Part 1 General

1.1 DRAWING REFERENCES

.1 G001 Location and Site Plans

.2 M001 Civil and Mechanical

.3 E001 Electrical

1.2 WORK COVERED BY CONTRACT DOCUMENTS

.1 Work under this Contract covers the construction of a new gasoline dispensing system at the Sandy Bay RCMP Detachment, located in Sandy Bay Saskatchewan ('the site'). Work includes construction of the following:

- .1 New reinforced concrete tank pad.
- .2 One 9,100 litre double walled, steel Aboveground Storage tank (AST) for gasoline.
- .3 Fuel product transfer area to address spill containment and meet the requirements of the National Fire Code 2010 and Canadian Environmental Protection Act (CEPA) regulations.
- .4 New pump, piping, dispensing cabinet and appurtenances.
- .5 Aboveground piping from the tank to the dispenser.
- .6 Bollards and security fence.
- .7 Electrical for power and controls.

.2 For the purpose of this contract RCMP shall be considered the Owner, the Contractor shall be the Prime Contractor, and the Consultant or PWGSC will be the Departmental Representative.

1.3 Contract Method

.1 Construct work under single stipulated price contract.

1.4 WORK SEQUENCE

.1 Construct Work in stages to accommodate Owner's continued use of premises during construction.

.2 Co-ordinate Progress Schedule and co-ordinate with Owner Occupancy during construction.

.3 Supply and installation of the following:

- .1 1 – 9,100 litre steel, double wall, gasoline, AST to CSA S601 standard.
- .2 Concrete tank pad and spill containment berms.
- .3 Fuel dispensing cabinet with pump, meter, and hose reel.
- .4 Two (2) 40 pound BC fire extinguishers, and a 230 L petroleum spill kit in a wheeled container.

.5 Electrical supply and system grounding.

.6 Vehicle impact protection (bollards) and security fence.

.7 Relocation of the existing RCMP sign and associated electrical. Sign installation as per the original design attached as Appendix A.

.4 The contractor is responsible to supply and install all components to construct a complete working system as indicated on the contract drawings and the specifications.

.5 Maintain fire access/control.

.6 The Contractor shall provide the Departmental Representative with a current version of the Environment Canada (EC) Storage Tank System Identification Form with section IV completed, as soon as possible, after the tank is ordered. A blank copy of the EC Storage Tank System Identification Form is included in Appendix B. This information is required to obtain a tank identification number from Environment Canada. The new tank must be labeled with the Environment Canada tank ID number prior to product being delivered and prior to commissioning.

1.5 GENERAL REQUIREMENTS

.1 Perform Work in accordance with the most current edition of the:

.1 Storage Tank Systems for Petroleum and Allied Petroleum Products Regulations.

.2 National Building Code.

.3 National Fire Code.

.4 National Electrical Code.

.5 Installation Code for Oil Burning Equipment CAN/CSA-B139.

.6 Canadian Council of Ministers of the Environment - Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products

.7 Canadian Environmental Protection Act

.8 Canadian Labour Code Part II, Saskatchewan Workers' Compensation Board, Occupational Health and Safety and any other code of provincial or local application provided that in any case of conflict or discrepancy, the more stringent requirements shall apply.

.9 CEPA regulations require all petroleum installation and decommissioning to be completed by a certified petroleum installer registered in the Province of Saskatchewan.

.2 All work shall be performed in strict accordance with the drawings and specifications. If any conflicts exist, the drawings will prevail and the Departmental Representative shall be contacted immediately.

.3 Contractor shall obtain all required permits and be solely responsible for construction means, methods, techniques, sequences and procedures and for coordinating the various parts of the work.

.4 During the construction period the Contractor shall be responsible for the safety of the construction areas. The Contractor shall provide adequate shoring, bracing, and guys in accordance with all Federal, Provincial, and Municipal Safety Regulations, as well as all requirements of the Occupational Health and Safety Regulations of Saskatchewan.

.5 The Contractor shall be responsible for coordinating the work of all trades and shall check all dimensions. All discrepancies shall be called to the attention of the Departmental Representative and be resolved before proceeding with the work.

.6 Shop Drawings required by the specifications shall be submitted to the Departmental Representative for review prior to fabrication.

.7 Mechanical, civil and electrical drawings indicate size and location for all openings required for ducts, pipes and all pipe sleeves, electrical conduits and other items to be embedded in concrete or otherwise incorporated in structural work. All discrepancies shall be brought to the attention of the Departmental Representative and be resolved before proceeding with the work.

.8 Provide openings and supports, as required per details for, mechanical equipment, vents, ducts, pipes, etc. All suspended mechanical equipment to be sway or laterally braced.

.9 All information shown on the drawings relative to existing conditions is given as the best present knowledge, but without guarantee of accuracy. Where actual conditions conflict with the drawings they shall be reported to the Departmental Representative so that the proper revisions may be made. Modifications of details of construction shall not be made without written approval of the Departmental Representative. Where information on contract drawings conflicts with information given in this specification, the drawing information will prevail.

.10 Location of equipment and outlets indicated or specified are to be considered as approximate. All suspended mechanical equipment to be sway or laterally braced.

.11 The Departmental Representative will arrange project meetings and assume responsibility for setting times and recording and distributing minutes.

.12 All work at this project shall be the responsibility of the Contractor.

1.6 LAYOUT OF THE WORK

.1 The Contractor shall be responsible for the layout of the work and shall assume full responsibility for the alignment, dimensions and elevations of each and every part of the Work and their mutual relationship.

1.7 SECURITY AND CONSTRUCTION SAFETY

.1 Security:

.1 The Contractor shall be responsible for security and safety of the Contractor equipment at all times for the duration of the Contract. This is to protect all associate workers, Departmental Representatives and all authorized personnel at the Place of Work during the construction period.

.2 Construction Safety:

.1 Refer to Technical Requirements Section 01 35 29.06 Health and Safety Requirements

1.8 PERMITS AND REGULATIONS

.1 The following permit applications shall be made by the contractor:

.1 Approval for the project by the Authority Having Jurisdiction.

.2 All other legislated construction requirements noted in 1.2 "GENERAL REQUIREMENTS" of this section and in the specifications shall be the responsibility of the Contractor to maintain compliance as required.

