Enbridge Energy, Limited Partnership
Before the Minnesota Public Utilities Commission
Docket No. PL-9/CN-13-153

Application for a Certificate of Need for a Crude Oil Pipeline

Docket No. PL-9/CN-13-153

BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

Beverly Jones Heydinger	**Chair**
Dr. David C. Boyd	**Commissioner**
Nancy Lange	**Commissioner**
J. Dennis O'Brien	**Commissioner**
Betsy Wergin	**Commissioner**

In the Matter of the Application of Enbridge Energy, Limited Partnership For a Certificate of Need for the Line 67 Station Upgrade Project – Phase 2

MPUC Docket No. PL9/CN-13-153

APPLICATION SUMMARY

Enbridge Energy, Limited Partnership ("Enbridge") is proposing to expand the capacity of its Line 67 Pipeline as part of its ongoing efforts to meet North America's needs for reliable and secure transportation of petroleum energy supplies.

The project, known as the Line 67 Station Upgrade Project – Phase 2 ("Project" or "Phase 2"), will increase the annual average capacity of Line 67 from 570,000 barrels per day ("bpd") to 800,000 bpd, providing Enbridge with the ability to deliver an incremental 230,000 bpd of secure and reliable crude oil supplies to refineries and numerous marketing hubs throughout the Midwest and beyond. Those refineries, in turn, supply the transportation fuels, heating oil, asphalt, jet fuel, petrochemicals and petrochemical feed stocks needed for our homes, industry, and transportation.

The Project involves the installation of new pump stations, including all valves and appurtenances, adjacent to or near existing Enbridge owned facilities at Donaldson, Plummer, Cass Lake, and Floodwood Station sites, which are located in Kittson, Red Lake, Cass, and St. Louis Counties, Minnesota, respectively. Phase 2 will also require additional station modifications, beyond those under current consideration as part of Enbridge's application for Phase 1, at the Viking, Clearbrook, and Deer River Station sites, which are located in Marshall, Clearwater, and Itasca Counties, Minnesota, respectively.

All station upgrades will be constructed on land which Enbridge owns or will acquire in fee. No new pipeline construction will be required for Phase 2.

Pending regulatory approval by the Minnesota Public Utilities Commission, the Project would be in service by July 1, 2015. The additional capacity will help relieve anticipated capacity constraints on Enbridge's Mainline System and provide refineries with access to secure and reliable crude oil supplies from western Canada and North Dakota.

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ACRONYMS

AOPL	Association of Oil Pipelines
BMP	Best Management Practice
bpd	Barrels Per Day
CAPP	Canadian Association of Petroleum Producers
CCO	Control Center Operations
CN	Certificate of Need
CND	Condensate
EELP	Enbridge Energy, Limited Partnership
EIA	U.S. Energy Information Administration
EMP	Environmental Mitigation Plan
EPA	Environmental Protection Agency
EPI	Enbridge Pipelines Inc.
FERC	Federal Energy Regulatory Commission
HAZWOPER	Hazardous Waste Operations and Emergency Response
HP	Horse Power
HVY	Heavy Crude Petroleum
ICA	Interstate Commerce Act
LGT	Light Crude Petroleum
LPG	Liquefied Petroleum Gas
MAOP	Maximum Allowable Operating Pressure

ACRONYMS

mbpd	Million Barrels Per Day
MED	Medium Crude Petroleum
MnOPS	Minnesota Office of Pipeline Safety
MN PUC	Minnesota Public Utilities Commission
MPC	Marathon Petroleum Corporation
MPCA	Minnesota Pollution Control Agency
MW	Megawatts
NEB	National Energy Board
NGL	Natural Gas Liquids
NRC	National Research Council
NPDES	National Pollutant Discharge Elimination System
NTSB	National Transportation Safety Board
OSHA	Occupational Safety and Health Administration's
PADD	Petroleum Administration for Defence Districts
PHMSA	Pipeline and Hazardous Materials Safety Administration
PLM	Pipeline Maintenance
ppmw	Parts per Million by Weight
Project	Line 67 Station Upgrade Project – Phase 2
psi	Pounds Per Square Inch
QMS	Quality Management System

ACRONYMS

SCADA	Supervisory Control and Data Acquisition
Seaway	Seaway Crude Pipeline Company LLC
SPCCP	Spill Prevention, Containment and Control Plan
USL	Light Crude Petroleum
VFD	Variable Frequency Drives
WAN	Wide Area Network
WCSB	Western Canadian Sedimentary Basin

7853.0230 GENERAL INFORMATION SECTION

Subpart 1. Content of section. Each application shall contain a general information section that shall include the following information:

A. the applicant's complete name, address, telephone number, and standard industrial classification codes:

Enbridge Energy, Limited Partnership
1100 Louisiana, Suite 3300
Houston, Texas 77002
(713) 821-2000

The standard industrial classification code for crude petroleum pipelines is 4612.

B. the complete name, title, address, and telephone number of the official or agent to be contacted concerning the applicant's filing;

Arshia Javaherian	Kevin Walli
Senior legal Counsel	Fryberger, Buchanan, Smith & Frederick
Enbridge Energy, Limited Partnership	332 Minnesota St.
26 E. Superior Street, Suite 309	Suite W1260
Duluth, MN 55802	St. Paul, Minnesota 55101
218-464-5702	651-221-1044
arshia.javaherian@enbridge.com	kwalli@fryberger.com

C. a brief description of the nature of the applicant's business and of the products that are manufactured, produced, or processed, or of the services rendered;

The applicant is Enbridge Energy, Limited Partnership, a limited liability partnership organized under the laws of the State of Delaware ("EELP"). Enbridge owns and operates the 999-mile Line 67 Pipeline which transports crude oil from Enbridge's facilities in Hardisty, Alberta, Canada to Enbridge's terminal and tank farm facility located in Superior, Wisconsin. The Line 67 Pipeline transports crude oil from western Canada to serve the Midwestern U.S. markets and beyond. The Line 67 Pipeline is operationally integrated with the Enbridge Mainline System[1] and is used to transport crude oil from the Western

[1] Enbridge Inc.'s subsidiary, Enbridge Pipelines Inc., owns and operates the Canadian pipeline system that interconnects and delivers into Enbridge Energy, Limited Partnership's "Lakehead System" at the International Border near Neche, North Dakota. These operationally integrated pipeline systems together form the longest liquid petroleum pipeline in the world. Together, these two systems are referred to as the Enbridge Mainline System.

Canadian Sedimentary Basin ("WCSB") into Minnesota and beyond, with deliveries via a third-party connection to Minnesota. At Clearbrook, Minnesota, Line 67 connects to a third-party pipeline to supply crude oil to the Pine Bend and Northern Tier refineries in Minnesota. Additional receipts of crude oil produced in North Dakota and the surrounding Williston Basin[2] also enter into the pipeline system at Clearbrook, Minnesota and Cromer, Manitoba. At Superior, Wisconsin, Enbridge delivers crude oil to the Calumet Specialty Products Partners, L.P. refinery which serves Northern Wisconsin and Northern Minnesota. Although Line 67 ends at Superior, Wisconsin, crude oil can be transported further on the Enbridge Mainline System. That network continues on through various existing pipelines from Superior across the Upper Peninsula of Michigan, and others from Superior to various points near the wider Chicago refinery and pipeline hub.

EELP, a wholly owned subsidiary of Enbridge Energy Partners L.P. a Delaware Master Limited Partnership ("Enbridge Partners"), owns and operates the U.S. portion of the Enbridge Mainline System, which is commonly referred to as the "Lakehead System." Collectively, EELP and Enbridge Partners are referred to hereinafter as "Enbridge." A map of Enbridge's system is attached as Exhibit A.

The United States portion of Enbridge's Line 67 Pipeline is an interstate common-carrier liquids pipeline subject to regulation by the Federal Energy Regulatory Commission ("FERC") under the Interstate Commerce Act ("ICA"). Common-carrier pipelines in interstate commerce provide service to any shipper who requests transportation services, provided that products tendered for transportation satisfy the conditions and specifications contained in the applicable tariff. As a common-carrier, Enbridge does not own the oil transported on Line 67 and does not control the final shipping destination. The ICA requires Enbridge to maintain tariffs on file with the FERC that set forth the rates charged for providing transportation services on its interstate common-carrier pipelines, as well as Enbridge's rules and regulations governing these services.

D. a brief description of the proposed facility, its complete address (if known) or general location, a brief description of its planned use, its estimated cost, its planned in service date, and its design capacity in gallons (LPG storage) or its maximum design throughput in barrels per day and its size in mbpd-miles (petroleum pipeline);

D.i. <u>A brief description of the proposed facility and the area to be served:</u>

Enbridge proposes to increase its system capacity through the construction of the Line 67 Station Upgrade Project – Phase 2 ("Project" or "Phase 2"). Enbridge

[2] North Dakota and the surrounding states and Canadian provinces produce crude oil from what is referred to as the Bakken formation and will be used interchangeably in this application.

filed a Certificate of Need ("CN") application to increase Line 67 from an annual capacity of 450,000 barrels per day ("bpd") to an annual capacity of 570,000 bpd of heavy crude oil on October 8, 2012 (Docket No. PL9/CN-12-590). That initial expansion, currently before the Minnesota Public Utilities Commission ("MN PUC"), is known as "Phase 1" and has a planned in-service date of July 1, 2014.

Phase 2 is Enbridge's next project and the subject of this application. It will provide additional pipeline capacity necessary for Enbridge to meet its shippers' transportation requirements to serve secure and reliable crude oil supplies to refineries and crude oil marketing hubs throughout the Midwest and beyond. As part of Phase 2, Enbridge plans to increase Line 67's annual average capacity from 570,000 bpd, as requested in Enbridge's application for Phase 1, to 800,000 bpd of heavy crude oil. This is a 40.35% increase in annual capacity over Phase 1. The increase will be achieved through the addition of pump horsepower at or adjacent to existing facilities, as described in more detail below. All station upgrades will be constructed on land which Enbridge owns or will acquire in fee. No new pipeline construction will be required for Phase 2.

In the State of Minnesota, Enbridge proposes to install Line 67 pump stations, including all valves and appurtenances, adjacent to or near existing Enbridge owned facilities at Donaldson, Plummer, Cass Lake, and Floodwood Station sites, which are located in Kittson, Red Lake, Cass, and St. Louis Counties, Minnesota, respectively. Phase 2 will also require additional station modifications, beyond those under current consideration as part of Enbridge's application for Phase 1, at the Viking, Clearbrook, and Deer River Station sites, which are located in Marshall, Clearwater, and Itasca Counties, Minnesota, respectively. Further details are included on Pages 4-10 of Section 7853.0230 of this application. Exhibits B.1 and B. 2 are overview maps showing the locations of the station sites in Minnesota.

Line 67 was designed, constructed, and tested with both Phase 1 and Phase 2 in mind. Enbridge actually overbuilt Line 67 when it was initially constructed in 2010 to facilitate this capacity expansion. After construction, Line 67 was also hydrostatically tested to pressures beyond those required for operation after construction of Phase 2.

D.i.1. Donaldson Station Upgrade: Kittson County

Location

Address: 2392 State Hwy 11
Donaldson, MN 56720

Legal Description: Section 23, T-159-N, R-49-W, Kittson County, Minnesota

Pumping Capacity Upgrades

- Site development as needed (roads, berms, containment, fencing and grading)
- Installation of three new 6,000 horse power ("HP") pump/motor units and one 6,000 HP variable frequency drives ("VFDs")
- New unit piping including valves, meters, sump tank and pumps, instrumentation, etc.
- New or expanded electrical sub-station
- Medium and low voltage power distribution center
- Associated civil, structural, electrical, instrumentation, controls, communications, and Supervisory Control and Data Acquisition ("SCADA") systems
- New pump buildings to accommodate new pumps

Land Requirements

- All upgrades described above will be constructed on land which Enbridge will acquire in fee.

Aerial and Plot Map of Proposed Upgrade within Station Site

- See Exhibit B.3.

D.i.2. Viking Station Upgrade: Marshall County

Location

Address: 18060 230th St NW
Viking, MN 56760

Legal Description: Section 28, T-155-N, R-45-W, Marshall County, Minnesota

Pumping Capacity Upgrades

- Pump unit modifications on existing units (volute inserts[3], impellor replacements, etc.)

Land Requirements

- The limited upgrades described above will be added to equipment installed as part of Enbridge's Phase 1 expansion of Line 67. No new land will be required at this station site.

Aerial and Plot Map of Proposed Upgrade within Station Site

- See Exhibit B.4.

[3] A volute insert is a replaceable nozzle, mounted internal to the pump pressure casing, that can be used to adjust a pumps hydraulic performance characteristic or, depending on the service conditions, it can be a replaceable wear component used to maintain a pumps original hydraulic performance characteristic or, in the case of low Specific Speed pumps (having small volute throat areas) replaceable precision cast nozzle inserts facilitate ease of manufacturing.

D.i.3. Plummer Station Upgrade: Red Lake County

Location

Address: 21595 180th St SE
Plummer, MN 56748

Legal Description: Section 10, T-151-N, R-42-W, Red Lake County, Minnesota

Pumping Capacity Upgrades

- Site development as needed (roads, berms, containment, fencing and grading)
- Installation of three new 6,000 horse power ("HP") pump/motor units and one 6,000 HP variable frequency drives ("VFDs")
- New unit piping including valves, meters, sump tank and pumps, instrumentation, etc.
- New or expanded electrical sub-station
- Medium and low voltage power distribution center
- Associated civil, structural, electrical, instrumentation, controls, communications, and SCADA systems
- New pump buildings to accommodate new pumps

Land Requirements

- All upgrades described above will be constructed on land which Enbridge will acquire in fee.

Aerial and Plot Map of Proposed Upgrade within Station Site

- See Exhibit B.5.

D.i.4. Clearbrook Station and Terminal Facility Upgrade: Clearwater County

Location

Address: 17816 470th Street
Clearbrook, MN 56634

Legal Description: Section 28 and 29, T-149-N, R-37-W, Clearwater County, Minnesota

Pumping Capacity Upgrades

- Pump unit modifications on existing units (volute inserts, impellor replacements, etc.)
- Upgrades to metering and additional booster pumps
- Miscellaneous piping modifications
- Upgrades to mainline pressure relief

Land Requirements

- The limited upgrades described above will be added to equipment installed as part of Enbridge's Phase 1 expansion of Line 67. No new land will be required at this station site.

Aerial and Plot Map of Proposed Upgrade within Station Site

- See Exhibit B.6.

D.i.5. Cass Lake Station Upgrade: Cass County

Location

Address: 6667 160th St NW
Cass Lake, MN 56633

Legal Description: Section 17, T-145-N, R-31-W, Cass County, Minnesota

Pumping Capacity Upgrades

- Site development as needed (roads, berms, containment, fencing and grading)
- Installation of three new 6,000 horse power ("HP") pump/motor units and one 6,000 HP variable frequency drives ("VFDs")
- New unit piping including valves, meters, sump tank and pumps, instrumentation, etc.
- New or expanded electrical sub-station
- Medium and low voltage power distribution center
- Associated civil, structural, electrical, instrumentation, controls, communications, and SCADA systems
- New pump buildings to accommodate new pumps

Land Requirements

- All upgrades described above will be constructed on land which Enbridge will acquire in fee.

Aerial and Plot Map of Proposed Upgrade within Station Site

- See Exhibit B.7.

D.i.6. Deer River Station Upgrade: Itasca County

Location

Address: 30879 County Road 178
Deer River, MN 56636

Legal Description: Section 22, T-56-N, R-27-W, Itasca County, Minnesota

Pumping Capacity Upgrades

- Pump unit modifications on existing units (volute inserts, impellor replacements, etc.)

Land Requirements

- The limited upgrades described above will be added to equipment installed as part of Enbridge's Phase 1 expansion of Line 67. No new land will be required at this station site.

Aerial and Plot Map of Proposed Upgrade within Station Site

- See Exhibit B.8.

D.i.7. Floodwood Station Upgrade: St. Louis County

Location

Address: 11934 Hwy 2 West
Floodwood, MN 56736

Legal Description: Section 1, T-51-N, R-21-W, St. Louis County, Minnesota

Pumping Capacity Upgrades

- Site development as needed (roads, berms, containment, fencing and grading)
- Installation of three new 6,000 horse power ("HP") pump/motor units and one 6,000 HP variable frequency drives ("VFDs")
- New unit piping including valves, meters, sump tank and pumps, instrumentation, etc.
- New or expanded electrical sub-station
- Medium and low voltage power distribution center
- Associated civil, structural, electrical, instrumentation, controls, communications, and SCADA systems
- New pump buildings to accommodate new pumps

Land Requirements

- All upgrades described above will be constructed on land which Enbridge will acquire in fee.

Aerial and Plot Map of Proposed Upgrade within Station Site

- See Exhibit B.9.

D.ii. Purpose and Planned Use:

The purpose of the Project is to relieve anticipated pipeline capacity constraints that shippers will experience on the Enbridge system based on the capacity that has been requested by shippers by mid-2015. Through this Project, Enbridge proposes to optimize its existing pipeline system by installing new pumping stations at or near four existing Enbridge facilities and make further modifications to the three pump stations upgraded in Phase 1. These upgrades will enable Enbridge to transport an additional 230,000 bpd of heavy crude petroleum from its Hardisty, Alberta Terminal to its Superior, Wisconsin Terminal, with deliveries to refineries in Minnesota via a third-party pipeline that connects to the Lakehead System at Clearbrook, Minnesota. From Superior, these volumes can be shipped to refinery centers throughout the Midwest, Midcontinent, and as far as the United States Gulf Coast, the eastern United States, and eastern Canada via connections with existing Enbridge and/or interconnected third-party pipelines.

The Project is the most reliable, efficient, and cost effective alternative to meet the rising demand for additional pipeline capacity to reach a wide number of refinery markets through interconnections with Enbridge affiliates and third-party pipelines at Superior Terminal, as described in more detail in Section 7853.0240 of this application.

D.iii. An estimate of the total cost of construction:

Enbridge estimates that the cost of the facility upgrades within the State of Minnesota will be $159.3 million. No new mainline pipeline or construction along the Line 67 right-of-way outside of the facilities described above will be required for the Project.

D.iv. Anticipated construction and operation schedule:

Construction is anticipated to commence in July 2014, with the entire expansion proposed to be operational by July 1, 2015.

D.v. Design Capacity:

The Project will increase the capacity of Line 67 by approximately 230,000 bpd on an annual average by maximizing throughput on the existing Line 67 pipeline. The capacity between each pipeline segment between station sites will be increased by an incremental annual capacity of 230,000 bpd; from 570,000 bpd prior to the project to 800,000 bpd after project completion. This incremental capacity assumes the completion of Phase 1.

Generally, liquids pipelines like Line 67 are designed at a specified capacity for a known liquid. Enbridge liquids pipelines transport a variety of different liquids, with some pipelines designated to transport lighter grades of liquid petroleum and

other lines, such as Line 67, designated for transporting various grades of heavier crude oils. Differences in fluid characteristics (density, viscosity, etc.) of the transported liquids will affect the capacity of the pipeline. Liquids are also batched in a pipeline in a monthly designated sequence that minimizes blending between batches. Both the fluid characteristics and batch sequence will affect the capacity of the pipeline. Table 7853.0230-1-D.1 – Capacity Definitions - provides design data pertinent to the upgrades proposed herein.

Three definitions are used to describe pipeline capacity: Design Capacity; Annual Capacity; and Ultimate Capacity.

- **Design Capacity**: The theoretical capacity of the pipeline and pumping facilities, at its current or proposed design state for given types of liquids and their batch sequence. Design Capacity is calculated assuming theoretically ideal operating conditions.

- **Annual Capacity**: The average sustainable pipeline throughput over a year. Annual Capacity is calculated assuming historic average annual and operating conditions. These operating conditions include scheduled and unscheduled maintenance, normal operating issues and crude supply availability. Annual Capacity of a pipeline is typically 90% of Design Capacity.

- **Ultimate Capacity**: The maximum economically viable capacity of the pipeline and pumping facilities, for a given type of liquid and batch sequence, at its full or ultimate build-out design. The Ultimate Capacity is dependent on several variables including, but not limited to, cost of service, cost of capital, cost of power, and fluid velocities. The Ultimate Capacity can be expressed as an Annual or Design Capacity.

Table 7853.0230-1-D.1

Capacity Definitions		**Line 67 Station Upgrade Project Capacities for Heavy Crude (bpd)**
Design Capacity	Theoretical capacity	880,000
Annual Capacity	Average sustainable rate over a year	800,000
Operating Factor	Historical percentage of full system utilization	90%

E. the total fee for the application as prescribed by part 7853.0210, and the amount of the fee submitted with the application; and

The total fee for the application as prescribed by Minn. R. 7853.0210, Subpart 1.B., and Minn.R. 7853.0010, Subp. 16 is $16,500 as shown by the following formula and computation.

> Base payment of $5,000.00, plus $1.00, times 50 times the additional design capacity in thousand barrels per day.
>
> $5,000 + ($1.00 x (50 x (230,000/1000))
> $5,000 + ($1.00 x 11,500)
> $5,000 + $11,500 = $16,500

Enbridge is submitting herewith $16,500, which complies with the payment schedule in Minn. R. 7853.0210, Subp. 2.

F. the signatures and titles of the applicant's officers or executives authorized to sign the application and the signature of the preparer of the application if prepared by an outside agent.

This application is submitted by Enbridge Energy, Limited Partnership.

/s/ Joel Kanvik
Joel Kanvik
Assistant Secretary
Enbridge Energy, Limited Partnership
By Enbridge Pipelines (Lakehead) L.L.C.
Its General Partner

Subpart 2 List of government authorities. Each application shall contain a schedule in the general information section, which shall list all known federal, state, and local agencies or authorities with which the applicant must file for the proposed facility. The following information shall be included on the schedule:

A. the names of all known federal, state, or local agencies or authorities with which the applicant must file;

B. the title of each required permit or certificate issued by the authorities named in response to item A and needed by the applicant;

C. for each permit or certificate listed in response to item B, the date an application was filed or the projected date of future application;

D. for each permit or certificate listed in response to item B, the actual date a decision was made on the application, or the anticipated decision date, and

E. for each permit or certificate listed in response to item B for which an application was filed, the disposition or status of the permit or certificate.

The following table provides a list of government agencies or authorities with whom Enbridge must file, the title of each permit or certificate issued, anticipated application and decision dates, and status of the permit or certificate.

TABLE 7853.0230-2
Preliminary List of Government Authorities and Titles Of Permits/Approvals (Minnesota Portion of Line 67 Station Upgrade Project Only)

Name of Agency	Title of Permit/Approval	Date of Application [a]	Date of Decision [b]	Status
United States Department of State	Presidential Permit	November 2012	November 2013	Consultation Initiated
United States Army Corps of Engineers	Section 404 Permit (waters of the U.S., including wetlands) – Individual Wetland Permit	August 2013	May 2014	Pending Submittal
United States Fish and Wildlife Service	Section 7 Consultation (Federal endangered species)	June 2013	July 2013	Consultation Pending

TABLE 7853.0230-2
Preliminary List of Government Authorities and Titles Of Permits/Approvals
(Minnesota Portion of Line 67 Station Upgrade Project Only)

Name of Agency	Title of Permit/Approval	Date of Application [a]	Date of Decision [b]	Status
Minnesota Public Utilities Commission	Certificate of Need	June 2013	May 2014	Pending Approval
Minnesota Department of Natural Resources	Water Appropriation Permit (trench dewatering)	March 2014	April 2014	Pending Submittal
	State Endangered Species Consultation	June 2013	July 2013	Consultation Pending
Minnesota Pollution Control Agency	NPDES Construction Stormwater General Permit	7 days prior to construction	Granted after application submittal and per general permit conditions	Pending Submittal
	§ 401 Water Quality Certification	Concurrent with Army Corps of Engineers permit application	Issued with conditions as part of the Army Corps of Engineers Individual Permit	Pending Submittal
State Historic Preservation Office - Minnesota Historical Society	Section 106 Consultation	June 2013	July 2013	Consultation Pending
City of Floodwood	Wetland Conservation Act Utility Exemption	August 2013	October 2013	Pending Submittal
Red Lake Soil and Water Conservation District	Wetland Conservation Act Utility Exemption	August 2013	October 2013	Pending Submittal

[a] Actual date of initial consultation/anticipated dates for submission.
[b] Projected dates of action.

7853.0240 NEEDS SUMMARY

Each application shall contain a section that summarizes the major factors that justify the need for the proposed facility. The summary shall not exceed, without the approval of the commission, 15 pages in length, including text, tables, schedules, graphs, and figures.

A. Planned Use and Purpose Line 67 Station Upgrade Project

This Project will increase the annual pipeline capacity of Line 67 from 570,000 bpd to 800,000 bpd to meet North America's need for secure and reliable transportation of crude oil supplies from growing production regions in Western Canada, North Dakota and the surrounding area[1] to regions where crude oil is refined in the United States and eastern Canada. The Canadian portion of Line 67, owned by affiliated Enbridge Pipelines, Inc. ("EPI"), is also being expanded.

This Project is part of Enbridge's ongoing efforts, as the operator of a common-carrier international pipeline system, to continuously evaluate and respond to short- and long-term supply and demand patterns for crude oil in North America. Enbridge has been diligently working with its shippers and industry consultants as part of this effort. Downstream refinery markets desire access to secure and reliable North American produced crude oil supplies to meet their feedstock requirements, replacing crude oil imported from less-friendly, non-North American nations. This shift in supply source, as explained in more detail below in Section 7853.0240.C, will help reduce the United States reliance on crude oil imports from countries outside North America.

Based on its consultations with shippers, Enbridge's customers and further analysis of the Enbridge Mainline system, Enbridge concluded that this Project is the most prudent, cost effective and environmentally conscious solution to meet its shippers' near-term transportation requirements.

This Project enables Enbridge to transport 230,000 bpd of incremental crude oil supplies to Enbridge's existing terminal in Superior, Wisconsin. At the Superior Terminal, Enbridge plans to add three above-ground tanks which will be used for breakout and batching management. Enbridge anticipates the majority of these volumes will be transported from its Superior Terminal via Line 61 to its existing Flanagan Terminal near Pontiac, Illinois in the Chicago area. A portion of the volumes reaching the Flanagan Terminal could be transported on the proposed Line 78 Project and Line 6B detailed below in Section 7853.0240-E. Letters of support from refineries that will be served by those projects can be found in Exhibit C. These refiners support the infrastructure additions that provide secure and reliable energy supplies for Midwest consumers above crude oil imports from outside North America.

