CITY OF GRAND ISLAND

Working Together for a Better Tomorrow. Today.

BID SPECIFICATION PACKAGE

for

GAS TURBINE 2 HOT GAS PATH INSPECTION BURDICK GENERATING STATION

C 131274

Bid Opening Date/Time

Tuesday, March 22, 2022 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: February 18, 2022

ADVERTISEMENT TO BIDDERS
FOR
GAS TURBINE 2 HOT GAS PATH INSPECTION
FOR
CITY OF GRAND ISLAND, NEBRASKA

Sealed bids for Gas Turbine 2 Hot Gas Path Inspection will be received at the office of the City Clerk, 100 E. First Street, P.O. Box 1968, Grand Island, Nebraska 68802, until **Tuesday, March 22, 2022 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 Treasurer 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 HOT GAS PATH INSPECTION
BID DATA FORM

CITY OF GRAND ISLAND
GRAND ISLAND, NE

THE undersigned Bidder, having examined the plans, specifications, general and special conditions, and other proposed contract documents, and all addenda thereto, and being acquainted with and fully understanding all conditions relative to the location, arrangement and specified materials and equipment for the proposed work, HEREBY proposes to provide the technical requirements of performing a hot gas path inspection on the Gas Turbine 2 combustion turbine at Burdick Generating Station, including all expenses, equipment, labor, mobilization and demobilization, freight, and subcontractors, FOB the City of Grand Island, freight prepaid, at the following price:

ITEM DESCRIPTION	EXTENDED COST
Base Bid: Materials	
Outage Planning	$ _____
Mobilization/Disassembly/Inspection/Demobilization	$ _____
Mobilization/Reassembly/Startup/Demobilization/Documents	$ _____
TIL Resolution	$ _____
Labor	$ _____
Applicable Sales tax*	$ _____
Total Base Bid	**$ _____**
Consumable Parts Estimate	$ _____
Capital Components Repair ***(See attached breakdown)	$ _____

*** 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. The City of Grand Island Utilities Department is NOT tax exempt and is subject to 7.5% sales tax.**

☐ **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 **September 3, 2022.**

☐ 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 City reserves the right to reject any bid section(s) submitted by the successful bidder. In submitting the bid, it is understood that the right is reserved by the City to reject any and all bids; to waive irregularities therein and to accept whichever bid that may be in the best interest of the City. It is understood that this bid may not be withdrawn by the bidder until after thirty (30) days from bid opening.

In submitting the bid, the bidder acknowledges the bid guarantee will be forfeited to and become the property of the City of Grand Island, Nebraska, as liquidated damages should this bid be accepted and a contract be awarded to them and they fail to enter into a contract in the form prescribed and to furnish the required bonds within fifteen (15) days, but otherwise the aforesaid bid guarantee will be returned upon signing the Contract and delivering the approved bonds.

Insurance: Bidder acknowledges that their bid includes compliance with the attached insurance requirements.

The Bidder agrees to furnish the required performance and payment bond and to enter into a contract within fifteen (15) days after acceptance of this Bid, and further agrees to complete all work covered by the foregoing bid in accordance with specified requirements. No work shall commence until the Certificate of Insurance and bonds (when required) are approved by the City and the Contract is executed. The proposed work can commence after the Contract is signed and the required bond is approved.

End of Bid Data Form

CAPITAL COMPONENTS REPAIR BREAKDOWN

Capital Components Repair – Primary Fuel Nozzles

Primary Fuel Nozzles (Section 2.6.1)	**Per Unit**	**Cost**
Disassembly I&A		
Assembly		
Options		
Tip Restoration; undercut, L605, final machine tip Restoration		
Fuel Distribution Valve Rebuild Kit		
Water Orifices		
Flame Scanner Port Alignment (Unit is having issues with flame scanners		

Capital Components Repair – Secondary Fuel Nozzles

Secondary Fuel Nozzles (Section 2.6.1)	**Per Unit**	**Cost**
Disassembly I&A		
Assembly		
Options		
Tip Restoration; undercut, L605, final machine tip Restoration		
Water Orifices		
Liquid Cartridge		

Capital Components Repair – Liners

Liners (Section 2.6.2)	**Per Unit**	**Cost**
Inspect & Advise		
Light Repair		
Medium Repair		
Heavy Repair		
Options		
Strip Coating at Incoming		
TBC Coat Venturis		
TBC Coat Liner Bodies		
TBC Coat Cowl Caps		
CRC Coat X-fire Collars		
CRC Coat Spring Clips		
CRC Coat Cap Fuel Nozzle Bore ID and final grind		
Weld Build up Fuel Nozzle Bores with L-605 material and final grind		
Replace Fuel Nozzle Bore Rings with L-605 material		
Replacement Spring Clip		
Replace Crossfire Collar		
Replace Cap Top Plate		
Replace Cap Louvered Cone		
Replace Cap Outer Band		