1.9 DOCUMENTS REQUIRED

.1 Maintain at job site, one copy each document as follows:

.1 Contract Drawings.
.2 Specifications.
.3 Addenda.
.4 Reviewed Shop Drawings.
.5 List of Outstanding Shop Drawings.
.6 Change Orders.
.7 Other Modifications to Contract.
.8 Field Test Reports.
.9 Copy of Approved Work Schedule.
.10 Health and Safety Plan and Other Safety Related Documents.
.11 Material Safety Data Sheets for materials used on-site
.12 Other documents as specified.

Part 2 Products

2.1 NOT USED

.1 Not used.

Part 3 Execution

3.1 NOT USED

.1 Not used.

END OF SECTION

Part 1 General

1.1 ACCESS AND EGRESS

.1 Design, construct and maintain temporary "access to" and "egress from" work areas, including stairs, runways, ramps or ladders, independent of finished surfaces and in accordance with relevant municipal, provincial and other regulations.

1.2 USE OF SITE AND FACILITIES

.1 Owner will use the building on-site during the entire Work period for execution of normal operations. Execute work with least possible interference or disturbance to normal use of premises. Make arrangements with Departmental Representative to facilitate work as stated.

.2 Maintain existing services to building and provide for personnel and vehicle access.

.3 Contractor is not permitted to use existing building facilities (washroom, meeting room, etc.)

.4 Closures: protect work temporarily until permanent enclosures are completed.

1.3 EXISTING SERVICES

.1 Notify Departmental Representative and utility companies of intended interruption of services and obtain required permission.

.2 Where Work involves breaking into or connecting to existing services, give Departmental Representative 48 hours of notice for necessary interruption of mechanical or electrical service throughout course of work. Keep duration of interruptions to a minimum. Carry out interruptions after normal working hours of occupants.

.3 Provide for RCMP personnel and vehicular traffic.

.4 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

1.4 SPECIAL REQUIREMENTS

.1 Carry out noise generating Work Monday to Friday from 08:00 to 18:00 hours and on Saturdays, Sundays and statutory holidays: 09:00 to 17:00. The Contractor may be permitted to work outside these hours, with prior approval from the Owner.

.2 Submit schedule in accordance with Section 01 32 16.07 - Construction Progress Schedules - Bar Chart.

.3 Ensure that Contractor personnel employed on site become familiar with and obey regulations including safety, fire, traffic and security regulations.

.4 Keep within limits of work and avenues of ingress and egress.

1.5 BUILDING SMOKING ENVIRONMENT

.1 Comply with smoking restrictions. Smoking is not allowed in the Work area, and is only allowed in areas as directed by the Departmental Representative.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 ADMINISTRATIVE

.1 Schedule and administer project meetings at the call of the Departmental Representative.

.2 Prepare agenda for meetings.

.3 Distribute written notice of each meeting four days in advance of meeting date to the Departmental Representative.

.4 Provide physical space and make arrangements for meetings.

.5 Preside at meetings.

.6 Record the meeting minutes. Include significant proceedings and decisions. Identify actions by parties.

.7 Reproduce and distribute copies of minutes within one day after meetings and transmit to meeting participants, affected parties not in attendance, and the Departmental Representative.

.8 Representative of Contractor, Subcontractor and suppliers attending meetings will be qualified and authorized to act on behalf of party each represents.

1.2 PRECONSTRUCTION MEETING

.1 Within 10 working days after award of Contract, the Departmental Representative will request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.

.2 Senior representatives of the Owner, Departmental Representative, Contractor, major Subcontractors, and field inspectors will be in attendance.

.3 Establish time of meeting and notify parties concerned minimum 5 working days before meeting.

.4 Agenda to include:

- .1 Schedule of Work: in accordance with Section 01 32 16.07 - Construction Progress Schedules - Bar Chart.
- .2 Proposed working hours.
- .3 Submittals, including Review of Contractor Health and Safety Plan.
- .4 Schedule of submission of shop drawings and samples. Submit submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .5 Requirements for temporary facilities, site sign, offices, storage sheds, utilities, fences in accordance with Section 01 52 00 - Construction Facilities.
- .6 Delivery schedule of specified equipment and supplies.
- .7 Site security in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

.8 Record drawings in accordance with Section 01 33 00 - Submittal Procedures.

.9 Maintenance manuals in accordance with Section 01 78 00 - Closeout Submittals.

.10 Take-over procedures, acceptance, warranties in accordance with Section 01 78 00 - Closeout Submittals.

.11 Appointment of inspection and testing agencies or firms.

1.3 PROGRESS MEETINGS

.1 During course of Work and 1 week prior to project completion, schedule progress meetings weekly, or as directed by the Departmental Representative.

.2 Contractor, major Subcontractors involved in Work, Departmental Representative, and Owner are to be in attendance.

.3 Notify parties minimum 3 working days prior to meetings.

.4 Record minutes of meetings and circulate to attending parties and affected parties not in attendance within 2 working days after meeting.

.5 Agenda to include the following:

.1 Review, approval of minutes of previous meeting.

.2 Review of Work progress since previous meeting.

.3 Field observations, problems, conflicts.

.4 Review of project schedules and identified problems.

.5 Corrective measures and procedures to regain projected schedule.

.6 Progress schedule, during succeeding work period.

.7 Review submittal schedules: expedite as required.

.8 Maintenance of quality standards.

.9 Review proposed changes for affect on construction schedule and on completion date.

.10 Other business.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 DEFINITIONS

.1 Activity: element of Work performed during course of Project. Activity normally has expected duration, and expected cost and expected resource requirements. Activities can be subdivided into tasks.

.2 Bar Chart: graphic display of schedule-related information. In typical bar chart, activities or other Project elements are listed down left side of chart, dates are shown across top, and activity durations are shown as date-placed horizontal bars. Generally Bar Chart should be derived from commercially available computerized project management system.

.3 Baseline: original approved plan (for project, work package, or activity), plus or minus approved scope changes.

.4 Construction Work Week: Monday to Friday, inclusive, will provide five day work week and define schedule calendar working days as part of Bar Chart submission.

.5 Duration: number of work periods (not including holidays or other nonworking periods) required to complete activity or other project element. Usually expressed as workdays or workweeks.

