FINAL

ENVIRONMENTAL

ASSESSMENT

Environmental Assessment for DEPARTMENT OF ENERGY LOAN GUARANTEE FOR SAGE ELECTROCHROMICS SAGEGLASS® HIGH VOLUME MANUFACTURING (HVM) FACILITY IN FARIBAULT, MN

U.S. Department of Energy
Loan Guarantee Program Office
Washington, DC 20585

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Environmental Assessment for Department of Energy Loan Guarantee for Sage Electrochromics SageGlass® High Volume Manufacturing Facility in Faribault, MN DOE/EA-1645

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LIST OF ACRONYMS

ACOE	U.S. Army Corps of Engineers
CO_2	carbon dioxide
DOE	U.S. Department of Energy
EIA	Energy Information Administration
EPA	U.S. Environmental Protection Agency
EPAct 2005	Energy Policy Act of 2005
IGU	Insulated Glass Unit
LBNL	Lawrence Berkeley National Laboratories
MW	megawatt
MNDNR	Minnesota Department of Natural Resources
MNHS	Minnesota Historical Society
NO_x	nitrogen oxides
OSHA	Occupational Safety and Health Administration
ppm	parts per million
MEPA	Minnesota Environmental Policy Act
SHPO	State Historic Preservation Office
SO_2	sulfur dioxide
SWPPP	Storm Water Pollution Prevention Plans
USC	United States Code

Executive Summary

The U.S. Department of Energy (DOE) is proposing to issue a loan guarantee to Sage Electrochromics (Sage) for design, construction, and startup of a SageGlass® High Volume Manufacturing Facility (Facility) in Faribault, Minnesota.

DOE has prepared this Environmental Assessment (EA) to comply with the National Environmental Policy Act (NEPA) (42 USC 4321, et. seq.), the Council on Environmental Quality's regulations for implementing NEPA (40 CFR Parts 1500-1508) and DOE's NEPA regulations (10 CFR Part 1021). The EA examines whether issuing a loan guarantee to construct and operate Sage's proposed Facility would cause significant impacts. DOE will use the information gleaned in this review to inform its funding decision.

PROPOSED ACTION AND ALTERNATIVES

DOE's proposed action is to issue a loan guarantee to Sage for design, construction, and startup of a SageGlass® electrochromatic window (EC window) manufacturing facility. Sage has developed a breakthrough technology that substantially improves the light to solar gain ratio, which efficiently rejects undesirable solar heating while preserving a clear view of the outdoors. The proposed project location is a largely rural area located 50 miles south of Minneapolis. Sage proposes to construct a 250,000 sq. ft. industrial building on a 15-acre parcel of land adjacent to Sage's existing 58,700 sq. ft. commercial production facility. Construction of the Facility would begin in the second quarter of 2009, and the Facility is expected to be operational by the first quarter of 2011. The Facility would have the capacity to produce 225,000 units by 2013.

Alternatives that were considered but dismissed are discussed below. A no action alternative is also evaluated in this EA, which assumes that DOE would not provide funds to Sage to construct the Facility. Information from this alternative will establish a base line against which the proposed action alternative can be compared.

SUMMARY OF ENVIRONMENTAL EFFECTS

DOE expects no significant adverse impacts from construction and operation of the Facility.

The proposed action would have minor direct and indirect beneficial impacts on socioeconomics from job opportunities. Additionally, DOE expects the electrochromic windows Sage would manufacture at the Facility to have potential beneficial impacts on global climate change and air quality by increasing the availability and potential use of energy-efficient windows.

1.0 PURPOSE AND NEED FOR AGENCY ACTION

The Energy Policy Act of 2005 (EPAct 2005) authorized DOE to make loan guarantees for projects that "avoid, reduce, or sequester air pollutants or anthropogenic emissions of greenhouse gases; and employ new or significantly improved technologies as compared to commercial technologies in service in the United States at the time the guarantee is issued." Title XVII identified ten categories of technologies and projects that are potentially eligible for loan guarantees, including those for efficient end-use energy technologies. The two principal goals of the Title XVII loan guarantee program are to encourage commercial use in the United States of new or significantly improved energy-related technologies and to achieve substantial environmental benefits. The Advanced Energy Initiative, issued in February 2006 by President Bush, aims to reduce U.S. reliance on foreign sources of energy by changing the way Americans fuel their vehicles and power their homes and businesses. In August 2006, DOE issued its first solicitation for pre-applications, inviting interested parties to submit proposals that meet the goals of EPAct 2005 and the President's Advanced Energy Initiative. DOE received 143 pre-applications in December 2006. From April to August 2007, DOE's Loan Guarantee Program Office (LGPO) conducted technical and financial reviews of the pre-applications.

On October 4, 2007, DOE invited 16 of the 143 pre-applicants to submit applications for loan guarantees. These 16 were selected on the basis of the completeness of their applications and the overall merit of their technologies. One of the 16 selected was Sage. On October 7, 2007, Sage accepted DOE's invitation to submit an application for a loan guarantee. DOE has reviewed Sage's application and prepared this EA as part of the process to determine whether to issue the loan guarantee.

2.0 PROPOSED ACTION AND ALTERNATIVES

This chapter provides information on Sage's product and describes the proposed action, alternatives considered and the no action alternative.

2.1 Description of Proposed Action

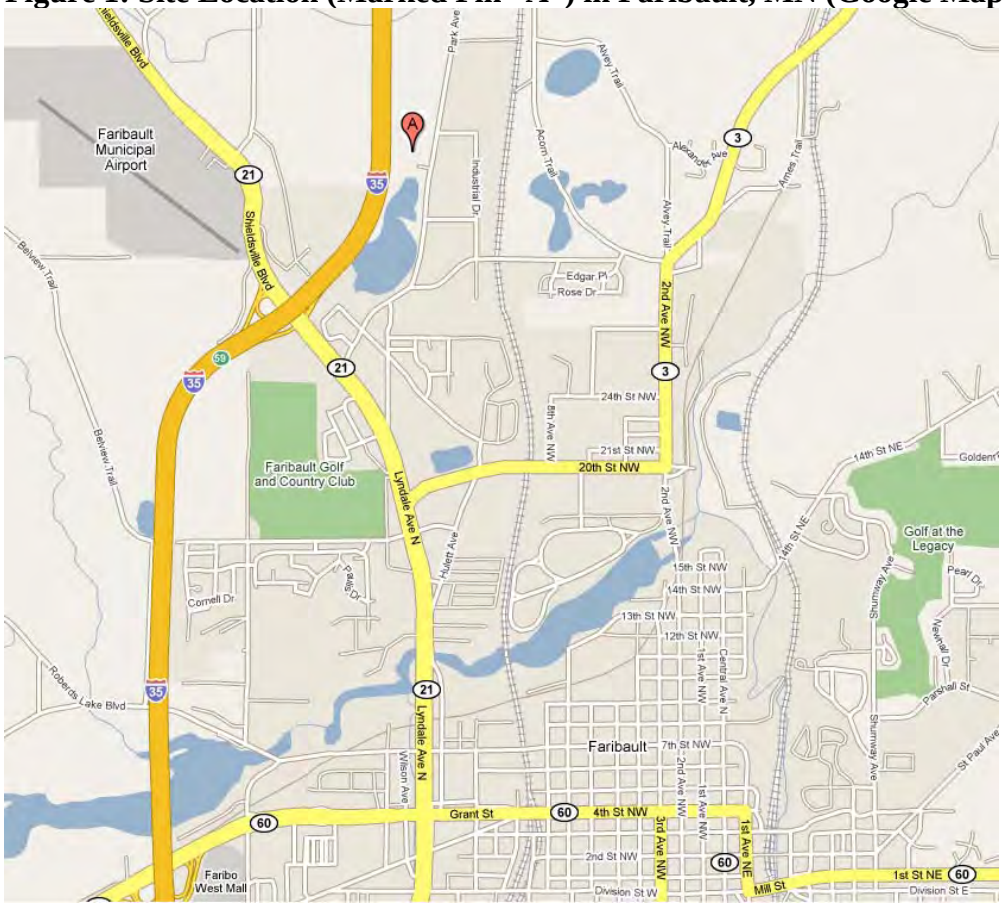
DOE's proposed action is to issue a loan guarantee to Sage for design, construction, and startup of a SageGlass® EC window facility. Sage submitted an application to DOE under the Federal loan guarantee program pursuant to EPAct 2005 to support construction of the Facility.[1]

The proposed project involves construction of a 250,000 sq. ft. industrial building on a 15 acre parcel of land adjacent to Sage's existing production facility. The proposed project location is a largely rural area located 50 miles south of Minneapolis (Figure 1). The proposed site is part of a 40-acre parcel located within Faribault's City Limits. The parcel is zoned as an industrial park. The proposed usage is consistent with adjacent land uses and is in conformity with the City's zoning and land use plans.

[1] The amount requested for the loan guarantee is not being disclosed at this time because it is business sensitive. Moreover, should DOE approve a loan guarantee, the amount may differ from the original request.

Construction of the Facility would begin in the second quarter of 2009 and is estimated to be completed in 24 months. The Facility would have a steel-frame construction (standard Butler steel building), utilize EC windows, and be designed with a goal of meeting at least LEED Silver building certification standards.[2] Construction would require site grading to the extent necessary to lay the foundation of the building, parking lot, and storm water management pond. Grading/excavation would be conducted to avoid all wetland areas. There are utilities (electric, city sewer and water, natural gas, and phone) along the adjacent city street with sufficient capacity to serve the Facility. A storm water management pond would be constructed to adequately contain runoff from the site. No municipal infrastructure improvements (e.g. roadways, sewer, or water) would be required for this project.

Figure 1: Site Location (Marked Pin "A") in Faribault, MN (Google Maps)

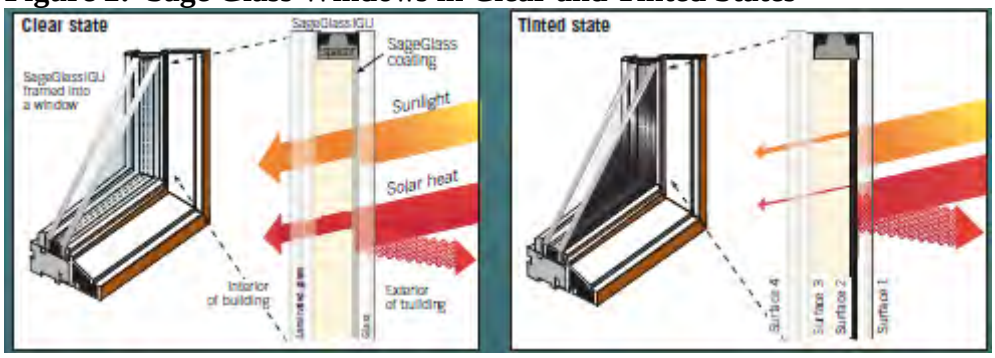


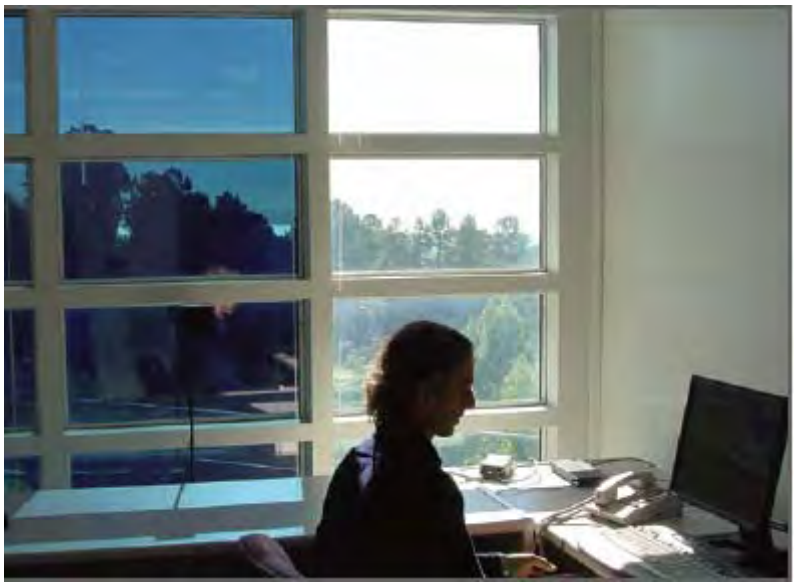
The Facility would produce EC windows which consist of an electrochromic pane of glass combined with a second uncoated piece of glass that are assembled into a dual pane unit. The EC windows are then sold to window or frame manufacturers who assemble the EC windows into their frames. The EC windows can automatically be switched to a dark state, through a

[2] LEED standards are developed by the U.S. Green Building Council (USGBC) and act as a series of benchmarks for sustainable building design and construction. Certifications include "Certified," "Silver," "Gold," and "Platinum" dependent upon a point system with ratings for siting, efficiency, resource consumption, and innovation. The rubric can be viewed on the USGBC website at USGBC.org.

computerized building management system, that responds to building temperatures, to quickly reduce the amount of electricity required to cool dwellings and commercial buildings (Figure 2).

