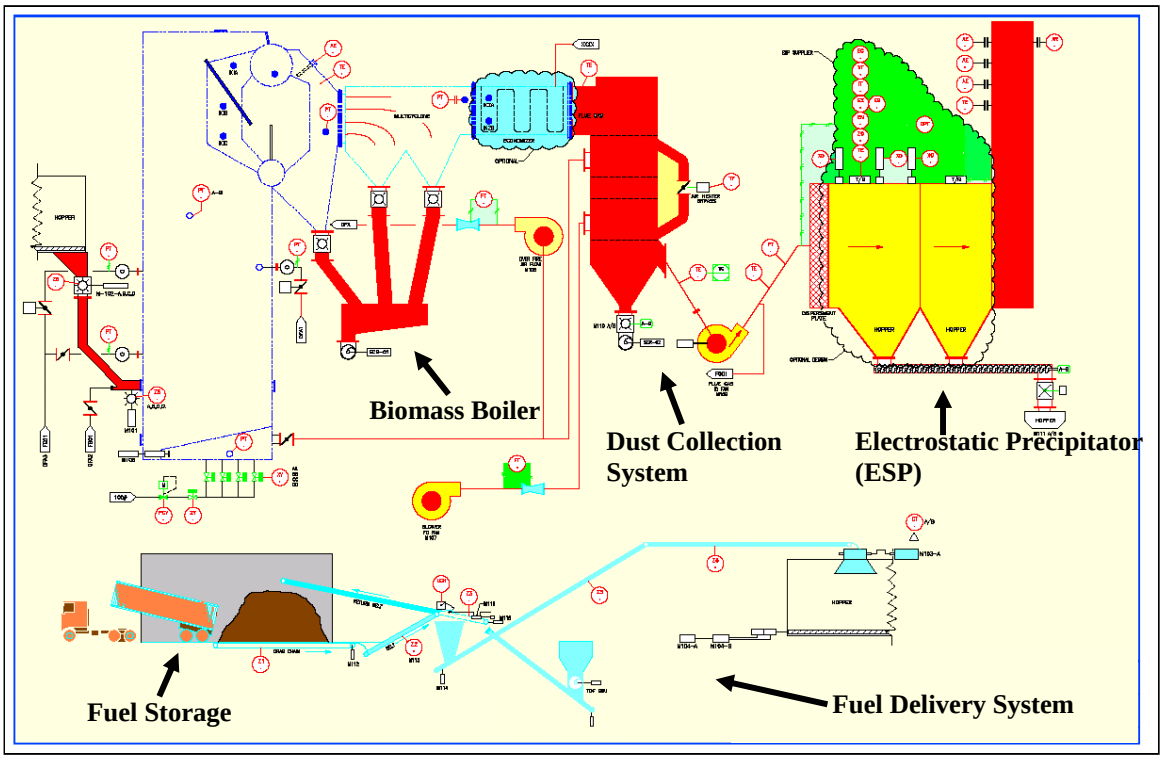

Figure 2-2. System Process Flow Diagram
Source: Burns & McDonnell and CPL, 2009

The boiler design includes two banks of cyclone dust collectors (primary and secondary dust collectors) to control emissions of particulate matter (PM). The flue gas from the boiler would be sent through an electrostatic precipitator to further control PM emissions. Produced ash would also be handled mechanically, and would be transferred from the boiler system to storage bins for disposal.

No excess steam would be generated (no energy would be exported from the site); the boiler output would be adjusted to plant operation needs.

The new biomass energy center would be constructed southeast of the existing manufacturing plant, on land that has been mostly paved and is generally unused (see **Figure 2-3**). The proposed location for the new plant would allow for optimal operational and control integration with the existing plant, and would minimize the length of utility feeders to and from the new plant. The major components of the proposed energy center would include a new metal biomass boiler building and a fuel storage area.

Figure 2-3. Proposed Project Site

The proposed biomass boiler building would have a footprint of approximately 3,400 square feet (sf), and would house a control room and the new boiler equipment. The new boiler would have a stack which would discharge approximately 75 feet above existing grade. The proposed building would be interconnected to the Frito-Lay manufacturing plant by a new pipe rack that would be approximately 360 ft long. Immediately east of the new biomass boiler building, a 10,000 sf area would serve as a fuel delivery and storage area (**see Figure 2-1**).

In total, the proposed biomass energy center would be approximately 13,400 sq. Although most of the land on which the center would be located is already paved, a total of 5,950 sf of new pavement would be required to accommodate the boiler building and fuel storage area, south of where the pavement currently ends.

Construction of all of the components of the proposed biomass energy center is anticipated to take 10-11 months, and would employ a peak of approximately 100-125 construction workers from the local area. Construction equipment used during site preparation and plant installation activities could include bulldozers, backhoes, earth scrapers, motor graders, heavy haul trucks, large tractors, concrete trucks, concrete pavers, and compactors.

If the Proposed Project is implemented, the biomass energy center is anticipated to be operational in August of 2010. The combustor and boiler would have an expected life of a minimum of 30 years. Routine operation of the proposed system would require 6-8 full-time staff during each work shift.

2.3 NO ACTION ALTERNATIVE

Pursuant to 40 CFR 1502.14(d), the No Action alternative must be analyzed. "No Action" means an action would not take place. The No Action Alternative provides a benchmark so that decision makers can compare the magnitude of potential environmental effects of the Proposed Project or alternatives with the conditions that would occur if the action does not take place. Under the No Action alternative, the DOE would not provide funding for the biomass energy center. In reality, construction and operation of the energy center would proceed as described under the Proposed Project, albeit without any federal monetary contribution. However, for the purposes of providing a baseline for describing and quantifying the impacts associated with the Proposed Project, a hypothetical "No Action" alternative, which assumes that the energy center would not be constructed, will be analyzed in this EA. Under the No Action alternative scenario, the Frito-Lay manufacturing plant would continue to consume natural gas in its existing boiler system to meet all of its steam generation needs.

The natural gas for the site is purchased from Kansas Gas Service (formerly known as Kansas Power and Light), which is a division of Oneok. Approximately 78.3 MMBtu of natural gas is consumed in the heating boilers on an hourly basis. Natural gas is delivered via a pipeline distribution system to the site. A diesel engine/generator located at the existing plant provides backup power to a portion of the site. On average, four plant workers maintain the existing boiler system during each work shift.

All water used on the site is delivered by and purchased from the City of Topeka's Public Works Water Division. Sewer water from the plant site, including wastewater discharged from the blowdown systems of the boilers, is discharged to a municipal wastewater treatment plant owned and operated by the City of Topeka's Water Pollution Control Division.

2.4 ALTERNATIVES CONSIDERED BUT DISMISSED

CEQ regulations for implementing NEPA require that Federal agencies explore and objectively evaluate all reasonable alternatives to a proposed action and to briefly discuss the rationale for eliminating any alternatives that are not considered in detail. For this project, several alternative technologies and numerous fuel sources were considered for use at the Frito-Lay manufacturing plant, but were ultimately dismissed from further analysis. These alternatives are described below. This represents the full range of alternatives considered for this action.

An alternative boiler system consisting of a base case (steam and electrical power generation) was originally considered for installation and operation at the Frito-Lay plant. However, due to the low cost of electrical power in the Topeka area and high capital cost for generation equipment, the cogeneration case was eliminated as an option for this project.

Several different combustion technologies were considered and evaluated for installation at the plant, including a fluidized bubbling bed field erected boiler, a gasifier type burner on a traditional packaged boiler, and a direct scroll type burner on a traditional package boiler. These alternatives were eliminated from being viable options at the site due to the emission levels required for NOx from these respective boilers, the low flexibility of the boilers to accept varying fuel types, and the inability of the boilers to handle significant load swings while maintaining steam pressure.

Finally, several fuel sources were considered for use at the manufacturing plant, including green and dry wood waste, pelletized waste, TDF, waste paper and corrugate (cardboard), construction waste, railroad ties, and sludge from waste water treatment (WWT) plants. Process waste from Frito-Lay's Topeka plant was evaluated as well. Of these materials, green and dry wood waste and TDF were found to be the most viable options based on availability, approximate delivered cost, and heat value. From a volume perspective, these combined resources provide the sustainable fuel supply required for the new biomass boiler operation. It was determined that the supply of the alternate fuel sources considered would not be adequate or consistent enough to guarantee that a fuel shortage would not occur.

3.0 AFFECTED ENVIRONMENT

3.1 LAND USE AND SOILS

The Frito-Lay plant is located approximately 3 miles south of downtown Topeka. The plant property is bounded to the west by an open, undeveloped field, and to the north and northwest by SW 42nd Street and SW Kirklawn Avenue, respectively. A railroad and SW Topeka Boulevard are located immediately east of the property. SW 49th Street is located at the southern end of the property. Beyond the property boundaries, industrial facilities are located north and northwest of the plant. Agricultural activities take place south and southwest of the site, and, residential communities are located east of the property (east of SW Topeka Boulevard). The residential communities closest to the plant are single-family middle-class dwellings.

Staff at the Frito-Lay plant manage and maintain several buildings, support structures, and the infrastructure at the plant site. Plant staff also actively maintains the grounds on the site by mowing and brush clearing. The existing tallest points at the site are the existing raw material storage silos, which are approximately 110 feet from ground level. The proposed project area is contained completely within Frito-Lay's existing property boundaries. This property is a secured site, and is dedicated for industrial use.

The plant site is located within the Central Lowland physiographic province, in the vicinity of where the Glaciated and the Osage Cuestas physiographic regions meet. The site is relatively flat, though gently rolling hills can be found in the vicinity. Soils underlying the Frito-Lay plant consist of various clays. The area where the proposed biomass energy center would be located is mostly paved already, and is underlain by Ladysmith silty clay loam soils.

Ladysmith soils are typically found on broad, nearly level erosional uplands and high stream terraces. Slope gradient typically is less than 2 percent and seldom exceeds 3 percent. The Ladysmith soil series consists of very deep, somewhat poorly drained upland soils formed in fine textured sediments. Runoff from Ladysmith soils is high, and permeability is very slow. These soils contain very little sand (NRCS, 2003).

