Montana Department of
ENVIRONMENTAL QUALITY
Brian Schweitzer, Governor
P. O. Box 200901 Helena, MT 59620-0901 (406) 444-2544 Website: www.deq.mt.gov

PRELIMINARY DETERMINATION
ON PERMIT APPLICATION

Date of Mailing: August 31, 2009

Name of Applicant: Southern Montana Electric Generation and Transmission Cooperative, Inc. – Highwood Generating Station Natural Gas Plant

Source: Stationary Natural Gas-Fired Combustion Turbines for Electrical Power Generation

Proposed Action: The Department of Environmental Quality (Department) proposes to issue a permit, with conditions, to the above-named applicant. The application was assigned Permit Application Number 4429-00.

Proposed Conditions: See attached.

Public Comment: Any member of the public desiring to comment must submit such comments in writing to the Air Resources Management Bureau (Bureau) of the Department at the above address. Comments may address the Department's analysis and determination, or the information submitted in the application. In order to be considered, comments on this Preliminary Determination are due by September 30, 2009. Copies of the application and the Department's analysis may be inspected at the Bureau's office in Helena. For more information, you may contact the Department.

Departmental Action: The Department intends to make a decision on the application after expiration of the Public Comment period described above. A copy of the decision may be obtained at the above address. The permit shall become final on the date stated in the Department's Decision on this permit, unless an appeal is filed with the Board of Environmental Review (Board).

Procedures for Appeal: Any person jointly or severally adversely affected by the final action may request a hearing before the Board. Any appeal must be filed by the date stated in the Department's Decision on this permit. The request for a hearing shall contain an affidavit setting forth the grounds for the request. Any hearing will be held under the provisions of the Montana Administrative Procedures Act. Submit requests for a hearing in triplicate to: Chairman, Board of Environmental Review, P.O. Box 200901, Helena, MT 59620.

For the Department,

Vickie Walsh

Vickie Walsh
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Air Resources Management Bureau
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VW:BL
Enclosures

DEPARTMENT OF ENVIRONMENTAL QUALITY
Permitting and Compliance Division
Air Resources Management Bureau
P.O. Box 200901, Helena, Montana 59620
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DRAFT ENVIRONMENTAL ASSESSMENT (EA)

Issued To: Southern Montana Electric Generation and Transmission Cooperative, Inc. – Highwood Generating Station Natural Gas Plant

Air Quality Permit Number: 4429-00

Preliminary Determination Issued: August 31, 2009
Department Decision Issued:
Permit Final:

1. *Legal Description of Site*: Sections 24 and 25, Township 21 North, Range 5 East, Cascade County, Montana

2. *Description of Project*: Southern Montana Electric Generation and Transmission Cooperative, Inc. (SME) proposes to construct and operate a natural gas-fired power plant and combust natural gas at the Highwood Generation Station (HGS) facility ("the Project"), to generate electrical power. The proposed action is to issue Montana Air Quality Permit #4429-00 to SME, allowing construction and operation of two natural gas combustion turbines for electric power generation. Initially, the gas plant was planned as an addition to the formerly permitted HGS coal plant facility (MAQP #3423-01). Following submission of the HGS gas plant application, SME requested that the Department revoke MAQP #3423-01 for the HGS coal plant. Revocation of MAQP #3423-01 became final on August 20, 2009. The proposed HGS gas plant would be located within the existing boundary of the property on which the HGS coal plant was to have been built. SME proposes to build a 120-megawatt (MW) natural gas-fired power plant located approximately eight miles east-northeast of Great Falls, Montana, within Sections 24 and 25, Township 21 North, Range 5 East, Cascade County, Montana (Figure 1.) (Stanley, 2009a).

   Figure 2. is an image of how the gas plant facility would generally appear. The proposed Project would consist of consist of the following main structures: 2 simple cycle combustion turbine generators, each with an 80 foot stack; 2 heat recovery steam generators (HRSG), each with a 105 foot stack; a 70 foot high control/administrative/maintenance activities and steam turbine generator building; a 45 foot high cooling tower structure; and a 30 foot high water treatment building

   Construction of the Project is estimated to require up to 320 construction workers over a period of 30 months. The number of workers on-site at any given time will vary throughout the course of construction. Operation of the facility would employ approximately 20 people full-time.

   Initially, the Project would include two natural gas-fired turbines, each powering dedicated electric generators. A second phase of the project would add a heat recovery steam generator following each natural gas turbine, and these steam generators would power an additional single electric steam turbine generator.

   The HGS would interconnect with existing electrical transmission facilities owned by Northwestern Energy. The initial interconnection would be with an existing 230 kV line that runs from the Great Falls Substation to the Broadview Substation, near the junction of Salem Road and Highway 228 and would not cross the NHL. There are a number of transmission facilities close to the HGS site. If

there is a need for future interconnection capacity, and that connection would involve an aerial crossing of the Missouri River, SME would be required to obtain any necessary permits for the crossing at that time. Currently, several transmission lines cross the Missouri River, and SME has stated that it would evaluate connecting with those lines, in determining future interconnection options.

A new natural gas line would be installed to connect the Project to existing gas transmission pipelines north of the Missouri River. Northwestern Energy would construct and operate the line, which would serve SME and SME understands that it may not only be sized to meet their needs but also the needs of future natural gas customers. Northwestern would have discretion regarding siting of the pipeline, however, SME has stated that it understands that the line would begin approximately 5 miles northeast of Great Falls, then proceed generally east to the HGS site, extending approximately 9.3 miles. The pipeline would cross under the Missouri River approximately 5 ½ miles west of the HGS facility, extend west across the property to the east of the river, and then cross the National Historic Landmark (NHL) in a northeasterly direction toward the HGS facility.

Much of the information for this EA is based on the significant body of research that was assembled for the HGS coal plant final Environmental Impact Statement (RUS and MDEQ, 2007a) issued in January 2007 ("the EIS") and a Record of Decision (ROD) issued in May 2007 (RUS and MDEQ, 2007b). A copy of the EIS is available for review on the Department web site at ***http://www.deq.mt.gov/eis.asp***, or a compact disc may be obtained from the Department upon request. The EIS was prepared by the Mangi Environmental Group, Inc. for the U.S. Department of Agriculture Rural Utilities Service (RUS) and the Department.

Figure 1. Vicinity Map of Project Site

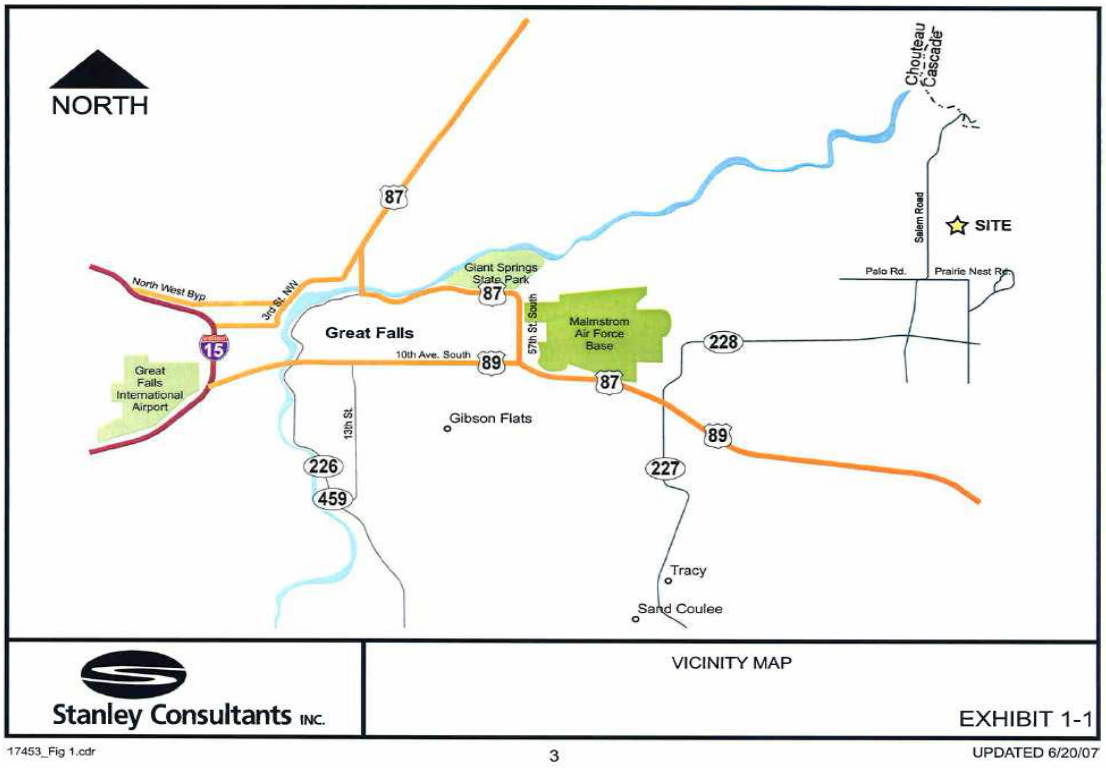
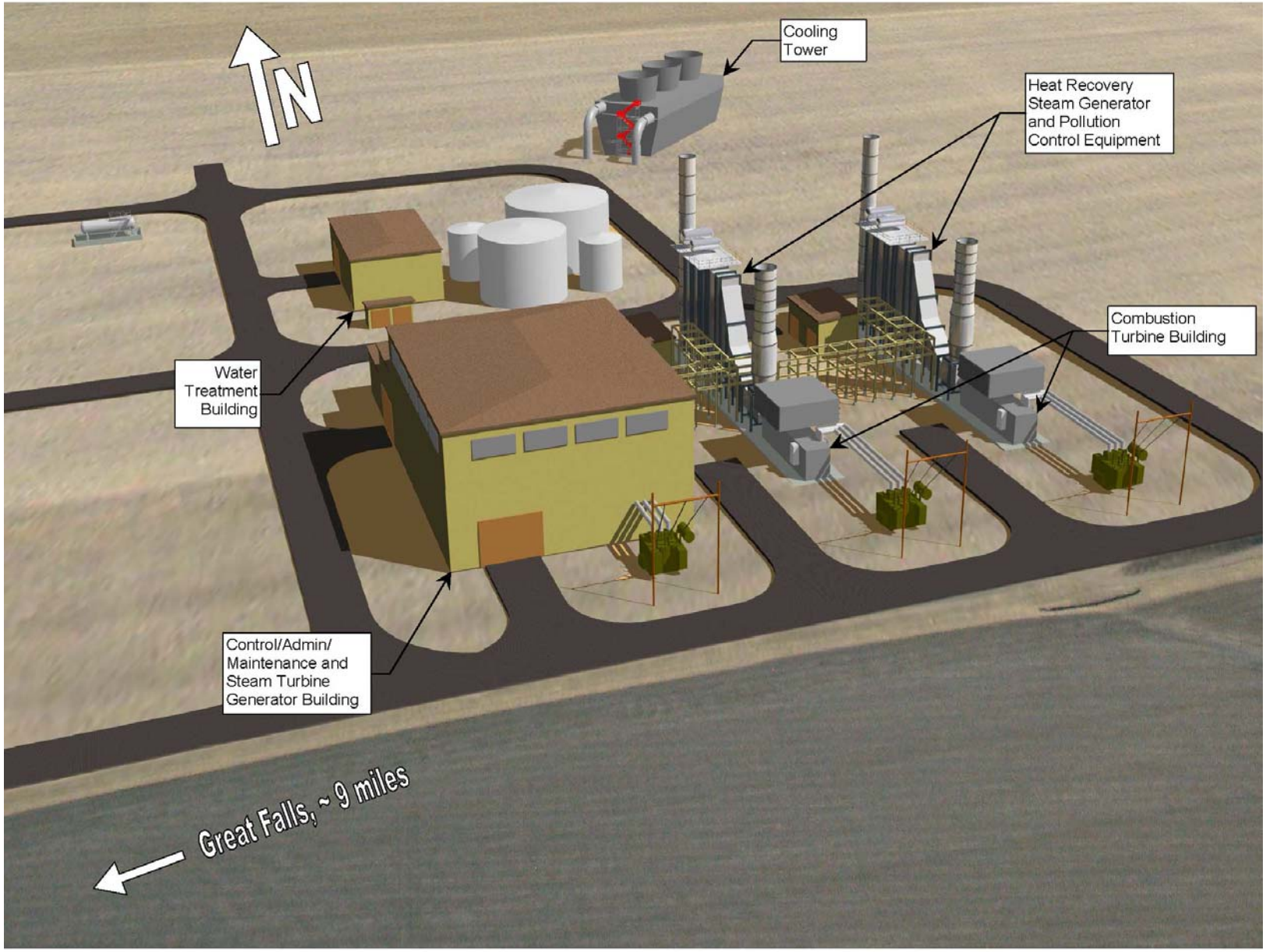


Figure 2.Isometric Image of the Project



3. *Benefits and Purpose of Project*: The objective of the Project is to fulfill a need for electric power. SME is a non-profit, member-owned electric generation and transmission cooperative based in Billings, Montana. It provides wholesale electricity and related services to five electric distribution cooperatives and to the City of Great Falls, Montana. Under its charter, SME is required to meet the electric power needs of its members, who are located throughout 58,000 square miles of Montana and a small section of Wyoming. The Project could provide reliable electricity at reduced rates for SME's customer base.

   SME previously identified a need to replace a substantial portion of its electrical power generation portfolio when existing power purchase agreements expire. SME commissioned a study in 2004 of alternative options to meet this demand. The study concluded that construction and operation of a 250 MW coal-fired power plant would optimize power supply security and costs for cooperative members. A related study identified the location of the proposed HGS gas plant as an optimum site for the coal-fired generation facility (SME, 2004b).

   Since publication of the final EIS, changing conditions in national and international economies and financial systems, in addition to projected new environmental regulations, combined to make construction of coal-fired power generation facilities more difficult than when the power generation project was initially planned.

   Although generally considered to be more expensive to operate than a coal-fired plant, a natural gas-fired plant costs substantially less to build, takes less time to construct, and is easier to finance. SME has stated that these factors led SME to modify its earlier plans with respect to the coal plant. SME has informed the Department that it has abandoned its plans to construct the coal-fired plant, and, instead, intends to meet its near and long-term power supply needs through the natural gas-fired facility. SME intends the facility to provide electrical power to Beartooth Electric, Fergus Electric, Mid Yellowstone Electric, and Tongue River Electric Cooperative. Yellowstone Valley Electric Cooperative is not participating in construction of the gas plant, and its electrical power supply requirements were not considered in determining the necessary capacity of the natural gas plant.

   To meet its interim power supply needs, SME has entered into short-term contracts with PPL Montana. PPL is providing this power with generation capacity from its Colstrip and Corette coal-fired electrical generation facilities. Southern Montana has a number of these power purchase contracts in place with PPL Montana. The last contract is scheduled to expire in 2019. However, SME has stated that these contractual purchase rights are not sufficient to meet SME's forecasted supply requirements and related ancillary service needs, including peaking and load following, and that the gas-fired generation facility would predictably, reliably, and economically fulfill those requirements. SME has also stated that the proposed facility will enable them to cost effectively follow system load and effectively manage the cost of the services it provides to its member systems. SME believes that the ability to provide this type of supply product is an essential attribute of SME's ability to meet the wholesale power and related energy services needs of the member systems it serves.

4. *Alternatives Considered:* As SME evaluated its power supply alternatives under the guidance of RUS, SME reviewed wholesale power supply alternatives capable of meeting the current and forecasted demand for wholesale electric energy and related service needs of the distribution member systems it serves. The conclusion reached in this evaluation of viable power supply alternatives was that the construction of a new fossil fuel power generation facility at the HGS site represented the best long-term power supply alternative to meet the growing needs of SME'S member systems. In the context of this analysis, SME evaluated alternative generation technologies and plant locations. Both studies are described in the EIS.

   Subsequent to completion of the alternative evaluation study, there have been significant changes in the regulatory and financial environments. The net result of these changes materially impacted the

viability of proposed and existing coal-fired electric generation facilities. SME has stated that, based on this marked change in the external conditions impacting electric generation capacity development, SME now believes that natural gas-fired generation, complemented with competitively priced power purchase agreements, represents the most reasonable near term solution to the power supply needs of SME and the member systems it serves. Based on its desire for a higher level of power supply certainty, SME decided to develop the natural gas-fired generation facility.

In Section 2.1.3 of the EIS, RUS and the Department rejected consideration of a number of non-combustible energy resources. Also, RUS and the Department analyzed placement of the HGS at the Great Falls Industrial Site in the EIS.