Capital Components Repair - Transitions

Transitions (Section 2.6.3)	Per Unit	Cost
Inspect & Advise		
Light Repair		
Medium Repair		
Heavy Repair		
Options		
TBC Coat Full ID		
Satellite coat the ID of inlet Rings		
MCrAlY Full OD's		
CRC Coat H Blocks		
Replacement H Blocks		
Replacement Floating Seals		
Replacement Side Seals		

Capital Components Repair – Bull Horn Brackets

Bull Horn Brackets (Section 2.6.3)	Per Unit	Cost
Inspect & Advise		
Light Repair		
Medium Repair		
Heavy Repair		
Options		
Modify to accept wear guards and install wear guards		
CRC Coat TP interface		

Capital Components Repair – Stage 1 Nozzles

Stage 1 Nozzles (Section 2.6.4)	Per Unit	Cost
Inspect & Advise		
Light Repair		
Medium Repair		
Heavy Repair		
Options		
MCrAly Coating		
MCrAly/TBC Coating		
Replacement Flat Seals		

Stage 2 and Stage 3 Nozzles (Section 2.6.4)	Per Unit	Cost
Inspect & Advise		
Light Repair		
Medium Repair		
Heavy Repair		
Options		
MCrAly Coating		

Capital Components Repair – Turbine Buckets

Stage 1 Bucket Repair (Section 2.6.5)	Per Unit	Cost
Inspect & Advise		
Light Repair		
Medium Repair		
Heavy Repair		
Options		
Chemical Stripping to Remove Coating (highly recommended)		
MCrAly Coating		
MCrAly/TBC Coating		

Stage 2 Bucket Repair (Section 2.6.5)	Per Unit	Cost
Inspect & Advise		
Light Repair		
Medium Repair		
Heavy Repair		
Options		
Remove rail coating if applied		
MCrAly Coating		
Apply rail coating		
Stage 3 Buckets Repair (Section 2.6.5)	**Per Unit**	**Cost**
Inspect & Advise		
Light Repair		
Medium Repair		
Heavy Repair		
Options		
Remove rail coating if applied		
MCrAly Coating		
Apply rail coating		

Capital Components Repair

Stage 1 Shroud Block (Section 2.6.6)	Per Unit	Cost
Inspect & Advise		
Light Repair		
Medium Repair		
Heavy Repair		
Options		
MCrAlyl Coating		
MCrAlyl/TBC Coating		
New Joint Seals		

CHECKLIST FOR BID SUBMISSION

FOR

GAS TURBINE 2 HOT GAS PATH INSPECTION

Bids must be received by the City Clerk before *2:00 p.m. on Tuesday, March 22, 2022*.

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 payable to the City of Grand Island Treasurer and must be received by 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.
- ❑ A reference list of at least three (3) projects of similar scope and complexity.
- ❑ Firm lump sum pricing; firm unit pricing in case adjustments are necessary, and breakout of sales tax pricing.
- ❑ A proposed timeline schedule.
- ❑ Exceptions to the specification or Owner's Contract Document.
- ❑ A copy of your OSHA compliant Confined Space Procedure and Respiratory Protection Procedure.
- ❑ 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 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 as required in these Bid Documents. Within fifteen (15) days after receiving the signed Contract from the successful Bidder, the OWNER's authorized agent will sign the Contract. Signature by both parties constitutes execution of the Contract.

9. 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.

10. 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.

11. 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 HOT GAS PATH INSPECTION AT BURDICK GENERATING STATION;* 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 HOT GAS PATH INSPECTION.

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 ***September 3, 2022***.

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.** * The City of Grand Island Utilities Department is NOT tax exempt and is subject to 7.5% sales tax. 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 Hot Gas Path Inspection".** 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**, **March 22, 2022 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. Invoices shall be sent to billing@giud.com. 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 Treasurer 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.

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 or contract documents, 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.

Successful bidder shall comply with the City's insurance requirements; All bids shall be valid for at least thirty (30) working days after the bid deadline for evaluation purposes.

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 power-of-attorney as evidence of his authority to bind the Surety on the date of execution of the bond.

