

4415.0145 ENVIRONMENTAL IMPACT OF PREFERRED ROUTE

The applicant must also submit to the board [PUC] along with the application an analysis of the potential human and environmental impacts that may be expected from pipeline right-of-way preparation and construction practices and operation and maintenance procedures. These impacts include but are not limited to the impacts for which criteria are specified in part 4415.0040 or 4415.0100.

The Applicants have prepared an Environmental Assessment Supplement for the Alberta Clipper/Southern Lights Diluent Projects that provides a description of the existing environment along the route, an analysis of potential human and environmental impacts, and a discussion of measures that will be taken to protect and restore the right-of-way and to mitigate adverse impacts. A summary of the potential human and environmental impacts is presented below. A summary of the existing environment along the route is provided in Section 4415.140 of this application. More detailed information on the human environmental impacts and mitigative measures is provided in the Environmental Assessment Supplement.

Socioeconomics

During pipeline construction, the Applicants will employ approximately 1,500 local and non-local workers. The Applicants, through their construction contractors and subcontractors, will attempt to hire local workers where the local workforce possesses the required skills. Construction personnel hired from outside the project area will augment the local workforce and consist of supervisors, environmental inspectors, and highly skilled mechanical, electrical, and instrumentation/control tradesmen. Non-local workers will relocate to the project area for the duration of construction. All workers will generally be dispersed along the length of the construction corridor rather than concentrated at a single work site. Non-local workers will reside in the vicinity of the project for short periods, typically unaccompanied by family members. As a result, incremental demand from non-local workers for public services will be small.

Construction of the pipeline may temporarily affect transportation systems along the pipeline route. The Applicants will typically construct the pipeline across paved roadways and railroads using road-boring equipment to avoid disruptions to vehicular or railcar movement and physical impacts on road/railroad beds. Unpaved roadways will typically be crossed by boring or by using the open-cut method. The latter method could temporarily disrupt road traffic as the pipe trench is excavated across the roadway. To minimize traffic delays at these crossings, The Applicants will establish traffic detours or maintain at least one traffic lane except for brief periods when road closure is essential to lay the pipe. The Applicants will minimize the duration of open-cut crossings, and in most cases, will complete these road crossings in one day or less.

The movement of construction personnel, equipment, and materials from contractor and pipe storage yards to the construction work area will result in additional short-term impacts on the local transportation system. The Applicants anticipate that road congestion will increase during early morning and evening peak hours, but will not significantly disrupt the normal flow of traffic in the project area.

Construction and operation of the project will benefit local economies through expenditures for wages, purchase of materials, and annual taxes. Construction will create temporary jobs for both local and non-local workers. Operation of the project will likely require the Applicants to hire at least four new full-time permanent employees.

Land Use

In general, the pipeline projects will be constructed within a 140-foot wide right-of-way to allow for temporary storage of topsoil and spoil and to accommodate safe operation of construction equipment. Temporary extra workspaces will be needed where the route crosses features such as waterbodies, roads, railroads, sideslopes, and other special circumstances. These temporary extra workspaces are construction areas that are needed outside of the typical construction right-of-way to stage equipment and stockpile spoil material. Construction of the Minnesota portion of the project will temporarily affect approximately 4,743 acres of land.

The Applicants classified land use along the pipeline route into the following five categories: agricultural lands, developed lands, forest lands, wetlands/open water, and open lands. The following table provides a summary of land use categories affected by pipeline construction and operation.