ARM 17.4.609(3)(f) requires the Department to consider, in an EA, reasonable alternatives to a proposed action whenever alternatives are reasonably available and prudent to consider. Under 75-1-201(5)(a) of the Montana Environmental Policy Act, an agency may not withhold, deny, or condition a permit based on MEPA. The Department's authority regarding this application is contained in the Clean Air Act of Montana and the rules adopted pursuant to it. That authority is to approve SME's permit application if it meets the requirements of the Act and rules and to disapprove it if the Act or rules are not met. Consequently, the alternatives that are reasonably available to the Department and prudent to consider in this EA are the alternatives of denial of the permit, which is the "no action" alternative, and issuance of the permit. Because the Department has no authority to require siting of the HGS at an alternative location as long as air quality laws and rules would be met at the Salem site or to require SME to use alternative energy sources, no other alternative sites or energy resources are analyzed in this EA.

5. *A Listing of Mitigation, Stipulations, and Other Controls*: A list of enforceable conditions, including a BACT analysis, would be included in Permit #4429-00.

6. *Regulatory Effects on Private Property*: The Department considered alternatives to the conditions imposed in this permit as part of the permit development. The Department determined that the permit conditions are reasonably necessary to ensure compliance with applicable requirements and demonstrate compliance with those requirements and do not unduly restrict private property rights.

7. *The following table summarizes the potential physical and biological effects of the proposed project on the human environment.*

		Major	Moderate	Minor	None	Unknown	Comments Included
A	Aquatic and Terrestrial Life and Habitats			X			Yes
B	Water Quality, Quantity, and Distribution			X			Yes
C	Waste Management			X			Yes
D	Geology and Soil Quality, Stability and Moisture			X			Yes
E	Vegetation Cover, Quantity, and Quality			X			Yes
F	Aesthetics		X				Yes
G	Air Quality			X			Yes
H	Unique Endangered, Fragile, or Limited Environmental Resources			X			Yes
I	Demands on Environmental Resource of Water, Air and Energy			X			Yes
J	Historical and Archaeological Sites		X				Yes
K	Cumulative and Secondary Impacts			X			Yes

A. Aquatic and Terrestrial Life and Habitats

The area surrounding Great Falls is dominated by grassland and is used primarily for agricultural activities with isolated areas of urban, suburban, rural, and industrial development. The topography is mostly flat with some drainages created by creeks, rivers, and wind erosion. Shrubs and trees grow mostly in the drainages and canyon areas. The Project site currently is privately owned farmland used for producing small grains. SME has purchased the former farmland property on which it proposes to construct the HGS gas-fired plant. The HGS gas plant would reside within the property boundary previously identified for the HGS coal-fired plant.

Aquatic Life and Habitats

Wetlands within the general area are limited to the incised drainage habitat and narrow fringes of the Missouri River and its tributaries (WESTECH, 2005). Though limited, these wetlands provide an invaluable resource for the filtration and adsorption of stream nutrients and contaminants, and for waterfowl and wildlife habitat. Field surveys and reviews of aerial photographs revealed a few isolated wetlands along Box Elder Creek and the Missouri River (RUS AND MDEQ, 2007a).

Terrestrial Life and Habitats

Impacts to terrestrial life and habitats from construction and operation of the HGS gas plant would be minor because of the relatively small portion of land that would be disturbed. The total footprint of the Project would be approximately six acres. Some surface disturbance would occur beyond the plant site with the construction of at least one transmission line, a natural gas pipeline to the facility, and access roads.

Westech Environmental Services, Inc. (WESTECH) researched previously recorded wildlife sightings within a ten mile radius of the Project site and areas surrounding the proposed

transmission lines (WESTECH, 2005). This research included interviews with landowners and with specialists from FWP.

Mule deer, white-tailed deer, and pronghorn antelope are known to be present in the area. Of these, mule deer are the most abundant. Mule deer inhabit the surrounding areas year round and frequent the area's many drainages and fields. White-tailed deer primarily inhabit drainages with riparian habitat. The area is not conducive to large pronghorn populations, as most of the native vegetation has been converted to agriculture.

The Project site is just to the west of a 70-square-mile area which is surveyed for deer populations four times per year by Montana Fish, Wildlife and Parks (FWP). Recent FWP counts of these species have shown populations of approximately 500 mule deer, 50 white-tailed deer, and 100 pronghorn in the surveyed area (RUS AND MDEQ, 2007a). Other wildlife species potentially in this area include bobcat, coyote, gray partridge, mountain lion, red fox, and sharp-tailed grouse.

Environmental Consequences

The HGS would interconnect with existing transmission facilities owned by Northwestern Energy. The initial interconnection would be with an existing 230 kV line that runs from the Great Falls Substation to the Broadview Substation, near the junction of Salem Road and Highway 228 and would not cross the NHL. There are a number of transmission facilities close to the HGS site. If there is a need for future interconnection capacity, and that connection would involve an aerial crossing of the Missouri River, SME would be required to obtain any necessary permits for the crossing at that time. Currently, several transmission lines cross the Missouri River, and SME has stated that it would evaluate connecting with those lines, in determining future interconnection options.

A new natural gas line would be installed to connect the Project to existing gas transmission pipelines north of the Missouri River. Northwestern Energy would construct and operate the line, which would serve SME as well as other Northwestern customers. Northwestern would have discretion regarding siting of the pipeline, however, SME's understanding is that the line would begin approximately 5 miles northeast of Great Falls, then proceed generally east to the HGS site, extending approximately 9.3 miles. The pipeline would cross under the Missouri River approximately 5 ½ miles west of the HGS facility, extend west across the property to the east of the river, and then cross the NHL in a northeasterly direction toward the HGS facility.

Adverse effects to flora and fauna may occur through construction or operation of the facility or infrastructure as described in the coal-fired generation facility EIS (RUS AND MDEQ, 2007a, pp. 4-58 through 4-69). Wildlife could experience mortality directly due to construction or operation of the facility or its infrastructure, or indirectly through habitat loss, fragmentation, or conversion. Vegetation can be directly affected by its removal as the ground surface on which it occurs is developed, or indirectly through changing populations of wildlife that feed on plants. However, other than the few small buildings constructed or moved to the site and the construction that has occurred at the site to date for the coal plant, the HGS site currently consists of cultivated cropland, and it is surrounded by cultivated cropland. Neither the gas plant nor any of its infrastructure would be located in any wetlands.

SME would be required to follow the requirements identified in the Cascade County Weed and Mosquito Management District's document, "Weed Management and Revegetation Requirements for Disturbed Areas in Cascade County, Montana." This document specifies the actions that need to be taken prior to disturbance, during operation, and upon reclamation, to prevent the spread of noxious weeds in the county.

Impacts Summary

Impacts to biological resources from constructing and operating the HGS gas plant at the Project site and transmission line would be similar to, but less than, those that would have resulted from the coal-fired power plant. Similar to the analysis in the coal facility EIS (RUS AND MDEQ, 2007a), the biological impacts of the Project would be minor. The No Action Alternative would have no direct effects on biological resources at the Project site.

B. Water Quality, Quantity and Distribution

Surface Water

The primary drainage that would be nearest to the plant site is Belt Creek. It joins the Missouri just downstream of the Project site, approximately 15 river miles northeast of Great Falls.

There are several intermittent streams in the vicinity of the Project site. To the east, drainage from the site would flow into Rogers Coulee, a drainage channel that connects with Belt Creek just northeast of the site. To the west of the site, and located immediately west of Salem Road, there are several unnamed drainage channels with intermittent flows to the Missouri River. Rogers Coulee and these drainages are dry the majority of the year and contain flowing water only during major overland runoff events. Box Elder Creek is the first named tributary of the river located to the west of the site. Surface water flows in a north to northeast direction throughout this area, into the Missouri River.

Wetlands within the general area are limited to the incised drainage habitat and narrow fringes of the Missouri River and its tributaries (Westech, 2005). Though limited, these wetlands provide an invaluable resource for the filtration and adsorption of stream nutrients and contaminants, and for waterfowl and wildlife habitat.

Floodplains similarly follow the fringes of the perennial streams in the area. Along the Missouri River in the vicinity of the Project area, the floodplains do not extend over the river banks due to the fact that the river runs through a deeply incised channel with sides from sixty to over several hundred feet high (Nerud, 2006). The configuration and size of the channel, along with the area dams, prevent the Project site from receiving most flood waters.

Groundwater

The few producing water wells in the vicinity of the plant site are at least a mile away and are completed in the Kootenai and Madison formations.

The upper portion of the Kootenai Formation consists primarily of mudstone with some claystone and siltstone. The lower portion of the Kootenai is characterized by sandstone and siltstone, which are the common sources of groundwater in the formation (PBSJ, 2006). The Madison Formation is composed primarily of limestone, which contains the aquifer in that formation. Total well depths range from 356 to 605 feet. Production rates range from 3 to 350 gallons per minute (MBMG, 2009).

Alluvial groundwater is found along the Missouri River. No wells are recorded in this alluvial aquifer in the project's vicinity. SME plans to use alluvial wells as a source of process water. These would be drilled near Morony Dam. (MBMG 2009). Montana Bureau of Mines and Geology. 2009. Groundwater Information Center. Accessed on 8/28/09 at: http://mbmggwic.mtech.edu.

Environmental Consequences

Construction of the Project is expected to last up to 30 months. General construction impacts could indirectly affect water resources by increased storm water runoff from the Project site carrying sediment and contamination loads into surface water, and by contamination from construction equipment and activities infiltrating area soils and percolating down into the groundwater. Direct impacts to water resources may result from construction activities including the alluvial wells adjacent to the Morony Reservoir, and the installation of a transmission line and water and natural gas pipelines within the watershed of the Missouri River. The routes for the transmission line and gas pipeline are discussed above under "Aquatic Life and Habitats." The route for the water pipeline is described in the EIS (RUS and MDEQ, 2007a, pp. 4-62. As with almost any construction project involving the use of heavy equipment, there is some risk of an accidental fuel or chemical spill, which could adversely affect water quality if the spilled chemical were to percolate into groundwater or directly enter an adjacent surface water body. The gas plant, transmission line, and natural gas pipeline would not be located in any wetlands.

Potable water needs for the plant would be satisfied by delivery of fresh potable water from the City of Great Falls water lines through installation of a 55,000 foot pipeline or by transporting potable water to the facility from offsite.

The Project would obtain water required for its operation from water drawn from wells and transported to the project site through a pipeline. SME met with the U.S. Army Corps of Engineers on August 27, 2009, in Portland, Oregon to bring closure to all permits and related activities under the jurisdiction of the U.S. Army Corps of Engineers associated with the abandoned coal fired facility. The need for interaction with the U.S. Army Corps of Engineers was primarily a function of a need to install a raw water intake structure in Morony Pool. At this time SME does not see a need to submit a new application for permission to place an intake structure in the Missouri River at Morony Pool. SME's needs for raw water at the Project have been reduced from approximately 3,100 gallons per minute to less than 100 gallons per minute. SME's raw water needs will now be met with water drawn from wells and transported to the project site through a pipeline that will be located on an easement purchased across private property that will not require any additional permitting. The wells would be projected to be adjacent to Morony Reservoir, approximately 0.4 mile upstream of Morony Dam on the Missouri River. As discussed in the EIS, withdrawal of larger quantities of water from the Missouri River would have a minimal impact on river flows. The development of wells adjacent to the Morony Reservoir would pull surface water from Morony Reservoir and potentially could impact the groundwater resources in the area; however, those impacts are expected to be localized in the alluvial aquifer immediately adjacent to the reservoir. Groundwater aquifers at the plant site would not be affected.

The power plant would generate a maximum of 216 gpm of wastewater that must be treated and would consist of concentrated river water and trace amounts of cooling tower water and boiler water treatment chemicals (RUS and MDEQ, 2007a). The wastewater would be discharged back to the City of Great Falls through 55,000 feet (10 miles) of wastewater pipeline for disposal at its existing wastewater treatment facility or would be treated and evaporated on-site, resulting in zero wastewater discharge from the Project site. Sanitary waste water would be routed to a septic leach field adjacent to the plant. The City of Great Falls wastewater treatment facility is licensed and permitted to treat and discharge up to 21 million gpd into the Missouri River (MPDES MT 0021920). An Industrial Wastewater Permit would be required from the City of Great Falls for these discharges. In addition, a wastewater pond would be constructed on site in order to provide surge control and to contain steam cycle blowdown and sump discharges from turbine and transformer areas. The sump discharges would undergo treatment in a standard oil/water separator unit prior to entering the basin. No toxic organic compounds would be present in the discharged wastewater. SME would be required to install and operate wastewater sampling and

monitoring equipment. Because all process-related discharges from the facility would be sent to the Great Falls sanitary sewer or treated on-site, there would be no adverse impacts on water resources from operation of the facility.

Storm water run-off from the Project site would be channeled into plant storm ponds and managed in accordance with the facility Storm Water Permit. SME or its contractor would be required to obtain, from the Department, a General Permit for Storm Water Discharges Associated with Construction Activities, and SME would be required to obtain coverage under a General Permit for Storm Water Discharges Associated with Industrial Activity or obtain an individual National Pollutant Discharge Elimination System (NPDES) permit. SME also would be required to develop a Storm Water Pollution Prevention Plan (SWPPP) for the Project. Pursuant to the permits and SWPPP, SME would be required to: use Best Management Practices (BMPs) during construction, such as use of silt fences, straw bales, and other temporary measures to control erosion from storm runoff; to construct temporary sediment basins before mass grading begins and maintain them until site vegetation is firmly established; revegetate all disturbed areas; during operation, contain storm water run-off from the Project site in plant storm ponds or manage storm water runoff in accordance with the facility Storm Water Permit; and, to reduce the potential for water resource contamination, store and maintain all fuels in a designated equipment staging area, away from water bodies.

Additional permits and authorizations that may be required for construction activities in or adjacent to water bodies include: U.S. Army Corps of Engineers Section 10 and Section 404; Montana DEQ 401 Certification and 318 Authorization; and Cascade County 310 and Floodplain permits. Section 10 Permit (Federal Rivers and Harbors Act) - regulates construction of any structure in or over any federally listed navigable waters of the United States, the excavation from or depositing of material in such waters, or the accomplishment of any other work affecting the course, location, condition, or capacity of such waters (U.S. Army Corps of Engineers); 404 Permit (Federal Clean Water Act) controls discharge of dredged or fill materials in wetlands and other water of the U.S. (U.S. Army Corps of Engineers); 401 Certification (Federal Clean Water Act) before issuing a 404 Permit, the Corps of Engineers must obtain certification of compliance with the Department's water quality standards; Short-Term Water Quality Standard For Turbidity (318 Authorization) (Montana Water Quality Act) required for any activity in any state water that will cause unavoidable short-term violations of the Department's water quality standards for turbidity; 310 Permit (Montana Natural Streambed and Land Preservation Act) required to perform work that physically alters or modifies the bed or banks of a perennial stream (Cascade County Conservation District); Cascade County Floodplain Permit (Montana Floodplain and Floodway Management Act) required to build permanent structures or to place fill in a designated flood plain (Cascade County Planning Department). Northwestern may also be required to obtain some of these permits for action undertaken on the pipeline.

Impacts Summary

Construction of the facility for up to a 30-month period would have the potential to generate storm water runoff that could impact nearby water bodies. SME would be required to manage storm water runoff in accordance with a Department-approved Storm Water Permit and SWPPP for the project, to mitigate this potential to the point of negligible impacts.

Potable water needs would either be satisfied by fresh potable water supply from the City of Great Falls water lines or by transporting potable water to the facility from offsite. Either case is anticipated to have minor impacts on water resources.

Water supply for operations at the Project would have the potential to impact the nearby alluvial groundwater. As described in the EIS, water withdrawals from alluvium immediately adjacent to

the Morony Reservoir would be expected to directly connect to surface water in the reservoir, and would have only a localized impact on alluvial groundwater. As outlined above, impacts of water use by the Project on water resources are anticipated to be minor.

Wastewater discharge from the Project either would be returned to the City of Great Falls sanitary sewer system or would be treated and evaporated on-site to the point of zero discharge of wastewater. Either case is anticipated to have minor impacts on water resources. The No-Action Alternative would have no effect on the groundwater or surface water resources around the Project site.