.6 Master Plan: summary-level schedule that identifies major activities and key milestones.

.7 Milestone: significant event in project, usually completion of major deliverable.

.8 Project Schedule: planned dates for performing activities and the planned dates for meeting milestones. Dynamic, detailed record of tasks or activities that must be accomplished to satisfy Project objectives. Monitoring and control process involves using Project Schedule in executing and controlling activities and is used as basis for decision making throughout project life cycle.

.9 Project Planning, Monitoring and Control System: overall system operated by Departmental Representative to enable monitoring of project work in relation to established milestones.

1.2 REQUIREMENTS

.1 Ensure Master Plan and Detail Schedules are practical and remain within specified Contract duration.

.2 Plan to complete Work in accordance with prescribed milestones and time frame.

.3 Limit activity durations to maximum of approximately 10 working days, to allow for progress reporting.

1.3 SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit to Departmental Representative within 10 working days of Award of Contract Bar Chart as Master Plan for planning, monitoring and reporting of project progress.

.3 Submit Project Schedule to Departmental Representative within 5 working days of receipt of acceptance of Master Plan.

1.4 MASTER PLAN

.1 Structure schedule to allow orderly planning, organizing and execution of Work as Bar Chart.

.2 Departmental Representative will review and return revised schedules within 5 working days.

.3 Revise impractical schedule and resubmit within 5 working days.

.4 Accepted revised schedule will become Master Plan and be used as baseline for updates.

1.5 PROJECT SCHEDULE

.1 Develop detailed Project Schedule derived from Master Plan.

.2 Ensure detailed Project Schedule includes as minimum milestone and activity types as follows:

.1 Award.
.2 Shop Drawings.
.3 Mobilization.
.4 Excavation and Site Preparation.
.5 Concrete Slab Reinforcement.
.6 Concrete Slab Pour.
.7 AST Installation.
.8 Piping.
.9 Electrical.
.10 Controls.
.11 Testing and Commissioning.
.12 Fencing and Bollard Construction.
.13 Cleanup and Demobilization.

1.6 PROJECT SCHEDULE REPORTING

.1 Update Project Schedule on weekly basis reflecting activity changes and completions, as well as activities in progress.

.2 Include as part of Project Schedule, narrative report identifying Work status to date, comparing current progress to baseline, presenting current forecasts, defining problem areas, anticipated delays and impact with possible mitigation.

1.7 PROJECT MEETINGS

.1 Discuss Project Schedule at regular site meetings, identify activities that are behind schedule and provide measures to regain slippage. Activities considered behind schedule are those with projected start or completion dates later than current approved dates shown on baseline schedule.

Part 2 Products

2.1 NOT USED

.1 Not used.

Part 3 Execution

3.1 NOT USED

.1 Not used.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

.1 This section specifies general requirements and procedures for Contractor's submissions of shop drawings, product data, and samples to Departmental Representative for review. Additional specific requirements for submissions are specified in individual sections.

.2 Do not proceed with Work until relevant submissions are reviewed by Departmental Representative.

.3 Present shop drawings, product data, samples, and mock-ups in SI Metric units.

.4 Where items or information is not produced in SI Metric units, converted values are acceptable.

.5 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submissions.

.6 Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.

.7 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative's review of submission, unless Departmental Representative gives written acceptance of specific deviations.

.8 Make any changes in submissions which the Departmental Representative may require consistent with Contract Documents and resubmit as directed by Departmental Representative.

.9 Notify Departmental Representative, in writing, when resubmitting, of any revisions other than those requested by Departmental Representative.

.10 Engineering costs may be charged to the Contractor where documents are resubmitted without all changes required by the Departmental Representative.

1.2 SUBMISSION REQUIREMENTS

.1 Coordinate each submission with requirements of Work and Contract Documents. Individual submissions will not be reviewed until all related information is available.

.2 Allow 7 days for Departmental Representative's review of each submission.

.3 Accompany submissions with transmittal letter containing:
- .1 Date.
- .2 Project title and number.
- .3 Contractor's name and address.
- .4 Identification and quantity of each shop drawing, product data, and sample.
- .5 Other pertinent data.

.4 Submissions shall include:
- .1 Date and revision dates.
- .2 Project title and number.
- .3 Name and address of:
  - .1 Subcontractor.
  - .2 Supplier.
  - .3 Manufacturer.

.4 Identification of product or material.

.5 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements, and compliance with Contract Documents.

.6 Details of appropriate portions of Work as applicable:

.1 Fabrication.

.2 Layout, showing dimensions, including identified field dimensions, and clearances.

.3 Setting or erection details.

.4 Capacities.

.5 Performance characteristics.

.6 Standards.

.7 Operating weight.

.8 Wiring diagrams.

.9 Single line and schematic diagrams.

.10 Relationship to adjacent work.

.5 After Departmental Representative's review, distribute copies.

.6 Submissions not meeting the requirements of this section will be returned to the contractor without review for resubmission.

1.3 LIMITATIONS OF REVIEW

.1 The Departmental Representative shall review all Contractor submittals, such as health and safety plans, shop drawings, product data, samples and other data, as required by the Departmental Representative, but only for the limited purpose of checking for general conformance with the design concept and the information expressed in the Contract Documents. This review shall not include review of the accuracy or completeness of details, such as quantities, dimensions, weights or gauges, fabrication processes, construction means or methods, coordination of the work with other trades or construction of safety precautions, all of which are the sole responsibility of the Contractor. The Departmental Representative's review shall be conducted with reasonable promptness while allowing sufficient time in the Departmental Representative's judgment to permit adequate review. Review of a specific item shall not indicate that the Departmental Representative has reviewed the entire assembly of which the item is a component. The Departmental Representative shall not be responsible for any deviations from the Contract Documents not brought to the attention of the Departmental Representative in writing by the Contractor. The Departmental Representative shall not be required to review partial submission or those for which submission of correlated items have not been received.

1.4 SHOP DRAWINGS

.1 Submit original drawings, or modified standard drawings to illustrate details of portions of Work, which are specific to project requirements.

.2 Maximum sheet size: 850 x 1,050 mm.

.3 Submit shop drawings as follows:

.1 Opaque diazo prints, photocopies, or PDF copies of the original manufacturer's information.