Gas Turbine 2 Hot Gas Path Inspection
Burdick Generating Station

Table of Contents

Gas Turbine 2 Hot Gas Path Inspection Burdick Generating Station

Grand Island Utilities Department-Detailed Specification

1.0 PROJECT DECRIPTION

The Grand Island Utilities Department at Burdick Generating Station is requesting bids to complete a Hot Gas Path Inspection on one GE 6B dual fuel Gas Turbine.

1.1 BACKGROUND

The City of Grand Island, Burdick Generating Station Combustion Turbine Project Gas Turbine (GT-2) and Gas Turbine (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 OEM data are as follows:

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

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

Unit:	GT-2
Gas Fired Hours:	2274 hrs.
Liquid Fired Hours:	148 hrs.
Fired Starts:	757

Since commissioning, the City of Grand Island maintenance staff has conducted routine inspections of the turbine as recommended by the OEM. In accordance with the General Electric publication GER-3620P, GT-2 is due to have a hot gas path inspection based on the number of unit starts. The purpose of a hot gas path inspection is to examine those parts exposed to the high temperature gases discharged from the combustion process. The City of Grand Island is soliciting bids to perform a hot gas path inspection on GT-2 in accordance with this specification and any OEM recommendations.

1.2 LOCATION

This project is located at the City of Grand Island's Burdick Generating Station, 800 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 performing a hot gas path inspection on the GT-2 combustion turbine at Burdick Generating Station. The Contractor described herein shall be solely responsible for adhering to these specifications and all applicable OEM and industry standards not described herein. Typical Hot gas path inspection requirements are:

2.1 PLANNING

The Contractor will be responsible for preplanning the inspection to minimize unit downtime. The contractor shall dedicate a representative to review operational data, discuss maintenance observations and issues, as well as review lessons learned from similar outages.

2.1.1 CONSUMABLES

The Contractor shall create a list of consumable materials and parts that are needed to support the outage. The list shall detail all OEM part numbers and necessary quantities.

The parts list is to be finalized on completion of disassembly. Contractor shall notify owner if a part will need to be ordered prior to disassembly completion due to a long lead time. An itemized cost estimate of consumable parts is to be provided with the bid but will not be used as part of the bid evaluation. Consumable parts shall be purchased by a separate purchase order.

The Contractor shall review the Purchaser's current inventory against the recommended quantities to determine purchase quantities.

2.1.2 INSPECTION AND TIL REVIEW

The Contractor shall review recommended TILs prior unit inspections and make recommendations on anticipated outage repair scope.

The Contractor shall review unit specific technical information letters (TILs) and make recommendations on additional work scopes that should be performed during the course of the planned outage.

The Contractors TIL review shall be reflected on the Plant Staff Power Customer Portal.

2.1.3 SCHEDULE

The Contractor shall create and maintain an accurate project schedule. The initial schedule shall provide a sequenced approach to disassembly, inspection, repair, and reassembly.

The project schedule shall be created and managed in Microsoft project.

2.1.4 MOBILIZATION/DEMOBILIZATION

The Contractor shall include mobilizing and demobilizing in project planning to accommodate downtime for the repair of capital parts.

2.1.5 MANPOWER

The Contractor shall provide a detailed execution of the scope of work including the anticipated manpower required throughout the project.

The Contractor shall anticipate the required reductions and increases in workforce and detail them in the schedule.

2.1.6 CAPITAL PARTS

The Contractor shall schedule the repair of capital parts and plan the outage around repair shop availability to minimize unit downtime.

2.1.7 PURCHASING, SHIPPING AND RECEIVING

The Contractor shall provide an off-site person to act as the parts liaison providing periodic updates on parts being supplied and/or additional parts identified to be needed.

The parts liaison shall be aware of status, lead times, availability, and inventory.

2.2 ONSITE SERVICES

The Contractor shall provide Field Engineering Service consisting of Project Management and technical direction, craft labor supervision with extensive GE gas turbine maintenance experience, union craft labor of suitable quantity to accomplish the scope of work in the scheduled duration, and tooling to perform a hot gas path inspection of GT-2.

The contractor shall follow prudent industry practices and provide direction, so the work is completed in a safe and efficient manner. The Contractor shall have a representative on site at all times to oversee that all tasks to disassemble, inspect, and reassemble the turbine generator set are in accordance with OEM recommendations.

The Contractor shall participate in a daily, morning (or as needed), planning meeting with representatives from the Purchaser and all subcontractors.