C. Waste Management

As described in the EIS (RUS and DEQ, 2007a), the primary landfill in the Great Falls area is the High Plains Sanitary Landfill and Recycle Center (HPSL). This landfill is a licensed Class II landfill. Four other landfills exist in the area, but these all are privately owned and accept limited quantities of waste from outside sources. Non-exempt regulated hazardous waste must be delivered to a permitted hazardous waste destination, such as an incinerator or hazardous waste landfill, the nearest of which are located out of state in Oregon and Utah.

Environmental Consequences

Construction of the Project would generate construction debris waste, which would require proper disposal or reuse. Any non-hazardous construction debris that could not be reused or recycled would be disposed of at the HPSL. The construction contractor would be responsible for ensuring that the waste material generated was properly disposed. Portable restrooms for employee use during the construction period would be provided by a private contractor. The contractor would be required to have portable toilets serviced by a septic tank pumper licensed by the Department to perform these services.

The Project would generate relatively low volumes of non-hazardous wastes and possibly small quantities of hazardous wastes. These waste streams would consist primarily of boiler blowdown waste, cooler blowdown waste, demineralizer regenerant, and boiler chemical cleaning wastes. The power plant most likely would be regulated as a "conditionally exempt small quantity generator" of hazardous waste, and SME would be required to comply with rules applicable to conditionally exempt small quantity generators of hazardous waste. Conditionally exempt small generators are required to determine which of the wastes they generate are hazardous and keep records of any test results, waste analyses or other determinations used to characterize hazardous waste, for at least three years from the date of final disposition of the waste. They may dispose of hazardous waste at a legitimate recycling facility, a permitted hazardous waste treatment, storage, or disposal facility, or a Class II municipal solid waste landfill. SME would be required to use either of the first two options for disposal of any regulated hazardous wastes.

SME would discharge aqueous wastes, including sanitary wastes, to the City of Great Falls wastewater treatment facility in accordance with conditions established by the City or would treat and evaporate wastewater on site. SME would be required to comply with conditions established for discharging wastes to its water treatment facility.

Impacts Summary

Impacts from waste generation and disposal at the Project site would be typical of many industrial and commercial operations. Compliance with applicable solid waste rules, disposal of non-hazardous wastes at the HPSL, disposal of any regulated hazardous waste at an appropriate facility, and treatment of wastewater at the City of Great Falls wastewater treatment facility, or

treatment and evaporation of wastewater onsite, would ensure that impacts to the environment from the Project's waste streams would be minor.

D. Geology and Soil Quality, Stability and Moisture

Great Falls is located within the Missouri Plateau region of the Great Plains physiographic area, which is characterized by several levels of rolling upland plains, small mountainous masses, and flat-topped buttes. The area is dissected by the Missouri River and its tributaries.

The regional topography in the Great Falls vicinity consists primarily of gently rolling northern Great Plains and prairie with little change in relief. Elevations in the area range from about 3,300 to 3,600 feet above mean sea level (MSL). Nearby mountain ranges partially encircle the Great Falls portion of the Missouri River valley. These include the Highwood and Little Belt Mountains, which are about 30 miles away to the east and south, respectively. The Big Belt Mountains are 40 miles distant to the southwest and the Front Range of the Rocky Mountains varies between 60 and 100 miles distance to the west and northwest.

The elevation at the planned facility location is approximately 3,310 feet above sea level. Site topography is gently sloping and undulating, sloping downward to the west and north toward the Missouri River.

A hydrogeologic report completed for this area in September 2005 (PBSJ, 2005) identified the following strata of geologic formations below the Great Falls area: Madison limestone is the deepest, followed by the Swift Formation, then Morrison sandstone and shale beds, and finally the Kootenai Formation with an upper portion consisting mainly of mudstone and a lower portion consisting of sandstone and siltstone. Unconsolidated sediments extend 125 to 150 feet below ground to the Kootenai Formation. These sediments consist of wind-blown deposits of silty sand, underlain by glacial lake bed and glacial till deposits.

Surface soils at the site consist entirely of Pendroy Clay soils with 2-8% slopes. The Pendroy Clay soils have a fine-grained inorganic clay content of 60-75% down to approximately 40 inches below the surface and a 50-65% clay content at depths between 40 to 70 inches. They exhibit very slow rates of water transmission and infiltration and a high degree of plasticity.

Environmental Consequences

Construction of the facility is expected to last approximately 30 months. The total footprint of the Project would be approximately six acres. Some surface disturbance would occur beyond the plant site with the construction of a transmission line and access roads. All, or the majority, of the site would be contoured to an even grade with soil removed from high areas used to fill low areas. Little or no soil stockpiling is expected. Existing aggregate roadways currently leading to the site would be maintained for access during construction. These would be re-graded and paved at the end of the construction period. An 1,800-foot long paved access road into the site would be constructed and maintained from the existing Salem Road. Construction equipment to be used during site development would include bulldozers, backhoes, earth scrapers, motor graders, heavy haul trucks, large tractors, concrete trucks, asphalt pavers, concrete pavers, rollers, and compactors.

Some potential for soil contamination exists during construction and operation due to spills and leaks of fuels and chemicals. Construction equipment may compact soil, reducing its porosity and resulting in a slight increase in the amount of surface runoff in the immediate area. As noted above, the underlying soil in the area has a potential for high runoff and relatively high soil erosion potential. However, this potential is limited by the relatively gentle slopes in the immediate area of the plant site.

SME would be required to obtain a General Permit for Storm Water Discharges Associated with Construction Activities from the Department and either obtain coverage under a General Permit for Storm Water Discharges Associated with Industrial Activity or obtain an individual NPDES permit and would be required to develop a Storm Water Pollution Prevention Plan (SWPPP) for the Project. These documents would identify potential disturbances and the appropriate erosion and sediment control methods to be used to minimize effects. Measures that would be required, such as limiting the area of disturbance and the use of silt-fences, straw mulch, temporary runoff diversions, sediment basins, temporary grading and other methods, would limit short-term erosion. Permit requirements would minimize long-term erosion through requirements for re-grading and re-vegetating as quickly as possible following disturbance. Regular inspections by the Department during and following construction would ensure proper implementation of erosion control techniques. Erosion would be mitigated naturally by the level nature of the Project site and much of the surrounding area.

SME also has stated that it would minimize soil erosion on temporary and permanent roads by use of proper drainage with dips, waterbars, or other methods to prevent water from concentrating on roadways. SME has stated that it would minimize soil compaction by limiting vehicle use to established travel and construction routes and that, if any reclaimed areas became compacted, they would be treated by ripping, plowing, disking, or other appropriate methods prior to re-vegetation of the areas.

Impacts Summary

No significant direct, indirect, or cumulative adverse impacts to the soils, topography or geological resources of the Project area are anticipated as a result of the Project as proposed, including mitigation and monitoring measures. Construction or operation of the Project would not substantially alter the geography or topography of the area, would not result in soil erosion that could cause measurable sediment increases in surrounding surface water, and would not cause widespread soil compaction that would inhibit plant growth. The no-action alternative would not affect this resource in any way.

E. Vegetation Cover, Quantity, and Quality

WESTECH identified several State species of concern that have been observed in the Great Falls area, although not necessarily near the Project site. (WESTECH, 2005). The identified plant species of concern are listed in Table 1.

Table 1. Montana Species of Concern Recorded Within Ten Miles of Great Falls

Species		Suitable Habitat
Common Name	**Scientific Name**	
Plants		
Roundleaf water hyssop	*Bacopa rotundifolia*	Muddy shores of ponds and streams; last recorded in 1891
Many-headed sedge	*Carex sychnocephala*	Moist meadows; lake shores; thickets at low elevations; last recorded in 1890
Chaffweed	*Centunculus minimus*	Drying vernal pools (seasonal wetlands); last recorded in 1891
	Entosthodon rubiginosus	Moss; last recorded in 1887
	Funaria Americana	Moss; last recorded in 1902
Guadalupe water-nymph	*Najas guadalupensis*	Submerged in shallow fresh water of oxbow sloughs and ponds; drying vernal pools; last recorded in 1891
Dwarf woolly heads	*Psilocarphus brevissimus*	Drying vernal pools; last recorded in 1891
California waterwort	*Elatine californica*	Shallow waters and mudflats along the edges of wetlands; last recorded in 1891

Source: Montana Natural Heritage Program, 2005 and USFWS letter dated May 12, 2005.

The amount of wetlands in the area surrounding the Project site is limited. Field surveys and reviews of aerial photographs revealed a few isolated wetlands along Box Elder Creek and the Missouri River (RUS AND MDEQ, 2007a).

Several species of noxious weeds are known to be present in the Great Falls area. These include Canada thistle, field bindweed, whitetop, leafy spurge, spotted knapweed, and Dalmatian toadflax. Only Canada thistle and spotted knapweed are common and widespread, while whitetop and leafy spurge are less abundant. Dalmatian toadflax and field bindweed were not observed near the Project area during biological resources field surveys.

Environmental Consequences

Adverse effects to flora may occur through construction or operation of the facility or infrastructure as described in the EIS (RUS AND MDEQ, 2007a, p. 4-58, et seq.). Vegetation can be directly affected by its removal as the ground surface on which it occurs is developed, or indirectly through changing populations of wildlife that feed on plants.

However, as discussed above, the site where the Project would be located currently is entirely cultivated cropland, and the site is surrounded by cultivated cropland, including the NHL, except for coulees within the NHL that are too steep for cultivation. The transmission line would extend along the Salem Road corridor to the south from the HGS facility and then west along the Highway 228 corridor to the Broadview Substation.

SME would be required to follow the requirements identified in the Cascade County Weed and Mosquito Management District's document, "Weed Management and Revegetation Requirements for Disturbed Areas in Cascade County, Montana." This document specifies the actions that need to be taken prior to disturbance, during operation, and upon reclamation, to prevent the spread of noxious weeds in the county.

Impacts Summary

Similar to the analysis in the coal facility EIS (RUS AND MDEQ, 2007a), the impacts of the Project on vegetation would be minor. The No Action Alternative would have no direct effects on vegetation at the Project site.

F. Aesthetics

ACOUSTIC ENVIRONMENT

The Project site is located in a rural area approximately eight miles (13 km) east of Great Falls in Cascade County. The surrounding land use is agricultural cultivated cropland with scattered rural residences, most of which are farms. Approximately ten residences are located within three miles of the Project site, and the closest residence is located about 0.5 mile (0.8 km) northwest of the Project site. Primary noise sources include traffic on county roads, farm equipment, noise generated by wind blowing through grass, water flowing in nearby creeks, wildlife, insects, birds, and aircraft flying overhead (BSA, 2007). These noise sources are characteristic of rural settings.

For environmental noise studies, noise levels typically are described using A-weighted equivalent noise levels, Leq, during a certain time period. The Leq metric is useful because it uses a single number to describe the constantly fluctuating instantaneous ambient noise levels at a receptor location during a period of time, and it accounts for all of the noises and quiet periods that occur during that time period.

The 90th percentile-exceeded noise level, L90, is a metric that indicates the single noise level that is exceeded during 90 percent of a measurement period, although the actual instantaneous noise levels fluctuate continuously. The L90 noise level typically is considered the ambient noise level, and often is near the low end of the instantaneous noise levels during a measurement period. It typically does not include the influence of discrete noises of short duration, such as car doors closing, bird chirps, dog barks, car horns, wind gusts, etc.

The day-night average noise level, Ldn, is a single number descriptor that represents the constantly varying sound level during a continuous 24-hour period. The Ldn typically is calculated using 24 consecutive one-hour Leq noise levels. The Ldn includes a 10 dBA penalty that is added to noises that occur during the nighttime hours between 10:00 p.m. and 7:00 a.m., to account for people's higher sensitivity to noise at night when the background noise level typically is low.

As a result of the Noise Control Act of 1972, the U.S. EPA developed acceptable noise levels under various conditions that would protect public health and welfare with an adequate margin of safety. The EPA identified outdoor Ldn noise levels less than or equal to 55 dBA as sufficient to protect public health and welfare in residential areas and other places where quiet is a basis for use (EPA, 1978). Although the EPA guideline is not an enforceable regulation, it is a commonly accepted target noise level for environmental noise studies.

In late August and early September 2005, the acoustical consulting firm Big Sky Acoustics (BSA) conducted ambient (background) noise level measurements at the Project site, in general accordance with the American Society for Testing and Materials (ASTM) E1014, Standard Guide for Measurement of Outdoor A-weighted Sound Levels (ASTM, 2000). These measurements were taken to establish the typical ambient noise levels within approximately three miles of the Project site where the primary noise-sensitive receptors are located. Short-term measurements of 10-minute duration were conducted at a total of three Project site locations, and the Leq and L90 for each 10- minute period were recorded. BSA completed two continuous 24-hour measurements, and the Leq and L90 in 30- minute increments were also recorded (BSA, 2007).

Around the Project site, the L90 ambient short-term noise levels ranged from 20 to 47 dBA, and were influenced by chirping insects as seen in Table 2.

Table 2. Measured Short-term Ambient Noise Levels at the Project Site

Measurement Location	Date and Start Time(hours)	Measured Leq (dBA)	Measured L90 (dBA)	Dominant Noise Sources
1A	8/25/05 at 2151	29	25	Insects
	8/26/05 at 0837	34	31	Insects and wind in grass
	9/01/05 at 1814	48	47	Insects
1B	8/25/05 at 2211	22	20	Insects
	9/01/05 at 1832	46	45	Insects
1C	8/25/05 at 2241	28	23	Insects
	9/01/05 at 1843	47	38	Insects and birds

Source: BSA, 2007

The table does not list farm machinery, which, apparently, was not operating in the vicinity at the time of the study.

BSA also conducted 24-hour measurements to determine the general existing ambient noise level trends throughout the day in the vicinity of the proposed Project site. The 30-minute Leq data were used to calculate the Ldn levels at the measurement locations. The calculated noise levels based on the measurements were Ldn 47 dBA at the Project site (BSA, 2007). Because the measurements were completed in the summer months, insect noise appears to have influenced the measured Ldn values. Based on site observations and the 10-minute measurement results around the site (Table 6-2), the estimated Ldn values during quiet periods would be approximately Ldn 30 dBA at the Project site (BSA, 2007).

Environmental Consequences

Construction-related activities and traffic would result in minor acoustic impacts to the surrounding area, including nearby farms and residences, the Salem Road, and the portion of the NHL near the Project site.

As described above, approximately ten scattered rural residences are located within three miles of the Project site. The closest residence is located approximately one-half mile northwest of the Project site. A Lewis and Clark Staging Area Interpretative Site (Staging Area), which interprets the Great Falls Portage NHL, is located approximately two miles north of the Project site.

To analyze the effects of adding the gas plant to the HGS, along with the coal plant, Big Sky Acoustics (BSA) conducted an additional noise analysis in 2009 (BSA, 2009). The additional noise analysis included addition of a 120-MW natural gas-fired combined cycle power plant to the Project site.

Drawings of the revised Project site and updated equipment lists (Stanley, 2009b), as well as noise level data for the gas turbine model under consideration (General Electric LM6000), a Deltak HRSG, and a cooling tower for the HGS gas plant (Stanley, 2009c) were provided to BSA. BSA also used noise data for typical equipment associated with other HGS gas plant noise sources, such as the steam turbine, pumps, transformers, etc., for the analysis (EEI, 1984). For the analysis, BSA assumed that four wind turbines and the HGS gas plant were operating simultaneously and continuously during a 24-hour period. BSA considered this to be conservative because operation of the wind turbines would have varied with wind speed. Subsequent to BSA's analysis, SME decided not to construct the wind turbines. Therefore, the analysis was even more conservative for the areas that would have been affected by the wind turbines because the analysis included their contributions.

The predicted noise levels for the HGS gas plant and wind turbines are provided in Table 3.