Figure 2: Sage Glass Windows in Clear and Tinted States





Manufacturing Process

The manufacturing process would be highly automated. Large pre-cut (5ft x 10ft) sheets of glass would be robotically placed at the load end of the production line. A series of conveyers as well as load and unload stations would transport the glass through the entire fabrication process. In-line sequential steps include deionized (DI) water cleaning, multiple film depositions in the vacuum coater, printing and firing of conductors, laser edge definition, IGU assembly, and optical and electrical testing.

Materials

To manufacture EC windows, 5ft x 10ft panes of glass, metal oxide tubes, stainless steel spacers, silver based thick film conductor inks, and conventional window sealant materials (butyl and silicone sealants) are used. The manufacturing process starts with a large, high quality, glass substrate. The glass itself is very clean with surfaces that are nearly defect-free. These substrates are subject to a number of thin film deposition processes.

Deposition of Electrochromic Thin Films

The electrochromic device consists of a stack of thick metal oxide films sequentially deposited on the glass substrate. The substrate is first washed to completely remove particulates and then inspected by a rapid camera-based automatic inspection system. The films are then deposited one after the other in the large vacuum deposition (sputter coating) machine.

The metal oxide materials are applied to the glass to form thin film electrochromic layers. This is done by a vacuum deposition process termed "sputtering." Sputtering involves depositing the metal oxide plasma onto the glass surface. These sequentially deposited coating layers are, in total, about 1 micron thick (Figure 3). A typical sputter coating machine is shown in Figure 4.

Post Deposition Processing

After all the thin film coatings are deposited on the glass substrate, conductors are applied to the device. The conductors are metallic strips that bring power to the device enabling it to be tinted. The conductor material is a paste or ink consisting of a mixture of finely ground silver and glass particles in an organic matrix. This paste is precisely deposited or screen printed to correspond with the relevant conduction paths. The ink is not fully conductive until it is heated (fired) to an elevated temperature in a furnace. A laser patterning operation ablates the films in selected regions to precisely define the vision area (the specific area that changes tint when power is applied). Additional laser operations are employed to separate the coated substrates into individual window sized pieces. The window sized segments then go through an initial test for electrical and optical performance as well as aesthetic quality.

Assembly into an Insulating Glass Unit (IGU)

Depending on customer requirements, the electrochromic glazing described above may be laminated to a second piece of glass for strength, safety, or optical performance. This laminated composite becomes the outer pane of a two pane IGU. The dual pane IGU consists of the aforementioned outer pane and an inner pane of uncoated glass separated by a metal or polymer spacer. The enclosed space between the two pieces of glass is filled with argon gas and acts as an insulator slowing the rate at which heat and cold can pass through the IGU. The construction and dimensions of the IGU meet window industry standards with the exception of 2 wires which exit the device. The wires are terminated in a connector that can interface with individual window controls or a building automation system. The EC device which covers the complete inner surface of the exterior pane can be electronically (and reversibly) tinted from clear to very dark by applying a low voltage DC current through the conductors.

Final Testing and Shipping

After assembly, the completed EC windows are subjected to a final electrical and optical test, packed and shipped to customers. Commercial/industrial customers would typically be glazing contractors who install glass into windows, curtainwalls, and skylight frames for use by general contractors or developers. Residential customers would typically be original equipment manufacturers who manufacture windows and skylights.

Figure 3: SageGlass® Pane with Coating

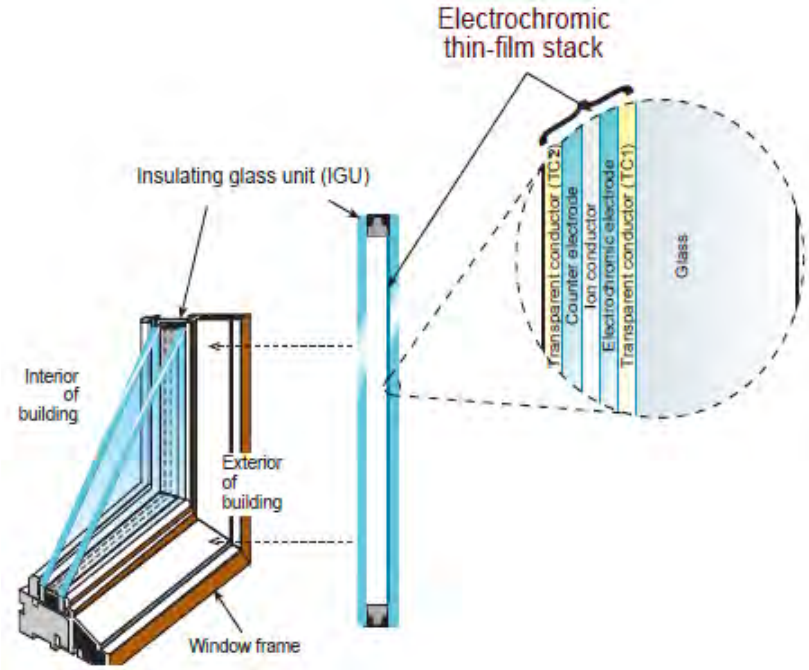


Figure 4: Proposed Sputter Coater

Energy Efficiency Benefits

The availability and use of EC windows is expected to increase energy-efficiency. Buildings are the largest source of energy consumption in the country and EC windows can significantly reduce lighting, cooling, and heating costs in buildings. Energy lost through today's inefficient window stock accounts for approximately 30% of building heating and cooling energy.

Window glass is considered most efficient when the ratio of transmitted light[3] to solar heat gain coefficient[4] is greater than 1.25. This ratio is commonly termed the light to solar gain ratio (LSGR), and the larger the LSGR, the better the window rejects undesirable solar heating while preserving a clear view of the outdoors. Sage's EC window products have an LSGR range of 3.9 to 6.9. In comparison, some of the best conventional low-emittance windows have LSGRs less than 3.0.

The project proposes to accelerate production for residential and commercial use. The Facility would be able to produce 225,000 EC windows.

Increased use of EC windows would help in reducing the demand for electricity during peak periods and for restraining growth in the demand for electricity over the long term. EC windows can be integrated into an intelligent grid management system designed to minimize peak requirements.

The increased manufacturing capacity of the proposed project would allow Sage to respond to anticipated market demand for its products, achieve economies of scale in the manufacturing process, and reduce the price of its EC windows.

Life Span of Facility

Sage anticipates that the Facility would have an economically useful life spanning at least two decades. Decommissioning would not require prior approval from any regulatory agencies. Once EC window manufacturing ceases, the building could be reused for many different manufacturing or warehousing purposes.

2.2 Alternatives Considered But Eliminated

Sage explored alternative sites for construction of the Facility. In selecting an appropriate site, Sage considered: (a) quality of workforce; (b) availability of construction trades; (c) utility capacity and readiness; (d) proximity of major roadways for travel to/from the facility; (e) proximity of technology supply chain; (f) land availability; and (g) known state and local incentives. Additional, financial considerations included: (a) the cost to develop utility and other infrastructure required for the site; (b) utility connection fees; (c) implications for freight transportation expenses; (d) land cost; and (e) utility rates. Sage also analyzed the costs and benefits of a site located near its headquarters. Upon Sage management's selection of the criteria mentioned above, four locations along the I-35 corridor between Lakeville and Owatonna, MN were evaluated. Based on this analysis, Sage determined there would be substantial financial and location benefits related to siting the Facility at the proposed location.

Another alternative Sage considered was expansion of its existing facility to allow for increased production. Sage dismissed this alternative because the current facility, which is 58,700 square

[3] Transmitted light refers to visible light transmission and is the fraction of incident visible light that passes through the window and into the building.

[4] The solar heat gain coefficient (SHGC) is a measure of the shading capability of a window. SHGC is the fraction of incident external solar radiation (including visible, infrared, and UV light) that is admitted through the window and into the building. Its value is a number between 0 and 1.

feet, and the parcel of land on which it sits is too small to accommodate the proposed increase in production. Additionally, the current facility and its equipment are not capable of producing EC windows in the desired amounts.

Given the desired criteria and available alternative sites no feasible alternative existed for Sage. There are no unresolved conflicts concerning alternative uses of available resources associated with the project site that would suggest the need for other alternatives.

2.3 No Action Alternative

Under the No Action Alternative, DOE would not issue a loan guarantee for the proposed Facility and, as a result, the Facility would not be built as part of a DOE action. If the Facility is not built, the environmental effects discussed below would not occur.

The decision for DOE consideration covered by this NEPA review is whether to approve the loan guarantee for the proposed action. As detailed above, alternative locations for the proposed action have been explored and eliminated because they did not meet the requirements of the project. Therefore, other than no action, there is no alternative to providing a loan to Sage. The proposed action and no action alternative are considered in this NEPA review.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL EFFECTS

This chapter describes the existing environmental, social and economic conditions of the project area and the potential environmental effects that could result from implementation of the proposed action or no action alternative.

3.1 Land Use

The proposed site is currently utilized for corn and soybean agriculture. West of the site is Interstate Highway 35. North of the site is a cultivated field with the Minnesota Municipal Power Plant. East of the site is Park Ave NW, Willow Creek Concrete, and a vacant lot. South is the existing Sage facility. The closest sensitive receptors (residential properties, schools, daycares, etc.) are approximately ½-mile from the site. See Exhibit 11, Surrounding Land Use Map and Exhibit 4, City of Faribault Zoning Map. There are no National Parks located within the county, and the proposed project would not impact any formally classified lands or waters that are listed on the National Rivers Inventory.

The Facility would be classified as Limited Industrial Use, according to the generalized use categories in the Faribault Unified Development Ordinance. The dominant land use within the project area is agricultural; however the site is zoned as an industrial park. According to the Ordinance, the purpose of the industrial park district is to provide for the establishment of industrial areas with exemplary development standards for light industrial uses. Controls are established to assure compatibility with surrounding commercial and residential uses.[5]

Although the land area that is being proposed for the expansion is considered prime farmland, Sage has consulted with USDA and determined, based on the point score of the Farmland Conversion Impact Rating (Exhibit 10), that the site does not require consideration for protection, per the Federal Farmland Policy Protection Act (FPPA). The point score of 53 falls well below the 160 point threshold necessary to consider farmland for protection.

If the Facility were not built, no conversion of farmland would occur in the project area.

[5] The Faribault Unified Development Ordinance was developed to implement the policies of the City's Land Use Plan. Chapter 7 of the Faribault Unified Development Ordinance lays out specific development standards for each land use district. Two controls typical to industrial districts are: (a) An arterial or collector street of sufficient capacity to accommodate the traffic that the use would generate; and (b) The facility's appearance would be designed to be compatible with surrounding land uses and is subject to city approval.

3.2 Wetlands and Floodplains

A U.S. Army Corps of Engineers (USACE) wetland investigation was completed by Sage in October 2008 for the subject property in accordance with the 1987 USACE Wetland Delineation Manual. Pertinent maps and aerial photographs of the project area were reviewed by USACE as part of this wetland investigation. Two areas qualify as wetlands on the subject property as shown on the Wetland Delineation Drawing included as Exhibit 6. Basin A is 2.442-acres and located in the southeastern corner of the site, 215 feet from the proposed Facility. Basin A transects the boundary between the existing Sage property and the subject property. Basin B is 0.038-acres and located in the north-central portion of the subject property, 55 feet from the proposed Facility. Buffer and buffer setback requirements are in place and would apply.

According to a January 27, 2009 USACE determination, the basins on the subject property appear to be isolated wetlands that are not jurisdictional wetlands, meaning they are not subject to Section 404 of the Clean Water Act (Exhibit 13). The Environmental Protection Agency concurred.

The Facility would be designed and constructed to avoid all wetland impacts. The project would fully comply with the 1991 Wetland Conservation Act. Wetland Conservation Act (WCA) Best Management Practices (BMP) requirements would be implemented to protect the wetlands from erosion and sedimentation throughout all phases of the project. Examples of Best Management Practices for wetlands include the use of silt fences, vegetated upland buffers/grass swales, pretreatment of water in a stormwater pond, etc. The goal of BMPs is runoff volume reduction and improved water quality by means of sediment control/soil stabilization & pollutant removal. Site runoff would be routed through treatment ponds and infiltration areas, to remove pollutants and improve runoff quality, prior to discharge.

If the Facility was not built and the site continued to be used for farmland, the erosion and sedimentation impacts could be greater due to unregulated runoff.

There are no floodplains associated with the project.

3.3 Property of Historic, Archaeological, or Architectural Significance

According to the response from the Minnesota Historical Society (MNHS) no archaeological sites or historic properties were identified in a search of the Minnesota Archaeological Inventory and Historic Structures Inventory in the State Historic Preservation Office (SHPO) databases. A letter requesting concurrence of this finding was sent to the Minnesota State Historic Preservation Officer, and a concurrence was received on October 31, 2008 from the Minnesota SHPO (see Exhibit 7).

