

**Abandonment Plan – Point Tupper Fractionation Plant
Sable Offshore Energy Project**

**Pursuant to
Licence to Operate NSUARB-EXMO-FRAC-LIC, Section 8 and
Gas Plant Facility Regulations, Section 23(1)(2)**

Submitted to:

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1.0 INTRODUCTION

1.1 Purpose and Objectives

ExxonMobil Canada Properties (EMCP) is submitting the Abandonment Plan – Point Tupper Fractionation Plant (Abandonment Plan) to the Nova Scotia Utility and Review Board (NSUARB) in accordance with the following:

Section 8 of Licence to Operate NSUARB-EXMO-FRAC-LIC, issued by the NSUARB on April 3, 2012, which states:

Any major improvements or substantial modifications or changes in the configuration or operations of the Fractionation Plant shall be reported to and approved in writing by the Board before the work is undertaken.

Section 23 of Gas Plant Facility Regulations, which states:

- 1) *A permit or licence holder may abandon all or part of a site covered by a permit or licence by notifying the Board in writing at least 6 months prior to the date of the proposed abandonment.*

- 2) *An abandonment plan shall be submitted to the Board for approval at least 6 months before the date of the proposed abandonment.*

Note that additional detail regarding demolition, removals and associated waste management will be developed during the planning period for these activities. These details will be provided to NSUARB upon request.

1.2 Scope of the Abandonment Plan

The Abandonment Plan includes abandonment activities associated with the Sable Offshore Energy Project (SOEP) facilities regulated under Licence to Operate NSUARB-EXMO-FRAC-LIC. This includes a Natural Gas Liquids Fractionation Plant at Point Tupper, Richmond County in the Province of Nova Scotia (hereby referenced as the Point Tupper Fractionation Plant).

1.3 Background

The SOEP was Canada's first offshore natural gas development, and has been successfully producing natural gas and natural gas liquids since 1999. The SOEP is owned by EMCP (50.8%), Shell Canada Energy (31.3%), Imperial Oil Limited (9.0%), Pengrowth Energy Corporation (8.4%) and Mosbacher Operating Limited (0.5%). EMCP is the operator of the SOEP.

The SOEP is comprised of five natural gas fields and 22 wells (21 wells and one conductor) that are spread over an area of more than 200 square kilometres located off the east coast of Nova Scotia. The five fields are: Venture, South Venture, Thebaud, North Triumph and Alma.

Through interfield pipelines, the gas and liquids are gathered at the central Thebaud platform for initial processing, then transported via a 26" gathering pipeline to landfall in the Country Harbour

area of Guysborough County, Nova Scotia and then to the Goldboro Gas Plant where the natural gas liquids and remaining water are removed. The Goldboro Gas Plant produces marketable natural gas that flows to markets in Eastern Canada and the Northeastern United States via the Maritimes & Northeast Pipeline (M&NP). The Goldboro Gas Plant also produces natural gas liquids which are routed by pipeline to the Point Tupper Fractionation Plant for additional processing prior to being sold (Figure A. 1).

The approved SOEP Development Plan Application and its supporting documents (e.g., Project Overview, Environmental Impact Statement, Socio-Economic Impact Assessment, and Canada-Nova Scotia Benefits Plan) were submitted to the regulatory agencies in 1996. The application provided a detailed description of the construction and operation phases of SOEP. The decommissioning and abandonment activities were also described in the application.

Since the scope of the SOEP DP application covered all SOEP assets, both offshore and onshore, a number of regulatory authorities were involved, including:

- Canada-Nova Scotia Offshore Petroleum Board (CNSOPB);
- Canadian Environmental Assessment Agency (CEAA);
- National Energy Board (NEB);
- Natural Resources Canada (NRC);
- Nova Scotia Department of Natural Resources (NSDNR); and
- Nova Scotia Environment (NSE).