.2 Number Contractor requires for distribution plus 3 copies to be retained by Departmental Representative.

.4 Cross-reference shop drawing information to applicable portions of Contract Documents.

1.5 PRODUCT DATA

.1 Certain Specification Sections specify that manufacturer's catalogue sheets, brochures, literature, performance charts and diagrams, and other standard descriptive data used to illustrate standard manufactured products will be accepted in lieu of shop drawings.

.2 Submit 3 copies of product data.

.3 Show dimensions and clearances required.

.4 Delete information not applicable to project.

.5 Supplement standard information to provide details applicable to project.

.6 Show performance clearances required.

.7 Show wiring diagrams and controls.

.8 Cross-reference product data information to applicable portions of Contract Documents.

1.6 SAMPLES

.1 Samples: examples of materials, equipment, quality, finishes, workmanship.

.2 Where colour, pattern, or texture is criterion, submit full range of samples.

.3 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

Part 2 Products

2.1 NOT USED

.1 Not used.

Part 3 Execution

3.1 NOT USED

.1 Not used.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 Transportation Association of Canada Manual of Uniform Traffic Control Devices (MUTCD) for Streets and Highways (Latest Edition).

1.2 PROTECTION OF PUBLIC TRAFFIC

.1 Comply with requirements of Acts, Regulations and Bylaws in force for regulation of traffic or use of roadways upon or over which it is necessary to carry out Work or haul materials or equipment.

.2 Do not close any lanes of road without approval of the Owner and the Departmental Representative. Before re-routing traffic erect suitable signs and devices in accordance with instructions contained in Part D of MUTCD.

.3 Provide and maintain road access and egress to property fronting along Work under Contract and in other areas as indicated, unless other means of road access exist that meet approval of Departmental Representative.

1.3 INFORMATIONAL AND WARNING DEVICES

.1 Provide and maintain signs, flashing warning lights, and other devices required to indicate construction activities or other temporary and unusual conditions resulting from Project Work which requires road user response.

.2 Supply and erect signs, delineators, barricades and miscellaneous warning devices as specified in Part D, Temporary Conditions Signs and Devices, of the MUTCD.

.3 Place signs and other devices in locations recommended in the MUTCD.

.4 Meet with Departmental Representative prior to commencement of Work to prepare list of signs and other devices required for project. If situation on site changes, revise list to approval of Departmental Representative.

.5 Continually maintain traffic control devices in use by:

.1 Checking signs daily for legibility, damage, suitability and location. Clean, repair or replace to ensure clarity and reflectance.

.2 Removing or covering signs which do not apply to conditions existing from day to day.

Part 2 Products

2.1 NOT USED

.1 Not used.

Part 3 Execution

3.1 NOT USED

.1 Not used.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations

.2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)

.1 Material Safety Data Sheets (MSDS).

.3 Province of Saskatchewan

.1 Occupational Health and Safety Act, 1993, S.S. [2005].

1.2 SUBMITTALS

.1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit site-specific Health and Safety Plan: Within 7 working days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:

.1 Results of site specific safety hazard assessment.

.2 Results of safety and health risk or hazard analysis for site tasks and operation.

.3 Submit one copy of Contractor's authorized representative's work site health and safety inspection reports to Departmental Representative, weekly.

.4 Submit copies of reports or directions issued by Federal and Provincial health and safety inspectors.

.5 Submit copies of incident and accident reports to the Departmental Representative within 7 days occurrence.

.6 Submit WHMIS MSDS - Material Safety Data Sheets.

.7 Departmental Representative will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within 7 working days after receipt of plan. Revise plan as appropriate and resubmit plan to Departmental Representative within 5 days after receipt of comments from Departmental Representative.

.8 Departmental Representative's review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.

.9 Medical Surveillance: where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for site personnel prior to commencement of Work, and submit additional certifications for any new site personnel to Departmental Representative.

.10 On-site Contingency and Emergency Response Plan: address standard operating procedures to be implemented during emergency situations.

1.3 FILING OF NOTICE

.1 File Notice of Project with Provincial authorities prior to beginning of Work.

1.4 SAFETY ASSESSMENT

.1 Perform site specific safety hazard assessment related to project.

1.5 GENERAL REQUIREMENTS

.1 Develop written site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.

.2 Departmental Representative may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.

1.6 RESPONSIBILITY

.1 Be responsible for health and safety of all persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.

.2 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

1.7 COMPLIANCE REQUIREMENTS

.1 Comply with Saskatchewan Occupational Health and Safety Regulations, 1996 (latest edition).

.2 Comply with Canada Labour Code, Canada Occupational Safety and Health Regulations.

1.8 UNFORSEEN HAZARDS

.1 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Province having jurisdiction and advise Departmental Representative verbally and in writing.

1.9 HEALTH AND SAFETY CO-ORDINATOR

.1 Employ and assign to Work, competent and authorized representative as Health and Safety Co-ordinator. Health and Safety Co-ordinator must:

.1 Have site-related working experience specific to activities associated with AST system construction.

.2 Have working knowledge of occupational safety and health regulations.

.3 Be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter site to perform Work.

.4 Be responsible for implementing, enforcing daily and monitoring site-specific Contractor's Health and Safety Plan.

.5 Be on site during execution of Work.

1.10 POSTING OF DOCUMENTS

.1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of Province having jurisdiction, and in consultation with Departmental Representative.

1.11 CORRECTION OF NON-COMPLIANCE

.1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Departmental Representative.

.2 Provide Departmental Representative with written report of action taken to correct non-compliance of health and safety issues identified.

.3 Departmental Representative may stop Work if non-compliance of health and safety regulations is not corrected.

1.12 WORK STOPPAGE

.1 Give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations for Work.

Part 2 Products

2.1 NOT USED

.1 Not used.

Part 3 Execution

3.1 NOT USED

.1 Not used.

END OF SECTION

Part 1 General

1.1 DEFINITIONS

.1 Environmental Pollution and Damage: presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavourably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade environment aesthetically, culturally and/or historically.

.2 Environmental Protection: prevention/control of pollution and habitat or environment disruption during construction. Control of environmental pollution and damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material as well as other pollutants.

1.2 SUBMITTALS

.1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.