Since the MNHS SHPO database review shows no archaeological sites or historic properties located in the vicinity of the project site, there would be no changes in the character or use of any historic properties in the area as a result of the proposed project. If any human remains or a burial area were uncovered during the construction of this project, all construction activity would

cease, and the Rice County sheriff's office, the State Archaeologist, and the Minnesota Indian Affairs Council would be contacted.

If the Facility were not built, the impact on cultural and historic properties would be no different than if it were.

3.4 Native American Concerns

The following Federally listed American Indian Tribes were identified as having an interest in Rice County, MN[6]:

- Flandreau Santee Sioux Tribe of South Dakota
- Lower Sioux Indian Community in the State of Minnesota
- Prairie Island Indian Community in the State of Minnesota
- Santee Sioux Tribe in the Santee Reservation of Nebraska
- Sisseton-Wahpeton Oyate of the Lake Traverse Reservation, South Dakota
- Spirit Lake Tribe, North Dakota
- Upper Sioux Community, Minnesota

DOE provided the tribes listed above with a description of the proposed project and invited them to initiate government to government consultation to share any concerns they might have (see Exhibit 12). No concerns were reported to DOE. There are no known sites of religious or cultural significance listed on or eligible for listing on the National Register of Historic Places in the immediate vicinity of the proposed project. No concerns regarding the religious or cultural significance of the site were identified by the Tribes.

If the Facility were not built, the impact on resources of concern to Native Americans would be no greater or lesser than if it were.

3.5 Biological Resources

The Minnesota Department of Natural Resources (MN DNR), Division of Ecological Resources reviewed their Natural Heritage Information System (NHIS) database and determined that there are no known occurrences of rare plant or animal species or other significant natural features within an approximate one-mile radius of the project area. Correspondence with the MN DNR is included as Exhibit 8.

The United States Fish and Wildlife Service (USFWS) was contacted by Sage to review records and conduct a search for federally listed threatened or endangered species and critical habitat information for the proposed project site. According to the responses from the Twin Cities Ecological Field Office and USFWS, Exhibits 8 and 9, there are currently no federally endangered or threatened species known to occur at the project location. Consequently, there would be no adverse impacts to biological resources from the proposed project.

[6] This information was gathered using the Tribal Directory Assessment Tool (TDAT) on the Housing and Urban Development (HUD) website: http://www.hud.gov/offices/cpd/environment/tribal/.

If the Facility were not built the impact on biological resources would be no greater or lesser than if it were.

3.6 Water Quality

The site is located in the Cannon River watershed. The majority of the site is currently farmed, such that surface water runoff and erosion from the field are directed towards the I-35 and Park Ave NW right of way ditches or to neighboring agricultural fields and wetlands.

Water Bodies
There is an approximate 40-acre Type 3, shallow marsh wetland 750 feet south of the proposed site (immediately south of the existing Sage facility). A tributary to the Cannon River as well as several wetlands are within a mile of the proposed project site.

Wild and Scenic Rivers
The Cannon River runs northerly through Faribault's corporate limits, however it would not be impacted by the proposed project.

Groundwater
The groundwater table is assumed to follow the general topography of the site, sloping gently downward to the south and east. Groundwater flow in the region generally follows a southeasterly gradient, flowing toward the Cannon River. The threat of groundwater contamination is not anticipated as a result of this project. Earthwork, grading, or excavation would not be to depths that would affect groundwater flow in the region. No backfilled structural foundations or backfilled utility trenches at the site would be deep enough to be an impediment to the flow of groundwater.

Surface Water Quality
Surface water runoff from the site would enter a proposed stormwater system (basin/pond, rain garden, etc.) for treatment prior to discharge. A stringent Storm Water Pollution Prevention Plan (SWPPP) would be developed in compliance with the City of Faribault Surface Water Management Plan, and conditions of the National Pollution Discharge Elimination System (NPDES) permit would be followed to ensure water quality in the region would not be negatively impacted by the new impervious surfaces.

The site is currently used for row crop agriculture. As the site transitions from agricultural to industrial use, there would be a decrease in the amount of agricultural-related sheet and rill erosion[7] from the fields. Water discharged from the site after construction would be at or below predevelopment flow rates. This is required by regulations (local, state, federal) that would be met upon final site design. All final engineered designs are required to demonstrate project

[7] Rill erosion occurs as runoff begins to form small concentrated channels. As rill erosion begins, erosion rates increase dramatically due to the resulting concentrated higher velocity flows. Sheet erosion is the process by which transportation of soil particles begins. Sheet erosion occurs as runoff travels over disturbed ground, picking up and transporting particles dislodged by splash erosion. The process of sheet erosion is gradual, and difficult to detect until it develops into rill erosion.

compliance with all applicable local/state/federal regulations, which include an NPDES permit and a Storm Water Pollution Prevention Plan.

Stormwater management plans for the proposed project have been developed conceptually. The final storm water management plan would be designed in compliance with the City of Faribault Surface Water Management Plan and the NPDES permit. It is assumed that the increased impervious surface would be permanently mitigated by construction of a stormwater basin or utilization of other BMPs. These may include, but are not limited to, detention basins, retention basins, infiltration basins or trenches, porous pavement, and/or rain gardens. The stormwater BMPs that are utilized would comply with all local, state, and federal regulations.

Approximately seven acres of the 15-acre site would be converted to impervious surfaces (facility, parking area, and driveway). The remainder of the site would be vegetated, thus increasing infiltration in those areas. The current site design has runoff from the impervious surfaces being collected and routed to a stormwater basin for treatment prior to outletting into the existing wetland in the southeast part of the site. The stormwater basin design would demonstrate compliance with all applicable local/state/federal regulations. Management of stormwater in the basin would remove sediment and enhance the quality of runoff leaving the site. Sediment would settle out as a function of gravity while water is retained in the basin. The proposed stormwater basin would be designed to accommodate and safely manage off-site flows as well as the flow generated on-site. The stormwater basin would be designed to lower peak flows from the site to below predevelopment flow rates for 2, 10, and 100 year rainfall events. Consequently there would be no adverse impacts from stormwater to water quality.

Water Usage

City water is provided by the City of Faribault and there is sufficient capacity available. Currently it is estimated that the Facility would use between 30,000 to 35,000 gallons per day. Sanitary Sewer Services are provided by the City of Faribault and there is sufficient capacity available. Currently it is estimated that the Facility would discharge between 25,000 to 30,000 gallons per day to the city sanitary sewer (see Exhibit 15).

If the Facility were not built, these minor impacts to water would not occur.

3.7 Environmental Justice

In February 1994, President Clinton issued Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations. This order requires that “each Federal agency make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities, on minority populations and low-income populations” (Executive Order 12898, 59 Federal Register 7629 [Section 1-201]).

CEQ has issued guidance to Federal agencies to assist them with their NEPA procedures so that environmental justice concerns are effectively identified and addressed. DOE guidance states that DOE needs to demonstrate that it considered apparent pathways or uses of resources that are unique to a minority or low-income community before determining that, even in light of these

special pathways or practices, there are no disproportionately high and adverse impacts on the minority or low-income population.[8]

The median income of households in the City of Faribault is $40,865/year according to the most recent available data. In 2000, 9% of the population had income levels below the poverty level and 15% of the population was from a minority group. There are no concentrations of low-income or minority populations in the vicinity of the project site.[9] Therefore, the project is not expected to have disproportionally high or adverse environmental impacts to minority or low-income populations.

3.8 Socioeconomics

3.8.1 Community Facilities

The project site is located approximately one mile north of the center of Faribault. The offices of the Rice County Soil and Water Conservation District and the Minnesota Department of Natural Resources are located approximately ¾ mile south of the project site. The public's access to these offices would not be affected by this project. There may be a slight increase in semi-truck traffic of approximately four trucks per day as a result of this project. This would not be a substantial increase in traffic since the Park Ave. roadway services an existing industrial park and already experiences moderate semi-truck traffic on a regular basis. Other industrial facilities in the industrial park rely on semi-trucks for delivery of raw materials and shipping of final products from their facilities. The industrial park has been designed and located in proximity to major roadways in order to handle this type of traffic on a day-to-day basis without adverse impacts on the surrounding properties or the regional traffic regime. Refer to Exhibit 11 for location of the Facility in relation to other industrial facilities.

The National Guard Armory is located adjacent to the offices stated above. This facility is in the process of relocating to the west of the I-35/TH 21 intersection, near the Faribault Airport. The current or future armory locations would not be adversely affected by this project. The project would not adversely affect any other community facilities, as there are none in the vicinity of the site.

3.8.2 Employment

The construction of this facility would take one year or less and would result in a temporary demand for construction services. During construction, the project would employ approximately 330 workers. The existing construction industry in the area would be able to handle this demand with no disruptions. Once constructed, the Facility would employ approximately 144 new on-site personnel.

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[8] Recommendations for the Preparation of Environmental Assessments and Environmental Impact Statements, Second Edition, December 2004, DOE.
[9] U.S. Environmental Protection Agency, EnviroMapper Justice Geographic Assessment Information, http://www.epa.gov/enviro/html/em.

3.8.3 Community Service Requirements

The Facility would have very limited demands for public services other than those related to public safety (police) and emergency services (fire, ambulance, etc.). It is expected that the Facility would be incorporated into regular police patrols of the area. The Fire Department would have lockbox access to the building at all times. Orientation would be provided to the Police Department, Fire Department, and other appropriate parties to familiarize them with the Facility and its operation.

If the Facility were not built the positive economic impacts would not be felt by the community.

3.9 Air Quality

Under the Clean Air Act (CAA) of 1970, as amended (42 United States Code [USC] §§ 7401 et seq.), national ambient air quality standards have been adopted for six criteria pollutants—ozone, carbon monoxide, nitrogen oxides, sulfur dioxide, suspended particulate matter (PM10 and PM2.5), and airborne lead. The national ambient air quality standards are enforced by the states via local air quality agencies. States may choose to adopt their own air quality standards, but state standards must be at least as stringent as federal standards.

The U.S. Environmental Protection Agency (EPA) evaluates whether the criteria air pollutant levels within a geographic area meet national ambient air quality standards. Areas that violate air quality standards are designated as nonattainment areas for the relevant pollutants; those that meet national ambient air quality standards are designated as attainment.

The Facility would be located in Rice County. Rice County is in attainment for all criteria pollutants according to the EPA Green Book Nonattainment Areas for Criteria Pollutants[10].

Projected Air Emissions

Operation

Expected air emissions from operation of the Facility from heating through use of natural gas are described in Figure 5 as are emissions from electricity usage at the Facility. Process emissions from the Sage Facility are listed in Figure 6.

[10] http://www.epa.gov/air/oaqps/greenbk/

Figure 5. Annual Emissions Estimates for Facility-Natural Gas & Electricity Usage

Pollutant	Source	Emission Rate	Total Projected Emissions#	EPA-MPCA[11] Permit Threshold
Carbon Monoxide - CO	Natural Gas	40 lb/billion Btu*	1.0 tons/yr	100 tons/yr
Sulfur Dioxide – SO_2	Natural Gas	1 lb/billion Btu*	<0.01 tons/yr	50 tons/yr
	Electricity	3.9909 lb/MWh‡	71 tons/yr	NA⊖
Nitrogen Oxides - NO_x	Natural Gas	92 lb/billion Btu*	0.28 tons/yr	100 tons/yr
	Electricity	3.3448 lb/MWh‡	60 tons/yr	NA⊖
Particulate Matter - PM	Natural Gas	7 lb/billion Btu*	0.32 tons/yr	25 tons/yr
Hydrocarbons - HC	Natural Gas	10 lb/billion Btu†	0.03 tons/yr	100 tons/yr
Carbon Dioxide – CO_2	Natural Gas	117,647 lb/billion Btu†	353 tons/yr	NA**
	Electricity	1,594.67 lb/MWh‡	28,446 tons/yr	

*Natural Gas Emissions standards source: EIA-Natural Gas Issues and Trends 1998
†TOC/HC Emissions source: AP-42, Table 1.4-2[12]
‡US EPA eGRID2007: Year 2005 Summary Tables[13]
#Values in Figure 5 were estimated based on:

- 35,676 MWH/yr electricity usage
- Estimated 60,000 therms/year of Natural Gas for water and space heating

⊖Threshold not applicable to Facility because resulting output is emitted from the power plant supplying the electricity.
**No current permit threshold.

