CITY OF GRAND ISLAND

Working Together for a Better Tomorrow. Today.

BID SPECIFICATION PACKAGE

for

GAS TURBINE 2 LUBE OIL REPLACEMENT

C 130331

Bid Opening Date/Time

Tuesday, May 11, 2021 at 2:00 p.m. (local time)
City of Grand Island, City Hall
100 East 1st Street, P.O. Box 1968
Grand Island, NE 68802-1968

Contact Information

Tylor Robinson
City of Grand Island – Utilities Department
Platte Generating Station
308/385-5496

Date issued: April 22, 2021

ADVERTISEMENT TO BIDDERS
FOR
GAS TURBINE 2 LUBE OIL REPLACEMENT
FOR
CITY OF GRAND ISLAND, NEBRASKA

Sealed bids for Gas Turbine 2 Lube Oil Replacement will be received at the office of the City Clerk, 100 E. First Street, P.O. Box 1968, Grand Island, Nebraska 68802, until **Tuesday, May 11th, 2021 at 2:00 p.m. local time,** FOB the City of Grand Island, freight prepaid. Bids will be publicly opened at this time in the Grand Island City Hall City Clerk's Office located on 1st floor of City Hall. **Submit an original and three copies if submitting by mail.** Bid package and any Addendas are also available on-line at www.grand-island.com under Business-Bids and Request for Proposals-Bid Calendar under the bid opening date. Bidding documents, plans and specifications for use in preparing bids may be downloaded from the QuestCDN website www.QuestCDN.com for a $30.00 fee. Submitting through QuestCDN requires one original document of the bid to be uploaded. **Bids received after the specified time will not be considered**.

The successful bidder will be required to comply with fair labor standards as required by Nebraska R.R.S.73-102 and comply with Nebraska R.R.S. 48-657 pertaining to contributions to the Unemployment Compensation Fund of the State of Nebraska. Successful bidder shall maintain a drug free workplace policy. Every public contractor and his, her or its subcontractors who are awarded a contract by the City for the physical performance of services within the State of Nebraska shall register with and use a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska.

Each bidder shall submit with the bid a certified check, a cashiers check, or bid bond payable to the City of Grand Island in an amount no less than five percent (5%) of the bid price which shall guarantee good faith on the part of the bidder and the entering into a contract within fifteen (15) days at the bid price if accepted by the City. **Your certified check, cashiers check or bid bond must be submitted in a separate envelope attached to the outside of the envelope containing the bid. Each envelope must be clearly marked indicating its contents. Failure to submit the necessary qualifying information and correct number of copies in clearly marked and separate envelopes will result in your bid not being opened or considered.** Only surety companies authorized to do business in the State of Nebraska may issue bid bonds.

Bids will be evaluated by the Purchaser based on price, schedule, quality, adherence to schedule, plan and specifications, economy and efficiency of operation, experience and reputation of the bidder, ability, capacity, and skill of the bidder to perform contract required and adaptability of the particular items to the specific use intended.

The Purchaser reserves the right to reject any or all bids, to waive irregularities therein, and to accept whichever bid that may be in the best interest of the City, at its sole discretion.

No bidder may withdraw his/her bid for a period of thirty (30) days after date of bid opening.

RaNae Edwards, City Clerk

Advertised

(All bids must be submitted on this form)

Gas Turbine 2 Lube Oil Replacement
BID DATA FORM

CITY OF GRAND ISLAND
GRAND ISLAND, NE

The undersigned Bidder, having examined all specifications and other bidding documents, and all addenda thereto, and being acquainted with and fully understanding all conditions relative to the specified materials and equipment, hereby proposes to properly clean the hydraulic and lube oil circuitry and replace the working fluid in one General Electric gas combustion turbine Frame 6B, GT-2 at Burdick Generating Station , FOB the City of Grand Island-Burdick Generating Station, freight prepaid, at the following price:

ITEM DESCRIPTION	EXTENDED COST
Base Bid:	
High Velocity, High Temp Flush & Oil Replacement	$ _____
Varnish Flush**	$ _____
Labor	$ _____
Applicable Sales tax*	$ _____
Total Base Bid	**$ _____**

*** If bidder fails to include sales tax in their bid price or takes exception to including sales tax in their bid price, the City will add a 7.5% figure to the bid price for evaluation purposes; however, the City will only pay actual sales tax due.**

☐ **Exceptions Noted -** Bidder acknowledges there are *Exceptions* and/or *Clarifications* noted to the above bid, and those exceptions are fully explained on a separate sheet, clearly marked, and included with the Bid.

_____
Bidder Company Name Date

_____
Company Address City State Zip

_____
Print Name of Person Completing Bid Signature

Email:_____ Telephone No._____

According to Nebraska Sales and Use Tax Requirements, Section 1-017, Contractors, check which option you have selected to file with the Nebraska Department of Revenue:

Nebraska law provides a sales and use tax exemption on contractor labor charges for the construction, repair, or annexation of any structure used for the generation, transmission, or distribution of electricity. Separately stated contractor labor would be exempt, all materials are taxable according to the contractor's option.

Option 1 (Section 1-017.05)_____ Option 2 (Section 1-017.06)_____ Option 3 (Section 1-017.07)_____

If the Nebraska sales and use tax election is not filed or noted above, the contractor will be treated as a retailer under Option 1 for sales and use tax purposes.

☐ By checking this box, Bidder acknowledges the specified completion date of the project is **July 1, 2021**.

☐ By checking this box, Bidder acknowledges that Addenda Number(s) _____ were received and considered in Bid preparation.

Note: If Bidder supplies individual unit pricing information as supplemental pricing to the base material and labor cost above, said individual pricing is proprietary information and should not be released under a public records request. The total base bid is not considered proprietary information and will be released pursuant to City Procurement Code.

**The Varnish Flush shall only be awarded if the Contractor determines a varnish flush is needed after sampling and inspecting the conditions of the system.

CHECKLIST FOR BID SUBMISSION

FOR

GAS TURBINE 2 LUBE OIL REPLACEMENT

Bids must be received by the City Clerk before *2:00 p.m. on Tuesday, May 11, 2021*.

The following items must be completed for your bid to be considered.

- ❑ Submittal of bid documents:
  - ❑ **Option 1 – Mailing**: A signed original and three (3) copies of the bidding documents. Failure to submit the correct number of copies may result in your bid not being considered.
    - ❑ Note: Your certified check, cashiers check or bid bond should be clearly marked in a separate envelope attached to the signed original bid.
  - ❑ **Option 2 – QuestCDN (online)**: Purchase the bid specification through QuestCDN at their $30.00 fee. Upload the signed original of the Bid Data Form, along with any supporting material required to meet the bid specification through QuestCDN. Upload your bid bond online through QuestCDN. *Bidders using Certified check or Cashiers' Check must mail said check to the office of the City Clerk no later than the scheduled bid opening date and time and clearly marked with the project name.*
- ❑ Bidders must complete and sign the Bid Data Form provided in these Documents. All blank spaces must be filled in. Bidders shall acknowledge receipt of any Addenda information on the Bid Data Form.
- ❑ Selection of Nebraska Sales Tax Option. If the Nebraska sales and use tax election is not filed or noted above, the Contractor will be treated as a retailed under Option 1 for sales and use tax purposes.
- ❑ Firm lump sum pricing; firm unit pricing in case adjustments are necessary, and breakout of sales tax pricing.
- ❑ A proposed detailed schedule, including hold points for inspections and repairs.
- ❑ A reference list of at least three (3) projects of similar scope and complexity.
- ❑ A summary of the experience of the Superintendent proposed for this project.
- ❑ A reference list of any Subcontractors proposed for this project.
- ❑ Exceptions to the specification or Owner's Contract Document.
- ❑ Safety Documentation
- ❑ Acknowledgment of Addenda Number(s) _____.

Please check off each item as completed to ensure compliance. If you have any questions, please feel free to contact our office prior to the bid opening date/time.

INSTRUCTIONS TO BIDDERS

1. GENERAL INFORMATION.

   The following instructions outline the procedure for preparing and submitting Bids. Bidders must fulfill all requirements as specified in these Documents.

2. TYPE OF BID.

   Bidders shall be required to submit prices for all items listed in the Bid Data Form.

3. PREPARATION OF BIDS.

   Bidders shall use only the Bid Data Form provided in these Documents. All blank spaces in the Bid Data Form must be filled in, preferably in BLACK ink, in both words and figures where required. No changes to the wording or content of the forms is permitted. Written amounts shall govern in case of discrepancy between the amounts stated in writing and the amounts stated in figures.

   Prices stated shall be f.o.b. with freight and full insurance paid by Bidder, to the job site located in Grand Island, Nebraska.

   The Bidder shall acknowledge receipt of all Addenda in the Bid Data Form. Bids received without acknowledgement or without the Addendum enclosed will be considered informal.

   Individual unit pricing as listed on the Bid Data Form or supplied as supplemental information may be deemed proprietary information and not be released under a public records request. The total amount of the bid is not considered proprietary information and will be released pursuant to City Procurement Code.

4. SUBMISSION OF BIDS.

   All Bids must be submitted intact with the correct number of copies no later than the time prescribed, at the place, and in the manner set forth in the ADVERTISEMENT FOR BIDS. Bids must be made on the Bid Data Form provided herein. Each Bid mailed must be submitted intact in a sealed envelope, so marked as to indicate its contents without being opened, and delivered in person or addressed and mailed in conformance with the instructions in the ADVERTISEMENT FOR BIDS.

5. BID SECURITY.

   Bids must be accompanied by cash, a certified check, or cashier's check drawn on a bank which is insured by the Federal Deposit Insurance Corporation, or a bid bond issued by a Surety authorized to issue such bonds in the state where the Work is located, in the amount of 5 percent of the bid amount payable to OWNER. This bid security shall be given as a guarantee that the Bidder will not withdraw their Bid for a period of thirty (30) days after bid opening, and that if awarded the Contract, the successful Bidder will execute the attached Contract and furnish a properly executed Performance Bond and Payment Bond, each in the full amount of the Contract price, within the time specified.

   The Attorney-in-Fact that executes this bond on behalf of the Surety must attach a notarized copy of his/her power of attorney as evidence of his/her authority to bind the Surety on the date of execution of the bond. Where State Statue requires, certification by a resident agent shall also be provided.

6. RETURN OF BID SECURITY.

Within fifteen (15) days after the award of the Contract, the OWNER will return the bid securities to all Bidders whose Bids are not to be further considered in awarding the Contract. All other retained bid securities will be held until the Contract has been finally executed, after which all bid securities, other than Bidders' bonds and guarantees which have been fortified, will be returned to the respective Bidders whose Bids they accompanied.

7. BASIS OF AWARD.

The award will be made by the OWNER on the basis of the Bid from the lowest responsive, responsible Bidder which, in the OWNER's sole and absolute judgment will best serve the interest of the OWNER. All Bids will be considered on the following basis:

- Delivery time
- Bid price
- Cost of installation
- Suitability to project requirements
- Conformance with the terms of the Bid Documents
- Responsibility and qualification of Bidder

The OWNER reserves the right to reject all Bids, or any Bid not in conformance with the intent of the Bid Documents, and to waive any informalities and irregularities in said Bids.