.2 Prior to commencing construction activities or delivery of materials to site, submit Environmental Protection Plan for review and approval by Departmental Representative. Environmental Protection Plan is to present comprehensive overview of known or potential environmental issues which must be addressed during construction.

.3 Environmental protection plan: include:

.1 Name[s] of person[s] responsible for ensuring adherence to Environmental Protection Plan.

.2 Erosion and sediment control plan which identifies type and location of erosion and sediment controls to be provided.

.3 Drawings showing locations of proposed material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials including methods to control runoff and to contain materials on site.

.4 Spill Control Plan: including procedures, instructions, and reports to be used in event of unforeseen spill of regulated substance.

.5 Non-Hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris.

.6 Contaminant prevention plan that: identifies potentially hazardous substances to be used on job site; identifies intended actions to prevent introduction of such materials into air, water, or ground; and details provisions for compliance with Federal laws and regulations for storage and handling of these materials.

.7 Waste water management plan that identifies methods and procedures for management and/or discharge of waste waters which are directly derived from construction activities, such as concrete curing water.

1.3 FIRES

.1 Fires and burning of rubbish on site not permitted.

1.4 DISPOSAL OF WASTES

.1 Do not bury rubbish and waste materials on site.

.2 Do not dispose of waste or volatile materials, such as mineral spirits, oil or paint thinner into waterways, storm or sanitary sewers.

.3 Prevent discharges containing asphalt, grout, concrete, concrete wash water, or other waste materials from discharging on-site.

1.5 DRAINAGE

.1 Provide erosion and sediment control plan that identifies type and location of erosion and sediment controls to be provided. Plan to include monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan and Federal laws and regulations.

.2 Provide temporary drainage and pumping as necessary to keep excavations and site free from water.

.3 Do not pump water containing suspended materials into waterways, sewer or drainage systems.

.4 Control disposal or runoff of water containing suspended materials or other harmful substances.

1.6 SITE CLEARING AND PLANT PROTECTION

.1 Protect trees and plants on site and adjacent properties to the site.

.2 Protect roots of designated trees to dripline during excavation and site grading to prevent disturbance or damage. Avoid unnecessary traffic, dumping and storage of materials over root zones.

.3 Minimize stripping of topsoil and vegetation.

.4 Restrict tree removal to areas indicated or designated by Departmental Representative.

1.7 POLLUTION CONTROL

.1 Maintain temporary erosion and pollution control features installed under this contract.

.2 Control emissions from equipment to local authorities' emission requirements.

.3 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.

1.8 HISTORICAL / ARCHAEOLOGICAL CONTROL

.1 Should any archaeologically significant items be encountered during work, all work will stop pending assessment by the Departmental Representative.

.2 Any archaeologically significant items encountered remain the property of the Crown.

Part 2 Products

2.1 NOT USED

.1 Not used.

Part 3 Execution

3.1 NOT USED

.1 Not used.

END OF SECTION

Part 1 General

1.1 SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

1.2 INSTALLATION AND REMOVAL

.1 Provide temporary utilities controls in order to execute work expeditiously.

.2 Remove from site all such work after use.

1.3 DEWATERING

.1 Provide temporary drainage and pumping facilities to keep excavations and site free from standing water, as detailed in Section 01 35 43 - Environmental Procedures.

1.4 WATER SUPPLY

.1 Owner will provide supply of potable water for construction use.

1.5 TEMPORARY POWER AND LIGHT

.1 Owner will provide temporary electrical power during construction in accordance with Section 01 52 00 - Construction Facilities.

1.6 TEMPORARY COMMUNICATION FACILITIES

.1 Provide and pay for all temporary communication necessary for own use to complete the Work.

1.7 FIRE PROTECTION

.1 Provide and maintain temporary fire protection equipment during performance of Work required by governing codes, regulations and bylaws.

.2 Burning rubbish and construction waste materials is not permitted on site.

Part 2 Products

2.1 NOT USED

.1 Not used.

Part 3 Execution

3.1 NOT USED

Not used.

END OF SECTION

Part 1 General

1.1 SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

1.2 INSTALLATION AND REMOVAL

.1 Prepare site plan indicating proposed location and dimensions of area to be fenced and used by Contractor, number of site trailers to be used, avenues of ingress/egress to fenced area, and details of fence installation.

.2 Identify areas which have to be gravelled to prevent tracking of mud.

.3 Indicate use of supplemental or other staging area.

.4 Provide construction facilities in order to execute work expeditiously.

.5 Remove from site all such work after use.

1.3 TEMPORARY FACILITIES

.1 Furnished by Contractor:

.1 The Contractor shall be responsible for connection and disconnection of temporary power, water and communication systems, as noted below. Contractor shall, as a part of work, supply, install, properly maintain and remove all temporary construction facilities and utilities necessary for full and complete performance of the Work. Such items shall include, but not necessarily be limited to, those listed below. The type of facilities, move-in and move-out dates and locations on job site shall be subject to and in accordance with, the review and approval of the Owner:

.1 Meeting facilities.

.2 First aid facilities.

.3 Fuels and lubricants including heating fuels.

.4 Transportation facilities, on and off the site.

.5 Telephone services.

.6 Compressed air and gases.

.7 Maintenance of Contractor’s letdown, storage and work areas and roads within such areas including lockup area for material storage.

.8 All cranes and other necessary equipment for lifting and moving equipment.

.9 Non-destructive testing equipment.

.10 All small tools.

.11 Temporary lighting.

.12 All standard expendable or consumable construction items and supplies.

.13 All temporary buildings for use by the Contractor’s employees.

.14 Construction power (See 1.9.2 – "Furnished By Owner").

.15 Storage facilities for heavy equipment.

.16 Sanitary facilities.

.17 All items not supplied by the Owner.

.2 Furnished by Owner:

.1 Contractor's lay down area shall be restricted to the immediate area of the Work which will be defined by the Owner.

.2 Materials and equipment may be stored on-site in a neat and tidy fashion as approved by the Owner. The Owner will not be responsible for lost or stolen materials or equipment.

.3 Electrical Power is available in the areas of work.

1.4 CONTRACTOR'S OFFICE

.1 The Contractor shall provide a trailer on-site to utilize as an office.