The Contractor will be responsible for inspecting hardware and creating a list of replacement parts based on disassembly inspection. Parts are to be ordered based on lead times so as to not delay reassembly:

- Parts list shall be compared to plant current parts inventory and reviewed with plant personnel before ordering parts
- Clean and prepare unit for demobilization
- Demobilize job site while parts are at the repair facility(s)
- Remobilize and prepare for reassembly
- Reassemble
- Check for leaks and repair
- Monitor Startup
- Demobilize

2.3 DISASSEMBLY

The Contractor will be responsible for the disassembly of the unit. The unit disassembly shall be in accordance with Chapters 4 and 5 of the Unit Maintenance Manual and all relevant OEM procedures.

The Contractor will be responsible for scheduling and hiring any crane service needed during disassembly.

The Contractor shall fully document the disassembly of the unit with pictures and inspection forms. Individual parts shall be labeled to ensure efficient reassembly. The Contractor shall organize miscellaneous pieces in clear bags during disassembly.

During disassembly, the Contractor shall complete all inspection forms as noted by the OEM. The disassembly shall include but not be limited to:

1) Prepare turbine compartment for roof removal
    a) Prepare turbine enclosure for removal
2) Remove Turbine compartment roof & side panels
3) Remove liquid fuel lines
4) Remove atomizing air lines
5) Remove fuel gas lines
6) Remove water injection lines
7) Remove liquid fuel check valves
8) Remove false start drain tubing and manifold header
9) Remove fuel nozzles
10) Remove flame detectors and spark plugs
11) Remove 11th stage cooling and seal air lines
12) Unbolt and open combustion outer casing cover
13) Remove crossfire tube retainers, crossfire tubes, combustion liners and forward flow sleeves
14) Remove the atomizing air extraction manifold from the upper half exhaust frame cooling piping. In addition to the extraction manifold, remove the upper half exhaust frame cooling piping. Discard all gaskets and cover all pipe openings. Identify the bolting for reassembly.
15) Remove outer combustion casing
16) Remove exhaust and inlet plenum access panels
17) Take initial compressor and rotor positioning checks
18) Disconnect wiring and conduit in turbine compartment area
19) Place mechanical support jacks under unit casing
20) Remove turbine casing bolts and upper half first stage nozzle eccentric pin
21) Remove upper half turbine casing
22) Take turbine clearance checks
    a) Rotor Float
    b) Turbine Rotor Clearances
23) Unbolt and remove transition pieces
24) Take first stage nozzle radial concentricity checks
25) Remove upper half first stage nozzle
26) Remove lower half first stage nozzle
27) Remove lower half second and third stage nozzle radial retaining pins
28) Remove lower half second and third stage nozzle segments
29) Remove upper half second and third stage nozzle radial retaining pins
30) Remove upper half second and third stage nozzle segments
31) Reinstall Roof and Side panels for layup.
32) Clean work areas for layup

2.3.1 TEMPORARY COVERS

If roof, or side panel removal is necessary, the Contractor shall provide and/or fabricate temporary roof or equipment covers to protect against inclement weather during the outage.

Between disassembly and reassembly all roofs and side panels shall be reinstalled before the Contractor demobilizes from the site.

2.4 INSPECTION

The Contractor will be responsible for the inspection of the unit. The unit inspections shall be in accordance with Chapters 4 and 5 of the Unit Maintenance Manual and all relevant OEM procedures. The inspection shall be well documented to provide unit conditions at the time of disassembly and inspection. The contractor shall fully complete all field inspection reporting forms per OEM. The type and location of any abnormality shall be recorded. The inspection shall include, but not be limited to:

1) Pressure test fuel check valves
2) Fuel nozzle inspection
3) Inspect combustion liners
4) Inspect crossfire tubes and retainers
5) Inspect transition pieces
6) Inspect forward and aft flow sleeves
7) Inspect combustion outer casing
8) Inspect and test spark plugs
9) Inspect and test flame detectors
10) Inspect first, second and third stage nozzles
    a) Air blast
    b) Fluorescent penetrating check for cracks
    c) Foreign object damage
    d) Erosion
    e) Corrosion
11) Recant stationary blades to original position.
12) Inspect first, second and third stage turbine buckets
    a) Visually inspect with magnification
    b) Clean surfaces with polishing disc
    c) Take precaution not to damage coating
    d) Fluorescent penetrating check for cracks
    e) Foreign object damage
    f) Cracks
    g) Erosion
    h) Missing Metal
    i) Corrosion

2.4.1 BORESCOPE

The Contractor shall provide a Borescope Technician and borescope equipment capable, but not limited to, performing the following scope of work.