A Joint Review Panel (Panel) was established to streamline the regulatory process and meet the requirements of the following Acts:

- Canada-Nova Scotia Offshore Petroleum Resources Accord Implementation Act;
- Canada-Nova Scotia Offshore Petroleum Resources Accord Implementation (Nova Scotia) Act;
- Canadian Environmental Assessment Act;
- National Energy Board Act; and
- Nova Scotia Environment Act.

The Panel Report was approved by the Governments of Canada and Nova Scotia in December 1997. The Panel Report concluded with the recommendation that the appropriate regulatory authorities proceed with all necessary approvals for SOEP without further delay.

1.4 Development Plan Commitments

Decommissioning and abandonment activities will be completed in accordance with Volume 2, Section 7 of the Development Plan Application, which states:

The onshore gas plant will be removed and the land restored to a state similar to that which existed before construction began.

Volume 3, Section 3.2.4 of the Development Plan Application includes a similar reference including the Point Tupper Fractionation Plant, which states:

Once the Project is complete, the onshore gas plant, slugcatcher and natural gas liquids facilities will be removed and the land restored to a state similar to that which existed before construction began.

Additional references to abandonment are made throughout the SOEP Development Plan Application supporting documents, but generally reiterate what is summarized above.

2.0 FACILITIES TO BE DECOMMISSIONED AND ABANDONED

The Point Tupper Fractionation Plant is located in Richmond County, Nova Scotia on lands which are leased from NuStar Terminals Canada. Natural Gas Liquids (NGLs) are received at the Point Tupper Fractionation Plant and refined into propane, butane and liquid condensate. These products are loaded onto rail cars, trucks or vessels at the Point Tupper Fractionation Plant and shipped to market (Figure A. 2).

The Point Tupper Fractionation Plant includes the following facilities:

- eleven above ground pressurized storage tanks,
- fractionation and process vessels,
- process piping and flare system,
- rail car and truck loading facilities, and
- surface water runoff containment facilities.

Key plant structures, major storage, equipment and electrical components are shown in Figure A. 2 and listed in APPENDIX B: Tables (Major Components). Underground services consist of electrical, concrete foundations, potable water wells, and sanitary services.

A description of the facility was included as Attachment 1 to the September 30, 2011 Application for Renewal of Licences to Operate – SOEP that was submitted to the NSUARB.

Note that the extent of abandonment activities at the Point Tupper Fractionation Plant will be determined following discussions with the land owner, NuStar Terminals Canada. If an alternative use is identified, EMCP will discuss the proposal with the NSUARB.

3.0 ABANDONMENT PROCESS

The general approach for the abandonment of SOEP assets is defined in Volume 2, Section 7 of the Development Plan Application, which is outlined in Section 1.4 of this Abandonment Plan.

3.1 Timeline

The proposed schedule for the activities outlined in this Abandonment Plan is as follows:

- Deinventorying and preparation for demolition – 2019
- Demolition and material disposal / recycling – 2020

3.2 Decommissioning and Abandonment Activities

All above ground infrastructure within the boundaries of the Point Tupper Fractionation Plant will be removed. Below ground infrastructure will also be removed (e.g., septic tank) with the exception of water wells, which will be abandoned in-situ below ground. The individual abandonment steps for the Point Tupper Fractionation Plant are outlined in the following sections.

3.2.1 Deinventorying

The Point Tupper Fractionation Plant will be deinventoried of bulk hydrocarbons. This will involve draining, depressurizing, and purging of the Point Tupper Fractionation Plant facilities in order to proceed to the “prepare for demolition” phase. It is anticipated that this step will be completed in a similar manner to a normal planned facility shutdown, such as what may occur to allow for routine maintenance activities.

It is assumed that all waste associated with deinventorying will be contained and disposed of by EMCP as per existing SOEP waste management practices that have been used throughout the operations phase.

3.2.2 Preparation for Demolition

The next phase is to safely prepare the Point Tupper Fractionation Plant for demolition. The scope of this phase can be summarized as follows:

- electrically isolate the facility from all power sources;
- remove all forms of stored energy (pressure safety valves, spring hangers, etc.) from the process facility;
- air-gap process, utility, and electrical systems, to provide visual assurance there is no stored energy and/or material in the systems;
- minimize the risk of biohazard (mold) formation in enclosed spaces in the event the facility is left unattended for an extended period of time prior to demolition; and
- identify any known hazards remaining post demolition preparation.