1.5 CONSTRUCTION PARKING

.1 Parking will be permitted on site by the Owner provided it does not disrupt performance of Work.

.2 Provide and maintain adequate access to project site.

1.6 CLEAN-UP

.1 Remove construction debris, waste materials, packaging material from work site daily.

.2 Clean dirt, mud, snow, or ice tracked onto paved or surfaced roadways.

Part 2 Products

2.1 NOT USED

.1 Not used.

Part 3 Execution

3.1 NOT USED

.1 Not used.

END OF SECTION

Part 1 General

1.1 INSTALLATION AND REMOVAL

.1 Provide temporary fencing around the work site during execution of Work.

.2 Remove from site all such work after use.

1.2 ACCESS TO SITE

.1 Provide and maintain access roads, sidewalk crossings, ramps and construction runways as may be required for access to Work.

1.3 FIRE ROUTES

.1 Maintain access to property including overhead clearances for use by emergency response vehicles.

1.4 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

.1 Protect surrounding private and public property from damage during performance of Work.

.2 Be responsible for damage incurred.

Part 2 Products

2.1 NOT USED

.1 Not used.

Part 3 Execution

3.1 NOT USED

.1 Not used.

END OF SECTION

Part 1 General

1.1 MANUAL

.1 An organized compilation of operating and maintenance data including detailed technical information, documents and records describing operation and maintenance of individual products or systems.

1.2 GENERAL INSTRUCTIONS

.1 Assemble, coordinate, bind, and index required data into Operation and Maintenance Manual.

.2 Submit four (4) hardcopies and four (4) electronic copies attached to each hard copy of the complete operation and maintenance manual to the Departmental Representative upon project completion.

.3 Material: label each section with tabs protected with celluloid covers fastened to hard paper dividing sheets.

.4 Type lists and notes.

.5 Drawings, diagrams, and manufacturer's literature must be legible.

1.3 BINDERS

.1 Binders: vinyl, hard covered, 3 "D" ring, loose leaf, sized for 215 x 280 mm paper, with spine pocket.

.2 Identify contents of each binder on spine.

1.4 CONTENTS

.1 Cover sheet containing:

.1 Date submitted.

.2 Project title, location, and project number.

.3 Names and addresses of Contractor and all subcontractors.

.2 Table of Contents of all binders.

.3 List of maintenance materials provided.

.4 List of special tools provided.

.5 List of spare parts provided.

.6 Warranties, guarantees.

.7 Copies of approvals and certificates.

1.5 PRODUCT DATA

.1 Provide the following data:

.1 List of equipment including service depot.

.2 Nameplate information including equipment number, make, size, capacity, model number, and serial number.

.3 Parts list.

.4 Installation details.

.5 Operating instructions.

.6 Maintenance instructions for equipment.

.7 Maintenance instructions for finishes.

.2 Shop drawings:

.1 One complete set of reviewed final shop drawings and product data.

Part 2 Products

2.1 NOT USED

2.1.1 Not used.

Part 3 Execution

3.1 NOT USED

3.1.1 Not used.

END OF SECTION

Part 1 General

1.1 PROJECT CLEANLINESS

.1 Maintain Work in tidy condition, free from accumulation of waste products and debris.

.2 Remove waste materials from site at daily regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site.

.3 Clear snow and ice from access to site, remove from site.

.4 Provide on-site containers for collection of waste materials and debris.

.5 Dispose of waste materials and debris off site.

1.2 FINAL CLEANING

.1 When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.

.2 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for use.

.3 Prior to final review remove surplus products, tools, construction machinery and equipment.

.4 Remove waste materials from site at regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site.

.5 Remove stains, spots, marks and dirt from electrical and mechanical fixtures.

.6 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.

.7 Remove dirt and other disfiguration from exterior surfaces.

.8 Sweep and wash clean paved areas.

.9 Remove snow and ice from access to site.

1.3 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse and recycling.

Part 2 Products

2.1 NOT USED

.1 Not used.

Part 3 Execution

3.1 NOT USED

.1 Not used.

END OF SECTION

Part 1 General

1.1 INSPECTION AND DECLARATION

.1 Contractor's Inspection: Contractor and Subcontractors: conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.

.1 Notify Departmental Representative in writing of satisfactory completion of Contractor's Inspection and that corrections have been made.

.2 Request Departmental Representative Inspection.

.2 Departmental Representative Inspection: Departmental Representative and Contractor will perform inspection of Work to identify obvious defects or deficiencies. Contractor to correct Work accordingly.

.3 Completion: submit written certificate that following have been performed:

.1 Work has been completed and inspected for compliance with Contract Documents.

.2 Defects have been corrected and deficiencies have been completed.

.3 Environment Canada (EC) Tank Registration has been submitted by Owner and tank system has been labelled with EC ID number.

.4 Equipment and systems have been tested and are fully operational.

.5 Certificates required by Fire Commissioner have been submitted.

.6 Operation of systems has been demonstrated to Owner's personnel.

.7 Commissioning of mechanical systems has been completed in accordance with -1 91 13 – General Commissioning Requirements and Commissioning Report has been submitted to the Departmental Representative.

.8 Work is complete and ready for final inspection.

.4 Final Inspection: when items noted above are completed, request final inspection of Work by Owner, Departmental Representative, and Contractor. If Work is deemed incomplete by Owner and Departmental Representative, complete outstanding items and request re-inspection.

.5 Declaration of Substantial Performance: when Owner and Departmental Representative consider deficiencies and defects have been corrected and it appears requirements of Contract have been substantially performed, make application for certificate of Substantial Performance.

Part 2 Products

2.1 NOT USED

.1 Not used.

Part 3 Execution

3.1 NOT USED

.1 Not used.

END OF SECTION

Part 1 General

1.1 SUBMITTALS

.1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.

.2 Furnish evidence, if requested, for type, source and quality of products provided.

.3 Defective products will be rejected, regardless of previous inspections. Replace products at Contractor's expense.

.4 Pay costs of transportation.