3.2 WATER RESOURCES

Kansas lies within the drainage basin of the Mississippi-Missouri river system. The Kansas River, together with its headstreams and tributaries, drains most of the northern half of the state and flows generally eastward to enter the Missouri River at the adjoining cities of Kansas City, Kansas, and Kansas City, Missouri. The Topeka region has a vast network of drainage channels and streams that flow to the Kansas River. Some of the larger creeks in the area have had serious flooding in the past and are now channelized in levy systems. The Kansas River is also controlled with levies through the City of Topeka.

The only surface waterbody on the Frito-Lay plant site is an unnamed tributary of South Shunganunga Creek, which flows in a northwesterly direction through the southern part

of the plant site (**see Figure 3-1**). South Shunganunga Creek is a tributary of Shunganunga Creek, which in turn flows into the Kansas River north of the plant site.

Shunganunga Creek has the worst overall ranking for water quality parameters of all the monitoring stations in the Mid-Kansas area, with the worst rankings for nutrient concentrations (both total phosphorus and total nitrogen) and very poor rankings for total suspended solids and bacteria (KDHE, 2009a). Section 303 of the Clean Water Act (CWA) has established water quality standards and designated uses of all regulated surface waterbodies in the U.S., which are then enforced by each State. When a State deems a water body impaired, it is placed on the 303(d) List of Impaired Waters. Shunganunga Creek is on the 303(d) List as being impaired due to its elevated nutrient concentrations, low dissolved oxygen concentrations, and high bacteria levels. Another area of concern for the Shunganunga Creek has been identified as the hydrology of the creek and its tributaries (KDHE, 2009a).

The Shunganunga Creek watershed has been identified as an urbanized watershed, in which many streams and tributaries are experiencing lower base flow rates. The lower base flow rates are due to reduced groundwater recharge, because an elevated amount of impervious surfaces in the area has resulted in direct runoff to streams through stormwater sewers with reduced infiltration into the ground. At the same time increased peak flows, and often flooding, occur because major storms have less available infiltration surface area and more rapid delivery of storm water to the stream system (KDHE, 2009a).

Groundwater in the vicinity of the plant site is associated with unconsolidated alluvial glacial deposits. The aquifer underlying the plant is not utilized as a water source in the immediate area, and no groundwater is used onsite.

All water used at the plant is delivered by and purchased from the City of Topeka's Public Works Water Division. The Public Works Water Division obtains its water from the Kansas River and processes it in one of three treatment systems. Sewer water from the plant site, including wastewater discharged from the blowdown systems of the boilers, is discharged to municipal wastewater treatment plants owned and operated by the City of Topeka's Water Pollution Control Division.

The National Pollutant Discharge Elimination System (NPDES) under the CWA prohibits the discharge of any pollutant, including sediments, to waters of the United States. Industrial sites require coverage under the NPDES program. The NPDES program is regulated by the U.S. Environmental Protection Agency (USEPA); within Kansas, the program is administered by the Bureau of Water within the Kansas Department of Health and Environment (KDHE) (KDHE, 2006). The chief requirements of the NPDES permit are a valid Stormwater Pollution Prevention Plan (SWPPP) and a Spill Prevention Control and Countermeasure (SPCC) Plan. The Frito-Lay manufacturing plant site has a valid KDHE issued NPDES permit (General Permit Number S-ISWA-0507-1). The plant site has a permitted stormwater collection system that conveys runoff to the municipal storm sewer system.

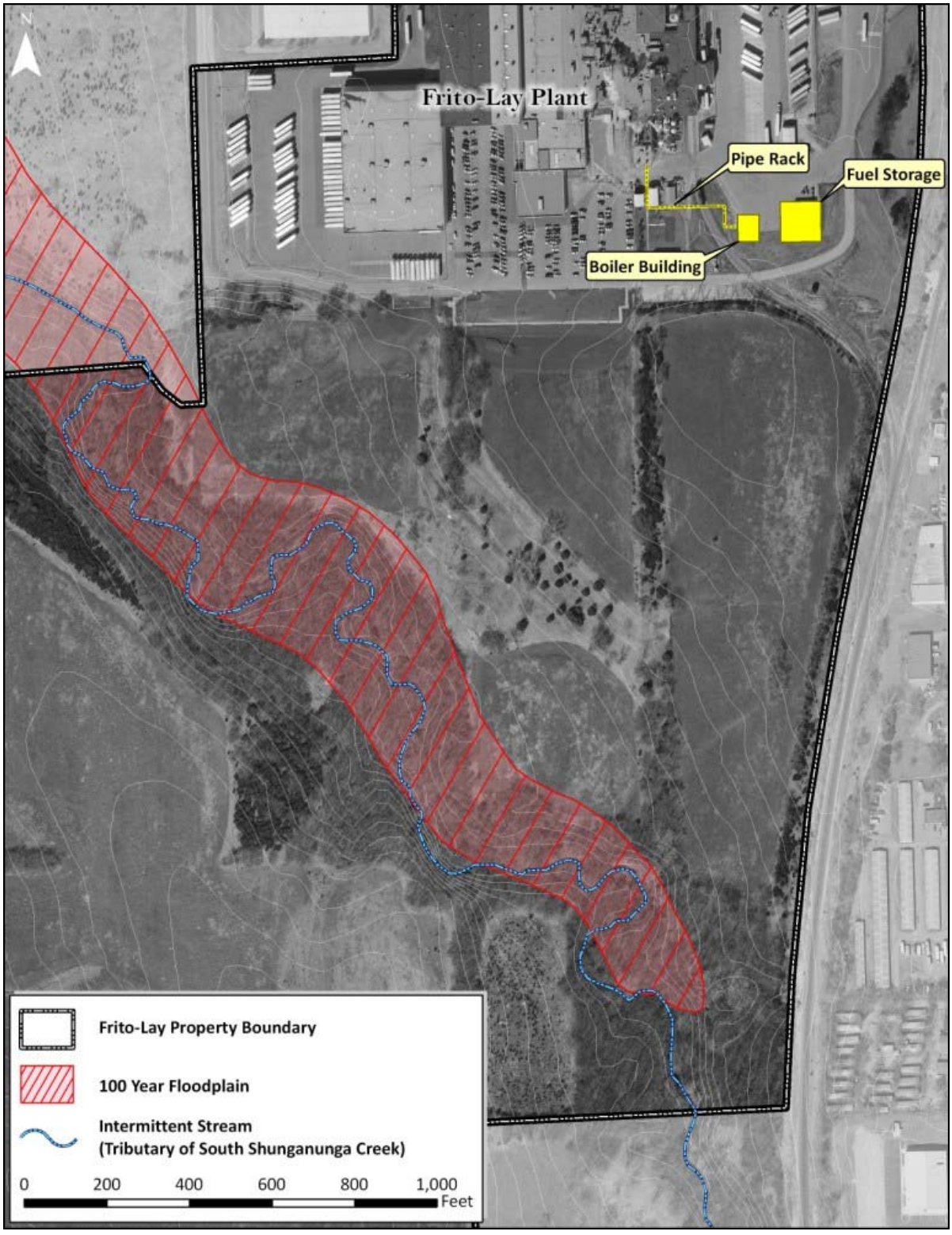

Figure 3-1. Project Water Resources Map

Wetlands and Floodplains

The location of wetlands within the greater Topeka area is predominately along the banks of the Kansas River and its major tributaries. There are no federally classified or other known wetlands on the Frito-Lay manufacturing plant site (NWI, 2009).

The 100-year (1% annual chance) floodplain is associated with the immediate drainage area of the unnamed tributary onsite (**see Figure 3-1**). No structures or plant facilities are located in the floodplain.

3.3 AIR QUALITY

3.3.1 NAAQS and Ambient Air Quality

The USEPA Region 7 and the KDHE regulate air quality in Kansas. The Clean Air Act (CAA) (42 *United States Code* (U.S.C.) 7401-7671q), as amended, gives USEPA the responsibility to establish the primary and secondary National Ambient Air Quality Standards (NAAQS) (40 CFR Part 50) that set acceptable concentration levels for seven criteria pollutants: particles matter (PM_{10}), fine particles ($PM_{2.5}$), sulfur dioxide (SO_2), carbon monoxide (CO), nitrous oxides (NO_x), ozone (O_3), and lead. Short-term standards (1-, 8-, and 24-hour periods) have been established for pollutants that contribute to acute health effects, while long-term standards (annual averages) have been established for pollutants that contribute to chronic health effects. Each state has the authority to adopt standards stricter than those established under the federal program; however, Kansas accepts the federal standards. Federal regulations designate Air-Quality Control Regions (AQCRs) that are in violation of the NAAQS as nonattainment areas and those in accordance with the NAAQS as attainment areas.

Shawnee County (and therefore the Frito-Lay) is in the Northeast Kansas Intrastate AQCR (40 CFR 81.251). USEPA has designated Shawnee County as in attainment for all criteria pollutants (40 CFR 81.317). Because the project area is in an attainment region, the air conformity regulations do not apply. Although the area is in attainment, and the air conformity regulations do not apply, the projects emissions of criteria pollutants and the applicability thresholds under the general conformity rules were carried forward for more detailed analysis to determine the level of impact under NEPA.

3.3.2 Permitting and Existing Air Emission Sources

KDHE oversees programs for permitting the construction and operation of new or modified stationary source air emissions in Kansas. KDHE air permitting is required for many industries and facilities that emit regulated pollutants. Based on the size of the emission units and type of pollutants, KDHE sets permit rules and standards for emission sources. These regulations are consistent with the federal CAA, and are developed to limit air pollution and its effects to human health and welfare. Existing stationary sources at the Topeka Frito-Lay facility include natural gas boilers, ovens, cookers, dehydrators, and extruders. The facility is considered a major source of air emission because it has the Potential-to-Emit (PTE) over 100 tons of NO_x annually. Notably, NO_x is generated primarily from the burning of fossil

fuels and is a precursor to O_3 .The facility is not considered a major source of any other criteria pollutants (i.e. CO, $PM_{2.5}$, PM_{10}, SO_2, or O_3).

Operating Permit. The Frito-Lay facility operates under Class I Operating Permit Number: 1770018 issued by KDHE that meets the requirements outlined under Title V of the CAA (KDHE, 2008). The purpose of the permit is to identify the emission sources, types of pollutants, set emission limitations, and outline monitoring, record keeping and reporting requirements (K.A.R. 28-19-500 et seq. and K.A.R. 28-19-510). Although the facility maintains an operating permit, it still must obtain an air construction permit for modifications that increase the facilities potential-to-emit of any regulated air pollutants, or any other modifications that may trigger other applicable air emission requirements.