During this phase, a desktop and field Hazardous Materials Management (HAZMAT) assessment will be completed to ensure sensitive hazardous materials are identified before the facilities preparation activities which will include draining and disposing of bulk remaining product. In addition, a pressurized vessel inventory will be completed and will include Canadian Registration Number (CRN) registration. This is required to ensure all vessels registered under the Boiler and Pressure Equipment Regulations under *the Nova Scotia Technical Safety Act* have been destroyed and confirmation of destruction is supplied to the Nova Scotia Labour and Workforce Development Department.

3.2.3 Demolition and Removal

The demolition planning by EMCP is based on standard industry practices. Detailed demolition plans will be developed by the chosen demolition contractor(s). The overall objective of the demolition phase is to safely demolish infrastructure, remove all debris and recyclable materials

from the site, and complete resurfacing activities as required. Demolition will include the following activities:

- dismantlement and removal of salvaged equipment as appropriate;
- demolition of surplus facilities and equipment;
- transportation of all waste and scrap to approved offsite recycling and waste disposal facilities; and
- surface grading as required.

The removal of underground facilities is included in the scope of work and is limited to utilities (water, septic, electrical) and underground piping connections. The water retention ponds (Figure A. 3) are anticipated to be left in place until site reclamation.

There are three principal methods used in structural demolition:

- Progressive demolition, which is the controlled removal of sections of the structure, whilst retaining the stability of the remainder. A good example is when structures are demolished in reverse order to that of their construction.
- Deliberate collapse, which is the removal of key structural elements to deliberately cause the collapse of whole or part of the structure.
- Deliberate element removal, which is the removal of selected parts of the structure by dismantling or deconstruction. This method can be utilized prior to deliberate collapse.

These methods may be used solely or in combination, and may change at different parts of the project. The three main demolition techniques to be used will be by machine, by hand, by machine, or by chemical agents, or a combination thereof. However, the overall preferred technique is by machine.

EMCP is committed to minimize disruptions or inconvenience caused by the activities (e.g., noise, traffic issues) and will work with stakeholders to address issues and concerns. Environmental site supervision and monitoring is planned during the demolition work to ensure the implementation and effectiveness of mitigation measures.

4.0 OTHER ACTIVITIES

EMCP will work with Nova Scotia Environment (NSE) to meet the requirements as set out in Industrial Approval No. 2008-065201-R02, as amended, and the NSE Contaminated Sites Regulations (NSE 2013a and NSE 2013b). This may include activities such as:

- Phase I Environmental Site Assessment
- Phase II Environmental Site Assessment
- Remediation, if required
- Reclamation, if required

Handling and disposal of contaminated materials is outlined in Section 5.0.

5.0 WASTE MANAGEMENT, RECYCLING AND REUSE

EMCP and its contractors recognize that good waste management, including waste minimization practices such as the 4-Rs (reduce, reuse, recycle, recover) are environmentally responsible and are also good business practices that can reduce inefficiency and wasteful operations.

Deinventorying and demolition preparation activities will be completed in accordance with the existing SOEP Waste Management Plan (EMCP 2016) and the SOEP Onshore Environmental Protection Plan (EMCP 2017).

Demolition and removal, remediation and reclamation activities will be completed in accordance with a waste management plan to be developed in conjunction with EMCP's demolition contractor. The plan will be developed consistent with EMCP's Operations Integrity Management System and in accordance with applicable regulations.

In general, waste will be segregated on-site and stored temporarily prior to removal to a licensed disposal or recycling facility. As outlined in the Section 3.1, it is anticipated that both the demolition and removal activities (including transportation of waste / recyclables to licensed facilities) will be completed within a one year period.

Note that the Point Tupper Fractionation Plant will be assessed for saleable assets. This will be managed in conjunction with abandonment activities. The plan for leased assets (i.e. NuStar tanks) will be determined in conjunction with NuStar Terminals Canada.