The borescope shall have a minimum resolution of 800x600.

Representative color borescope photographs shall be taken of all areas that are inspected, particularly those areas that may require emergent work.

Inspect rotating and stationary stages of the turbine that are accessible to the videoscope from the borescope ports and the exhaust duct. Check for FOD oxidation, corrosion, erosion, blocked cooling holes, missing metal, blisters, cracking, trailing edge bowing, and tip clearance.

2.5 CONSUMABLES

The Contractor shall provide an itemized bill of consumable materials used in a hot gas path inspection. The list shall include quantity and price that the materials will be billed at. The list shall also include the following materials.

2.5.1 CROSSFIRE TUBES

The contractor shall include a full set of ten (10) inner crossfire tubes, retainers, and associated hardware.

2.5.2 TRANSITION SIDE SEAL

The Contractor shall include a full set of ten (10) transition piece side seals and associated side seal hardware.

2.5.3 BULLHORN WEAR GUARDS

The Contractor shall include a full set of bullhorn bracket wear covers.

2.6 CAPITAL COMPONENTS

The contractor will be responsible for coordinating the repairs of all capital components. All conditions and repairs made to capital components shall be well documented identifying the component individually by its serial identification number. The conditions of the capital components before shipping and after receiving at the plant site and repair facility shall be documented photographically.

The Contractor shall complete all OEM required repair inspection forms described in Chapter 4 and Chapter 5 of the Unit Maintenance Manual.

Gas Turbine Combustion Components operate at extremely high temperatures requiring a protective coating to prevent accelerated wear. All coatings applied during the repair process shall be OEM approved for the application.

The Contractor shall provide procedures, lead times and pricing for capital repairs described herein. The Contractor shall detail repair shop capabilities and locations.

2.6.1 FUEL NOZZLES (DLN1.0 DUAL-FUEL)

The Contractor will be responsible for repairs to the primary and secondary fuel nozzles as described herein on a dual fuel unit. The primary and secondary fuel nozzles shall be inspected and repaired in accordance with all relevant OEM recommendations and Chapter 4 of the Unit Maintenance Manual.

Primary Fuel Nozzles (Qty 10)		
Scope	**Disassembly I&A**	**Assembly**
	Receive into our facility	Blend minor fretting on gas tips.
	record drawing and serial numbers	Supply replacement consumable parts: "C" seals, lock rings, & seals
	Visual inspection	Flow test and sequence liquid cartridges
	Flow test: AA, Oil, Water	Flow test and sequence gas tips
	Dynamic leak test	Assemble FDV, water manifolds, liquid cartridges, inner gas nozzles and outer gas swirler tip
	Tubing leak test	Torque tip per specification
	Disassemble; FDV, water manifolds, liquid cartridges, inner nozzles and gas tips from end covers.	Final flow: Gas, AA, Oil, Water
	Measure and record internal flow diameters swirl tip gas holes, orifice plat holes and tip OD's	Dynamic leak test
	Pressure test end covers	Tubing leak test
	Glass bead clean gas tips and end covers	Engineering review and release
	Ultrasonic clean end covers and liquid components	Prepare for shipment
	NDE fabrication welds	Provide final report
	Engineering review and advisement	
	Supply inspection report & replacement parts list	
Options	Tip restoration; undercut, L605, final machine tip Restoration	
	Fuel Distribution Valve Rebuild Kit	
	Water Orifices	
	Flame Scanner Port Alignment (Unit is having issues with flame scanners)	

Secondary Fuel Nozzles (Qty 10)		
Scope	**Disassembly I&A**	**Assembly**
	Receive into our facility	Blend any minor damage
	record drawing and serial numbers	Supply replacement consumable parts: seal kit and lock rings
	Visual inspection	Final NDE of any repairs
	Flow test: Secondary Gas, Tertiary Gas, AA, Oil, Water	Final flow test
	Leak test	Final leak check
	Measure orifices and holes	Engineering review and release
	Disassemble liquid components	Prepare for shipment
	Chemical cleaning	Provide final report
	Ultrasonic cleaning	
	Glass bead clean gas tips and end covers	
	Ultrasonic clean end covers and liquid components	
	Engineering review and advisement	
	Supply inspection report & replacement parts list	
Options	Tip restoration; undercut, L605, final machine tip Restoration	
	Water Orifices	
	Liquid Cartridge	

2.6.2 LINERS

The Contractor will be responsible for the inspection and repairs to the combustion liners as described herein on a dual fuel unit. The Combustion Liners shall be inspected and repaired in accordance with all relevant OEM recommendations and Chapter 4 of the Unit Maintenance Manual.

Liners (Qty 10)				
	Insp. & advise	**Light Repair**	**Medium Repair**	**Heavy Repair**
Scope	Receive and Identify	Blend Repair	Medium weld repair wear & cracks	Heavy weld repair wear & cracks
	Dimensional Inspect	Polish spring clips	Adjust louver openings	Adjust louver openings
	Remove Cowl Caps	NDT (Visual)	Polish spring clips	Polish spring clips
	Clean Exteriors	Install Cowl Caps	Resize X-fire collars	Resize X-fire collars
	NDT (Visual)	Final Dimensional	NDT (VPI)	NDT (VPI)
	Provide Report	Final NDT (Visual)	Apply Coating (see coating options)	Apply Coating (see coating options)
		Box and Ship	Install Cowl Caps	Install Cowl Caps
		Provide Final Report	Final Dimensional	Final Dimensional
			Final NDT (Visual)	Final NDT (Visual)
			Box and ship	Box and ship
			Provide Final Report	Provide Final Report
Options	Strip Coating at Incoming			
	TBC Coat Venturis			
	TBC Coat Liner Bodies			
	TBC Coat Cowl Caps			
	CRC Coat X-fire Collars			
	CRC Coat Spring Clips			
	CRC Coat Cap Fuel Nozzle Bore ID and final grind			
	Weld Build up Fuel Nozzle Bores with L-605 material and final grind			
	Replace Fuel Nozzle Bore Rings with L-605 material			
	Replacement Spring Clip			
	Replace Crossfire Collar			
	Replace Cap Top Plate			
	Replace Cap Louvered Cone			
	Replace Cap Outer Band			

2.6.3 TRANSITION PIECES

The Contractor will be responsible for the inspection and repairs to the Transition Pieces and Bullhorn Brackets as described herein on a dual fuel unit. The Transition Pieces shall be inspected and repaired in accordance with all relevant OEM recommendations and Chapter 4 of the Unit Maintenance Manual. Inspections and repairs shall consist of the following:

Transitions (Qty 10)				
Scope	**Insp. & Advise**	**Light Repair**	**Medium Repair**	**Heavy Repair**
	Receive and identify	Minor weld repair wear	Pre- weld heat treat	Pre- weld heat treat
	Fixture check	Fixture check	Medium weld repair wear and cracks	Pre- weld heat treat
	Dimensional inspection	Post weld heat treat and age	Fixture check	Major weld repair wear and cracks
	Remove aft brackets & hardware	Grit blast	Post weld heat treat and age	Relocate picture frames (as required)
	Grit blast	Fixture check	Grit blast	Relocate H blocks (as required)
	NDT (VPI)	Dimensional inspection	Fixture check	Fixture check
	UT panel thickness	Final NDT (VPI)	Dimensional inspection	Post weld heat treat and age
	Provide Report	Apply Coating (see coating)	Final NDT (VPI)	Grit blast
		Install aft brackets and hardware	Apply Coating (see coating)	Fixture check
		Final fixture check	Install aft brackets and hardware	Dimensional inspection
		Final dimensional inspection	Final fixture check	Final NDT (VPI)
		Box and ship	Final dimensional inspection	Apply Coating (see coating)
		Provide Final Report	Box and ship	Install aft brackets and hardware
			Provide Final Report	Final fixture check
				Final dimensional inspection
				Box and ship
				Provide Final Report
Options	TBC Coat Full ID			
	Satellite Coat the ID of Inlet Rings			
	MCrAlY Full OD's			
	CRC Coat H Blocks			
	Replacement H Blocks			
	Replacement Floating Seals			
	Replacement Side Seals			

Bull Horn Brackets (Qty 10)				
Scope	Insp. & Advise	Light Repair	Medium Repair	Heavy Repair
	Receive and identify	Blend repair	Medium weld repairs	Heavy weld repairs
	Grit blast	Visual inspection	NDT (VPI)	Final machine bullhorns
	Fixture check	Blast clean	Blast clean	NDT (VPI)
	NDT (VPI)	Apply Coating (see coating)	Apply Coating (see coating)	Blast clean
	Provide Report	Final fixture check	Final fixture check	Apply Coating (see coating)
		Box and ship	Box and ship	Final fixture check
		Provide Final Report	Provide Final Report	Box and ship
				Provide Final Report
Options	Modify to accept wear guards and install wear guards			
	CRC Coat TP interface			

2.6.4 TURBINE NOZZLES

The Contractor will be responsible for the inspection and repairs to the Stage 1, Stage 2, and Stage 3 Turbine Nozzles. Nozzles shall be inspected for cracking, foreign object damage, and erosion. Nozzle inspections shall be complete using OEM recommended techniques, and in accordance with Chapter 5 of the Unit Maintenance Manual. Results of a nozzle inspection shall be documented along with the relevant information on unit operation and fuels. The contractor shall complete all required inspection forms as recommended by the OEM. Nozzle inspections and repairs shall include the following:

Stage 1 Nozzles (Qty 18)				
Scope	Insp. & Advise	Light Repair	Medium Repair	Heavy Repair
	Receive and identify	Minor weld repair	Medium weld repair	Heavy weld repair
	Incoming dimensional inspection	Grit blast	Grit blast	Restore flat seal engagement hook fits
	Incoming area check	NDT (VPI)	NDT (VPI)	Grit blast
	Remove plates and core plugs	Round out retaining ring	Repair and round out retaining ring	NDT (VPI)
	Grit blast	Pre- assembly and dimensional check	Pre- assembly and dimensional check	Repair and round out retaining ring
	Pre- weld heat treat	Post weld heat treat	Restore chordal hinge surfaces	Pre- assembly and dimensional check
	NDT (VPI)	Grit blast	Post weld heat treat	Restore chordal hinge surfaces
	UT wall thickness inspection	NDT (VPI)	Grit blast	Post weld heat treat
	Provide report	Pre- coat assembly and dimensional check	NDT (VPI)	Grit blast
		Apply coating (see coating)	Pre- coat assembly and dimensional check	NDT (VPI)
		Minor weld repair cores and cover plates	EDM to open cooling holes	Pre- coat assembly and dimensional check
		Install cores and cover plates	Apply coating (see coating)	EDM to open cooling holes
		NDT (Visual)	Weld repair cores and cover plates	Apply coating (see coating)

		Install new joint seals	Install cores and cover plates	Weld repair cores and cover plates
		Final assembly and dimensional check	NDT (Visual)	Install cores and cover plates
		Final area check	Install new joint seals	NDT (Visual)
		Box and ship	Final assembly and dimensional check	Install new joint seals
		Provide Final Report	Final area check	Final assembly and dimensional check
			Box and ship	Final area check
			Provide Final Report	Box and ship
				Provide Final Report
Options	MCrAly Coating			
	MCrAly/TBC Coating			
	Replacement Flat Seals			

Stage 2 and Stage 3 Nozzles (Qty 16 per stage)				
	Insp. & Advise	**Light Repair**	**Medium Repair**	**Heavy Repair**
Scope	Receive and identify	Minor weld repair	Medium weld repair	Heavy weld repair
	Incoming dimensional inspection	Grit blast	Grit blast	Grit blast
	Incoming area check	NDT (VPI)	NDT (VPI)	NDT (VPI)
	Disassemble segments and packing	Dimensional check	Dimensional check	Dimensional check
	Remove core plugs and cover plates	Post weld heat treat	Post weld heat treat	Post weld heat treat
	Grit blast	Grit blast	Grit blast	Grit blast
	Pre- weld heat treat	NDT (VPI)	NDT (VPI)	NDT (VPI)
	NDT (VPI) segments	Pre- coat dimensional check	Pre- coat dimensional check	Pre- coat dimensional check
	NDT (Visual) packing	Apply coating (see coating)	Apply coating (see coating)	Apply coating (see coating)
	Provide report	Weld repair cores	Weld repair cores	Weld repair cores
		Install cores and hardware	Install cores and hardware	Install cores and hardware
		Weld repair packing	Weld repair packing	Weld repair packing
		Grit blast packing	Grit blast packing	Grit blast packing
		NDT (Visual) packing	NDT (Visual) packing	NDT (Visual) packing
		Install new joint seals	Install new joint seals	Install new joint seals
		Assemble packing to segments	Assemble packing to segments	Assemble packing to segments
		Final dimensional check	Final dimensional check	Final dimensional check
		Final area check	Final area check	Final area check
		Final NDT (Visual)	Final NDT (Visual)	Final NDT (Visual)
		Box and Ship	Box and Ship	Box and Ship
		Provide inspection report	Provide inspection report	Provide inspection report
Options	MCrAly Coating			