Prevention of Significant Deterioration (PSD). The PSD program protects the air quality in from the construction and temporary operation of new sources of air emissions in attainment areas. PSD regulations impose limits on the amount of pollutants that major sources may emit. The PSD process would apply to all pollutants for which the region is in attainment. The PSD permitting process typically takes 18–24 months to complete. Sources subject to PSD are typically required to complete Best Available Control Technology (BACT) review for criteria pollutants, predictive modeling of emissions from proposed and existing sources, and a public involvement process.

State Operating Permit. A state construction permit would be required to construct minor new sources, minor modifications of existing sources, and major sources not subject to PSD permit requirements. The permitting process typically takes 4–5 months to complete. Sources subject to state permitting could be required to complete BACT review for each criteria pollutant, Maximum Achievable Control Technology (MACT) review for regulated Hazardous Air Pollutants (HAPs) and designated categories, and establish procedures for measuring and recording emissions and process rates.

New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAPs). In addition to the permitting requirements to construct and operate new or modified emissions sources, NSPS and NESHAPs set emissions control standards for categories of new stationary emissions sources of both criteria pollutants and HAPs. The NSPS process requires USEPA to list categories of stationary sources that cause or contribute to air pollution that might reasonably be anticipated to endanger public health or welfare. The NSPS program sets uniform emissions limitations for many industrial sources. Biomass boilers with a maximum design heat input capacity of 100 MMBtu/hr or less, but greater than or equal to 10 MMBtu/hr would be subject to 40 CFR 60 Subpart Dc, Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. The CAA requires USEPA to list and promulgate NESHAPs to reduce the emissions of HAPs, such as formaldehyde, benzene, xylene, and toluene from categories of major and area sources (40 CFR Part 63). New stationary sources whose PTE HAPs exceeds either 10 tons per year (tpy) of a single HAP, or 25 tpy of all regulated HAPs, would be subject to MACT requirements.

3.4 NOISE

Sound is a physical phenomenon consisting of vibrations that travel through a medium, such as air, and are sensed by the human ear. Noise is defined as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, or is otherwise intrusive. Human response to noise varies depending on the type and characteristics of the noise, distance between the noise source and the receptor, receptor sensitivity, and time of day. Noise is often generated by activities essential to a community's *quality of life*, such as construction or vehicular traffic.

Sound varies by both intensity and frequency. Sound pressure level, described in decibels (dB), is used to quantify sound intensity. The dB is a logarithmic unit that expresses the ratio of a sound pressure level to a standard reference level. Hertz (Hz) are use to quantify sound frequency. The human ear responds differently to different frequencies. "A-weighing", measured in A-weighted decibels (dBA), approximates a frequency response expressing the perception of sound by humans. Sounds encountered in daily life and their dBA levels are provided in **Table 3-1.**

Table 3-1.
Common Sounds and Their Levels

Outdoor	Sound level (dBA)	Indoor
Snowmobile	100	Subway train
Tractor	90	Garbage disposal
Noisy restaurant	85	Blender
Downtown (large city)	80	Ringing telephone
Freeway traffic	70	TV audio
Normal conversation	60	Sewing machine
Rainfall	50	Refrigerator
Quiet residential area	40	Library

Source: Harris, 1998.

The dBA noise metric describes steady noise levels, although very few noises are, in fact, constant. Therefore, Day-night Sound Level has been developed. Day-night Sound Level (DNL) is defined as the average sound energy in a 24-hour period with a 10-dB penalty added to the nighttime levels (10 p.m. to 7 a.m.). DNL is a useful descriptor for noise because: (1) it averages ongoing yet intermittent noise, and (2) it measures total sound energy over a 24-hour period. In addition, Equivalent Sound Level (L_{eq}) is often used to describe the overall noise environment. L_{eq} is the average sound level in dB.

The Noise Control Act of 1972 (PL 92-574) directs federal agencies to comply with applicable federal, state, interstate, and local noise control regulations. In 1974, the USEPA provided information suggesting continuous and long-term noise levels in excess of DNL 65 dBA are normally unacceptable for noise-sensitive land uses such as residences, schools, churches, and hospitals. The State of Kansas has no statewide noise regulation. The City of Topeka noise ordinance generally prohibits the making of any

loud and excessive noise, but does not set specific not-to-be exceeded sound levels. Demolition and construction activities are specifically prohibited on Sunday, and between the hours of 7:00 p.m. and 7:00 a.m., Monday through Saturday (Topeka Code of Ordinance, Article 5 – Division 2 - Noise).

Noise generated by the Frito-Lay facility as a whole is comparable to a typical light industrial area and is considered compatible with existing noise receptors. Existing sources of noise near the facility include highway and local traffic, rail traffic, high-altitude aircraft overflights, and natural noises such as leaves rustling and bird vocalizations. Although the facility is not adjacent to any major airports, it is adjacent to the Kansas Turnpike (Interstate 335) and a rail spur. Existing noise levels (Leq and DNL) were estimated for the facility and surrounding areas using the techniques specified in the "American National Standard Quantities and Procedures for Description and Measurement of Environmental Sound Part 3: Short-term measurements with an observer present" (**Table 3-2**) (ANSI, 2003). There is a residential neighborhood just to the east of the facility across Topeka Boulevard and the rail spur. Notably, there are no schools, churches, or hospitals within one half mile of the site.

Table 3-2.
Estimated Existing Noise Levels at the Project Site

		Leq (dBA)	
Land Use	**DNL(dBA)**	**Daytime**	**Nighttime**
Light Industrial	60	58	52

Source: ANSI, 2003.

3.5 BIOLOGICAL RESOURCES

3.5.1 Vegetation

Forests in Kansas cover only 4 percent of the state. Much of the woodland is found along river and stream valleys, and tree growth is heaviest in the eastern part of the state. Among the most common trees of eastern Kansas are the cottonwood, oak, hickory, elm, black walnut, sycamore, box elder, green ash, and hackberry (Encarta, 2009)

Before the middle of the 19th century grasslands covered most of the state. In the tallgrass prairie grasslands of the east the most common grasses were big bluestem, little bluestem, switchgrass, and Indian grass. During the second half of the 19th century much of the state's vast grassland area was ploughed over as cultivation was extended throughout the state. The largest remnant is in the Flint Hills, in the southeastern part of the state (KDWP, 2005a)

Vegetative communities on the manufacturing plant property itself are comprised of both upland and lowland communities adapted to the clayey soils present on the site. The northern portion of the site has been cleared and mostly developed; undeveloped areas in the northern property end primarily consist of maintained grasses. In the southern portion of the site, riparian vegetation is associated with the unnamed tributary which crosses the site.

3.5.2 Wildlife

Species diversity for wildlife populations occurring at the plant manufacturing site is limited due to the surrounding land use, the small general size of the site, and the limited access to the site. This is particularly true for the northern, developed portion of the site. There is some habitat in the southern portion of the site to support several species of resident and migratory birds, a few small mammals, and some small reptiles, amphibians, and fish which may be associated with the unnamed tributary onsite.

Small mammals which could be found on the southern portion of the site include red fox, opossum, striped skunk, fox squirrel, and rabbit. Bird species which could be found include cardinal, robin, bluejay, Carolina wren, several species of woodpecker, and meadowlark (Encarta, 2009).

3.5.3 Threatened and Endangered Species

There are two federally endangered species in Shawnee County: the Interior Least tern (*Sterna antillarum*) and the Topeka shiner (*Notropis Topeka*), a small minnow which can be found in portions of the Kansas River and its tributaries (USFWS, 2008).

In addition, there are several state listed species of concern, including the Eskimo curlew, bald eagle, Peregrine falcon, piping plover, whooping crane, American burying beetle, silver chub, and sturgeon chub (KDWP, 2005b). No listed species are currently known to occur in the immediate vicinity of the plant site, and the site provides limited suitable habitat for any of these species.

3.6 INFRASTRUCTURE

3.6.1 Hazardous Materials and Waste Management

The Frito-Lay manufacturing plant is pursuing a Leadership in Energy and Environmental Design (LEED) gold certification for an existing facility. LEED is a green building certification system developed by the U.S. Green Building Council, providing third-party verification that a building or community was designed and built using strategies aimed at improving performance across several metrics such as sustainability, energy savings, water efficiency, carbon dioxide (CO_2) emissions reduction, improved indoor environmental quality, and stewardship of resources and sensitivity to their impacts (USGBC, 2008). The primary qualifications for the LEED gold certification at the Frito-Lay plant are the waste minimization and water and fuel conservation measures that the plant has implemented. Specifically, over 90% of all waste materials at the plant are recycled and the site has a 0% landfilled waste initiative.

Used cooking oil is routinely picked up from the site and recycled at a permitted facility. Additionally, used motor oil, food waste, metals, plastics, cardboard, paper, glass, solvents, electronic waste, and printer cartridges, are all picked up by certified handlers and recycled at permitted facilities.

Hazardous materials are stored at multiple locations on the site, in accordance to all applicable state and federal regulations. Only staff trained in hazardous materials and waste handling and Resource Conservation Recovery Act (RCRA) procedures are allowed to maintain onsite hazardous materials, hazardous wastes, and prepare waste manifests.

3.6.2 Utilities

All utilities provided to the Frito-Lay manufacturing plant come from public sources. Natural gas at the site is purchased from Kansas Gas Service (formerly known as Kansas Power and Light), which is a division of Oneok. Approximately 78.3 MMBtu of natural gas is consumed in the heating boilers on an hourly basis. Natural gas is delivered via a pipeline distribution system to the site. A diesel engine/generator located at the existing plant provides backup power to a portion of the site.

All water used on the site is delivered by and purchased from the City of Topeka's Public Works Water Division. Sewer water from the plant site is discharged to municipal wastewater treatment plants owned and operated by the City of Topeka's Water Pollution Control Division.

3.7 SOCIOECONOMICS

The Frito-Lay manufacturing site is located within the Metropolitan Topeka Planning Organization (MTPO). The planning area of the MTPO comprises 286.73 square miles incorporating the City of Topeka, Kansas and portions of Shawnee County. Topeka is the county seat of Shawnee County and the Capital of Kansas (MTPO, 2007).

The total population of the MTPO area in 2004 was 162,114. By 2034, the MTPO area is projected to have 178,608 persons, which is a 10 percent increase over the 2004 population count. Trends indicate an outward migration of persons from the central areas to suburban portions of the MTPO area.