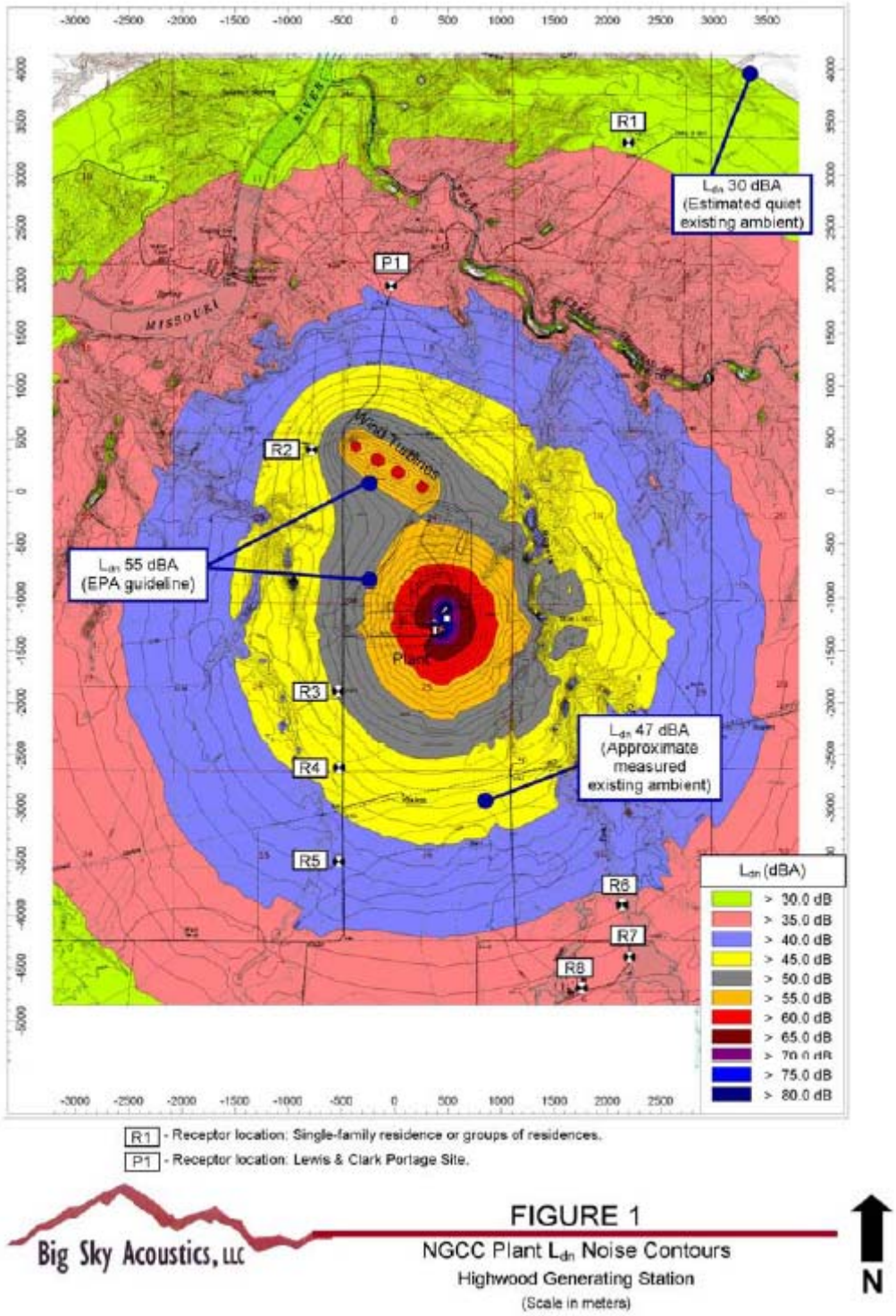
Table 3: Predicted Noise Levels at Nearby Receptors

Receptor Locations	Type of Receptor	Noise Level Leq (dBA)	Noise Level Ldn (dBA)
R1	Single-family residence	28	35
P1	Lewis and Clark Interpretive Site (i.e., Portage Staging Area)	33	39
R2	Single-family residence	43	50
R3	Single-family residence	44	51
R4	Single-family residence	40	47
R5	Single-family residence	37	43
R6	Single-family residence	33	39
R7	Three single-family residences	31	38
R8	Single-family residence	31	37

Source: BSA, 2009

Figure 3 shows the predicted Ldn noise level contours for the HGS gas plant and wind turbines overlaid on a USGS topographic map. As shown in the figure, the noise levels are not predicted to radiate equally in all directions. As shown, the EPA Ldn 55 dBA guideline (EPA, 1978) is predicted to be met within 0.6 mile of the plant location and 0.1 mile of the previously proposed wind turbines. For comparison, according to EPA, the day-night average sound level for a "wooded residential" area is 51 dB, and the day-night average sound level for an "old urban residential area" is 59 dB. (EPA, 1978). The measured existing ambient noise level of Ldn 47 dBA (BSA, 2007) is predicted to be met within approximately 1.2 miles of the plant location and 0.5 mile of the previously analyzed wind turbines. For comparison, the day-night average sound level for "agricultural crop land" is 44 dB. (EPA, 1978). The estimated quiet ambient noise level of Ldn 30 dBA, without the influence of insect noise (BSA, 2007), is predicted to be met within approximately 3.7 miles (Figure 3).

Figure 3. Predicted Noise Levels Contours Surrounding HGS Gas Plant



Source: BSA, 2009

The predicted noise impacts of the HGS gas plant with wind turbines are similar to those from the analysis of the HGS coal plant with wind turbines (BSA, 2007; BSA, 2009). The typical Ldn noise levels are predicted to be less than or equal to the Ldn 55 dBA EPA guideline at identified receptor locations (BSA, 2007; BSA, 2009).

Elimination of the wind turbines from the Project should lessen the noise impacts of the Project to the north and northwest, including the Staging Area Interpretive Site, and the noise levels in those areas should be lower than the noise levels predicted by BSA, as shown above. Elimination of the wind turbines from the Project is not expected to lessen the noise impacts of the Project in other directions, and impacts at receptors in other directions likely would be based on noise from the gas plant.

However, the BSA study demonstrates that predicted impacts would be less than the Ldn 55 dbA EPA guideline level at all receptors representing residences, at the Staging Area Interpretive Site, and at any point along Salem Road. At the Interpretive Site, the only area within the NHL to which the public has access, the predicted noise level is 39 dBA, slightly above the 30 dBA "quiet level" and below the 47 dBA natural background noise level generated by insects and birds.

As discussed above, the area surrounding the Project site consists almost exclusively of privately owned cultivated cropland farms, including most of the NHL. Most of these farms, including those within the NHL, are posted against trespassing, and normal farm machinery operations for growing grain occur on all sides of the Lewis and Clark Staging Area Interpretive Site and on both sides of the road south of that Site past the site of the proposed HGS. Also, a public road runs north and south between the Project site and the Interpretive Site and continues to, and past, that Site.

Any impacts on wildlife would be minor due to the nature of the existing agricultural use in the vicinity of the proposed plant.

Impacts Summary

The typical Ldn noise levels are predicted to be less than or equal to the Ldn 55 dBA EPA guideline at all the receptor locations. The noise levels of typical daily plant operations are not predicted to exceed the EPA guideline of Ldn 55 dBA beyond 0.6 mile from the plant location. The measured existing ambient Ldn level of 47 dBA is expected to be met at a distance of 1.2 miles from the plant location. As a result of these predicted noise levels, the Project is not expected to have a significant adverse impact on receptors where people live or work on the farms in the area or where the public will have access in the surrounding environment, including the Interpretive Site.

In the EIS for the coal plant, the Department and RUS concluded that: " . . . because of NPS policies to preserve the environment of the areas it administers, such as the surrounding Great Falls Portage NHL, at the Salem site, any degradation of the existing natural (or rural) ambient soundscape, such as that represented by HGS construction and operation, would be considered significantly adverse." (RUS and MDEQ, 2007a, EIS, p. 4-77.) The finding of a significant impact was based solely upon the proximity of the NHL to the Project site. Upon further consideration of this categorical conclusion and evaluation of the existing acoustic environment, the Department believes that this determination was incorrect.

The Department is not aware of any basis to characterize any level of additional sound, no matter how insignificant or minor, as causing a significant impact, for purposes of MEPA. Further, the acoustic environment of the NHL does not resemble the environment of the area as it existed at the time of the Lewis and Clark Portage. Numerous cultivated cropland farms, with their attendant noises, are located near and within the NHL, and a public road, with attendant traffic noise, runs through the NHL and into and by the Interpretive Site. All of the NHL near the Project site is posted against trespassing and public access. Therefore, except for the Interpretive Site, the public would observe the NHL in the vicinity of HGS from Salem Road, likely from within a vehicle.

Also, acoustic impacts at the Interpretive Site, which is located two miles from the Project site and which is the only portion of the NHL that is open to the public other than the road right of way, were rated at 33 Leq and 39 Ldn, and these values appear to have been influenced by sound from the four wind turbines, which now will not be constructed, but which were proposed at that time to be located between the gas plant and the Interpretive Site. The acoustic impacts of the gas plant without wind turbines on the portion of the NHL surrounding the proposed site of the wind turbines and on the Staging Area Interpretive Site would be substantially less than the acoustic impacts of the coal plant with the wind turbines.

The Department believes that construction and operation of the Project would have an adverse impact on the acoustic resource of the surrounding rural area. Considering the historical and cultural qualities of the NHL, construction and operation of the Project also would have an adverse impact on the acoustic resource of the NHL near the Project site. However, given that the HSG would be approximately two miles from the Interpretive Site and that areas closer to the HSG are accessible only along Salem Road, the Department believes that the acoustic impact from the Project on the NHL, without the wind turbines, and given the existing development in the area and the level of noise to be expected from that development, would be moderate at most

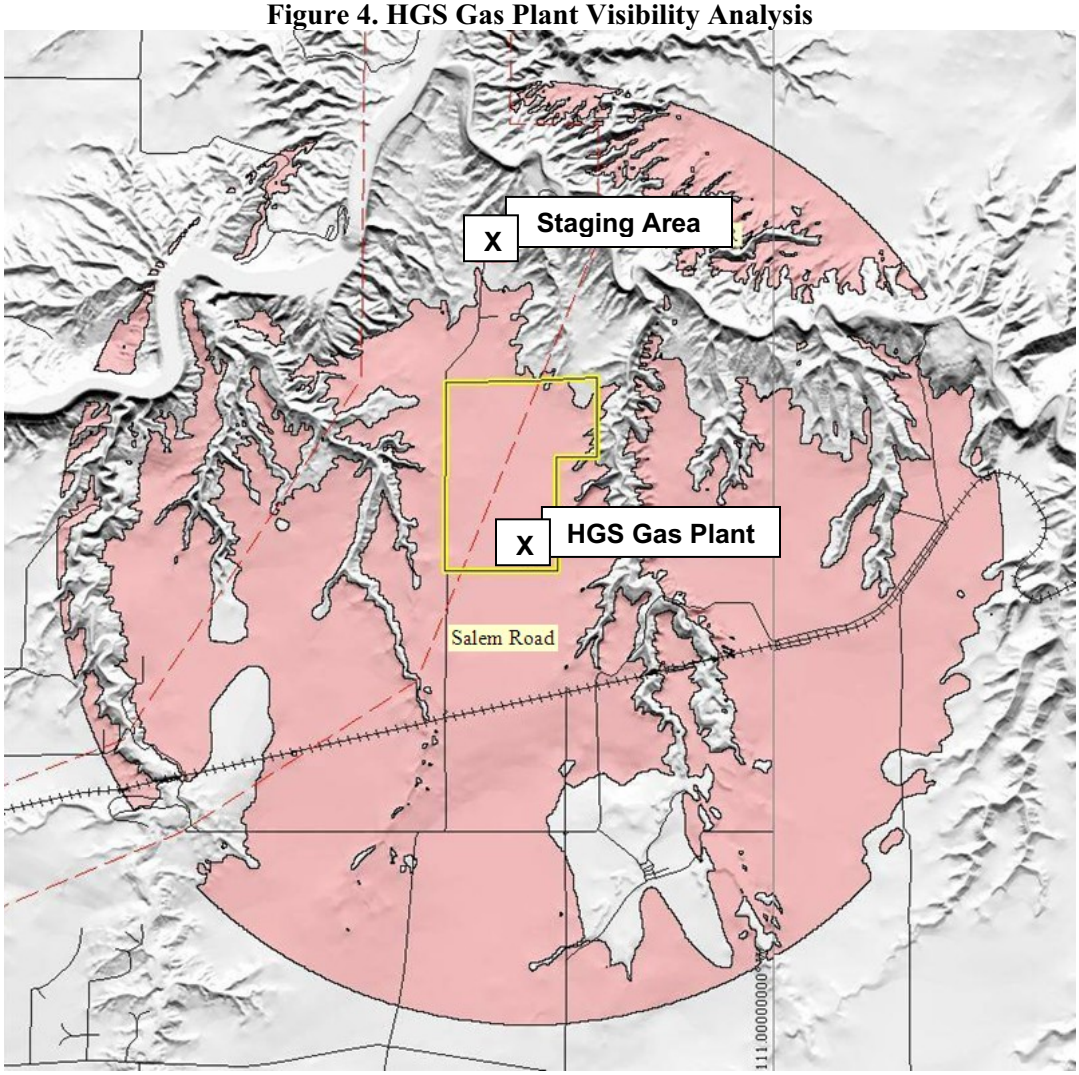
VISUAL RESOURCES

The Project site is characterized by a gently sloping landscape ranging from about 3,260 ft. MSL to about 3,320 ft. MSL. Off-site, this plateau-like landscape is incised by steep-sided coulees or gullies (e.g., Rogers Coulee just to the east of the project site) that cut into the land surface and range from a few feet deep to 100-200 feet deep. The lands on the site itself and in the immediate vicinity are farmed (except for the coulees), with wheat being the dominant crop. The Highwood Mountains are prominently visible to the east at a distance of about 15 miles. Looking toward the south, the Little Belt Mountains, which rise to over 9,000 ft. MSL, also are visible about 30-40 miles away. Looking westward, the front range of the main Rocky Mountains also can be seen on clear days.

The EIS utilized the Visual Resource Management System (VRM) developed by the Bureau of Land Management (BLM) to assess the current visual resources in the vicinity of the Project site (BLM, no date). Although the land in the area of the Project is private land, including the NHL, and the National Park Service administers the Lewis and Clark National Historic Trail and NHL, the Department is not aware of any formal visual resource assessment method other than the BLM method. The VRM assigns a ranking system by rating the visual appeal of a tract of land, measuring public concern for scenic quality, and determining whether the tract of land is visible from travel routes or observation points. Classes I and II are the most valued, Class III represents a moderate value, and Class IV represents the least value. The VRM analysis of the Project site yielded a visual resource ranking of Class III; that is, as possessing moderate visual or scenic values (RUS and MDEQ, 2007a).

Bison Engineering ("Bison") conducted an additional viewshed analysis for a 5 km radius around the HGS gas plant. The radius included the Lewis and Clark Staging Area. This analysis identified areas within the 5 km radius from which a six foot tall observer would be able to see any part of the HGS gas plant, including the 105 ft combined cycle stacks. In Figure 4, the red shaded areas indicate where the HGS gas plant would be visible.

Figure 4. HGS Gas Plant Visibility Analysis



Environmental Consequences

Construction-related activities and traffic would result in minor to moderate visual impacts to the surrounding area, including nearby farms and residences, the Salem Road, and the portion of the NHL near the Project site. Larger construction vehicles would be present on site as well as the emitting units for the Project being assembled.

As seen in Figure 2, the proposed Project would consist of consist of the following main structures: 2 simple cycle combustion turbine generators, each with an 80 foot stack; 2 heat recovery steam generators (HRSG), each with a 105 foot stack; a 70 foot high control/administrative/maintenance activities and steam turbine generator building; a 45 foot high cooling tower structure; and a 30 foot high water treatment building. The viewshed analysis indicates that the HGS gas plant structures would not be visible from the Staging Area, which is two miles away and downslope from the Project site. Some steam plume may be visible in the distance from that point. However, the gas plant would be visible from other portions of the NHL.

The tallest structure would be the 105-foot stacks. The gas plant's footprint and profile would be much smaller than those of the previously proposed coal-fired plant. The tallest structure at the previously proposed coal-fired plant would have been the 400-foot CFB boiler stack. SME no longer intends to construct the previously proposed four wind turbines within the NHL, which

will significantly reduce the visual impacts of the Project in the area and, specifically, will significantly reduce the visual impacts of the Project on the NHL. Much of the visual impact of the coal-fired plant would have resulted from siting the four wind turbines within the NHL and the fact that the top of the 400-foot stack would have been visible from the Interpretive Site. The gas plant still would be visible from various points along Salem Road and from portions of the NHL. However, those portions of the NHL consist of privately owned farms and cultivated cropland and are posted against trespassing and public access. With removal of the wind turbines from the Project, and the decrease in stack height, no part of the Project would be visible from the Staging Area Interpretive Site (Stanley, 2009d), except for any portion of a steam plume that might be visible in the direction of the Project from the Interpretive Site.