Land Use Affected by Construction and Operation of the Proposed Pipeline				
	Land Area Affected By Construction		Land Area Affected By Operation	
	Acres	Percent	Acres	Percent
Agricultural Lands	1,993.0	42.0%	272.7	18.9%
Developed Lands	97.1	2.0%	31.5	2.2%
Forest Lands	1,342.6	28.3%	464.5	32.2%
Wetlands/Open Water	762.2	16.1%	516.4	35.8%
Open Lands	547.8	11.6%	157.1	10.9%
Total	4,742.7	100%	1,442.2	100%

Pipeline construction will temporarily disturb approximately 1,993 acres of agricultural land, or approximately 42% of the total land affected. Of the agricultural land affected, approximately 73.1% (1,458 acres) is cultivated and the remaining 26.9% (535 acres) is pasture land. Other land uses are forest land (1,343 acres or 28%), wetland/open water (762 acres or 16%), open land (548

acres or 12%), and developed land (97 acres or 2%). Construction activities also may interfere with planting or harvesting, depending on the timing of construction. Impacts on agricultural areas will be minimized by implementation of the Applicants' Agricultural Mitigation Plan (Appendix E to the Environmental Assessment Supplement).

Impacts on residential and commercial areas may result and will generally be short term. Short term impacts on residences and buildings could result from dust generated from construction equipment and excavation, increased ambient noise levels, and increased vehicular traffic.

To facilitate installation of the pipeline, trees and brush will be removed from the construction right-of-way and temporary extra workspaces. Following construction, the right-of-way will be restored and revegetated. Consistent with standard industry practices, the new permanent right-of-way in forest lands will be maintained in an herbaceous state to facilitate aerial inspection of the pipeline; however, the remainder of the construction right-of-way and the temporary extra workspaces will be allowed to revert to their natural forested state.

Open land consists of areas classified as bare rock, sand, or clay; quarries, strip mines or gravel pits; transitional; shrublands; grasslands or herbaceous areas; cleared portions of existing rights-of-way; and urban or recreational grasses. Open lands will be temporarily disturbed during grading, trenching, backfilling, and restoration. Once construction is complete, open land will be restored and revegetated.

Terrain and Geology

Construction and operation of the pipeline will result in minor impacts of topography and geology. The Applicants will minimize impacts by restoring contours to pre-construction conditions to the extent practicable and by implementing the erosion control measures described in its EMP (Appendix B to the Environmental Assessment Supplement). Less than 1 percent of the route crosses areas with bedrock at depths of less than five feet. These areas of shallow bedrock are located in St. Louis County; therefore, blasting and other methods required for construction in bedrock may be employed during construction. Generally, the pipeline will be installed adjacent to existing pipelines; therefore, any sand and gravel deposits in the project area will be unavailable for mining.

Soils

Pipeline construction activities such as clearing, grading, trench excavation, and backfilling, as well as movement of construction equipment along the right-of-way, will affect soil resources. The Applicants will minimize or avoid these impacts on soils by implementing the mitigation measures described in the EMP, AMP, and SPCCP (Appendices B, E, and C to the Environmental Assessment Supplement).

These measures will include topsoil segregation, compaction alleviation, removal of excess rock, restoration of agricultural drainage systems, and the installation of temporary and permanent erosion control structures. The Applicants will also revegetate disturbed areas, with the exception of active cropland, following final grading.

Vegetation, Wildlife, and Fisheries

During construction, existing vegetation will be removed from within the construction right-of-way and temporary workspace areas to facilitate the installation of the pipeline. The impact of clearing and the time required to achieve recovery of vegetation communities will depend on the size and age of the pre-existing vegetation. Active revegetation measures and rapid colonization by annual and perennial herbaceous species in the disturbed areas will restore most vegetative cover within the first growing season. In general, long-term impacts will be greatest in forest lands because forest vegetation is more structurally complex than other vegetation types and takes longer to become re-established.

Impacts on vegetation adjacent to the project area will be minimized through adherence to soil erosion control specifications and by confining clearing activities to the approved right-of-way and temporary extra workspaces, and by implementing revegetative measures in accordance with the Applicants' EMP (Appendix B to the Environmental Assessment Supplement). Where the pipeline route parallels the existing pipeline corridor, construction areas will overlap the existing maintained right-of-way, thereby reducing the amount of forest and shrub lands that will be cleared prior to, and during, construction.

Operation and maintenance of the pipeline facilities will have additional effects on vegetation after site clearing and right-of-way restoration are complete. To facilitate inspection of the pipeline, the permanent right-of-way periodically will be cleared of trees and shrubs to facilitate aerial inspection of the pipeline and maintain visibility of pipeline markers located at property lines and crossings of roads and waterbodies.

Construction and operation of the project is not expected to have a significant impact on wildlife. Temporary impacts will occur during construction due to clearing of vegetation and disturbance of soils in the right-of-way. Most wildlife will disperse from the project area as construction activities approach. Displaced species may recolonize in adjacent, undisturbed areas, or re-establish in their previously occupied habitats after construction is complete and suitable habitat is re-established. Long-term impacts will be limited to a loss of forest habitat due to clearing of the temporary construction right-of-way and extra workspaces that are located in forested areas and long-term effects on wildlife species will be limited since the pipeline will be collocated with the existing pipeline corridor.

Pipeline construction will result in temporary impacts on streams being crossed by the route. Some potential impacts on fisheries resources, such as sedimentation

and turbidity, removal of stream bank cover, introduction of water pollutants, or entrainment and impingement of aquatic organisms could result from construction activities. Overall, impacts from construction on fish and other aquatic organisms are expected to be localized and temporary. To minimize the potential for adverse impacts on the fisheries at river and stream crossings, the Applicants will implement erosion and sediment control measures specified in the EMP (Appendix B of the Environmental Assessment Supplement) and limit the duration of construction in these waterbodies.

The Applicants have consulted with The MNDNR and the U.S. Fish and Wildlife Service (USFWS) on the presence of threatened and endangered species in the vicinity of the project. The Applicants will continue to consult with the MNDNR and USFWS on the status of mitigative strategies for these species. If any of the species are identified in the construction right-of-way during the surveys, the Applicants will work with these agencies to develop mitigation plans to avoid and minimize impacts on the potentially affected species.

Water Resources – Groundwater

Construction of the projects is not expected to have long-term impacts on groundwater resources. Ground disturbance associated with pipeline construction is primarily limited to the upper 10 feet, which is above the water table of most of the regional aquifers.

The introduction of contaminants to groundwater due to accidental spills of construction related chemicals, fuels, or hydraulic fluid could have an adverse affect on groundwater quality, most notably near shallow water wells. The Applicants' Spill Prevention, Containment, and Control Plan (SPCCP) describes measures that will be implemented to prevent accidental releases of fuels and other hazardous substances. The SPCCP also outlines response, containment, and cleanup procedures. By implementing the protective measures set forth in the SPCCP, long term contamination due to construction activities is not anticipated. The Applicants' SPCCP can be found in Appendix C of the Environmental Assessment Supplement.

Surface Water Resources

Pipeline construction across rivers and streams can result in temporary and long-term adverse environmental impacts if not mitigated. Temporary impacts from in-stream trenching could include an increase in the sediment load downstream of the crossing location. Sustained periods of exposure to high levels of suspended solids have been shown to cause fish egg and fry mortality and other deleterious impacts on fisheries and other aquatic resources. Surface runoff and erosion from the cleared right-of-way also can increase in-stream sedimentation during construction resulting in the shallowing of pools and a reduction of the quality of spawning beds and benthic substrate. The Applicants' proposed waterbody

construction methods, specifically with respect to erosion control, bank stabilization, and bank revegetation, will minimize short- and long-term impact on the waterbodies along the pipeline route.

Long-term impacts on water quality can result from alteration of the stream banks and removal of riparian vegetation. Soil erosion associated with surface runoff and stream bank sloughing can also result in the deposition of sediments in waterbodies. Sediments deposited on stream bed gravel could result in fish egg mortality and damaged spawning habitat. Removal of riparian vegetation also can lead to increased light penetration into the waterbody, causing increased water temperature, which potentially could be detrimental to coldwater fisheries.