The service and retail sectors combined account for 50 percent of jobs within the MTPO area. Over the next 30 years, employment is forecasted to increase by 27 percent within the MTPO area, from 102,000 jobs in 2004 to 130,000 by 2034, and service and retail employment are expected to account for much of that growth. Government employment is the third largest supplier of jobs within the MTPO area. Topeka's designation as the state capitol, county seat, and site of federal courthouse, National Guard Armory, and Air National Guard Refueling Wing account for the large numbers of people employed in government. The manufacturing and transportation sector is the fourth largest employment sector in the area (MTPO, 2007). Total unemployment rates in the Topeka area in 2007 were estimated at 6.4%, while Kansas rates were 5.1%, and the U.S. total unemployment rate was estimated at 6.3% (USCB, 2007).

The ten largest non-government employers (in terms of number of employees) within the MTPO area account for nearly 12 percent of all jobs (or 14,800 jobs) within the MTPO area. Frito-Lay is 10th largest non-government employer in the area, with approximately 685 full-time employees.

4.0 ENVIRONMENTAL CONSEQUENCES

This chapter describes the potential environmental consequences of implementing the Burns &McDonnell's Proposed Project and the No Action alternative. Potential impacts are described in terms of type (beneficial or adverse), severity, geographic extent, and duration. This EA was prepared to determine whether the Burns & McDonnell's Proposed Project could cause significant impacts, which would require the preparation of an Environmental Impact Statement (40 CFR 1508.9), or, whether a Finding of No Significant Impact can be issued for the Burns & McDonnell's Proposed Project. **Table 4.1** provides the thresholds used to assess the significance of the potential impacts for each topic and resource evaluated.

Table 4-1: Impact Significance Thresholds

Resource Area	Impact Significance Thresholds An impact would be significant if it EXCEEDS the following conditions
Land use	The project would not contribute to a conversion of large amounts of vicinity land use. Any conflicts with state, regional, or local land use plans are readily resolved with the appropriate agency.
Soil	Any changes in soil stability, permeability, or productivity would be limited in extent. Full recovery would occur in a reasonable time, considering the size of the project. Mitigation, if needed, would be simple to implement and proven to be effective in previous applications.
Water Resources	Any changes to surface water quality or hydrology would be confined to the immediate project area. Full recovery would occur in a reasonable time*, considering the size of the project and the affected area's natural state; any impacts to wetlands or floodplains would be confined to the immediate project area, would not cause any regional impacts, and would be fully mitigated.
Air Quality	The project would not produce emissions that would exceed applicability thresholds, be *regionally significant* as defined under the general conformity rule, or contribute to a violation of any federal, state, or local air regulation.
Noise	Noise from the project would not create substantial areas of incompatible land use or contribute to a violation of any federal, state, or local noise regulation.
Vegetation	Any changes to native vegetation would be limited to a small area and would not affect the viability of the resources. Full recovery would occur in a reasonable time, considering the size of the project and the affected resource's natural state. Mitigation, if needed, would be proven to be effective in previous applications.

Resource Area	Impact Significance Thresholds An impact would be significant if it EXCEEDS the following conditions
Wildlife	Any changes to wildlife would be limited to a small portion of the population and would not affect the viability of the resource. Full recovery would occur in a reasonable time, considering the size of the project and the affected species' natural state.
Threatened or Endangered Species	Any effect to a federally listed species or its critical habitat would be so small that it would not be of any measurable or perceptible consequence to the protected individual or its population. This negligible effect would equate to a "no effect" determination in USFWS terms.
Hazardous Materials	The action, along with planned mitigation measures, would not cause air, water, or soil to be contaminated with any waste materials that pose a threat to human or ecological health and safety.
Utilities	The project would not noticeably affect or disrupt the normal or routine functions of public institutions, electricity and other public utilities and services in the project area.
Socioeconomic Resources	Changes to the normal or routine functions of the affected community are short-term or do not alter existing social or economic conditions in a way that is disruptive or costly to the community.

* Recovery in a reasonable time: Constant, sustainable improvement is apparent and measurable when the site is routinely observed, and full recovery is achieved over a period of no more than several years.

4.1 LAND USE AND SOILS

4.1.1 Burns & McDonnell's Proposed Project

The Burns & McDonnell's Proposed Project would involve ground disturbance southeast of the existing manufacturing plant; the total footprint of disturbance to construct the biomass energy center would be approximately 13,400 sq. Although most of the land on which the center would be located is already paved, a total of 5,950 sf (0.137 acre) of new pavement would be required to accommodate the boiler building and fuel storage area, south of where the pavement currently ends. No fill soil or other fill material is expected to be used onsite.

The area proposed for development is relatively small and is adjacent to several other support structures. The area is contained completely within the manufacturing plant property boundaries. No onsite land use changes would result from implementation of the Burns & McDonnell's Proposed Project. Additionally, no changes to vicinity land use or land use designations would occur. The new boiler would have a stack which would be approximately 75 feet tall, while the existing tall point at the manufacturing plant is 110 feet. As a result, the new center would have no impact on air traffic. A limited amount of

soils, however, can be expected to be disturbed during the construction/development phase of the Burns & McDonnell's Proposed Project.

Construction equipment to be used during site preparation and energy center installation activities could include bulldozers, backhoes, earth scrapers, motor graders, heavy haul trucks, large tractors, concrete trucks, concrete pavers, and compactors. As with almost any construction project involving the use of heavy equipment, there is some risk of an accidental fuel or chemical spill, and the potential contamination of soils. Fuel products (petroleum, oils, lubricant) would be needed to operate and fuel excavation equipment. To reduce the potential for soil contamination, fuels would be stored and maintained in a designated equipment staging area. A person(s) designated as being responsible for equipment fueling would closely monitor the fueling operation, and an emergency spill kit containing absorption pads, absorbent material, a shovel or rake, and other cleanup items, would readily be available on site in the event of an accidental spill. Following these precautions, the potential for an accidental chemical or fuel spill to occur and result in adverse impacts on soils would be negligible.

The use of construction equipment also has the ability to physically disturb soils. Soil disturbance is defined as anything that causes the impairment of physical, chemical and biological properties and processes, such as erosion, compaction, displacement, rutting, burning, loss of organic matter and mass movement of soil (DeLuca, 2001; USDA, 2005). Heavy equipment results in soil compaction, reducing the porosity and conductivity of the soil. Such compaction is likely to slightly increase the amount of surface runoff in the immediate area. Stabilization of the soils will be required to prevent sediment runoff impacts to water sources, which could possibly degrade water quality. Protection of water resources from potential surface runoff is discussed in detail in the Water Resources section, **Section 4.2.1**, below.

The Ladysmith soils which underlay the area of proposed development are relatively flat and characterized by poor drainage and high rates of surface runoff. Soils which have high rates of runoff are more likely to be displaced and result in sediment running off into surface waters. The conversion of 0.137 acres of vegetated and previously unpaved land to developed surfaces will result in some unquantifiable amount of soil disturbance and compaction. The impacts to soils at the proposed project area from both construction and operation activities are expected to be adverse, long-term, and negligible. Overall impacts to both land use and soils from implementation of Burns & McDonnell's Proposed Project would be below the level of significance.

4.1.2 No Action

Under the No Action Alternative, the proposed biomass energy center would not be constructed and therefore no impacts to land use or soils are expected to occur. No operational changes would occur that would impact land use or soils. Thus, Alternative 2 would not result in any impacts to soils.

4.2 WATER RESOURCES

4.2.1 Burns & McDonnell's Proposed Project

Construction

General construction impacts associated with Burns & McDonnell's Proposed Project could affect water resources by increased stormwater runoff being generated from the site which could carry sediment and contamination loads into surface waters during times of heavy rain, and, by contamination from construction activities infiltrating area soils and percolating down into the groundwater. Increased stormwater runoff occurs from developed sites as vegetation is removed and as the amount of impervious surface area increases. Typically, sediment erosion rates from construction sites are 10 to 20 times greater than those from agricultural lands, and 1,000 to 2,000 times greater than those of forest lands. The first flush of rains after a long dry period carries silt from exposed soils, and pollutants deposited on pavement, into surface waterbodies, posing a risk of contaminating water and harming aquatic life.

The NPDES program regulates stormwater discharge from construction activities. Generally, construction sites of less than one acre do not need NPDES permit approval from KDHE in order to proceed, however, the KDHE can require permit authorization if the agency believes that the water quality impact warrants consideration (KDHE, 2006). If required, the chief components of the NPDES permit are a Construction Notice of Intent and development and adherence to a construction specific SWPPP. However, Burns & McDonnell's Proposed Project is not anticipated to warrant any special water quality considerations, and thus, the project would not require coverage under an NPDES construction permit.

Standard construction erosion and sediment controls, including vegetative stabilization practices, structural practices, stormwater management, and other controls as necessary, would be employed and maintained throughout the construction phase of the project. Vigorous use of appropriate Best Management Practices (BMPs) would minimize erosion at the construction site and sediment runoff to all water resources in the vicinity of the proposed construction area.

No site development activities under this alternative are proposed adjacent to floodplains or vicinity wetlands, or, are anticipated to directly impact onsite floodplains or surface waterbodies. Indirect impacts, from erosion and siltation, would be mitigated from impacting the unnamed tributary in the southern portion of the site as a result of incorporating and maintaining erosion and sediment control BMPs during the construction phase of the project.

Although implementation of this alternative would result in a very minor increase of impervious surface area onsite (0.137 acres), and urbanized, developed land is an identified issue in the Shunganunga Creek watershed, this alternative is not likely to have more than a negligible impact on water quality due to the small area of development. The

implementation and adherence to BMPs is expected to minimize any impacts to water quality, and subsequently to aquatic species. Overall impacts to water quality and water resources from site development and construction activities are anticipated to be negligible.

Operation

Once development of the site is complete, runoff from the site would be managed through the existing stormwater collection system. The new biomass energy center would be permitted under Frito-Lay's existing NPDES permit for the site's stormwater discharge. The SWPPP from the existing NPDES permit would, however, require modification in order to address and include the new energy center. It can be assumed that the energy center would be in full compliance with the modified permit, thus limiting impacts to surface water from runoff throughout the life of the project.

