APPENDIX 1-B
CODES & STANDARDS

Civil and Structural Design

- Canadian Institute of Steel Construction (CISC) – Handbook of Steel Construction;
- Canadian Institute of Steel Construction, Hollow Structural Section: Connections and Trusses – A Design Guide, Second Edition 1997;
- Cement Association of Canada – Concrete Design Handbook;
- CSA A23.1: Concrete Materials and Methods of Concrete Construction;
- CSA A23.2: Methods of Test and Standard Practices of Concrete;
- CSA A23.3: Design of Concrete Structures;
- CSA A23.4: Precast Concrete – Materials and Construction;
- CSA G40.21-04 Specification for Structural Quality Steels
- CSA S136: Cold Formed Steel Structural Members;
- CSA S16: Limit States Design of Steel Structures;
- CSA S6: Canadian Highway Bridge Design Code (CHBDC);
- CSA W47.1: Certification of Companies for Fusion Welding of Steel Structures;
- CSA W59: Welded Steel Construction (Metal Arc Welding);
- CSA W59: Welding of Reinforcing Bars in Reinforced Concrete Construction;
- National Building Code of Canada (NBCC);
- SSPC-PA-1: Shop, Field, and Maintenance Painting;
- SSPC-SP-10: Near-White Blast Cleaning;
- SSPC-SP-6: Commercial Blast Cleaning;
- [redacted]
- [redacted]
- TES-DV31-2333 Excavating, Backfilling and Grading
- [redacted]

- TransCanada TES-STRU-DES Structural Design Criteria

Marine Facilities Planning and Design

- American Petroleum Institute (API), RP2A, Recommended Practice for Planning, Designing, and Constructing Fixed Offshore Platforms;
- British Standards Institution (BSI): British Standard Code of Practice for Marine Structures – Part 1-6. BS 6349;
- California State Land Commission, Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS);
- Det Norske Veritas Rules for Classification of Ships;
- Lloyd's Register Rules & Regulations for the Classification of Ships;
- OCIMF/ ICS / IAPH: International Safety Guide for Oil Tankers and Terminals;
- OCIMF: Mooring Equipment Guidelines;
- OCIMF: Prediction of Wind and Current Loads on VLCC's (current forces only);
- Oil Companies International Marine Forum (OCIMF): Design and Construction Specification for Marine Loading Arms;
- Permanent International Association of Navigation Congresses (PIANC): Criteria for Movements of Moored Ships in Harbours;
- Permanent International Association of Navigation Congresses (PIANC): Guidelines for the Design of Fender Systems (2002);
- Transport Canada - TERMPOL Review Process;
- Unified Facilities Criteria (UFC) 4-152-01 – Design: Piers and Wharves; and
- US Army Corps of Engineers, Coastal Engineering Manual.

Navigation

- International Association of Lighthouse Authorities (IALA) Aids to Navigation Guide (Navguide) 4th edition; and,
- PIANC: Approach Channels - A Guide for Design.

Mechanical Piping and Design Guidelines

- AISC Manual of Steel Construction;
- ANSI/AWS D1.1, Structural Welding Code (pipe supports only) ;
- API 2009, Safe Practices in Gas and Electric Cutting and Welding in Refineries, Gasoline Plants, Cycling Plants, and Petrochemical Plants;
- API 2201, Procedures for Welding or Hot Tapping on Equipment Containing Flammables;
- API 610 Centrifugal Pumps for Petroleum, Petrochemical and Natural Gas Industries;
- API 650 Welded Steel Tanks for Oil Storage – 1998 Tenth Edition Addendum 4 2005;
- API 675 Positive Displacement Pumps – Controlled Volume;
- API RP 1110, Pressure Testing of Liquid Petroleum Pipelines;
- API RP 2003, Protection against ignitions arising out of static, lightning and stray currents;
- API RP 500 C, Classification of areas for electrical installation of petroleum and gas pipeline transportation systems;
- API Spec 5L, Line Pipe;
- API Spec 6D, Pipeline Valves (Gate, Plug, Ball, and Check Valves);
- API Standard 598, Valve Inspection and Testing;
- API Standard 6.3,Manual of Petroleum Measurement Standards;
- API Standard 607, Fire Test For Soft-Seated Quarter Turn Valves;
- API STD 1104, Welding of Pipelines and Related Facilities;
- API STD 2610, Design, Construction, Operation, Maintenance & Inspection of Terminal and Tank Facilities;
- API Std 594, Wafer and Wafer-Lug Check Valves;
- API Std 609, Lug- and Wafer-Type Butterfly Valves;
- ASME B1.20.1, Pipe Threads, General Purpose;
- ASME B16.10, Face-to-Face and End-to-End Dimensions of Ferrous Valves;