1.2 AS-BUILTS AND SAMPLES

.1 Maintain at site for Departmental Representative, one record copy of:

- .1 Contract Drawings.
- .2 Specifications.
- .3 Addenda.
- .4 Change Orders and other modifications to Contract.
- .5 Reviewed shop drawings, product data, and samples.
- .6 Field test records.
- .7 Inspection certificates.
- .8 Manufacturer's certificates.
- .9 Health and Safety Plan.
- .10 Environmental Protection Plan.
- .11 Spill Response Plan.

1.3 RECORDING ACTUAL SITE CONDITIONS

.1 Contract Drawings and shop drawings: mark each item to record actual construction, including:

- .1 Surveyed locations of underground utilities and appurtenances by a land surveyor registered with the Saskatchewan Land Surveyor's Association.
- .2 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
- .3 Field changes of dimension and detail.
- .4 Changes made by change orders.
- .5 Details not on original Contract Drawings.
- .6 References to related shop drawings and modifications.

.2 Specifications: mark each item to record actual construction, including:

- .1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.
- .2 Changes made by Addenda and change orders.

1.4 FINAL SURVEY

.1 Submit final site survey certificate, certifying that elevations and locations of completed Work are in conformance, or non-conformance with Contract Documents.

1.5 EQUIPMENT AND SYSTEMS

.1 Panel board circuit directories: provide electrical service characteristics, controls, and communications.

.2 Include installed colour coded wiring diagrams.

.3 Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.

.4 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

.5 Include manufacturer's printed operation and maintenance instructions.

.6 Include sequence of operation by controls manufacturer.

.7 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

.8 Provide installed control diagrams by controls manufacturer.

.9 Provide Contractor's co-ordination drawings, with installed colour coded piping diagrams.

.10 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.

.11 Include test and balancing reports.

.12 Additional requirements: as specified in individual specification sections.

Part 2 Products

2.1 NOT USED

.1 Not used.

Part 3 Execution

3.1 NOT USED

.1 Not used.

END OF SECTION

Part 1 General

1.1 SUMMARY

.1 Section Includes:

.1 General requirements relating to commissioning of project's components and systems, specifying general requirements to performance verification (PV) of components, equipment, sub-systems, systems, and integrated systems.

.2 Related Requirements

.1 All other sections.

.3 Acronyms:

.1 AFD - Alternate Forms of Delivery, service provider.

.2 OMM – Operation and Maintenance Manual.

.3 Cx - Commissioning.

.4 EMCS - Energy Monitoring and Control Systems.

.5 O M - Operation and Maintenance.

.6 PI - Product Information.

.7 PV - Performance Verification.

.8 TAB - Testing, Adjusting and Balancing.

1.2 GENERAL

.1 Commissioning (Cx) is a planned program of tests, procedures and checks carried out systematically on systems and integrated systems of the finished Project. Cx is performed after systems and integrated systems are completely installed, functional and Contractor's Performance Verification responsibilities have been completed and approved. Objectives:

.1 Verify installed equipment, systems and integrated systems operate in accordance with contract documents and design criteria and intent.

.2 Ensure appropriate documentation is compiled into the Operations and Maintenance manual (OMM).

.3 Effectively train Operation and Maintenance (O M) staff.

.2 Contractor assists in Cx process, operating equipment and systems, troubleshooting and making adjustments as required.

.1 Systems to be operated at full capacity under various modes to determine if they function correctly and consistently at peak efficiency.

.2 During these checks, adjustments to be made to enhance performance to meet environmental or user requirements.

.3 Design Criteria: as per client's requirements or determined by designer. To meet Project functional and operational requirements.

.4 Cx will require fuel in the new tank. Fuel delivery will be coordinated by the Owner. Fuel cannot be delivered into the tank until it is labeled with an Environment Canada tank

ID number. Contractor is to ensure that the new tank is labelled with the EC ID number before first filling. It is the Contractor's responsibility to schedule commissioning to coincide with the EC Tank ID labelling.

1.3 COMMISSIONING OVERVIEW

.1 Cx Plan to be provided a minimum of 14 days prior to Cx.

.2 Cx to be a line item of Contractor's cost breakdown.

.3 Cx activities supplement field quality and testing procedures described in relevant technical sections.

.4 Cx is conducted in concert with activities performed during stage of project delivery. Cx identifies issues in Planning and Design stages which are addressed during Construction and Cx stages to ensure the built facility is constructed and proven to operate satisfactorily under weather, environmental and occupancy conditions to meet functional and operational requirements. Cx activities include transfer of critical knowledge to facility operational personnel.

.5 Departmental Representative will issue Interim Acceptance Certificate when:

.1 Completed Cx documentation has been received, reviewed for suitability and approved by the Departmental Representative.

.2 Equipment, components and systems have been commissioned.

.3 O M training has been completed.

1.4 NON-CONFORMANCE TO PERFORMANCE VERIFICATION REQUIREMENTS

.1 Should equipment, system components, and associated controls be incorrectly installed or malfunction during Cx, correct deficiencies, re-verify equipment and components within the non-functional system, including related systems as deemed required by Departmental Representative, to ensure effective performance.

.2 Costs for corrective work, additional tests, inspections, to determine acceptability and proper performance of such items to be borne by Contractor.

1.5 PRE-CX REVIEW

.1 Before Construction:

.1 Review contract documents, confirm by writing to Departmental Representative.

.1 Adequacy of provisions for Cx.

.2 Aspects of design and installation pertinent to success of Cx.

.2 During Construction:

.1 Co-ordinate provision, location and installation of provisions for Cx.

.3 Before start of Cx:

.1 Have completed Cx Plan up-to-date.

.2 Ensure installation of related components, equipment, sub-systems, and system is complete.

.3 Fully understand Cx requirements and procedures.

.4 Understand completely design criteria and intent and special features.

.5 Submit complete start-up documentation to Departmental Representative.

.6 Have Cx schedules up-to-date.

.7 Ensure systems have been cleaned thoroughly.

.4 Inform Departmental Representative in writing of discrepancies and deficiencies on finished works.

1.6 CONFLICTS

.1 Report conflicts between requirements of this section and other sections to Departmental Representative before start-up and obtain clarification.

.2 Failure to report conflict and obtain clarification will result in application of most stringent requirement.

1.7 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.

.1 Submit no later than 4 weeks after award of Contract and prior to Cx:

.1 Name of Contractor's Cx agent.

.2 Draft Cx documentation.

.3 Preliminary Cx schedule.