During operation, the biomass energy center would require a makeup water feed for the new biomass boiler. The water would be delivered by and purchased from the City of Topeka's existing water system. Additionally, wastewater would be discharged from the blowdown system of the new heating boiler to the City of Topeka's wastewater treatment system. The proposed biomass boiler building would be interconnected to the Frito-Lay manufacturing plant by a new pipe rack, which would include both potable water and wastewater pipelines that would be approximately 360 ft long. There would be no net change in the amount of water consumed or discharged by the proposed biomass energy center when compared to the existing boiler system. As a result, no impacts to water usage would occur from implementation of this alternative.

No additional impacts to groundwater, wetlands, or floodplains, are expected during the operations of the proposed biomass energy center. Operational impacts to water resources from the implementation of Burns & McDonnell's Proposed Project can be expected to be negligible. Overall impacts to water resources from implementation of Burns & McDonnell's Proposed Project would be below the level of significance.

4.2.2 No Action

The current boiler system would continue to operate at the manufacturing plant under the No Action alternative. Water consumption and discharge quantities would remain the same. No additional impacts to surface water groundwater, wetlands, or floodplains are expected from the No Action Alternative.

4.3 AIR QUALITY

4.3.1 Burns & McDonnell's Proposed Project

Implementing Burns & McDonnell's Proposed Project would have both short- and long-term minor adverse effects to air quality. Effects would be due primarily to air emissions during construction, and introducing a new stationary source of air emissions (i.e. the biomass boiler). Increases in emissions would not exceed applicability thresholds, be

regionally significant, or contribute to a violation of any federal, state, or local air regulation.

Estimated Emissions and General Conformity. The general conformity rules require federal agencies to determine whether their action(s) would increase emissions of criteria pollutants above preset threshold levels (40 CFR 93.153(b)). These *de minimis* (of minimal importance) rates vary depending on the severity of the nonattainment and geographic location. Because the region is in attainment, the air conformity regulations do not apply. However, all direct and indirect emissions of criteria pollutants were estimated and compared to applicability threshold levels of 100 tpy to determine whether implementation of Burns & McDonnell's Proposed Project would be significant under NEPA. The total direct and indirect emissions associated with the following activities were accounted for:

- Construction of the new facilities
- Personal operating vehicles for construction workers
- Painting
- Paving
- Personal operating vehicles for employees
- Operation of the new biomass boiler

The total direct and indirect emissions associated with Burns & McDonnell's Proposed Project would not exceed applicability threshold levels (**Table 4-2**). Because the region is an attainment area, there is no existing emission budget. However, due to the limited size and scope of Burns & McDonnell's Proposed Project, it is not anticipated that the estimated emission would make up 10 percent or more of regional emissions for any criteria pollutant and would not be regionally significant. Detailed breakdown of construction emissions are located in **Appendix A**. Operational emissions shown are the gross emissions from the proposed biomass boiler – it was assumed that the boiler would operate on an annual basis, at full capacity half of the time. Net operating emissions would be somewhat less than those outlined, reflecting reductions in existing boilers operations.

Table 4-2.
Project Emissions Compared to Applicability Thresholds

	Annual emissions (tpy)							
Activity	**CO**	**NO_x**	**VOC**	**SO_x**	**PM_{10}**	**$PM_{2.5}$[b]**	***De minimis* threshold (tpy)**	**Would emissions exceed applicability thresholds? [Yes/No]**
Construction	3.45	4.66	<1.0	<1.0	<1.0	<1.0	100	No
Operational[a]	34.3	51.4	8.6	4.3	17.2	17.2		

a Source: Frito-Lay, 2009.
b Conservatively assumed $PM_{2.5} = PM_{10}$.

Regulatory Review. The CAA, as amended in 1990, mandates that state agencies adopt State Implementation Plans (SIPs) that target the elimination or reduction of the severity and number of violations of the NAAQS. SIPs set forth policies to expeditiously achieve and maintain attainment of the NAAQS. Since 1990, Kansas has developed a core of air quality regulations that have been approved by USEPA. These approvals signified the development of the general requirements of the SIP. The Kansas program for regulation of air emissions affects industrial sources, commercial facilities, and residential development activities. Regulation occurs primarily through a process of reviewing engineering documents and other technical information, applying emission standards and regulations in the issuance of permits, performing field inspections, and assisting industries in determining their compliance status with applicable requirements.

As part of these requirements, the KDHE oversees programs for permitting the construction and operation of new or modified stationary source air emissions in Kansas. KDHE air permitting is required for many industries and facilities that emit regulated pollutants. These requirements include, but are not limited to Title V permitting of major sources, New Source Review, Prevention of Significant Deterioration, NSPS for selected categories of industrial sources, and NESHAP. KDHE air permitting regulations do not apply to mobile sources, such as trucks. The installation of the equipment has been evaluated for the applicability of the PSD construction permitting, state construction permitting, and state construction approval. An overview of the applicability of these regulations to the project is outlined in **Table 4-3**.

Table 4-3.
Air Quality Regulatory Review

Regulation	Project Status
New Source Review and State Permitting	The facility is in an attainment area. Therefore, nonattainment new source review does not apply. Since the PTE for the new equipment exceeds the state permitting thresholds for NO_x , PM, and PM_{10}, a construction permit is required.
Prevention of Significant Deterioration (PSD)	Potential emissions would not exceed the 250-tpy PSD threshold. Therefore, the project would not be subject to PSD review.
Title V Permitting Requirements	The boilers PTE would be above the Title V major modification threshold. Therefore, a modification to the Title V permit would be required.
National Emission Standards for Hazardous Air Pollutants	Potential HAP emissions would not exceed NESHAP thresholds. Therefore, the use of Maximum Available Control Technology would not be required.
New Source Performance Standards	The biomass boiler would be subject to NSPS - 40 CFR 60 Subpart Dc, Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units

PSD and State Operating Permit Review. The new biomass boiler PTE was compared to the PSD and state construction permitting thresholds (**Table 4-4**). Since Frito-Lay is currently a minor source with respect to PSD, the PSD permitting thresholds are the major source thresholds. The PTE for the new equipment is below the PSD permitting thresholds for all pollutants, therefore a PSD permit is not required. However, since the PTE for the new equipment exceeds the state permitting thresholds for NO_x, PM, and PM_{10}, a state construction permit is required.

Table 4-4.
Project PTE Compared to Permitting Thresholds

Criteria Pollutant	Biomass Boiler PTE (tpy)	State Constriction Permitting Threshold (tpy)	State Construction Permit Required?	PSD Permitting Threshold (tpy)	PSD Permit Required?
NO_x	102.9	40	Yes	250	No
CO	68.6	100	No	250	No
PM	34.3	25	Yes	250	No
PM_{10}	34.3	15	Yes	250	No
VOC	17.2	40	No	250	No
SO_2	8.6	40	No	250	No

Source: Frito-Lay, 2009 and KDHE, 2009b.

NSPS and NESHAP. The proposed biomass boiler would have heat input of 78.3 MMBtu/hr and would be subject to NSPS 40 CFR 60 Subpart Dc, Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. Emissions of HAPs were calculated using the maximum 7% heat input from tire derived fuel. The maximum emissions of a single HAP would be 6.5 tpy of benzene. The maximum emissions of the total HAP emitted from the boiler would be 19.4 tpy (Frito-Lay, 2009). Therefore, the biomass boiler is not a major source of HAP and there is no need for a case-by-case MACT review under NESHAP

Other Requirements. Other non-permitting requirements may be required through the use of compliant practices and/or products. These regulations are outlined in KDHE regulations: KAR 28-19. They include, but are not limited to:

- KAR 28-19-20 - Particulate Matter Emission Limitations;
- KAR 28-19-650(a)(3) - Opacity Requirements; and
- KAR 28-19-31 - Boiler Requirements.

In addition to those outlined above, no person shall handle, transport, or store any material in a manner that may allow unnecessary amounts of air contaminants to become airborne. During construction and operation reasonable measures may be required to prevent unnecessary amounts of particulate matter from becoming airborne. Such precautions may include, but would not be limited to:

- Use of water for control of dust during construction operations, the grading of roads, or the clearing of land;
- Paving of roadways and maintaining them in a clean condition;
- Covering open equipment for conveying or transporting material likely to create objectionable air pollution when airborne; and,
- Promptly removing spilled or tracked dirt or other materials from paved streets.

Emission Controls. As required by KDHE, the boiler design would include two banks of cyclone dust collectors and an electrostatic precipitator to control emissions of particulate matter. The biomass boiler would combust no more than 7% TDF, and the wood used for fuel would be untreated and not include wood that has been painted, stained, or pressure treated (i.e. CCA, PCP, and creosote) (KDHE, 2009b).

Overall impacts to air quality from implementation of Burns & McDonnell's Proposed Project would be below the level of significance.

4.3.2 No Action

Selecting the No Action Alternative would result in no impact to ambient air-quality. No construction would be undertaken, and no new facility operations would be expected. Ambient air-quality conditions would remain as described in **Sections 3.4.**

4.4 NOISE

4.4.1 Burns & McDonnell's Proposed Project

Implementation of Burns & McDonnell's Proposed Project would have short- and long-term minor adverse effects on the noise environment. These minor increases in noise would primarily be due to the use of heavy equipment during construction and the addition of noise generating equipment associated with the proposed biomass boiler.

Construction

Burns & McDonnell's Proposed Project would require the construction of a boiler building, a fuel storage area, a small access roadway, and the installation of some supporting equipment. Individual pieces of heavy equipment typically generate noise levels of 80 to 90 dBA at a distance of 50 feet (**Table 4-5**). With multiple items of equipment operating concurrently, noise levels can be relatively high during daytime periods at locations within several hundred feet of active construction sites. The zone of relatively high construction noise levels typically extends to distances of 400 to 800 feet from the site of major equipment operations. Locations more than 1,000 feet from construction sites seldom experience appreciable levels of construction noise. The residential neighborhood to the east would have several residences closer than 1000 feet to the site that may experience some amount of construction noise. However, the intervening roadway and rail spur would have a substantial masking effect. Under the

worst-case conditions, the construction noise would be audible, but distant. Given the temporary nature of proposed construction activities, this impact would be minor.

Table 4-5.
Noise Levels Associated with Outdoor Construction

Construction Phase	dBA L_{eq} at 50 feet from Source
Ground Clearing	84
Excavation, Grading	89
Foundations	78
Structural	85
Finishing	89

Source: USEPA, 1971.