8. EXECUTION OF CONTRACT.

The successful Bidder shall, within fifteen (15) days after receiving notice of award, sign and deliver to the OWNER the Contract hereto attached together with the acceptable bonds as required in these Bid Documents. Within fifteen (15) days after receiving the signed Contract with acceptable bond(s) from the successful Bidder, the OWNER's authorized agent will sign the Contract. Signature by both parties constitutes execution of the Contract.

9. PERFORMANCE AND PAYMENT BONDS.

The successful Bidder shall file with the OWNER Performance and Payment Bonds in the full amount (100 percent) of the Contract price, as security for the faithful performance of the Contract and the payment of all persons supplying labor and materials for the Work under this Contract, and to cover all guarantees against defective workmanship or materials, or both, for a period of one (1) year after the date of final acceptance of the Work by the OWNER. The Surety furnishing these bonds shall have a record of service satisfactory to the OWNER, be authorized to do business in the State where the OWNER's project is located and shall be named on the current list of approved Surety Companies, acceptable on Federal bonds as published by the Audit Staff, Bureau of Accounts, U.S. Treasury Department.

The Attorney-in-Fact (Resident Agent) who executes these bonds on behalf of the Surety must attach a notarized copy of his/her power-of-attorney as evidence of his/her authority to bind the Surety on the date of execution of the bond.

10. TIME OF COMPLETION.

The time of completion of the Work to be performed under this Contract is the essence of the Contract. The time allowed for the completion of the Work is stated in the Bid Data Form.

11. GRATUITIES AND KICKBACKS.

City Code states that it is unethical for any person to offer, give, or agree to give any City employee or former City employee, or for any City employee or former City employee to solicit, demand, accept, or agree to accept from another person, a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, or preparation of any part of a program requirement or a purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, auditing, or in any other advisory capacity in any proceeding or application, request for ruling, determination, claim or controversy, or other particular matter, pertaining to any program requirement or a contract or subcontract, or to any solicitation or proposal therefor. It shall be unethical for any payment, gratuity, or offer of employment to be made by or on behalf of a subcontractor under a contract to the prime contractor or higher tier subcontractor or any person associated therewith, as an inducement for the award of a subcontract or order.

12. FISCAL YEAR.

The City of Grand Island, Nebraska operates on a fiscal year beginning October 1st and ending on the following September 30th. It is understood and agreed that any portion of this agreement which will be performed in a future fiscal year is contingent upon the City Council adopting budget statements and appropriations sufficient to fund such performance.

CONTRACT AGREEMENT

THIS AGREEMENT made and entered into by and between **[SUCCESSFUL BIDDER]**, hereinafter called the Contractor, and the **CITY OF GRAND ISLAND, NEBRASKA**, hereinafter called the City.

WITNESSETH:

THAT, WHEREAS, in accordance with law, the City has caused contract documents to be prepared and an advertisement calling for bids to be published for *GAS TURBINE 2 LUBE OIL REPLACEMENT;* and

WHEREAS, the City, in the manner prescribed by law, has publicly opened, examined, and canvassed the bids submitted, and has determined the aforesaid Contractor to be the lowest responsive and responsible bidder, and has duly awarded to said Contractor a contract therefore, for the sum or sums named in the Contractor's bid, a copy thereof being attached to and made a part of this Contract;

NOW, THEREFORE, in consideration of the compensation to be paid to the Contractor and of the mutual agreements herein contained, the parties have agreed and hereby agree, the City for itself and its successors, and the Contractor for itself, himself/herself, or themselves, and its, his/her, or their successors, as follows:

ARTICLE I. That the following documents shall comprise the Contract, and shall together be referred to as the "Agreement" or the "Contract Documents";

1. This Contract Agreement.
2. City of Grand Island's Specification for this project.
3. [NAME OF SUCCESSFUL BIDDER] bid signed and dated [DATE OF BID].

In the event of any conflict between the terms of the Contract Documents, the provisions of the document first listed shall prevail.

ARTICLE II. That the Contractor shall (a) furnish all tools, equipment, superintendence, transportation, and other construction materials, services and facilities; (b) furnish, as agent for the City, all materials, supplies and equipment specified and required to be incorporated in and form a permanent part of the completed work; (c) provide and perform all necessary labor; and (d) in a good substantial and workmanlike manner and in accordance with the requirements, stipulations, provisions, and conditions of the Contract documents as listed in the attached General Specifications, said documents forming the Contract and being as fully a part thereof as if repeated verbatim herein, perform, execute, construct and complete all work included in and covered by the City's official award of this Contract to the said Contractor, such award being based on the acceptance by the City of the Contractor's bid;

ARTICLE III. That the City shall pay to the Contractor for the performance of the work embraced in this Contract and the Contractor will accept as full compensation therefore the sum (subject to adjustment as provided by the Contract) of **[DOLLAR AMOUNT] ($00.00)** for all services, materials, and work covered by and included in the Contract award and designated in the foregoing Article II; payments thereof to be made in cash or its equivalent in the manner provided in the General Specifications.

The total cost of the Contract includes:

Base Bid:	$	.00
Sales Tax on Materials/Equipment:	$	.00
Sales Tax on Labor:	$	.00
Total	$	.00

The City of Grand Island, Nebraska operates on a fiscal year beginning October 1st and ending on the following September 30th. It is understood and agreed that any portion of this agreement which will be performed in a future fiscal year is contingent upon the City Council adopting budget statements and appropriations sufficient to fund such performance.

ARTICLE IV. The Contractor hereby agrees to act as agent for the City in purchasing materials and supplies for the City for this project. The City shall be obligated to the vendor of the materials and supplies for the purchase price, but the Contractor shall handle all payments hereunder on behalf of the City. The vendor shall make demand or claim for payment of the purchase price from the City by submitting an invoice to the Contractor. Title to all materials and supplies purchased hereunder shall vest in the City directly from the vendor. Regardless of the method of payment, title shall vest immediately in the City. The Contractor shall not acquire title to any materials and supplies incorporated into the project. All invoices shall bear the Contractor's name as agent for the City. This paragraph will apply only to these materials and supplies actually incorporated into and becoming a part of the finished product of the GAS TURBINE 2 LUBE OIL REPLACEMENT.

ARTICLE V. That the Contractor shall start work as soon as possible after the Contract is signed and the required bonds and insurance are approved, and that the Contractor shall deliver the equipment, tools, supplies, and materials F.O.B. Burdick Generating Station, and complete the work on or before ***July 1, 2021.***

ARTICLE VI. The Contractor agrees to comply with all applicable State fair labor standards in the execution of this Contract as required by Section 73-102, R.R.S. 1943. The Contractor further agrees to comply with the provisions of Section 48-657, R.R.S. 1943, pertaining to contributions to the Unemployment Compensation Fund of the State of Nebraska. During the performance of this Contract, the Contractor and all subcontractors agree not to discriminate in hiring or any other employment practice on the basis, of race, color, religion, sex, national origin, age or disability. The Contractor agrees to comply with all applicable Local, State and Federal rules and regulations. The Contractor agrees to maintain a drug-free workplace policy and will provide a copy of the policy to the City upon request. Every public contractor and his, her or its subcontractors who are awarded a contract by the City for the physical performance of services within the State of Nebraska shall register with and use a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska.

ARTICLE VII. Gratuities and kickbacks: City Code states that it is unethical for any person to offer, give, or agree to give any City employee or former City employee, or for any City employee or former City employee to solicit, demand, accept, or agree to accept from another person, a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, or preparation of any part of a program requirement or a purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, auditing, or in any other advisory capacity in any proceeding or application, request for ruling, determination, claim or controversy, or other particular matter, pertaining to any program requirement or a contract or subcontract, or to any solicitation or proposal therefor. It shall be unethical for any payment, gratuity, or offer of employment to be made by or on behalf of

a subcontractor under a contract to the prime contractor or higher tier subcontractor or any person associated therewith, as an inducement for the award of a subcontract or order.

[SUCCESSFUL BIDDER]

By_____ Date _____

Title_____

CITY OF GRAND ISLAND, NEBRASKA

By_____ Date _____
Mayor

Attest:_____
City Clerk

The Contract is in due form according to law and hereby approved.

_____ Date _____
Attorney for the City

CITY OF GRAND ISLAND

Working Together for a Better Tomorrow, Today.

REQUEST FOR BIDS - GENERAL SPECIFICATIONS

The Bid shall be in accordance with the following and with all attached BID DATA and DETAILED SPECIFICATIONS.

All prices are to be furnished and installed FOB, Grand Island, Nebraska. **All prices shall be firm, and shall include all sales and use taxes as lawfully assessed under laws and regulations of the State of Nebraska.** * If bidder fails to include sales tax in their bid price or takes exception to including sales tax in their bid price, the City will add a 7.5% figure to the bid price for evaluation purposes; however, the City will only pay actual sales tax due.

Mailed bids shall include the following on the **outside** of the mailing envelope: **"Gas Turbine 2 Lube Oil Replacement".** All bids submitted by mail must include **an original and three copies** of the bid. The bid specification and on-line bidding forms are also available at http://www.grand-island.com/business/bids-and-request-for-proposals/bid-calendar under the bid opening date and "Click here for bid document link" through QuestCDN for a $30.00 fee. If submitting through QuestCDN, **one** original document of the bid is required to be uploaded. No verbal bids will be considered. All sealed bids are due no later than Tuesday, **May 11, 2021 at 2:00 p.m. local time**. to:

Mailing Address: City Clerk
City Hall
P. O. Box 1968
Grand Island, NE 68802-1968

Street Address: City Clerk
City Hall
100 E. First Street
Grand Island, NE 68801

Bids will be opened at this time in the City Hall City Clerk's Office located on 1st floor of City Hall. Any bid received after the specified date will not be considered.

Bids will be evaluated by the Purchaser based on price, schedule, quality, adherence to schedule, plan and specifications, economy and efficiency of operation, experience and reputation of the bidder, ability, capacity, and skill of the bidder to perform contract required and adaptability of the particular items to the specific use intended.

The successful bidder will be required to comply with fair labor standards as required by Nebraska R.R.S.73-102 and comply with Nebraska R.R.S. 48-657 pertaining to contributions to the Unemployment Compensation Fund of the State of Nebraska. Contractor shall maintain a drug free workplace policy. Every public contractor and his, her or its subcontractors who are awarded a contract by the City for the physical performance of services within the State of Nebraska shall register with and use a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska.

The equipment and materials must be new, the latest make or model, unless otherwise specified. Prior to approving the invoice for payment, the City reserves the right to thoroughly inspect and test the equipment to confirm compliance with specifications. Any equipment or material which does not meet the City's requirements will be returned at vendor's expense for correction. The invoice will be paid after approval at the next regularly scheduled City Council meeting and occurring after departmental approval of invoice; the City Council typically meets the second and fourth Tuesday of each month. Invoices must be received well in advance of Council date to allow evaluation and processing time.

Each bidder shall submit with the bid a certified check, a cashier's check, or bid bond payable to the City of Grand Island in an amount no less than five percent (5%) of the bid price which shall guarantee good faith on the part of the Bidder and the entering into a contract within fifteen (15) days at the bid price if accepted by the City. **Your certified check, cashier's check or bid bond must be submitted in a separate envelope attached to the outside of the envelope containing the bid. Each envelope must be clearly marked indicating its contents. Failure to submit the necessary qualifying information and correct number of copies in clearly marked and separate envelopes will result in your bid not being opened or considered.** Only surety companies authorized to do business in the State of Nebraska may issue bid bonds.

Successful bidder shall comply with the City's insurance requirements; performance and payment bonds are required for this project as outlined in the Detailed Specifications and Instructions to Bidders. All bids shall be valid for at least thirty (30) working days after the bid deadline for evaluation purposes.

All bids must be on the bid form and must be signed and dated to be accepted. If exceptions and/or clarifications are noted to the bid, those exceptions must be fully explained on a separate sheet, clearly marked, and included with the Bid. Any changes that are found made to the original bid specification, other than Owner generated Addendums, would result in your bid not being considered. Please contact Tylor Robinson at 308-385-5495, for questions concerning this specification.

Contents

GAS TURBINE LUBE OIL REPLACEMENT

Burdick Generating Station Gas Turbine 2 Lube Oil Replacement
Grand Island Utilities Department-Detailed Specification

1.0 PROJECT DECRIPTION

1.1 BACKGROUND

The City of Grand Island, Burdick Generating Station Combustion Turbine Project GT-2 and GT-3 commissioned two (2) simple cycle combustion turbine electric generating units in 2003. Both units burn natural gas as their primary fuel source and are capable of consuming No. 2 distillate oil as a secondary fuel. The GT-2 and GT-3 OEM data are as follows:

Gas turbine model series:	MS6001B
Gas turbine model:	PG6581
GT2 turbine serial number:	810409
GT3 turbine serial number:	810410
Generator:	Alstom Type TA 36-46
Generator frame:	T 214 - 234
GT2 generator serial number:	810436
GT3 generator serial number:	810437

Since commissioning in 2003, the versatile configuration of GT-2 and GT-3 has been a reliable source of peaking power for the City of Grand Island. During service to the City of Grand Island, GT-2 and GT-3 have logged the following operational data:

Unit:	GT-2	GT-3
Gas Fired Hours:	2166 hrs.	1890 hrs.
Liquid Fired Hours:	145 hrs.	143 hrs.
Fired Starts:	723	677

Throughout the life of the turbines, the City of Grand Island maintenance staff has conducted routine sampling of the turbine lube oil for proper viscosity, chemical composition, and contamination as an essential part of a routine maintenance plan. Contaminated or deteriorated lube oil can cause damage to the bearing liners that leads to extended outages and decreases in reliability. Due to the service life of the oil and OEM recommendations, the City of Grand Island is soliciting bids to flush the lube oil circuits and replace the existing lube oil fluids.

1.2 LOCATION

This project is located at the City of Grand Island's Burdick Generating Station, 804 E. Bischeld Street, Grand Island, NE 68801.

1.3 CONTACT

Question regarding this specification may be directed to:

Tylor Robinson
Platte Generating Station
1035 W. Wildwood Dr.
Grand Island, NE 68801
Ph. (308) 385-5495
trobinson@giud.com

2.0 SCOPE

The purpose of this specification is to define the technical requirements of cleaning the lubrication system and replacing the lubricating fluid in the City of Grand Islands gas combustion turbine GT-2. The Contractor described here in shall be solely responsible for adhering to these specifications and all applicable OEM and industry standards not described herein.

2.1 GENERAL

This work will generally consist of providing labor, equipment, materials and supervision to properly clean the hydraulic and lube oil circuitry and replace the working fluid in one (1) General Electric gas combustion turbine Frame 6B, GT-2 at Burdick Generating Station. All work shall be coordinated with the City of Grand Island to be completed by July 1, 2021. The Contractor shall be a qualified firm specializing in the repair and maintenance of GE Combustion turbines. All materials, procurement, and procedures shall be in accordance with applicable industry and manufacturer standards, including, but not limited to the GRAND ISLAND operation manuals, GEK 32568, and GEK 110483.

2.1.1 APPLICABLE SPECIFICATIONS

All work shall be done in accordance with this detailed specification, and manufacturer's requirements. Any deviations from these specifications shall be detailed in the Contractor's proposal. Should the Contractor propose an alternate system other than specified herein, the Contractor shall comply with the intent of these detailed specifications to the extent that they apply to the alternate system.

2.1.2 MINIMUM SPECIFICATIONS

These specifications are intended to detail the requirements for the performance of the work. Should instructions contained in these specifications, bid documents, or the schedule be in variance with the manufacturer's procurement, preparation, and execution instructions all work performed shall conform to the higher standard. All materials, supplies and labor not specifically called for herein yet which are required to perform the specified work in accordance with the manufacturer's instructions, applicable codes and standards, and standard industry practice shall be provided by the Contractor at no additional cost to the Owner.

2.1.3 PERMITS

The contractor shall obtain, at his own expense, all permits, licenses, and inspections and shall comply with all laws, codes, and ordinances required by authorities having jurisdiction.

2.1.4 CLARIFICATIONS

The Contractor shall be responsible for requesting prompt clarification when instructions are lacking, conflicts occur in the Specification and or manufacturer's literature, or the procedure specified is not clearly understood. The Contractor shall be responsible for consulting with the original equipment manufacturer (OEM) on all matters effecting the proper preparation and execution of the work. In the event the Contractor fails to resolve these conflicts, the Contractor shall be responsible for handling the discrepancies in a manner as prescribed by the Owner.

2.2 CLEANING REQUIREMENTS

The reliable operation of the control system and machine bearings is dependent upon the cleanliness of the lubricating oil system. The Contractor will be responsible for ensuring considerable care is taken in processing, cleaning, and flushing the lube oil system to maintain cleanliness. Any surface, internal or external, contacting the lube oil must be thoroughly cleaned.

Flushing of the lube oil system is required to remove any dust or debris that may have accumulated in the piping. A system flush shall be completed in accordance with all manufacturer recommendations. During this flush a hot oil and pipe arrangement shall be used, and it shall be made to bypass the machine bearings and other critical accessory devices. Careful planning of this flush must be made to prevent any debris from being flushed into critical devices. Isolation valves, screens, and jumpers shall be installed at the Number 1 bearing, Number 2 bearing, generator load gear bearing, generator exciter end bearing, and the DLN skid. The unit lube oil filters and pressure relief valve shall be in operation during the flush. Refer to ASME Standard LOS-4C1 ASTM-ASME-Recommended practices for Flushing and Cleaning of Gas Turbine Lubricating Oil Systems.

Modified lube oil schematics shall be validated by the machinery OEM. Orifices, probes, and other flow restrictions must be removed for cleaning and flushing to obtain optimum flow velocities. All pressure gauges, pressure switches, and instrument connections shall be isolated. Efforts shall be made to keep all in service and removed piping clean of foreign materials. The use of FME covers shall be required. All piping removed from the system during the flush shall be stored in a clean, dry environment. All removed components shall be tagged and properly stored for reinstallation.

Supplementary pump, heating, and filtering equipment shall be used to decrease the length of time needed to complete the system flush. A supplemental pump shall be used to increase the flushing velocity. The pump shall be capable of producing a minimum three (3) times the rated flow of the OEM equipment and heating the fluid to 160°F. The equipment shall be setup to maintain a system pressure while automatically adjusting the system flow rate as required. The system flushing equipment and procedure shall be able to achieve a Reynolds Number greater than 20,000 in all system fluid conduits. A supplementary high surface area 5-micron filter arrangement shall be installed in the return lines to reduce the number of contaminants being recirculated during the flush. Strainers shall be installed at each bearing and drain location. Sock filters shall then be installed in each strainer to allow the contractor to track the progress of the flush. All supplementary equipment shall be purpose built for maintaining combustion turbine lube oil systems.

The Contractor shall use approved vibrating and hammering methods to loosen solids formations from the interior of the piping while circulating the oil through the flushing equipment. Pneumatic vibrators that can be mounted directly to the exterior of the piping will be required.

The Contractor shall complete a full flushing procedure to meet the procedure and performance requirements as described herein. This procedure covers the detailed course of action to be followed to complete the lube oil flush. The Contractor shall provide continuous monitoring of the oil flush to check for leaks, manage valve operations, change screens, and sample flushing fluid as needed.

2.2.1 FOREIGN MATERIAL EXCLUSION

The most efficient method of maintaining system cleanliness is to prevent entry of foreign material into system piping or components during maintenance. The following steps shall be observed to prevent the entry of foreign material into the system.

- Temporary covers or plugs shall be installed on all system piping, components, or tank connections opened for work or inspections, except during the time the opening must be uncovered to perform the evolution. This requirement also applies to material in staging and laying down areas.
- FME covers shall be designed such that they cannot fit inside the system openings or have and installed capture device that guarantees their retrieval prior to component installation. The FME cover should cover the entire system opening. FME covers shall be constructed of rigid, non-fibrous material. The use of wood, especially chip board or plywood, is not recommended material as it can splinter or shed and deposit material within the system. The use of rags and foam is also not recommended. Tape may be used to fasten the covers in place but should not be used as a sole source of material exclusion.
- When work is complete and prior to removal of the FME covers, inspect and thoroughly clean the work area to ensure that no foreign material is present. This includes the removal of loose or flaking rust and residue from grinding, chipping, welding, blasting, or other maintenance activities. It is important the FME devices be accounted for when system closeout is performed.
- Following fit-up of piping or installation of vital system components, a Quality Assurance or individual of supervisory authority should closeout and certify the cleanliness of that portion of the system.

2.2.2 CIRCUIT MODIFICATIONS

Modifications shall be made to the system piping before flushing the lube oil. These piping modifications shall allow for proper isolation, inspection and flow control during the flushing process. All piping modifications shall be made with high quality stainless braided hoses and fittings. The piping modifications shall include, but not be limited to:

- Isolation Valve 1, Number 1 Bearing
    1. Remove the number 1 bearing feed and drain spool
    2. Cover the feed going into the bearing to keep clean

3. Install jumper hose with valve and Y strainer, route the hose into existing drain line and secure
4. Install jumper hose. Route the hose down into number 1 bearing drainpipe and secure

- Isolation Valve 2, Number 2 Bearing
  1. Remove feed and drainpipe, store in clean location
  2. Install jumper hose with valve and Y strainer, route the hose into existing drain line and secure
  3. Install sufficient cover to prevent contamination of upstream piping and bearings.
- Isolation Valve 3, Generator Load Gear Bearing
  1. Remove supply line to bearing
  2. Route jumper from supply line, underneath turbine shaft towards East side and outside load gear compartment
  3. Install valve and Y strainer outside load gear compartment
  4. Remove inspection plate from East side of generator
  5. Install plywood cover with cutout for drain jumper
  6. Install jumper from strainer into gearbox drain, routing jumper past gears and secure.
- Isolation Valve 4, Exciter End of Generator Bearing
  1. Remove clean and store bearing supply line (instrument lines will also have to be removed)
  2. Remove drain line
  3. Install jumper hoses, valve, and Y strainer from supply flange to drain flange
  4. Route jumpers outside of exciter compartment
- Isolation Valve 5, DLN Skid
  1. At the DLN Skid, remove existing control oil tubing and store in a clean location, instrumentation tubing may need removed.
  2. Install jumpers, valve, and Y strainer between feed line and return line.
- IGV Isolation
  1. Implement valve configuration to bypass IGV hydraulic circuit per OEM

2.2.3 DISPLACEMENT FLUSH

The Contractor shall complete an initial displacement flush using the original oil as the working fluid. The flush shall be used to leak check, verify the pipe configurations, and remove any large debris from the piping. The oil will be heated and circulated through the system at an elevated rate to ensure turbulent flow in all system piping. Screens installed in the piping modifications will be checked and cleaned until the desired level of cleanliness is obtained. Once the displacement flush reaches the desired cleanliness the original oil will be removed, and the system components will be manually cleaned. An on-site analysis of the oil removed from the system shall be performed by the Contractor. The analysis will be used

to determine if a varnish flush, using a cleaning agent, is required. The Contractor will be responsible for the proper containment and disposal of the fluids removed from the system.

2.2.4 CLEANING AND INSPECTION OF CIRCUIT COMPONENTS

Once the working fluid is removed from the system the circuit components shall be cleaned and inspected. Thorough cleaning is a top priority to remove all traces of debris and oil degradation by-products. Complete cleaning process using compatible cleaners per GEK-28143, ASME LOCS-4C-1. The Contractor shall squeegee, and hand clean all sumps, auxiliary sumps, filter housings, weirs, junction boxes, auxiliary pumps, and return lines. Where applicable lube oil return lines shall be cleaned with compressed air and pigging methods.

All internal pipe and tank surfaces shall be inspected for corrosion and coating defects.

Both lube oil coolers shall be removed and mechanically cleaned inside and out. Special attention shall be paid to remove any varnish or fouling that would negatively affect the performance of the lube oil coolers. The lube oil coolers shall be visually inspected and pressure tested to ensure the integrity of the tubes.

All bearing site glass and visual inspection points shall be cleaned or replaced.

2.2.5 VARNISH FLUSH

A qualifying Contractor shall have successfully completed chemical flushing processes using OEM approved methods in accordance with GEK-28143. If an analysis of the initial oil flush and visual inspection determine that a cleaning agent is needed to dissolve and remove varnish from the inner metal surfaces of the lube oil system, or to help break up sludge deposits in the thermal transfer system a chemical process specifically chosen and formulated to combat the buildup shall be used. The contractor shall propose a detail description of the varnish flush process. The use of water-based chemical formulas is preferred. Aftermarket additives that can be applied to existing fluids as system cleaners shall not be allowed. All chemical solutions shall be compatible with the working fluids removed and installed in the system. The Contractor shall consult with the lubricant manufacturer to avoid cross contamination. An effective removal process of the cleaning chemicals shall be established. The Contractor shall squeegee, and hand clean all tanks, sumps, auxiliary sumps, filter housings, weirs, junction boxes, auxiliary pumps, and return lines after any chemical cleaning process. All processes and chemicals shall be approved by the OEM.

A varnish flush shall be followed by a displacement flush using sacrificial oil to remove any remaining residue that could result in cross contamination. The sacrificial oil shall be of the same properties as the proposed service fluid described herein. All sacrificial oil shall be removed from the tanks, sumps, auxiliary sumps, filter housings, weirs, junction boxes, auxiliary pumps, and return lines before proceeding with the flushing process. Any fluids removed from the flushing process shall be properly disposed of by the Contractor. The Contractor shall be responsible for documenting the disposal of any waste materials.

2.2.6 SEQUENTIAL FLUSH

After the system components are deemed clean and suitable for use, the Contractor shall use sacrificial oil to perform a sequential high velocity oil flush. The contractor shall install 100 mesh screens in the circuit modifications to monitor the progress of the flush. The flush oil shall be of the same properties as the proposed service fluid described herein. After use the displacement fluid shall be properly discarded by the Contractor and shall not be reused for long term turbine lubrication. The intention of this flush will be to displace all fluids and debris that may exist in the piping and avoid any cross contamination from fluids previously entrained in the system. Sequential flushing is the most effective way of insuring maximum flow in the bearing feed lines. The flushing fluid shall be circulated at temperatures between 130°F and 150°F for a 24 to 36-hour period. The equipment owner shall have the right to inspect any and all stages of the oil flushing process. The Contractor shall document all stages of the flushing process, including start and stop times, oil temperatures, screen inspection results, and oil analysis. The sequential flushing procedure shall consist of, but not be limited to the following:

- Fill the Lube Oil Tank

During the filling of the tank, the oil shall be strained using a portable centrifuge to ensure that the flushing oil is free of contaminants. The vapor extractor shall be in service while filling the oil tank.

- Initial Flush

During the initial flush all isolation valves shall be open, and the working fluid shall flow through all sections of the lube oil system. This shall be done to remove any large debris and allow the working fluid to reach a stable temperature.

One hour after beginning the initial flush check the screens as follows:

1. Slowly close isolation valve 1
2. Check screen and document time and condition of the screen.
3. Clean screen and replace
4. Slowly reopen isolation valve 1
5. Repeat steps 1-4 for isolation valve 3
6. Repeat steps 1-4 for isolation valve 3
7. Repeat steps 1-4 for isolation valve 4
8. Repeat steps 1-4 for isolation valve 5

Repeat steps 1-8 every hour until all screens run clean.

- Isolated Flush

After completing an initial flush each circuit loop shall be isolated and flushed in sequential order from front to back of the machine. This is done to concentrate the flow of liquid through each circuit loop. While isolating each loop all valves shall begin in the open position to ensure the pumping system always has a continuous flow. Each isolated flush phase shall run for 1 hour. The isolation phases shall be repeated until all screens run clean. If the maximum flow can

be maintained in the desired section, additional sections may be flushed through to maintain maximum utilization of the supplemental pump.

A step by step procedure of the isolated flush shall be performed in the following order:

1. Slowly close isolation valves 2, 3, 4, and 5.
2. Allow flushing fluid to circulate through isolation valve 1 for 1 hour. Log the time at the beginning and end of the flush.
3. Slowly open valve 2.
4. Slowly close valve 1.
5. Remove the screen from circuit 1 and inspect. Document the screen condition.
6. Allow flushing fluid to circulate through isolation valve 2 for 1 hour. Log the time at the beginning and end of flush.
7. Slowly open valve 3.
8. Slowly close valve 2.
9. Remove the screen from circuit 2 and inspect. Document the screen condition.
10. Allow flushing fluid to circulate through isolation valve 3 for 1 hour. Log the time at the beginning and end of flush.
11. Slowly open valve 4
12. Slowly close valve 3
13. Remove the screen from circuit 3 and inspect. Document the screen condition.
14. Allow flushing fluid to circulate through isolation valve 4 for 1 hour. Log the time at the beginning and end of flush.
15. Slowly open valve 1
16. Slowly close valve 5

Repeat steps 1-15 until all screens run clean.

- Final Flush

After completing an isolated flush on all circuits, the contactor shall complete a final flush of the whole system as follows:

2 hours after beginning the final flush check the screens as follows:

1. Slowly close isolation valve 1
2. Check screen and document time and condition of the screen.
3. Clean screen and replace
4. Slowly reopen isolation valve 1
5. Repeat steps 1-4 for isolation valve 2
6. Repeat steps 1-4 for isolation valve 3
7. Repeat steps 1-4 for isolation valve 4
8. Repeat steps 1-4 for isolation valve 5

Repeat steps 1-8 every 2 hours hour until all screens run clean.

The 100 mesh strainer baskets located at the end of each oil feed line should be sampled every 2 hours. To consider the individual oil line clean enough for operation, the total weight of a sample, after 2 hours, shall be no greater than 0.1 gram. The largest particle should be no greater than 0.010 in. Individual samples shall be evaluated and recorded on a data sheet.

Final acceptance of clean screens shall be completed by the owner's representative.

- Fluid Condition

The contractor shall continuously monitor the condition of the flushing fluid on site using a portable fluid analysis kit and laser particle counter to ensure that it is not contaminated. Flushing fluid shall maintain a NAS class 5 specification with water content of <100 ppm (.01%). A centrifuge, online cleaning system shall be used to process the oil during flushing.

As often as necessary, but at least once during the flush, all oil shall be drained from the turbine lube oil tank and processed through an oil purification system. The main lube oil tank, oil inlet box, weir, filter housing, and oil drain junction boxes shall be cleaned with lint-free rags every time the lube oil tank is empty.

2.2.7 POST FLUSH

After successfully completing the flushing process, the Contractor shall take precautions to prevent any foreign materials from contaminating the system while securing the flush.

- System Cleanout

The Contractor shall empty the lube oil system and properly dispose of the flushing fluid. The Contractor shall properly document the disposal and include it in the final report. The contractor shall clean the oil tank, weir, filter housing, and oil drain junction boxes with lint-free rags. The contractor shall be sure all pre-assembled circuit components that were not processed in the flush procedure are cleaned by OEM approved methods.

- Reassembly

The Contractor shall make sure every part of the lube oil system that was modified or removed for the flush is restored to its functional position. When restoring the piping to its normal configuration the Contractor shall exercise extreme care to avoid dirt, paint chips, tools, etc. will not fall into critical components. All piping shall be reassembled using new gaskets and sealing materials.

During the reassembly the Contractor shall replace the filters in both the lube oil system and hydraulic supply system. Replacement filters shall be polyester filters approved for turbine lube oil and high-pressure hydraulic applications. The Lube oil filters shall be 5-micron filters (Hilliard PL718-05-CNALS). The Hydraulic filters shall be 0.5-micron filters (Hilliard HP311-12-GE).

- Filling Lube Oil Tank

The contractor shall be responsible for filling the lube oil tank with new super-clean oil as described herein. The Contractor shall polish the replacement fluid prior to introducing it into the system. A single pass filter system, on the order of ß10=200, shall be installed between the transport tank and lube oil reservoir to ensure the installed oil meets a minimum cleanliness level.

The new oil introduced to the system shall meet all OEM cleanliness specifications. Combined lubricating oil and hydraulic systems that supply high pressure or servo valves are considered critical systems. Critical oil system working fluid shall be maintained at a NAS class 5 specification, ISO 16/14/11, with water content of <100ppm.

Fill oil must be verified to meet cleanliness specifications of the system. Sampling and analysis should be performed at the beginning, middle and end of an oil transfer to verify cleanliness level. The contractor shall perform on-site analysis of the lube oil being introduced to the system using a portable fluid analysis kit and laser particle counter to accurately determine the ISO/NAS cleanliness level and amount of water contamination.

- Leak Check

The Contractor shall perform a leak check on the reassembled system. The leak check shall consist of:

a. Verify all piping has been re-installed correctly
b. Verify all permanent connections are tight, and system is ready for final operation
c. Turn on Aux. lube Oil Pump, and Lube Oil Heater
d. Check for leaks and verify the oil flow at the bearings through the sight glass.
e. Resolve areas that show leaks or losses of fluid
f. Check oil tank level 10 minutes after stopping the pump and adjust if necessary
g. Restore all sensing lines

2.3 MATERIAL HANDLING

The Contractor shall be responsible for the receipt, unloading, handling, and storage of all deliveries and shall therefor be on site with adequate personnel, equipment, and facilities to properly handle all materials according to material and equipment manufacturer's recommendations.

2.3.1 STORAGE

All materials shall be stored in clean, dry containers, protected from excessive heat and/or cold. The Contractor shall be solely responsible for the provisions of suitable storage and the protection and safety of the materials stored at the job.

Storage conditions shall comply with all OSHA and manufacturer's requirements.

2.3.2 DISPOSAL

The Contractor shall be responsible for the proper disposal of all unused and sacrificial materials, packaging, and sundries.

2.4 PERFORMANCE REQUIREMENTS

It is generally recognized that turbine lubricating oil should be a petroleum derivative free from water, sediment, inorganic acids, or any material which in the service specified would be injurious to the oil or equipment. There should be no tendency toward permanent emulsification or rapid oxidation with the formulation of sludge.

It shall be the responsibility of the Contractor to supply lubricating fluids and filter elements that meet or exceed the specifications described herein.

The use of brand name products and all references throughout the specification that are based on the utilization of the brand names are for the purpose of describing the standard of quality, performance, and characteristics desired and is not intended to limit or restrict competition.

The bidder may propose alternative manufacturers, products and systems that meet or exceed the specified performance. Such alternatives shall be designed by the manufacturer for the conditions defined in the specification. The Bidder shall provide all such literature, descriptions and references required to support the Contractor's product selection. Any alternative products must be approved by GE Engineering.

2.4.1 LUBRICATING OIL

The supplied lubricating oil shall meet the requirements of OEM where the oil is used both as a turbine lubricant as well as hydraulic control. Mobil DTE 932 GT is specifically formulated for General Electric Frame 6 turbines with common bearing and hydraulic reservoir, where varnish control is most needed. Mobil DTE 932 GT meets or exceeds the requirements of GE GEK 101941A, GE GEK 28143B, and GE GEK 32568K. Mobil DTE 932 GT has the following properties and specifications:

Property	
Grade	ISO 32
Air Release Time, 50 C, min, ASTM D3427	2
Copper Strip Corrosion, 3 h, 100 C, Rating, ASTM D130	1B
Density @ 15.6 C, g/ml, ASTM D4052	0.84
Flash Point, Cleveland Open Cup, °C, ASTM D92	240
FZG Load Carrying Capacity, A/8.3/90, DIN 51354-2	10
Kinematic Viscosity @ 100 C, mm2/s, ASTM D445	6.1
Kinematic Viscosity @ 40 C, mm2/s, ASTM D445	31.5
Pour Point, °C, ASTM D97	-18
Rotating Pressure Vessel Oxidation Test, min, ASTM D2272	900
Rust Characteristics, Procedure B, Rating, ASTM D665	PASS
Turbine Oil Stability Test, Life to 2.0 mg KOH/g, h, ASTM D943	9000+
Viscosity Index, ASTM D2270	141
Foam, Sequence I, Tendency, ml, ASTM D892	20
Foam, Sequence I, Stability, ml, ASTM D892	0
Foam, Sequence II, Tendency, ml, ASTM D892	15
Foam, Sequence II, Stability, ml, ASTM D892	0
Foam, Sequence III, Tendency, ml, ASTM D892	20
Foam, Sequence III, Stability, ml, ASTM D892	0

2.4.2 FILTERS

The supplied filter cartridges shall meet the OEM requirements of critical oil systems.

- Lube Oil Filter

Filtration of the lube oil system is accomplished by 5-micron, pleated paper filters installed in the lube oil system just after the lube oil heat exchanger. A dual filter arrangement is used with a transfer valve installed between the filters to direct oil flow through either filter and into the lube oil header, to supply filtered oil to the coupling, accessory gearbox and bearings. The replacement of the lube oil filters requires 9 filter cartridges per housing. Cartridge replacements shall be Hilliard PL718-05-CNALS or approved equal.

- Hydraulic Oil Filter

Filtration of the hydraulic control system is accomplished by 0.5-micron high-pressure filters. From the output connections of the lube oil manifold assembly, the high-pressure fluid is piped through the system filters (FH2–1 and FH2–2) and now becomes a high-pressure control fluid. The hydraulic supply system filters prevent contaminants from entering the control devices of the inlet guide vane system, the fuel control servo-valves and other hydraulic devices. Only one filter is in service at any time during system operation. The dual filter

assembly complete with fill valve and transfer valve is provided to permit changeover to the second filter without interrupting the operation of the system. Cartridge replacements shall be Hilliard HP311-12-GE or approved equal.

2.5 SAMPLING

The Contractor shall sample the working fluid throughout the process to ensure the Critical oil system working fluid shall achieve a NAS class 5 specification, ISO 16/14/11, with water content of <100ppm.

The Contractor shall sample the working fluid at key hold points during the replacement process. Those points shall include, but not be limited to:

1. Sampling existing fluid after initial flush
2. Sampling working fluid after initial flush
3. Sampling working fluid after isolated flush
4. Sampling working fluid after final flush
5. Sampling 3 times during the filling of the lube oil tank, every 600 gallons added
6. Sampling after 6 months or 25 hours of operation

Test result trending is critical. Making decisions on single data points is not recommended. If test results do not follow a logical trend, resampling and testing will be required.

Samples from the replacement shall be forwarded to a laboratory for extensive tests. These test results will be used as a baseline and the results kept for the life of the fluid. Another sample shall be taken after the system has logged 24 service hours to ensure it is representative of the oil that will be in use for long-term service.

All samples shall be taken from a location in the system that is representative of the working fluid. For a sample to be representative, it must be obtained either from a free-flowing line or an agitated tank.

- Sampling from to Line

When using a sampling line, make sure that the line has been thoroughly flushed before taking the sample. Adequate amounts of flushing will depend on sampling line dimensions, length and diameter. The line shall be an active line that is free-flowing and not deadheaded.

- Sampling from Reservoir

If tapping from a tank or reservoir the lubricating fluid must be thoroughly agitated in the reservoir, and the tap line shall be flushed before the sample is taken. The tapping point shall be located between ½ and ¾ of the way up from the bottom of the tank. To ensure a representative sample, fluid should never be drawn from the drain point.

If a sample cannot be taken from a tap line and must be taken by dipping from the tank. The lubricant should be thoroughly circulated before the sample is taken. The sample should be taken from a level between ½ and ¾ up from the bottom of the tank. Care should be taken

to avoid collecting any contaminant from the surface layer of the oil. A sampling "thief" shall be used to avoid capturing any fluid from the surface layer.

- Representative Sample

A sample is not representative if:

- The fluid in the system is hot while the sample is cold.
- The fluid in the system is one color or clarity in a sight glass while the sample is a different color or clarity.
- The viscosity of the reservoir fluid is different than the sample when both are at the same temperature.
- When a sample is taken, care should be used to ensure all available headspace in the container is used. The container should be as full as possible to ensure that any free oxygen is minimized.

- Suitable Container

A "suitable" container should be:

- Clean. If in doubt about the cleanliness of a container, a different container shall be used. If it is not possible to use a different container the container shall be flushed with the liquid to be sampled.
- Resistant to the material being sampled.
- Free from leaks or cracks
- Of sufficient size.
- Provided by the lubricant supplier whenever possible. If frequent samples are taken, an adequate supply of containers shall be kept.
- Certified clean to avoid introducing contaminant which could affect the results of the sample. Bottles used for particle count shall be certified NAS 3.

2.5.1 ON-SITE TESTING

The Contractor shall provide a qualified field service technician to analyze oil samples onsite using a portable fluid analysis kit and laser particle counter to accurately determine the ISO/NAS cleanliness level and amount of water contamination in the oil.

2.6 COMPREHENSIVE REPORT

All quality control and inspection documentation shall be compiled into a comprehensive report organized in chronological order. A subsection of the report shall detail any results of oil sampling during the inspection process. The report shall also detail the condition of the system using charting, maps, photographs, and other visual representations that can be used for comparison in future inspections.

3.0 BIDDING

The Contractor shall include in his bid a lump sum not-to-exceed estimate of all costs associated with the scope of work herein. Including, but not limited to all expenses, equipment, labor, mobilization and demobilization, and subcontractors.

Bids will be evaluated by the Owner based on price, schedule, quality, economy of operation, experience of contractor, and adherence to specification. The primary evaluation factor will be the lump sum price. The owner reserves the right to reject any or all bids or waive informalities and to accept whichever bid that may be in the best interest of owner, at its sole discretion. The Owner reserves the right to award a successful bidder various portions of the proposed work based on the needs of the project. Bids must be received by 2:00 P.M. Tuesday, May 11th, 2021.

Bidder is solely responsible for obtaining any clarifications to this specification as may be required for the Bidder to submit an accurate and complete bid proposal.

3.1 VARNISH FLUSH

The Contractor shall include in his bid a lump sum not-to-exceed estimate of all costs associated with a varnish flush. The Contractor shall include a detailed description of the proposed varnish flushing process and detail the chemicals used. The varnish flushing process shall be a proven process approved by the equipment OEM with multiple successful uses. This proposal shall only be awarded if the Contractor determines a varnish flush is needed after sampling and inspecting the conditions of the system.

3.2 RATES

The Bid shall include, as a separate T&M rate attachment, firm unit pricing for all labor, equipment, sundries **and expenses reflecting the charges to be used in billing the T&M portions of the work as well as for making any** adjustments that may be required for new work scope additions, additional services other than what is required in this specification or reductions in the same. All travel time and per diems shall be included in the hourly labor rates. The City of Grand Island will not be responsible for travel expenses to and from plant site. The City of Grand Island will not be responsible for any associated overnight expenses.

3.2.1 TIME AND MATERIAL ACCOUNTING

Contractor shall be required to maintain accurate job logs describing work performed by each crew throughout each day and daily time sheets detailing all work performed and expenses incurred **in the same format as the bid detail submittal**. Daily time sheets shall identify all individuals by name, craft and all hours worked on each portion of the work. Such job logs and time sheets shall accurately account for all man-hours with clear separation and identification of time, equipment and material as required accounting for the actual service hours and expenses. A sample timesheet shall be included in the bid to be approved by the owner's designated representative.

The timesheets/logs shall clearly detail the specific work that was accomplished during the shift. These sheets shall be presented to the Owner's representative on a daily basis for review with the Contractor's superintendent. Any presentation of timesheets/logs deferred more than 48 hrs. before being presented to the Owner's representative shall be null and void. The Owners representative will sign and date these documents as a record of receipt and review. Any corrections that need to be made to such signed documents shall be implemented upon the discovery of the error and both parties shall initial the

change made on the form. These records will then serve as record of the work performed and a basis for determining the final billing.

3.3 SUBMITTALS

Contractor shall submit the following documentation for review with the bid:

- References for at least three (3) projects of a similar scope and for a similar size unit, including a description, name, and phone contact.
- Subcontractor's names and reference lists.
- Superintendent's experience summary.
- Pricing
    - High Velocity, High Temp Flush and Oil Replacement
    - Varnish Flush
    - T&M Rates
- Daily T&M Accounting Sheets
- Safety Documentation

3.4 TERMS AND CONDITIONS

Provide all other proposed terms and conditions which will be in effect during the performance of the work as a separate attachment **with the bid**. Any exceptions the bidder wishes to take regarding the Owners specifications and contract documents must be submitted **with the bid**.

Time is of the essence in the evaluation of proposals, the execution of contract documents and/or issuance of a Purchase Order for the execution of the work. Submittal of bids that include terms and conditions unacceptable to the Owner, or that lack the information and clarity required by these specifications may be subject to rejection at the sole discretion of the Owner.

A single contract will be awarded for all work included in this specification.

3.5 DEVIATIONS

The bid shall provide any explanation of any anticipated deviations from the detailed scope of work or schedules.

The Platte Generating Station is NOT tax exempt and is subject to 7.5% sales tax. See the Nebraska Department of Revenue web site at www.revenue.state.ne.us for contractor's tax information.

4.0 QUALIFICATIONS

The Contractor shall be a firm specializing in the provision of services as outlined within this scope for General Electric heavy-duty combustion turbines used in the electric power industry. The Contractor shall substantiate its experience through the submittal of three (3) similar projects' **reference list with the bid**. The Contractor will be expected to perform the work without the assistance of Platte Generating Station personnel or tools and comply with plant safety regulations and equipment lockout/tag out procedures.

4.1 SUPERINTENDANT

The Contractor shall provide well qualified supervisor(s) and a Job Superintendent who will fully direct all field operations for the duration of the project, serve as liaison to the Owner's designated representatives, be fully authorized to make any and all decisions affecting the work in the field and coordinate activities between the Contractor and its subcontractors, if any. A summary of the experience of the Superintendent proposed for this project shall be **provided with the bid**.

5.0 RIGHT TO INSPECT

The Owner and designated Owners representatives shall have the right to inspect the quality and progress of the work at any point during the Contract progression.

6.0 SAFETY

The Contractor shall be responsible for compliance with all safety practices as required by the regulatory agencies governing the Contractor's operations as well as any and all safety requirements of the Contractor's organization and shall submit historical evidence of such compliance. All personnel working on site will be required to participate in the plant's safety orientation prior to performing any work on site at Burdick Generating Station.

The Contractor is responsible for the health and safety of its employees and its subcontractors' employees. The Contractor shall have and approved safety and health program for all Contractor employees and subcontractors. The Contractor shall designate a safety representative to participate in safety meetings when requested. The safety representative shall maintain accurate records of accidents, occupational illnesses, fatalities, or OSHA citations.

6.1 CONFINED SPACE

The Contractor is required to follow their OSHA regulations for work in areas may be considered as confined spaces. NOTE: All contractors must submit **with the bid** a copy of their OSHA compliant Confined Space Procedure and Respiratory Protection Procedure. The Contractor will be required to provide proof that workers have successfully completed respiratory fit testing and pulmonary function testing and have been trained for confined space entry.

6.2 LOCK OUT TAG OUT

The plant has an equipment lockout/tag out procedure to prevent the unauthorized starting of motors and the unauthorized movement of valves and dampers. The Contractor is required to use the procedure and add its own locks/tags on top of the plant lock/tags if required. *Removal of plant locks/tags is not allowed and is cause for removal from the plant site.*

6.3 FIRE MITIGATION

Fire risk may occur using hot oil near a heat source. Therefore, discipline must be established to prevent heat sources do not create a combination that can pose a serious risk of fire.

No smoking shall be permitted in areas where volatile materials are in use or stored; Contractor is responsible for policing work.

Waste material, which might constitute a fire hazard, shall be placed in closed metal containers, and removed from the work area at the end of each day's work.

In case a fire does occur a minimum of six extra fire extinguisher shall be provided, one at each isolation valve, and one near the lube oil motors.

6.4 HAZARDOUS MATERIALS

When handling materials that may be toxic to skin, eyes, and respiratory tract. Proper PPE shall be required. Avoid repeated or prolonged contact. Ensure area is well ventilated.

The Material Safety Data Sheet (MSDS) for the turbine oil and any cleaning chemicals shall be kept on site.

6.5 SPILL CONTAINMENT

The Contractor shall take special precautions to prevent the spill or chemicals and volatile organic compounds. In the case of a spill, the Contractor shall have provisions in place to contain the spill. The provisions shall be sufficient to contain the maximum possible amount of spilled liquid.

All the necessary precautions must be taken to avoid oil spillage during oil tank filling as well as during flushing. Spill cleanup materials including barrels, rags, body suits, and absorbents shall be supplied by the Contractor.

7.0 INVOICING

When equipment and similar goods are purchased that cannot immediately be put into operation, the City reserves the right to withhold from payment of such invoice retainage of 10% of the amount pending approval of the operation of such equipment and/or goods. The retainage shall be paid no later than 90 days after completion.

8.0 INSURANCE

The contractor shall comply with the attached City's insurance requirements

9.0 PERFORMANCE AND PAYMENT BOND

The successful Bidder shall file with the OWNER Performance and Payment Bonds in the full amount (100 percent) of the Contract price, as security for the faithful performance of the Contract and the payment of all persons supplying labor and materials for the Work under this Contract, and to cover all guarantees against defective workmanship or materials, or both, for a period of 1 year after the date of final acceptance of the Work by the OWNER. The Surety furnishing these bonds shall have a record of service satisfactory to the OWNER, be authorized to do business in the State where the OWNER's project is located and shall be named on the current list of approved Surety Companies, acceptable on Federal bonds as published by the Audit Staff, Bureau of Accounts, U.S. Treasury Department.

The Attorney-in-Fact (Resident Agent) who executes these bonds on behalf of the Surety must attach a notarized copy of his power-of-attorney as evidence of his authority to bind the Surety on the date of execution of the bond.

10.0 DRAWINGS AND SITE INFORMATION

A selection of drawings has been provided with the bid package for reference only. Additional drawings are available for review at Platte Generating Station office. The Contractor is responsible for making such pre-bid site visits as required to obtain additional details for bidding and execution of the work and for clarification of any questions or concerns the bidder may have related to the work scope and site conditions.

ATTACHMENTS:

O&M Operation Manual – Lube Oil System	Ch. 4, pgs. 4-6
Diagram, SCHEM PP LUBE OIL	No. 202D8460
Oil Mist Eliminator Skid	No. 91-132613
Lube Oil Distribution System	No. 91-132703

4.2 Device Summary

Device	Description
23QA	Motor Space Heater For 88QA 50 W, 240 V, 1 Ph, 60 Hz
23QT-1, 2	Immersion Heater Lube Oil Tank Power: 10,2 KW; 400 V; 3 PH; 50 Hz
63QA-2	Low Lube Oil Pressure Alarm INC Close 2,90 ± 0,14 Bar (41,4 ± 2 PSIG) DEC Open: 2,60 ± 0,07 Bar (37,8 ± 1 PSIG) - Normal: NO-CEC
63QQ-1	Main Oil Filter Differential Pressure Alarm INC Open: 1,03 ± 0,07 Bar (15 ± 1 PSIG) DEC Close 0,76 ± 0,07 Bar (11 PSIG) - Normal: NC-OEC
63QT-2A Generator	Low Lube Oil Pressure INC Close = 9 ± 0,5 PSIG – DEC Open = 8 ± 0,3 PSIG – Normal = NOCEC
71QL-1	Low Level Alarm
71QH-1	High Luboil Level Alarm
88QA	Auxiliary (Main) Lube Oil Pump Motor Power: 29,5 KW; 3000 RPM; 460 V; 3 PH; 60 Hz
88QE-1	Emergency Lube Oil Pump Motor Power: 7,4 KW; 2500/3000 RPM; 125 V; DC
96QA-2	Lube Oil Transducer Bearing Header Range 0-7 Bar (0 – 101,5 PSIG); Zero 0 Bar 4 mA „Zero"; Maxi 7 Bar (101,5 PSIG) 20 mA „GAIN"
96QT-2	Lube Oil Transducer Generator Bearing Header Range 0-60 PSIG, Adjustment on Condition Pressure Output Transducer ZERO 0 PSIG 4 mA "ZERO", Maxi 60 PSIG 20 mA "GAIN".
LT_B2D-1A, 1B	Lube Temper. N° 2 Turbine Bearing Drain

Device	Description
LT_BT1D-1A, 1B	Lube Temper. N° 1 Thrust Bearing Drain
LT_G2D Generator	Lube Temper. N° 2 Generator Drain
LT_OT-1A	Detector, Resistance Temperature Lube Oil Tank Temperature Low
LT_OT-2A	Detector, Resistance Temperature – Lube Oil Tank Temperature Normal
LT_RG1D Generator	Thermocouple (Type K) Lube Oil System Temperature Reducer Gear Bearing 1 Drain
LT_TH-1A,1B	Thermocouple (Type K) Lube Oil System Temperature Turbine Header
LT_TH-2A,2B	Thermocouple (Type K) Lube Oil System Temperature Turbine Header Trip
LT_TH-3A,3B	Thermocouple (Type K) Lube Oil System Temperature Turbine Header Trip
VPR2-1	Lube Oil Header Pressure Regulator Valve Setting 1,73 ± 0,14-0 Bar (25 + 2 – 0 PSIG)
VR1	Main Lube Pump Pressure Relief Valve Setting 4,5 ± 0,14-0 Bar (70 + 2 – 0 PSIG)

4.3 Brief Description

The lubricating oil requirements for the gas turbine power plant are furnished by a common forced-feed lubrication system. This lubrication system, complete with tank, pumps, cooler, filters, valves and various control and protection devices, furnishes normal lubrication and absorption of heat rejection load of the gas turbine bearings. Lubricating fluid is circulated to the two main turbine bearings, generator bearings,

reduction gear, couplings and to the turbine accessory gear. Additionally, a portion of the pressurized fluid is diverted and filtered again for use by hydraulic control devices as control fluid and as a supply to other systems.

The lubrication system is designed to provide an ample supply of filtered lubricant at the proper temperature and pressure for operation of the turbine and its associated equipment.

Major system components include:

- Lube reservoir in the turbine base (6435 liters)
- Main lube pump (shaft driven from the accessory gear)
- Auxiliary lube pump (motor driven, 88 QA)
- Emergency lube pump. (motor driven, 88 QE-1)
- Pressure relief valve VR1 in the main pump discharge
- Bearing header pressure regulator (VPR2-1)
- Lube oil heat exchanger
- Main lube filters
- Mist oil eliminator

Lubricating fluid for the main, the auxiliary and the emergency pumps is supplied from the lube oil tank, while lubricating fluid used for control is supplied from the bearing header. This lubricant must be regulated to the proper, predetermined pressure to meet the requirements of the main bearings and the accessory lube system, as well as the hydraulic control and trip circuits. Regulating devices are shown on the Lube System Schematic Diagram. All lubricating fluid is filtered and cooled before being piped to the bearing header.

MINIMUM INSURANCE REQUIREMENTS
CITY OF GRAND ISLAND, NEBRASKA

The successful bidder shall obtain insurance from companies authorized to do business in Nebraska of such types and in such amounts as may be necessary to protect the Bidder and the interests of the City against hazards or risks of loss as hereinafter specified. This insurance shall cover all aspects of the Bidder's operations and completed operations. Failure to maintain adequate coverage shall not relieve Bidder of any contractual responsibility or obligation. Minimum insurance coverage shall be the amounts stated herein or the amounts required by applicable law, whichever are greater.

1. WORKERS COMPENSATION AND EMPLOYER'S LIABILITY

This insurance shall protect the Bidder against all claims under applicable State workers compensation laws. This insurance shall provide coverage in every state in which work for this project might be conducted. The liability limits shall not be less than the following:

Workers Compensation	Statutory Limits
Employers Liability	$100,000 each accident
	$100,000 each employee
	$500,000 policy limit

2. BUSINESS AUTOMOBILE LIABILITY

This insurance shall be written in comprehensive form and shall protect the Bidder, Bidder's employees, or subcontractors from claims due to the ownership, maintenance, or use of a motor vehicle. The liability limits shall not be less than the following:

Bodily Injury & Property Damage	$ 500,000 Combined Single Limit

3. COMPREHENSIVE GENERAL LIABILITY

The comprehensive general liability coverage shall contain no exclusion relative to explosion, collapse, or underground property. The liability limits shall not be less than the following:

Bodily Injury & Property Damage	$ 500,000 each occurrence
	$1,000,000 aggregate

4. UMBRELLA LIABILITY INSURANCE

This insurance shall protect the Bidder against claims in excess of the limits provided under employer's liability, comprehensive automobile liability, and commercial general liability policies. The umbrella policy shall follow the form of the primary insurance, including the application of the primary limits. The liability limits shall not be less than the following:

Bodily Injury & Property Damage	$1,000,000 each occurrence
	$1,000,000 general aggregate

5. ADDITIONAL REQUIREMENTS

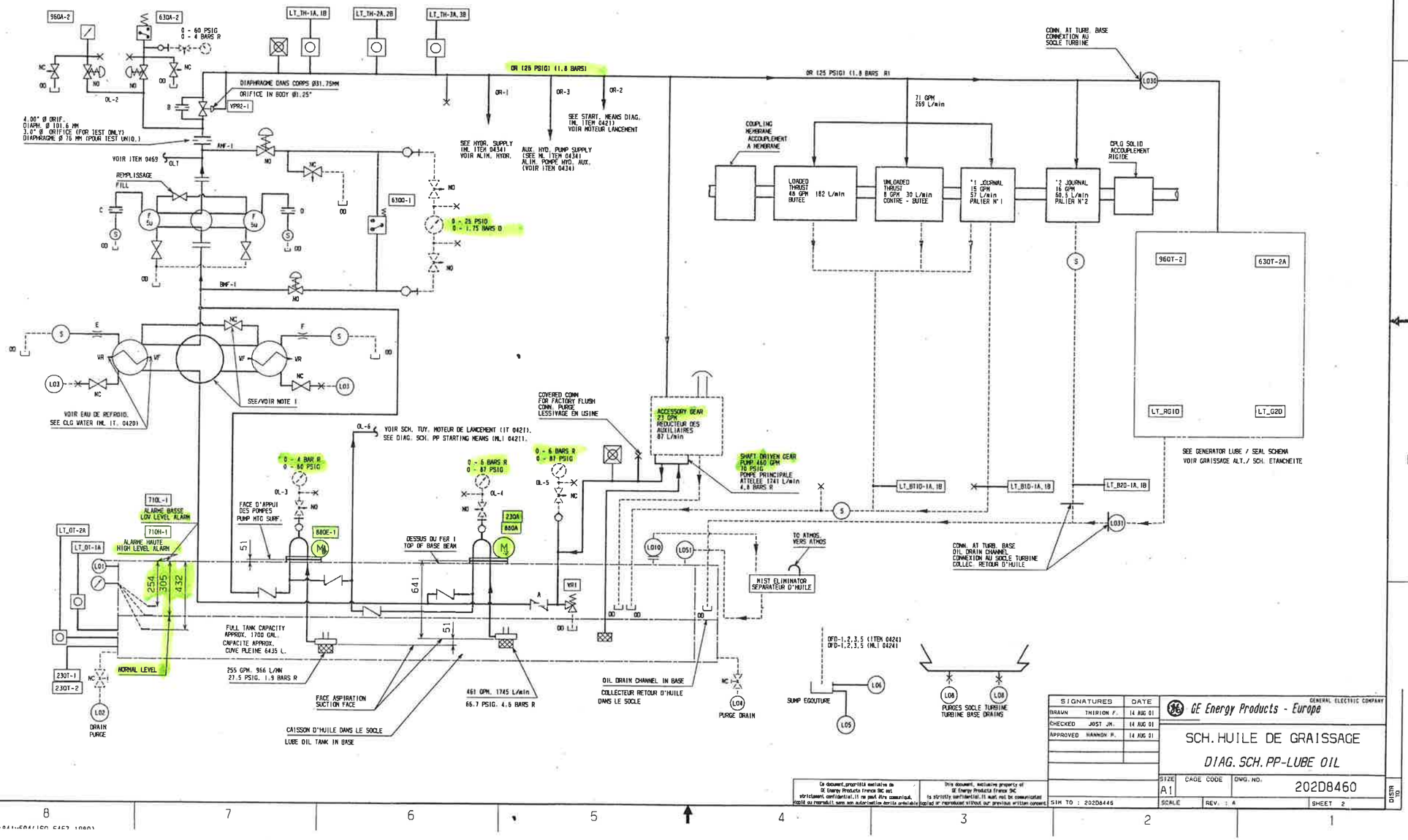
The City may require insurance covering a Bidder or subcontractor more or less than the standard requirements set forth herein depending upon the character and extent of the work to be performed by such Bidder or subcontractor.

Insurance as herein required shall be maintained in force until the City releases the Bidder of all obligations under the Contract.

The Bidder shall provide and carry any additional insurance as may be required by special provisions of these specifications.

6. CERTIFICATE OF INSURANCE

Satisfactory certificates of insurance shall be filed with the City prior to starting any work on this Contract**. The certificates shall show the City as an additional insured on all coverage except Workers Compensation. The certificate shall state that thirty (30) days written notice shall be given to the City before any policy is cancelled (strike the "endeavor to" wording often shown on certificate forms). If the Bidder cannot have the "endeavor to" language stricken, the Bidder may elect to provide a new certificate of insurance every thirty (30) days during the contract. Bidder shall immediately notify the City if there is any reduction of coverage because of revised limits or claims paid which affect the aggregate of any policy.**



SIGNATURES		DATE
DRAWN	THIRION F.	14 AUG 01
CHECKED	JOST JM.	14 AUG 01
APPROVED	HANNON P.	14 AUG 01

GE Energy Products - Europe

GENERAL ELECTRIC COMPANY

SCH. HUILE DE GRAISSAGE

DIAG. SCH. PP-LUBE OIL

SIZE	CAGE CODE	DWG. NO.	REV.
A1		202D8460	A

SIM TO : 202D8446 | SCALE | REV. : A | SHEET 2

DISTR TO

BURDICK STATION GT-2 & GT-3

Sargent & Lundy, LLC

Project No. 11004-000

CITY OF GRAND ISLAND

REFERENCE NBER : 01R22 110 I70 FD 001 REVISION : A

ECH. / SCALE	DATE	14-Aug-2001	14-Aug-2001	21-Aug-2001
None	NOM / NAME	THIRION FREDERIC	JOST JEAN-MICHEL	HANNON PASCAL
FORMAT/SIZE	VISA	THIRION FREDERIC	JOST JEAN-MICHEL	HANNON PASCAL
A1		REDIGE / MADE	VERIFIED / CHECKED	APPROUVE/APPROVED

TITRE/TITLE

GAS TURBINE-PIPING AND INSTRUMENT DIAGRAM (P&I D)

DIAGRAM,SCHEM PP LUBE OIL (0416)

GE Energy Products - Europe

GE Energy Products France SNC

N° 202D8460 Rév. A

SHT. N 2/2

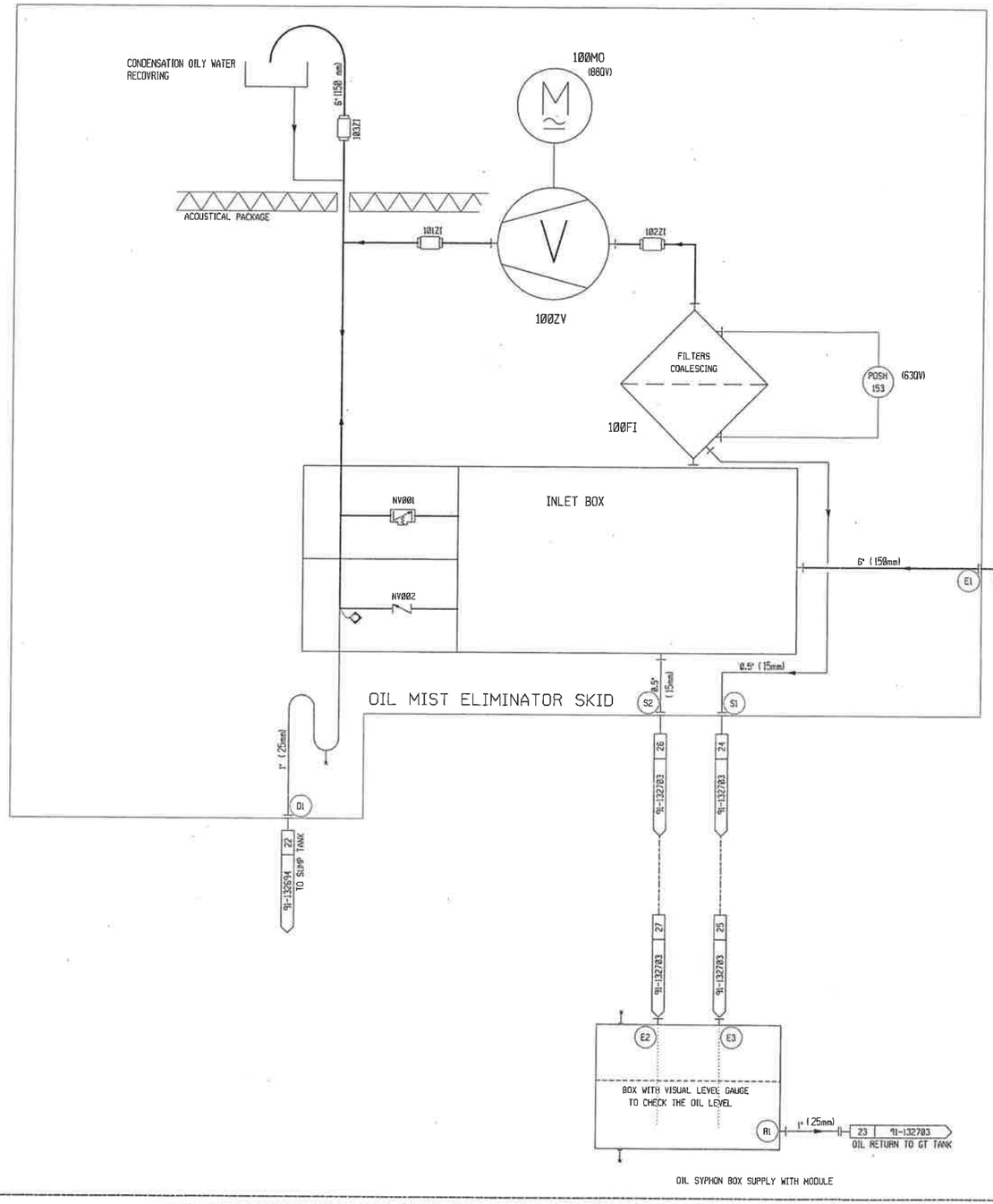
INSTRUCTION DE MODIFICATION

Section Zone

01 F

COMMUNIER PATRICK VALIDE

C130331



SEE CODES AND STANDARDS P.&I.D.

PIPING SYMBOLS	: 91-112600-SH01
INSTRUMENTATION SYMBOLS	: 91-112600-SH02
EQUIPMENT SYMBOLS	: 91-112600-SH03

NOTES

1) OIL SIPHON BOX MUST BE LOCATED 51.18 inch (1300mm) BELOW THE THE COALESCING FILTERS
2) CHECK VALVE NV002 IS INSTALLED WITH THEIR SPINDLE AT LOWER PART
3) PDSH 153 SETTING POINT 1.16psig (0.08 Bar)ON THE INCREASING

BURDICK STATION GT-2 & GT-3

Sargent & Lundy, LLC

Project No. 11004-000

CITY OF GRAND ISLAND

FOR EXECUTION

GE Official

REFERENCE NBER : 01R22 250 I70 FD 001 REVISION : A

ECH. / SCALE		DATE	24-Jul-2001	24-Jul-2001	25-Jul-2001
None		NOM / NAME	ARNOUX FRANCOIS	MASSON MICHEL	CHEVALLEY GERARD
FORMAT/SIZE	A1	VISA	ARNOUX FRANCOIS	MASSON MICHEL	CHEVALLEY GERARD
			REDIGE / MADE	VERIFIE / CHECKED	APPROUVE/APPROVED

TITRE/TITLE

OIL MIST ELIMINATOR SKID-PIPING AND INSTRUMENT DIAGRAM (P&I D)

...

GE Energy Products - Europe

GE Energy Products France SNC

N° 91-132613 Rév. A

SHT. N 1/1

INSTRUCTION DE MODIFICATION

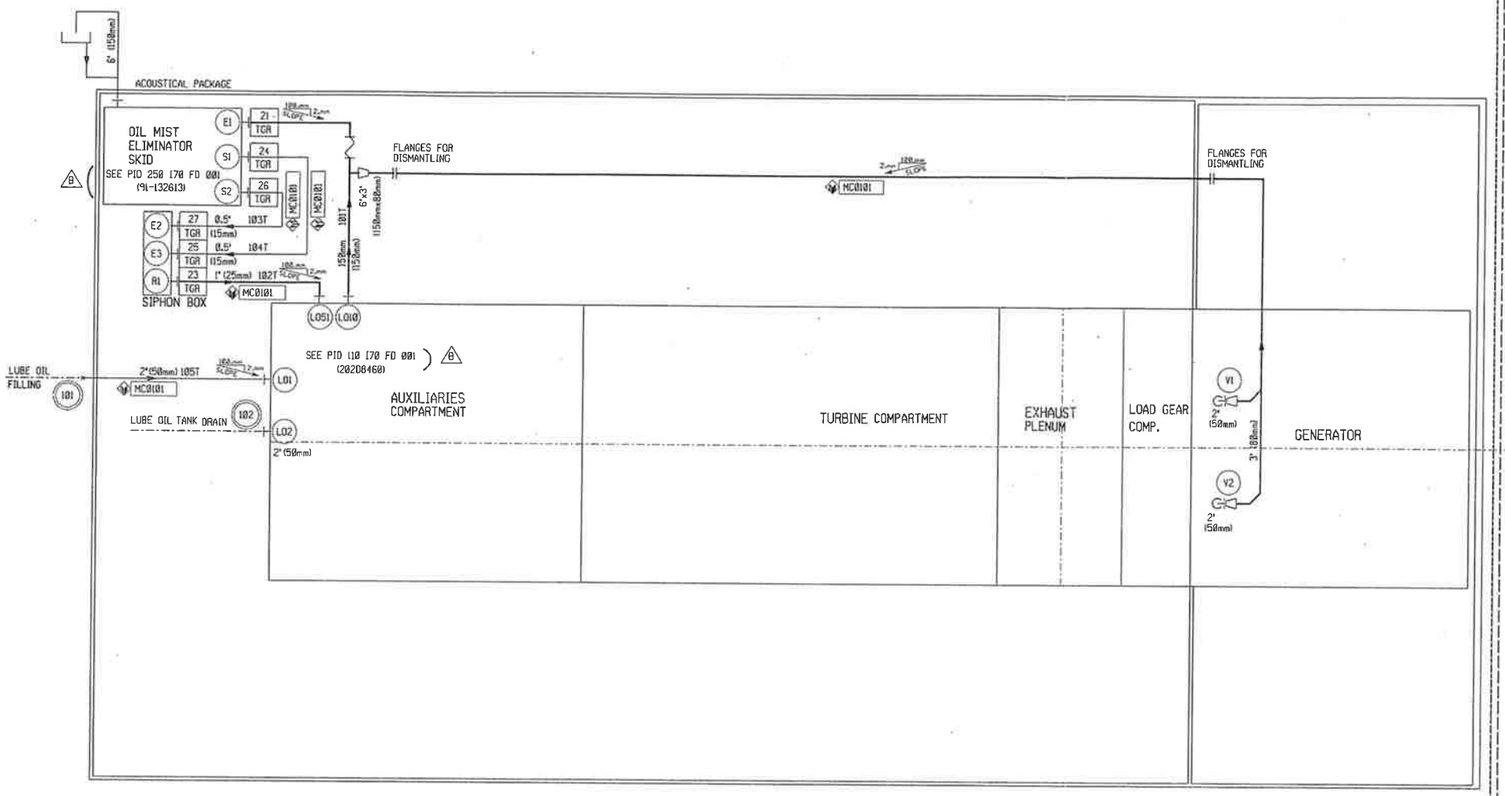
Section Doc. 01 E

COMMUNIER PATRICK VALIDE

FORMAT UTILE :(801 x 554)

C130331

GT-2 GT-3 TGR



SEE CODES AND STANDARDS P.&I. D.

PIPING SYMBOLS	: 91-112600 1/3
INSTRUMENTATION SYMBOLS	: 91-112600 2/3
EQUIPMENT SYMBOLS	: 91-112600 3/3

TYPICAL LOCATION OF THE INTERFACE POINT

SUPPLIED BY GEEPE | SUPPLIED BY OTHERS

SEE INTERFACES TABLE: 91-132693

BURDICK STATION GT-2 & GT-3

Sargent & Lundy, LLC

Project No. 11004-000

CITY OF GRAND ISLAND

REFERENCE NBER : 01R22 --- I70 FD 001 REVISION : B

ECH. / SCALE	DATE	21-Nov-2001	21-Nov-2001	21-Nov-2001
None	NOM / NAME	VIGNE JEAN-YVES	LASBENNES JEAN FRANCOIS	COLETTE XAVIER
FORMAT/SIZE A1	VISA	VIGNE JEAN-YVES	LASBENNES JEAN-FRANCOIS	COLETTE XAVIER
		REDIGE / MADE	VERIFIE / CHECKED	APPROUVE/APPROVED

TITRE/TITLE

GENERAL DOCUMENTATION-PIPING AND INSTRUMENT DIAGRAM (P&I D)

LUBE OIL DISTRIBUTION SYSTEM

GE Energy Products - Europe

GE Energy Products France SNC

N° 91-132703 Rév. B

SHT. n 1/1

INSTRUCTION DE MODIFICATION IM-2001004679

Section Doc. E

VALIDE LAFON ERIC

FORMAT A1:841x594 (ISO 5457-1990)

FORMAT UTILE: (801 x 554)

C130331

SIZE	DWG. NO.	SH.	REV.
A1	202D8460	1	A

REVISIONS

REV	DESCRIPTION	DATE	NAMES/NOMS	SIGNATURES
A	FIRST ISSUE	14 AUG 01	THIRION F.	
		14 AUG 01	JOST JM.	
		14 AUG 01	HANNON P.	

NOTES:

1 - VOIR NOMENCLATURE DES APPAREILS POUR REGLAGE DES APPAREILS DE CONTROLE ET CHAUFFAGE CUVE A HUILE.

1 - SEE DEVICE SUMMARY FOR CONTROL DEVICE SETTINGS AND TANK HEATING REQUIREMENTS.

DIAMETRES DES DIAPHRAGMES ORIFICES DIAMETRES		
	INCHES	MM
A	.25	6.35
B	0	0
C	.125	3.1
D	.125	3.1
E	.09	2.5
F	.09	2.5

1	APPLIED PRACTICES	277A2415
IT.	NOMENCLATURE	IDENT
LIST OF COMPLEMENTARY DOCUMENTS		
FIRST MADE FOR : MS6001B		ITEM : 0416

A	A	REV	REV STATUS OF SHEETS
2	1	SH	

SIGNATURES		DATE
DRAWN	THIRION F.	14 AUG 01
CHECKED	JOST JM.	14 AUG 01
APPROVED	HANNON P.	14 AUG 01

GENERAL ELECTRIC COMPANY

GE Energy Products - Europe

SCH. HUILE DE GRAISSAGE

DIAG. SCH. PP-LUBE OIL

SIZE	CAGE CODE	DWG. NO.	DISTR TO
A1		202D8460	
SCALE	REV. : A	SHEET 1	

SIM TO : 202D8445

BURDICK STATION GT-2 & GT-3

Sargent & Lundy, LLC

Project No. 11004-000

CITY OF GRAND ISLAND

REFERENCE NBER : 01R22 110 I70 FD 001 REVISION : A

ECH. / SCALE	DATE	14-Aug-2001	14-Aug-2001	21-Aug-2001
None	NOM / NAME	THIRION FREDERIC	JOST JEAN-MICHEL	HANNON PASCAL
FORMAT/SIZE A1	VISA	THIRION FREDERIC	JOST JEAN-MICHEL	HANNON PASCAL
		REDIGE / MADE	VERIFIED CHECKED	APPROUVE/APPROVED

TITRE/TITLE

GAS TURBINE-PIPING AND INSTRUMENT DIAGRAM (P&I D)

DIAGRAM,SCHEM PP LUBE OIL (0416)

GE Energy Products - Europe

GE Energy Products France SNC

N° 202D8460 Rév. A

SHT. N 1/2

INSTRUCTION DE MODIFICATION

Section Doc.

01 F

A1:841x594(ISO 5457-1980)