The HGS facility would interconnect with existing transmission facilities owned by NorthWestern Energy. The initial interconnection would be with an existing 230 kV line that runs from the Great Falls Substation to the Broadview Substation, near the junction of Salem Road and Highway 228, southwest of the HGS facility. The transmission line from the facility would follow the Salem Road corridor south then follow the Highway 228 corridor west and would not cross the NHL. There are a number of transmission facilities close to the HGS site. If there is a need for future interconnection capacity, and that connection would involve an aerial crossing of the Missouri River, SME would be required to obtain any necessary permits for the crossing at that time. Currently, several transmission lines cross the Missouri River, and SME has stated that it would evaluate connecting with those lines, in determining future interconnection options.

As with the previously proposed coal plant, lighting from the gas plant would be expected to decrease the darkness of the sky in the area at night, although this affect could be reduced with use of downward lighting.

The current view south from the Lewis and Clark Staging Area Interpretive Viewpoint is shown in Figure 5.

Figure 5. Looking South from Lewis and Clark Staging Area Interpretive Site, December 2005

Source: RUS and MDEQ, 2007

As seen in Figure 5, the existing view from the Staging Area Interpretive Site is much changed from the view at the time of the Lewis and Clark Expedition. The photo shows the view to the south-east toward the Project, with existing power poles and a wooden post, barbwire fence around the Interpretive Site. The Interpretive Site, itself, consists of a graveled parking area, interpretive signs, and concrete benches. Although not shown in the photo, farm houses are visible in most directions from the Interpretive Site, and the Interpretive Site is surrounded by cultivated fields. The view to the east includes a house approximately two miles away. The view to the west includes two houses several miles away and two portions of Morony Dam Road. The view to the south includes two existing utility lines, one of which adjoins the road from Belt Creek and extends past the Staging Area and south past the HGS site, a few pieces of old farm machinery in the adjacent field, and a small portion of a petroleum pipeline. The view to the north includes a house approximately 1.5 miles away, another house several miles away, and a power line.

Cascade County zoning regulations require SME to use landscaping to mitigate the visual impacts of the Project. In 2008, SME hired a professional landscape architect, Land Design, Inc. ("Land Design"), to develop a comprehensive landscape plan for the Project site. Land Design developed the landscape plan based on the findings of the EIS (Land Design, 2009) and altered SME's original landscaping plan by substituting more of a scrubland appearance for the original plan to use tall trees. The purpose of this plan is to better blend the landscaping with the surrounding landscape. The plan includes creating earthen mounds around the HGS boundary planted with various trees, shrubs, and grasses. The proposed landscape plan has been approved by Cascade County as part of the location conformance permit required to construct an electrical generating facility at the Project site.

The artist renderings of the proposed landscape plan applied to the gas plant are presented in Figures 6 and 7. The application of the landscaping mitigation measures would substantially reduce visual impacts of the proposed natural gas facility from points of public access.

Previously, to address concerns from historic preservation parties over the potential impact of the coal plant on the aesthetics of the NHL, SME agreed to relocate the HGS coal plant to a site approximately one-half mile south of the originally proposed location and outside the boundary of the NHL.

Figure 6. View of Entry to the HGS Gas Plant

Source: Stanley Consultants, 2009d

Figure 7. View South of the HGS Gas Plant From Salem Road

Source: Stanley Consultants, 2009d

To reduce visual impacts further, SME agreed to use earth tone colors on buildings and transmission towers when designing the coal-fired facility. The design also would maximize the use of directional lighting to reduce the visual impacts at night. These mitigating actions (use of earth tone colors and maximizing directional lighting) would be implemented for the HGS gas plant.

Impacts Summary

In the EIS, RUS and the Department determined that, due to the rural setting and impacts on the NHL, the visual impacts of the previously proposed coal-fired plant, wind turbines, and transmission lines at the Salem site would be "significant and adverse." (RUS and MDEQ, 2007a, EIS, p. 4-95). Upon further evaluation and consideration of the existing development within the NHL, including at the Interpretive Site and surrounding the NHL, the Department now believes that this determination may not have been correct and that visual impacts at this site could have been rated as moderate. However, visual impacts of the current Project would be much less than the visual impacts of the coal plant and wind turbine project, due to elimination of the wind turbines and construction and operation of a much smaller power plant, including much lower 105-foot stacks, rather than the 400-foot stack proposed for the coal-fired plant.

Considering the historical and cultural qualities of the NHL viewshed, the Department believes that construction and operation of the Project, would have an adverse impact on the visual resources of the surrounding rural area, including the NHL, and on the experience of a visitor to the Interpretive Site, as the visitor travels along Salem Road past the Project to the Interpretive Site, and, possibly, from within the Interpretive Site, if steam or the affect of lighting at the plant on the night sky is visible from that location, depending upon the time of day. However, given the relatively small profile of the gas plant and the existing development in the area, including the existing transmission lines, residences, and farmed cropland within the NHL and surrounding the Interpretive Site, the Department believes that the impact of the Project on the visual resources of these areas, including the NHL and Interpretive Site, would be moderate, at most. The No-Action alternative would not impact visual resources and would not require mitigation and monitoring.

G. Air Quality

Project Potential Emissions

The area in which the Project is located is classified as a Prevention of Significant Deterioration (PSD) Class II area (40 CFR 52.1382). The Project and surrounding areas are designated as attainment or unclassifiable in accordance with 42 USC 7407 (d)(1)(A)(ii) and (iii). Accordingly, these areas have been shown or presumed to comply with NAAQS for all pollutants for which such standards have been promulgated.

The Project and surrounding areas also are considered to be in compliance with all MAAQS based on the modeling demonstration that has been conducted. A portion of the City of Great Falls near 10th Avenue South was designated as a non-attainment area for carbon monoxide at one time. The area was re-designated as attainment/unclassifiable in May 2002.

The Federal Clean Air Act (CAA) defines PSD Class I areas as national parks over 6,000 acres, national wilderness areas and national memorial parks over 5,000 acres, and international parks that were in existence as of August 7, 1977. In Montana, three Indian reservations have been redesignated as Class I areas, but are not considered mandatory Federal Class I areas.

The PSD Class I area nearest the Project site is the Gates of the Mountains Wilderness located approximately 88 km from the facility. Five PSD mandatory Federal Class I areas are located within 250 km of the facility and are listed below in Table 4.

Table 4: Mandatory Federal Class I Areas Within 250 km of the Project

Class I Area	Distance from Facility (km)
Gates of the Mountains Wilderness	88
Scapegoat Wilderness	122
Bob Marshall Wilderness	134
Glacier National Park	192
UL Bend National Wildlife Refuge	222

The Project area consists of active dryland farmland. Nearby existing sources of air pollutant emissions primarily are fugitive in nature and include farming related activities, windblown dust from tilled farmland, and road dust from traffic on unpaved county roads.

Significant adverse effects to ambient air quality could occur if air emissions resulted in ground-level pollutant concentrations that exceed national and/or state standards or if the combustion turbine plant operates in a manner that does not comply with air quality permit limits and conditions.

Construction activity air emissions would consist primarily of fugitive particulate emissions resulting from surface grading and vehicular traffic. Temporary localized emissions of gaseous combustion pollutants (i.e. exhaust) also would result from construction-related traffic and miscellaneous activities. All construction-related air emissions would be intermittent, of limited duration, and similar with respect to air emissions that normally occur in the area.

Because the proposed facility's combustion turbines would use natural gas fuel that would be transported by pipeline to the facility, and because the environmental controls proposed do not require large quantities of solid materials to function, vehicle and fugitive dust emissions are expected to be minor during operation of the plant.

The Project would be constructed in two phases. Phase I of construction would include installation of two simple cycle combustion turbines, with all support equipment and structures, including the simple cycle stacks. Support equipment at the facility would include an emergency diesel generator, a fire pump, and building heaters. Phase II construction would include installation of two HRSGs, emissions control equipment, a steam turbine, and combined cycle exhaust stacks. During both the initial Phase I period of simple cycle operation and the Phase II operation after steam plant installation, simple cycle hours of operation would be limited to 3,200 hours per year. Combined cycle operation hours would not be limited.

The natural gas-fired combustion turbines would be the largest sources of air emissions associated with the Project. The gas-fired turbines would have the potential to emit the following criteria pollutants (pollutants for which National Ambient Air Quality Standards (NAAQS) have been established): NO_x, CO, VOC, PM, PM_{10}, $PM_{2.5}$, SO_2, and Pb. Other point sources of air pollutant emissions include the cooling tower and the emergency generator. Table 5 presents estimated potential annual emissions of criteria pollutants from the facility.

Table 5. Facility Annual Potential to Emit Summary

Source	Annual Emissions (TPY)						
	PM	PM_{10}	$PM_{2.5}$	NO_x	CO	VOC	SO_2
Turbine East	31.54	31.54	31.54	89.11	244.08	11.41	3.02
Turbine West	31.54	31.54	31.54	89.11	244.08	11.41	3.02
Emergency Generator	0.04	0.04	0.04	6.04	0.55	0.13	0.09
Fire Pump Engine	0.04	0.04	0.04	1.02	0.24	0.04	0.02
Cooling Tower	1.14	1.14	1.14	--	--	--	--
Building Heaters	0.09	0.09	0.09	1.68	1.01	0.07	0.01
Haul Roads	5.68	1.57	--	--	--	--	--
Total	70.07	65.96	64.39	186.96	489.96	23.06	6.16

In addition to the criteria pollutants addressed above, the Federal and Montana Clean Air Acts specifically regulate hazardous air pollutants (HAPs), including 189 individual compounds or groups of compounds. Table 6 presents a summary of potential HAP emissions from the Project. The Project would be classified as an area (or non-major) source of HAP emissions, according to CAA definitions.

Table 6. Hazardous Air Pollutants Emission Inventory (TPY)

Hazardous Air Pollutant	CAS Number	Turbines [1]	Black Start Generator [2]	Fire Pump [3]	Total Facility
Organic HAPs					
1,3-Butadiene	106-99-0	0.002	0.0E+00	2.45E-05	0.002
Acetaldeyde	75-07-0	0.157	9.2E-05	4.81E-04	0.157
Acrolein	107-02-8	0.025	2.9E-05	5.80E-05	0.025
Benzene	71-43-2	0.047	2.8E-03	5.85E-04	0.050
Ethyl benzene	100-41-4	0.125	0.00	0.00	0.125
Formaldehyde	50-00-0	2.783	2.9E-02	7.40E-04	2.813
Naphthalene	91-20-3	0.005	4.7E-04	5.32E-05	0.006
Polycyclical Aromatic Hydrocarbons (PAH)	PAH	0.009	7.7E-04	1.05E-04	0.010
Propylene Oxide	75-56-9	0.114	1.0E-02	1.62E-03	0.125
Toluene	108-88-3	0.510	1.0E-03	2.57E-04	0.511
Xylenes	1330-20-7	0.251	7.0E-04	1.79E-04	0.252
Total Organic HAPs		**4.03**	**0.045**	**0.004**	**4.08**
Inorganic HAPs					
Lead	7439-92-1	0.00	0.00	0.00	0.00
Total Inorganic HAPs		**0.00**	**0.00**	**0.00**	**0.00**
Total Calculated Maximum Potential HAP Emissions		**4.03**	**0.045**	**0.004**	**4.08**

1. Turbine emission factors obtained from AP-42, Tables 3.1-2a and 3.1-3; calculations assume worst case operation, i.e., two turbines operating in combined cycle mode with duct firing for 8,760 hours per year.
2. Generator emission factors obtained from AP-42, Tables 3.4-3 and 3.4-4; calculations assume 500 hours of operation per year.
3. Fire pump emission factors obtained from AP-42, Table 3.3-2; calculations assume 500 hours of operation per year.

Based on estimated actual operation, the facility would emit roughly 250,000 tons of CO_2 per year, assuming two General Electric LM-6000PF combustion turbines operate for 4,380 hours, at 91.5^o F, and 100% load, with duct burners running. Calculations are based on the emission factor for the duct burners from the US EPA publication AP-42, Table 1.4-2, and the emission factor for the turbines is from GE. Based on 8,760 hours of operation per year, the facility would emit roughly 500,000 tons of CO_2 per year. This compares to an estimated 2.1 million tons of CO_2 per year that would have been emitted by the previously proposed coal-fired plant (RUS and MDEQ, 2007a). Also, the estimated CO_2 emissions from the recently permitted Basin Electric Power Cooperative 100 MW simple cycle natural gas power plant facility would be 147,600 tons per year.

Impacts Analysis

Estimated air quality impacts were determined for the area immediately surrounding the Project site, all of which is designated as a PSD Class II area, and for locations distant from the proposed site that are designated as PSD Class I areas. Air dispersion models were used to perform the analyses. These models use hourly meteorological data, terrain elevation data, and emission source data to calculate ground-level pollutant concentrations that would result in the Project's worst-case emissions at a set of defined locations. These pollutant concentrations are then measured against established thresholds to determine impacts and regulatory compliance from the Project. Conditions for both Phase I and Phase II operating scenarios were modeled.

As part of the MAQP application #4429-00, SME submitted a modeling analysis of ambient air quality dispersion. Bison provided the modeling demonstrations on behalf of SME. When SME submitted the modeling demonstration, the SME property upon which the Project is to be constructed was also permitted for the HGS coal plant (MAQP #3423-01). The modeling demonstration that SME submitted for the Project analyzed combined worst case emissions from both the HGS coal plant and the HGS gas plant as if emissions from each facility were to occur simultaneously. This worst case analysis demonstrated compliance with Montana Ambient Air Quality Standards (MAAQS), NAAQS, and PSD Class II and Class I increments.

If emissions of a particular pollutant from a facility would result in a peak concentration over a specific averaging period that is below a related modeling significance threshold, then that source is considered incapable of contributing to a violation of an air quality standard or increment limit. In other words, the source's impacts on ambient concentrations of that pollutant for that averaging period are deemed to be "insignificant."

The Project's impacts to Class II area ambient concentrations of SO_2 and CO for all regulated averaging periods were shown through modeling to be insignificant, and no further analyses were performed for these pollutants. Further analyses of impacts to Class II area ambient concentrations of NO_x, PM_{10}, and $PM_{2.5}$ were conducted below. Table 7 summarizes the pollutants analyzed and the results of the significant impact levels.

Table 7. Significance Impact Levels

Pollutant	Averaging Period	Significance Level ($\mu g/m^3$)	Modeled Concentration ($\mu g/m^3$)	Significant Impact?
$PM_{2.5}$	24-Hour	1.2	6.83	YES
	Annual	0.3	0.79	YES
PM_{10}	24-Hour	5	6.83	YES
	Annual	1	0.79	NO
NOx	Annual	1	3.50	YES
SO_2	1-Hour	25	7.9	NO
	3-Hour	25	5.18	NO
	24-Hour	5	2.07	NO
	Annual	1	0.09	NO
CO	1-Hour	2,000	328.60	NO
	8-Hour	500	112.53	NO

The PSD permitting program requires an analysis to assess impacts to Class I areas. The PSD permitting program establishes PSD increments, which are maximum allowable increases in air contaminant concentrations in attainment or unclassified areas. PSD increments have been established for PM_{10}, SO_2, and NO_x. No increments have been established for $PM_{2.5}$. Unique Class I area impact limits are specified for NO_x and PM_{10} ambient concentrations. Modeling analyses demonstrated that the Project's NO_x and PM_{10} emissions would result in "insignificant" impacts to ambient concentrations in all surrounding Class I areas. The following tables (Tables 8 and 9) summarize the modeling analysis demonstration.

Table 8. Maximum Class I PSD Increments for Steady State Conditions.

Pollutant	Averaging Period	Class I Wilderness Area	Modeled Impact ($\mu g/m^3$)	Class I Increment ($\mu g/m^3$)	Class I Significance Level ($\mu g/m^3$)
PM_{10}	24-Hour	Gates of the Mountains	0.03467	8	0.3
	Annual	UL Bend	0.00142	4	0.2
NO_2	Annual	Gates of the Mountains	0.00254	2.5	0.1

Table 9. Maximum Class I PSD Increments for Startup/Shutdown Conditions.

Pollutant	Averaging Period	Class I Wilderness Area	Modeled Impact ($\mu g/m^3$)	Class I Increment ($\mu g/m^3$)	Class I Significance Level ($\mu g/m^3$)
PM_{10}	24-Hour	Gates of the Mountains	0.03512	8	0.3
	Annual	UL Bend	0.00144	4	0.2
NO_2	Annual	UL Bend	0.00262	2.5	0.1

Impacts to ambient concentrations of VOC and lead were not evaluated for this project. As shown in Table 6, lead emissions are expected to be negligible. VOC emissions are considered to be insignificant and alone would be considered below the minor source permitting threshold.

The $PM_{2.5}$, PM_{10}, and NO_x NAAQS/MAAQS analyses used the maximum emission rates from the HGS coal and gas plants, and all of the off-site surrounding facilities. Table 10 compares modeled peak concentrations of NO_x, PM_{10}, and $PM_{2.5}$ with the appropriate MAAQS and NAAQS. Note that the modeled concentrations shown in Table 10 include background

concentrations and concentration impacts resulting from potential emissions of other permitted facilities in the region. As shown, the Project would not result in a violation of any ambient air quality standards.

Table 10: Ambient Air Quality Analyses

Pollutant	Averaging Period	NAAQS ($\mu g/m^3$)	MAAQS ($\mu g/m^3$)	Modeled Concentration ($\mu g/m^3$)
$PM_{2.5}$	24-Hour	35	NA	24
	Annual	15.0	NA	7.9
PM_{10}	24-Hour	150	NA	34
NO_x	1-Hour	NA	564	312
	Annual	100	94	10

Note: SO_2 and CO were found to be insignificant and were not carried through in the modeling analysis.

The Project is required to demonstrate compliance with Class II increments for NO_x and PM_{10} with SO_2 concentrations below the significance level. As a conservative approach to the Class II PSD increment analysis, potential emissions of PM_{10} and NO_x which were modeled concentrations derived from the NAAQS/MAAQS analyses were used rather than the required latest two-year average of actual emissions. The results of the Class II PSD increment analysis using potential emission are provided in Table 11. No increments were exceeded in this Class II modeling analysis.

Table 11. PM_{10} and NO_x Class II PSD Increment Analysis.

Pollutant	Averaging Period	Modeled Concentration ($\mu g/m^3$)	Class II Increment ($\mu g/m^3$)
PM_{10}	24-Hour	11	30
NO_x	Annual	4	25

The PSD program requires evaluation of impacts on air quality related values, including visibility, in mandatory Federal Class I areas. A Class I significant impact analysis was performed to identify the potential impacts from the proposed emissions increase from the HGS gas plant. The predicted impacts were well below the significance levels for Class I areas so no further analysis was necessary. The data are summarized above in Tables 12 and 13 demonstrating the predicted Class I impacts.

Table 12. Maximum Class I PSD Increments for Steady State Conditions.

Class I Area	Pollutant	Averaging Period	Predicted Impact ($\mu g/m^3$)	Class I Increment ($\mu g/m^3$)	Class I Significance Level ($\mu g/m^3$)
Gates of the Mountains WA	PM_{10}	24-Hour	0.03467	8	0.3
UL Bend WA		Annual	0.00142	4	0.2
Gates of the Mountains WA	NO_2	Annual	0.00254	2.5	0.1
	SO_2	3-Hour	0.01042	25	1.0
		24-Hour	0.00238	5	0.2
UL Bend WA		Annual	0.00010	2	0.1

Table 13. Maximum Class I PSD Increments for Startup/Shutdown Conditions.

Class I Area	Pollutant	Averaging Period	Predicted Impact ($\mu g/m^3$)	Class I Increment ($\mu g/m^3$)	Class I Significance Level ($\mu g/m^3$)
Gates of the Mountains WA	PM_{10}	24-Hour	0.03512	8	0.3
UL Bend WA		Annual	0.00144	4	0.2
	NO_2	Annual	0.00262	2.5	0.1
Gates of the Mountains WA	SO_2	3-Hour	0.01037	25	1.0
		24-Hour	0.00241	5	0.2
UL Bend WA		Annual	0.00010	2	0.1

Impacts to natural background visibility are expressed in terms of percentage change in background light extinction averaged over a 24-hour period. The Federal Land Manager Air Quality Related Values Workgroup (FLAG document) guidance suggests that a predicted change in extinction of less than 0.5 deciview, resulting from a single source, generally should be acceptable. A predicted change in extinction between 0.5 and 1.0 may warrant a cumulative analysis that includes impacts from certain other nearby sources. A change in 0.5 deciviews is essentially equivalent to a 5% change. The NPS considers a change greater than or equal to 5% in any one met year a violation and refined analysis would be required including the emissions from the near-by industrial sources.

Simple Cycle turbine emissions had the greatest effect on the natural background visibilities at all of the Class I areas, probably due to the higher NO_x emission rates. However, none of the values exceeded the threshold of 0.5 dv change at any Class I area. The maximum 24-hour change in visibility from natural background conditions was 0.107 dv at the UL Bend Wilderness Area from the HGS gas plant Simple Cycle turbine emissions, under startup/shutdown conditions.

The PSD program also requires evaluation of acid deposition in mandatory Federal Class I areas. The HGS gas plant emissions were included in this modeling phase. The FLAG document provided guidance for evaluating rates of acid deposition, within Class I areas, resulting from a proposed new or modified facility. Following guideline analysis methods, acid deposition rates

resulting from the Project's potential emissions would be far below the guideline threshold of 0.0050 kilograms per hectare per year in each of the surrounding Class I areas. Tables 14 and 15 list the results for both steady state and startup/shutdown conditions, respectively.

Table 14. Maximum Deposition for Steady State Conditions.

Class I Area	Nitrogen Deposition (kg/ha/yr)	Sulfur Deposition (kg/ha/yr)
Bob Marshall WA	2.09E-04	1.17E-05
Gates of the Mountains WA	1.01E-03	4.57E-05
Glacier NP	7.99E-05	5.27E-06
Scapegoat WA	3.12E-04	1.85E-05
UL Bend WA	5.57E-04	3.03E-05

Table 15. Maximum Deposition for Startup/Shutdown Conditions.

Class I Area	Nitrogen Deposition (kg/ha/yr)	Sulfur Deposition (kg/ha/yr)
Bob Marshall WA	2.10E-04	1.13E-05
Gates of the Mountains WA	9.55E-04	4.53E-05
Glacier NP	8.55E-05	5.23E-06
Scapegoat WA	3.01E-04	1.82E-05
UL Bend WA	6.06E-04	3.05E-05

MAQP Summary

Pursuant to ARM 17.8.308, SME would be required to take reasonable precautions to control emissions of airborne particulate matter. SME and its contractors would use best management practices to limit fugitive dust during construction and operation of the Project. These practices could include; applying water and/or dust suppression chemicals to roadways and disturbed surfaces, as needed; ensuring that its contractors and employees observe speed limits on access roads; and reseeding or otherwise stabilize disturbed areas.

Montana air quality rules require that a best available control technology (BACT) analysis be completed and the determinations will require mechanisms control emissions from the proposed facility. By definition, BACT is determined on a case-by-case basis. For this Project, the Department has determined the following controls are BACT for controlling emissions from the combustion turbine in simple cycle mode and combined cycle mode and from the emergency generator and emergency fire water pump.

Table 16. Simple Cycle Mode

Pollutant	BACT
NO_x	Dry low NO_x Burners (DLN) and fuel selection. For simple cycle, NO_x control is cost-prohibitive above the baseline of fuel selection and DLN.
CO and VOC	Proper system design and operation. Add-on controls are not cost-effective.
SO_2	Use of low-sulfur, pipeline quality natural gas; proper maintenance and operation. Add-on controls are not cost-effective.
$PM/PM_{10}/PM_{2.5}$	Use of low-sulfur, pipeline quality natural gas; proper maintenance and operation. Add-on controls are not cost-effective.

Table 17. Combined Cycle Mode

Pollutant	BACT
NO_x	DLN, Selective Catalytic Reduction (SCR), and fuel selection.
CO and VOC	Catalytic oxidation.
SO_2	Use of low-sulfur, pipeline quality natural gas; proper maintenance and operation. Add-on controls are not cost-effective.
$PM/PM_{10}/PM_{2.5}$	Use of low-sulfur, pipeline quality natural gas; proper maintenance and operation. Add-on controls are not cost-effective.

Table 18. Emergency Generator and Emergency Fire Water Pump

Pollutant	BACT
NO_x	Proper design and operation. Operate only in emergencies and for required maintenance. Permit limit of 500 hours per year per engine.
CO and VOC	
SO_2	
$PM/PM_{10}/PM_{2.5}$	

Compliance assurance monitoring (CAM) requirements are pollutant-specific and apply to certain emissions units at a facility for which a Title V air quality operating permit is required. SME would be required to obtain an operating permit for the generation facility, but only the natural gas combustion turbines would meet the CAM applicability criteria, and the criteria would apply only to NO_x and CO emissions. The applicability of the CAM requirements is determined in accordance with ARM 17.8 subchapter 15**.** SME will be required to provide the Department with a formal CAM plan when applying for their operating permit. NO_x emissions would be monitored and recorded using a continuous emissions monitoring system which will not only be a requirements of the operating permit, but is also a requirements of MAQP #4429-00.

Impacts Summary

In its air quality permit application for the Project, SME demonstrated compliance with all applicable ambient air quality regulatory and guideline limits, including ambient standards, PSD increments, and visibility and acid deposition impact guidelines. SME would be required to obtain air quality construction and operating permits and comply with all permit requirements including testing, monitoring, and reporting requirements.

Based on the analyzes conducted and the information contained above and within MAQP #4429-00 the impacts to air quality from the Project would be considered minor. The no-action alternative would not affect air quality in the Great Falls area.

H. Unique Endangered, Fragile, or Limited Environmental Resources

State Species of Concern

WESTECH researched previously recorded wildlife sightings within a ten mile radius of the Project site and areas surrounding the proposed transmission lines (WESTECH, 2005). The research included interviews with landowners and with specialists from the FWP. This research identified several State species of concern that have been observed in the Great Falls area. The Department also conducted a species of concern search through the Montana Natural Heritage Program. The identified species of concern are listed in Table 19.

Table 19. Montana Species of Concern Recorded Within Ten Miles of Great Falls

Species		Suitable Habitat
Common Name	**Scientific Name**	
Plants		
Roundleaf water hyssop	*Bacopa rotundifolia*	Muddy shores of ponds and streams; last recorded in 1891
Many-headed sedge	*Carex sychnocephala*	Moist meadows; lake shores; thickets at low elevations; last recorded in 1890
Chaffweed	*Centunculus minimus*	Drying vernal pools (seasonal wetlands); last recorded in 1891
	Entosthodon rubiginosus	Moss; last recorded in 1887
	Funaria Americana	Moss; last recorded in 1902
Guadalupe water-nymph	*Najas guadalupensis*	Submerged in shallow fresh water of oxbow sloughs and ponds; drying vernal pools; last recorded in 1891
Dwarf woolly heads	*Psilocarphus brevissimus*	Drying vernal pools; last recorded in 1891
California waterwort	*Elatine californica*	Shallow waters and mudflats along the edges of wetlands; last recorded in 1891
Fish		
Blue sucker	*Cycleptus elongates*	Missouri River below Morony Dam
Sauger	*Sander Canadensis*	Missouri River below Morony Dam
Amphibians – none		
Reptiles		
Spiny softshell turtle	*Apalone spinifera*	Missouri River below Morony Dam
Greater short-horned lizard	*Phrynosoma hernandesi*	Missouri River below Morony Dam
Mammals – none		
Birds		
Ferruginous hawk	*Buteo regalis*	Sagebrush steppe, grasslands with rolling to steep slopes
Bald eagle	*Haliaeetus leucocephalus*	Larger rivers, lakes and Reservoirs
Burrowing owl	*Athene cunicularia*	Grasslands with rodent and badger burrows
White-faced ibis	*Plegadis chihi*	Wetlands
Black-crowned night heron	*Nycticorax nycticorax*	Wetlands
Franklin's gull	*Larus pipixcan*	Wetlands
Common tern	*Sterna hirundo*	Wetlands
Black tern	*Chlidonias niger*	Wetlands

Source: MNHP, 2005 and USFWS letter dated May 12, 2005.

The blue sucker, sauger, and spiny softshell turtle are known to be present below Morony Dam (WESTECH, 2006a). The dams along the Missouri River likely have restricted the movement of these species (RUS and MDEQ, 2007a). Avian species of concern potentially in the Project area include ferruginous hawks, burrowing owls, whitefaced ibis, black-crowned night heron, Franklin's gull, common tern, and black tern. Only the Franklin's gull was observed during 2005 surveys (WESTECH, 2005).

A bald eagle nest is located near the confluence of the Missouri River and Belt Creek (Dubois, 2005; WESTECH, 2005). The site is approximately two miles from the generation facility site. The nest was active in 2005 and produced one fledgling (Taylor, 2005; WESTECH, 2005). No other bald eagle nests are known to be in the area (Taylor, 2005; WESTECH, 2005).

Wetlands and Noxious Weeds

The amount of wetlands in the area surrounding the Project site is limited. Field surveys and reviews of aerial photographs revealed a few isolated wetlands along Box Elder Creek and the Missouri River (RUS AND MDEQ, 2007a).

Several species of noxious weeds are known to be present in the Great Falls area. These include Canada thistle, whitetop, leafy spurge, and spotted knapweed. Only Canada thistle and spotted knapweed are common and widespread, while whitetop and leafy spurge are less abundant.

Environmental Consequences

Adverse effects to flora and fauna may occur through construction or operation of the facility or infrastructure as described in the coal-fired generation facility EIS (RUS AND MDEQ, 2007a). Wildlife could experience mortality directly due to construction or operation of the facility or its infrastructure, or indirectly through habitat loss, fragmentation, or conversion. Vegetation can be directly affected by its removal as the ground surface on which it occurs is developed, or indirectly through changing populations of wildlife that feed on plants.

SME would be required to follow the requirements in the Cascade County Weed and Mosquito Management District's document, "Weed Management and Revegetation Requirements for Disturbed Areas in Cascade County, Montana." This document specifies the actions that need to be taken prior to disturbance, during operation, and upon reclamation, to prevent the spread of noxious weeds in the county.

The Montana Bald Eagle Management Plan limits high intensity activities in areas requiring special protection for bald eagle nests. Construction contractors would be required to conduct activities, such as developing aggregate sources, gravel crushing, staging and stockpiling, well outside of areas requiring special protection for bald eagle nests along the Missouri River. Any questions SME or its contractors have concerning application of requirements intended to protect this species should be directed to the USFWS and/or FWP.

Impacts Summary

Similar to the impacts of constructing and operating the coal facility (RUS AND MDEQ, 2007a), the biological impacts of constructing and operating the gas plant Project would be minor. The No Action Alternative would have no direct effects on biological resources at the Project site.

I. Demands on Environmental Resource of Water, Air and Energy

As described in Section 7.B of this EA, impacts to area water resources would be minor because the demands for water would be relatively low and the resulting amount of wastewater generated would be small. Also, SME is not proposing to directly discharge any material to surface or ground water resources in the area. Wastewater would be discharged to the City of Great Falls wastewater treatment facility or treated and evaporated onsite, as discussed above.

As described in Section 7.G of this EA, any impact to the air resource in the area of the facility would be minor. MAQP #4429-00 would contain conditions limiting the emissions from the facility. Air emissions from the facility would be controlled and relatively low due to the

dispersion characteristics of the facility and local area. Dispersion modeling of worst case conditions (including operation of the HGS coal plant, for which MAQP #3423-01 has since been revoked) demonstrated that emissions from the proposed facility would not cause exceedances of ambient air quality standards, PSD increments, or guidelines intended to protect air quality related values in mandatory Federal Class I areas.

Impacts to energy resources would result from the use of natural gas to power the combustion turbine generator and building heaters, and from consumption of diesel fuel to power the emergency generator and fire pump. Total facility energy consumption would be 7,873,268 MMBtu/yr, with turbines and buildings operating 8,760 hours per year, and the emergency generator and fire pump each operating 500 hours per year. The Project would have a maximum heat input of approximately 7,840,000 MMBtu/year, assuming 8,760 hours of operation per year. This would compare to a maximum heat input of approximately 192,500,000 MMBtu/year for the PPL Colstrip Steam Electric Station Units 1-4.

J. Historical and Archaeological Sites

As part of the EIS for the coal-fired facility, archaeologists conducted a records search for previously recorded cultural resource sites within the general vicinity of the Project site (Dickerson, 2005). Records from the Montana State Historic Preservation Office (SHPO) records center and the cultural resource site files at the Department of Anthropology, University of Montana, Missoula, were reviewed.