Although construction-related noise impacts would be minor, the following BMPs would be performed to reduce further any realized noise impacts, and to insure compliance with Topeka's noise ordinance:

- Construction would primarily occur during normal weekday business hours, and
- Construction equipment mufflers would be properly maintained and in good working order.

Construction noise would dominate the soundscape for all on-site personnel. Construction personnel, and particularly equipment operators, would don adequate personal hearing protection to limit exposure and ensure compliance with federal health and safety regulations.

Operation

Noise generated during operation of the proposed biomass boiler facility is not expected to generate disruptive noise levels. All noise generating equipment such as industrial fans would be completely enclosed by the proposed building. There would be some additional noise associated truck traffic to and from the facility. These effects would be minor. Overall impacts to noise from implementation of Burns & McDonnell's Proposed Project would be below the level of significance.

4.4.2 No Action

Selecting the No Action Alternative would result in no impact to the ambient noise environment. No construction or changes in facility operations would be expected. Ambient noise conditions would remain as described in **Section 3.5**.

4.5 BIOLOGICAL RESOURCES

4.5.1 Burns & McDonnell's Proposed Project

Construction preparation at the proposed biomass energy center site would require the removal of approximately 0.137 acres of a gravel and maintained grass area. No shrubs, trees, or other vegetation would be removed from the site. Any disturbed areas that are not developed would be reseeded with grasses and maintained according to the protocol of the Frito-Lay manufacturing plant. No impacts would occur to the riparian vegetation associated with the unnamed tributary which crosses the southern portion of the site. Impacts to vegetation from the Proposed Action would be negligible.

Most wildlife species that may currently be found within the project area have adapted to living in suburban areas and co-existing with human activity. Many of these same species are also mobile generalist species that use a variety of interspersed and fragmented habitats and range over wide areas for food and cover. Such species include small mammals and migratory birds. Therefore, it is anticipated that wildlife species would be able to avoid the disturbance by relocating to adjacent minimally disturbed areas. Earth-moving activities may result in some unavoidable mortality to burrowing and less mobile fauna. Impacts to wildlife from Burns & McDonnell's Proposed Project are anticipated to be negligible to minor.

Consultations with state and federal natural resource agencies have been completed to ensure that any possible impacts that Burns & McDonnell's Proposed Project may have on ecologically sensitive species will be properly mitigated against. The Kansas Department of Wildlife and Parks indicated that it had no objections to the proposed project and recommended no special mitigation measures, provided construction is started within one year. Additionally, the U.S. Fish and Wildlife Service (USFWS) stated that no federally threatened or endangered species are likely to be present in the project area (see **Appendix B**). Overall impacts to biological resources from implementation of Burns & McDonnell's Proposed Project are anticipated to be below the level of significance.

4.5.2 No Action

The No Action Alternative will not result in any impacts to wildlife or vegetation, as no construction activities or biomass energy center development would occur. Additionally, the No Action Alternative is not anticipated to result in any impacts to threatened or endangered species which may be found in the vicinity of the area.

4.6 INFRASTRUCTURE

4.6.1 Burns & McDonnell's Proposed Project

Hazardous Materials and Waste Management

The construction activities associated with Burns & McDonnell's Proposed Project would generate construction debris waste, which would require proper disposal. Recycling and/or reuse of all discarded materials would occur whenever possible. Any non-hazardous construction debris or other solid waste that cannot be reused or recycled is anticipated to be disposed of by a contractor to an area landfill. The construction contractor would be responsible for ensuring that the waste material generated is properly disposed of. If portable restrooms are brought on site for employee use during the construction period, they would be provided by a private contractor.

Between 1,050 – 5,600 tons of ash would be generated on an annual basis as a result of combusting wood waste in the new energy center (based on 3-16% ash generation of amount of biomass combusted). The waste ash would be sold or donated and then reused either as part of an industrial (e.g. cement) or agricultural (e.g. fertilizer) product, or the waste ash would be landfilled if no suitable reuse plan can be identified.

The Frito-Lay manufacturing plant is pursuing a LEED gold certification for an existing facility. One of the primary qualifications for the LEED gold certification at the Frito-Lay plant is waste minimization. The construction and operation of the proposed biomass energy center would be integrated into the plant's current site procedures, which ensure that over 90% of all waste materials at the plant are recycled and that the site complies with its 0% land fill waste initiative.

Operation of the biomass energy center would potentially produce trace amounts of hazardous waste. Potentially hazardous wastes generated from routine operations could include waste oils containing solvent residuals, solvents and degreasers. Any hazardous wastes generated by the energy center operation would be stored and disposed of according to the Frito-Lay's current procedures, in full compliance with all applicable federal, state, and local regulations. Provided all personnel follow applicable guidelines, impacts from storage or handling of waste materials would be negligible. The overall impact of implementing Burns & McDonnell's Proposed Project on hazardous materials and waste management would be below the threshold of significance.

Utilities

Throughout construction activities, the existing boiler system would be utilized to provide the Frito-Lay manufacturing plant process steam, while the proposed biomass energy center is developed and tested. No disruption of service to the plant would occur.

Approximately 360 feet of pipe rack to extend water, wastewater, and steam piping would be required to connect the new biomass boiler to the existing water and steam

distribution system at the plant. These pipeline additions are anticipated to have no impact on existing utility services at the manufacturing plant, and no increase in the amount of water used or wastewater generated would occur.

Impacts to utilities from Burns & McDonnell's Proposed Project are anticipated to be beneficial and minor over the long-term, due to the planned use of conservation techniques and renewable energy by the Frito-Lay plant. The impact to the natural gas provider from the plant's decrease in gas usage would be negligible. The overall impact of implementing Burns & McDonnell's Proposed Project on utilities would be below the threshold of significance.

4.6.2 No Action

Under the No Action Alternative, the proposed biomass energy center would not be built. No impacts are anticipated to occur to hazardous materials and waste management or to utilities. Infrastructure at the Frito-Lay manufacturing plant would continue to be maintained and operated as under current conditions.

4.7 SOCIOECONOMICS

4.7.1 Burns & McDonnell's Proposed Project

Construction of all of the components of the proposed biomass energy center is anticipated to take 10-11 months, and would employ a peak of approximately 100-125 construction workers from the local area. During the construction phase, the number of jobs created would represent approximately 0.12% of the total jobs in the MTPO area (based on 2004 employment rates). Though this increase in jobs is very minor, it would nonetheless represent a short-term positive impact in an area of somewhat high unemployment in the state. Since the temporary construction workers would generally be recruited from the local areas (within daily commuting distance of the manufacturing plant), there should not be an influx of people for these jobs. Consequently, there is not expected to be any impacts to housing and community services. The increase in job numbers, even temporarily, will likely stimulate economic activity from increased demand of goods and services, which would result in short-term, beneficial, and minor impacts overall.

Once operational, some existing staff at the Frito-Lay manufacturing plant would receive additional training and would operate and perform the daily maintenance tasks for the new center. Additionally, 2-4 new permanent staff positions would be added for operations of the proposed biomass energy center. Though this slight increase in employees at the manufacturing plant would be negligible, it would nonetheless signal positive growth.

The savings to the Frito-Lay manufacturing plant associated with Burns & McDonnell's Proposed Project are based on the reduced consumption of natural gas required in the existing boiler system. Assuming a biomass fuel cost of $2/MMBtu and natural gas cost of $7/MMBtu the following estimated savings are expected; $11,600,000 savings after 5 years of operation and $13,700,000 savings after 6 years of operation. These estimates do

not include any incremental costs associated with utilities nor do they include consideration of the upfront capital costs required to construct the biomass energy center. However, after 6 years of operation, the capital construction costs are anticipated to be paid in full. The savings would represent a long-term, beneficial, and minor impact to the operating budget of the Frito-Lay manufacturing plant.

A fuel purchase agreement would be entered into with the YMRF, as the primary supplier to provide the biomass fuel for the new energy center. The project would have a positive impact on the local economy by utilizing regional forest residue and urban green wood waste sources to displace natural gas that is piped in from sources outside the local area. The overall economic impact of Burns & McDonnell's Proposed Project can be expected to be beneficial, short-term and long-term, and minor. The impact of implementing Burns & McDonnell's Proposed Project on the socioeconomics of the Frito-Lay manufacturing plant and the MTPO region would be below the threshold of significance.

4.7.2 No Action

Under the No Action alternative, the Frito-Lay manufacturing plant would continue to purchase natural gas for use in the existing boiler system. Thus, the annual cost savings of Burns & McDonnell's Proposed Project would not be realized, and the temporary employment and spending associated with the construction phase of the proposed project would not occur. This is likely to result in long-term, adverse, and negligible to minor impacts to the manufacturing plant operations budget.

4.8 CUMULATIVE IMPACTS

CEQ regulations (40 CFR 1508.7) require an analysis of the cumulative impacts resulting from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions, regardless of who undertakes these other actions. Cumulative impacts can result from individually minor, but collectively significant, actions. This cumulative impacts section of the EA addresses only the cumulative effects arising from considering Burns & McDonnell's Proposed Project in combination with other ongoing actions in the vicinity of the Frito-Lay manufacturing plant in Topeka.

The Frito-Lay Topeka manufacturing plant has experienced recent growth and is planning further growth in the foreseeable future. In 2007, the plant added 116 acres to the southern edge of the original 50-acre property line. Additionally, the plant recently constructed a 30,000 square foot energy efficient process and warehouse building addition adjacent to the existing plant buildings. The warehouse incorporated LEED practices such as the use of recycled materials, energy-efficient lighting, natural lighting, high-efficiency motors, and construction waste management.

Future plans at the plant include adding its Tostitos Scoops! tortilla chips line to production (Topeka Capital-Journal, 2009) and increasing warehouse and production space. Cumulatively, the impacts from these actions beneficially affect long-term job security for the staff at the plant and for area employment.

Regionally, the area south of the manufacturing plant is becoming more developed; Target Corporation opened a new distribution center, employing 650 people, in 2004. The Frito-Lay plant site and areas south of the site encompassing Forbes Field has been identified as a Planned Economic Growth Area in the City-approved Topeka Land Use and Growth Management Plan (MTPO, 2007). Any future plant expansion would contribute cumulatively beneficial impacts to the area's economy.

Plant expansion combined with vicinity growth would, however, likely contribute to an increase in impervious surface within the region's watershed, the Shunganunga Creek watershed. This watershed has been identified as an urbanized watershed, in which many streams and tributaries are experiencing lower base flow rates, which is a concern to the KDHE (KDHE, 2009a). While this project contributes only negligible impacts to increased impervious surface area in the region, any future site development should take into account the cumulative impacts of development on the watershed and mitigate accordingly.