- ASME B16.11, Forged Steel Fittings, Socket-Welding and Threaded;
- ASME B16.20 Metallic Gaskets for Pipe Flanges Ring Joints, Spiral Wound, and Jacketed;
- ASME B16.3, Malleable Iron Threaded Fittings;
- ASME B16.34, Valves - Flanged, Threaded, and Welding End;
- ASME B16.39, Malleable Iron Threaded Pipe Unions Classes 150, 250, and 300;
- ASME B16.4 7A Steel Pipe Line Flanges;
- ASME B16.47, Series "A" Classified Weld Neck Flanges NPS 26 through 60;
- ASME B16.49 Factory-Made Wrought Steel Butt welding of Induction Bends for Transportation and Distribution Systems;
- ASME B16.5, Pipe Flanged and Flanged Fittings;
- ASME B16.9, Factory-Made Wrought Steel Buttwelding Fittings;
- ASME B31.3, Chemical Plant and Petroleum Process Piping;
- ASME B31.4, Liquid Transportation Systems for Hydrocarbons, Liquid Petroleum Gas, Anhydrous Ammonia and Alcohols;
- ASME BPVC SEC IX, Boiler and Pressure Vessel Code: Section IX Qualification Standard for Welding and Brazing Procedures, Welders, Brazers, and Welding and Brazing Operators;
- ASTM A105, Standard Specification for Carbon Steel Forgings for Piping Applications;
- ASTM F14, Standard Practice for Making and Testing Reference Glass-Metal Bead-Seal;
- CSA B51 Boiler, Pressure Vessel and Pressure Piping Code;
- CSA Z245.1 Steel Pipe;
- CSA Z245.11 Steel Fittings;
- CSA Z245.12 Steel Flanges;
- CSA Z245.15 Steel Valves;
- CSA Z245.20-10 External Fusion Bond Epoxy Coating for Steel Pipe;

- CSA Z662-11 Oil and Gas Pipeline Systems;
- ISGOTT, International Safety Guide for Oil Tankers and Terminals, applicable sections;
- National Building Code of Canada (NBCC);
- NFPA 20 Standard for the Installation of Stationary Pumps for Fire Protection;
- NFPA 30, Flammable and Combustible Liquids Code;
- NFPA 307,Construction and Fire Protection of Marine Terminals, Piers and Wharfs;
- OCC-1-2005 Recommended Practice for Control of External Corrosion on Buried or Submerged Metallic Piping Systems;
- OCIMF, Guide on Marine Terminal Fire Protection and Emergency Evacuation;
- OCIMF/ ICS / IAPH, International Safety Guide for Oil Tankers and Terminals;
- Oil Companies International Marine Forum (OCIMF), Design and Construction Specification for Marine Loading Arms; and,
- OSHA, Occupational Safety and Health Administration.
- [redacted]
- TED-FITG-T01 [redacted] Instrument Fitting and Tubing Directive
- TES-COAT-CAD Thermite Weld Coating
- TES-COAT-EPU External Liquid Coating Systems for Below Ground Facilities
- TES-COAT-FBE External Fusion Bond Epoxy for Steel Pipe
- TES-COAT-P1 Paint Systems for Above Ground Facilities
- TES-COAT-P4 Paint Systems for Tank Externals
- [redacted]
- TES-FITG-EC1 [redacted] Specification for End Closures
- TES-FITG-LD [redacted] Specification for Carbon Steel Butt welding Fittings