A professional archaeologist at Renewable Technologies, Inc. (RTI) completed a cultural resource inventory of the HGS site in 2005 (Dickerson, 2005). The inventory encompassed a total of 1,180 acres, covering the proposed HGS plant site and various infrastructure corridors. Because the natural gas plant footprint would be materially smaller in magnitude and fit within the overall footprint of the previously proposed coal-fired HGS, pertinent inventories are carried forward into this assessment for the natural gas-fired facility.

Ten cultural properties were found to lie within the area of potential effect of SME's HGS site. The ten cultural properties include five previously recorded sites, and five sites discovered and recorded as part of the project (Dickerson, 2005). For nine of the ten sites, the sites were fully recorded or site records were amended. One newly discovered farmstead (field number RTI-05025-04) was identified but not fully documented due to lack of access to the property. Table 20 lists the ten sites documented within the Project area. Detailed descriptions and record forms for each site are contained in the RTI report (Dickerson, 2005).

Table 20. Cultural Sites Documented Within SME's Project Area

Site Number	Description	Legal Location*	National Register Eligibility/Status
24CA238	Great Falls Portage National Historic Landmark	T20N, R5E, Secs 3-7; T21N, R5E, Secs 13-14, 23-27, 33-35	Listed, National Historic Landmark
24CA264	Chicago, Milwaukee, St. Paul & Pacific Railroad	T20N, R4E, Sec 1; T20N, R5E, Secs 5, 6; T21N, R5E, Secs 32-35	Eligible; portion lying within SME's project area is a contributing element
24CA289 Feature 2	Morony Transmission Line	T21N, R4E, Secs 24-26	Contributing Element of an Eligible District
24CA291 Feature 34	Rainbow Transmission Line	T21N, R4E, Secs 24-26	Contributing Element of an Eligible District
24CA416	Rainbow-Ryan Road	T21N, R4E, Secs 25, 26; T21N, R5E, Sec 19	Eligible
24CA986	Historic Farmstead	T21N, R5E, Sec 23	Ineligible
24CA987	Historic Farmstead	T21N, R5E, Sec 26	Ineligible
24CA988	Historic Farmstead	T21N, R5E, Sec 26	Ineligible
24CA989	Cooper Siding	T20N, R5E, Sec 6	Ineligible
RTI-05025-4	Historic Farmstead	T21N, R5E, Sec 35	Unevaluated; presumed ineligible**

Source: Dickerson, 2005
* The legal locations listed above encompass only those portions of sites situated within SME's project area.
** Property RTI-05025-4 was noted in the field, but not formally recorded or evaluated for National Register eligibility.

Great Falls Portage National Historic Landmark (24CA238)

The Great Falls Portage NHL (24CA238) is a historic landscape area associated with the portage of the Lewis and Clark Corps of Discovery around the Great Falls of the Missouri River in 1805. The site first was recorded in 1976, with revisions to the National Landmark nomination form in 1984 (Witherell, 1984). The Great Falls Portage NHL is an approximately one-mile wide discontinuous corridor spanning from the lower portage camp, located immediately north of the mouth of Belt Creek, to White Bear Island at the southern outskirts of Great Falls. RTI's 2005 inventory covered portions of the northern section of the NHL corridor extending northeast from the eastern boundary of Malmstrom Air Force Base. Within the inventory project area, RTI found no physical evidence of the Corps of Discovery's portage activities. No camp features, artifacts, or similar evidence were found on the surface. Currently, ownership of the property within the NHL is held by SME and other neighboring landowners.

Environmental Consequences

On January 20, 2006, RUS sent letters to eight organizations in the Montana-Wyoming Tribal Leaders Council informing them of the HGS proposal and EIS process and inviting comment and participation. By way of this letter, RUS formally requested consultation with the tribes on SME's proposal. RUS also asked tribal representatives to advise RUS if they had specific concerns regarding either of the proposed locations of the HGS, and in particular, asked for any information they may have on the possible presence of Traditional Cultural Properties (TCPs) or sacred sites at either of the proposed locations under study.

Two responses were received from tribes to this request for consultation. The Northern Cheyenne Tribe expressed concern about cumulative air quality impacts and asked to receive the Draft EIS. The Blackfeet Tribal Historic Preservation Office requested a site visit, which was held on March 24, 2006. To date, no TCPs have been identified at the Project site.

As described above, ten cultural properties are found in the vicinity of the Project. The ten include five previously recorded sites, and five discovered and recorded as part of investigations supporting the EIS. Of these ten properties, only the Great Falls Portage NHL (24CA238) would be impacted by the proposed Project.

In 2007, the National Park Service issued a report regarding an evaluation of the impacts of the previously proposed HGS coal-fired plant on the NHL (NPS, 2007). In the report, the NPS concluded that construction and operation of the HGS would have significant and adverse impacts to the Lewis and Clark National Historic Trail and could result in de-listing of most, if not all, of the NHL. Although the NPS clearly opposes construction of any power plant at the Salem site, the conclusions in the NPS report were based, in large part, on SME's proposal at that time to construct four 300-foot tall wind turbines and an electrical transmission line within the NHL and to construct a coal-fired power plant with a 400-foot stack. As discussed above, SME has modified its proposal since issuance of this report. SME does not intend to construct the wind turbines, only one electrical transmission line is proposed, and that line would not cross the NHL.

Because potential RUS funding was involved in SME's proposal to construct a coal-fired power plant at the HGS site, the finding in the coal plant EIS of an adverse impact on the NHL triggered a requirement, under Section 106 of the National Historic Preservation Act, for a consultation between parties interested in the NHL. RUS initiated and nearly completed a Section 106 consultation with interested parties, including the State Historic Preservation Office (SHPO), the National Park Service, the Advisory Council on Historic Preservation, and other local and national groups. Before the consultation process concluded, potential RUS funding for the project was eliminated as part of a general curtailment of RUS funding for coal-fired electrical generation facilities. With elimination of RUS involvement in the Project, in 2008, the U.S. Army Corps of Engineers ("Corps") assumed the role of completing the Section 106 consultation process. In March 2009, the Corps held a meeting with involved parties, received follow-up comments from meeting participants, toured the site, and requested additional information from SME. At the time the Corps engaged in these activities, the air quality permit for the previously proposed coal-fired plant still was valid and the parties viewed the proposed gas plant as an additional action at the site.

Because revocation of the air quality permit for the coal plant eliminated the potential impacts of that facility on the NHL, the scope of the Section 106 consultation process has changed. The Corps has requested that SME submit a new application for any Section 10 or Section 404 permits that may be necessary for the gas-fired plant Project. SME is evaluating whether any permits would be required from the Corps, and SME intends to met with the Corps on August 27, 2009, to discuss the currently proposed Project. SME has stated that it expects the Corps to determine, based on that meeting, whether SME is required to obtain any permits from the Corps and whether those permits trigger a need for further consultation.

The NHL's integrity is based predominantly on visual landscape qualities that are reportedly similar to those that existed during the early 19th century when the Corps of Discovery traveled through the area. While portions of the visual landscape qualities of the Great Falls Portage NHL are similar to those that existed at the time of the Lewis and Clark expedition, other portions are not. The NHL is privately owned and is posted against trespassing and public access in the vicinity of the Project. The view of the NHL from the only public access points in the area of the Project, Salem Road, and the Staging Area Interpretive Site, is largely of cultivated cropland. The view also includes existing power lines and farm houses. From the Interpretive site, a portion of the Morony Dam Road also is visible, as are some old farm equipment and a small above-ground portion of a petroleum pipeline. In the greater area of the NHL, the visual landscape also is quite changed, including damming of the Great Falls of the Missouri, development of the City of Great Falls, development of Malmstrom Air Force Base, development of numerous farmsteads and accompanying facilities, residential and commercial development, and installation of numerous transmission lines across the Missouri River.

In the Draft EIS, RUS and the Department found a significant adverse effect to the NHL if SME were to proceed with the development of a coal-fired generating station located on the NHL. As explained below, SME proposed mitigation measures, including shifting the coal plant site off the NHL. In the Final EIS, RUS and the Department also found a significant adverse effect, although noting the reduction of impacts resulting from mitigation.

As discussed above, the proposed natural gas-fired generation facility would have a much smaller profile than the previously proposed coal-fired plant and would not be visible from the Staging Area Interpretive Site, except for any steam that might be visible from that site.

Mitigation

SME proposed, and RUS agreed with, proposed mitigation measures for the HGS coal-fired power plant and wind turbine project. Many of these proposals were completed or contemplated by SME in designing the coal-fired project. SME shifted the footprint of the coal plant outside of the NHL's designated boundaries, and the proposed natural gas facility would be located outside the boundary of the NHL.

To reduce visual impacts further, SME agreed with RUS to:

> Use earth tone colors on buildings and transmission towers, when feasible, in designing the coal-fired facility;
>
> To maximize use of downward directional lighting where appropriate and safety measures allow, in order to reduce visual impacts at night;
>
> to construct HGS infrastructure using materials and techniques to lessen visual impacts on the NHL, such as use of self-weathering (Corten) steel transmission poles, burying pipelines and re-vegetating the disturbed area, and constructing new access roads in a manner similar to existing roads; and
>
> To evaluate whether it is feasible to utilize landscaping around the facility.

These mitigating actions would be implemented for the Project. SME developed a landscaping plan for the coal-fired plant, which was approved by Cascade County, and SME would follow the landscape plan for the natural gas plant.

As recommended by RUS and the Department in the HGS EIS, SME also implemented an Archeological Monitoring Plan in conjunction with starting construction of HGS; this monitoring would be continued for further construction activities associated with the natural gas-fired generation facility.

Impacts Summary

The proposed natural gas-fired facility would be located off the NHL, wind turbines would not be constructed, and the gas plant would fit within the footprint of the previously proposed coal-fired facility, with a much smaller profile than the coal-fired plant, including stacks that would be much lower than the stack for the coal plant. The impacts of the gas plant on the NHL, in general, and on the Staging Area Interpretive Site, would be much less than the impacts of the coal plant evaluated in the EIS. Based on the level of these lower impacts and the existing development on the NHL and the surrounding area, construction and operation of the gas plant would not have a significant adverse impact on the NHL, and impacts would be moderate, at most. The no-action alternative would not affect this resource. However, continuing residential, commercial, agricultural, or industrial development in the vicinity of Great Falls is likely to impact the NHL regardless of the proposed action.

K. Cumulative and Secondary Impacts

Air quality emissions from the Project would add to background air pollutant concentrations. Acoustic and visual impacts of the Project would add to the acoustic and visual impacts of the existing development in the vicinity of the Project and would add to the existing impacts on the historical resource of the NHL.

8. *The following table summarizes the potential economic and social effects of the proposed project on the human environment.*

		Major	Moderate	Minor	None	Unknown	Comments Included
A	Social Structures and Mores				X		Yes
B	Cultural Uniqueness and Diversity				X		Yes
C	Local and State Tax Base and Tax Revenue			X			Yes
D	Agricultural or Industrial Production			X			Yes
E	Human Health			X			Yes
F	Access to and Quality of Recreational and Wilderness Activities			X			Yes
G	Quantity and Distribution of Employment				X		Yes
H	Distribution of Population				X		Yes
I	Demands for Government Services			X			Yes
J	Industrial and Commercial Activity			X			Yes
K	Locally Adopted Environmental Plans and Goals				X		Yes
L	Cumulative and Secondary Impacts			X			Yes

A. Social Structures and Mores
B. Cultural Uniqueness and Diversity

The proposed project would not have any effect on social structures and mores of the proposed area of operation. The project area is located in a sparsely populated rural region, in an area whose predominant agricultural use would not change as a result of the proposed project. Further, the facility would be required to operate according to the conditions that would be placed in Permit #4429-00, which would limit the effects to social structures and mores because air emissions would be limited by compliance with the established permit conditions.

C. Local and State Tax Base and Tax Revenue

Because of the influx of capital and employment, the existing socioeconomic environment would be affected to some degree. The increase in employment and expenditures from the construction and operation of the facility would be a direct impact to the community. Besides local expenditures by employees in the area, income may be generated in the community by the purchase of local construction material.

The operation of the Project would employ approximately 20 permanent employees with average salaries of $60,000 a year. The total annual payroll would be approximately $1.2 million. The positions would include plant operations, maintenance personnel, and engineering staff. The Project's addition of 20 well-paying, technical and professional jobs to the Great Falls region would create a minor, sustained, and beneficial economic impact on the region for the lifetime of the facility.

Another potential long-term benefit of the Project would be an increase in annual taxes to Cascade County and to the State of Montana. Annual county taxes from the Project are estimated to be $3.1 million. This estimated annual tax figure of $3.1 million was based on the tax rate for electric cooperative facilities located in Cascade County. The estimated tax was developed for the natural gas fired facility only using the tax rate in mils as published by Cascade County for general taxing/fund purposes, the tax rate associated with State Schools, the tax rate associated with District Schools, and Additional County mils for roads, library, Planning Board, Community Decay and Health Department. The estimated tax will vary as a function of the difference between the estimated and actual cost of the project.

D. Agricultural or Industrial Production

In Cascade County, just over 80 percent of all land, or 1,388,530 acres, is farmland. Of this land, 507,107 acres is cropland, with 41,901 acres irrigated. The remaining farmland (881,423 acres) is rangeland and pasture. Nearly all the undeveloped land surrounding the proposed Project site is used for cultivation, with the primary agricultural crop being winter wheat, followed by spring wheat and barley (USDA, 2003).

The proposed Project site is located entirely on Pendroy Clay soils. Pendroy Clays typically are used for dryland crops as well as rangeland, and are not listed as prime or any other important farmlands in the Cascade County soil survey (NRCS, 2004). The land evaluation productivity index for Pendroy Clays for the state Land Evaluation and Site Assessment (LESA) system is 46 of 100 (NRCS, 2002). A rating under 50 generally means that the soil is of marginal quality for agricultural uses, and that approximately 73 percent of soils ranked have a higher quality (NRCS, 2002).

Pendroy Clay soils are in land capability class 4e, which consists of soils that have very severe limitations that restrict the choice of plants or require careful management, or both. The limitations of the Pendroy Clays primarily are due to their susceptibility to erosion (RUS and MDEQ, 2007a).

The Project site previously consisted of unincorporated county land zoned A-2. A-2 is a broad classification that allows a variety of uses in addition to agriculture, such as schools, hospitals, electrical substations, etc. (Zadick, 2009). Cascade County rezoned the property to heavy industrial on March 11, 2008, at the request of the former property owners to facilitate its use for electrical generating facilities (Zadick, 2009). The site is located east of the intersection between Salem Road and an abandoned railroad bed. The historical use of the area generally has been limited to agricultural activities.

Environmental Consequences

The area of land that would be directly affected and/or altered by the construction of the Project at the Project site includes the footprint of the power plant, roadways, and utility corridor zones required to make the plant operation-ready. Specifically, the Project would require the construction of the following elements:

- The power plant and associated facilities on a total footprint of approximately six acres;
- An 1,800-foot-long paved access road from the existing Cascade County road (Salem Road) into the site;
- The interconnection with existing transmission facilities owned by Northwestern Energy. The initial interconnection would be with an existing 230 kV line that runs from the Great Falls Substation to the Broadview Substation, near the junction of Salem Road and Highway 228 and would not cross the NHL.
- A new natural gas line would be installed to connect the Project to existing gas transmission pipelines north of the Missouri River. Northwestern Energy would construct and operate the line, which would serve SME as well as other Northwestern customers. SME's understanding is that the line would begin approximately 5 miles northeast of Great Falls, then proceed generally east to the HGS site, extending approximately 9.3 miles. The pipeline would cross under the Missouri River approximately 5 ½ miles west of the HGS facility, extend west across the property to the east of the river, and then cross the NHL in a northeasterly direction toward the HGS facility.
- Potable water needs for the plant would be satisfied by 55,000 feet (10 miles) of fresh potable water supply from the City of Great Falls water lines or by transporting potable water to the facility from offsite.
- The power plant would generate a maximum of 216 gpm of wastewater that must be treated and would consist of concentrated river water and trace amounts of cooling tower water and boiler water treatment chemicals (RUS and MDEQ, 2007a). The wastewater would be discharged back to the City of Great Falls through 55,000 feet (10 miles) of wastewater pipeline for disposal at its existing wastewater treatment facility or would be treated and evaporated on-site, resulting in zero wastewater discharge from the Project site.

The conversion of agricultural lands to an industrial plant with supporting facilities and infrastructure would be considered only a minor impact, though the impact would be permanent. Because the agricultural land that would be converted is not prime farmland or farmland of statewide importance and does not have a significant productivity rating, the conversion of this land in context to the amount and quality of farmland in other areas of Cascade County is not considered significant.