6.0 REPORTS

All activities associated with the abandonment of the Point Tupper Fractionation Plant will be subject to EMCP's compliance monitoring, in accordance with applicable regulations. The following documents will be compiled and submitted to the NSUARB as requested:

- final site survey drawings; and
- description of final condition of facilities left-in-place.

7.0 REFERENCES

- Canadian Environmental Assessment Agency et al. 1997. The Joint Public Review Panel Report. Sable Gas Projects.
- ExxonMobil Canada Properties (EMCP). 2016. Sable Waste Management Plan, Revision C13, Document Control Number: ZA-A00-X-00-0605.01; 63 pp; March 2016.
- ExxonMobil Canada Properties (EMCP). 2017. Sable Onshore Environmental Protection Plan, Revision C6, Document Control Number: ZA-A00-X-00-0605.004; November 2017.
- ExxonMobil Canada Properties (EMCP). 1996. Sable Offshore Energy Project, Development Plan Application.
- Nova Scotia Environment (NSE). 2013a. Phase 1 Environmental Site Assessment Protocol, electronic version 2013.
- Nova Scotia Environment (NSE). 2013b. Contaminated Sites Regulations, Phase 2 Environmental Site Assessment Protocol, electronic version 2013.

APPENDIX A: FIGURES

- Figure A.1 SOEP Overview
- Figure A.2 Point Tupper Fractionation Plant and Surrounding Facilities
- Figure A.3 Point Tupper Fractionation Plant Layout including Key Components