[1] North Dakota and the surrounding states and Canadian provinces are generally known as the Bakken formation and will be referred to interchangeably.

More specifically, from Flanagan, such incremental volumes can serve a number of refinery markets in North America including:

- Refineries in the Chicago, Detroit and Toledo areas through various existing and expanded Enbridge Lines 62, 6B, 17 and 79.
- Refineries in Eastern Canada through Line 6B and EPI pipelines originating in Sarnia, Ontario.
- Refineries in Pennsylvania via a continuation of EPI's Ontario lines and Line 10 crossing into New York and then via a third party pipeline into western Pennsylvania.
- Refineries in the Midcontinent and the United States Gulf areas via an existing Line 55 connecting to a major pipeline hub and Enbridge Terminal in Cushing, Oklahoma. Enbridge also expects to begin construction in the summer of 2013 on a new 36-inch pipeline known as the Flanagan South Project that will expand this portion of its system connected to Cushing, Oklahoma. At Cushing, Oklahoma the crude oil is expected to then be transported to refineries in Texas via the recently reversed Seaway Crude Oil Pipeline System[2] ("Seaway"). Seaway is proposing a new 512-mile 30-inch diameter pipeline that will run parallel to the existing Seaway Pipeline. The expected in service date for the Seaway Twin Project is mid-2014.

Please see Exhibit A for an overview map of the crude oil movement on Enbridge's Mainline System to serve the United States and eastern Canada refinery markets as described briefly above.

Enbridge directly or indirectly serves crude oil supplies to these refinery markets via the Lakehead System, or through other affiliated or nonaffiliated interconnecting pipelines. Many of these refineries have already invested in upgrading or are in the process of expanding and modifying their refining capabilities to receive additional deliveries of Western Canadian crude oil and North Dakota and surrounding area production. (*see* Table No. 7853.0240-C.1.) For example, Marathon Petroleum Corporation ("MPC") submitted a letter of support to Enbridge in Enbridge's application to the Illinois Commerce Commission Line 78 application. In its letter, MPC states:

> "MPC invested in refinery upgrades that increased the ability of our Detroit refinery to process an increased percentage of heavy crude oil, tapping the expected continued supply growth from the nearby North American crude supply region. Another important advantage of this crude supply source is the political stability of Canada and, therefore, the

[2] The Seaway Crude Oil Pipeline is an existing pipeline that historically transported crude oil from water-born imports into Texas Gulf north to Cushing, Oklahoma. This pipeline was reversed in May 2012, allowing crude oil to now flow from Cushing to Texas refineries. Seaway is a joint venture of Enterprise Products Partners, L.L.C. (Enterprise) and Enbridge Inc. Enterprise is the Operator of the Seaway system and is currently undertaking a phased expansion of that system.

security of supply. MPC expects to increase its demand for Canadian crude due to the price/value of Canadian heavy crude oil versus alternative crude oil supplies and has, therefore, invested $2.2 billion in upgrading and expanding its Detroit refinery."

In addition, Enbridge received Canadian Association of Petroleum Producers (CAPP) support for the incremental pipeline capacity proposed by this Project. Enbridge continuously works with its shippers and refinery markets to anticipate their transportation requirements.

B. Petroleum Supply and Demand in North America

Pipelines deliver almost all of the crude oil processed by Midwestern refineries. Midwestern refineries, including those in Minnesota and those that supply refined product to Minnesota, fall within the Petroleum Administration for Defense District ("PADD") 2, (see Figure 7853.0240-C.1) More than 426 million barrels of crude were transported by pipeline into PADD 2 from other PADDs in 2012.[3] The transportation of crude oil to regional refineries by pipeline is an essential component of the supply chain that delivers refined petroleum products to Midwestern consumers.

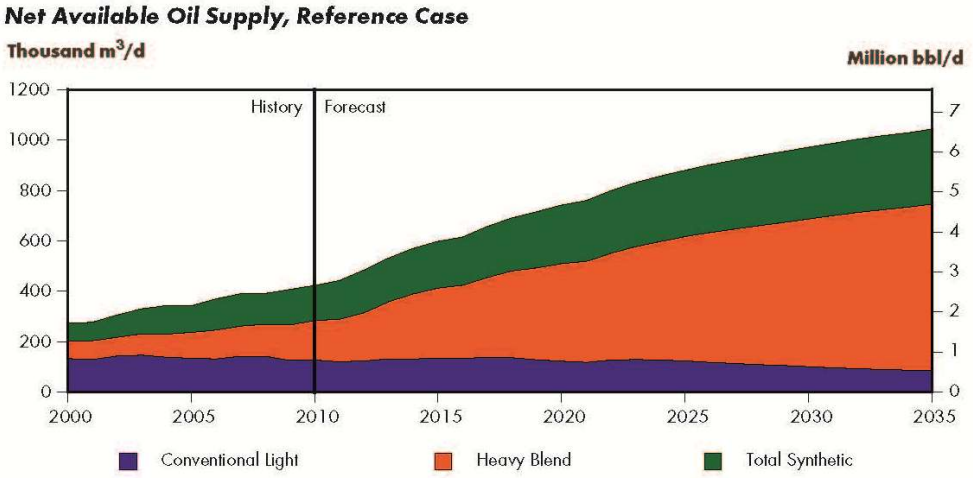
A portion of the incremental supply provided by the expansion of Line 67 will be destined to reach the vast refinery network along the United States Gulf Coast and eastern Canada refinery hubs as discussed in Section A above. The overland incremental pipeline transport of the crude oil supplies provided by this Project will reduce reliance of Gulf Coast refineries on shipments received by tankers. A portion of the crude oil which is delivered to and processed by refineries in PADD 3 (the Gulf Coast Region) comes back to the Midwest and Minnesota consumers in the form of refined products. [4]

Western Canada has become the most prolific source of crude oil in the Western Hemisphere. After accounting for changes in Canadian crude oil consumption, the United States has increased import of Canadian crude by approximately 963,000 bpd from 2002 to 2012.[5] Figure 7853.0240-B.1 provides both the historical supply data and a long-term forecast recently released by the National Energy Board ("NEB") of Canada.[6] The forecast is contained in the report: *Canada's Energy Future: Energy Supply and Demand Projections to 2035*, dated November 2011.[7] Figure 7853.0240-B.1, presents the forecasted increase in Western Canadian crude oil supply through 2035. The forecast volumes found in

[3] Refer to EIS energy data at http://www.eia.gov/
[4] Refer to EIS energy data at http://www.eia.gov/
[5] http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=MCRIMUSCA2&f=A accessed on June 14, 2013
[6] The National Energy Board is an independent federal agency established in 1959 by the Parliament of Canada to regulate international and interprovincial aspects of the oil, gas, and electric utility industries. The purpose of the NEB is to regulate pipelines, energy development, and trade in the Canadian public interest.
[7] http://www.neb.gc.ca/clf-nsi/rnrgynfmtn/nrgyrprt/nrgyftr/2011/nrgsppldmndprjctn2035-eng.pdf

the NEB report are similar to those provided in forecasts performed by the CAPP and Enbridge itself.[8]

Figure 7853.0240-B.1



The shifts in sources of crude oil supply and refinery demand are not limited to the growth in western Canadian production. Enbridge has also responded to shipper needs for both pipeline and rail transport of growing supplies of crude oil produced in the Bakken Formation, largely centered in North Dakota and surrounding states and provinces. Enbridge has been working to optimize the Canadian and United States portions of its Mainline System, through expansion projects leading to Clearbrook and expansions under development into Cromer, Manitoba which will allow for increased supplies of Bakken crude to be delivered into its Mainline System. Thus, the pipelines which comprise the Enbridge Mainline System, including Line 67, are at or near capacity. There is not sufficient capacity on the other paralleling pipelines to allow for the incremental 230,000 bpd proposed in this Project.

This Project is needed to serve the public interest in improved access to an abundant, secure and reliable crude oil supply to satisfy consumer demand for refined products.

C. Project provides shippers access to North America's secure and reliable production supplies to meet rising refinery demands

The increased supply of crude oil from both western Canada and the Bakken Formation is meeting a corresponding rise in demand from refineries in the United States and eastern Canada for crude oil produced in North America.

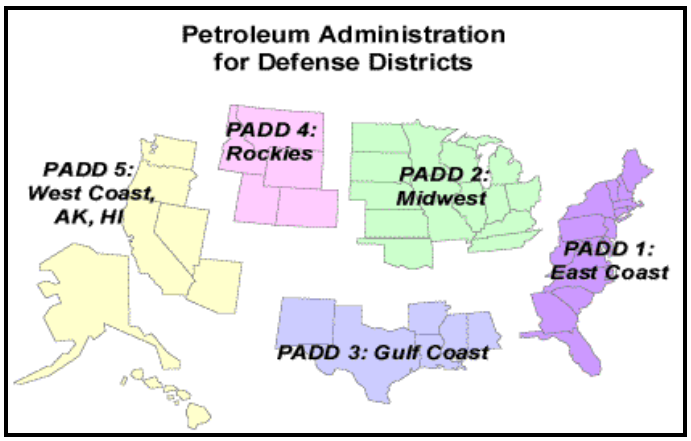
[8] http://www.capp.ca/getdoc.aspx?DocId=227308&DT=NTV

Refineries are reducing reliance on other regions of production, specifically imports into the United States from countries outside North America, which are often more unstable and less reliable than our strong ally and neighbor, Canada.

While the Midwest (PADD 2) is increasing its consumption of North American crude oil over non-North American crude oil, refineries from other PADD regions continue to supply the Midwest with the necessary refined petroleum products demanded by Americans.

According to the most recent statistics available from the United States Energy Information Administration[9] ("EIA"), the petroleum-using public in the United States Midwest consumes over 4.36 million bpd of refined petroleum products, which includes gasoline, diesel, jet fuel, asphalt, heating fuel and petrochemical products. To meet this demand, refineries in PADD 2 and 3 processed 12.1 million bpd of crude oil in 2012. While PADD 2 imported 1.7 million bpd of crude oil from Canada in 2012[10], PADD 2's total 2012 refining capacity was 3.69 million bpd and total consumption of refined petroleum products was 4.36 million bpd.

Figure 7853.0240-C.1



There is significant interdependence between PADD regions, with both crude oil and refined products transported between PADDs. PADD 3, home to refineries along the United States Gulf Coast with a refining capacity of 8.7 million bpd, in 2012, provided 50.4% of overall United States refinery capacity making PADD 2 dependent upon the refining capacity of the PADD 3 region to meet its requirements for refined products. Refining capacity in the Gulf Coast region has been increasing in recent years, although overall refining capacity in the United States has remained static. Since 2007, Gulf Coast refiners have added approximately 376,000 bpd of crude oil distillation capacity.

[9] The statistical arm of the United States Department of Energy.
[10] Refer to EIS energy data at http://www.eia.gov/

Thus, in addition to supplying refineries in the immediate Midwest, this Project will deliver additional volumes into Flanagan, Illinois Terminal to meet the increased needs of refineries east of Flanagan and as far as the Gulf Coast region that currently supplies the Midwest with up to 800,000 bpd of refined petroleum product.

Moreover, as indicated by MPC and others, PADD 2 is increasing its reliance on North American crude oil as the safer more reliable source. In 2012, the PADD 2 refining area imported 82.9% less crude oil from outside North America (primarily the Middle East) than in 2007, while imports from Canada increased by 49.5% during the same time period. In 2012, 97.4% of PADD 2's crude oil imports from outside the United States came from Canada. To further the shift from non-North American crude oil to North American crude oil, the Project will provide a critical flow through other existing and soon to be expanded pipeline networks to further reduce imports from outside North America and will supply the growing refinery capacity in this region.

In the Midwest, refineries east of Flanagan will receive a portion of their feedstock from the capacity provided by this project: Indiana (BP Whiting), Detroit (Marathon), and Toledo (BP-Husky and PBF Refining), as well as eastern Canada (Shell, Imperial Oil, and Suncor). Letters of support from some of these refiners can be found in Exhibit C. A large portion of the total crude oil and petroleum processed by these regional refineries is transported on the Lakehead system, and the Project will increase available capacity to these markets through the ongoing Line 6B 2012 Maintenance and Rehabilitation Program and the proposed Line 6B Phase 2 Replacement Project.

Refineries served directly or indirectly off the Enbridge Lakehead System are as shown on Table 7853.0240-C.1

Table 7853.0240-C.1
Refineries Served Directly or Indirectly by Enbridge Systems

Refinery	Location	Capacity (cubic meters/day)	Capacity (barrels/day)	Connected Directly from Enbridge	Connected Indirectly
PADD II - Minnesota and Wisconsin					
Northern Tier Energy	St. Paul Park, Minnesota	11,765	74,000		Yes - Minnesota Pipeline
Flint Hills Resources	Rosemount, Minnesota	50,876	320,000		Yes - Minnesota Pipeline
Calumet	Superior, Wisconsin	5,247	33,000	Yes	
Total		**67,888**	**427,000**		

Table 7853.0240-C.1
Refineries Served Directly or Indirectly by Enbridge Systems

Refinery	Location	Capacity (cubic meters/day)	Capacity (barrels/day)	Connected Directly from Enbridge	Connected Indirectly
PADD II - Illinois and Indiana					
ExxonMobil Refining & Supply Co.	Joliet, Illinois	38,157	240,000	Yes	
Citgo Petroleum Corp.	Lemont, Illinois	25,279	159,000	Yes	
BP PLC	Whiting, Indiana	64,390	405,000	Yes	
Total		**127,826**	**804,000**		
PADD II - Kentucky and Southern Illinois and Indiana					
Marathon Petroleum Co.	Robinson, Illinois	32,751	206,000		Yes - Mustang/Marathon
WRB Refining	Wood River, Illinois	56,599	356,000		Yes - Mustang/Capwood
Countrymark Cooperative	Mt. Vernon, Indiana	4,293	27,000		Yes - Mustang/Marathon
Marathon Petroleum Co.	Catlettsburg, Kentucky	38,157	240,000		Yes - Mustang/Marathon
Total		**131,800**	**829,000**		
PADD II - Michigan and Ohio					
BP PLC	Toledo, Ohio	24,166	152,000	Yes	Yes - Sun Pipeline
PBF Energy Co.	Toledo, Ohio	27,028	170,000		Yes - Sun Pipeline
Marathon Petroleum Co.	Detroit, Michigan	19,079	120,000	Yes	Yes - Sun Pipeline
Marathon Petroleum Co.	Canton, Ohio	12,719	80,000		Yes - Mustang/Marathon
Husky	Lima, Ohio	25,756	162,000		Yes - Mustang/Marathon
Total		**108,747**	**684,000**		
PADD I - Pennsylvania					
United Refining	Warren, Pennsylvania	11,129	70,000		Yes - Kantone
Ontario					
Imperial Oil	Nanticoke, Ontario	18,125	114,000	Yes	
Imperial Oil	Sarnia, Ontario	18,920	119,000	Yes	
Shell Canada	Corunna, Ontario	11,288	71,000	Yes	

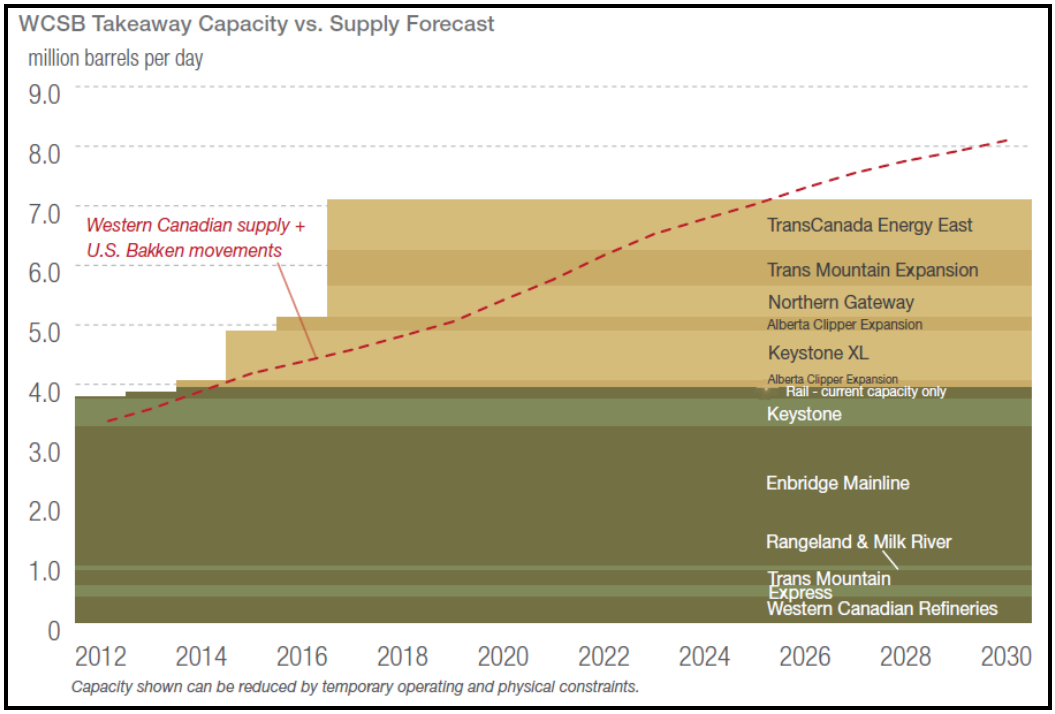
Table 7853.0240-C.1
Refineries Served Directly or Indirectly by Enbridge Systems

Refinery	Location	Capacity (cubic meters/day)	Capacity (barrels/day)	Connected Directly from Enbridge	Connected Indirectly
Suncor Energy Products	Sarnia, Ontario	13,514	85,000	Yes	
Nova Chemicals (Canada)	Corunna, Ontario	12,719	80,000	Yes	
Total		**74,565**	**469,000**	**Yes**	
PADD III - Cushing					
Coffeyville Resources	Coffeyville, Kansas	19,079	120,000	Yes-Spearhead	
WRP Refining	Borger, Texas	23,212	146,000		Yes-Spearhead
ConocoPhillips	Ponca City, Oklahoma	30,208	190,000		Yes-Spearhead
Holly Frontier.	El Dorado, Kansas	21,145	133,000	Yes-Spearhead	
NCRA	McPherson, Kansas	13,196	83,000	Yes-Spearhead	
Holly Frontier	Tulsa, Oklahoma	19,873	125,000	Yes-Spearhead	
Valero Energy Corp.	Ardmore, Oklahoma	14,627	92,000		Yes-Spearhead
Valero Energy Corp.	Sunray, Texas	27,028	170,000		Yes-Spearhead
CVR Refining	Wynnewood	11,129	70,000		Yes-Spearhead
Total		**179,497**	**1,129,000**		
PADD III – United States Gulf Coast					
PRSI	Pasadena,Texas	18,602	117,000	Yes - Seaway	
Shell	Deer Park, Texas	51,989	327,000	Yes - Seaway	
ExxonMobil	Houston, Texas	89,192	561,000	Yes - Seaway	
LyondellBasell	Houston, Texas	42,927	270,000	Yes - Seaway	
Valero	Houston, Texas	25,438	160,000	Yes - Seaway	
Valero	Texas City, Texas	38,952	245,000	Yes - Seaway	
BP	Houston, Texas	71,703	451,000	Yes - Seaway	
Marathon	Houston, Texas	12,719	80,000	Yes - Seaway	
Total	Port Arthur, Texas	26,869	169,000		Yes - Mustang/Pegasus
ExxonMobil	Port Arthur, Texas	54,692	344,000		Yes - Mustang/Pegasus
Motiva	Port Arthur, Texas	104,932	660,000		Yes - Mustang/Pegasus

Table 7853.0240-C.1
Refineries Served Directly or Indirectly by Enbridge Systems

Refinery	Location	Capacity (cubic meters/day)	Capacity (barrels/day)	Connected Directly from Enbridge	Connected Indirectly
Valero	Port Arthur, Texas	49,286	310,000		Yes - Mustang/Pegasus
Total		**587,300**	**3,694,000**		

Figure 7853.0240-C.2 Takeaway Capacity vs Supply Forecast (CAPP 2013 Annual Long-term Outlook Report[11])



[11] http://www.capp.ca/getdoc.aspx?DocId=227308&DT=NTV

D. Applicant's proposed Project benefits Minnesota general public

D.1 Increased amounts of secure supply of discounted crude oil produced in western Canada is economically attractive to refineries in the United States

The expected supply increase from Canada comes at a time of growing demand from the Midwest region. In 2012, Enbridge exported fifty-four percent (54%) of the crude oil and natural gas liquids produced in western Canada to the United States. Enbridge transports crude oil from the WCSB, and volumes from North Dakota and surrounding areas, to regional refineries to meet approximately seventy-nine percent (79%) of the refinery demand in Minnesota, eighty-five percent (85%) in Wisconsin and seventy-five percent (75%) in the greater Chicago area.[12]

Recent forecast updates distributed by CAPP in its 2013 Annual Long-Term Outlook Report for Canadian crude production covering the period 2012 – 2030, show that, absent pipeline expansions, there will be a deficit in pipeline capacity beginning as early as 2014 (see Figure 7853.0240-C.2). Even if all announced pipeline expansions are completed on schedule, this forecast shows there will be a lack of sufficient capacity starting again in 2025. This Project is needed and in the public interest as it will provide the timely addition of incremental capacity necessary to connect the growing production regions in Western Canadian and North Dakota and surrounding areas to refining centers in the Midwest, United States Gulf Coast and eastern Canada regions.

Thus, this Project is in the public interest as it provides additional feedstock to refineries in the Midwest, in eastern Canada, and as far south as the United States Gulf Coast region, all of which may import refined petroleum products to Minnesota. In recent reports, the EIA predicts that the United States will require a steady volume of crude oil supplies over the next two and a half decades to meet the demand for petroleum products. Minnesota refineries act as a key supplier in the Upper Midwest of refined petroleum products. Having access to secure and reliable sources of crude oil supplies is essential for United States refineries to be able to meet the public's demand for secure and abundant supplies of refined products. As a larger proportion of crude oil supplies are sourced from Canada, the United States can reduce its reliance on imports from countries that are often unstable or unfriendly to United States interests.

[12] See Enbridge Energy Partners 10K at: http://www.enbridgepartners.com/Investor-Relations/EEP/Investor-Kit/

D.2 Minnesota May Be Negatively Affected By Oversubscription or Apportionment

As an interstate common-carrier, Enbridge does not discriminate, and must treat like customers similarly. That is, if Enbridge has capacity on its pipeline and a shipper, similarly situated with current shippers, subscribes to a portion of the remaining capacity, Enbridge must oblige. As the pipeline reaches capacity, Enbridge cannot refuse a shipper's increase subscription; therefore, Enbridge proportionately reduces the capacity of all subscribers to accommodate the request of additional capacity. While this is a very high level explanation of apportionment, Enbridge often has pipelines that are oversubscribed and must reduce overall capacity of the shippers to accommodate all shippers. If demand for Line 67 increases as has been indicated to Enbridge and Enbridge does not increase the capacity of Line 67, all current subscribers could see a reduction in the capacity available to them. Thus, if more capacity is requested in Minnesota, Chicago refineries could see a reduction in available capacity. Conversely, if Chicago refineries request more deliveries of crude oil, Minnesota refineries could see a reduction in capacity.

As discussed *infra* shippers have indicated a need for additional capacity, if Line 67's capacity does not meet the demand, current subscribers could be apportioned or see reduced capacity.

D.3 Regional Midwestern Refineries Affect Minnesota Economics

Enbridge directly or indirectly serves crude oil supplies through Minnesota to Midwestern and other United States refinery markets via the Lakehead System, or through other affiliated or nonaffiliated interconnecting pipelines. Those refineries in turn produce a wide array of products ranging from gasoline to medicines, health and safety products, electronic devices, recreational equipment, agricultural supplies, and a variety of others that are consumed by Minnesotans. These refineries rely on a constant, steady supply of crude oil to maintain production. This project is increasing the volume of crude oil transported by Line 67, which is part of the Enbridge Mainline system, to alleviate forecasted apportionment within in the system which could adversely affect the supply of crude oil delivered to these refineries.

An example of how regional refineries affect the local economics in Minnesota occurred recently when gasoline prices spiked to above $4 the week of May 12, 2013.[13] Two oil refineries in the Chicago, Illinois area were temporarily shut down for scheduled maintenance and Midwest refineries were shifting supply east to relieve shortages.[14] This in turn caused a shortage of fuel in Minnesota which resulted in record gasoline prices for Minnesotans.[15] If capacity constraints result

[13] http://www.twincities.com/business/ci_23250030/twin-cities-gas-prices-rocket-above-4-gallon
[14] http://minnesota.publicradio.org/display/web/2013/05/15/business/gas-prices-minnesota
[15] http://minnesota.publicradio.org/display/web/2013/05/20/news/twin-cities-gas-prices

in reduced supply to these same refineries then similar events could occur. Letters of support from refineries that will be served by the Line 78 project and Line 6B can be found in Exhibit C. A portion of the incremental increase in capacity requested in this application could be delivered via Line 78 and Line 6B to these refiners who in turn provide secure and reliable energy supplies for Midwest consumers. This project is designed to alleviate the forecasted apportionment to continue to meet Minnesota's demand for refined petroleum products.

D.4 Local Economic Benefits from Project

The primary purpose and benefit of this Project is to meet market demand of United States and Canadian refineries by ensuring access to secure and reliable crude oil to use as raw feedstock. However, there are also secondary benefits associated with Enbridge's expansion as described below.

Regional refineries that stay competitive contribute to the regional economy. They help maintain a stable employment rate in the communities where facilities are located. Refinery expansions and upgrades also contribute to the regional and local economy by increased temporary and permanent employment along with increased investments in goods and services.