1.8 COMMISSIONING DOCUMENTATION

.1 Provide completed and approved Cx documentation to Departmental Representative.

1.9 COMMISSIONING SCHEDULE

.1 Provide detailed Cx schedule as part of construction schedule in accordance with Section 01 32 16.07 - Construction Progress Schedules - Bar Chart.

.2 Provide adequate time for Cx activities prescribed in technical sections and commissioning sections including:

.1 Approval of Cx reports.

.2 Verification of reported results.

.3 Repairs, retesting, re-commissioning, re-verification.

.4 Training.

1.10 STARTING AND TESTING

.1 Contractor assumes liabilities and costs for inspections. Including disassembly and re-assembly after approval, starting, testing and adjusting, including supply of testing equipment.

1.11 WITNESSING OF STARTING AND TESTING

.1 Provide 14 days notice to Departmental Representative prior to commencement.

.2 Departmental Representative to witness of start-up and testing.

.3 Contractor's Cx Agent to be present at tests performed and documented by sub-trades, suppliers and equipment manufacturers.

1.12 PROCEDURES

.1 Verify that equipment and systems are complete, clean, and operating in normal and safe manner prior to conducting start-up, testing and Cx.

.2 Correct deficiencies and obtain approval from Departmental Representative.

.3 Failure to follow accepted start-up procedures will result in re-evaluation of equipment by an independent testing agency selected by Departmental Representative. If results reveal that equipment start-up was not in accordance with requirements, and resulted in damage to equipment, implement following:

.1 Minor equipment/systems: implement corrective measures approved by Departmental Representative.

.2 Major equipment/systems: if evaluation report concludes that damage is minor, implement corrective measures approved by Departmental Representative.

.3 If evaluation report concludes that major damage has occurred, Departmental Representative shall reject equipment.

.1 Rejected equipment to be removed from site and replaced with new.

.2 Subject new equipment/systems to specified start-up procedures.

1.13 START-UP DOCUMENTATION

.1 Assemble start-up documentation and submit to Departmental Representative for approval before commencement of commissioning.

.2 Start-up documentation to include:

.1 Environment Canada Tank Number must be visible prior to fuelling the tank.

.2 Factory and on-site test certificates for specified equipment.

.3 Pre-start-up inspection reports.

.4 Signed installation/start-up check lists.

.5 Start-up reports,

.6 Step-by-step description of complete start-up procedures, to permit Departmental Representative to repeat start-up at any time.

1.14 OPERATION AND MAINTENANCE OF EQUIPMENT AND SYSTEMS

.1 With assistance of manufacturer develop written maintenance program and submit to Departmental Representative for approval before implementation.

.2 Operate and maintain systems for length of time required for commissioning to be completed.

1.15 TEST RESULTS

.1 If start-up, testing and/or PV produce unacceptable results, repair, replace or repeat specified starting and/or PV procedures until acceptable results are achieved.

.2 Provide manpower and materials, assume costs for re-commissioning.

1.16 START OF COMMISSIONING

.1 Notify Departmental Representative at least 14 days prior to start of Cx.

.2 Start Cx after elements of building affecting start-up and performance verification of systems have been completed.

1.17 INSTRUMENTS / EQUIPMENT

.1 Submit to Departmental Representative for review and approval:

.1 Complete list of instruments proposed to be used.

.2 Listed data including, serial number, current calibration certificate, calibration date, calibration expiry date and calibration accuracy.

.2 Provide the following equipment as required:

.1 Equipment as required to complete work.

1.18 COMMISSIONING PERFORMANCE VERIFICATION

.1 Carry out Cx:

.1 Under accepted simulated operating conditions, over entire operating range, in all modes.

.2 On independent systems and interacting systems.

.2 Cx procedures to be repeatable and reported results are to be verifiable.

.3 Follow equipment manufacturer's operating instructions.

1.19 WITNESSING COMMISSIONING

.1 Departmental Representative to witness activities and verify results.

1.20 AUTHORITIES HAVING JURISDICTION

.1 Where specified start-up, testing or commissioning procedures duplicate verification requirements of authority having jurisdiction, arrange for authority to witness procedures so as to avoid duplication of tests and to facilitate expedient acceptance of facility.

.2 Obtain certificates of approval, acceptance and compliance with rules and regulation of authority having jurisdiction.

.3 Provide copies to Departmental Representative within 5 days of test and with Cx report.

1.21 EXTRAPOLATION OF RESULTS

.1 Where Cx of weather, occupancy, or seasonal-sensitive equipment or systems cannot be conducted under near-rated or near-design conditions, extrapolate part-load results to design conditions when approved by Departmental Representative in accordance with equipment manufacturer's instructions, using manufacturer's data, with manufacturer's assistance and using approved formulae.

1.22 SUNDRY CHECKS AND ADJUSTMENTS

.1 Make adjustments and changes which become apparent as Cx proceeds.

.2 Perform static and operational checks as applicable and as required.

1.23 DEFICIENCIES, FAULTS, DEFECTS

.1 Correct deficiencies found during start-up and Cx to satisfaction of Departmental Representative.

.2 Report problems, faults or defects affecting Cx to Departmental Representative in writing. Stop Cx until problems are rectified. Proceed with written approval from Departmental Representative.

1.24 COMPLETION OF COMMISSIONING

.1 Upon completion of Cx leave systems in normal operating mode.

.2 Except for warranty and seasonal verification activities specified in Cx specifications, complete Cx prior to issuance of Interim Certificate of Completion.

.3 Cx to be considered complete when contract Cx deliverables have been submitted and accepted by Departmental Representative.

1.25 ACTIVITIES UPON COMPLETION OF COMMISSIONING

.1 When changes are made to baseline components or system settings established during Cx process, provide updated Cx form for affected item.

1.26 TRAINING

.1 Provide system operation and maintenance training to a representative of the owner.

1.27 MAINTENANCE MATERIALS, SPARE PARTS, SPECIAL TOOLS

.1 Supply, deliver, and document maintenance materials, spare parts, and special tools as specified in contract.

1.28 OWNER'S PERFORMANCE TESTING

.1 Performance testing of equipment or system by Departmental Representative will not relieve Contractor from compliance with specified start-up and testing procedures.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION