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TECHNICAL SPECIFICATION

TRANSFER & BOOSTER PUMPS

FOR
CONVERSION TO A TRUCK UNLOADING STATION
LSD: 12-09-081-22 W4M



Equinox Project No.: 201-01-35
March 5, 2012

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1.0 SCOPE

- 1) This specification covers the minimum technical requirements for the design, drafting, materials, labour, fabrication, inspection, testing, coating, consumables, preparation for shipment and supply of following pumps:
 - a) Two (Qty. 2) Water Transfer Pumps (Tag No. P-905 A/B) as per data sheet DS-C-600-H3-1-00
 - b) Three (Qty. 3) Sales Oil Booster Pumps (Tag No. P-909 A/B/C) as per data sheet DS-C-600-H3-2-00
- 2) All pumps must be supplied with appropriate Motor Assembly in accordance with Motor Datasheets and all reference & applicable specification (Refer LT-C-600-H3-01-00).
- 3) The Vendor shall assume full unit responsibility for all pumps and auxiliaries. The selection of equipment, accessories, materials, and methods of fabrication not specifically addressed in this specification but necessary for the safety, operability, or completeness of this material requisition shall be the Vendor's responsibility.
- 4) Pumps to be fabricated to ASME B73.1M or ASME B73.2M (Centrifugal).
- 5) The Vendor's scope of supply shall include the following:
 - a) Supply all documentation per attached Drawing and Data Requirements (DDR) form : DD-C-600-H3-04-00
 - b) Supervision and coordination of all testing and inspection in compliance with attached Quality Surveillance Inspection requirements (QSI) form : QI-C-600-H3-05-00
 - c) Loading of pumps and shipped-loose items onto Purchaser-supplied truck at Vendor's facility.

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1.1 LOCATION AND SITE DATA

- 1) The equipment shall be installed at the CNRL Brintnell Oil Battery, which shall be located at LSD: 12-09-081-22 W4M.
- 2) Site and Climatic Data are as follows:


Table 1.1 Site Conditions

Project		Conversion to a Truck Unloading Station
Site Location		12-09-081-22 W4M
Site Elevation		602.5 m (1976.2 ft)
Design Ambient Temperatures:	Maximum	+27°C (80.6°F)
	Minimum	-39°C (-38.2°F)
Wind:	Wind load	0.41 kPa
	Velocity	91 km/hr (57 mph)
Seismic Data	Sa (0.2)	+0.12
	Sa (0.5)	+0.5
	Sa (1.0)	+0.023
	Sa (2.0)	+0.006
	PGA	+0.06
Snow Load	Ss	2.0
	Sr	0.1

2.0 GENERAL

2.1 RESPONSIBILITY

It is not the intent of this specification to spell out every detailed aspect of the design and manufacturing of this RFQ items and auxiliaries. The selection of equipment, accessories, materials and methods of fabrication which is not exclusively identified in this and referenced specifications but are necessary for the completion of the work shall be the Vendor's responsibility.

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Review by Purchaser of Vendor's drawings or other documents, or release of equipment for shipment by Purchaser's authorized representative shall not relieve Vendor of his responsibility for compliance with the Purchase Order nor alter the conditions of the guarantee.

2.2 ALTERNATIVES AND EXCEPTIONS

Unless the Vendor's proposal takes particular exception to the bid document package, full compliance is implied and will be assumed. Alternatives may be offered for materials and fabrication, if technically or economically justified and provided that they meet the requirements of the applicable codes, standards and all applicable specifications.

2.3 CONFLICTS


In the event of a conflict between this document and other referenced applicable documents, **Vendor shall consult Purchaser for a resolution in writing before any work is started.** In the event of a conflict between this specification and governmental requirements, the more rigid requirement shall govern.

2.4 DRAWING CERTIFICATION

- 1) The Vendor shall supply as-built drawings which shall be submitted with final data book as specified in Section 4.0 and DDR: DD-C-600-H3-04-00
- 2) Drawing shall use the symbology and tagging system for equipment, piping and instruments as per Purchaser Engineering Standards/data sheet as applicable.

2.5 DEFINITIONS


- 1) "Vendor" means the bidder, supplier, seller, fabricator, manufacturer or packager.
- 2) "Purchaser" means owner, end user or its authorized agent, like Equinox Engineering Ltd. for this project.
- 3) "Owner" means the end user;

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3.0 TECHNICAL REQUIREMENTS

3.1 GENERAL

- 1) Pumps shall be complete in all aspects and shall be ready for commissioning and start-up upon installation of shipped-loose items. Packaging shall include engineering design, drafting, data/drawing submission, preparation for shipment, loading onto truck, mechanical warranty, and other after-sale services.
- 2) Pumps shall be designed to meet the process conditions specified in the datasheets. Design shall be based on proven technology, and Seller shall certify that the pumps supplied are suitable for the purpose intended and will meet or exceed Purchaser's requirements as specified in this document. Seller is responsible for providing any material, accessory items or equipment, in addition to that referred to in this specification, which is required to provide safe and efficient operation of the equipment specified herein.
- 3) All phases of the work shall be performed in a controlled environment by qualified professionals in a good workmanlike manner, using tools and equipment that are suitable for the intended purpose, and in accordance with all applicable regulatory requirements at the Federal, Provincial and Municipal levels.
- 4) The Vendor shall clearly indicate in the proposal all ship-loose items to be field installed re-tested, recalibrated and realigned by others in the field.
- 5) Every Vendor deliverable shall be subject to final acceptance by the Purchaser. Purchaser's approval of Vendor drawings and/or design shall not relieve the Vendor of his responsibility for correctness of design or regulatory compliance.

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3.1.1 Reference Specifications

- 1) Applicable portions of the following Purchaser Specifications shall form part of this Technical Specification. Refer to attached List of Technical Attachments (LT-C-600-H3-01-00) for a complete list of attachments. The Vendor must develop a good understanding of these requirements prior to manufacture. **Any exceptions must be clearly noted in the Vendor's quotation.**
- 2) Vendor to follow applicable CNRL specifications, vendor to specify any additional specs if required to answer the RFQ.


3.2 PROCESS

Refer to attached pump datasheets for all process data.

3.3 MECHANICAL

3.3.1 Pumps

- 1) Refer to pump datasheets for general design requirements.
- 2) Each pump to be mounted on separate baseplate.
- 3) All pumps mechanical seals shall be from the same manufacturer who shall coordinate seal sizes and type with pump manufacturers to minimize number of variations.
- 4) The casting's country of origin and foundry location shall be provided for approval from Buyer.
- 5) Non-sparking type coupling guards shall be provided for pumps installed in classified areas.

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3.3.2 Motors

- 1) Refer to CNRL Specification. Section number: 12.00, sub-section number: 12.08, section name: Electrical, sub-section name: Low Voltage Induction Motor, for general design requirements.
- 2) See attached Motor Datasheets.

3.3.3 Painting and Coating


Per manufacturer's standard.

3.4 CIVIL & STRUCTURAL


Not applicable.

4.0 DRAWING AND DATA REQUIREMENTS

- 1) Document No: DD-C-600-H3-04-00, titled "Drawings and Data Requirements", is included as part of this Specification, and there is a listing of the drawings and documents to be submitted by Vendor, along with a submission schedule. Submission dates marked "TBD" shall be advised by the Vendor.
- 2) Attached DDR shall be marked-up by Vendor during quotation, noting any exceptions or deviations taken, and providing a commitment schedule for each document listed. All agreed exceptions will be incorporated into a revised DDR provided with the purchase order, which shall be used for expediting purposes to ensure all documentation from vendor has been received in a timely fashion.
- 3) Unless specific exceptions are taken to the DDR, or to the submission dates indicated, full compliance is implied and will be assumed. Vendor to specify tentative delivery dates as part of bidding.

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- 4) The documentation specified covers the minimum requirement to provide clear communication between the Purchaser and vendor and to facilitate safe design, installation and operation of the unit.
- 5) Additional data as required for specific purpose shall be made available, if requested.
- 6) The information shall be furnished in a similar form from all sources to improve clarity and foster efficient utilisation of the complete documentation.
- 7) Vendor shall furnish to Company three (3) sets of Data Books in English, containing all of the information specified in the referenced Documentation Requirements Sheets for inclusion in the Data Book. All data is to reflect the as-built condition of the equipment items. The Data Books shall be bound in slant three ring binders with the ring attached to the binder back cover. All documentation shall be on 8 ½" x 11" three holed paper except for larger size drawings. Drawings shall be reduced to scale on 11" x 17" paper unless clarity is adversely affected. Otherwise, large drawings shall be folded and placed in heavy-duty three-sided three holed plastic covers and included in the Data Book.
- 8) A copy of English version of the Data Book shall be provided on CD-R disc(s).
- 9) Vendor shall make available at all times any information relating to material purchase or delivery for Company review and comment incl. MTR and NDE reports.
- 10) Upon receipt of Purchase Order, the successful Vendor will be required to provide a Seller Document Index (SDI), indicating every planned document and accompanying submission schedule and DDR Document Code.
- 11) Drawings and documents submitted for Purchaser's review will be returned to the Vendor with one of the following review codes:
 - V1: Correct and Resubmit. Manufacturing may NOT proceed.
 - V2: Correct and Resubmit. Manufacturing may proceed.
 - V3: Review Not Required. Accepted for information purposes only.
 - V4: Submit Final Documentation
 - V5: Manufacturing May Proceed. No further submissions required.

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- 12) Unless drawings are marked V1 status, the Vendor is expected to proceed with fabrication in accordance with agreed fabrication schedule.
- 13) Additional instructions are provided in the first two pages of the attached DDR form, which shall form part of this material requisition.

5.0 QUALITY SURVEILLANCE REQUIREMENTS

- 1) Vendor shall implement an adequate Quality Assurance Program. This program shall include the Vendor and his sub-vendors, if any. The program shall assure that the performance of the work will fulfil the requirements of the Purchase documents. The program shall be capable of providing assurance that design, purchasing, fabrication; shipping, storage, inspection and testing of equipment, materials and services are in accordance with the Purchaser's requirements & specifications.
- 2) Vendor shall be responsible for the inspection and quality of his work and that of other sub-contractors or sub-vendors working for the Vendor. Inspection and testing shall comply with all applicable codes and this specification.
- 3) Purchaser reserves the right to inspect materials, equipment, and work at any time. All items not in accordance with this specification or the referenced drawings shall be repaired or replaced to Company's satisfaction at no cost to Company.
- 4) Vendor shall provide Purchaser a minimum of five (5) working days of advance notice of inspection or testing activities that are to be witnessed by Purchaser or Purchaser's approved representative.
- 5) Vendor shall make available office space for Purchaser's inspector to review drawings and specifications.
- 6) Weld procedures, qualification records, NDE procedures, quality plans, inspection and test procedures, etc. shall be reviewed and approved by the

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Purchaser's assigned construction representative. Inspection and test records such as NDE records, weld maps, material certifications etc. shall be furnished to the Purchaser's construction representative on an ongoing basis as arranged by him.

- 7) A final inspection of the completed packages will be made by the Purchaser prior to any disassembly for shipment. All items including ladders and platforms must be fully assembled for final inspection, even if they will be disassembled for shipment.
- 8) The attached Quality Surveillance document QI-C-600-H3-05-00 defines the level of inspection for this material requisition and the inspection activity list.