Enbridge also anticipates that the Line 67 Project will provide temporary beneficial impacts on the local economy during construction. Using the Regional Input-Output Modeling System (http://www.bea.gov/regional/rims/), Enbridge estimates that approximately 2,400 person-years of temporary construction jobs will be created for the duration of construction. Depending on the availability of local skilled workers, the general pipeline contractor typically draws more than half of the workers for projects of this type from Minnesota and surrounding states. The total economic benefit of the Project is estimated at $360 million during the year of construction. Table No. 7853.0240-D.1, below, summarizes the local economic benefits generated by this Project. Unemployment in the area would be temporarily reduced and payroll taxes would temporarily rise. Local businesses would also benefit from the temporary demand for goods and services generated by the workforce's need for food, lodging and supplies. Enbridge expects to purchase some of the materials necessary for construction of the Project locally, including consumables, fuel, equipment, and miscellaneous construction-related materials.

Enbridge estimates that the cost of the Project will be approximately $159.3 million. Based on the anticipated cost of the Project and current tax schedules, Enbridge estimates it could pay as much as approximately $2.23 million in additional annual property taxes in Minnesota beginning in 2016, subject to assessments by local government units.

Operations are expected to begin in 2015, with the Project yielding another 97 new jobs and generating another $23 million in economic impact. Typical

operations beyond 2015 are estimated to lead to 183 new jobs per year and create an additional $44 million per year in economic impact.

Table 7853.0240-D.1				
Local Economic Benefits generated from Project				
Component	**Estimated Total Project Costs ***	**Estimated Tax Benefits* 1/**	**No. of Temporary or Permanent Jobs Created**	**Total Economic Benefits***
During construction work of proposed facilities as described in Section 7853.023	$159.3 M	$2.23 M	2,400 person-years	$360 M
During Operation of the Line 67				
2015			97	$23 M
2016 - 2021		$2.23 - $2.06 M	183	$44 M

*M represents "million".
1/ Tax benefits start in year 2016. Each tax year thereafter, the estimated tax benefit will range between amounts specified.

E. Other Expansions on the Enbridge System

Since constructing the first pipeline from Alberta to Superior, Wisconsin in 1949 and beginning operations in 1950, Enbridge has expanded the Enbridge Mainline System and Lakehead System a number of times to increase transport capability from western Canada and North Dakota to the United States Midwest and eastern Canadian markets.

Line 61 Expansion: Enbridge is planning a horsepower expansion of its existing 42-inch Line 61 spanning from Superior Terminal to Flanagan, Illinois. The project is similar to the scope of work proposed in this Project and includes adding new pumping units to existing station sites along the pipeline. No new transmission pipeline is required. Line 61 will be expanded from its current annual capacity of 400,000 bpd to 560,000 bpd. Line 61 was built and tested for an ultimate annual capacity of 1.2 million bpd. The Line 61 Expansion Project to 560,000 bpd annual capacity is expected to be in-service by mid-2014.

Line 62 Expansion: Line 62 extends east of Flanagan, Illinois terminal to Enbridge's existing terminal in Griffith, Indiana. Enbridge is expanding the pipeline with added horsepower to an annual capacity 235,000 bpd.

Line 6B Replacement: Enbridge is in the process of completing its Line 6B 2012 Maintenance and Rehabilitation Program, which involved replacing 75 miles of the Line 6B pipeline from Griffith to Ortonville in seven segments. The Line 6B Phase 2 Replacement Project involves replacing a total of approximately 210 miles of existing 30-inch diameter Line 6B pipeline in Indiana and Michigan with new pipe.

This Line 6B Phase 2 Replacement Project responds to growing demand for pipeline transportation capacity while also reducing the frequency of future integrity inspections and individual repairs in the replacement segments. Portions of the line will be replaced with larger size pipe so Enbridge can restore Line 6B to its original capacity, which will provide additional capacity to meet current and long-term transportation requirements.

Line 79 Project: Enbridge is completing construction on a new 35-mile long pipeline from an existing terminal in Stockbridge, Michigan to interconnect with an existing pipeline (which Enbridge will lease) into Marathon's Detroit refinery. This project increases capacity by 80,000 bpd, freeing up the capacity on the existing parallel Line 17 to increase supply into the BP-Husky refinery in Toledo, Ohio.

Flanagan South Pipeline: Enbridge is planning to install a new 600-mile, 36-inch pipeline parallel to its existing Spearhead System between Flanagan, Illinois and Cushing, Oklahoma, which is targeted for completion by mid-2014.

Line 78 Project: The Line 78 Project involves constructing approximately 76-miles of new crude oil pipeline from Illinois to Indiana. The Line 78 Project will begin at Enbridge's Flanagan Terminal near Pontiac, Illinois, and travel northeast to Enbridge's Terminal near Griffith, Indiana. The diameter of the pipeline will be up to 36-inches. The expected in service date for the Line 78 Project is mid-2015.

Southern Access Extension Project: The Southern Access Extension Project involves constructing a 165-mile, 24-inch diameter pipeline to transport crude oil from Flanagan, Illinois, where the pipeline will connect with Enbridge's Lakehead System, to a major refinery hub near Patoka, Illinois. Subject to pending regulatory approvals, Enbridge anticipates beginning construction in mid-2014, with the Southern Access Extension Project in service in early 2015.

Seaway Crude Oil Pipeline: Enbridge and Enterprise Products Partners, as a joint venture, have reversed the flow of the Seaway Pipeline which originates in Cushing, Oklahoma and ends in the Houston refinery area. This partnership is currently working to expand the capacity of this system by installing a new parallel pipeline which will end near the same terminus point to interconnect with refineries in Texas and the western Gulf Coast region.

Sandpiper Project: The Sandpiper Project involves the construction of a 565- to 608-mile (depending on final route selection), 24-inch diameter pipeline and associated facilities to transport crude oil from Enbridge Pipelines (North Dakota) LLC's Beaver Lodge Station south of Tioga, North Dakota to the existing Enbridge terminal in Superior, Wisconsin. The Project's initial capacity will be 225,000 bpd into Clearbrook, Minnesota and 375,000 bpd into Superior, Wisconsin. The Project will transport growing production from the Bakken Formation in North Dakota to the Superior, Wisconsin terminal and then connect to various other pipelines, expanding access to refinery markets in the U.S. Midwest and beyond. The Project has a planned in-service date of first quarter 2016.

Details of these projects are on Enbridge's website through links on www.enbridge.com

F. Summary

The Project provides a competitive and timely transportation solution to address the critical need for increased transportation capacity from the prolific producing regions of western Canada and North Dakota and surrounding areas. The Project is driven by increased oil production from these regions which is expected to be on-line in the near term as well as continued rising demand by refineries in the United States to access these growing sources of supply.

The planned Project completion in 2015 meets the industry's needs and avoids potential capacity apportionment by increasing the capacity of an existing pipeline. The Project will also minimize impacts to the environment, landowners and the public that would otherwise be experienced with construction of another new pipeline in this or another corridor.

The Line 67 Project affords shippers access to a wide variety of refinery hubs via the integrated crude oil pipeline system in North America. These options ensure access to refinery markets in the Upper Midwest, Chicago area, Detroit, Toledo, eastern Canada and as far south as the United States Gulf Coast.

Therefore, the construction and operation of the Project is in the public interest.

7853.0250 SUMMARY OF ADDITIONAL CONSIDERATIONS

Each application shall contain a section that discusses the socioeconomic considerations listed below. The applicant shall explain the relationship of the proposed facility to each of the following:

A. Socially beneficial uses of the output of the facility, including its uses to protect or enhance environmental quality;

A.1 Public Health and Safety

Enbridge has operated in the United States since 1950, when the first crude oil pipeline from Alberta to Superior, Wisconsin was completed. In 1953, Enbridge extended its system by constructing Line 5, a new crude oil and liquid petroleum pipeline across the Upper Peninsula of Michigan to eastern Canada. In 1968 and again in 1998, Enbridge extended and expanded its system to Chicago and farther east. In 2009, Enbridge expanded its delivery capacity from Superior, Wisconsin to Chicago-area refineries with the completion of its Line 61 pipeline project. With the addition of Line 67 in 2010, Enbridge further expanded its Alberta-to-Superior, Wisconsin system to meet increased commercial demand.

Enbridge has constructed and operated this extensive network because it is a common-carrier that responds to the requests for transportation capacity of its shippers. Enbridge's extensive system has positioned it as one of the largest liquid petroleum pipeline companies in North America. Enbridge is experienced in managing construction and operation of pipeline systems in a manner that protects the environment and public's health and safety. Enbridge leveraged that experience following recent incidents to enhance the safety and operational oversight of its system, as discussed in Section 7853.0270.

A.2 Minimal Risk to Public or Environment from Releases from Pipeline Pump Station Facilities

The major causes of pipeline system leaks in the United States are corrosion (both internal and external), excavation and third-party damage, pipe or weld failure, incorrect operations, or natural causes (e.g. floods or outside force). Line 67 was constructed in 2010 using modern, fusion-bonded protective coatings and welding standards that greatly exceed federal requirements. To minimize the risk of leaks, Enbridge will construct and maintain the Project to meet or exceed industry and governmental requirements and standards.

As an interstate pipeline, Line 67 is regulated for design, construction, operation, maintenance and emergency preparedness by the United States Department of Transportation, Pipeline and Hazardous Materials Safety Administration ("PHMSA") under 49 C.F.R. Parts 190-199. Additional construction, operation and maintenance procedures used to protect the integrity of the pipeline system are summarized in Section 7853.0270 of this application.

Minnesota Office of Pipeline Safety ("MnOPS") inspection staff has been delegated authority by PHMSA to serve as agents of PHMSA during inspections of operational practices and construction. MnOPS most recently completed an inspection of Line 67 in October of 2011. This inspection included Lines 1, 2, 3, 4, 13, 65 and 67. The proposed facilities will go into service only after inspection by both Enbridge and the MnOPS to verify compliance with all construction standards and requirements.

A.3 Baseline Transportation Accident Rates

Releases from interstate liquid petroleum pipelines, including the station facilities proposed in this Project, must be reported to PHMSA as required by 49 C.F.R. Part 195, Subpart B. Currently, federal regulations require reporting of all petroleum releases greater than 5 gallons (if other threshold reporting criteria are met). In addition, Enbridge is required by Minnesota rules to report releases to the Minnesota Pollution Control Agency ("MPCA").

Pipelines operate more safely than any other mode of oil transportation. The following table shows the accident rates of other modes of transportation in comparison to an oil pipeline. For example, liquid pipelines transport 25% more billion ton-miles[1] of shipments than is transported by road but the average number of hazmat incidents is 1066 times higher for road transports. Similarly, liquid pipelines transport 16% more billion ton-miles of shipments than is transported by rail but the average number of hazmat incidents is 33 times higher for rail transports.

[1] A unit of freight transportation measurement equivalent to a ton of freight transported one mile.

Table 7853-0250-A-3
Comparative Statistics for Incident Rates
Onshore Transmission Pipelines vs. Road and Railway (2005 – 2009)[2]

Mode	Billions Ton Miles of Shipment	Average Hazmat Incidents per Year	Average Hazmat Incidents per Billion Ton Mile
Road[1]	23	14,963	650.6
Railway[1]	35.1	718	20.5
Hazardous Liquid Pipeline (Onshore)[2]	584.1	354	0.61
Gas Transmission Pipeline (Onshore)[2]	338.5	300	0.89

1: Reproduced from U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, Office of Pipeline Safety, *Building Safe Communities: Pipeline Risk and its Application to Local Development Decisions*, October, 2010, Table 1, p. 23, http://www.pstrust.org/library/docs/PIPA-PipelineRiskReport-Final-20101021.pdf.

2: "All Reported Incidents," The United States Department of Transportation Pipeline and Hazardous Materials Safety Administration Office of Pipeline Safety, accessed May 1, 2012, http://primis.phmsa.dot.gov/comm/reports/safety/Allpsi.html?nocache=3087#_all and Manhattan Institute calculations.

Source: "Table 1-50: U.S. Ton-Miles of Freight (BTS Special Tabulation)," U.S. Department of Transportation, Research and Innovative Technology Administration (RITA), Bureau of Transportation Statistics (BTS), accessed May 8, 2012, http://www.bts.gov/publications/national_transportation_statistics/html/table_01_50.html

The facilities proposed in this Project will be located within Enbridge property that is secured from public access. Stations are designed to include on-site containment in the event of inadvertent releases from components such as valves, fittings and station piping. Enbridge has also designed site containment contours or ponds to prevent off-site flow of oil. These measures minimize the risk to the public or environment from releases from the facilities proposed in this Project.

A.4 Pipeline Incident Rates

An analysis of the historical record shows that the liquid petroleum pipeline industry's safety performance has improved significantly over the last 20 years. These improvements correlate with advancements in technology as well as increased environmental awareness. Over the last 20 years the number of significant[3] incidents has also dropped from an average of 162 in

[2] Manhattan Institute. Pipelines Are Safest for Transportation of Oil and Gas. June 2012. http://www.manhattan-institute.org/html/ir_17.htm

[3] PHMSA defines Significant Incidents as those incidents reported by pipeline operators when any of the following specifically defined consequences occur: 1) fatality or injury requiring in-patient hospitalization; 2) $50,000 or more in total costs, measured in 1984 dollars; 3) highly volatile liquid releases of 5 barrels or more or other liquid releases of 50 barrels or more, or 4) liquid releases resulting in an unintentional fire or explosion.

the first five years (1993 - 97) to the recent five year (2008 – 12) running average of 121 incidents nationwide. The annual number of incidents has decreased by nearly 25%.[4] According to data on PHMSA's website, the median size of a spill has greatly decreased. The annual volume of oil spilled from pipeline systems has fallen by about 30%, based on five year running averages.[5]

A.5 Enbridge Incidents and Public Safety

There have been no known deaths or major injuries to landowners or members of the public as a direct result of a pipeline leak on the Lakehead System since it began operations in the United States in 1950. Today, the Lakehead System is owned and operated by Enbridge Energy, Limited Partnership. However, the Lakehead System was historically owned and operated by the Lakehead Pipe Line Company, Inc. from 1950-1991 and Lakehead Pipe Line Company Limited Partnership from 1991-2001.

A.6 Enbridge Energy, Limited Partnership Pipeline Accident Record on Line 67[6]

There have been no accidents on Line 67 since it was placed in service.

B. Promotional activities that may have given rise to the demand for the proposed facilities and increased pipeline capacity

As a common-carrier, Enbridge reacts to shipper demand. Enbridge cannot create demand for crude oil, and has not undertaken activities that have promoted increased demand for refined petroleum products nor the crude oil used by refineries to meet public energy needs. Enbridge has worked diligently to meet demand from shippers for crude oil produced from the regions in western Canada to which Line 67 is connected. Refineries are demanding this crude oil to reduce reliance on crude oil sources from other regions, including countries outside North America that are less secure, less friendly, and potentially more volatile sources of oil. Enbridge currently transports approximately 54% of all crude petroleum produced in western Canada to the United States. This market share is primarily attributable to the relatively low cost of transportation on the Enbridge Mainline

[4] http://primis.phmsa.dot.gov/comm/reports/safety/PSI.html
[5] Comparison of the past 20 years of significant spills incidents utilizing five year averages (1993-1997 and 2008-2012) http://primis.phmsa.dot.gov/comm/reports/safety/PSI.html
[6] This section excludes pipeline or facility leaks within Enbridge station or terminal property as well as incidents on other Enbridge pipelines.

System. The Enbridge Mainline System has expanded in the past 15 years, including the construction of Line 67 in 2010. Enbridge reduced the need for another parallel pipeline from Alberta to Superior by building Line 67 as a 36-inch diameter pipeline that could be expanded with additional horsepower at the pump stations. Without the facilities proposed in this Application, Enbridge's system capacity will be insufficient to meet the forecast transportation demands anticipated by 2015 as detailed in Section 7853.0520.

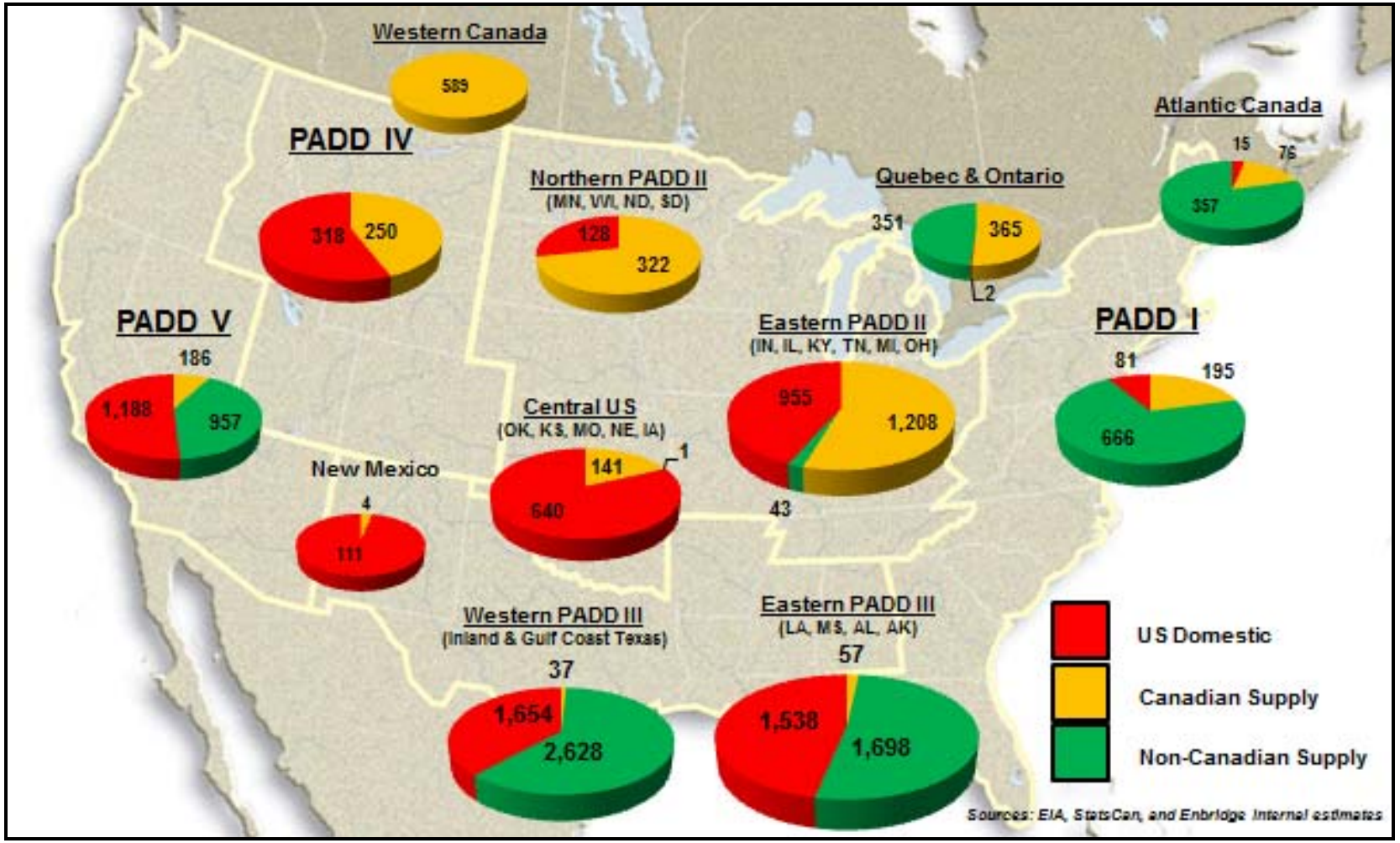
Shippers on the Enbridge system have requested that Enbridge expand its pipeline system in response to anticipated growth in both production and market demand. Enbridge has proposed this cost-effective expansion to avoid shortfalls in transport capacity in the near future and meet the shipper demand for efficient and cost effective pipeline transportation.

C. The effects of the facility in inducing future development

The Project will result in increased access to expanding volumes of Canadian production for refineries in the United States, specifically refineries in Minnesota, Wisconsin, Detroit, Toledo, eastern Canada and the Unites States Gulf Coast region. Refiners require access to reliable and economical supplies of raw materials to remain competitive, evaluate potential expansions of their facilities and remain financially healthy. A financially healthy refiner can maintain or increase employment and production, maintain and improve its facilities, and have a positive economic impact on its region. Moreover, the Midwest refineries long-served by Enbridge have significantly reduced the proportion of crude imported from outside North America or from states where crude oil supplies have fallen (See Figure 7853-0250-C-1). Refineries in the east and southern part of the United States are, similarly, turning to growing supplies of crude oil from western Canada and reducing reliance on imports from outside North America. If the Project is not completed, the projected apportionment of the Enbridge Mainline System will reduce the reliability of their supplies and would force refiners to continue to rely upon or turn to less economically attractive alternatives and imports from less reliable regions of the world.

Refineries in Detroit, Toledo, eastern Canada and along the United States Gulf Coast have the capability to refine heavy crude oil or other grades of crude oil sourced from western Canada. Marathon Petroleum completed a $2.2 billion upgrade and expansion project at its Detroit refinery in 2012. In February 2013, a $400 million investment in the BP-Husky Refining LLC Toledo refinery went online. Refineries along the United States Gulf Coast are making certain upgrades to their refining capabilities; however, they have refined heavy crude oil from Mexico, Venezuela and other parts of the world for some time. They are already configured to process the increased supplies that will be transported through existing pipeline systems via the expanded Line 67.

Figure 7853-0250-C-1. 2012 Crude Oil Disposition by Region (MB/D)



7853.0260 CONSERVATION PROGRAMS

Each application shall contain a section that relates to the conservation of energy. Separate responses are required from each person submitting a joint application.

A. Does the applicant have an energy committee or an individual responsible for determination or coordination of its energy needs?

Enbridge has an Energy Management Department that is responsible for negotiating contracts and allocating power to assure its economical and efficient use of power for Line 67. Enbridge also continuously reviews and tracks firm and non-firm power requirements, and works closely with electrical utilities in planning for transmission and generation needs.

Energy conservation is a major concern at Enbridge, since power costs represent a large part of recurring operating expenses for pipelines. Attention is continually directed toward minimizing this cost through efficient use of energy.

B. Has the applicant defined energy or conservation goals or objectives?

Enbridge's energy conservation goal is to minimize power/energy unit costs, through internal programs directed at continuous improvement of energy utilization efficiency, as outlined below. Enbridge also has a voluntary goal to maintain a neutral footprint for new projects.

C. What major energy efficiency or conservation programs has the applicant considered?

Enbridge has considered several energy efficiency and conservation programs. The following provides a brief explanation of the programs reviewed during the project development phase:

C.1 Variable Frequency Drives ("VFDs")

Variable frequency induction motor drives have been installed through a program that has been in place for approximately 20 years. VFDs allow the pipeline operator to vary the pump rotation speed thereby controlling the pressure produced to match the desired flow rate in the pipeline. This eliminates the need to dissipate or waste pressure (energy) with pressure control valves. VFDs, however, do introduce energy losses and are therefore considered only when there is a range of operating conditions (primarily flow rate, density and viscosity) that would often require dissipation of pressures

produced by the pumps. Ideally if operating conditions were constant, the pump would deliver constant pressures and eliminate the need for pressure dissipation. Operating conditions play a key role in designing the pumping stations, including the selection of motor drives for optimum efficiency.

C.2 Pipeline Control Center

Enbridge pipeline control operators are trained in applied hydraulics and pipeline control through the use of a computerized pipeline control simulation system. They are trained to operate the pipeline at an optimum flow rate using the most efficient combinations of pumps, thereby minimizing energy consumption. Operators have the capability to start and stop pumps and monitor pipeline operating conditions to maximize energy efficient operations.

C.3 Neutral Footprint

Enbridge has set a voluntary goal to work toward a neutral footprint for new projects. This means that as Enbridge expands operations, it will attempt to limit its environmental footprint to 2009 levels. Enbridge intends to achieve this by conserving an acre for every acre of natural habitat impacted, planting a tree for every tree that must be removed to build new facilities, and generating a kilowatt-hour of renewable energy for every kilowatt-hour of energy operations consume.

Enbridge is currently the second largest wind energy generator in Canada and is continuing to grow its fleet of renewable energy projects. Enbridge's renewable energy interests include 1,573 megawatts (“MW”) of renewable and alternative energy generating capacity. Our renewable energy portfolio includes investments in wind farms (1,400 MW capacity), solar energy operations (150 MW capacity), and a geothermal facility (23 MW capacity).

Enbridge’s conservation efforts will not always take place in the right-of-way or impacted area for new projects. For example, Enbridge recently provided financial support to help the Wisconsin Department of Natural Resources, The Lyme Timber Company and The Conservation Fund secure a unique working forest conservation easement that protects 44,618 acres of the Brule-St. Croix Legacy Forest. This effort is part of the ongoing commitment through the Enbridge Neutral Footprint Fund to conserve significant forest, wetland and native prairie habitats.

D. What major accomplishments in energy efficiency or conservation have been made by the applicant in the past five years?

All of the programs described above in 7853.0260-C continue to be considered and utilized to achieve energy efficiency.

In the effort to achieve a neutral footprint, Enbridge has voluntarily achieved the following milestones since 2009:

1. 594,895 Trees Removed for New Pojects
   588,380 Trees Planted

2. 1,721 Acres Disturbed
   50,268 Acres Conserved

3. 2,668 GWh of forecast consumption through 2015
   3,371 GWh of forecast generation from renewables

Specific achievements in the United States include Enbridge, as 100% owner, bringing the following power plants online:

1. Cedar Point Wind Farm: 250 MW located in Limon, Colorado, commissioned in Q4, 2011.

2. Silver State Solar Power North: 50 MW located in Primm, Nevada, commissioned in Q2, 2012.

E. What major energy efficiency or conservation programs will be implemented within the next five years?

Enbridge will continue to consider all programs identified in 7853.0260-C above.

7853.0270 OTHER DATA FILED WITH APPLICATION

1. Enbridge is committed to constructing structurally sound pipeline equipment within its existing station facilities and to ensuring that these related pipeline facilities are operated safely.

This commitment drives Enbridge's plan to closely monitor the various phases of design and construction of the Project so that a safe system is provided for operation.

Design and construction of pipeline-related facilities are subject to detailed and thorough requirements. All parts of the facilities to be constructed will be subject to rigorous material specifications reflecting experience gained over time by Enbridge and the petroleum pipeline industry. The Project will meet design and construction standards of the American Petroleum Institute, the pipeline industry, state and federal regulatory agencies, and internal Enbridge standards that are frequently stricter than those of the regulatory agencies. These standards establish the quality of all pump components, pipe, pipe coatings, valves, and other materials. Qualified inspectors will monitor key elements of the manufacturing process of the components to ensure that quality control requirements of the specifications are met. Inspection methods will include destructive testing of certain components to verify their integrity. Nondestructive techniques such as x-ray radiography, ultrasonic inspection, visual inspection, and other techniques will also be employed to verify the integrity of materials and construction practices.

Specifications will be issued to contractors and employees for proper handling of these materials beyond the manufacturing process. These specifications will describe the care necessary in shipping and handling the materials. These specifications will also be augmented by close inspection of material-loading, -transportation, and -handling activities.

The use of sound in-the-field construction practices, closely monitored by qualified personnel, will ensure that all materials installed in the pump stations provide the fitness for service for which they are intended. Key construction phases will be subjected to special scrutiny. For example, x-ray testing of 100 percent of the pressurized field welded joints will occur. The completed system upgrades will ultimately undergo hydrostatic testing prior to placing the upgraded system in service.

Line 67 was also subject to these requirements when it was constructed in 2010. As noted previously in this application, Enbridge also hydrostatically tested Line 67 at higher pressures than are required for safe operation of the pipeline after the Project is completed.

2. Station design, construction and operation are regulated by the United States Department of Transportation, Pipeline and Hazardous Material Safety Administration.

Line 67 is an interstate crude petroleum pipeline. The design, construction, maintenance and operation functions of Line 67 are therefore regulated by the United States Department of Transportation under 49 C.F.R. Part 195 – Transportation of Hazardous Liquids by Pipeline. Oversight of Enbridge's operations is controlled by the PMHSA pursuant to the Hazardous Liquid Pipeline Safety Act, 49 U.S.C. 2001 *et seq*. Enbridge complies with all regulations issued by PHMSA and other applicable agencies. Enbridge also works directly with various regional, state, and local agencies, landowners, and other interests to address the needs of the communities in which it operates.

In 1991, MnOPS was designated as an inspector on behalf of the PMHSA. Findings, reports and recommendations from MnOPS inspectors are referred to PMHSA for review and action.

Enbridge developed comprehensive written procedures for the operation and maintenance of the pipeline in order to establish standards and guidelines for Enbridge personnel, as well as to comply with Part 195 and other government regulations. Company procedures and activities meet and generally exceed government requirements. The following paragraphs provide a very general overview of Enbridge's operation and maintenance practices.

2.a Station Operation and Control

Enbridge has made many changes in station operation and pipeline control over the past three years. The Enbridge Pipeline Control Center is located in Edmonton, Canada. This new control center opened in December 2011 allows for greater interaction and support between operators for the continuously monitored pipeline system.

The Control Center is manned by pipeline operators 24 hours-a-day. A computerized pipeline control system allows the operators to remotely monitor and control the entire pipeline and related facilities. The Control Center also serves as an emergency center to receive calls from employees, the public and public officials reporting unusual conditions or pipeline failures. The computerized pipeline control system has been designed to control the pipeline within pre-established minimum and maximum operating pressures. Both the computer system and operating practices include procedures for abnormal operating conditions, including emergency shutdown and isolation of the pipeline and notification procedures in the event of suspected emergencies.

After 2010, Enbridge developed a Control Room Management plan based on the United States Code of Federal Regulations. A number of the sections of the plan

were implemented on October 1, 2011, and the remaining sections on August 1, 2012. Enbridge also revised and enhanced its procedures pertaining to decision making, handling pipeline startups and shutdowns, leak detection system alarms, communication protocols, and suspected column separations. Enbridge also enhanced its organizational structures to better support pipeline operators and to manage span of control and workloads. The Control Center Operations staff has been augmented since 2010, adding engineering and operator positions and additional training and technical support.

2.b Communications Capabilities

A Frame Relay Wide Area Network ("WAN") provides the primary communications exchange for pipeline monitoring and control. A dial-up back-up system or satellite system is used during primary communication failures. Communications to monitor and control remote valves utilize frame relay land line connection, spread spectrum radios, or cellular based radios to connect to the WAN. Enbridge also maintains a UHF radio system, supplemented by cellular phones as needed, to facilitate personnel communications during operation, maintenance, or emergency activities.

2.c Protection of the Pipe from Damage

Enbridge has an aggressive program to educate excavators and the public about the presence of the pipeline and prevent damage to the pipeline from excavating equipment. Enbridge has joined and supports the Minnesota Gopher excavation damage prevention system.

The pipeline is protected from corrosion in a number of ways. The pipe is covered with a modern, fusion-bonded protective coating. All buried or submerged metallic structures (pipeline systems) are under a cathodic protection system as required by pipeline safety regulations. The cathodic protection system induces a very mild electrical current to prevent corrosion of the steel pipeline and related structures.

Additionally, all of Enbridge's operations, including its standards for quality of the oil it can accept for shipment are regulated through Enbridge's tariff by the FERC under the Interstate Commerce Act of 1887. The tariff requires a shipper to deliver crude oil to Enbridge with certain quality standards. Enbridge verifies that the oil entering its system meets those standards, and a shipper is required to provide Enbridge with a certificate that sets out the specifications of the oil it submits to Enbridge. One of the many quality standards set in the tariff, is that crude oil on the Enbridge system can contain no more than 0.5 percent, by volume, of sediment or water. Other quality control aspects of the tariff relate to temperature, viscosity, density, and various physical characteristics of the oil. Additionally, Enbridge always has the ability to reject a shipment or remove a shipper's oil if it does not meet Enbridge's standards or if it poses a risk to Enbridge's facilities.

2.d Inspection

Enbridge conducts routine inspections of its pipelines and facilities, including the pump stations that will be upgraded as part of this Project, to ensure that the system is operating properly and in compliance with 49 C.F.R. Part 195.

The cathodic protection system is monitored by taking pipe/structure-to-soil and line current readings (where possible) each calendar year (not to exceed a 15-month interval). Additionally, each rectifier and anode groundbed used to impose cathodic protection on the pipeline is inspected to ensure proper operation. Repairs and adjustments to the cathodic protection system are either made during the annual survey or during later maintenance activities. At least six times per year, each rectifier and critical cathodic protection interference bond to foreign structures is inspected and corrective measures are implemented, as needed.

Enbridge also periodically evaluates the effectiveness of its cathodic protection system by conducting supplemental close interval surveys (*e.g.*, close interval pipe to soil, etc.) of the system. Although not required by regulation, this method allows Enbridge to assess the overall effectiveness of the pipeline protection system.

The Line 67 route, including aerial observation of stations and surrounding areas, is patrolled by air at least 26 times per year to inspect surface conditions of land on or adjacent to the pipeline right-of-way. If weather and other conditions permit, this aerial inspection is conducted weekly. Line walking inspection of the right-of-way is sometimes used to supplement aerial inspections in congested areas. This inspection also assists in identifying unknown construction or other unsafe activity on the pipeline right-of-way.

Isolating valves are checked at least twice per year to ensure proper operation. In the event of a leak, it is important for valves to close properly to isolate the section of pipeline and minimize the amount of petroleum that may escape. Other components of the pipeline, such as tanks and pump stations are also routinely inspected.

Enbridge periodically inspects the transmission segments of its pipeline system, in accordance with the integrity management standards of 49 C.F.R. Part 195. These inspections are conducted by a combination of hydrostatic testing, direct assessment and internal integrity inspections with the use of electronic inspection tools commonly called “instrument pigs.” These devices travel through the inside of the pipeline and use on-board sensors and computers to look for and examine any unusual conditions (dents, gouges, corrosion, or cracks) in the pipe. Results of the inspection are then analyzed, and if anomalies are found, the pipeline is inspected to verify preliminary findings and repaired as required.

All overpressure safety devices capable of limiting, regulating, controlling, and/or relieving operating pressures are inspected annually and tested to ensure the device is in good mechanical condition and functioning properly.

Inspectors from PHMSA (and their agents from MnOPS for the Minnesota portion of the system) periodically inspect the Enbridge's compliance with applicable government regulations. Inspections of the Enbridge's written procedures, records, and facilities are also periodically conducted by Enbridge and these agencies.

2.e Maintenance

Many other maintenance activities are performed on the pipeline and related facilities. Enbridge Operating and Maintenance Procedures meet and, in many cases, exceed federal safety standards set forth in 49 C.F.R. Part 195. When facilities are added or replaced, there are comprehensive standards for their design and installation in both Enbridge procedure manuals and contract specifications.

2.f Training of Personnel

Enbridge has established a comprehensive orientation, technical, safety, emergency, and on-the-job training program that is in compliance with the Operator Qualification rules issued by the PHMSA under 49 C.F.R. Part 195. Enbridge personnel receive hundreds of hours of formal and on-the-job training as they progress in pipeline operation and maintenance positions. Demonstrations of competence are shown through review of job performance, periodic use of pipeline control system simulators, emergency exercises, welding certification tests, and other functions required to continue safe pipeline and station facility operation and maintenance.

2.g Public Awareness Program

Enbridge conducts a comprehensive public education program to ensure that the affected public (those who work and live along the pipeline), excavators, local public officials, and emergency units are aware of how to recognize and avoid or respond to a pipeline emergency. Enbridge has also been active at the local, county, and state level in emergency response planning and joint training and exercises to prepare all potential responders to deal with emergencies. The public awareness program includes liaison with emergency responders in communities that host Enbridge station facilities. Enbridge also provides annual employee training for field employees across the United States operations to ensure they are prepared to work with the public and are effective in ensuring the public is aware of activities along the pipeline.

For the public's awareness of underground pipelines, the pipeline route is marked at all public road and railway crossings, at a minimum. Additional markings are posted at valves, other pipeline facilities, and stations along the pipeline route.

2.h Emergency Preparedness

Enbridge's operating and maintenance practices are aimed at preventing emergencies or releases from facilities at stations. However, it is imperative that Enbridge be prepared to respond to an emergency or release should one occur. In addition to the preventative activities described above, Enbridge's emergency response program has been prepared in compliance with PHMSA rules under 49 C.F.R. Part 194. The Emergency Response Plan has been approved by PHMSA and includes pre-planning, equipment staging, emergency notifications, and emergency and leak containment procedures.

Enbridge's closest response assets and personnel are located at each terminal or pump station. Exhibit E to the Application is a Spill Prevention, Containment, and Control Plan. Appendix A to that document includes a list of spill response contractors and heavy equipment operators. These contractors and equipment operators are located at various points along the route of the Enbridge Mainline System, ensuring that response assets will be available quickly at whatever location they are required. Enbridge has also developed a cross-business unit response team for large-scale events requiring more resources than a single region can provide and created a dedicated Emergency Response group in Operation Services for increased regional support. Enbridge is currently improving equipment, training, and overall response capabilities to support worst case incidents within its pipeline systems.

3. Release History

Since 2002, Enbridge's liquid pipeline operations has had 559 reportable releases[1] within its facilities in the United States and Canada, and 107 outside of its facilities.[2] Most of the releases occurred within Enbridge facilities in the United States and Canada, were less than a single barrel in volume, and were readily contained and recovered without entering the natural environment.

It is important to consider releases in the context of the industry and Enbridge's place in it. Enbridge operates ten percent (10%) of the total length of all domestic crude oil and refined product pipelines, with over 14,900 miles of liquid pipelines in

[1] In the United States, any spill over 5 gallons must be reported. In Canada, spills of any volume must be reported.
[2] Enbridge 2012 Corporate Social Responsibility Report: Environmental Performance, p. 51, available online at http://csr.enbridge.com/Downloads.aspx.

the United States and Canada.[3] It is the largest pipeline operator in the United States, delivering 13% of the crude oil imported each year. For the last decade, it has delivered hundreds of millions of barrels of liquid petroleum each year with very few releases. In fact, over the last 10 years, Enbridge has safely delivered an average of 99.9992% of the annual volume it transported in its liquid pipelines throughout North America. If releases within Enbridge's facilities are excluded, that figure rises to 99.9997%.[4]

Enbridge's release record is better than the industry average in both the United States and Canada. In Canada, from 2002 to 2009, Enbridge had 0.5 spills per 1,000 kilometers of federally-regulated pipeline while the rest of the industry averaged 7.43 spills per 1,000 kilometers of pipeline.[5] In the United States, Enbridge experienced 0.005 spills per billion barrel-miles, compared to an average of 0.021 spills per billion barrel-miles for the rest of the industry.

Enbridge's goal is zero incidents and always regrets any release from its pipelines. It does, however, accept responsibility for releases and remediation, including the cost and work to perform cleanup operations and provide compensation.

4. Marshall, Michigan Incident and Implementation of NTSB Recommendations

In July, 2010 Enbridge's Line 6B ruptured and spilled crude oil into Talmadge Creek and the Kalamazoo River near Marshall, Michigan.

While this incident occurred on mainline pipe outside a facility such as that proposed in this Application, Enbridge offers the Commission some information on a number of enhancements Enbridge has made in its system, practices and procedures as a result of Enbridge's and the federal government's investigation into this incident.

On July 10, 2012 the National Transportation Safety Board ("NTSB") adopted the Pipeline Accident Report NTSB/PAR-12/01, PB2012-916501 for the incident. Enbridge has worked closely and cooperatively with the NTSB throughout its investigation. Enbridge began implementing operational and procedural changes soon after the incident. The summary below describes Enbridge's actions also taken as a result of this internal investigation related to NTSB's recommendations.

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[3] Enbridge Liquid Pipelines: http://www.enbridge.com/DeliveringEnergy/OurPipelines/LiquidsPipelines.aspx and http://www.enbridgeus.com/Delivering-Energy/Pipeline-Systems/Liquids-Pipelines/

[4] Enbridge 2012 Corporate Social Responsibility Report: Environmental Performance, p. 51, available online at http://csr.enbridge.com/Downloads.aspx.

[5] Enbridge 2012 Corporate Social Responsibility Report: Environmental Performance, p. 52, available online at http://csr.enbridge.com/Downloads.aspx.

The specifics of these actions, and Enbridge's continuing efforts to mitigate risks of operating Line 6B in Michigan as well as its entire interstate liquid petroleum pipeline system continue to be completed under the oversight of the PHMSA and in compliance with federal pipeline safety regulations included in 49 C.F.R. Parts 194 and 195.

4.a Pipeline Integrity

The cause of failure on Line 6B was rooted in the type of external coating applied to the pipeline when it was constructed in 1967. That type of coating was not utilized on the Line 67 pipeline, which has a fusion-based epoxy coating. Since the Line 6B incident, Enbridge has implemented numerous changes to its pipeline integrity management program to assure improvements to long-term monitoring and mitigation policies. Each of the items identified by the NTSB have been addressed through changes to inspection frequencies, repair methodologies, quality assurance programs, detailed procedure enhancements, additional technologies, and organizational restructuring. Some of the NTSB recommendations will require Enbridge to develop new industry models for integrity assessments of its pipelines. Enbridge has committed to leading development of those improvements and work is ongoing. Enbridge has accomplished the following:

- Heightened the importance of its pipeline and facility integrity program to assure broader company involvement and commitment to integrity management with increased integration of planning and issue resolution formalized through new committees and planning processes.

- Re-organized the functional areas that are responsible for pipeline and facility integrity bringing additional leadership and focused resources on traditional, new and emerging areas of pipeline integrity management. Specifically, this re-organization has resulted in approximately doubling the number of positions dedicated to integrity management.

- Increased the number of in-line inspection programs and integrity digs (includes excavation, examination, maintenance and repair by welded sleeve or pipe segment replacements). The in-line inspection program has been increased by more than 50% compared with the pre-2010 levels. Additionally, the number of integrity digs has more than doubled over that same time period. Pipeline integrity management spending was increased to over $450 million in each of 2011 and 2012.

- Strengthened its focus on the tools, technologies and strategies needed to ensure that pipeline networks have the strength and operating fitness to perform safely, reliably and in an environmentally responsible manner.

- Revised and improved numerous procedures within its Integrity Management program. Specifically, process and procedure enhancements have been implemented to ensure that a feature similar to the one that led to the Line 6B Marshall incident, should it exist elsewhere on the pipeline system, will be identified and repaired.

Enbridge, and the industry as a whole, continues to improve accuracy and develop new technology for pipeline integrity assessments. Enbridge has worked with the Association of Oil Pipelines and Pipeline Research Consortium International in launching further research to improve the ability of inspection tools to gather certain information from pipelines, and enhance techniques for pipeline operators to interpret information the tools collect.

4.b Leak Detection and Pipeline Control

Following the July 2010 incident on Line 6B in Michigan, Enbridge has accomplished the following:

Leak Detection

- Implemented additional leak detection analysis procedures. These procedures include improvements to the leak detection escalation process, shift change transitions, alternate leak detection procedures, and analysis and communication procedure. Enbridge formalized best practices for its standard operating procedures.

- Formalized a Quality Management System ("QMS") that will ensure the effective execution of critical work activities that meet pre-defined quality objectives.

- Established a Pipeline Control Systems and Leak Detection department, doubling the number of employees and contractors dedicated to leak detection and pipeline control.

- Enhanced the following aspects of the Leak Detection Analyst Training Program: on-the-job training, training program layout, readiness assessment, and communications with control center operations (“CCO”) personnel.

- Completed assessments and planning of instrumentation additions to and upgrades required to improve the performance of the leak detection system. Enbridge implemented a Leak Detection Instrumentation Improvement Program to add and upgrade instrumentation across its system based on the assessments. It reviewed and restructured its maintenance management program. This work has enhanced Enbridge's existing program by formalizing the inventory and management of critical leak detection equipment.

- Made changes to its Pipeline Control Systems. Enbridge has initiatives underway to improve controller decision support systems. This work includes developing tools to further support the analysis of column separation and potential leaks, and implementing expert systems to support alarm analysis. Enbridge is making ongoing improvements to its historical data storage and retrieval at most of its terminal and pump stations, resulting in the archiving of critical data at a resolution frequency of approximately one second. Enbridge is evaluating its current communication mechanisms, including its remote terminal unit infrastructure.

Pipeline Control (including CCO)

- Developed and implemented corporate and CCO-specific "Golden Rules" (safe operating, when in doubt- shutdown, emergency procedures).

- Revised and enhanced all of its procedures pertaining to decision-making, handling pipeline start-ups and shutdowns, leak detection system alarms, communication protocols, and suspected column separations.

- Revised a number of documents associated with its newly revised processes and procedures including pipeline maneuvers, start-up and shutdown documents, operating standards maneuvers, operating standards and procedures, Quality Management System (“QMS”), CCO on-call handbook and CCO fatigue risk management handbook.

- Augmented its CCO staff, technical support, engineering and operator positions and enhanced its organizational structure to better support operators and to manage span of control and workloads.

- Enhanced its training programs in a number of areas including hydraulics, column separation analysis, incident investigation for all managers, technical services, engineers, shift leads and training staff, introduction to Lifesaving Rules training, enhanced emergency response training, fatigue management training, enhanced mentor selection process and training and material balance system training and formalized communication protocols.

- In November 2011, moved into its new CCO in Edmonton, Alberta, Canada for operation of most Enbridge liquid pipelines in North America. The new CCO also includes design features that address worker fatigue, a growing concern for companies with shift work employees. It has sit/stand consoles, improved lighting, noise reduction and facilities to address fatigue management to create an environment that meets all of the regulatory requirements related to control room management.

- Ensures that everyone in the CCO understands that, if they are ever in doubt, they must shut the line down and leave it down until the situation is fully understood. Enbridge's clear message is that it operates its pipelines safely. Enbridge will shut a pipeline down and will not restart it if Enbridge is not satisfied with operational safety. Enbridge will not sacrifice safety for throughput or expediency or the ability to return a line to service.

4.c Pipeline Public Awareness Program and Emergency Response

To bolster its existing public awareness and emergency response programs, Enbridge has or is in the process of:

Public Awareness

- Developing an online and in-person training tool that will enable it to give Enbridge-specific information to emergency responders in its host communities.

- Added Community Relations positions in key locations along Enbridge liquid pipeline routes to build relationships with community members, emergency responders and local government.

Emergency Response

- Spending about $50 million between 2012 and 2013 to improve its equipment and capabilities, develop better tools to deal with particular waterborne spills and improve training programs.

- Created and began specialized training for a cross-business unit response team to respond to large-scale events anywhere in North America that would require more resources than a single Enbridge liquid pipeline operating region or business unit could provide. The response team will be conducting major training exercises involving all business units, Emergency Response contractors and consultants, and emergency response agencies at all levels of government.

- Conducting an emergency response preparedness assessment to identify additional strategic equipment purchases (e.g., sorbent boom, containment boom, fire boom, skimmers, boats, bladders, etc.) to enhance capabilities to more rapidly respond and contain a significant release anywhere in the Enbridge system.

- Adding personnel to each Enbridge liquid pipeline operating region to improve emergency preparedness planning and coordination.

5. The Products Transported by Enbridge

Enbridge transports a wide variety of petroleum products, as discussed in Section 7853.0510. The products, generally described, are condensate, light crude, medium crude, heavy crude, and natural gas liquids.

There is potential for Line 67 to move almost any commodity that is transported on the Enbridge Mainline System, if such a business case were established based on a number of factors that include, but are not limited to, system connectivity, line usage, product type, and contracts. However, Line 67 is presently dedicated to heavy service and currently transports the following:

- Cold Lake (CL)
- Western Canadian Select (WCS)
- Suncor-H (OSH)
- Access Heavy Blend (AWB)

Transportation of heavy crude oil and diluted bitumen[6] ("dilbit") did not begin with construction of Line 67. Enbridge has transported similar heavy crude oil products for decades, and currently has other lines that are also dedicated to heavy crude service.

Dilbit is comparable in most characteristics to the heavy crude oil that has been transported by pipeline across the United States for decades. In Section 16 of the Pipeline Safety, Regulatory Certainty, and Job Creation Act of 2011, Congress required the Secretary of Transportation, through PHMSA, to "complete a comprehensive review of hazardous liquid pipeline facility regulations to determine whether the regulations are sufficient to regulate pipeline facilities used for the transportation of diluted bitumen." [7] PHMSA sponsored the study through the National Research Council ("NRC") of the National Academy of Science.

[6] Bitumen is a heavy oil that is extracted from the oil sands of Western Canada by surface mining and separation of the oil from the ore or in-situ extraction. Diluted Bitumen is bitumen that has been separated from sands and other major contaminants (clay, water, metals and salts) and diluted using light petroleum liquids.
[7] Pipeline Safety, Regulatory Certainty, and Job Creation Act of 2011

The NRC released their report, Effects of Diluted Bitumen on Crude Oil Transmission Pipelines,[8] in 2013 with the following findings:

- No "causes of pipeline failure unique to the transportation of diluted bitumen." [9]
- No "evidence of chemical or physical properties of diluted bitumen that are outside the range of other crude oils or any other aspect of its transportation by transmission pipeline that would make diluted bitumen more likely than other crude oils to cause releases." [10]
- "Diluted bitumen does not have unique or extreme properties that make it more likely than other crude oils to cause internal damage to transmission pipelines from corrosion or erosion. Diluted bitumen has density and viscosity ranges comparable with those of other crude oils. It is moved through pipelines in a manner similar to other crude oils with respect to flow rate, pressure, and operating temperature. The amount and size of solid particles in diluted bitumen are within the range of other crude oils so as not to create an increased propensity for deposition or erosion. Shipments of diluted bitumen do not contain higher concentrations of water, sediment, dissolved gases, or other agents that cause or exacerbate internal corrosion, including microbiologically influenced corrosion. The organic acids in diluted bitumen are not corrosive to steel at pipeline operating temperatures." [11]
- "Diluted bitumen does not have properties that make it more likely than other crude oils to cause damage to transmission pipelines from external corrosion and cracking or from mechanical forces." "There is no evidence that operating temperatures and pressures are higher or more likely to fluctuate when pipelines transport diluted bitumen than when they transport other crude oils of similar density and viscosity. Furthermore, the transportation of diluted bitumen does not differ from that of other crude oils in ways that can lead to conditions that cause mechanical damage to pipelines." [12]
- "Pipeline operating and maintenance practices are the same for shipments of diluted bitumen and shipments of other crude oils." [13]

Several other documents[14,15, 16] support the findings of the NRC report. Enbridge has transported western Canadian crude oils for decades. The oil transported in

[8] National Research Council. TRB Special Report 311: Effects of Diluted Bitumen on Crude Oil Transmission Pipelines . Washington, DC: The National Academies Press, 2013. http://www.nap.edu/catalog.php?record_id=18381
[9] National Research Council. TRB Special Report 311: Effects of Diluted Bitumen on Crude Oil Transmission Pipelines . Washington, DC: The National Academies Press, 2013. Page 74.
[10] *Id.*, Page 74 & 75.
[11] *Id.*, Page 75.
[12] *Id.*
[13] *Id.*

Line 67 and elsewhere on Enbridge's system is very similar to conventional heavy crude oil. Enbridge observes all safety protocols and has strict quality standards to protect its pipelines and the environment. While Congress did not instruct the Department of Transportation to inspect dilbit's effect on the environment if released, Enbridge continues to strive for a zero release policy as discussed above in Section 3 and 4.

6. Right-of-Way Preparation, Construction and Reclamation Procedures

With regard to worksite preparation, construction and reclamation procedures, Enbridge proposes to adopt its Line 67 Station Upgrade – Phase 2 Environmental Mitigation Plan ("EMP"), which is enclosed herewith as Exhibit D. Enbridge's EMP provides a more detailed discussion of the guidelines and mitigation measures that Enbridge would implement on this project. Installation of new pumping units at Donaldson, Plummer, Cass Lake, and Floodwood will occur on property being acquired by Enbridge. The current land use will be converted to use as a pumping facility. Existing vegetation will be replaced with compacted dirt and gravel in accordance with final site design requirements. Modifications at the Viking, Clearbrook, and Deer River stations will occur within Enbridge's existing facilities on land already owned by Enbridge.

7. Hydrostatic Testing

All new pressurized piping and components will be factory tested, rated and as required, field pressure tested in accordance with federal pipeline safety regulations, industry codes, and Enbridge's requirements. The hydrostatic test water discharges will be for the new piping at the existing stations.

Line 67 was constructed and tested for an ultimate annual capacity of 800,000 bpd of heavy crude oil. The hydrotest pressures utilized along Line 67 varied just as the maximum allowable operating pressure ("MAOP") varies along Line 67. The table below details the hydrotest pressures utilized on the discharge side of each existing and proposed line 67 pump station.

[14] Alberta Innovates-Energy and Environment Solutions. Comparison of the Corrosivity of Dilbit and Conventional Crude. 2012. http://onlinepubs.trb.org/onlinepubs/dilbit/ZhouBeen072312.pdf
[15] AOPL. Diluted Bitumen. March 20, 2013. http://oilsandsfactcheck.org/wp-content/uploads/2013/04/Diluted-Bitumen-Fact-Sheet_API-AOPL.pdf
[16] AOPL. Pipeline Transportation of Diluted Bitumen from the Canadian Oil Sands. October 14, 2011. http://www.api.org/aboutoilgas/sectors/pipeline/upload/pipeline_transportation_diluted_bitumen.pdf

Table 7853.0270-7 Hydrotest Pressures on Discharge Side of Stations	
Pump Station	**Hydrotest Pressure (psi)**
Donaldson	1643
Viking	1495
Plummer	1466
Clearbrook	1870
Cass Lake	1870
Deer River	1870
Floodwood	1634

The hydrotest pressures utilized represent a minimum safety margin of 31% above the MAOP that was utilized during the design and construction of Line 67. Additional hydrostatic tests of the existing line are not required. The testing process at Minnesota stations will be implemented in accordance with Enbridge's procedures. The appropriation and discharge of test water will be conducted in accordance with Enbridge's EMP and permits issued by the appropriate regulatory agencies.

7853.0510 HISTORICAL ENERGY DATA

Subpart 1. Products, usage, and suppliers. For the geographical area to be served by the proposed facility, the applicant shall provide the following:

A. a list of the petroleum products by major categories (such as crude oil, gasoline, fuel oil, and so forth) transported or distributed by the applicant in that geographical area during the five most recent calendar years;

Line 67 is part of the Enbridge Mainline System, the U.S. portion of which is known as the "Lakehead System." The historical data provided in this section reflects the petroleum products transported on the Lakehead System, which is owned and operated by EELP.

As defined in its FERC Tariff on Rules and Regulations, EELP transports the following commodities:

Condensate (CND)
Light Crude Petroleum (LGT)
Medium Crude Petroleum (MED)
Heavy Crude Petroleum (HVY)
Natural Gas Liquids (NGL)

B. for each category listed in response to item A and for each of the five most recent calendar years, a list of the annual and peak day quantities transported or distributed in the appropriate units of measure;

Table 7853.0510-1-B.1 provides the historical annual daily average volumes for the Lakehead System for each of the years 2007 to 2012 by the crude types listed in response to Subpart 1.A, above.

Table 7853.0510-1-B.1
Annual Daily Average Volumes

(000) bpd	2007	2008	2009	2010	2011	2012
CND	0.1	0.3	2.2	2.0	4.0	0.001
LGT	583.9	625.4	710.7	708.7	722.8	792.6
MED	69.6	51.2	29.1	29.4	41.9	49.5
HVY	791.1	850.0	828.9	829.5	857.5	872.0
NGL	98.2	92.4	78.9	75.5	73.3	76.2

C. a list of sources of supply of petroleum products for transportation or distribution during the five most recent calendar years, designated as either in-state or as out-of-state, the dates and durations of the contracts with the 25 largest suppliers or shippers, the categories of petroleum products and quantities involved, and for sources of crude oil, the geographical areas of origin of the crude oil; and

The primary source of supply for Line 67 is the WCSB, which spans the provinces of British Columbia, Alberta, Saskatchewan and Manitoba, as well as the Northwest Territories.

Line 67 does not have any contracted capacity commitments. Instead, Enbridge conducts a monthly open nomination process for capacity, which is available to any shipper that can meet the pipeline's FERC-approved tariffed terms of service conditions.

D. for each of the five most recent calendar years and for each category of petroleum product, the percentage of in-state delivery of the annual amounts given in response to item B.

Table 7853.0510-1-D.1, below, provides the volumes entering the State of Minnesota and in-state crude petroleum deliveries at Clearbrook on an annual average basis. As noted, all of the annual amounts identified on Table 7853.0510-1-D-1 are in-state deliveries at the Clearbrook, Minnesota terminal.

Table 7853.0510-1-D.1 Disposition of Crude Petroleum in the State of Minnesota						
Average Daily Volumes entering Minnesota						
(000) bpd	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
CND	0.1	0.3	2.2	2	4	0.001
LGT & USL	583.9	625.4	710.7	708.7	722.8	792.5
MED	69.6	51.2	29.1	29.4	41.9	49.5
HVY	791.1	850	828.9	829.5	857.5	871.9
NGL	98.2	92.4	78.9	75.5	73.3	76.2
Average Annual Volumes	1542.9	1619.3	1649.8	1645.1	1699.5	1790.1
Average Daily Volumes delivered in-state						
(000) bpd	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
CND	---	---	---	---	---	---
LGT & USL	33.6	48	47.2	35.2	28.5	26.1
MED	5.6	2.4	3.1	1.1	4.1	0.001
HVY	207.4	209.8	214.7	224.3	247.2	256.2
Average Annual Volumes	246.6	260.2	265	260.6	279.8	282.3
Percentage of in-state delivery	16.0%	16.1%	16.1%	15.8%	16.5%	15.8%

Subpart 2. Facilities; maps.

List each large oil or LPG storage facility location, gas plant, large pipeline facility, and oil refinery associated with the transportation or distribution of the categories of petroleum products named in response to subpart 1, item A. Provide maps that represent the locations and interconnections of these facilities.

Table 7853.0510-2.1 lists the crude oil breakout tankage facility locations on the Enbridge system. Table 7853.0510-2.2 provides the current configuration of Enbridge's pipeline facilities. Figure 7853.0510-2 shows the location of these facilities as well as interconnecting receipt and delivery locations.

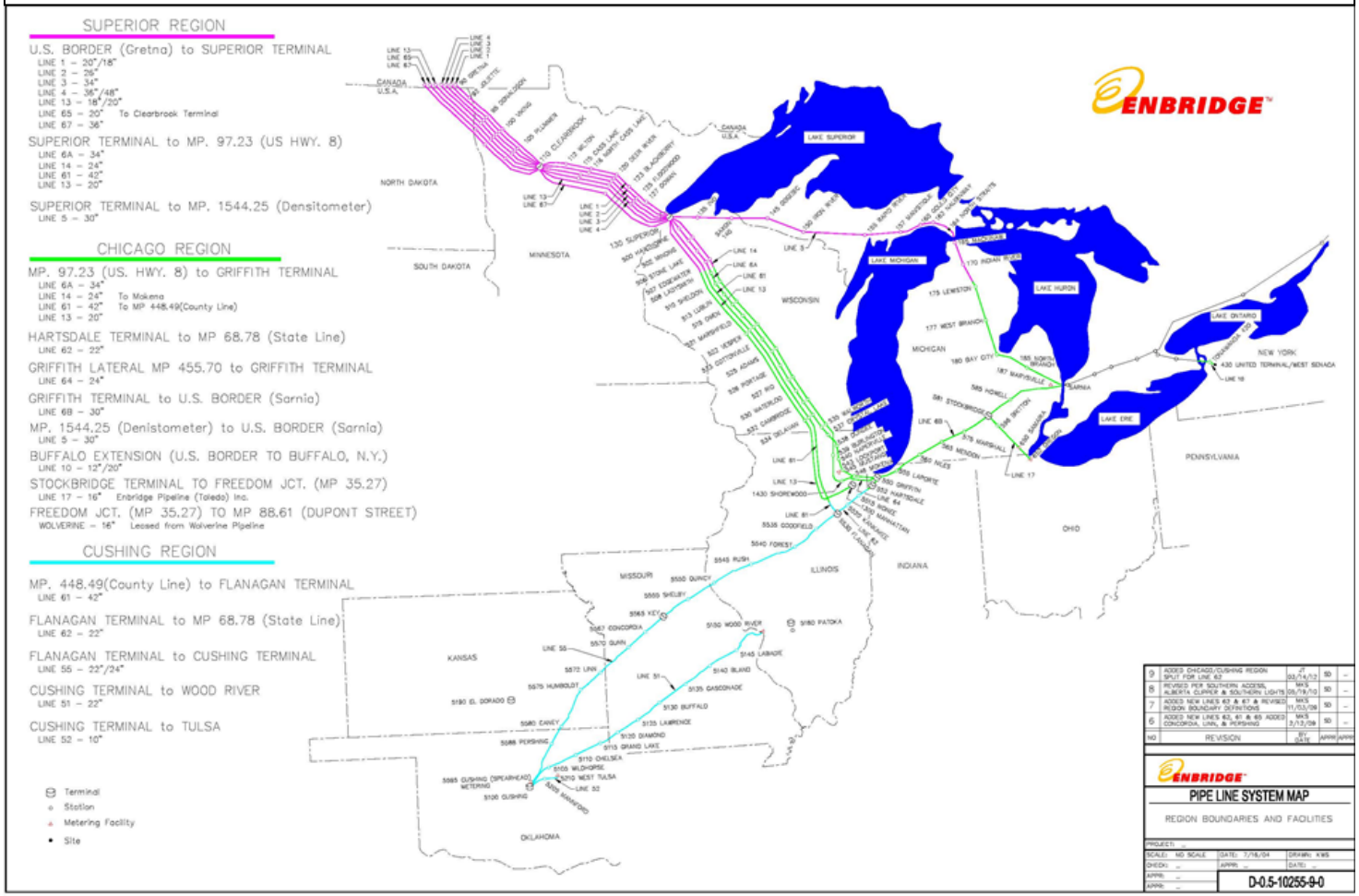
Table 7853.0510-2.1
Crude Oil Breakout Tankage Facilities

Location	Number of Tanks	Total Volume (Barrels)
Clearbrook, MN	9	1,315,000
Superior, WI	40	8,745,152
Griffith/Schererville, IN	11	2,845,808
Hartsdale, IN	9	900,000
Flanagan, IL	7	1,000,000
Cushing, OK	82	18,683,000

Table 7853.0510-2.2 Enbridge Lakehead System			
Location	**Line Number**	**O.D. (Inches)**	**Length (Miles)**
International Border to Superior, WI	1 (Border to Clearbrook, MN)	20	136.13
	1 (Clearbrook to Superior, WI)	18	188.28
	2	26	324.41
	3	34	324.38
	4 (Border to Clearbrook, MN)	36/48	96.05/39.06
	4 (Clearbrook to Superior, WI)	36/48	111.21/77.48
	65 (Border to Clearbrook, MN)	20	136.58
	67	36	327.09
Superior, WI to Sarnia, Ont.	5	30	637.22
Superior, WI to Griffith, IN	6A	34	465.41
	14	24	461.15
	64	24	26.06
Superior, WI to Flanagan, IL	61	42	461.85
Stockbridge, MI to Van Buren Township, MI	79	20	33.38
	Wolverine Line (Leased)	16	29
Griffith, IN to Sarnia, Ont.	6B	30	285.64
	Loops	30	99.48 (Inactive)

Table 7853.0510-2.2 Enbridge Lakehead System			
Location	**Line Number**	**O.D. (Inches)**	**Length (Miles)**
Buffalo, NY Extension	10	12	18.22
	10 (Across Grand Island, NY)	20	4.38
Toledo, OH to Line 6B	17	16	35.27
Griffith, IN to Cushing, OK	55 (Key, MO to Flanagan, IL)	22	251.01
	55 (Cushing, OK to Key, MO)	24	330.09
Cushing, OK to Tulsa, OK	52	10	47.08 (Inactive)
Cushing, OK to Wood River, IL	51	22	432.82

Figure 7853.0510-2
Pipeline System Map



Subpart 3 Use of design capacity.

For each large energy facility or location listed in response to subpart 2, located in Minnesota and owned or operated by the applicant, provide the average percentage of use of its full design capacity during the summer season and during the winter season.

Table 7853.0510-3-1 lists the average percentage of use for the Enbridge Lakehead System during the summer and winter season.

Table 7853.0510-3-1
Enbridge Lakehead System 2012 Percentage of Annual Capacity [a]

	Summer	Winter
Line 1	68.45%	67.99%
Line 2B	64.68%	59.88%
Line 3	75.12%	74.42%
Line 4	72.63%	72.14%
Line 13 [b]	38.39%	38.69%
Line 67	77.56%	75.75%

[a] Enbridge anticipates that Line 67 will be at the capacity requested in the Line 67 Station Upgrade Project – Phase 1 filing (PL-9/CN-12-590) by 2015 as described in 7853.0520.
[b] Line 13 is in the geographic vicinity of the Lakehead system but is not part of the system. Line 13 is in diluent use and transports product south to north.

PUBLIC VERSION

7853.0520 FORECAST DATA

This section of the Application provides information regarding the category of products, volume of product transported, forecasts for future transportation, methods for developing the forecast, and planned future development. This is market sensitive information which Enbridge has designation as **TRADE SECRET AND PRIVILEGED INFORMATION—NOT FOR PUBLIC DISCLOSURE** under Minn. R. 7829.0500. This information was prepared by Enbridge. The information relates to the Applicants' position in the market for transmission of crude oil generally. The section was prepared in June 2013.

7853.0530 DESCRIPTION OF PROPOSED FACILITY

Subpart 1. Design.

The applicant shall provide the following information pertaining to the design of the proposed construction of a large petroleum pipeline:

A. if known, the complete name and address of the engineer and firm to be responsible for the design:

Company Engineer	Engineering Design Firm
Jeff Jurgens, PE	
Enbridge Energy, Limited Partnership	LHB
4628 Mike Colalillo Drive	21 West Superior St, Ste. 300
Duluth, MN 55802	Duluth, MN 55802

B. the estimated tariffs, annual operating and maintenance costs, and economic life;

As an interstate common-carrier of crude petroleum, Enbridge's rates, tariffs, and accounting practices are subject to the regulatory authority of the FERC. The rates for the Project will be filed in accordance with applicable FERC rules and regulations, and approved by FERC prior to placing the facilities in-service.

The anticipated economic life of these facilities will be no less than 25 years. [1]

C. a list of the categories of petroleum products the large pipeline is intended to transport;

As defined in its FERC Tariff on Rules and Regulations, Enbridge currently transports the following commodities within its multi-pipeline system:

Condensate (CND)
Light Crude Petroleum (LGT and USL)
Medium Crude Petroleum (MED)
Heavy Crude Petroleum (HVY)
Natural Gas Liquid (NGL)

Line 67 primarily transports the following liquid petroleum commodity:

Light Crude Petroleum (LGT)
Heavy Crude Petroleum (HVY)

[1] The economic life of a pipeline or pump station is not the same as the physical life of the facility, which is indefinite with proper construction and maintenance practices.

D. its initial and ultimate design capacities in barrels per day, its diameter, length in Minnesota, maximum number of pumping stations in Minnesota, and nominal station spacing;

Initial capacity (BPD): 570,000[2]

Project annual capacity (BPD): 800,000

Ultimate design capacity (BPD): 880,000

Length and diameter of pipeline: Not applicable. No new pipeline is being proposed herein.

Pump Stations: Installation of four (4) pumping stations (Donaldson, Plummer, Cass Lake, and Floodwood Pump Stations) and modifications to three (3) existing pumping stations (Viking, Clearbrook, and Deer River Pump Stations).

Delivery Station: Upgrade one (1) delivery station (Clearbrook Tank Farm & Terminal Facility).

Nominal Station Spacing:

Table 7853.0530-1-D.1

From	To	Distance (Miles)
U.S.-Canadian Border	Donaldson	40
Donaldson	Viking	34
Viking	Plummer	29
Plummer	Clearbrook Terminal[1]	32
Clearbrook Terminal	Cass Lake	44
Cass Lake	Deer River	43
Deer River	Floodwood	43
Floodwood	Wisconsin state line	41

[1] The Clearbrook pump station is located within the Clearbrook Terminal.

[2] This figure assumes MN PUC completion of Enbridge's Line 67 Station Upgrade Project - Phase 1.

E. Engineering data, including the following:

(1) a pipeline system map showing the route, mileage, location of pumping stations, mainline valves, petroleum storage facilities and interconnections;

An overview map showing the location of the existing Enbridge Mainline System is attached hereto as Exhibit A. Also attached are Exhibits B.1 and B.2, overview maps showing the location of the station sites to be upgraded in Kittson, Marshall, Red Lake, Clearwater, Cass, Itasca, and St. Louis Counties, Minnesota.

Enbridge plans to install new pumping units at or near existing Enbridge facilities at Donaldson, Plummer, Cass Lake, and Floodwood, Minnesota. Upgrades will be completed at three additional existing station sites near Viking, Clearbrook, and Deer River, Minnesota. Station plat maps of the pumping units and minor station piping modifications are depicted on station plat drawings enclosed herewith as Exhibits B.3 through B.9

In Minnesota, the only interconnection with other pipelines is located at Enbridge's existing Clearbrook Tank and Terminal Facility, where Enbridge's North Dakota pipeline system and the Minnesota Pipe Line Company's MinnCan pipeline connect to the Lakehead System. These connections allow crude oil deliveries to Minnesota refineries and to the Lakehead System for further delivery to refineries in the Midwest and beyond. (*see* Exhibit A)

(2) specifications for pipe (diameter, length, wall thickness, grade) and valves (diameter and American National Standards Institute rating) with the maximum allowable operating pressure for each;

No new pipeline is proposed herewith other than minor station piping that may be necessary within the existing station sites.

Enbridge designed and built Line 67 to accommodate the increased volume of oil requested in this Application.[3] Enbridge has established a

[3] Application for a Routing Permit for a Crude Oil Pipeline, MN PUC Docket PL9/PPL-07-361, Section 4415.0130, p. 1, filed June 22, 2007(available on e-dockets at https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showPoup&documentId={B2AA69D8-2E47-4DB7-8ADD-A9E656F8FD5E}&documentTitle=4407883); Finding 99, Summary of Testimony at the Public Hearings, Findings of Fact, Conclusions and Recommendations, MN PUC Docket No. PL9/PPL-07-361, (available on e-dockets at https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showPoup&documentId={4DD7F8C3-5475-4605-8AB1-3C5BF29DE857}&documentTitle=5361439), adopted by the Commission in its Order Granting Pipeline Routing Permit, p. 16, para. 2, MN PUC Docket No. PL9/PPL-07-361, issued December 29, 2008 (available on e-dockets at

maximum allowable operating pressure ("MAOP")[4] for Line 67 that ranges between 1050 pounds per square inch ("psi") to 1313 psi, which represents an annual capacity of 800,000 bpd of heavy crude. The table below represents the MAOP on the discharge side of each existing and proposed Line 67 pump station.

Table 7853.0530-1-E.1
MAOP on Discharge Side of Stations

Pump Station	MAOP (psi)
Donaldson	1226
Viking	1137
Plummer	1050
Clearbrook	1313
Cass Lake	1137
Deer River	1313
Floodwood	1137

(3) for the pumps, representative specifications including diameter, allowable maximum operating pressures and maximum capacities;

As stated in Section 7853.0230, Enbridge proposes to install new pumping units at or near its existing Donaldson, Plummer, Cass Lake, and Floodwood Pump Stations in Kittson, Plummer, Cass, and St. Louis Counties, Minnesota as well as minor station modifications at its existing Viking, Clearbrook, and Deer River Pump Stations in Marshall, Clearwater, and Itasca Counties, Minnesota. All work activities will be located on land which Enbridge owns or will acquire in fee. The specifications of the proposed new units are provided in Table 7853.0530-1-E.2.

https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showPoup&documentId={1A768312-0514-43E9-82C9-4862E89F58AE}&documentTitle=5679135).

[4] Maximum allowable operating pressure ("MAOP") means the maximum pressure that is allowed for a pipeline or segment of a pipeline to be properly operated.

Table 7853.0530-1-E.2 Pump Station Specifications						
PUMP STATION	**UNIT**	**Inlet Diameter (Inches)**	**Impeller Diameter (Inches)**	**Pump Maximum Allowable Operating Pressure (psig)**	**Maximum Annual Capacity (bpd)**	**Max. Power Capacity of Motors (hp)**
Donaldson	1	24	29.68	1440	800,000	6,000
	2	24	29.68	1440	800,000	6,000
	3	24	29.68	1440	800,000	6,000
Viking	3	24	29.68	1440	800,000	6,000
Plummer	1	24	29.68	1440	800,000	6,000
	2	24	29.68	1440	800,000	6,000
	3	24	29.68	1440	800,000	6,000
Clearbrook	3	24	29.68	1440	800,000	6,000
	4	24	29.68	1440	800,000	6,000
Cass Lake	1	24	29.68	1440	800,000	6,000
	2	24	29.68	1440	800,000	6,000
	3	24	29.68	1440	800,000	6,000
Deer River	3	24	29.68	1440	800,000	6,000
	4	24	29.68	1440	800,000	6,000
Floodwood	1	24	29.68	1440	800,000	6,000
	2	24	29.68	1440	800,000	6,000
	3	24	29.68	1440	800,000	6,000

(4) for the prime movers, representative specifications including type, allowable maximum power capacity in horsepower, efficiency, allowable maximum and minimum operating temperatures, and energy requirement in Btu per barrel per mile of petroleum product pumped.

The maximum power capacity of the prime movers are designed as shown in Table 7853.0530-1-E.2. All prime movers are 4,160 volt, three phase electrical motors. The minimum design efficiency of these motors is 96% at 100% load. They are designed to operate at ambient temperatures up to 104°F. The energy requirement to operate these motors is approximately 25 Btu/barrel/mile. This is based on an annual throughput of 800,000 bpd.

Subpart 2. Construction.

The applicant shall provide the following information pertaining to the proposed construction of the facility:

A. if known, the complete name and address of the company to be responsible for the construction;

The construction contractor will be determined by competitive bid, considering only qualified pipeline station and pump station contractors.

B. the proposed date for commencement of construction and the proposed in-service date; and

Proposed commencement date for construction is as soon as July, 2014, pending approval of this Application from the Minnesota Public Utilities Commission, and the proposed in-service date is July, 2015.

C. an estimate of the in-service date if the construction were to be on a full expedited basis.

If Construction were on a fully expedited basis the estimated in-service date is January, 2015.

Subpart 3. Operations.

The applicant shall provide the following information pertaining to the operation of the proposed facility:

A. the expected average percentage of use of the full design capacity of the proposed facility during each of the five years of operation;

The annual capacity will be fully utilized over each of the first five years of operation.

.

B. the expected maximum operating pressure and capacity of the proposed facility at peak demand;

The maximum annual flow capacity is 800,000 bpd of heavy crude using a MAOP of approximately 1440 psig at the pump stations. Controls are in place so that the mainline MAOP is not exceeded.

C. the expected power requirement from the prime movers at each station at peak demand (in kilowatts, thousands of cubic feet per hour, or gallons per hour);

The new pumping units will be installed at or near the existing Donaldson, Plummer, Cass Lake, and Floodwood Station sites in Kittson, Red Lake, Cass, and St. Louis Counties, Minnesota as well as minor station modifications at its existing Viking, Clearbrook, and Deer River Pump Stations in Marshall, Clearwater, and Itasca Counties, Minnesota. The expected incremental power requirements from the prime movers at the new pumping stations at peak demand are included in Table 7853.0530-3-C.1. There are not any expected incremental power requirements at the existing Viking, Clearbrook, and Deer River Pump Stations.

Table 7853.0530-3-C.1
Incremental Power Requirements From the Prime Movers

Name of Minnesota Station	Power Requirements (MVA)
Donaldson	13.5
Plummer	13.5
Cass Lake	13.5
Floodwood	13.5

D. a list of expected sources of supply or shippers of petroleum products for transportation during the first five calendar years of operation, designated either as in-state or as out-of-state, the expected dates and durations of the contracts with the 25 largest suppliers or shippers, the categories of petroleum products and quantities expected to be involved, and for sources of crude oil, the expected geographical areas of origin of the crude oil; and

All of the crude petroleum to be transported on Line 67 originates outside Minnesota. Line 67 is an open access common-carrier pipeline; shippers are not required to execute contracts for carriage. The tolls and tariff will be subject to FERC's approval. The primary geographical source for the heavy crude feedstock, referenced in Subpart 1(D) above, is the WCSB.

E. a list of expected recipients of the transported petroleum products during the first five calendar years of operation, designated either as in-state or as out-of-state, the expected dates and durations of the contracts with the 25 largest recipients, and the categories of petroleum products and quantities expected to be involved.

As a common-carrier pipeline, the recipients of the crude oil could be any number of directly or indirectly connected refineries, as indicated on the Table 7853.0240-C.1 in Section 7843.0240. The Project will have interconnecting facilities at Clearbrook, so a portion of the volume transported could be redirected through the Clearbrook Terminal and into Minnesota Pipe Line facilities to serve refineries in Minnesota. This enables shippers to transport additional volumes on the Enbridge Mainline System in order to deliver into the facilities of non-affiliated Minnesota Pipe Line or back into the Lakehead System for ultimate delivery to downstream markets. Table 7853.0510-1-D.1 provides the historical in-state and out-of-state crude petroleum deliveries on an annual basis.

7853.0540 ALTERNATIVE ANALYSIS

The applicant shall provide information pertaining to the alternatives that have been considered, and the information shall be presented in the following format:

A. a description of the alternative, including:

(1) a discussion of the design and the geographical area affected;
(2) an estimate of the in-service date;
(3) a discussion of the method of operation;
(4) its costs;
(5) its economic life; and
(6) its reliability;

Enbridge's alternative analysis involved consideration of environmental, engineering and economic factors. The following alternatives to the Project were considered:

A. Line 67 Station Upgrade Project

The Project will increase the capacity of the Line 67 pipeline. This 36-inch pipeline runs from Hardisty, Alberta to the Enbridge Terminal Facility in Superior, Wisconsin. Line 67 was designed with an initial capacity of 450,000 bpd and an ultimate annual design capacity of 800,000 bpd, attainable upon addition of pumping horsepower at or near existing facilities. Enbridge applied for permission to expand Line 67 to 570,000 bpd annual capacity through its Line 67 Expansion Project, Phase 1, in 2012. Expansion to the ultimate annual design capacity of Line 67 is now being proposed through this Project. Enbridge designed and constructed Line 67 in a manner that can provide this additional capacity without constructing new pipelines in the right-of-way. In order to review alternatives to the proposed Project, it is important to recap the scope of the 2010 Alberta Clipper Project, which installed Line 67.

- 326 miles of new pipeline were installed in 2010 in the United States, located along an existing pipeline route and pre-disturbed right-of-way.
- Three pump stations, booster pumps, and manifold connections at existing station and terminal sites were constructed in the United States.
- The project was integrated with the Enbridge Mainline System to optimize the use of tankage at Clearbrook, Minnesota and Superior, Wisconsin, operating and maintenance personnel and equipment, co-inspections and optimization of pipeline usage between adjacent pipelines during outages of one or more of the parallel pipelines.
- Connections were constructed at Clearbrook to facilitate deliveries to Minnesota refineries via third party pipelines.

- Interconnections were made at Superior with existing Enbridge liquid petroleum pipelines to maximize potential markets served by providing flexibility for shippers.

Enbridge investigated a number of alternatives before determining that the Project was the most economic and feasible expansion available to provide the increased capacity requested by shippers out of the WCSB and into the United States Midwest markets. Enbridge has found that an expansion through the addition of horsepower at existing stations is an efficient and economical way to increase the capacity of a pipeline that has been designed for such expansion.

A.1 No Action Alternative:

In light of the overall increase in WCSB production and the requirements of Enbridge's shippers to increase pipeline capacity on the Enbridge Mainline System, the "no action" alternative is unacceptable to Enbridge and its shippers, and to the consuming public which require increasing supplies from secure sources.

A.2 New Pipeline Alternative

A new 24 inch pipeline could be constructed to accommodate the 230,000 bpd increase in annual capacity that Enbridge proposes to transport after construction of the Project. It would run parallel to Line 67, utilizing the existing right-of-way and existing facilities along the Enbridge Mainline System. New pipeline construction would require excavation of the existing right-of-way, construction of new pump stations at existing facility sites or new locations, depending on system hydraulics. A new pipeline would be approximately 990 miles long, between Hardisty, Alberta and Superior, Wisconsin. A new pipeline would provide flexible and scalable incremental capacity out of the WCSB to Midwestern refineries.

However, a new pipeline would require major construction across the State of Minnesota. The environmental impact caused by construction of a new pipeline would be greater than that of the limited facility expansions proposed in the Project. The approximate cost for a new pipeline from Hardisty to Superior to transport an annual capacity of 230,000 bpd would exceed U.S. $2.5 Billion, which is orders of magnitude higher than the cost of the Project. For these reasons, Enbridge determined that the Project is more economically and environmentally feasible than construction of a new pipeline.

A.3 Keystone XL Pipeline Alternative

The Keystone XL Pipeline is a planned pipeline project with an initial capacity of 830,000 bpd. The Project is owned by TransCanada and, as proposed, would be located in Canada and the United Sates. The Project has obtained regulatory approval in Canada and is currently pursuing regulatory approvals at the federal and state levels in the United States in order to proceed to construction. The Project is supported by confidential contracts and, as such, commercial details are not publicly available. Public information about the Project can be found on its

website at www.transcanada.com/keystone.html. That website also provides links to news releases and regulatory proceedings.

Industry forecasts for supply growth from western Canada consistently show supply growth in excess of 1.9 million barrels per day by 2020. With this very significant supply growth, the Line 67 Station Upgrades and the Keystone XL pipeline are not competing for the same production. It should also be noted that Line 67 and the Keystone XL pipeline proposal serve different markets. The Keystone XL pipeline will not provide needed pipeline capacity to refineries in Minnesota, Wisconsin, the greater Chicago area, and other Midwest refineries. Enbridge and Keystone will continue to compete in the Wood River and Patoka markets. Western Canadian producers support both the Keystone XL pipeline and the Line 67 Station Upgrade Projects.

A.4 Trucking Alternative:

There is insufficient tanker trailer truck capacity to transport the incremental annual capacity of 230,000 barrels of crude oil per day that would be moved by the Project. A trucking alternative would significantly overburden current public road capacity. Even if the truck capacity issue could be resolved, Enbridge or its shippers would need to expand truck loading/unloading facilities at suitable locations to allow receipt into the Enbridge Superior Tank Farm and Terminal Facility. While trucks are a vital part of the crude oil gathering and distribution network, pipelines are a safer and more economical alternative for transporting this volume of crude oil for these distances. The potential in-service date of additional trucking, road and loading/unloading capacity is not known. The reliability of this alternative in northern climates is compromised by periodic restrictions on truck traffic due to winter storms, spring road restrictions, other weather conditions or road weight capacity restrictions.

A.4.(1) a discussion of the design and the geographical area affected: A fleet of thousands of tractors and trailers would be required to transport the incremental annual capacity of 230,000 bpd of crude oil that will be transported by the Project, as detailed below:

Computation of Trucking Requirements
Crude oil volumes = 230,000 bpd
Per Truck capacity = 200 barrels per truck
Number of trucks required = 230,000 / 200 = 1,150 trucks per day
Assume each truck requires loading, in-transit full (3 days), in-transit empty (3 days) and unloading time
Number of trucks in transit = 1,150 X 3 days = 3,450 trucks
Number of trucks returning empty = 1,150 x 3 = 3,450 trucks
20% of the in-transit trucks loading and unloading = 1,380 trucks
Total truck requirements = 3,450+3,450+1,380 = 8,280 trucks
(ignoring scheduled/unscheduled down time)

In order to facilitate this operation, significant truck loading and offloading terminal facilities would have to be constructed at Hardisty and Superior. The route would require over 2,300 trucks per day to cross the international border, adding a significant burden to personnel on both sides of the border. In addition, it is likely that substantial upgrades to and ongoing maintenance of the connecting roadways along the entire route would be required, all at public expense.

A.4.(2) an estimate of the in-service date: Enbridge believes that it is impossible for the required terminal facilities at both Hardisty and Superior to be constructed on the same timeline as the Project. Enbridge does not have an estimate of the time required to acquire the trucking fleet described above, how long it would take to attract and train the associated drivers, or how extensive the roadway upgrade program would be.

A.4.(3) a discussion of the method of operation: The trucking operation would be highly labor intensive, with a significant workforce required at both terminal locations to allow for constant loading and offloading operations. The trucking option would require a significant driver pool to maintain the constant movement of the entire truck fleet.

A.4.(4) its costs: Enbridge is not aware of any trucking operation on the annual capacity of 230,000 bpd scale that could provide cost comparisons. However, the trucking costs for this alternative could be anticipated to be in the hundreds of millions of dollars per year range (ignoring the costs of new vehicles and necessary infrastructure facilities).

A.4.(5) its economic life: With the mileage that the trucks would incur in steady service, Enbridge estimates that the economic life of a truck would not exceed 4 to 5 years. The truck loading and unloading terminals would have an estimated economic life of 25 years. Enbridge does not have an assessment of the impact that this amount of truck traffic would have on the various roadways.

A.4.(6) its reliability: This operation would be inherently much less reliable than the Project, as truck traffic is affected by weather conditions, mechanical failures, manpower (driver) shortages, and road maintenance or closures. According to the NTSB, trucks have a significantly higher rate of accidents affecting driver and public safety than pipelines.

Trucking cannot compete with pipelines for volumes over long distances because of physical limitations on trucks, roads, and loading/unloading facilities that are required to sustain operations of this scale. According to the Research and Innovation Technology Administration, Bureau of Transportation Statistics, truck hazmat incidents occur approximately 1,066 more times per year than pipeline accidents.[1] Truck accidents also result in

[1] Manhattan Institute. Pipelines Are Safest for Transportation of Oil and Gas. June 2012. http://www.manhattan-institute.org/html/ir_17.htm

fires and/or explosions about 46 times more frequently per barrel of oil transported per mile.[2] Therefore this alternative was not further considered.

A.5 Rail Alternative:

Sufficient rail tanker car capacity does not exist to transport the incremental annual capacity of 230,000 bpd to Superior, Wisconsin. This alternative would require the construction (by Enbridge or its shippers) of rail car loading and off-loading facilities. Construction of new lateral above ground rail service lines would be required and would pose additional risk and impact to landowners and the public. While rail tanker cars are a vital part of the short-haul distribution network for crude oil, pipelines are a safer and more economic transportation alternative. The potential in-service date of additional truck-to-rail, rail tanker car, rail line, and off-loading capacity is not known. The reliability of this alternative in northern climates is compromised by periodic restriction in truck traffic required to deliver crude oil to rail facilities due to winter storms and spring road restrictions or other weather related or road capacity restrictions.

A.5.(1) a discussion of the design and the geographical area affected; in order to transport an annual capacity of 230,000 bpd of heavy oil, a fleet of rail cars would be required as detailed below:

Computation of Railcar Requirements
Crude oil volumes = 230,000 bpd
Rail car capacity = 600 barrels per rail car
Tank cars required = 230,000/600 = 384 rail cars per day
Estimated time to move each rail car from Hardisty to Superior (various carriers and through various rail assembly yards) = 10-15 days
Number of cars in transit = 384 X 15 days = 5,760 cars
Number of cars returning empty = 384 X 15 = 5,760 cars
20% of the in-transit cars loading and unloading = 2,304 cars
Total tank car requirements = 5,760+5,760+2,304 = 13,824 cars (ignoring scheduled/unscheduled down time)

Approximately 13,824 rail cars would have to be in route each day, making the roundtrip between those two locations in approximately 20 to 30 days. In order to facilitate this operation, significant spur lines, rail sidings, and terminal facilities would have to be constructed at Hardisty and Superior. Substantial upgrades and ongoing maintenance would be required to the connecting railways.

A.5.(2) an estimate of the in-service date: Enbridge believes that it is impossible for terminal facilities at both Hardisty and Superior to be constructed on the same timeline as the Project. Enbridge does not know if the number of rail cars required is available, nor does Enbridge have an estimate of the time

[2] Source: *Allegro Energy Group as posted on the Association of Oil Pipelines website,* comparison was based on calculated rates per ton-mile.

that would be required to manufacture them. Finally, Enbridge does not have an estimate of the time required to construct the necessary upgrades associated with the railway infrastructure.

A.5.(3) a discussion of the method of operation: This operation would be highly labor intensive, with a significant workforce required at both terminal locations to allow for the constant loading and offloading requirements and railcar operation.

A.5.(4) its costs: Enbridge is not aware of any rail operation on the annual capacity of 230,000 bpd scale required that could provide cost comparisons. The rail costs for this alternative could be anticipated to be in the hundreds of millions of dollars per year range (without considering the costs of new rolling stock and infrastructure facilities necessary).

A.5.(5) its economic life: With mileage that the cars would incur in steady service, the applicant estimates that the economic life of a rail car would not exceed 10 to 15 years. The rail loading and unloading terminals would have an estimated economic life of 25 years.

A.5.(6) its reliability: This operation would be inherently much less reliable than the Project. The entire operation would be subject to weather related delays, delays caused by scheduling conflicting rail traffic, and a significant mechanical/maintenance requirement exposure based on the number of rail cars involved in this operation.

The transporting of crude oil by rail has increased due to the urgent need for additional pipeline infrastructure and transportation capacity.[3] However, the cost is significantly higher ($2 for pipeline versus $12 for rail) and risk of rail accidents is approximately 9 times higher than that of a pipeline.[4] Rail accidents result in fires and/or explosions about 2 times more frequently per barrel of oil transported per mile.[5]

A.6 Alternative Enbridge Pipeline route:

No alternative Enbridge Pipeline route was considered because Enbridge does not propose to install a new pipeline as part of the Project.

Enbridge proposes to increase its pipeline capacity by optimizing its existing pipeline system through the installation of new pumping units at existing station sites, as described in more detail in Section 7853.0230. Enbridge believes this is the most efficient and cost effective combination of capital investment and pumping horsepower requirements for the required system capacity.

[3] 2012 Annual CAPP Long-Term Outlook Report, Page iii.
[4] See RITA, Bureau of Transportation Statistics, Table 2-3: Transportation Accidents by Mode at http://www.bts.gov/publications/national_transportation_statistics/html/table_02_03.html
[5] Source: *Allegro Energy Group as posted on the Association of Oil Pipelines website,* comparison was based on calculated rates per ton-mile.

- The in-service date for the Project is on or before July 1, 2015.
- The Project operations will be integrated with those of the Enbridge Mainline System.
- The cost of the Minnesota portion of the Project is $ 159.3 million.
- The economic life of the Project for this purpose is based on a 25-year depreciation; however, the functional life of the proposed facilities are indefinite following normal maintenance and inspection practices of the federally-regulated interstate pipeline system.
- The System operates year-round, around-the-clock, with the exception of planned system down-time for inspection, maintenance or repair purposes or unplanned down-time due to interruptions in receipts, refinery outages and/or operational disruptions caused by regional power outages, or other reasons.

B. a summary of the conclusions reached with respect to the alternative and the reason for its rejection

The objective of providing a cost effective and efficient way to transport crude oil between Hardisty, Alberta, Canada and Superior, Wisconsin is met by the Project presented in this Application. The Project minimizes impacts to the environment, the public, and landowners compared to the alternatives discussed above. When integrated with the Enbridge Mainline System, the Project provides the safest, most efficient and cost effective alternative to link the growing demand for crude oil supplies in the Midwest with increased reliable supplies from Canada. Thus, the Project was selected over all other alternatives discussed in this section.

7853.0600 INFORMATION REQUIRED

Each applicant shall provide environmental data for the proposed facility and for each alternative discussed in response to Section 7853.0540, to the extent that such data is reasonably available. Environmental data for each pipeline considered shall conform to the format given in Sections 7853.0600 to 7853.0640. Information for each of the other types of alternatives considered shall include:

A. a list of the natural and cultural resources, as given in Section 7853.0610, subpart 2, items G to K, that would be directly impacted; and

General information reasonably available for direct impacts to natural and cultural resources from the alternatives discussed in Section 7853.0540 is provided below.

A.1 No Action Alternative:

The no-action alternative would have no environmental impact. This alternative, however, will not meet the needs of Enbridge's shippers and will not meet the public demand for increased, secure supplies of crude oil to be refined into products in high demand.

A.2 Pipeline System Alternatives:

As discussed in section 7853.0540, no feasible alternative Enbridge pipeline system currently exists to deliver the proposed crude oil volume to Enbridge's Superior Terminal. Impacts of a new, parallel pipeline are discussed in greater detail below.

An alternative pipeline route would not take advantage of Enbridge's original plan to optimize the pipeline capacity on Enbridge's existing pipeline system traversing Minnesota from Canada, through North Dakota, and into Superior, Wisconsin. As proposed, the Project has fewer environmental impacts than construction of an entirely new pipeline.

To install a new parallel pipeline, Enbridge would need to design, permit, and construct a new 24 inch diameter pipeline through Minnesota. Using Line 67 as a guide, the total pipeline length would be just less than 1,000 miles long, with approximately 285 miles in Minnesota, depending on the final route.

A new pipeline could conceivably run generally parallel to Line 67. A new line would require clearing, grading, trench excavation, backfilling, and restoration of the disturbed areas. Additionally, a new pipeline would require expansion of existing pump stations or construction of new pump stations depending on system hydraulics, new mainline valves, temporary contractor and pipe yards,

and temporary access roads. Table 7853.0600-1 summarizes the potential impacts of the new pipeline alternative within Minnesota based on the impacts associated with construction of Line 67.

Table 7853.0600-1
Comparison of Alternatives
Line 67 Expansion or New Pipeline Alternative
Environmental Impacts in Minnesota

Feature	Unit	Line 67 Phase 2 Expansion	Installation Of New Pipe
New pipeline length	Miles	0	285
Co-located with utility	Miles	0	285 [a]
Temporary construction right-of-way	Acres	0	3,455
New permanent right-of-way	Acres	0	1,728 [b]
Waterbodies crossed	Number	0	171
Wetlands	Acres	6.2	875 [c]
Forested lands	Acres	20.2	592.5 [d]
Developed lands	Acres	0.1	303.8 [d]
Chippewa National Forest	Miles	0	34.1
Leech Lake Reservation	Miles	0	42.7
Fond Du Lac Reservation	Miles	0	13.0
Approximate cost	Dollars	$ 159.3 M	$ 700 M[e]
Contractor yards / Pipe storage yards	Acres	0	850
Temporary access roads	miles	0	54

[a] Assumes new pipeline would be co-located with Line 67 for the entire length.
[b] Assumes a 50-foot permanent right-of-way
[c] Assumes a 100-foot temporary construction right-of-way through wetlands and that wetland impacts would be similar to those encountered during construction of Line 67.
[d] Assumes a 100-foot temporary construction right-of-way.
[e] Minnesota portion only. The total cost of an entirely new 24 inch diameter parallel pipeline in Minnesota is approximately US $2.5 billion.

As shown in Table 7853.0600-1, a number of waterbodies, wetlands, forestlands and developed lands would be crossed by the construction of a new pipeline. The route would also cross U.S. Forest Service land (the Chippewa National Forest), and two Native American reservations.

Construction of a new pipeline to transport the 230,000 bpd volume is technically feasible; however, it would result in additional environmental impacts beyond those associated with the proposed Project, and would not allow Enbridge to

utilize the full design capacity of Line 67. To meet the increased demand for petroleum transportation services, Enbridge determined that the Project is more feasible than construction of a new pipeline. Additional pipelines will be necessary if demand for crude oil continues to increase beyond the design capacity of Enbridge's existing pipeline system. Line 67, however, was designed to facilitate the capacity increase proposed in Phase 2 without construction of a new pipeline.

A.3 Keystone XL Pipeline Alternative:

As discussed in section 7853.0540, the Keystone XL pipeline will not provide needed pipeline capacity to refineries in Minnesota, Wisconsin, the greater Chicago area and other Midwest refineries served by the Enbridge Mainline System.

A.4 Trucking Alternative:

As discussed in Section 7853.0540, moving an additional 230,000 bpd of crude oil would place 8,280 semi tractors and trailers (3,450 traveling in each direction, to and from Superior, Wisconsin plus 1,380 loading or unloading) on the roads of North Dakota, Minnesota and Wisconsin around the clock, every day of the year. The environmental impacts of this alternative would include fugitive emissions from thousands of semi-tractors in constant operation. In addition, the vastly increased vehicle traffic on two-lane roads would be extremely disruptive to the populace and wildlife of the region. Finally, new unloading facilities would be required at the Superior Terminal.

Enbridge cannot describe the natural and cultural features that would be impacted by this alternative because of the varying routes that trucks could travel between Hardisty, Alberta and Superior, Wisconsin. Avoiding new facilities in Minnesota for the Trucking Alternative may be feasible. Additional information is not immediately available.

A.5 Rail Alternative:

Moving the same volume of crude oil by rail could require the construction of a new railroad link in Minnesota, possibly including loading facilities either in Minnesota, North Dakota or Canada, and rail car unloading facilities in Minnesota or Wisconsin. A rail alternative in Minnesota would, at a minimum, require full rail transportation from western Minnesota to eastern Minnesota, possibly requiring new or improved rail lines.

If loading or unloading were to occur in Minnesota, the construction necessary for such loading and unloading facilities would require new land acquisition. The construction process would have environmental impacts, as would the constant flow of rail cars once the railroad link was placed into operation. At any one time,

13,824 rail cars transporting crude oil would be in transit through Minnesota. Environmental impacts of this alternative would likely include habitat and wetland loss during the construction of the rail link and the fugitive emissions from constant train engine operation.

Impacts to natural and cultural features cannot be described because Enbridge has not identified a feasible rail route through Minnesota, or preferred loading and unloading options. Acquiring this information would be unreasonable under the current circumstances.

A.6 Alternative Enbridge Pipeline route:

Enbridge has not analyzed an alternative pipeline route for a new pipeline as an alternative to the Project. Responsible planning of a new pipeline route is an exercise that takes years of desktop planning, consultation with local officials, work with environmental and regulatory agencies, consultations with landowners, and extensive survey work to locate a proposed pipeline. Due to the scale of this effort, Enbridge cannot provide specific environmental data on an alternative pipeline route.

B. a discussion of those applicable areas of environmental concern that are detailed in Sections 7853.0620 to 7853.0640.

Environmental data for the Project is provided in Sections 7853.0600 to 7853.0640.

Some detailed environmental information regarding the alternatives analyzed in Section 7853.0540 of this application is not reasonably available to the Applicant due to the scope of the alternatives. However, what information is available is presented in the following subsections.

B.1. No Action Alternative

The no-action alternative would not create any environmental impacts. This alternative, however, will not meet the needs of Enbridge's shippers and will not meet public demand for increased, secure supplies of crude oil.

B.2. Pipeline System Alternative

Instead of constructing the four new pump stations and limited pump station upgrades at the three existing pump stations described in this application, Enbridge could install an additional pipeline located parallel to its existing lines across Northern Minnesota. As discussed above, this alternative would not allow Enbridge to take advantage of the additional capacity designed into Line 67.

A new pipeline capable of transporting 230,000 bpd would be 24 inches in diameter. One option would be for the new pipeline to be constructed from Hardisty, Alberta, Canada to Superior, Wisconsin, approximately 990 miles. In the alternative, the new pipeline could be constructed only in Minnesota with facilities just west of the Minnesota-North Dakota border diverting 230,000 bpd from Line 67 to the new pipeline, and an additional facility just east of the Minnesota-Wisconsin border converging the 230,000 bpd into Line 67. In either case, the Minnesota portion would be approximately 285 miles long and, like the Project, would also require construction of additional pumping facilities. Enbridge estimates that the cost of a new parallel pipeline from Hardisty to Superior would be approximately U.S. $2.5 billion, including construction and restoration. The Minnesota portion alone would cost approximately U.S. $700 million. On the other hand, the cost of the Project, which is limited to new and upgraded pump station facilities in Minnesota, is approximately $159.3 million dollars.

Constructing a parallel pipeline would also unacceptably delay the addition of 230,000 bpd of capacity to the Enbridge Mainline System. Enbridge planned and built Line 67 to be expanded through this Project. Constructing a new pipeline, instead of the Project, would be extremely time consuming. Although Enbridge has extensive knowledge of its current route across Minnesota, significant work would be required to route the pipeline around environmental features, residences, population areas, and other features. Enbridge would also need to work with landowners to obtain additional workspace and right-of-way for a new pipeline. The expected in-service date of a new parallel pipeline could not meet the market demand to be satisfied by the Project. Restoration work would add additional time following construction. The Project, on the other hand, is expected to be operational by July 2015.

The environmental and social impact of a new pipeline would be significantly greater than that of the Project. Line 67 is the most recent pipeline constructed through the entire state, and serves as a reasonable example of the impact of installing a new pipeline.

The following sections include information about a new pipeline that is responsive to Minn. R. 7853.0600, B.

B.2.a. Wastewater, Air Emissions and Noise Sources

B.2.a.i. Point Discharges to Water

There are two general types of point discharges to water associated with pipeline construction. The first is hydrostatic test water, which is used to hydrostatically test the integrity of a new pipeline before it is placed into service. Hydrostatic test water is appropriated, after obtaining any relevant permits, from local streams, rivers, and lakes along the pipeline

route. Specific source waterbodies would be identified during detailed design work that has not been done for this alternative, and would require extensive work designing a new pipeline to complete. After testing is complete, the water would be discharged through energy dissipation devices either back to the source or onto upland areas.

The second type of discharge is from trench dewatering, the need for which varies based on terrain, construction conditions, water table levels, and weather. All trench dewatering is conducted according to applicable permits, and discharged water is filtered as required to reduce the amount of suspended soil in the discharge water.

Construction of a new pipeline would require acquisition of all applicable federal, state, and local permits. During the permit application process, Enbridge would be required to identify its appropriation and discharge locations. Enbridge would also be required to implement Best Management Practices ("BMPs") at the point of discharge to prevent degradation of water quality in the receiving waterbody.

B.2.a.ii. Area Runoff

The construction right-of-way and workspaces are potential sources for runoff. The primary pollutant associated with runoff is sediment from erosion, which can be reduced using erosion control measures and BMPs. Runoff can carry sediment into waterbodies adjacent to the workspaces and right-of-way. Other pollutants may be present if contaminated soil is encountered during the construction process. Enbridge would implement a contaminated soil control plan to mitigate any contaminated soils.

Area runoff from the construction phase of a project would be regulated under a National Pollutant Discharge Elimination System ("NPDES") permit. Enbridge would implement BMPs to minimize stormwater runoff, and would work with permitting agencies to take appropriate precautions to avoid impacts from runoff.

PHMSA prescribes pipeline design and operational requirements that limit the risk of accidental release from a pipeline. Enbridge has developed emergency response plans, and if it were to build a new pipeline, it would incorporate the new pipeline into its existing and ongoing pipeline operation and maintenance practices and emergency response planning.

Potential contamination sources in a construction area consist of various types of petroleum products such as fuels, hydraulic fluids, etc. Enbridge would ensure that its contractors were trained and equipped to implement project-specific plans to prevent and address spills, should they occur.

B.2.a.iii. Point Sources of Airborne Emissions

Construction of a new pipeline would create temporary airborne emissions associated with the operation of construction equipment. Fugitive dust can also occur during construction. Enbridge would ensure that emissions are minimized by maintaining construction equipment in good operating condition, implementing dust control measures, such as applying water as appropriate to stabilize soils, and reducing vehicle speeds.

An operating pipeline does not typically have any measurable air emissions during normal operation because pump facilities are generally electrically powered and do not consume transported petroleum as a source fuel. Any releases would come from fugitive vapors at storage tank sites or from unwelded connections within pump station sites. See Section 7853.0620 for additional information on operational air emissions, emission sources and release points.

B.2.a.iv. Noise

Construction of a new parallel pipeline would involve extensive use of heavy equipment during daylight hours. Noise levels depend on types of equipment, modes of operation, duration of use, and the distance between the noise and the noise sensitive area. Typical pipeline construction equipment, including bulldozers, loaders, backhoes, tractors and cranes, generate between 80 and 90 decibels of noise within 50 feet of their operation. Due to the assembly-line method of pipeline construction, construction activities in one area last from several weeks to several months on an intermittent basis. The majority of Enbridge's existing route crosses rural and undeveloped areas, resulting in minimal noise impact on the general public.

Pipelines generate no noise along the right-of-way during normal operation. The only noise sources would be located at pump stations, where pumps are located within enclosed buildings. The noise at the pump stations for a new parallel pipeline would be similar to the noise created by the Project.