- TES-FITG-T01, Instrument Tube Fitting, Instrument Pipe Fitting and Tubing Material Specification
- TES-FLGE-LD [redacted] Specification for Carbon Steel Butt welding Flanges
- [redacted]
- TES-MECH-FBT, Specification for Flange Assembly
- TES-PIPE-EW [redacted] Specification for Electric Welded Pipe
- TES-PIPE-SAW [redacted] Specification for Double Submerged Arc Welded Pipe
- TES-MATL-MD1-OIL, Piping System Materials for Pipeline, Pump, Metering and Terminal Facilities
- [redacted]
- [redacted]
- [redacted]
- [redacted]

Electrical Design Codes and Standards

- American Petroleum Association (API), RP2A, Recommended Practice for Planning, Designing, and Constructing Fixed Offshore Platforms;
- ANSI, American National Standards Institute;
- API RP 2003, Protection against ignitions arising out of static, lightning and stray currents;
- API RP 500, Recommended Practice for Classification of Areas for Electrical Installation at Petroleum Facilities Classified as Class I, Division 1 and Division 2;
- API RP 505, Recommended Practice for Classification of Locations for Electrical Installations at Petroleum Facilities Classified as Class I, Zone 0, Zone 1 and Zone 2;
- ASTM, American Society for Testing and Materials;

- BC Regulations, Electrical Safety Regulations/BC Electrical Code Directives;
- CSA C22.1 Canadian Electrical Code;
- CSA C22.3 No. 1-4 Overhead Systems;
- CSA C22.3 No. 6 Principles and Practices of Electrical Coordination Between Pipelines and Electric Supply Lines;
- CSA C22.3 No. 7-10 Underground Systems
- CSA Z462 -08, Workplace Electrical Safety;
- CSA, Canadian Standards Association;
- FM, Factory Mutual;
- IEC, International Electrotechnical Commission;
- IEEE, Institute of Electrical and Electronic Engineers;
- IES, Illumination Engineers Society;
- ISA, Instrumentation Society of America;
- ISGOTT, International Safety Guide for Oil Tankers and Terminals, applicable sections;
- ISO, International Organization for Standardization;
- NBCC, National Building Code of Canada;
- NEMA, National Electric Manufacturers Association;
- NFPA 30, Flammable and Combustible Liquids Code;
- NFPA 307 Construction and Fire Protection of Marine Terminals, Piers and Wharfs;
- NFPA 497, Recommended practice for the classification of flammable liquids, gases or vapours and of hazardous (classified) locations for electrical installations in chemical process areas;
- NFPA, National Fire Protection Association;
- NFPA, Standard for Low-, Medium-, and High-Expansion Foam;
- NFPA-20, Standard for the installation of stationary pumps for fire protection;

- NFPA-30, Flammable and combustible liquids code;
- NFPA-497, Recommended practice for the classification of flammable liquids, gases or vapours and of hazardous (classified) locations for electrical installations in chemical process areas;
- OCIMF, Guide on Marine Terminal Fire Protection and Emergency Evacuation;
- OCIMF/ ICS / IAPH, International Safety Guide for Oil Tankers and Terminals;
- Oil Companies International Marine Forum (OCIMF), Design and Construction Specification for Marine Loading Arms;
- SOR/86-309, Canadian Occupational Health & Safety Regulations;
- [redacted]
- ULC, Underwriters Laboratories of Canada; and
- WorkSafe NB.

Instrumentation and Controls

- ANSI American National Standards Institute;
- ISA Instrumentation, System and Automation Society; and
- NACE National Association of Corrosion Engineers.

Materials Standards

Materials to be used in the design will conform to applicable CSA and ASTM specifications. In areas where discrepancy is found between the two standards, CSA shall take precedence over ASTM. Specific material standards shall be identified in the project technical specifications during the detailed design phase.

Materials to be used in the electrical design will conform to applicable CSA and NEMA specifications. In areas where discrepancy is found between the two standards, CSA shall take precedence over NEMA. Specific material standards shall be identified in the project technical specifications during the detailed design phase.

Electrical equipment and materials will be specified to be in accordance with NEMA, EEMAC and IEEE standards and will be required to be CSA®, ULC®, cUL® (or other Standards Council of Canada recognized testing agency) certified and labeled for the Canadian purpose for which it is to serve. Where there is no alternative to supplying equipment which is not so certified and labeled, there may be need by the supplier for special approval and labeling from BC Provincial Electrical Inspection Department or other recognized approved alternative.