➢ No emissions of lead or ozone are associated with natural gas or electricity use at the Facility

Figure 6. Annual Sage Facility Production Process Emissions

Pollutant	Emission Rate	Total Projected Emissions***	EPA Permit Threshold
Volatile Organic Compounds (VOC)	1584 lb/yr	.8 tons/yr	100 tons/yr
Particulate Matter (PM)	600 lb/yr	.3 tons/yr	25 tons/yr
Hazardous Air Pollutants (HAP)	35 lb/yr	0.018 tons/yr	10 tons/yr

[11] Minnesota Pollution Control Agency
[12] US EPA, Office of Air Quality Planning & Standards. January 1995. Compilation of Air Pollutant Emission Factors. Volume I: Stationary Point and Area Sources. AP-42, Fifth Edition http://www.epa.gov/ttnchie1/ap42/ . Section 1.4, Natural Gas Combustion, Supplement D, July 1998 http://www.epa.gov/ttn/chief/ap42/ch01/final/c01s04.pdf .
[13] US EPA eGRID2007 Version 1.1 Year 2005 Summary Tables (created December 2008). State Emissions and Emissions Rates Table, p.1. http://cfpub.epa.gov/egridweb/reports.cfm.

The projected air emissions directly related to Facility operation would be well below reportable levels (see permitting thresholds in Figure 9) required by the EPA and Minnesota Pollution Control Agency (MPCA).

Construction and Transportation

Expected air emissions from construction and transportation are in Figures 7 and Figure 8 respectively.

Values in Figure 7 were estimated based on 6,794 total equipment hours estimated for construction. 500 equipment hours for site prep/grading/excavation, 550 equipment hours for paving the parking lot/driveway, and 5,744 equipment hours for building construction. Building construction was broken down as follows:

- 480 hours Crane;
- 120 hours Excavator – Building Footings;
- 120 hours Dozer – Backfilling;
- 384 hours Dump Truck – Floor, Granular;
- 160 hours Grader, Compactor – Floor Preparation;
- 720 hours Lifts;
- 720 hours Construction Commuting;
- 1600 hours Concrete Trucks; and
- 1440 hours miscellaneous equipment.

Figure 7. Emissions Estimates for Facility Construction

Pollutant	Emission Rate	Total Projected Emissions***
Carbon Monoxide - CO	8.5 g/bhp-hr*	19.2 tons
Hydrocarbons - HC	1.0 g/bhp-hr*	2.1 tons
Nitrogen Oxides - NOx	6.9 g/bhp-hr*	15.6 tons
Particulate Matter - PM	0.4 g/bhp-hr*	0.9 tons
Carbon Dioxide - CO2	1.01 g/bhp-hr**	301.6 tons

*Emissions standards for nonroad diesel engines (EPA420-F-97-014).
**Assuming 4 gallons of diesel fuel per equipment hour[14] and 22.2 pounds CO2 per gallon of diesel fuel[15].
***Assuming 6,794 total equipment hours; 907,184.7g/ton; and an average 300 horsepower diesel engine on construction equipment.

The following table indicates the expected annual air emissions from transportation of raw materials to the Facility and final products from the Facility.

[14] Fusetti, Karin; Don Monahan/CH2M HILL. November 19, 2008. Greenhouse Gas Emissions. [http://www.seattle.gov/transportation/docs/mercer/MercerGHGMemo_rev11_19_08.pdf].
[15] US EPA, Office of Transportation and Air Quality. February 2005. Greenhouse Gas Emissions from a Typical Passenger Vehicle. EPA420-F-05-004. [http://www.epa.gov/otaq/climate/420f05004.pdf].

Figure 8. Annual Emissions Estimates for Facility Transportation.

Pollutant	Emission Rate-Autos-LDV*	Emission Rate-Semi Trucks**	Total Projected Emissions***
Carbon Monoxide - CO	3.40 g/mile	15.5 g/bhp-hr	53.1 tons/yr
Hydrocarbons - HC	0.41 g/mile	1.3 g/bhp-hr	4.6 tons/yr
Nitrogen Oxides - NOx	0.40 g/mile	4.0 g/bhp-hr	13.2 tons/yr
Particulate Matter - PM	0.38 g/mile	0.1 g/bhp-hr	0.4 tons/yr
Carbon Dioxide – CO2	398 g/mile	135 g/bhp-hr	1344 tons/yr

*144 Gasoline LDVs (10% car pool), 30 mile average daily round trip commute, 19.4 pounds CO_2 per gallon of gasoline[2] and 22.1 mpg for passenger cars[16].
**Four 500 bhp Diesel Semi Trucks per day, 6 hr trip to or from the Facility, 8.2 mpg for semis[17], 22.2 pounds CO_2 per gallon of diesel fuel[2] and an average speed of 55 mph.
***Operating 24/7/365.

Figure 9 Air Emissions Permitting Thresholds based on Potential to Emit[18].

Pollutant	State Permit Threshold	Federal Permit Threshold
Volatile organic compounds (VOC)	100 tons per year	100 tons per year
Carbon monoxide (CO)	100 tons per year	100 tons per year
Nitrogen Oxides (NOX)	100 tons per year	100 tons per year
Sulfur dioxide (SO2)	50 tons per year	100 tons per year
Fine particulate matter (PM10)	25 tons per year	100 tons per year
Combined HAPs	25 tons per year	25 tons per year
Single HAP	10 tons per year (each)	10 tons per year (each)
Lead	0.5 tons per year	10 tons per year

Global Climate Change

The Intergovernmental Panel on Climate Change, in its Fourth Assessment Report, stated that warming of the earth's climate system is unequivocal, and that warming is very likely due to anthropogenic greenhouse gases (GHG) concentrations.[19] DOE is not aware of any methodology to correlate the CO_2 emissions exclusively from the proposed project to any specific impact on global warming; however, studies such as the IPCC report support the premise that CO_2 emissions from the proposed project, together with global greenhouse gas emissions, would very likely have a cumulative impact on global warming. Although the project would contribute to cumulative increases in greenhouse gases and related climate change when combined with other projects globally through the emissions described in Section 3, GHG emissions from the proposed action would be minimal increases in CO_2, resulting from slight increases of

[16] U.S. Department of Transportation, Federal Highway Administration, "Highway Statistics 2000," Washington, DC, 2001.
[17] U.S. Department of Transportation, Federal Highway Administration, Freight Facts and Figures 2008. FHWA-HOP-08-052. Taken from *Highway Statistics* (Washington, DC: annual issues), table VM-1 and similar tables in earlier editions.
[18] MPCA. December 2003. Facts about Air Quality Permit Rules. Majors and Remediation Division, Air Quality Program. Air Quality/Federal and State Regulations/#4.03.
[19] Intergovernmental Panel on Climate Change, Fourth Assessment Report, Climate Change 2007: Synthesis Report, Summary for Policy Makers, released in Valencia, Spain, November 17, 2007.

transportation, temporary construction emissions and indirect emissions related to the use of natural gas and electricity to power the Facility.

The total annual estimated CO_2 emissions from Facility operation is estimated to be 28,799 tons/year. Construction is estimated at 302 tons and transportation (automobiles/light duty vehicles-LDV & semi-trucks-CI) estimated at 1344 tons/year.

Sage would endeavor to decrease GHG emissions by implementing LEED measures to reduce the carbon footprint of the Facility. As part of the plan to design and operate the Facility as energy efficiently as possible, energy efficiency options currently being explored include: feasibility of using excess hot water and waste steam heat from the Faribault Energy Park Power Plant, utilization of wind energy, solar energy, and/or geothermal heating/cooling. The Facility would utilize EC windows and highly efficient lighting, motors, and HVAC systems in an effort to reduce energy consumption and greenhouse gas emissions.

Additionally, greater deployment of electrochromic window technology could help reduce dependence on fossil fuels, lower energy costs, and reduce carbon dioxide emissions and other forms of pollution. Modeling and field trials show that EC windows can significantly reduce lighting, cooling, and heating requirements in buildings. Lawrence Berkeley National Laboratories (LBNL) has estimated 20-30% peak demand reduction for a prototypical commercial building with EC windows. According to LBNL, the emerging EC window with daylighting controls is projected to save approximately 91.5-97.3x10^{12} Btu in the year 2030. [20] For each quad (10^{15} Btu) of fossil fuel energy saved, carbon dioxide-equivalent emissions are reduced by approximately 60 million metric tons. [21] By 2030, assuming 40% market penetration of EC windows, this could equate to an approximate reduction of about 6 million metric tons per year of CO_2-equivalent emissions resulting from EC windows.[22]

The annual production of the proposed Sage Facility would be approximately 2 million square feet of EC windows per year starting in 2012. If all 2 million square feet of EC windows are installed in typical commercial buildings it would result in energy savings of approximately 6x10^{-5} quad per year.[23] Assuming that 60 million tons of CO_2-equivalent emissions are saved per quad, the total of all windows produced each year will result in 3600 tons of CO_2-equivalent emissions saved per year. Given a window's useful life of 25 years, all the windows produced at the Sage Facility in any given year would help to avoid 90,000 tons of CO_2-equivalent emissions annually.

If the Facility were not built the environmental benefits that would otherwise be realized through wider production and distribution of Sage EC windows would not occur.

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[20] E.S. Lee, et al. April 30, 2004. "The Energy-Savings Potential of Electrochromic Windows in the US Commercial Buildings Sector," LBNL-54966.

[21] 2006 Buildings Energy Databook Table 6.4.2 US DOE EERE.

[22] E.S. Lee, op. cite

[23] Based on Lawrence Berkeley National Laboratory (LBNL) building simulation models.

3.10 Transportation

The project is located between I-35 and Park Ave/County Road (CR) 76 on the north side of the City of Faribault. The project proposes to use Park Ave/CR 76 as the single vehicular access point. Park Ave/CR 76 is a two-lane bituminous-surface county road constructed in 2004. Truck traffic from the site would utilize Park Ave/CR 76 and access I-35 at the interchange of MN Trunk Hwy 21. MNDOT traffic counts from 2005 display an average daily traffic count of 214 vehicles on Park Ave/CR 76.

An access road to Park Ave NW would be constructed to accommodate semi-truck traffic to and from the site. An access road would also be constructed between the existing Sage parking lot and the proposed site parking lot. The proposed project calls for a 160-stall parking lot. There would be an increase in daily traffic flow to the area as a result of the proposed project. Approximately 140-150 employee vehicles and approximately 4 semi-trucks traveling to and from the site would be the cause of the increase. During construction of the project, minor delays and/or detours may occur on certain streets in the area surrounding the site. Other than temporary effects due to construction activities, no disruption of the existing transportation regime is expected. The project is located in an industrial park, very near a truck stop, and adjacent to an interstate highway. Roadways in the area are designed to support heavy semi-truck traffic. Temporary traffic disruptions would be mitigated by employing proper traffic control measures as specified in the Minnesota Manual of Uniform Traffic Control Devices. Mitigation for transportation issues is not expected after completion of construction. While there would be some increased traffic, there would not be adverse impacts on the level of service (congestion and traffic) of roads used to access the Facility. Additional, potential fatalities and injuries from Facility transportation would be minimal, as seen in Figure 10.

Figure 10 Projected Fatalities and Injuries resulting from Facility transportation.

	Rate per 100 million vehicle miles traveled	Projection
Fatalities	0.88[24]	0.022 fatalities per year (1 fatality per 44 years)
Injuries	82[25]	2 injuries per year

- 144 Gasoline LDVs (10% car pool) and 30 mile average daily round trip commute
- Four 500 bhp Diesel Semi Trucks per day and 6 hr round trip with an average of 55 miles per hour 6960 vehicle miles per day (2,540,400 miles per year) resulting from Facility transportation

If the Facility were not built there would be no increase on the daily traffic flow to the proposed project site.

[24] Fatality Analysis Reporting System Encyclopedia. Fatalities and Fatality Rates by STATE, 1994 – 2007, State: Minnesota. United Stated Department of Transportation. National Center for Statistics and Analysis. National Highway Transportation Safety Administration.
http://www-fars.nhtsa.dot.gov/States/StatesFatalitiesFatalityRates.aspx

[25] Traffic Safety Fact Sheet 2007. A Compilation of Motor Vehicle Crash Data from the Fatality Analysis Reporting System and the General Estimates System. DOT HS 811 002. United Stated Department of Transportation. National Center for Statistics and Analysis. National Highway Transportation Safety Administration.

3.11 Waste Management

3.11.1 Wastewater

Domestic wastewater produced at the site by employees would enter the sanitary sewer system and be handled by the City of Faribault wastewater collection and treatment system. The City collection and treatment system is fully capable of handling the flows generated at the site and would not be adversely affected by the Facility nor require any upgrades as a result of the addition of flows from the site. 3,750 gpd domestic wastewater is forecasted to be produced at the Facility, assuming 144 employees. There would also be approximately 5000-7000 gpd of process wastewater from the evaporative cooling towers and Reverse Osmosis (RO)/Deionized (DI) equipment. There would also be process wastewater from the glass washing process in the amount of approximately 2,400 gallons per day (gpd). Thus, the anticipated total amount of wastewater produced at the Facility would be 13,150 gpd.