B.2.b. Pollution Control and Safeguards Equipment

The pollution control and safeguard equipment used for a new parallel pipeline would be the same as those used for the Project once the pipeline was placed in operation.

B.2.b.i. Air Pollution Controls

Construction of a new parallel pipeline would result in fugitive emissions from the construction process. The emissions could include dust from disturbed soil and exhaust from construction equipment. Based on past construction experience, Enbridge does not believe that these fugitive emissions would result in the violation of any applicable ambient air quality standard.

Enbridge would ensure that dust control measures are implemented such as applying water as appropriate to stabilize soils, reducing vehicle speeds, and maintaining construction equipment in good operating conditions and with proper emissions control equipment installed to minimize engine emissions during construction. Also during construction, Enbridge would work to minimize operational time of equipment to reduce construction related emissions.

Daily operation of a parallel pipeline would be subject to the same air pollution controls described for the Project in this Application. Air pollution controls for construction related to the expansion of the facilities would be similar to those described for the proposed Project in Section 7853.0630 Subpart 1.

B.2.b.ii. Water Pollution Controls

Construction of a new parallel pipeline would require Enbridge to cross numerous lakes, streams, rivers and other waterbodies. A new pipeline paralleling Line 67 would potentially cross 171 streams, rivers, ditches and other flowing waterways in Minnesota. Additionally, a new line paralleling Line 67 would cross over 80 miles of wetlands of various types.

Enbridge would implement standardized erosion control and restoration measures to minimize and mitigate adverse environmental effects from construction of a new parallel pipeline. Enbridge would comply with all applicable local, state and federal regulations, and use internal and external environmental monitors to ensure that environmental protections are implemented appropriately. Erosion control measures would include but not be limited to:

- Minimizing surface disturbance;
- Restoration of disturbed areas, including revegetation;
- Decompaction of soil to minimize runoff after construction;
- Avoiding construction during wet conditions, if possible;
- Use of sediment barriers; and

- Installation of berms where required.

Work in wetlands or other waters would also be subject to rigorous controls, including, for example:

- Maintaining stream flow;
- Use of horizontal directional drilling, open cut or other crossing methods as appropriate;
- Use of bridges;
- Use of mats, ramps and other erosion control measures;
- Winter construction, if feasible and appropriate; and
- Revegetation.

Enbridge would also follow the requirements of all applicable regulatory agencies.

B.2.b.iii. Oil Spill, Fire, and Explosion Safeguards

Enbridge would implement refueling restrictions to minimize the risk of spills during construction. Oil spill, fire and explosion safeguards implemented during operation of a new parallel pipeline would be identical to those planned for the Project and described in this Application.

B.2.b.iv. Other Safeguards and Controls

Enbridge monitors areas disturbed by construction to ensure that proper revegetation has occurred. In addition to planting and monitoring the disturbed areas for vegetation, Enbridge works with landowners to ensure that agricultural lands return to their pre-construction productivity level.

Any new parallel pipeline would be subject to the same safeguards and control measures specified for the Project in this Application.

B.2.c. Induced Developments

B.2.c.i. Utility Use

The electricity consumption would be dependent on the size and number of the pumps required. Enbridge has not designed the pump facilities for an alternative pipeline and is therefore unable to estimate power consumption.

B.2.c.ii. Water Use

Water would be used to hydrostatically test any new pipeline, as described above. The quantity of water used for hydrostatic testing would be dependent on the final design size of the pipeline. Permits are required from the State of Minnesota and the Environmental Protection Agency ("EPA") to conduct both the appropriation of the water as well as for the discharge.

Additional water use is not expected during operation of a new parallel pipeline.

B.2.c.iii. Vehicular Traffic

Vehicular traffic would be impacted by construction of a new parallel pipeline, both through road crossings and increased traffic. Road crossings are typically performed either through boring or open-cut methods, depending on the particular road and conditions. Borings do not typically disrupt traffic, but open-cut crossings require detours or reduction of roads to one lane as pipe is installed. At the time Line 67 was installed, Enbridge identified 318 intersections of the pipeline with public roads. A new parallel line is likely to encounter a similar number.

Vehicular traffic would also increase during construction of a new parallel pipeline. At the time Line 67 was installed, Enbridge estimated that 11 truckloads of pipe joints were required per mile of construction. Construction crews and equipment would also create short-term impacts on traffic patterns during construction, typically in early morning and evening hours.

B.2.c.iv. Agriculture

For purposes of this analysis, Enbridge assumes the alternative new pipeline is parallel to Line 67 and therefore would have similar impact as the construction of Line 67. The Alberta Clipper Final Environmental Impact Statement noted that about 40 percent of the land cover crossed in Minnesota by the pipeline was in agricultural and open areas. About 3,386 acres of agricultural and open land were used for temporary construction right-of-way and temporary extra work areas in Minnesota.

Construction of a pipeline through agricultural land would result in crop loss and crop damage during and after construction as the land returned to full productive use. Enbridge would compensate landowners for crop losses as determined in easement negotiations. Soil would be conserved by stripping topsoil layers off and segregating topsoil from subsoil. Decompaction work would take place after construction. Enbridge would

avoid impacts to livestock by relocating livestock or, if necessary, providing safe crossings for livestock to move through the construction right-of-way.

B.2.c.v. Relocation of Persons

Enbridge does not anticipate relocation of any persons for this alternative, but definitive route planning would be required to determine this with certainty.

B.3. Keystone XL Pipeline System Alternative

The Keystone XL Pipeline System Alternative will not provide needed pipeline capacity to refineries in Minnesota, Wisconsin, the greater Chicago area and other Midwestern states. Enbridge was unable to gather the data listed in Minnesota Rules 7853.0620, 7853.0630, and 7853.0640 for the Keystone XL Pipeline System because it is still under development and seeking federal and state permits.

B.4. Trucking Alternative

Please see Section 7853.0540, part A.4 of this Application for additional discussion of the trucking alternative.

B.4.a. Wastewater, Air Emissions and Noise Sources

B.4.a.i. Point Discharges to Water

While likely constructed outside of Minnesota, the trucking system alternative would create point discharges to water at the loading and unloading facilities, wherever constructed. Discharges would come from washing vehicles and tank trailers, and may result from spills caused by accidents or other mishaps. Enbridge cannot quantify the location or amount of such discharges. Enbridge would prepare an Environmental Management Plan that would specify steps to ensure correct handling of site stormwater. In addition, a Spill Prevention Plan would be developed to identify the precautions and measures to be taken in the event of a spill.

B.4.a.ii. Area Runoff

Area runoff adjacent to the expanded and/or new loading/unloading facilities would increase as a result of the Trucking Alternative. Truck loading/unloading sites have not yet been identified, and would likely be

outside of Minnesota. If the facilities were located in Minnesota, runoff could impact those waters identified in Section 7853.0610 Subpart 2(G), as well as waters adjacent to facilities requiring expansion. If constructed in Superior, Wisconsin, the Nemadji River, which is adjacent to Enbridge's Superior Terminal, could be a receiving water. Enbridge would implement necessary erosion control measures during and after construction, where appropriate, to minimize erosion and sedimentation as well as surface runoff from the facility. In addition, if Enbridge were to operate a trucking facility, it would develop the necessary Emergency Response Plan for the facility and incorporate the facility into its ongoing operations practices and emergency response planning.

Area runoff would be expected from roadway treatment with sand and anti-ice chemicals. Enbridge is unable to quantify the discharge from such road treatments by state and local governments.

B.4.a.iii. Point Sources of Airborne Emissions

The semi-tractors themselves would be the largest source of airborne emissions for the trucking alternative.

Air pollution controls for construction related to the expansion of the facilities would be similar to those described for the proposed Project in Section 7853.0630 Subpart 1. The trucks required to transport the crude oil would consume millions of gallons of fuel per year, with subsequent exhaust emissions as shown in Table 7853.0600-2, below. Despite the standards established by the EPA mobile source emission regulations (40 C.F.R. Part 85) and the maximum sulfur content of diesel fuel for highway vehicles reduction, the Trucking Alternative would increase air pollution levels. Dust control measures would not be necessary for the Trucking Alternative as paved highways would be the primary transportation route.

Table 7853.0600-2
Trucking Alternative Airborne Emissions

Emission Source Description	Pollutant Emissions (tpy)						
	NO_X	CO	SO_2	HC	PM_{10}	$PM_{2.5}$	GHG (CO_2e)
On-road vehicle diesel combustion emissions	6,618	10,534	18	2,142	117	110	1,765,935
Particulate matter emissions from paved roads	-	-	-	-	35,653	8,751	-
Total	6,618	10,534	18	2,142	35,771	8,861	1,765,935

- Emissions are calculated based on 8,280 tanker trucks per day.
- Transport of crude oil in trucks will result in diesel engine emissions and particulate matter from the trucks driving on paved roads.
- Truck emissions are calculated based on vehicle miles driven and EPA emission factors.
- The trucking emission only quantifies emissions from truck operation to Superior. Emissions from truck idling, emissions from the loading of crude oil into the transport trucks, and emissions from return travel have not been included.
- This transportation method would require the construction of truck loading and unloading facilities in Hardisty, Alberta and Superior, Wisconsin.

B.4.a.iv. Noise

The Trucking Alternative would contribute to noise levels from traffic on local and Minnesota highways as approximately 6,900 trucks would be in transit per day. Tractor trailer rigs would be required to meet all federal and state noise abatement requirements for operation on public roadways.

Noise levels for construction related to the expansion of truck loading/unloading facilities would be similar to those described for the proposed Project in Section 7853.0620 Subpart 4 as well as described above under the New Pipeline Alternative. These impacts would likely not occur in Minnesota.

B.4.b. Pollution Control and Safeguards Equipment

B.4.b.i. Air Pollution Controls

Equipment installed on the trucks themselves would be the primary means of air pollution control for the trucking alternative. Every truck used would be subject to the air emissions standards under applicable EPA and Department of Transportation regulations.

As stated above, air pollution controls for construction related to the expansion of the facilities would be similar to those described for the proposed Project in Section 7853.0630 Subpart 1.

The trucks required to transport the crude oil would consume millions of gallons of fuel per year, with subsequent exhaust emissions. Despite the standards established by the EPA mobile source emission regulations (Title 40 CFR Part 85) and the maximum sulfur content of diesel fuel for highway vehicles reduction, the Trucking Alternative would increase air pollution levels. Dust control measures would not be necessary for the Trucking Alternative as paved highways would be the primary transportation route.

B.4.b.ii. Water Pollution Controls

Please refer to the discussion in Section 7853.0630 Subpart 2 of this application.

B.4.b.iii. Oil Spill, Fire, and Explosion Safeguards

The principal risk of oil spills, fire, and explosions associated with the trucking alternative would be associated with loading/unloading of the trucks and traffic accidents. Safeguards during loading and unloading operations would include vapor control measures and containment barriers, as well as adherence to rigorous safety protocols.

As discussed in 7853.0250, truck hazmat incidents occur approximately 1,066 times more frequently than pipeline accidents. See Section 7853.0540, page 4, for more information. Safeguards would include proper vehicle maintenance, extensive driver training, and following all applicable safety statutes, rules and regulations.

B.4.b.iv. Other Safeguards and Controls

The trucking alternative would be subject to safeguards and controls required of commercial drivers under U.S. Department of Transportation, Federal Motor Carrier Safety Administration Regulations and state laws. These include drug testing, special training, insurance requirements and mandatory driver rest periods. Additional safeguards would come through enforcement of traffic regulations and a vigorous maintenance program.

B.4.c. Induced Developments

B.4.c.i. Utility Use

The trucking alternative is not expected to have any impact on utility use outside of the loading and unloading facilities. Enbridge has not designed such facilities, and is therefore unable to estimate power consumption.

B.4.c.ii. Water Use

The trucking alternative is not expected to cause significant water use.

B.4.c.iii. Vehicular Traffic

The primary routes between Hardisty, Alberta and Superior, Wisconsin would make use of two major roads across Northern Minnesota. The first, U.S. Highway 2, stretches from Grand Forks, North Dakota through Duluth, Minnesota to Superior, Wisconsin. The major population centers along this route include Grand Forks, Bemidji, Grand Rapids and Duluth. A significant portion of this route is two-lane and crosses through the Mississippi Headwaters State Park, the Chippewa National Forest and the Leech Lake Reservation.

The second route across the state would follow I-94 until just east of Fargo, North Dakota, where it would move to Highway 10 until hitting Detroit Lakes. It would then continue on Highway 34 through Park Rapids, Minnesota, until it joined Highway 200 just south of Walker, Minnesota. From Walker, it would pass through Remer, Minnesota and Hill City, Minnesota, before joining Highway 2 just north of Floodwood, Minnesota. It would then follow Highway 2 through the cities of Hermantown and Duluth, Minnesota. This is also a predominately two-lane road and this route crosses the Leech Lake Reservation and multiple state and national forests.

The Trucking Alternative would place 8,280 semi tractors and trailers (3,450 vehicles traveling in each direction, to and from Superior, Wisconsin plus 1,380 vehicles either loading or unloading) on the roads of North Dakota, Minnesota and Wisconsin every day of the year. Put differently, a home along either route would have at least 839,500 semi tractors and trailers (1,150 loaded trucks and 1,150 empty trucks per day x 365 days) pass it every year if a trucking system was used instead of a pipeline. This traffic would be moving 24 hours per day.

The increased traffic on existing highways between Hardisty, Alberta and Superior, Wisconsin could increase wear on the existing highway infrastructure and result in highway repairs potentially being required

sooner than if the additional traffic were not to occur on the highways. In addition, there may be additional demand for public safety officers as more trucks on the road will create more opportunities for traffic accidents.

Enbridge believes that use of the trucking alternative would place an unacceptable burden on the road infrastructure along these routes and be extremely disruptive to the communities that would be impacted.

B.4.c.iv. Agriculture

The volume of trucks on the road would impact agricultural operations through increased traffic, but Enbridge is unable to quantify what impact the additional traffic would have. Such impacts cannot be calculated, but would result from delays, increased accident rates and greatly increased need for road maintenance work.

B.4.c.v. Relocation of Persons

Enbridge does not expect that persons would need to be relocated for daily operation of the trucking alternative. However, the greatly increased traffic noise and volume may result in some voluntary population changes along the route.

Construction and operation of the trucking facility at the Superior Terminal in Wisconsin may require acquisition of additional property. This could result in the relocation of persons. Design work has not been completed on a trucking alternative; therefore the potential impacts associated with relocation cannot be assessed. These impacts would not occur in Minnesota.

B.5. Rail Alternative

Implementation of the rail alternative would require construction of new lateral rail lines in as-yet unidentified locations. Accordingly, Enbridge cannot give specific details of some aspects of this alternative. Please see Section 7853.0540, part A.5 of this Application for additional discussion of the rail alternative.

B.5.a. Wastewater, Air Emissions and Noise Sources

B.5.a.i. Point Discharges to Water

The Rail Alternative would require the construction of rail car loading and off-loading facilities including construction of new above ground lateral service lines to reach the rail cars. While these facilities would likely be

outside of Minnesota, construction activities associated with building a rail car loading and unloading facility is not anticipated to require any point discharges to water. Enbridge would prepare an Environmental Management Plan that would outline steps to ensure correct handling of spills.

B.5.a.ii. Area Runoff

Again, while likely outside of Minnesota, area runoff adjacent to the constructed rail car loading and off-loading facilities would increase as a result of the Rail Alternative. Locations of the facilities have not yet been identified and therefore receiving water for runoff could include waters identified in Section 7853.0610 Subpart 2(G) as well as waters adjacent to newly constructed facilities. Enbridge would implement necessary erosion control measures during and after construction, where appropriate, to minimize erosion and sedimentation. In addition, if Enbridge were to operate a rail facility, it would develop the necessary Emergency Response Plan for the facility and incorporate the facility into its ongoing operations practices and emergency response planning.

B.5.a.iii. Point Sources of Airborne Emissions

Airborne emissions would come from two sources. The loading and unloading facilities would present the risk of fumes emitted during the loading and unloading process, as well as from storage tanks.

Additional gaseous and particulate emissions would occur from train engines, as shown below in Table 7853.0600-3.

Table 7853.0600-3
Rail Alternative Airborne Emissions

Emission Source Description	Pollutant Emissions (tpy)						
	NO_X	CO	SO_2	HC	PM_{10}	$PM_{2.5}$	GHG (CO_2e)
Railroad diesel combustion emissions	42,912	4,225	511	1,584	1,056	1,025	1,614,159

- Emissions are calculated based on 12,420 railcars per day.
- Emissions from the loading/unloading of crude oil have not been included.
- The transportation method would require the construction of the large railcar loading and unloading facilities in Hardisty, Alberta and Superior, Wisconsin.

B.5.a.iv. Noise

Rail traffic is a source of noise pollution. As noted in Section 7853.0540, part A.5(1) of this Application, 768 rail cars would pass each point along whatever route was used each day.

Noise levels related to the construction of rail car loading and off-loading facilities as well as construction of new lateral above ground rail service lines would be similar to those described for the proposed Project in Section 7853.0620 Subpart 4 as well as described above under the New Pipeline Alternative. The operation of the rail would be in compliance with the Railroad Noise Emission Standards established in 49CFR210 and therefore would not exceed 96 decibels. However, the increased rail traffic could increase the noise along the respective rail routes every day of the year.

B.5.b. Pollution Control and Safeguards Equipment

B.5.b.i. Air Pollution Controls

Air pollution controls for construction related to the construction of rail car loading and off-loading facilities as well as construction of new lateral above ground rail service lines would be similar to those described for the proposed Project in Section 7853.0620 Subpart 4. Enbridge anticipates that the rail transporters will obtain the necessary permits for operation of the additional trains.

B.5.b.ii. Water Pollution Controls

The risk of water pollution from the rail alternative comes from daily operations at the loading and unloading facilities as well as from accidents during transportation.

Water pollution at the loading and unloading facilities could result from spills cause by loading and unloading operations or from general surface runoff.

B.5.b.iii. Oil Spill, Fire, and Explosion Safeguards

Transportation of crude oil by rail has a risk level nine times higher than pipeline transportation, and rail accidents result in fires and/or explosions about two times more frequently per barrel transported per mile.

The loading and offloading facilities would need to be equipped with spill containment, fire suppression equipment, and potentially with vapor

recovery systems. Specific details of these systems would be developed during the design phase of the project and are not available to Enbridge.

Rail safety is regulated by the Federal Railroad Safety Administration, part of the U.S. Department of Transportation, which includes divisions governing the following:

- hazardous material transportation;
- locomotive and freight car safety inspections;
- operating practices, including carrier and employee training, safety rules, hours of service, accident reporting, and employee qualifications;
- track signals; and
- Federal track safety standards.

Any rail transportation conducted as an alternative to the Project would be subject to and in compliance with federal safety regulations and industry standards.

B.5.b.iv. Other Safeguards and Controls

Enbridge's Environmental Policy states that protection of the environment is an integral element of the conduct of company business. Inspections of the rail car loading and off-loading facilities as well as construction of new lateral above ground rail service lines would be conducted. Field environmental data collected to date includes information on wetlands, streams and rivers, cultural resources, and sensitive plant and animal species. Transportation of crude oil via rail would contribute to air and noise pollution levels as discussed in Section 7853.0620 Subpart 3 and 4. Enbridge does not foresee any current measures to reduce these impacts.

B.5.c. Induced Developments

B.5.c.i. Utility Use

Utility use would involve electrical power use at the loading and unloading facilities. Enbridge, however, has not designed these facilities and is unable to estimate the required electrical power.

The Rail Alternative would at least require the construction of new lateral rail service lines. However, the rail lines would be privately owned and therefore would not require any additional utility or other public services.

B.5.c.ii. Water Use

No water use is anticipated in Minnesota as part of the Rail Alternative.

B.5.c.iii. Vehicular Traffic

Impacts to vehicular traffic would be created by trains crossing roadways. As noted in Section 7853.0540, A.5(1), approximately 384 rail cars would need to move in each direction pass each point along whatever route was used every day. Accordingly, every road along the route would have 768 rail cars cross each day, at all times of the day, throughout the year. This would cause traffic delays. Since trains are required to travel at reduced speeds through developed areas, the traffic delays could be of long duration.

B.5.c.iv. Agriculture

Construction of new lateral above-ground rail service lines has the potential to significantly affect agricultural lands. Permanent right-of-way would be required for any new rail line and if routed through agricultural lands would have permanent effects on agricultural productivity. Estimates on the number of farms affected and construction activities within farm fields would be dependent upon establishing a route.

Daily operations of the rail alternative would not be expected to impact agricultural operations, other than through traffic delays caused by 384 rail cars traveling through agricultural areas and crossing roads each day in each direction. Around the clock train noise may also have an impact on livestock, but Enbridge does not possess information to quantify that impact.

B.5.c.v. Relocation of Persons

Enbridge does not expect that persons would need to be relocated for daily operation of the rail alternative, but a detailed plan and route would need to be developed for required new track before this could be finally determined.

B.6. Alternative Pipeline Route

Enbridge has not analyzed an alternative pipeline route for the project. Responsible planning of a new pipeline route is an exercise that takes years of desktop planning, consultation with local officials, work with environmental and regulatory agencies, consultations with landowners, and extensive survey work to locate a proposed pipeline. Due to the scale of this effort, Enbridge cannot provide specific environmental data on an alternative pipeline route.

7853.0610 LOCATION

Subpart 1. Land Description. If a particular route has been selected for the new (sections of) pipeline, indicate that route on an appropriate map. If no particular route has been selected, indicate on an appropriate map each possible route that has been given serious consideration.

The Project does not include new pipeline installation outside of the existing pump stations, so there is no route and no route map. The Line 67 route was fully reviewed and approved under MN PUC Docket No. PL-9/PPL-07-361. Project location maps and station plat maps are enclosed herein as Exhibit B.

Subpart 2. Description of environment. For each route identified in response to subpart 1, list:

A. the names of cities or population centers through which the route passes;

- The City of Donaldson is located approximately 1.3 miles east of the Donaldson Station and has a population of about 42 residents (Source: United States Census Bureau, Census 2010).
- The City of Viking is located approximately 1.2 miles northeast of the Viking Station and has a population of about 104 residents (Source: United States Census Bureau, Census 2010).
- The City of Plummer is located approximately 0.7 miles northwest of the Plummer Station and has a population of about 292 residents (Source: United States Census Bureau, Census 2010).
- The City of Clearbrook is located approximately 0.5 miles west of the Clearbrook Station and has a population of about 518 residents (Source: United States Census Bureau, Census 2010).
- The City of Cass Lake is located approximately 1.0 mile east of the Cass Lake Station and has a population of about 770 residents (Source: United States Census Bureau, Census 2010).
- The City of Deer River is located approximately 1.0 mile west of the Deer River Station and has a population of about 930 residents (Source: United States Census Bureau, Census 2010).
- The City of Floodwood is located approximately 0.6 mile east of the Floodwood Station and has a population of about 528 residents (Source: United States Census Bureau, Census 2010).

B. the number of miles of the route that pass through, respectively, federal lands, state lands, county or tax-forfeit lands, incorporated areas, and private land outside incorporated areas;

The Project would not require the crossing of federal, state, or county land, incorporated areas or privately owned land. Work associated with the Project would occur on property owned in fee by Enbridge.

C. the general soil types along the route and the approximate percentage of each;

Table 7853.0610-1 provides a summary of significant soil characteristics identified at each of the station sites.

Table 7853.0610-1

Soil Characteristics at the Donaldson, Viking, Plummer, Clearbrook, Cass Lake, Deer River and Floodwood Stations [a]

Station	Existing Soils	Prime Farmland[b]	Hydric Soils[c]	Compaction Prone	Highly Water Erodible	Highly Wind Erodible
Donaldson	Northcote-Eaglepoint clays	Prime	Partial	N/A[d]	No	No
	Northcote clay	Prime	Partial	N/A[d]	No	No
Viking	Kittson Loam	Prime	No	No	No	No
	Foldalh loamy fine sand	No	No	No	No	Yes
	Strathcona fine sandy	Prime	Yes	No	No	No
	Roliss loam	Prime	Yes	Yes	No	No
Plummer	Newfolden loam	Prime	Partial	N/A[d]	No	No
	Smiley loam	Prime	Partial	N/A[d]	No	No
	Linveldt fine sandy loam	Prime	Partial	N/A[d]	No	No

Table 7853.0610-1

Soil Characteristics at the Donaldson, Viking, Plummer, Clearbrook, Cass Lake, Deer River and Floodwood Stations [a]

Station	Existing Soils	Prime Farmland[b]	Hydric Soils[c]	Compaction Prone	Highly Water Erodible	Highly Wind Erodible
	Smiley mucky loam	Prime	Yes	N/A[d]	No	No
Clearbrook	Smiley loam	Prime	Yes	Yes	No	No
	Gonvick loam	Prime	No	No	No	No
	Cathro muck	No	Yes	Yes	No	Yes
	Roliss loam	Yes	Yes	Yes	No	No
	Mooselake and Lupton	No	Yes	Yes	No	Yes
Cass Lake	Zimmerman fine sand	No	Partial	N/A[d]	No	Yes
Deer River	Dora mucky peat	No	Yes	Yes	No	No
	Indus and Brickton	Yes	Yes	Yes	No	No
	Taylor and Dalbo silt	Yes	No	No	No	No
Floodwood	Tacoosh mucky peat	No	Yes	N/A[d]	No	No
	Onega-Kapla	No	Partial	N/A[d]	No	No
	Cowhorn-Onega-Sago	No	Partial	N/A[d]	No	No

[a] Data obtained from the SSURGO Soils Data Mart.
[b] As designated by the NRCS, prime farmland includes soils that are considered prime if drained.
[c] Includes soils in somewhat poor to very poor drainage classes with surface textures of sandy clay loam and finer.
[d] Existing soil conditions will be altered to meet Enbridge's pump station soil compaction requirements, including potentially importing material with the required compaction specifications.

Soils within the existing facilities have been modified over time through the importing of sand, gravel, and other fill material as necessary to develop the sites for use for industrial activities.

D. the general terrain along the route;

Each station is located in outwash plains of the Wisconsin Glaciation Period. Topography is nearly level or flat at each station.