On an airshed level, the State of Kansas takes into account the effects of all past, present, and reasonably foreseeable emissions during the development of the SIP. The state accounts for all significant stationary, area, and mobile emission sources in the development of this plan. Estimated emissions generated by Burns & McDonnell's Proposed Project would be *de minimis* and would not be regionally significant. Therefore, it is not anticipated that the Burns & McDonnell's Proposed Project would contribute significantly to adverse cumulative effects to air quality.

Overall, the cumulative impacts of the proposed biomass energy center, when considered with other ongoing actions in the vicinity of the Frito-Lay manufacturing plant in Topeka, would not have a significant impact on the environment.

4.9 MITIGATION MEASURES

All future actions proposed as part of this project should employ the following mitigation measures to ensure that environmental impacts from construction and operation of the project are minimized to the greatest extent possible. Adherence to the following mitigation measures, in conjunction with adherence to all applicable and appropriate local, state, and federal regulations and permits, should ensure that the construction and operation of the biomass energy center at the Frito-Lay manufacturing plant in Topeka has no significant impacts to the environment.

Soil

- Incorporate and maintain BMPs at all construction areas; BMPs typically consist of various erosion and sediment control measures such as silt fences, straw bales, and other temporary measures to be placed in ditches and along portions of the site perimeter to control erosion during construction activities. These temporary erosion prevention measurements should be maintained in place until the site vegetation is firmly established and soil has stabilized. Regular inspections of the

erosion and sediment control measures should be performed after any storm event.

- Store and maintain all fuels in a designated equipment staging area to reduce the potential for soil contamination. Closely monitor the fueling operation, and have an emergency spill kit containing absorption pads, absorbent material, a shovel or rake, and other cleanup items, readily available on site in the event of an accidental spill.

Water Resources

- Place erosion control structures around construction site perimeters during all construction and demolition activities. To the extent practicable, sediment runoff from the site should be captured and prevented from entering the unnamed tributary in the southern portion of the site.

Air Quality

- Continue to implement reasonable measures, such as applying water to exposed surfaces or stockpiles of soil, when windy and/or dry conditions promote problematic fugitive dust emissions. Adhering to these BMPs would minimize any fugitive dust emissions.

Biological Resources

- Use weed-free vegetation sources for seeding/mulching activities and use native grasses and forbs to permanently re-vegetate all unpaved areas disturbed by construction activities.

Waste Management

- Continue to recycle and/or reuse as many materials as possible during the construction and operation phases of the project in order to minimize the amount of waste generated by the biomass energy center. All hazardous waste and materials stored and/or generated at the development should be properly and uniformly labeled and housed in appropriate storage facilities.

5.0 CONTACTS AND COORDINATION

Federal, State, and local agencies were consulted during the data collection process in August, 2009. Agencies were contacted by letter, electronic mail or by telephone during the course of the study. The agencies and people contacted are listed below. **Appendix B** includes a compilation of all the response letters that were received from the agencies contacted during the scoping process and any follow-ups for this EA.

Federal Agencies:

U.S. Fish and Wildlife Service, Kansas Field Office

State and Local Agencies:

KDHE, Bureau of Water, Industrial Programs Section
KDHE District Office, Shawnee County Health Agency
KDHE Environmental Field Services
Kansas State Historical Society, Cultural Resources Division
Kansas Department of Wildlife & Parks, Environmental Services Section
Shawnee County Conservation District

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7.0 DOCUMENT PREPARERS

The contractor responsible for preparing this EA:

Mangi Environmental Group
7927 Jones Branch Drive, Suite 150
McLean, VA 22102
703-760-4801

The following Mangi Environmental Group personnel were principal contributors to this EA:

Name and Document Contribution	**Associated Professional Expertise**
Anna Lundin, **MS Environmental Engineering** Project Management, Water, Soils, Infrastructure, Biological Resources, Socioeconomics	11 years experience: Watershed analyses, Phase I/II environmental site assessments, Environmental Baseline Surveys, EAs/EISs
Mark Blevins, MS Geography Mapping, GIS-based data & analysis	7 years experience: GIS specialist: ArcGIS 8.3 - 9.1, ArcVIEW 3.2, GPS: Trimble GeoExplorer, Garmin GPS III – V Plus, Pathfinder Office software
Jim Mangi, Ph.D., Ecology Project Oversight	30 years experience: recognized as a NEPA expert; has assisted the U.S. Army and five other Federal and State agencies in the development of their NEPA regulations and guidance.
Timothy Lavallee, P.E. **LPES, Inc. Engineering and Planning** Air Quality, Noise	16 Years of Experience M.S., Environmental Health, Tufts University, Medford, Massachusetts. B.S., Mechanical Engineering, Northeastern University, Boston, Massachusetts.

APPENDIX A

AIR EMISSIONS CALCULATIONS

Construction Emissions

Table A-1 Construction Equipment Use

Equipment Type	Number of Units	Days on Site	Hours Per Day	Operating Hours
Excavators Composite	1	86	4	345
Rollers Composite	1	130	8	1038
Rubber Tired Dozers Composite	1	86	8	690
Plate Compactors Composite	2	86	4	690
Trenchers Composite	2	44	8	696
Air Compressors	2	86	4	690
Cement & Mortar Mixers	2	86	6	1035
Cranes	1	86	7	604
Generator Sets	2	86	4	690
Tractors/Loaders/Backhoes	2	173	7	2415
Pavers Composite	1	44	8	348
Paving Equipment	2	44	8	696

Table A-2 Construction Equipment Emission Factors (lbs/hour)

Equipment	CO	NO_x	VOC	SO_x	PM_{10}	$PM_{2.5}$
Excavators Composite	0.5828	1.3249	0.1695	0.0013	0.0727	0.0727
Rollers Composite	0.4341	0.8607	0.1328	0.0008	0.0601	0.0601
Rubber Tired Dozers Composite	1.5961	3.2672	0.3644	0.0025	0.1409	0.1409
Plate Compactors Composite	0.0263	0.0328	0.0052	0.0001	0.0021	0.0021
Trenchers Composite	0.5080	0.8237	0.1851	0.0007	0.0688	0.0688
Air Compressors	0.3782	0.7980	0.1232	0.0007	0.0563	0.0563
Cement and Mortar Mixers	0.0447	0.0658	0.0113	0.0001	0.0044	0.0044
Cranes	0.6011	1.6100	0.1778	0.0014	0.0715	0.0715
Generator Sets	0.3461	0.6980	0.1075	0.0007	0.0430	0.0430
Tractors/Loaders/Backhoes	0.4063	0.7746	0.1204	0.0008	0.0599	0.0599
Pavers Composite	0.5874	1.0796	0.1963	0.0009	0.0769	0.0769
Paving Equipment	0.0532	0.1061	0.0166	0.0002	0.0063	0.0063

Source: CARB 2007

Table A-3 Construction Equipment Emissions (tons)

Equipment	CO	NO_x	VOC	SO_x	PM_{10}	$PM_{2.5}$
Excavators Composite	0.1005	0.2285	0.0292	0.0002	0.0125	0.0125
Rollers Composite	0.2253	0.4467	0.0689	0.0004	0.0312	0.0312
Rubber Tired Dozers Composite	0.5506	1.1272	0.1257	0.0008	0.0486	0.0486
Plate Compactors Composite	0.0091	0.0113	0.0018	0.0000	0.0007	0.0007
Trenchers Composite	0.1768	0.2867	0.0644	0.0002	0.0240	0.0240
Air Compressors	0.1305	0.2753	0.0425	0.0002	0.0194	0.0194
Cement and Mortar Mixers	0.0232	0.0340	0.0058	0.0001	0.0023	0.0023
Cranes	0.1815	0.4860	0.0537	0.0004	0.0216	0.0216
Generator Sets	0.1194	0.2408	0.0371	0.0002	0.0148	0.0148
Tractors/Loaders/Backhoes	0.4907	0.9353	0.1454	0.0009	0.0723	0.0723
Pavers Composite	0.1022	0.1878	0.0342	0.0002	0.0134	0.0134
Paving Equipment	0.0185	0.0369	0.0058	0.0001	0.0022	0.0022
Total	**2.13**	**4.30**	**0.61**	**0.0038**	**0.26**	**0.26**

Table A-4 Delivery of Equipment and Supplies

Number of Deliveries	2					
Number of Trips	2					
Miles Per Trip	30					
Days of Construction	173					
Total Miles	20700					
Pollutant	**CO**	**NO_x**	**VOC**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Emission Factor (lbs/mile)	0.0219	0.0237	0.0030	0.0000	0.0009	0.0007
Total Emissions (lbs)	454.35	490.85	61.95	0.53	17.72	15.30
Total Emissions (tons)	**0.23**	**0.25**	**0.03**	**0.0003**	**0.01**	**0.01**

Source: CARB 2007

Table A-5 Paving Off Gasses

VOC Emissions Factor	2.62	lbs/acre	
Building/Facility	**Area [acres]**	**VOC [lbs]**	**VOC [tons]**
All Combined Parking	0.22	0.56	0.0003
Total	**0.22**	**0.56**	**0.0003**

Source: SQAQMD 1993

Table A-6 Surface Disturbance

TSP Emissions	80	lb/acre				
PM10/TSP	0.45					
PM2.5/PM10	0.15					
Period of Disturbance	30	days				
Capture Fraction	0.5					
Building/Facility	**Area [acres]**	**TSP[lbs]**	**PM_{10}[lbs]**	**PM_{10}[tons]**	**$PM_{2.5}$[lbs]**	**$PM_{2.5}$[tons]**
All Facilities	0.5	1232	554	0.28	42	0.02
Total	**0.5**	**1232**	**554**	**0.28**	**42**	**0.02**

Sources: USEPA, 1995; USEPA 2005.