The Faribault Wastewater Treatment Plant is permitted to handle 7 million gallons per day and currently handles 3 million gallons per day (see Exhibit 15). It is fully able to handle the type of process wastewater produced from the Facility.

As water is evaporated by the cooling towers to decrease the cooling water temperature, the minerals, suspended solids and other organic materials in the city water begin to ‘concentrate’ in the cooling water. To prevent the ‘concentrated’ minerals and suspended solids from fouling the heat exchangers and process piping, a portion of the cooling water is rejected to the city sewer as ‘blow-down’ wastewater. New city water is then added as make-up to replace the evaporated water and concentrated ‘blow down’ wastewater. The RO/DI equipment would also have ‘concentrate’ wastewater (concentrated minerals and solids removed from the city water by the RO filter membranes) rejected to the city sewer. A pretreatment permit would not be required for discharge of the cooling tower blow-down water or RO concentrate water to the City sewer because it contains the same minerals and suspended solids that were contained in the potable city water supply.

If the Facility were not built, these minor waste impacts would not occur.

3.11.2 Solid Waste

Solid waste would result from typical garbage produced by the employees. This waste would be collected in trash containers and dumpsters and disposed of by a contract service. All other solid waste is recycled. This includes all glass, paper, cardboard, wood, metals, and most plastics. All glass waste is collected in dumpsters and recycled by a local vendor.

If the Facility were not built these minor amounts of waste would not be produced.

3.11.3 Hazardous Waste

Operation of the Facility would generate only a small amount of hazardous material or waste and would be classified as a Very Small Quantity Generator (VSQG) per Minnesota Pollution Control Agency (MPCA) standards (220 lbs/mo or less). The waste would be Isopropyl Alcohol (IPA), parts washer fluid, and miscellaneous lab chemicals and solvents. The hazardous waste would be transported and disposed of by an EPA approved hazardous waste transporter such as Safety Kleen. The metal oxides in the coating process are returned to the vendors for recycling and reconditioning and then returned to Sage for reuse. Non-regulated hazardous waste such as lubricating oils, fluorescent bulbs, and any rechargeable metal batteries (Ni-Cad, Ni-MH, and Li-ion) would be collected and recycled by EPA registered vendors. The Facility operation is required to comply with and would meet all MPCA and EPA-Resource Conservation and Recovery Act (RCRA) regulations.

If the Facility were not built these minor amounts of waste would not be produced.

3.12 Visual, Recreational, and Aesthetic Resources

No state or national parks, forest conservation areas, or areas of recreational, scenic, or aesthetic importance would be affected by the project. There is no formal recreation, hunting, or fishing activity at the site. The site is not open space that is available for community use. Visual impacts would be mitigated as required under Chapter 4, Section 125 of the Faribault Unified Development Ordinance.[26] Natural vegetation would be installed on the property. This would include tree and shrub plantings, some of which would be used as screening from I-35 and Park Ave. Parking areas would also contain plantings and landscape islands. Additionally, landscaping would be used to enhance its aesthetics when viewed from adjacent roadways and businesses. In total, no adverse impacts to visual or recreational resources are anticipated.

If the Facility were not built the impact on aesthetic resources would be slightly less than if it were.

3.13 Noise

The noise generated by construction would be temporary and would pose no long-term adverse affects to the community. Any sensitive receptors (residential properties, schools, daycares, etc.) are approximately ½-mile from the site. The noise generated by construction and increased traffic would not pose major concerns for surrounding properties as it would be below ambient noise levels. I-35 borders the site to the west and the MN Municipal Power Plant borders the site to the north. Both I-35 and the MN Municipal Power Plant produce much more background noise than the proposed project would produce. Refer to Exhibit 11 for location of the Facility in relation to I-35 and the MN Municipal Power Plant.

If the Facility were not built, the impact from noise would be slightly less than if it were.

[26] http://www.ci.faribault.mn.us/assets/u/udoamendedjune2008.pdf

3.14 Public Health and Safety

With respect to potentially hazardous operations and materials in the new Sage Facility, the project would meet or exceed OSHA regulations. The electrochromic device processing equipment includes several power lasers which are used for precision removal of electrochromic thin films from the glass substrate. During the process, EC thin films are deposited to uniformly cover the entire substrate, and then specific device features are defined by removal of films from selected areas via laser ablation. With lasers the material removal is cleanly accomplished without need for solvents, etchants, or masking traditionally employed for selective thin film removal. Every laser system is totally enclosed and interlocked for employee safety per OSHA Laser Safety Guidelines. During maintenance and repair operations, personnel are to wear laser safety goggles.

The Sage EC device is fabricated by sequential vacuum deposition of several thin film materials onto a glass substrate, and metallic lithium (Li) is one of these materials. Lithium is supplied to the process via a metallic electrode or target which is made from Li metal by a vendor, shipped to Sage, and installed in the sputter coater. Such targets use highly reactive Li metal which, when reacting with water, produces LiOH, an irritant. Li is also pyrophoric and can ignite spontaneously when in contact with organic materials and/or moisture. The Li materials are carefully tracked and controlled through every step of supply, use, and recycling. Li targets are shipped from the vendor in DOT approved steel tubes which are designed to prevent exposure to the above listed reactants during shipping. The target is then installed in the sputter coater and kept in a vacuum. Since Li reacts with water, the Li target is cooled with a mineral oil based heat transfer fluid so even if there is a coolant leak, the Li remains inert. Once the Li target material has been used for several months, the Li target is vented in dry argon (inert gas), removed from the coater and transferred to a nearby low humidity room. It is then coated with mineral oil and repackaged in the DOT approved steel tube. All Li targets would be recycled by the contracting company where they are refilled and sent back to the Sage Facility. During all operations in which the Li target is exposed and being installed or removed, personnel would wear respirators, eye protection, protective gloves and other personal protective equipment. Sage has performed Industrial Hygiene (IH) tests on the Li process installation and removal process and the results were below the OSHA permissible exposure limit (PEL) for lithium hydride (a reaction product of Li with water) of 0.024 mg/m^3. Also, Class D fire extinguishers, appropriate for Li metal fires, would be located in all factory areas where Li metal is handled.

Silver (Ag) thick film conductive inks are printed on the electrochromic device for use as electrical conductors to apply power to the device. They are applied using custom designed printing equipment. The ink consists of Ag flakes (5 micron size), glass frit (ground glass), and terpineol solvent. Airborne Ag can be a toxic air contaminant if concentrated at levels above OSHA Permissible Exposure Limits (PEL's). Engineering and operational controls would be incorporated to ensure any airborne Ag is below the OSHA PEL of 0.10 mg/m^3 and all personnel would wear personal protective equipment including respirators as a precautionary measure.

The total amount of terpineol solvent that would be released during full production in our proposed Facility is less than 60 lbs per year. The Minnesota Pollution Control Agency (MPCA) permitting threshold for VOCs is 100 tons per year. The local concentration of terpineol is less

than 10^{-4}% by volume in the enclosed process oven during sintering (method for making objects from powder, by heating the material) of the ink. This is well below flammability limits. Consequently, no occupational health impacts are expected.

If the Facility were not built these minor potential hazards would pose no threat.

3.15 Evaluation of Terrorism-Related Impacts

DOE believes that the proposed Facility presents an unlikely target for an act of terrorism and has an extremely low probability of attack. The potential for the proposed action to result in terrorism-related activity or impacts would be negligible. All authorized personnel would be issued access key fobs to regulate entry into the facility, including office and processing areas. These measures would limit access and deter intruders.

If the Facility were not built the potential for terrorism would be slightly less than if it were.

3.16 Cumulative Impacts

Cumulative impacts are those that may affect resources of concern (resources for which the proposed action could contribute incrementally) arising from the proposed action in conjunction with past, present, and reasonably foreseeable future actions in the particular region of influence during the time period in which the proposed action would incrementally contribute. Based on a review of the City of Faribault Subdivision and Major Project Status Matrix,[27] three projects were identified in proximity to the proposed Facility.

1. McDonough Farms Industrial development is located east of I-35 and north of 170th Street approximately 2 miles north of the Facility. The site would house a distribution center for cereal, production center for wind turbine gear boxes, as well as corporate offices. The project status is listed as preliminary plat approved – project on hold.
2. Renneberg Hardwoods Industrial development is located east of Park Ave/CSAH 76 approximately 1/3-mile northeast of the Facility. The company would use the site to process wood for lumber. The project status is listed as construction in progress and a building is visible in the 2008 aerial photograph in Exhibit 11, Surrounding Land Use Map.
3. MDC Interstate Addition Industrial Subdivision is located east of Bagley Ave and west of I-35 approximately 1/2 mile northwest of the Facility. This is a two lot subdivision with one vacant lot and the other slated for a truck repair facility. The project status is listed as plat recorded. The site of the MDC Interstate Addition is listed as River Valley Trucking on Exhibit 11, Surrounding Land Use Map.

There are no other reasonably foreseeable actions that might incrementally lead to a cumulatively significant impact on area resources that are impacted by the proposed project. The EA analysis identified no incrementally significant impact to any of the resource areas assessed. Consequently, given the minimal number of past, present, and reasonably foreseeable future

[27] City of Faribault. January 2009. Subdivision and Major Project Status Matrix. [http://www.ci.faribault.mn.us/departments/planningzoning/projectstatusmatrix].

actions that could contribute to significant cumulative impacts within the spatial and temporal site boundaries of the proposed project the project is not expected to result in any significant cumulative effects.

3.17 Minnesota Environmental Policy Act Review

Minnesota's Environmental Quality Board (EQB) administers the Minnesota Environmental Policy Act (MEPA), and designates the Responsible Governmental Unit (RGU), which could be a state agency, county government, or municipality, dependent upon MN rules and the location of the project (but all overseen by the EQB). The Environmental Review program is similar to NEPA: there are EIS and EA thresholds (in Minnesota, the EA is called an EAW - Environmental Assessment Worksheet) and exemption categories.

Based on its review of the Mandatory Environmental Assessment Worksheet Categories (MN Rules 4410.4300), MN DNR determined that the proposed project does not trigger a mandatory EAW. According to MN Rules 4410.4300, subpart 14 - Industrial, commercial, and institutional facilities, the site does not exceed the 450,000 sq. ft. gross floor space threshold for the construction of a new facility or expansion of an existing warehousing or light industrial facility. No additional state, regional, or local environmental reviews are required for the project.

4.0 LIST OF PREPARERS

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MN DNR – Environmental Review Coordinator 10/14/08, 10/31/08

U.S. Fish and Wildlife Service – Twin Cities Field Office 10/22/08

U.S. Army Corps of Engineers 11/3/08

Rice County Soil and Water Conservation District 11/3/08

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Lower Sioux Indian Community, Minnesota 1/21/2009

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Santee Sioux Tribe, Nebraska 1/21/2009

Sisseton-Wahpeton Oyate, South Dakota 1/21/2009

Spirit Lake Tribe, North Dakota 1/21/2009

Upper Sioux Community, Minnesota 1/21/2009

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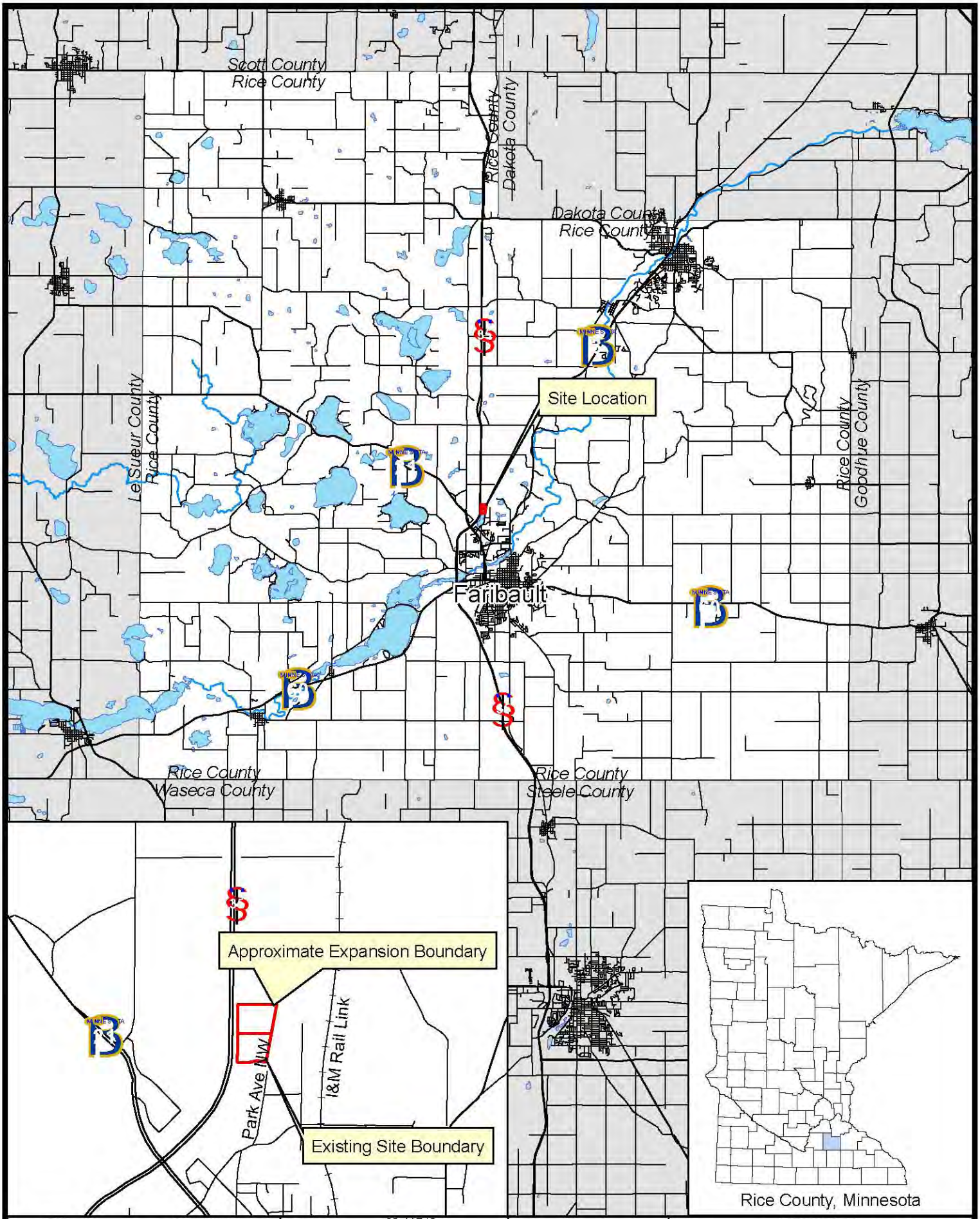