Construction of the facility is expected to last approximately 30 months. Construction activities could cause some impacts to adjacent landowners, such as noise, dust, and increased traffic. While these impacts could nearby residents, the impacts would not affect the actual uses of adjacent land.

The operation of the power plant would cause no additional direct impacts to land use or farmland. No additional amounts of land would be developed for the plant once the construction phase is completed.

Mitigation and Monitoring

Mitigation measures taken to minimize construction and operation impacts to resource areas (e.g., reduction in noise, visibility, and air quality impacts) would directly lessen the impacts to area residents. As discussed above, SME would be required to use best management practices to minimize the ground areas disturbed by the Project's infrastructure.

Impacts Summary

The Project would involve the direct conversion of agricultural lands to an industrialized facility with supporting infrastructure. In the context of the amount of quality farmland in other areas of Cascade County, the impacts of the actual conversion, or development, of the land required for the plant would be minor. The overall impacts on land use from construction and operation of the Project would be minor. The No Action Alternative would not adversely affect or alter existing land uses at or near the Project site.

E. Human Health

On July 1, 2004, a Phase I Environmental Site Assessment (ESA) was completed on the Project site to identify recognized environmental conditions (SME, 2004c). A recognized environmental condition (REC) is defined as the presence or likely presence of any hazardous substances or petroleum products on a property, under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. The Phase I ESA was completed in general accordance with procedures outlined in American Society for Testing and Materials (ASTM) E1527-00, Standard Practice of Environmental Assessments: Phase I ESA Process. The ESA included evaluation of individual properties adjacent to and within one mile of the Project site. There were no recognized environmental conditions or concerns identified during the site assessment at the Project site.

Environmental Consequences

Construction workers would be exposed to short-term health and safety risks typically faced in the construction industry, considered high-risk by the National Institute for Occupational Safety and Health (NIOSH). Additionally, traffic volumes and the presence of heavy construction equipment on site access roads potentially cause a negligible to minor increase in vehicular accidents. Overall, impacts on human health and safety from the construction phase of the power plant would be minor.

Operation-related impacts on human health and safety for the Project site would be minor. Occupational hazards attendant to working in an industrial electrical generation setting would be mitigated as described below. The Project has demonstrated that it can meet the requirements of law for the issuance of an air quality permit. Dispersion modeling analyses conducted for this EA and for the air quality permit indicated that concentrations of pollutants resulting from the Project would be below standards set by EPA and the Montana Board of Environmental Review to protect public health and safety.

F. Access to and Quality of Recreational and Wilderness Activities

The nearest designated wilderness area is Gates of the Mountains, about 55 miles away. The nearest state park is Giant Springs, about 8 miles from the Project site. Also near the Project site is the Lewis and Clark Historic Trail Interpretive Center, 9 miles west of the Project site (FWP, no date).

The nearest public access site is the Lewis and Clark Expedition Staging Area Interpretive Site approximately 2 miles away from the HGS gas plant site. This site provides educational and historical opportunities. Public fishing opportunities in the nearby Morony Reservoir itself are reported to be nonexistent because public access onto PPL-Montana property is prohibited (Urquhart, 2005). No other recreational facilities, parks, or opportunities are located close to the Project site.

Environmental Consequences

Construction and operation of the HGS gas plant at the Project site would entail, at most, minor impacts on recreation in the immediate project vicinity and wider Great Falls area. Development of the site would not affect access to, or the quality of, wilderness areas or other recreational opportunities. There is one cultural/educational site in the immediate vicinity that could be impacted by the Project: the Lewis and Clark Staging Area Interpretive Site. While the Project would not restrict access to it, during construction such access might be made more difficult because of heavy construction traffic. As discussed in Section 7.F of this EA, the HGS gas plant would not be visible from the Staging Area, although it is possible that steam from the plant could be visible and that plant lighting could have some effect on the darkness of the night sky in the area of the plant, as seen from the Staging Area. Also, based on a preliminary analysis of the proposed route, the transmission line would not be visible from the staging area, although existing power lines are visible from the Interpretive Site. Neither the Staging Area Interpretive Site, nor access to it, would be significantly affected by the Project.

Potential impacts of the Project to the quality of distant recreation opportunities in national park and wilderness areas, as a result of its impacts on air quality and visibility, are discussed under air quality.

Impacts Summary

Construction and operation of the Project would entail negligible to, at most, minor impacts on recreation in the immediate project vicinity and wider Great Falls area. Wilderness activities would not be affected. The No Action Alternative would not result in any direct impacts on recreation facilities or opportunities at the Project site.

G. Quantity and Distribution of Employment

Because the economic impacts of the Proposed Action at the Project site extend beyond the political boundaries of Great Falls, evaluating impacts to the Great Falls Labor Market Area (LMA) provides a comprehensive look at the affected economic environment of the region. A labor market area is an economically integrated geographic area within which individuals can reside and find employment within a reasonable distance or can readily change employment without changing their place of residence (BLS, 2005). Normally, it is based on a 60-mile radius from some pre-set point, such as the county seat, 60 miles being about a one-hour drive. The Great Falls Development Authority estimates that approximately 14,900 workers are available to employers (GFDA, no date).

The construction phase of the Project could take up to 30 months. The Project's construction would employ up to 320 workers during the peak of activity. Wage rates for construction workers would vary from approximately $20/hr to close to $40/hr. Most of the construction and engineering jobs would be highly-skilled, specialized, well-paying positions. Due to the specialized expertise required, the construction workforce is expected to be drawn primarily from outside Cascade County. Most of the workers would live in the area temporarily and would not bring their families. A relatively small fraction of the workers associated with the construction of the plant would stay for the duration of the project and potentially could relocate their families, becoming permanent residents of the Great Falls area. In an area with a population of over 55,000, this increase would be expected to have a modest economic impact and little impact on public services such as public schools.

The construction activities also could create a number of jobs indirectly from project-related spending and the spending decisions of workers. This effect, known as the employment multiplier effect, takes the impacts from project-related spending into account to determine the

number of indirect or induced jobs created in the local economy by an action. Using a PC-based regional economic analysis system named IMPLAN®, the Montana Governor's Office of Economic Opportunity developed an employment multiplier of 1.5 (GOEO, 2005). Using this employment multiplier, the 320 jobs created during construction of the plant potentially could result in the creation of as many as 160 additional jobs in the community, for a total of 480 temporary jobs created by construction of the Project. Thus, the construction phase of the HGS at the Project site would have a primarily positive and beneficial effect on the socioeconomic environment of the local and regional area.

The operation of the Project would employ approximately 20 permanent employees with average salaries of $60,000 a year. The total annual payroll would be approximately $1.2 million. The positions would include plant operations, maintenance personnel, and engineering staff. The Project's addition of 20 well-paying, technical and professional jobs to the Great Falls region would create a minor, sustained, and beneficial economic impact on the region for the lifetime of the facility.

Impacts Summary

Overall, construction of the Project would have a beneficial effect on the socioeconomic environment of the local and regional area, including increases in employment opportunities, total purchases of goods and services, and an increase in the tax base. During the lifespan of the facility, the Project would result in beneficial socioeconomic impacts on aggregate income and employment in the City of Great Falls and Cascade County.

Under the No Action Alternative, the Project would not be constructed at the proposed site. The direct and indirect economic benefits to the local economy from short-term (construction) and long-term (operation) job creation would be forgone under this alternative. These are not adverse impacts, but rather a lost opportunity to realize economic benefits to the local community from the Project.

Under this alternative, SME's member cooperatives and consumers would be unprotected from possible future increases in the price of electricity on the open market. Given the volatility of this market, consumers could be paying substantially higher electric rates, although it is not possible to quantify precisely how much higher.

H. Distribution of Population

The entire project would not affect the normal population distribution in the area, because excluding the 20 jobs that would result from the facility's operation, the remainder of the jobs created from this project would be temporary. Neither the 20 positions created as a result of operation of the facility, nor the numerous temporary construction-related positions, likely would affect the distribution of population in the area. Therefore, the Department believes that the distribution of population would not be affected.

I. Demands for Government Services

Increases would be seen in traffic on existing roadways in the area while the facility is constructed, and a lesser increase in traffic would be seen from operation of the facility. In addition, government services would be required for acquiring the appropriate permits for the proposed project and to verify compliance with the permits that would be issued. Because SME would be required to pay taxes and would require few government services, the effects on government services from this facility would be minor. Overall, any demands for government services would be minor. Details on transportation impacts follow.

TRANSPORTATION

Roads and Traffic

The HGS site is located beside the Salem Road, north of S-228 (Highwood Road), in the northeastern part of Cascade County. The portion of the county-maintained Salem Road (designated L07-204 by MDT) in Cascade County is 6.5 miles (10.5 km) long. On the east side of Belt Creek, it crosses into Chouteau County. It is an unpaved, graded, gravel road (MDT, 2001b). Salem Road is a lightly traveled, local, rural road used primarily by farmers and rural residents in the area. Based on a traffic study conducted in 2005, the average daily traffic (ADT) near Highwood Road is 36, while the ADT in the northern segment toward the HGS site is 21 (Peterson, 2005).

S-228 (Highwood Road) is a paved, two-lane, state secondary road on the Montana Secondary Highway System several miles south of the Project site that would be used to access it from Great Falls during both the construction and operation of the facility. S-228 continues east past the Salem Road intersection and intersects with S-331, a two-lane highway extending north–south. The nearest ADT measurement taken by the Montana Department of Transportation (MDT) is approximately seven miles (11 km) from its intersection with the Salem Road. The combined (both directions) ADT in 2004 was 585 (Stanley, 2009e).

US-87/89 is a four-lane highway extending southeast to northwest and intersecting S-228 southeast of Great Falls. S-227 continues south from the S-228 and US-89 intersection. US 87/89 meets 57th Street South at an angle and forms a T-intersection before continuing west. US 87/89 also is known as 10th Avenue South/S-200 within the city limits.

Environmental Consequences

Stanley Consultants developed an updated Traffic Impacts Study in 2009 based on the revised inputs of the Project (Stanley, 2009e). The construction phase of the Project is expected to last approximately 30 months and employ up to 320 construction workers during the peak six months of the construction period (Stanley, 2009e). For comparison, the estimated coal-fired power plant construction workforce was estimated at 550 employees during the peak nine months of the 43-month construction period (Stanley, 2008). In the Record of Decision for the coal plant EIS, RUS and the Department determined that the traffic impacts would be moderate and short-term during construction (RUS and DEQ, 2007b). Using this as a baseline, the traffic impacts of the Project are expected to be less due to the smaller construction workforce and shorter construction period.

From Great Falls, plant access would be from southbound U.S. Route 87/89 to eastbound S-228 to northbound Salem Road, then to the site. During the peak of the construction phase, it is anticipated that the Project would generate 648 vehicle trips per day, including material delivery trips (Stanley, 2009e). Most of the traffic related to the Project would consist of passenger cars, however, the material delivery traffic would consist of heavy vehicles. Most of the traffic would occur early in the morning and mid-to-late afternoon when workers are arriving and departing the construction site. At other times, most of the morning, mid-day, evening, and nighttime, traffic related to the Project would be minimal.

Stanley's 2009 Traffic Impact Study determined that increased traffic during the construction phase would result in the greatest potential impacts at two intersections: 1) the intersection of US 87/89 and S-228 (eastbound US 87/89 traffic turning left onto S-228 in the morning and westbound traffic turning right onto US 87/89 from S-228 in the afternoon); and 2) the intersection of 10th Ave South and 57th Street (Stanley, 2009e). Similar traffic volume increases (580 ADT) would be expected at both of these intersections. Mitigation measures for these impacts are discussed in the following Mitigation and Monitoring section.

The Project is expected to employ approximately 20 commuting workers during normal operation (Stanley, 2009e). A maximum of 10 one-way material delivery trips per week are anticipated. During the long-term operation of the HGS, traffic impacts from 20 commuting workers and 10 delivery trips per week are expected to be minimal (Stanley, 2009e).

Mitigation

Stanley Consultants developed an updated Traffic Impacts Study in March of 2009 and submitted the study to MDT for review. In the updated traffic study, Stanley proposed monitoring the traffic impacts during the construction phase to determine whether mitigating actions would be necessary.

As mentioned in the prior Environmental Consequences section, the greatest traffic impacts are likely to occur at two intersections during the construction phase: 1) the intersection of US 87/89 and S-228 and, 2) the intersection of 10th Ave South and 57th Street. Stanley evaluated three possible mitigation measures to address these impacts: 1) temporary or permanent traffic signals at one or more intersections, 2) using shuttle buses to deliver the construction workers, and 3) using a staggered start time for half of the Project workers to reduce traffic loads by 50 percent during the AM and PM peak hours.

The 2009 traffic study determined that using shuttle buses to deliver workers would have a minor beneficial impact on traffic congestion (Stanley, 2009e). The use of traffic signals at both intersections and implementing a staggered start time for half of the construction workers during the peak of the construction phase was found to measurably reduce traffic impacts at these intersections. These recommendations have been submitted to MDT and would be implemented as needed and as directed. SME has stated that it also would:

Cooperate with MDT to implement mitigation measures identified in the 2009 Traffic Impacts Study that MDT determines to be effective and necessary;

Take standard measures to minimize traffic congestion on public roads during large construction projects, including using appropriate signage to alert motorists approaching turnoffs to the construction site from both directions at distances of approximately 200 to 400 yards;

If temporary detours and/or street closures are necessary at any location, ensure that road crews and signs safely and efficiently redirect oncoming traffic to the detour;

Promptly remove any material, such as aggregate or fill, falling from trucks, so as not to present a traffic hazard;

Promptly repair any damage to road surfaces from increased traffic or heavy equipment;

Maintain existing aggregate roadways to be used for construction access;

Prior to significant construction activity at the main plant site, construct roadway improvements to mitigate potential traffic problems;

Maintain Salem Road throughout construction; and

At the end of the construction phase, refurbish and pave Salem Road.

Impacts Summary

SME has identified mitigating measures and would work with MDT to implement them during construction, as needed. SME also states that it would maintain Salem Road during construction and pave it upon completion of construction.

The small workforce at the plant is expected to have minor adverse effects on traffic and roadways in the Project's vicinity during the facility's operation. Operation of the facility is expected to have negligible effects on roads in the larger Great Falls area. The No Action Alternative would not contribute directly to transportation impacts at the Project site.

J. Industrial and Commercial Activity

The facility would represent a minor increase in industrial and commercial activity in the Great Falls area. Construction activities associated with the facility would result in temporary increases in commercial activity. Currently, there is no industrial or commercial activity, other than farms, in the vicinity of the Project.

K. Locally Adopted Environmental Plans and Goals

In March 2008, the Cascade County Commissioners re-zoned the property where the Project would be located to Heavy Industrial (zoning classification I-2). The Montana Environmental Information Center and owners of some other properties in the area challenged this decision in district court. The district court upheld the County's decision. The district court's decision currently is on appeal before the Montana Supreme Court. Unless a court rules to the contrary, the current zoning permits construction and operation of the HGS facility at the Salem site.

L. Cumulative and Secondary Impacts

Overall, the cumulative and secondary impacts from this project on the social and economic aspects of the human environment would be minor because some new full-time employment opportunities might result, temporary construction related employment opportunities would be available, state and local taxes would be generated, and the facility could sell power to residents and industries in Montana. Overall, the HGS gas plant project would result in additional jobs for the area. As described in this EA, the facility would employ approximately 20 full-time people and approximately 320 people during the peak construction phase. The possible "day-to-day" normal operation positions and the construction-related positions created by SME would bring additional revenue into the economy.

Recommendation: No impacts from the HGS gas plant would be greater than the impacts from the previously proposed HGS coal plant, had it been built, and, in most respects, impacts from the gas plant would be less than those of the coal plant. All impacts of the natural gas plant Project would be minor except for acoustic and visual impacts, which could be moderate, at most. The natural gas plant Project would not have any significant environmental impacts. An environmental impact statement or a supplemental environmental impact statement is not required.

Other groups or agencies contacted or that may have overlapping jurisdiction: Montana Historical Society – State Historic Preservation Office; Natural Resource Information System – Montana Natural Heritage Program; USDA Rural Utilities Service.

Individuals or groups contributing to this EA: Bison Engineering, Inc., on behalf of SME.; Montana Department of Environmental Quality–Air Resources Management Bureau; Montana Historical Society–State Historic Preservation Office; Montana Natural Heritage Program–Natural Resource Information System; USDA Rural Utilities Service.

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