The Applicants will avoid and minimize impacts on waterbodies by implementing the erosion and sediment control measures described in the EMP (Appendix B of the Environmental Assessment Supplement). The Applicants also will limit the duration of construction within waterbodies and limit equipment operation within waterbodies to the area necessary to complete the crossing. Disturbed areas at crossings will be restored and stabilized as soon as practical after pipeline installation.

Alternative construction techniques (such as HDD or dry crossing methods) may be used at selected waterbodies to avoid and minimize impacts on these waterbodies. The HDD method is a well-established construction technique for installing pipeline under large waterbodies that avoids impacts associated with conventional open-cut methods. HDD installations have the potential to affect waterbodies, however, through inadvertent releases of drilling mud during construction. If HDD is used to cross waterbodies, the Applicants will follow the provisions of its Drilling Mud Containment, Response, and Notification Plan (see Appendix G of the Environmental Assessment Supplement) to prevent an inadvertent release of drilling mud or to minimize environmental effects in the event that a release occurs.

Spills from refueling operations, fuel storage, or equipment failure in or near a waterbody could affect aquatic resources and contaminate the waterbody downstream of the release point. The Applicants will minimize the potential impact of spills of hazardous materials by adhering to the relevant provisions in its SPCCP (see Appendix C of the Environmental Assessment Supplement).

The project route will be approximately 400 feet south of a wetland designated as an Outstanding Resource Value Water (ORVW) by the MNDNR: the Viking Fen in Marshall County (based on review of Minnesota Rules 7050.0470). ORVW are provided an additional level of protection to preserve their values for recreational, cultural, aesthetic, or scientific resources. The Applicants are consulting with the MNDNR on measures to properly identify and avoid this resource.

Cultural Resources

The Applicants initiated consultation with the St. Paul District of the Army Corps of Engineers (COE) and has reviewed the Minnesota State Historic Preservation Office's (SHPO's) site files to identify previously recorded cultural resources within the construction right-of-way. The U.S. Department of State (DoS) will be the lead federal agency and will direct overall responsibility for compliance with Section 106 requirements through the COE. It is expected that the COE will initiate consultation with the SHPO. The SHPO will assist the lead federal agency in reviewing the project for the potential to affect NRHP-listed or eligible properties.

The lead federal agency is responsible for consulting with federally recognized Indian tribes as part of the Section 106 process. The DoS has directed the COE to proceed with these consultations, and to date the COE has contacted the following tribes in Minnesota: Fond du Lac Band of Lake Superior Chippewa, Red Lake Band of Chippewa, White Earth Band of Chippewa, Leech Lake Band of Ojibwe, Mille Lacs Band of Ojibwe, Grand Portage Band of Lake Superior Chippewa, Bois Forte Band (Nett Lake) of Chippewa, Shakopee Mdewakanton Sioux Community, Upper Sioux Community, Prairie Island Indian Community, and Lower Sioux Indian Community. The Applicants will continue to assist the DoS/COE with tribal consultations as directed.

The Applicants' initial review of SHPO's site files identified nine archaeological sites, three of which (21CE60, 21BL200, and 21MA39) have been determined eligible for nomination to the NRHP. Five of the remaining six sites (21CA569, 21CA571, 21CA572, 21CA573, and 21CA575) were assessed as potentially eligible and additional testing was recommended. The final site (21CA570) was assessed as ineligible and no additional testing was recommended. The Applicants will consult with the lead federal agency and SHPO to identify measures to avoid, minimize, or mitigate adverse effects to these sites. These measures may include routing the pipeline around identified sites; installing the pipeline beneath the sites using conventional bore or HDD technology; fencing sites or portions of sites to ensure that they are not disturbed during construction; monitoring of construction activities by an archaeologist; or archaeological data recovery at the sites.

The Applicants will also develop and implement an unanticipated discoveries plan. This plan will describe measures to be followed in the event that a previously undocumented cultural resource site is discovered during construction activities. These measures will include documenting and evaluating the site; consulting with the lead federal agency and SHPO; and implementing measures to avoid, minimize, or mitigate adverse effects to the site if the site is eligible for listing on the NRHP.