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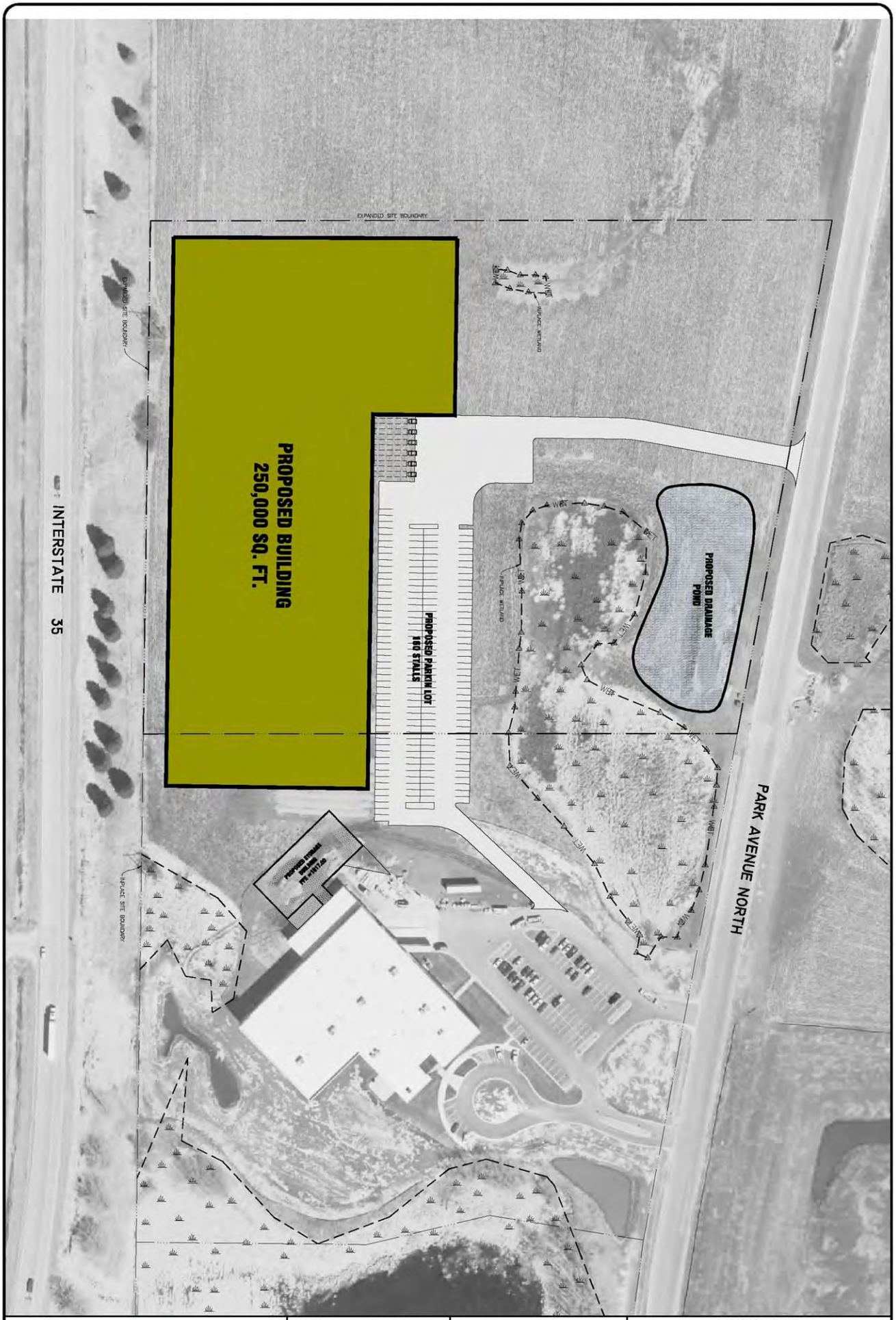
Faribault 507.331.1500
Email: info@is-grp.com
Web: www.is-grp.com

Proj. No. 08-11740
Source:

Scale: 0 1 Mile

F

EXHIBIT 1
Location Map
Sage Electrochromics
One Sage Way, Faribault, Minnesota



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Web: www.is-eg.com

Proj. No.	08-11740
CAD File Name	11740 EXHIBITS
Date	11-11-08

0 60 120
SCALE:

EXHIBIT 2
SITE LAYOUT
SAGE ELECTROCHROMICS 2008
Faribautl - Rice County Minnesota

Mapped Soils:
104B -- Hayden loam, 2 to 6% slopes
109 -- Cordova clay loam, 0 to 2% slopes (hydric)
114 -- Glencoe clay loam, depressional, 0 to 1% slopes (hydric)
414 -- Hamel loam, 1 to 3% slopes (hydric)

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Proj. No. 08-11457
Source: 2008 FSA Color Orthophotograph

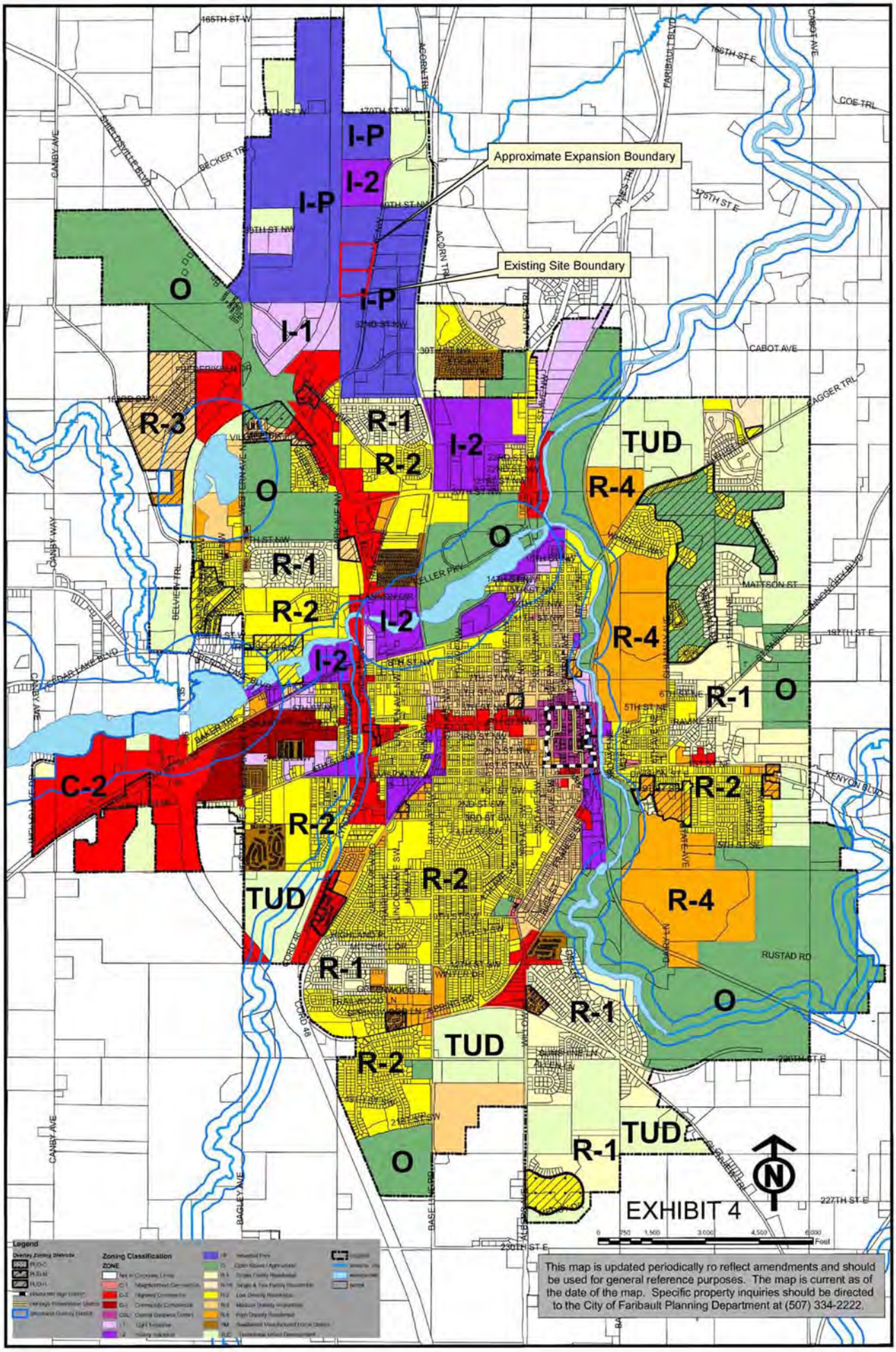
Scale: 0 100 Feet

F

EXHIBIT 3
Prime and Important Farmland
Sage Electrochromics
One Sage Way, Faribault, Minnesota

City of Faribault Official Zoning Map

August 11, 2008



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Proj. No. 08-11740

Source: 2008 FSA Color Orthophotograph

Scale: 0 150 Feet

F

EXHIBIT 5
National Wetland Inventory
Sage Electrochromics
One Sage Way, Faribault, Minnesota

Eng. Proj. No.	08-11740	SAP Proj. No.	
City Proj. No.		Federal Proj. No.	
County Proj. No.		CAD File Name	11740 SKETCH1
CSAH Proj. No.			

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I HEREBY CERTIFY THAT THIS PLAN WAS CREATED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

DATE _____ LIC. NO. _____

REVISIONS

SCALES: HORIZ. 0 100 N/A; VERT. 0

SAGE EXPANSION
WETLAND DELINEATION
EXHIBIT 6
Rice County, Minnesota

SHEET 1 OF 1 SHEETS

Minnesota
Historical Society
STATE HISTORIC PRESERVATION OFFICE

October 31, 2008

Ms. Brooke Hacker
I & S Group
1409 N. Riverfront Dr.
Mankato, MN 56001

RE: Sage Electrochromics Expansion, 1 Sage Way
Faribault, Rice County
SHPO Number: 2009-0223

Dear Ms. Hacker:

Thank you for the opportunity to review and comment on the above project. It has been reviewed pursuant to the responsibilities given the State Historic Preservation Officer by the National Historic Preservation Act of 1966 and the Procedures of the Advisory Council on Historic Preservation (36CFR800).

Based on available information, we conclude that **no properties** listed on or eligible for listing on the National Register of Historic Places will be affected by this project.

Please contact our Compliance Section at (651) 259-3455 if you have any questions regarding our review of this project.

Sincerely,

Britta L. Bloomberg
Deputy State Historic Preservation Officer

EXHIBIT 7

Minnesota Historical Society, 345 Kellogg Boulevard West, Saint Paul, Minnesota 55102
651-259-3000 • 888-727-8386 • www.mnhs.org

Minnesota Department of Natural Resources

Division of Ecological Resources, Box 25

500 Lafayette Road

St. Paul, Minnesota 55155-4025

Phone: (651) 259-5107 Fax: (651) 296-1811 E-mail: heidi.cyr@dnr.state.mn.us

October 28, 2008

Mr. Nick McCabe
I&S Group
1409 N. Riverfront Drive
Mankato, MN 56001

Re: Request for Natural Heritage information in the vicinity of the proposed Sage Electrochromics, T110N R21W Section 13, Rice County
Correspondence # : ERDB 20090238

Dear Mr. McCabe,

As requested, the Minnesota Natural Heritage Information System has been queried to determine if any rare species or other significant natural features are known to occur within an approximate one-mile radius of the proposed project. Based on this query, there are no known occurrences of rare features in the area searched.