E. the types of vegetation along the route (including forest, brush, marsh, pasture, and cropland) and the approximate percentage of each;

The Donaldson Station would be constructed in an area currently used for agricultural production (100 percent).

The Plummer Station is located in an area that appears to have been formerly farmed, but has been fallow, allowing herbaceous and shrub vegetation to establish. Approximately 1.7 acres (11.3 percent) of the 15 acre site has been delineated as emergent and/or scrub-shrub wetland. The remainder of the 15 acre site vegetation includes grasses and shrub species.

The Cass Lake Station is located in an area that includes open land, forest, and developed property. Approximately 12.3 acres (82 percent) of the site is forested; however, a selective cut has occurred within the past five years. Approximately 2.6 acres (17.4 percent) of the site is open land. A small portion (0.1 acre or 0.8 percent) has been developed for existing utilities.

The Floodwood Station is situated in an area including forest land, open land, forested wetland, and agriculture. Approximately 7.9 acres (52.8 percent) of the 15 acre parcel is forested upland. About 4.5 acres (29.9 percent) of the site is delineated as forested wetland. An additional 2.5 acres (16.6 percent) is open land with 0.1 acre (0.8 percent) classified as agriculture.

The existing Enbridge stations are mostly graveled and contain little vegetation. The land use adjacent to the Viking Station is entirely agricultural. The Clearbrook Station is located in an area containing both adjacent industrial use (40%), open areas grassland/emergent wetland (30%), forest, (15%) and shrubland (15%). The Deer River Station is located in an area that is mostly agricultural (70%) with adjoining commercial (10%) and shrub/forest land (20%).

At the Viking, Clearbrook and Deer River Stations, all project activities will occur within the existing stations; therefore, no vegetation will be impacted. (See plot maps enclosed in Exhibit B.)

F. the predominant types of land use along the route (such as residential, forest, agricultural, commercial, and industrial) and the approximate percentages of each;

See E. above.

G. the names of major lakes or streams and the number of wetlands of five acres or more through which the route passes, as well as any others into which liquid contaminant from the pipeline could flow;

Wetland surveys of the Donaldson, Plummer, Cass Lake, and Floodwood Stations were completed in 2013. Wetlands were delineated adjacent to the Donaldson Station, within the existing road ditches; however, no other wetlands were identified within the proposed station boundaries. Within the Plummer Station site, approximately 1.7 acres of emergent (PEM)/Scrub-Shrub (PSS) wetland were delineated. No wetlands were identified within or immediately adjacent to the Cass Lake Station boundaries. Approximately 4.5 acres of forested (PFO) wetland was identified within the Floodwood Station site. Additional emergent and forested wetland habitats also exist adjacent to the Floodwood Station. Enbridge will file permit applications with the appropriate agencies for permanent wetland impacts associated with construction of the Plummer and Floodwood Stations.

Wetland surveys of the Viking, Clearbrook, and Deer River Stations were completed in 2006, 2007, and 2008 as part of the permitting process for the LSr or Alberta Clipper and Southern Lights Diluent Projects. Wetlands are adjacent to all three locations. Areas of emergent wetland are also present within the fenced boundary of the Viking and Deer River Stations; however, these areas will be avoided by construction activities. Wetland delineation maps for each station are included in Exhibits F.1 through F.7. Table 7853.0610-2 identifies the nearest waterbody and wetland to each station.

Table 7853.0610-2

Nearest Waterbodies or Wetlands to the Donaldson, Viking, Plummer, Clearbrook, Cass Lake, Deer River and Floodwood Stations

Station	Nearest Waterbody [a]	Nearest Wetland [b]
Donaldson	County Ditch #16 located approximately 450 feet north of the northern most Donaldson Station site boundary.	Emergent wetlands associated with road ditches are located adjacent to the Station along County Road 11 and an unnamed road.
Viking	South Branch Snake River is located approximately 0.6 mile north of the Station.	An emergent wetland was delineated adjacent to and within the western boundary of the Station.
Plummer	The Clearwater River is located approximately 1.0 mile west of the proposed Station	Emergent/Scrub-Shrub wetlands were delineated within the Station boundary. Additional emergent/scrub-shrub wetlands are located adjacent to, but outside the proposed facility.
Clearbrook	An intermittent tributary to Silver Creek is located about 150 feet west of the Station fence.	Wetlands were delineated adjacent to the western and eastern boundaries of the Station, including components of emergent, shrub-scrub, and forested wetland.
Cass Lake	An impoundment on Fox Creek is located approximately 600 feet south of the Cass Lake Station, south of an existing railroad track system.	A National Wetland Inventory wetland is located approximately 500 feet south of the Cass Lake Station, south of an existing railroad track system.
Deer River	The Deer River is located about 1,900 feet southwest of the Station.	An emergent wetland was delineated adjacent to the western and southern boundary of the Station.

Table 7853.0610-2

Nearest Waterbodies or Wetlands to the Donaldson, Viking, Plummer, Clearbrook, Cass Lake, Deer River and Floodwood Stations

Station	Nearest Waterbody [a]	Nearest Wetland [b]
Floodwood	An unnamed drainage is present along the western edge of the Floodwood Station. This drains into and existing drainage ditch that joins the Floodwood River approximately 0.6 mile east of the station.	Forested wetlands were delineated within the Station boundary. Additional forested and emergent wetlands are located adjacent to, but outside the proposed facility.

a Data obtained from USGS Topographic Maps.
b Data obtained from wetlands and waterbody surveys conducted in 2006-2008 along Enbridge's Alberta Clipper and Southern Lights Diluent Pipeline Projects and wetland surveys conducted in 2013.

H. trunk highways, railroads, and airports along the route;

The Donaldson Station is located west of US-75 on 120th Street. The Viking Station is located along Marshall County Road 2. The Plummer Station is located east of US-59 along Red Lake County Road 1. The Clearbrook Station is located along Clearwater County Road 74. The Cass Lake Station is located south of U.S. Highway 2 and 160th Street NW Cass County Road 151. The Deer River Station is located along U.S. Highway 2. The Floodwood Station is located south of U.S. Highway 2 and St. Louis County Road 260. No roads, railroads, or airports will be impacted by the Project, other than temporary traffic by construction related vehicles. Due to the limited scope of the Project, such temporary traffic is not expected to burden the public.

I. national natural landmarks, national wilderness areas, national wildlife refuges, national wild and scenic rivers, national parks, national forests, national trails, and national waterfowl production areas through which the route passes, as mapped on the inventory of significant resources by the State Planning Agency;

No national natural landmarks, national wilderness areas, national wildlife refuges, national wild and scenic rivers, national parks, national forests, national trails, or national waterfowl production areas will be impacted by the Project.

J. state critical areas, state wildlife management areas, state scientific and natural areas, state wild, scenic, and recreational rivers, state parks, state scenic wayside parks, state recreational areas, state forests, state trails, state canoe and boating rivers, state zoo, designated trout lakes through which the route passes, as mapped on the inventory of significant resources by the State Planning Agency; and

No state critical areas, state wildlife management areas, state scientific and natural areas, state wild, scenic, and recreational rivers, state parks, state scenic wayside parks, state recreational areas, state forests, state trails, state canoe and boating rivers, state zoo, or designated trout lakes will be impacted by the Project.

Enbridge is reviewing the Minnesota Department of Natural Resources Natural Heritage Inventory database to determine whether threatened or endangered species where known to be present near the Project. Enbridge is also consulting with the Twin Cities Field Office of the U.S. Fish and Wildlife Service.

K. national historic sites and landmarks, national monuments, national register historic districts, registered state historic or archaeological sites, state historical districts, sites listed on the National Register of Historic Places, and any other cultural resources through which the route passes, as indicated by the Minnesota Historical Society.

Enbridge conducted a cultural resource literature review and cultural resource surveys along Enbridge's LSr Project and/or Alberta Clipper and Southern Lights Diluent Pipeline Projects in 2006-2008. This effort included the Viking, Clearbrook, and Deer River Stations. Additionally, Enbridge conducted a cultural resource literature review and cultural resource surveys at the Donaldson, Plummer, and Floodwood Stations. Enbridge is working with the Leech Lake Band of Ojibwe – Tribal Historic Preservation Office to conduct surveys at the Cass Lake Station since the station is located within the boundaries of the Leech Lake Indian Reservation. The results of these studies will be submitted to the Minnesota State Historic Preservation Office.

7853.0620 WASTEWATER, AIR EMISSIONS, and NOISE SOURCES

Subpart 1. Point discharges to water. Indicate the location, route, and final receiving waters for any discharge points. For each discharge point indicate the source, the amount, and the nature of the discharge (provide quantitative data if possible).

Potential discharges related to construction at the station sites include hydrostatic test water discharges and trench dewatering discharges. Trench dewatering may occur during excavations at station sites if necessary and will be implemented in accordance with Enbridge's EMP and permits issued by the appropriate regulatory agencies. Hydrostatic tests will be completed on the new piping at the pump stations and hydrostatic test water discharges will be implemented in accordance with Enbridge's EMP and permits issued by the appropriate regulatory agencies. Line 67 was constructed and tested for an ultimate annual capacity of 800,000 bpd of heavy crude oil and additional hydrostatic tests of the existing line are not required. The nearest receiving water (i.e., wetland or waterbody) at each station is provided in part 7853.0610 Subpart 2(G).

The source, amount, and nature of each point discharge are provided in the following table:

Table 7853.0620-1

Source, Amount and Nature of Point Discharges

Source	Amount	Nature of Discharge
Trench Dewatering Discharges	Between 0 and 25,000 gallons over the duration of the Project at each station. Volume will be dependent on precipitation and groundwater levels.	Dewater excavated trenches that fill with rain water or infiltrated groundwater during construction at the pump stations.
Hydrostatic Test Water Discharges	Between 21,000 and 28,000 gallons at each station. Volume will be dependent on the amount of new piping required at each station.	The discharge of water used to pressure test the new piping within the existing pump stations.

Only new equipment will be hydrostatically tested and clean water will be used. Discharges would be directed to well-vegetated upland areas where available or through BMPs (e.g., strawbale dewatering structure) where adequate vegetation is not present. All applicable permits for water appropriation and discharge will be obtained and followed.

Subpart 2. Area runoff. Indicate the area from which runoff may occur, potential sources of contamination in the area, and receiving water for any runoff.

The construction work spaces are potential areas from which stormwater runoff may occur. Erosion of disturbed soil and the deposition of sediments in adjacent land to the construction work space may occur. Potential receiving waters for stormwater runoff include waterbodies or wetlands adjacent to the Project site. A list of waterbodies and wetlands that could potentially be receiving water is provided in Section 7853.0610 Subpart 2(G). Enbridge will implement any necessary erosion control measures during and after construction, where appropriate, to minimize erosion and sedimentation. These control measures are discussed in Section 7853.0630. Applicable state and local permits related to erosion and sediment control will be obtained for the Project.

Subpart 3. Point sources of airborne emissions. Estimate the quantity of gaseous and particulate emissions that would occur during full operation of the pipeline from each emission source and indicate the location and nature of the release point.

The Project will have minor air emissions increases under normal operating conditions due to the increase in oil quantity being transported through the Line 67 pipeline system and modifications to the pump stations located in Donaldson, Plummer, Cass Lake and Floodwood, Minnesota. The pump stations are generally closed systems and electric-driven. Minor gaseous emissions could occur through non-welded flanges/connections, valves and pump seals; however, these additional emissions from the Project will not contribute significantly to local air emissions. Particulate emissions are not expected from the Project.

Enbridge is not subject to air permit approval for the proposed pump station modifications. Table 7853.0620-2, below, provides estimates of the minor emissions that could occur at the pump stations.

Table 7853.0620-2 Gaseous Emissions	
Pump Station Location [a]	**Annual VOC Emissions (tpy)**
Donaldson	0.11
Plummer	0.11
Cass Lake	0.11
Floodwood	0.11
Total Emissions	**0.44**

[a] Emissions associated with modifications at the Clearbrook Terminal, Viking and Deer River Pump Stations were accounted for during the Phase 1 expansion and included in Enbridge's MN PUC application for that project.

Subpart 4. Noise. Indicate the maximum noise levels (in decibels, A scale) expected along the route. Also, indicate the expected maximum increase over ambient noise levels.

Station Expansion Activities

The station expansion activities will have a short-term impact on noise levels in the vicinity of the seven stations. Typical construction equipment (e.g., bulldozers, loaders, dump trucks, and backhoes) generate between 80 to 90 decibels within 50 feet of the equipment. This equipment noise will be limited to the period of construction and daylight hours. Because the stations are located in predominantly rural and undeveloped areas, the general public should experience limited nuisance noise.

Ongoing Operations

A survey of various pumping stations on the Enbridge Lakehead System was conducted in 1992 using a Quest type-2 sound level meter with an "A" weighting scale. The meter was calibrated daily to a reference sound level at precisely 110 dB and 100 Hz using a Quest CA-12 sound level calibrator. The survey indicated that typical noise generated at the fence line of pumping stations is between 40-60 decibels. Since pumping stations are located away from populated areas, residences are generally well away from fence-lines and should encounter far less noise from normal operations than the survey indicates. Enbridge standards restrict the noise levels (created by Company equipment) around neighboring dwellings and industrial facilities to 40 decibels, measured at a distance of 50 feet from the affected structure, unless state regulations allow higher noise levels. Noise control is incorporated into the design if these levels are exceeded. Ambient noise levels are not expected to increase as a result of the Project.

7853.0630 POLLUTION CONTROL AND SAFEGUARDS EQUIPMENT

Subpart 1. Air pollution controls. Indicate types of emission control devices and dust control measures that would be used.

Pump station modifications will result in intermittent and short-term fugitive emissions. These emissions will include combustion emissions from the construction equipment and may include dust from soil disruption, gravel dumping, and increased traffic on gravel roads. The fugitive dust emissions would depend on the moisture content and texture of the material that would be disturbed. Enbridge would control dust emissions by watering on an as-needed basis.

Emissions from construction are not expected to cause or significantly contribute to a violation of an applicable ambient air quality standard because the construction equipment would be operated on an as-needed basis, primarily during daylight hours. Emissions from the gasoline and diesel engines would be minimized because the engines must be built to meet the standards for mobile sources established by the EPA mobile source emission regulations (Title 40 C.F.R. Part 85). In addition, the EPA required that the maximum sulfur content of diesel fuel for highway vehicles be reduced from 500 parts per million by weight ("ppmw") to 15 ppmw by mid-2006, making lower sulfur diesel available nationwide.

Subpart. 2. Water pollution controls. Indicate types of pollution control equipment and runoff control measures that would be used to comply with applicable state and federal rules, regulations, and statutes.

Enbridge has developed standardized erosion control and restoration measures to minimize and mitigate potentially adverse environmental effects resulting from construction, operation, and maintenance of the proposed facilities. These measures are described in Enbridge's EMP included in Exhibit D. Enbridge has also developed a Spill Prevention, Containment and Control Plan ("SPCCP") (see Exhibit E) that describes planning, prevention and control measures to minimize impacts of project-related spills. The EMP and SPCCP are comprehensive, controlling documents that will be included in contract specifications.

Enbridge will comply with applicable federal, state, and local rules and regulations and take appropriate precautions to protect against pollution of the environment. Erosion control measures specified in the EMP will be used to control stormwater runoff from the construction sites and to minimize soil erosion.

Waste and hazardous materials management will be enforced during the Project. Wastes will be collected and removed from the work site promptly. Work areas

will be kept clean and free of rubbish and debris that may cause tripping, fire, or general hazards. Procedures and responsibility for reporting and response for accidental spills during expansion activities will be clearly identified. Detailed discussion of spill response for pipeline operation is provided in Section 7853.0630 Subpart 3.

Subpart. 3. Oil spill, fire, and explosion safeguards. Describe measures that would be taken to prevent oil spills, fires, and explosions or to minimize the environmental impact of spill, a fire, or of an explosion.

Enbridge's emergency response program is comprised of four basic elements: prevention, planning, resources, and training. Each of these critical elements is supported and coordinated through a clearly defined emergency response plan that is continuously being evaluated and updated to ensure its effectiveness. Within the emergency response program, Enbridge has identified and planned for potential incidents that could affect public and employee safety and/or the environment, including fires, explosions and releases. Enbridge's emergency response program is discussed in Section 7853.0270 Subpart 2.

Prevention
Enbridge's facilities are remotely monitored continuously by trained personnel. Computer controlled backups and stringent operating procedures provide additional safeguards. In the event of an emergency, these control centers (manned round-the-clock) also serve as the nucleus for receiving emergency information, serve as the center for shutdown and isolation of the pipeline, and serve as the center to initiate a response and make appropriate notifications.

Enbridge has a comprehensive preventative maintenance program that meets and in many cases exceeds federal safety standards set forth in 49 C.F.R., Part 195. The Minnesota Office of Pipeline Safety, acting as an agent for the United States Department of Transportation's Office of Pipeline Safety, performs periodic inspections of Enbridge's facilities to monitor compliance with the aforementioned regulations.

Planning
Enbridge has an emergency response plan approved by the Department of Transportation, Research and Special Programs Administration as mandated by the Oil Pollution Act of 1990. The plan demonstrates Enbridge's response capabilities in accordance with the interim final rule set forth in 49 C.F.R. Part 194. A copy of the plan has also been provided to the Minnesota Pollution Control Agency.

Enbridge's plan is also influenced by requirements set forth in the Occupational Safety and Health Administration's ("OSHA") final rules on Hazardous Waste Operations and Emergency Response (1910.120(q)) ("HAZWOPER"). The plan

addresses compliance with public and employee safety issues including implementation of the Incident Command System, training of response personnel, personal protection requirements, site control procedures and decontamination.

The plan is maintained at all manned facilities in the Enbridge system. In addition, Enbridge's employees are provided a copy of an Emergency Response Directory that provides checklists, summaries from the Plan, internal and external contacts and notification/reporting procedures.

Customized United States Geological Survey quadrangle maps depicting the entire pipeline system and surrounding environment serve an integral role in the planning process. These maps also provide the framework to evaluate areas according to public and environmental sensitivities, and where appropriate, develop site-specific plans.

Enbridge conducts a comprehensive public awareness program to inform residents, public officials, area excavation contractors, and government emergency units of how to recognize and avoid or respond to a pipeline emergency. Enbridge has also been active at the local, county, and state level in emergency response planning and joint training/exercises to prepare all potential responders to deal with emergencies.

The existing pipelines are marked at all public road and railway crossings (at a minimum) to increase the public's awareness of the underground pipeline system. Additional markings are posted at valves, other pipeline facilities, and stations along the pipeline route.

Resources

As mandated by 49 C.F.R. Part 194, Enbridge is required to have resources in place to respond, to the maximum extent practical, to a worst case discharge from the pipeline system. Enbridge employs pipeline maintenance ("PLM") crews strategically located along the pipeline system. Each PLM employee is trained and equipped to respond to an emergency. Each maintenance facility has mobile response units and heavy equipment at its disposal. This is in addition to numerous locations where pre-staged containment and recovery equipment is maintained and available.

Enbridge owns mobile response units including containment and recovery equipment for both land- and water-based releases. Response boats, vacuum trucks, command trailers, decontamination facilities and incipient stage firefighting equipment are also maintained and available for response.

Enbridge has pre-selected response contractors to supplement company-owned resources. Additionally, Enbridge is active in several industry and government co-operatives and mutual aid groups.

Training

Personnel are trained in safety and emergency response procedures through a program that employs numerous classroom and practical training sessions aimed at ensuring that the employees can demonstrate knowledge and proficiency in their required responsibilities. Employees who are available for emergency response operations are trained in accordance with OSHA's HAZWOPER training requirements. Specifically, all pipeline maintenance, electrical, and mechanical staff are trained to a "Hazardous Materials Technician" designation or higher.

As part of this training program, each pipeline maintenance crew is involved in at least two emergency response exercises per year. These may consist of written exercises ("table-tops"), communication exercises, announced and unannounced deployment exercises, or other simulations. On-site fire-fighting exercises and natural gas liquid flaring demonstrations are also performed. Enbridge's exercise and drilling requirements are governed by, and consistent with the requirements of federal safety rules set forth in 49 C.F.R. Part 194.

Enbridge's resources and response capabilities are subject to periodic evaluation by agencies with jurisdiction to enforce 49 C.F.R. Part 194, through on-site inspections or performance of unannounced drills called by the appropriate federal or state agency.

Construction-Related Spills

As mentioned in Subpart 2, Enbridge has adopted an SPCCP developed by Enbridge that describes planning, prevention, and control measures to minimize impacts resulting from construction-related spills. The SPCCP specifies minimum standards for handling and storing regulated substances and cleaning up spills. Enbridge will require the contractor to implement proper planning and preventative measures to minimize the likelihood of spills and to quickly and successfully clean up a spill should one occur.

Some of the important provisions of this SPCCP are as follows:

- Contractor must designate a Spill Coordinator who will be responsible for reporting and cleaning up all construction-related spills;
- Contractor will be responsible for training all personnel in spill prevention and cleanup;
- Construction crews will be responsible for having adequate spill equipment on hand at all times and readily accessible during construction activities;
- Contractor will be responsible for following proper fuel storage practices;
- Contractor will be responsible for following proper refueling procedures, including restricting refueling within 100 feet of wetlands and waterbodies;

- Contractor will be required to immediately respond to all spills and mobilize personnel, equipment, and materials for containment and/or cleanup commensurate with the extent of the spill;
- Contractor will be required to notify the Applicants of all construction-related spills.

Enbridge will actively monitor contractor compliance with the SPCCP.

Subpart. 4. Other safeguards and controls. Indicate any other equipment or measures, including erosion control, which would be used to reduce the impact of the pipeline. Indicate the types of environmental monitoring, if any, that are planned for the facility and describe relevant environmental monitoring data already collected.

Enbridge's Environmental Policy states that protection of the environment is an integral element in the conduct of company business. Environmental protection efforts will span the entire Project, from planning through construction, restoration, and into full operation.

Construction

Planning, design, construction, and restoration will incorporate the previously discussed equipment and measures, including those for erosion control (see Section 7853.0630, Subparts 1 and 2). Inspections will be conducted during and following construction to monitor compliance with required environmental protection measures, permit conditions, design and construction specifications, and to provide ongoing oversight for any unforeseen day-to-day issues. Inspectors will be trained and well-versed in environmental issues and field implementation. Contract specifications will address environmental issues, and contractors will be expected to have necessary training. Training or briefings will also be provided by Enbridge.

The fact that the pump stations are small, fixed locations limits the number of potentially affected neighboring landowners. Landowner concerns will be addressed at all phases of the Project, including final restoration efforts. Land agents assigned to the Project will work closely with landowners to address landowner concerns.

Field environmental data collected to date includes information on wetlands, streams and rivers, cultural resources, and sensitive plant and animal species. Enbridge will continue to work with appropriate regulatory agencies and obtain the necessary environmental data to complete the permitting process.

The Project will involve construction of new pump stations at Donaldson, Plummer, Cass Lake, and Floodwood. These new stations are located adjacent to or near Enbridge's existing facilities; however, the new stations will alter the existing land use at the four sites. This will include the permanent fill of approximately 6.2 acres of wetland (approximately 1.7 acres of emergent/scrub-shrub wetland at Plummer and approximately 4.5 acres of forested wetland at Floodwood). Enbridge will work with the appropriate regulatory agencies and obtain the necessary environmental permits for construction of these facilities.

Ongoing Pipeline Operation

The pipeline and pumping system is a permanent, ongoing system; as such, Enbridge has an ongoing commitment to ensure that operations are conducted in an environmentally responsible manner. Substantial, continual effort is placed on maintaining system integrity, operational safeguards, emergency response, and landowner relationships, which reduces the impact on the environment. Enbridge also has an internal Environmental Review Program to monitor compliance with environmental regulations and company policy.

7853.0640 INDUCED DEVELOPMENTS

Subpart 1. Utility use. Indicate the extent to which the facility would create or add to the need for expanded utilities or public services.

Expansion of the seven pump stations will increase electric power consumption. However, the resulting increase in power demand does not require expansion or modification of the existing utility or public services grid.

Subpart 2. Water use. Indicate the amount of water that would be appropriated for use in connection with the pipeline, the expected source of water, and the manner in which the water would be used.

Between 21,000 and 28,000 gallons of water would be used at each station for hydrostatic testing or other related uses during Enbridge's construction activities. Only clean, new pipe would be tested. Water would be obtained from a municipal source or private wells. Hydrostatic test water would be discharged to well-vegetated upland areas and in such a manner as to prevent erosion.

Subpart 3. Vehicular traffic. Estimate the amounts and types of vehicular traffic that would be generated by the facility due to construction activity and, later, operational needs.

Short-term impacts on local transportation systems may result from the movement of construction equipment and material to work areas and daily commuting of the construction workforce to work sites. These impacts are not expected to be significant.

To maintain safe road conditions, Enbridge will direct its construction contractors to adhere to local weight restrictions and limitations for their construction vehicles, and to remove soil that is left on the road surface by the crossing of construction equipment. In addition, if construction equipment is off-loaded on paved roads, mats or other appropriate measures will be used to minimize damage to the road surface. No lane closures or detours will occur as a result of the Project.

Incremental road congestion could be caused by construction workers commuting to and from work sites on a daily basis. However, due to the generally rural location of the project and limited number of workers required at each station, notable increases in rush hour traffic are not anticipated. Furthermore, because construction generally is scheduled to take full advantage of daylight hours, most workers will commute during off-peak hours (i.e., early morning and late evening).

Subpart 4. Agriculture. Estimate the number of farms and the number of acres of cropland and pasture land that would be affected by construction of the pipeline. Indicate known circumstances with regard to the pipeline that would tend to reduce agricultural productivity along the route. Estimate the amount of excavation, backfilling, grading, soil compaction and soil mixture, and ditching to be done in farm fields. Estimate the number of drainage ditches to be impacted by the pipeline.

Approximately 15 acres of agricultural land would be taken out of agricultural production for construction of the Donaldson Station. The Plummer and Cass Lake Stations are located in non-agricultural areas. A small area at the Floodwood Station (0.1 acre) is classified as agriculture, which is part of Enbridge's permanent easement over the existing pipelines.

Subpart 5. Relocation of persons. Estimate the number of people that would have to relocate if the pipeline were constructed.

Construction of the Project will not require relocation of any people, residences, or other buildings.