Table A-7 Worker Commutes

Number of Workers	20					
Number of Trips	2					
Miles Per Trip	30					
Days of Construction	173					
Total Miles	207000					
Pollutant	**CO**	**NO_x**	**VOC**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Emission Factor (lbs/mile)	0.0105	0.0011	0.0011	0.0000	0.0001	0.0001
Total Emissions (lbs)	2183.53	228.30	223.39	2.22	17.61	10.96
Total Emissions (tons)	**1.09**	**0.11**	**0.11**	**0.0011**	**0.01**	**0.01**

Source: CARB 2007

Table A-8 Total Construction Emissions (tons)

Activity/Source	**CO**	**NO_x**	**VOC**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Construction Equipment	2.13	4.30	0.61	0.0038	0.26	0.26
Delivery of Equipment and Supplies	0.23	0.25	0.03	0.0003	0.01	0.01

Paving Off Gasses	0.00	0.00	0.00	0.0000	0.00	0.00
Surface Disturbance	0.00	0.00	0.00	0.0000	0.28	0.02
Worker Commutes	1.09	0.11	0.11	0.0011	0.01	0.01
Total Construction Emissions	**3.45**	**4.66**	**0.75**	**0.0052**	**0.56**	**0.30**

Appendix A References:

(CARB 2007a) California Air Resources Board. 2007a. *EMFAC 2007 (v2.3) Emission Factors (On-Road).* California Air Resources Board, Sacramento, CA.

(CARB 2007b) California Air Resources Board. 2007b. *EMFAC 2007 (v2.3) Emission Factors (Off-Road).* California Air Resources Board, Sacramento, CA.

(SQAQMD 1993) South Coast Air Quality Management District. 1993. *CEQA Air Quality Handbook*. South Coast Air Quality Management District, Diamond Bar, CA.

(USEPA 2005) U.S. Environmental Protection Agency. 2005. *Methodology to Estimate the Transportable Fraction (TF) of Fugitive Dust Emissions for Regional and Urban Scale Air Quality Analyses.* U.S. Environmental Protection Agency, Washington, D.C.

APPENDIX B

AGENCY CORRESPONDENCE

KANSAS

DEPARTMENT OF HEALTH
AND ENVIRONMENT
Division of Environment

Mark Parkinson, Governor
Roderick L. Bremby, Secretary

www.kdheks.gov

November 10, 2009

Roy G. Spears
NEPA Document Manager
National Energy Technology Laboratory
U.S. Department of Energy
3610 Collins Ferry Road
Morgantown, West Virginia 26505

Re: Frito-Lay Biomass Energy Center
Topeka, Kansas

Dear Mr. Spears:

Pursuant to a November 5, 2009, letter from Ms. Anna M. Lundin, Project Manager for the Mangi Environmental Group, regarding the development of an Environmental Assessment to assess the potential environmental, social, and cultural impacts attributable to the proposed project and soliciting our comments and concerns about potential impacts to wildlife or vegetation within, or in the vicinity of the project area.

The Kansas Department of Health and Environment (KDHE) does not have any objection to the proposal but offers the following comments for review and consideration:

Any construction activity which disturbs 1 acre or more is required to file a National Pollutant Discharge Elimination System (NPDES) permit application for stormwater runoff resulting from construction activities. The project owner (the party responsible for the project) must obtain authorization from KDHE to discharge stormwater runoff associated with construction activities prior to commencing construction. The Kansas construction stormwater general permit, a Notice of Intent (application form), a frequently asked questions file and supplemental materials are on-line on the KDHE Stormwater Program webpage at www.kdhe.state.ks.us/stormwater. Answers to questions regarding or additional information concerning construction stormwater permitting requirements can be obtained by calling (785) 296-5549.

Frito-Lay's National Pollutant Discharge Elimination System (NPDES) Stormwater Discharge Permit Associated With Industrial Activities (G-KS72-0004) will need to have the Stormwater Pollution Prevention Plan (SWPPP) modified to address the proposed activity, if the project is implemented at the facility.

DIVISION OF ENVIRONMENT
Bureau of Water – Industrial Programs Section
CURTIS STATE OFFICE BUILDING, 1000 SW JACKSON ST., STE. 420, TOPEKA, KS 66612-1367
Voice 785-296-5547 Fax 785-296-0086 Email dcarlson@kdheks.gov

Information regarding possible impacts on wildlife and in particular Threatened and Endangered Species can be obtained by contacting:

Mr. James Larson
Environmental Services Section
Kansas Department of Wildlife and Parks
512 SE 2nd Ave.
Pratt, Kansas 67124-8174
(620) 672-0795

Information regarding air quality permitting issues should be directed to Marian Massoth, Chief of the KDHE Air Operating Permit and Construction Permit Section in the Bureau of Air. Ms. Massoth can be contacted by calling (785) 296-0616.

Since the proposed operation may generate ash requiring solid waste permitting or disposal, I recommend you contact Mr. Dennis Degner, Chief of the Solid Waste Permits Section in our Bureau of Waste Management regarding any applicable solid waste issues or requirements. Mr. Degner can be contacted by calling (785) 296-1601.

Should you have any questions regarding this letter, please feel free to call me at (785) 296-5547.

Sincerely,

Donald R. Carlson

Donald R. Carlson, P.E., Chief
Industrial Programs Section
Bureau of Water

KANSAS
DEPARTMENT OF WILDLIFE AND PARKS

Mark Parkinson, Governor
J. Michael Hayden, Secretary
www.kdwp.state.ks.us

November 16, 2009

Mr. Roy G. Spears
NEPA Document Manager
National Energy Technology Laboratory
US Department of Energy
3610 Collins Ferry Road
Morgantown WV 26505

Ref: D6.1000
Shawnee

RE: Proposed Development & Demonstration of a Biomass Energy Center; Frito-Lay Manufacturing Plant

Dear Mr. Spears:

This project was reviewed for potential impacts on crucial wildlife habitats, current state-listed threatened and endangered species and species in need of conservation, and public recreation areas for which this agency has some administrative authority.

We have no objections to the proposed project as designed and simply recommend implementing standard erosion control BMPs, temporary weed-free seeding/mulching to protect water quality during construction, minimize any instream/wetland construction activities and we suggest the use of native grasses and forbs to permanently revegetate all areas disturbed by construction.

Results of our review indicate there will be no significant impacts to crucial wildlife habitats; therefore, no special mitigation measures are recommended. The project will not impact any public recreational areas, nor could we document any potential impacts to currently listed threatened or endangered species or species in need of conservation. No Department of Wildlife and Parks permits or special authorizations will be needed if construction is started within one year, and no design changes are made in the project plans. Since the Department's recreational land obligations and the State's species listings periodically change, if construction has not started within one year of this date, or if design changes are made in the project plans, the project sponsor must contact this office to verify continued applicability of this assessment report. For our purposes, we consider construction started when advertisements for bids are distributed.

Thank you for the opportunity to provide these comments and recommendations. If you have any questions or concerns, please contact me at (620)-672-0798 or ericj@wp.state.ks.us.

Sincerely,

Eric R. Johnson, Ecologist

cc: Liechti, KBS

KANSAS

KSR&C No. 09-11-117

Kansas Historical Society
Jennie Chinn, *Executive Director*

MARK PARKINSON, GOVERNOR

November 16, 2009

Roy G. Spears
NEPA Document Manager
National Energy Technology Laboratory
US Department of Energy
3610 Collins Ferry Road
Morgantown WV 26505

Re: Biomass Energy Center, Frito-Lay Plant, Topeka
Shawnee County

Dear Mr. Spears:

Our staff has reviewed the materials received November 9, 2009, regarding the above referenced project in accordance with 36 CFR 800. The SHPO has determined the proposed project will not adversely affect any property listed or eligible for listing in the National Register of Historic Places. Please refer to the Kansas State Review & Compliance number (KSR&C#) listed above on any future correspondence.

If you have any questions regarding this review, please contact Kim Norton Gant (785) 272-8681 ext. 225.

Sincerely,

Jennie Chinn
State Historic Preservation Officer

Patrick Zollner Director,
Cultural Resources Division
Deputy State Historic Preservation Officer

6425 SW 6th Avenue • Topeka KS 66615-1099
Phone 785-272-8681, ext. 205 • Fax 785-272-8682 • jchinn@kshs.org • TTY 785-272-8683
kshs.org

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Kansas Ecological Services Field Office
2609 Anderson Avenue
Manhattan, Kansas 66502

December 3, 2009

Roy Spears, NEPA Document Manager
National Energy Technology Laboratory
US Department of Energy
3610 Collins Ferry Road
Morgantown, WV 26505

RE: Biomass Energy Center, Frito-Lay FWS Tracking # 2010-CPA-0097

Dear Mr. Spears:

This is in response to your letter dated November 5, 2009, requesting comment on the proposed Biomass Energy Center to be located at the Frito-Lay manufacturing plant in Topeka, Shawnee County, Kansas.

Based on review of the proposed action and the land uses on site, I conclude that no federally-threatened or endangered species are likely to be present in the project area.

Thank you for this opportunity to comment on the proposal. If we can be of any further assistance, please call Ms. Michele McNulty, of my staff, at 785-539-3474 ext. 106.

Sincerely,

Michael J. LeValley
Field Supervisor

cc: KDWP, Pratt, KS (Environmental Services)

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Kansas Ecological Services Field Office
2609 Anderson Avenue
Manhattan, Kansas 66502

February 12, 2010

Jesse Garcia
DOE NEPA Document Manager
DOE National Energy Technology Laboratory
P.O. Box 880
Morgantown, WV 26507

RE: DEA Biomass Energy Center – Frito-Lay FWS Tracking # 2010-CPA-0224

Dear Mr. Garcia:

We have reviewed the Draft Environmental Assessment (DEA), received January 15, 2010 for the Development and Demonstration of a Biomass Energy Center for Food Processing Applications at the Frito-Lay Manufacturing Plant, Topeka, Shawnee County, Kansas.

The DEA analyzes the potential environmental impacts of providing funding for the above described project. The project would involve the design, installation and demonstration of an innovative biomass boiler pilot project that would offset 100% of the natural gas consumption used for process steam generation at the Frito-Lay manufacturing plant. Supporting research efforts would identify and document biomass boiler controls, sizing, integration and cost competiveness issues to promote wider replication and adoption of this technology within the food processing industry.

General Comments

The U.S. Fish and Wildlife Service (USFWS) appreciate the coordination between the Service, and the Department of Energy throughout the development of this DEA, and value efforts made to address our concerns. Our previous comments have been incorporated in this version of the document.

Thank you for the opportunity to comment on this proposed project. If you have questions regarding these comments, please contact Michele McNulty of the Kansas Ecological Services Office, at 785-539-3474 X 106.

Sincerely,

Michael J. LeValley
Field Supervisor

cc: KDWP, Pratt, KS (Environmental Services)