Figure A. 1: SOEP Overview

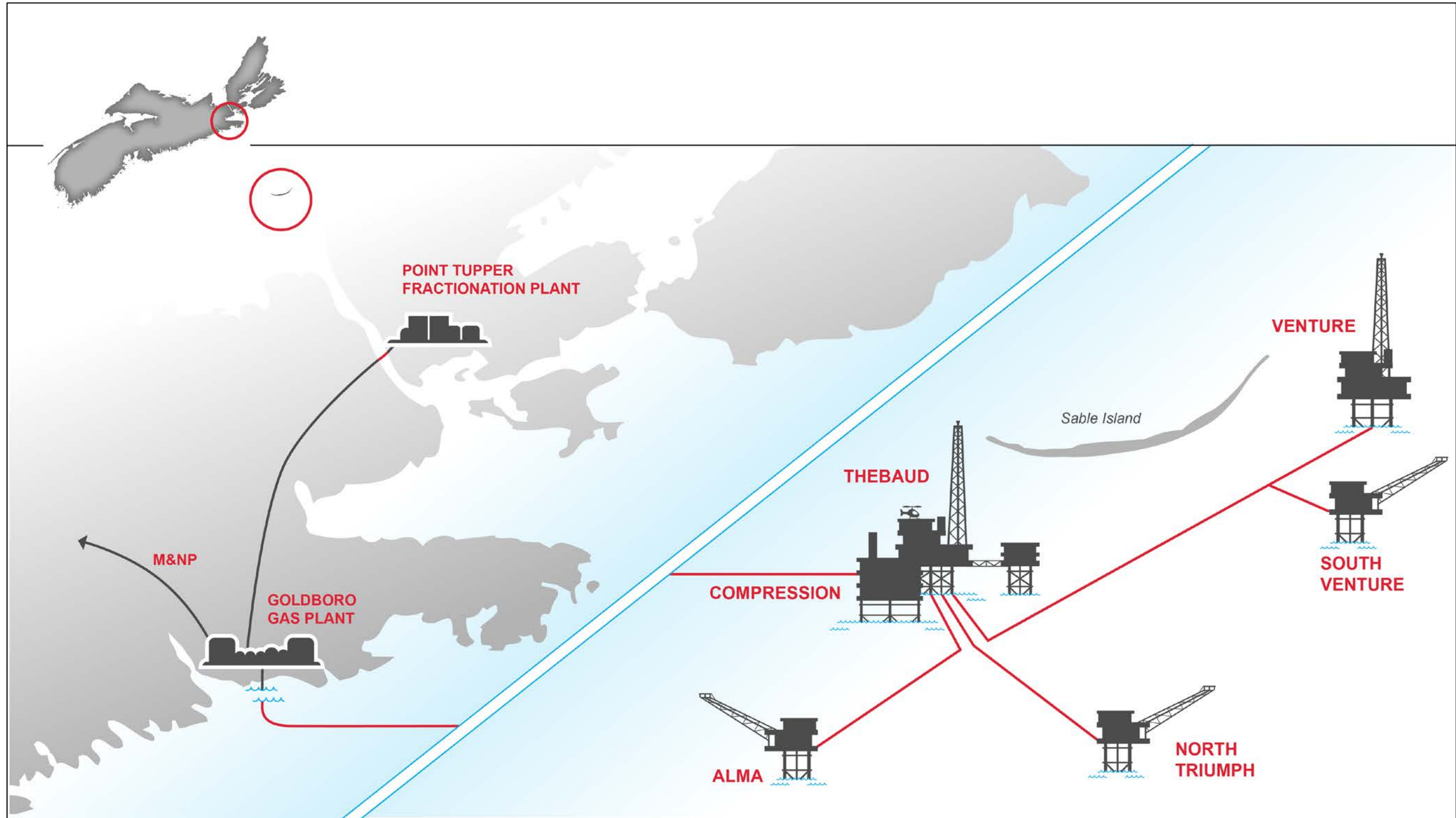


Figure A. 2: Point Tupper Fractionation Plant and Surrounding Facilities

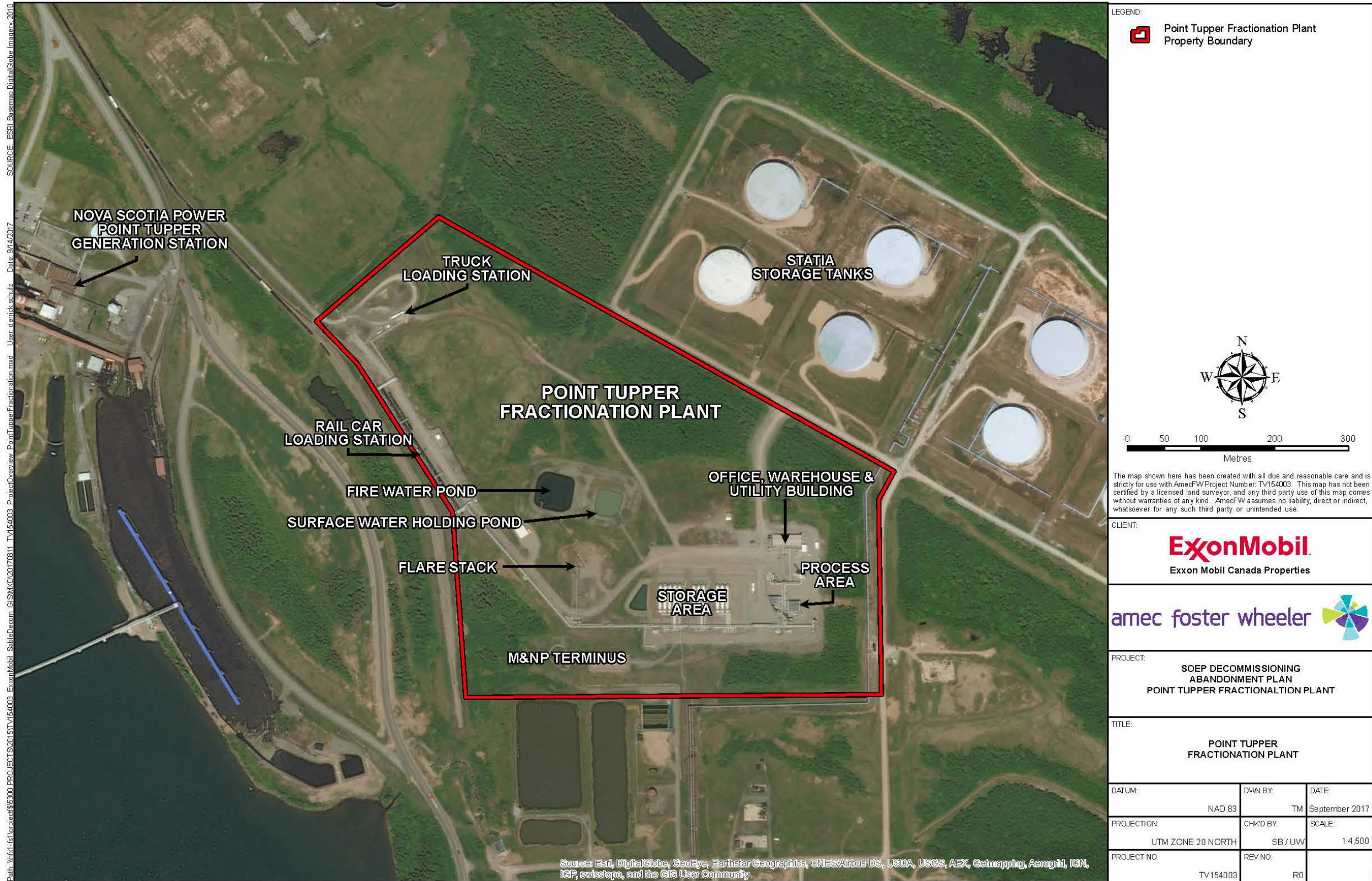


Figure A. 3: Point Tupper Fractionation Plant Layout including Key Components



APPENDIX B: TABLES (MAJOR COMPONENTS)

Table B.1	Major Plant Components – Storage Vessels & Tanks
Table B.2	Major Plant Components – Pressure Vessels/Equipment
Table B.3	Major Plant Components – Heaters and Exchangers
Table B.4	Major Plant Components – Process
Table B.5	Major Plant Components – Electrical

Table B. 1: Major Plant Components – Storage Vessels & Tanks

Tag	Description
LA-M50-100	Office/Warehouse/Shop/Control Room/Utility Building
LA-M50-200	Fire Water Pump House
LA-M50-300	Compressor/Diesel Generator Building
LA-M50-400	Instrumentation and Truck Loading
LA-M50-500	Loaders Shelter
LA-M50-600	Analyzer Building
LA-M50-700	Operators Shelter Loading Rack
LA-M50-800	Firewater Deluge Valve Building

Table B. 2: Major Plant Components – Pressure Vessels/Equipment