The Natural Heritage Information System (NHIS), a collection of databases that contains information about Minnesota's rare natural features, is maintained by the Division of Ecological Resources, Department of Natural Resources. The NHIS is continually updated as new information becomes available, and is the most complete source of data on Minnesota's rare or otherwise significant species, native plant communities, and other natural features. However, the NHIS is not an exhaustive inventory and thus does not represent all of the occurrences of rare features within the state. Therefore, ecologically significant features for which we have no records may exist within the project area.

Please be aware that this letter focuses only on potential effects to *rare natural features*; there may be other natural resource concerns associated with the proposed project. This letter does not constitute review or approval by the Department of Natural Resources as a whole.

An invoice in the amount of $116.07 will be mailed to you under separate cover within two weeks of the date of this letter. You are being billed for the database search and printouts, and staff scientist review. Thank you for consulting us on this matter, and for your interest in preserving Minnesota's rare natural resources.

Sincerely,

Heidi Cyr
Endangered Species Environmental Review Specialist

EXHIBIT 8

Nick McCabe

From: Gary_Wege@fws.gov
Sent: Wednesday, October 22, 2008 2:55 PM
To: Nick McCabe
Subject: Re: State Listed Species Information Request

Dear Nick:

This responds to your e-mail below requesting information on federal threatened and endangered species in the area of the following project:

Sage Electrochromics Expansion, T110N, R21W, S13, Faribault, MN

There are currently no federally endangered or threatened species known to occur at the above project location. Therefore, this precludes the need for further action on this project as required under section 7 of the Endangered Species Act of 1973, as amended. However, if the project is modified or new information becomes available which indicates that listed species may occur in the affected area, consultation with this office should be reinitiated.

We appreciate the opportunity to comment and look forward to working with you in the future. If you have questions regarding our comments, please call me at (612) 725-3548, extension 207.

Sincerely,

Gary Wege

"Nick McCabe" <nick.mccabe@is-grp.com>
10/22/2008 02:42 PM

To <gary_wege@fws.gov>
cc
Subject State Listed Species Information Request

Gary,

We are currently in the process of conducting research for an environmental report for Sage Electrochromics in Faribault, MN. We are requesting the USFWS review its records and conduct a search for state listed species and critical habitat information for the proposed project site. The site is located in Section 13, T110N, R21W, Rice County, MN. This information will be used to help guide project development in a manner that avoids impacts to sensitive resources where practicable.

Thank you for your assistance with this matter.

Nick McCabe
Natural Resources Specialist

EXHIBIT 9

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*	Date Of Land Evaluation Request 2/18/09
Name Of Project SAGE Electrochromics HVM Facility	Federal Agency Involved US Dept of Energy
Proposed Land Use Industrial	County And State Rice County, Minnesota
PART II *(To be completed by NRCS)*	Date Request Received By NRCS

Does the site contain prime, unique, statewide or local important farmland? *(If no, the FPPA does not apply -- do not complete additional parts of this form).* Yes ☑ No ☐ | Acres Irrigated minimal | Average Farm Size 343

Major Crop(s) corn/soybeans	Farmable Land In Govt. Jurisdiction Acres: 262,914 % 86	Amount Of Farmland As Defined In FPPA Acres: 240,032 % 85
Name Of Land Evaluation System Used LE part of LESA	Name Of Local Site Assessment System none	Date Land Evaluation Returned By NRCS 2/26/09

PART III *(To be completed by Federal Agency)*	Alternative Site Rating Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly	12.4			
B. Total Acres To Be Converted Indirectly	0.0			
C. Total Acres In Site	12.4	0.0	0.0	0.0
PART IV *(To be completed by NRCS)* Land Evaluation Information				
A. Total Acres Prime And Unique Farmland	13.8			
B. Total Acres Statewide And Local Important Farmland	0.0			
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted	0.0			
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value	64.7			
PART V *(To be completed by NRCS)* Land Evaluation Criterion Relative Value Of Farmland To Be Converted *(Scale of 0 to 100 Points)*	0	0	0	0

PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(These criteria are explained in 7 CFR 658.5(b)*	Maximum Points				
1. Area In Nonurban Use	15	8			
2. Perimeter In Nonurban Use	10	2			
3. Percent Of Site Being Farmed	20	18			
4. Protection Provided By State And Local Government	20	20			
5. Distance From Urban Builtup Area	15	0			
6. Distance To Urban Support Services	15	0			
7. Size Of Present Farm Unit Compared To Average	10	0			
8. Creation Of Nonfarmable Farmland	10	0			
9. Availability Of Farm Support Services	5	5			
10. On-Farm Investments	20	0			
11. Effects Of Conversion On Farm Support Services	10	0			
12. Compatibility With Existing Agricultural Use	10	0			
TOTAL SITE ASSESSMENT POINTS	160	53	0	0	0
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland *(From Part V)*	100	0	0	0	0
Total Site Assessment *(From Part VI above or a local site assessment)*	160	53	0	0	0
TOTAL POINTS *(Total of above 2 lines)*	260	53	0	0	0

Site Selected:	Date Of Selection	Was A Local Site Assessment Used? Yes ☐ No ☒

Reason For Selection:

(See Instructions on reverse side)

This form was electronically produced by National Production Services Staff

Form AD-1006 (10-83)

EXHIBIT 10

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& Faribault, Minnesota
Mankato 507.387.6651
Faribault 507.331.1500
Email: info@is-grp.com
Web: www.is-grp.com

Proj. No. 08-11740
Source: 2008 FSA Digital Orthophotograph

Scale:
0 500 Feet
N

EXHIBIT 11
Surrounding Land Use
Sage Electrochromics
City of Faribault, Rice County, Minnesota

Department of Energy
Washington, DC 20585

JAN 21 2009

Honorable Jean Stacy
President
Lower Sioux Community Center
P.O. Box 308, 39458 Res. Highway 1
Morton, MN 56270

Re: Sage Electrochomics Manufacturing Facility

Dear President Stacy,

The U.S. Department of Energy (DOE) is evaluating the application of a company called Sage Electrochromics (Sage) for a Federal loan guarantee to construct an electrochromic glass window manufacturing facility in the City of Faribault, Rice County, Minnesota. DOE will be performing an environmental review of the Sage project in compliance with the National Environmental Policy Act (NEPA), and an historic resources review in compliance with Section 106 of the National Historic Preservation Act (NHPA).

Our records show that your Tribe has expressed an historical interest in Rice County. I am writing this letter to extend an opportunity to you to engage DOE in government to government consultation on the proposed Sage project. Consideration of any comments or concerns you provide will help ensure that DOE complies with its NEPA and NHPA Section 106 responsibilities.

The proposed project would affect a 15-acre parcel of land that is currently being farmed. The project site is within the city limits of Faribault in an area zoned as an industrial park. Excavation and grading would be required to construct the proposed 250,000 square foot manufacturing facility. Our review of the project has not identified any historic or archeological resources, or sites of religious and cultural significance in the vicinity of the proposed project site; however, we want to give you the opportunity to raise any issues or concerns you may have regarding the site. To assist you, a more detailed description of the proposed project and a map showing the site and its location are enclosed.

We would greatly appreciate receiving any comments or concerns you may have by February 21, 2009. Please send written comments to me at the following address: U.S. Department of Energy, 1000 Independence Ave., SW, CF-1.3, Washington, DC 20585. I can also be reached by telephone at 202-586-7248, or by email at matthew.mcmillen@hq.doe.gov.

Respectfully,

Signed by

Matthew McMillen
Director, NEPA Compliance
DOE Loan Guarantee Program Office

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Exhibit 12

Department of Energy
Washington, DC 20585

JAN 21 2009

Honorable Myra Pearson
Chairperson
Spirit Lake Dakotah Nation
P.O. Box 359
Fort Totten, ND 58335

Re: Sage Electrochomics Manufacturing Facility

Dear Chairperson Pearson,

The U.S. Department of Energy (DOE) is evaluating the application of a company called Sage Electrochromics (Sage) for a Federal loan guarantee to construct an electrochromic glass window manufacturing facility in the City of Faribault, Rice County, Minnesota. DOE will be performing an environmental review of the Sage project in compliance with the National Environmental Policy Act (NEPA), and an historic resources review in compliance with Section 106 of the National Historic Preservation Act (NHPA).

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Respectfully,

// signed by //

Matthew McMillen
Director, NEPA Compliance
DOE Loan Guarantee Program Office

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Department of Energy
Washington, DC 20585

JAN 21 2009

Honorable Joshua Weston
President
Flandreau Santee Sioux
Tribal Office Staff Directory
P.O. Box 283, 603 W. Broad Avenue
Flandreau, South Dakota 57028

Re: Sage Electrochomics Manufacturing Facility

Dear President Weston,

The U.S. Department of Energy (DOE) is evaluating the application of a company called Sage Electrochromics (Sage) for a Federal loan guarantee to construct an electrochromic glass window manufacturing facility in the City of Faribault, Rice County, Minnesota. DOE will be performing an environmental review of the Sage project in compliance with the National Environmental Policy Act (NEPA), and an historic resources review in compliance with Section 106 of the National Historic Preservation Act (NHPA).

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Respectfully,

// Signed by //

Matthew McMillen
Director, NEPA Compliance
DOE Loan Guarantee Program Office

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Department of Energy
Washington, DC 20585

JAN 21 2009

Honorable Audrey Bennett
President
Prairie Island Indian Community
5636 Sturgeon Lake Road
Welch, MN 55089

Re: Sage Electrochomics Manufacturing Facility

Dear President Bennett,

The U.S. Department of Energy (DOE) is evaluating the application of a company called Sage Electrochromics (Sage) for a Federal loan guarantee to construct an electrochromic glass window manufacturing facility in the City of Faribault, Rice County, Minnesota. DOE will be performing an environmental review of the Sage project in compliance with the National Environmental Policy Act (NEPA), and an historic resources review in compliance with Section 106 of the National Historic Preservation Act (NHPA).

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Respectfully,

Signed by

Matthew McMillen
Director, NEPA Compliance
DOE Loan Guarantee Program Office

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Department of Energy
Washington, DC 20585

JAN 21 2009

Honorable Roger Trudell
Tribal Chairperson
Santee Sioux Tribe of Nebraska
425 Frazier Ave N. Suite 2
Niobraha, Nebraska 68760

Re: Sage Electrochomics Manufacturing Facility

Dear Chairperson Trudell,

The U.S. Department of Energy (DOE) is evaluating the application of a company called Sage Electrochromics (Sage) for a Federal loan guarantee to construct an electrochromic glass window manufacturing facility in the City of Faribault, Rice County, Minnesota. DOE will be performing an environmental review of the Sage project in compliance with the National Environmental Policy Act (NEPA), and an historic resources review in compliance with Section 106 of the National Historic Preservation Act (NHPA).

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Respectfully,

Signed by

Matthew McMillen
Director, NEPA Compliance
DOE Loan Guarantee Program Office

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Department of Energy
Washington, DC 20585

JAN 21 2009

Honorable Michael Selvage
Chairman
Sisseton-Wahpeton Oyate of the Lake Traverse Reservation, S. Dakota
16415 Sioux Conifer Rd
Watertown, SD 57201-7321

Re: Sage Electrochomics Manufacturing Facility

Dear Chairman Selvage,

The U.S. Department of Energy (DOE) is evaluating the application of a company called Sage Electrochromics (Sage) for a Federal loan guarantee to construct an electrochromic glass window manufacturing facility in the City of Faribault, Rice County, Minnesota. DOE will be performing an environmental review of the Sage project in compliance with the National Environmental Policy Act (NEPA), and an historic resources review in compliance with Section 106 of the National Historic Preservation Act (NHPA).

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Respectfully,

|| Signed by ||

Matthew McMillen
Director, NEPA Compliance
DOE Loan Guarantee Program Office

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Department of Energy
Washington, DC 20585

JAN 21 2009

Honorable Kevin Jensvold
Chairman
Upper Sioux Community
P.O. Box 147
5738 Highway 67 East
Granite Falls, MN

Re: Sage Electrochomics Manufacturing Facility

Dear Chairman Jensvold,

The U.S. Department of Energy (DOE) is evaluating the application of a company called Sage Electrochromics (Sage) for a Federal loan guarantee to construct an electrochromic glass window manufacturing facility in the City of Faribault, Rice County, Minnesota. DOE will be performing an environmental review of the Sage project in compliance with the National Environmental Policy Act (NEPA), and an historic resources review in compliance with Section 106 of the National Historic Preservation Act (NHPA).

Our records show that your Tribe has expressed an historical interest in Rice County. I am writing this letter to extend an opportunity to you to engage DOE in government to government consultation on the proposed Sage project. Consideration of any comments or concerns you provide will help ensure that DOE complies with its NEPA and NHPA Section 106 responsibilities.

The proposed project would affect a 15-acre parcel of land that is currently being farmed. The project site is within the city limits of Faribault in an area zoned as an industrial park. Excavation and grading would be required to construct the proposed 250,000 square foot manufacturing facility. Our review of the project has not identified any historic or archeological resources, or sites of religious and cultural significance in the vicinity of the proposed project site; however, we want to give you the opportunity to raise any issues or concerns you may have regarding the site. To assist you, a more detailed description of the proposed project and a map showing the site and its location are enclosed.

We would greatly appreciate receiving any comments or concerns you may have by February 21, 2009. Please send written comments to me at the following address: U.S. Department of Energy, 1000 Independence Ave., SW, CF-1.3, Washington, DC 20585. I can also be reached by telephone at 202-586-7248, or by email at matthew.mcmillen@hq.doe.gov.

Respectfully,

Matthew McMillen
Director, NEPA Compliance
DOE Loan Guarantee Program Office

Printed with soy ink on recycled paper

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): March 3, 2009

B. ST PAUL, MN DISTRICT OFFICE, FILE NAME, AND NUMBER: 2009-00850-EMN, SAGE Electrochromics Expansion

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State: Minnesota County/parish/borough: Rice City: Faribault
Center coordinates of site (lat/long in degree decimal format): Lat. 44.3303809° **N**, Long. -93.2910232° **W**.
Universal Transverse Mercator: Zone 15
Name of nearest waterbody: Unnamed wetlands
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: N/A
Name of watershed or Hydrologic Unit Code (HUC):
☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
☒ Office (Desk) Determination. Date: January 27, 2009
☐ Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are no** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
   ☐ TNWs, including territorial seas
   ☐ Wetlands adjacent to TNWs
   ☐ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
   ☐ Non-RPWs that flow directly or indirectly into TNWs
   ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
   ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
   ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
   ☐ Impoundments of jurisdictional waters
   ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
   Non-wetland waters: linear feet: width (ft) and/or acres.
   Wetlands: acres.

   c. **Limits (boundaries) of jurisdiction** based on: **Pick List**
   Elevation of established OHWM (if known): .

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   ☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: **Based upon a review of aerial photographs, topographic maps, NWI maps, and the Rice County Soil Survey, Wetlands A and B have been determined to be hydrologically isolated. The topographic map shows that the wetlands**

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

are located near a large depressional area in the landscape and there is no indication of a surface water connection to a water of the United States. The Rice County Soil Surveys show that these wetlands are mapped as a Hamel loam, which is a hydric soil typically found in moraines with a 1-3 percent slope. This soil is poorly drained or very poorly drained and has a water table depth of less than 1.0 feet during the growing season (2B3 classification). The water bodies do not support a link to interstate or foreign commerce because they are not known to be used by interstate or foreign travelers for recreation or other purposes; do not produce fish or shellfish that could be taken and sold in interstate or foreign commerce; and are not known to be used for industrial purposes by industries in interstate commerce. The water bodies were determined to not be jurisdictional under the CWA because the wetlands lacked links to interstate commerce sufficient to serve as a basis for jurisdiction.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW
Identify TNW: .

Summarize rationale supporting determination: .

2. Wetland adjacent to TNW
Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: **Pick List**
Drainage area: **Pick List**
Average annual rainfall: inches
Average annual snowfall: inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☐ Tributary flows through **Pick List** tributaries before entering TNW.

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

Project waters are **Pick List** river miles from TNW.
Project waters are **Pick List** river miles from RPW.
Project waters are **Pick List** aerial (straight) miles from TNW.
Project waters are **Pick List** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: .

Identify flow route to TNW[5]: .
Tributary stream order, if known: .

(b) General Tributary Characteristics (check all that apply):
Tributary is: ☐ Natural
☐ Artificial (man-made). Explain: .
☐ Manipulated (man-altered). Explain: .

Tributary properties with respect to top of bank (estimate):
Average width: feet
Average depth: feet
Average side slopes: **Pick List.**

Primary tributary substrate composition (check all that apply):
☐ Silts ☐ Sands ☐ Concrete
☐ Cobbles ☐ Gravel ☐ Muck
☐ Bedrock ☐ Vegetation. Type/% cover:
☐ Other. Explain: .

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: .
Presence of run/riffle/pool complexes. Explain: .
Tributary geometry: **Pick List**
Tributary gradient (approximate average slope): %

(c) Flow:
Tributary provides for: **Pick List**
Estimate average number of flow events in review area/year: **Pick List**
Describe flow regime: .
Other information on duration and volume: .

Surface flow is: **Pick List.** Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☐ Bed and banks
☐ OHWM[6] (check all indicators that apply):
☐ clear, natural line impressed on the bank
☐ changes in the character of soil
☐ shelving
☐ vegetation matted down, bent, or absent
☐ leaf litter disturbed or washed away
☐ sediment deposition
☐ water staining
☐ other (list):
☐ the presence of litter and debris
☐ destruction of terrestrial vegetation
☐ the presence of wrack line
☐ sediment sorting
☐ scour
☐ multiple observed or predicted flow events
☐ abrupt change in plant community

☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):
☐ High Tide Line indicated by:
☐ oil or scum line along shore objects
☐ fine shell or debris deposits (foreshore)
☐ physical markings/characteristics
☐ Mean High Water Mark indicated by:
☐ survey to available datum;
☐ physical markings;
☐ vegetation lines/changes in vegetation types.

[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.
[6] A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7] Ibid.

☐ tidal gauges
☐ other (list):

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: .
Identify specific pollutants, if known: .

(iv) Biological Characteristics. Channel supports (check all that apply):
☐ Riparian corridor. Characteristics (type, average width): .
☐ Wetland fringe. Characteristics: .
☐ Habitat for:
☐ Federally Listed species. Explain findings: .
☐ Fish/spawn areas. Explain findings: .
☐ Other environmentally-sensitive species. Explain findings: .
☐ Aquatic/wildlife diversity. Explain findings: .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:
(a) General Wetland Characteristics:
Properties:
Wetland size: acres
Wetland type. Explain: .
Wetland quality. Explain: .
Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:
Flow is: **Pick List**. Explain: .

Surface flow is**: Pick List**
Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .
☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:
☐ Directly abutting
☐ Not directly abutting
☐ Discrete wetland hydrologic connection. Explain: .
☐ Ecological connection. Explain: .
☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW
Project wetlands are **Pick List** river miles from TNW.
Project waters are **Pick List** aerial (straight) miles from TNW.
Flow is from: **Pick List.**
Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) Chemical Characteristics:
Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: .
Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):
☐ Riparian buffer. Characteristics (type, average width): .
☐ Vegetation type/percent cover. Explain: .
☐ Habitat for:
☐ Federally Listed species. Explain findings: .
☐ Fish/spawn areas. Explain findings: .
☐ Other environmentally-sensitive species. Explain findings: .
☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)
All wetland(s) being considered in the cumulative analysis: **Pick List**
Approximately ( ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed: .

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☐ TNWs: linear feet width (ft), Or, acres.
   - ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   - ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .
   - ☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: **.**

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: **.**

☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
☐ Demonstrate that impoundment was created from "waters of the U.S.," or
☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

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[8] See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.*

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☒ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☒ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☒ Wetlands: Wetland A is 2.44 acres and Wetland B is 0.04 acres for a total of 2.48 acres of wetlands in the review area.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: November 5, 2008.
☐ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☐ U.S. Geological Survey Hydrologic Atlas: .
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name: .
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Rice County.
☒ National wetlands inventory map(s). Cite name: .
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps: .
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☐ Photographs: ☐ Aerial (Name & Date): .
or ☐ Other (Name & Date): .
☐ Previous determination(s). File no. and date of response letter: .
☐ Applicable/supporting case law: .
☐ Applicable/supporting scientific literature: .
☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD: Based upon a review of aerial photographs, topographic maps, NWI maps, and the Rice County Soil Surveys, Wetlands A and B have been determined to be hydrologically isolated. The wetlands do not have a surface water connection to a water of the United States, and therefore, are not regulated under Section 404 of the Clean Water Act.

Minnesota Wetland Conservation Act
Notice of Wetland Conservation Act Decision

Name and Address of Local Government Unit: Rice SWCD
1810 30th St. NW
Faribault, Mn. 55021

Name of Applicant: I & S Group,

Project Name: Sage Electrochromics

Application Number: DL-06-08

Type of Application (check one):
- ☐ Exemption Decision
- ☐ No Loss Decision
- ☐ Replacement Plan Decision
- ☐ Banking Plan Decision
- ☑ Wetland Type/Boundary Decision

Date of Decision: November 25, 2008

Check One:
- ☑ Approved
- ☐ Approved with conditions (see note on page 2 regarding use of wetland banking credits)
- ☐ Denied

Summary of Project/Decision After field review, the wetland delineation boundaries and wetland types are approved as delineated.

List of Addressees:
Landowner:
Sage

Members of Technical Evaluation Panel:
Steve Lawler - BWSR
Jeanine Vorland- DNR Wildlife

Watershed District or Watershed Management Organization (If Applicable):

Department of Natural Resources Regional Office (select appropriate office):

NW Region:	NE Region:	Central Region:	Southern Region:
Regional Director	Reg. Env. Assess. Ecol.	Reg. Env. Assess. Ecol.	Reg. Env. Assess. Ecol.
2115 Birchmont Beach Rd. NE	Div. Ecol. Services	Div. Ecol. Services	Div. Ecol. Services
Bemidji, MN 56601	1201 E. Hwy. 2	1200 Warner Road	261 Hwy. 15 South
	Grand Rapids, MN 55744	St. Paul, MN 55106	New Ulm, MN 56073

Exhibit 14

DNR TEP Representative (if different than above)
Randy Bradt- DNR Waters

Corp of Engineers Project Manager @
Department of the Army, Corps of Engineers, St. Paul District
ATTN: CO-R, 190 Fifth Street East
St. Paul, MN 55101-1638
Individual members of the public who requested a copy, summary only

You are hereby notified that the decision of the Local Government Unit on the above-referenced application was made on the date stated above. A copy of the Local Government Unit's Findings and Conclusions is attached. Pursuant to Minn. R. 8420.0250 any appeal of the decision must be commenced by mailing a petition for appeal to the Minnesota Board of Water and Soil Resources within thirty (30) calendar days of the date of the mailing of this Notice.

NOTE: Approval of Wetland Replacement Plan Applications involving the use of wetland banking credits is conditional upon withdrawal of the appropriate credits from the state wetland bank. No wetland impacts may commence until the applicant receives a copy of the fully signed and executed "Application for Withdrawal of Wetland Credits," signed by the BWSR wetland bank administrator certifying that the wetland bank credits have been debited.

THIS DECISION ONLY APPLIES TO the Minnesota Wetland Conservation Act. Additional approvals or permits from local, state, and federal agencies may be required. Check with all appropriate authorities before commencing work in or near wetlands.

LOCAL GOVERNMENT UNIT

Tim Labs
Signature

11/25/08
Date

Tim Labs, Local Government Unit
Name and Title

Exhibit 15

City Of Faribault

The following contains proprietary information that SAGE Electrochromics, Inc. requests not to be released to persons outside the Government, except for purposes of review and evaluation (SAGE Confidential & Proprietary)

March 20, 2009

Greg Brown, P.E.
Director of Facilities, Safety, Environmental, and Special Projects
SAGE Electrochromics
One Sage Way, Faribault, MN 55021

Ref. Faribault Water & Wastewater Capacity

Dear Mr. Brown:

The existing sanitary sewer and watermain infrastructure in the Northern Industrial Park, as well as the primary City production and treatment facilities, have more than sufficient capacity to serve the needs of the proposed Sage expansion along Park Avenue. This area is served by a 12" diameter sanitary sewer main in Park Avenue, which has an overall capacity of 1.2 MGD, or a peak flow capacity in excess of 800 GPM. The water pressure in this area is nearly 90 psi, and there is a 10-inch diameter line in Park Avenue that is fed from both the north and south. This combination results in very favorable flow characteristics for providing water for plant production needs as well as fire protection requirements.

Currently our wastewater treatment plant has an average design flow of 7.0 MGD and our 2008 average flow was only 3.0 MGD. On top of the existing infrastructure, the City has additional trunk line and facility improvements programmed in the next one to five years that will further expand the capacity and reliability of the systems serving the Northern Industrial Park, including a major wastewater treatment plant upgrade, trunk sewer interceptor and water transmission mains, and an elevated water tower.

We would welcome the opportunity to help your firm grow with Faribault. Let me know if you need further information.

Sincerely,

Thomas W. Drake, P.E.
Director of Public Works

City Of Faribault

Tom Drake, P.E.
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