Tag	Description
D2005	Depropanizer Feed Vessel
D2006	Offspec C3 Vessel
D2008	Offspec C4 Vessel
D2105A/B/C	C4 Storage Vessel
D2030	Depropanizer Reflux Drum
D2100A/B/C/D/E	C3 Storage Vessels
D2060	Debutanizer Reflux Drum
F2032	Waste Water Collection Tank
D2039	Natural Gas Liquid Coalescer
F2042	Waste Storage Tank
D2037A/B	Potassium Hydroxide Treaters
NUSTAR Tank 61	Tank 61 – 187,800 Barrels
NUSTAR Tank 63	Tank 63 – 147,300 Barrels
-	6-Inch Condensate Above Ground Pipeline (~1km)

Table B. 3: Major Plant Components – Heaters and Exchangers

Tag	Description
E2025	Depropanizer Reflux Condenser
E2040	Depropanizer Reboiler
E2015	Depropanizer Feed Bottoms Exchanger
E2016	Depropanizer Feed Condensate Exchanger
E2070	Debutanizer Reboiler
E2055	Debutanizer Reflux Condenser
B2405	Flare Stack

Table B. 4: Major Plant Components – Process

Tag	Description
C2020	DeC3 Column
C2050	DeC4 Column

Table B. 5: Major Plant Components – Electrical

Tag	Description
N1601	Primary generator
N1602	Backup generator