2.6.5 TURBINE BUCKETS

The Contractor will be responsible for the inspection and repairs to the Stage 1, Stage 2, and Stage 3 Turbine Buckets. Buckets shall be inspected for cracks, dents, missing metal, and corrosion. The Contractor shall inspect all bucket cooling air holes to ensure no foreign bodies are clogging the holes. Bucket inspections shall be complete using OEM recommended techniques, and in accordance with Chapter 5 of the Unit Maintenance Manual. Results of a bucket inspection shall be documented along with the relevant information on unit operation and fuels. The contractor shall complete all required inspection forms as recommended by the OEM. Bucket inspections and repairs shall include the following:

Stage 1 Bucket Repair (Qty)				
	Insp. & Advise	**Light Repair**	**Medium Repair**	**Heavy Repair**
Scope	Receive and identify	Clear defects	Clear defects	Clear defects
	Blend root galling and Al seal strip	NDT (FPI)	Pre- weld heat treat	Pre- weld heat treat
	Incoming dimensional	Apply coating (see coating)	NDT (FPI)	NDT (FPI)
	Grit blast	Shot peen root	Weld repair squealer tips	Rebuild squealer tips
	Incoming NDT (FPI) and map	Al seal strip coating	NDT (FPI)	Weld repair platforms
	UT wall thickness	Final dimensional inspection	Post weld heat treat	Rebuild angel wings
	Provide Report	Moment weigh and sequence	NDT (FPI)	NDT (FPI)
		Box and ship	Touch-up as required	Post weld heat treat
		Provide Final Report	UT wall thickness	NDT (FPI)
			Pre- coat dimensional inspection	Touch-up as required
			Apply coating (see coating)	UT wall thickness
			Shot peen root	Pre- coat dimensional inspection
			Al seal strip coating	Apply coating (see coating)
			Final dimensional inspection	Shot peen root
			Moment weigh and sequence	Al seal strip coating
			Box and ship	Final dimensional inspection
			Provide Final Report	Moment weigh and sequence
				Box and ship
				Provide Final Report
Options	Chemical Stripping to remove coating (highly recommended)			
	MCrAly Coating			
	MCrAly/TBC Coating			

Stage 2 Buckets Repair (Qty 92)				
	Insp. & Advise	**Light Repair**	**Medium Repair**	**Heavy Repair**
Scope	Receive and identify	Clear defects	Clear defects	Clear defects
	Blend root galling	NDT (FPI)	Pre weld heat treat	Pre weld heat treat
	Incoming dimensional	Coating is priced as an option	NDT (FPI)	NDT (FPI)
	Grit blast	Shot peen root	Hardface weld Z-notches	Hardface weld Z-notches
	Incoming NDT (FPI) and map	Al seal strip coating	NDT (FPI)	Rebuild angel wings
	Provide Report	Final dimensional inspection	Post weld heat treat	Rebuild shroud rails
		Moment weigh and sequence	Machine Z-notches	Weld repair cutter tooth
		Box and ship	NDT (FPI)	NDT (FPI)
		Provide Final Report	Touch up as required	Post weld heat treat
			Pre coat dimensional inspection	Machine Z-notches
			Coating is priced as an option	NDT (FPI)
			Shot peen root	Touch up as required
			Al seal strip coating	Pre coat dimensional inspection
			Final dimensional inspection	Coating is priced as an option
			Moment weigh and sequence	Shot peen root
			Box and ship	Al seal strip coating
			Provide Final Report	Final dimensional inspection
				Moment weigh and sequence
				Box and ship
				Provide Final Report
Options	Remove rail coating if applied			
	MCrAly Coating			
	Apply rail coating			

Stage 3 Buckets Repair (Qty)				
	Insp. & Advise	**Light Repair**	**Medium Repair**	**Heavy Repair**
Scope	Receive and identify	Clear defects	Clear defects	Clear defects
	Blend root galling	NDT (FPI)	Pre weld heat treat	Pre weld heat treat
	Incoming dimensional	Shot peen root	NDT (FPI)	NDT (FPI)
	Grit blast	Final dimensional inspection	Hardface weld Z-notches	Hardface weld Z-notches
	Incoming NDT (FPI) and map	Moment weigh and sequence	NDT (FPI)	Rebuild angel wings
	Provide Report	Box and ship	Post weld heat treat	Rebuild shroud rails
		Provide Final Report	Machine Z-notches	Weld repair cutter tooth
			NDT (FPI)	NDT (FPI)
			Touch up as required	Post weld heat treat
			Shot peen root	Machine Z-notches
			Final dimensional inspection	NDT (FPI)
			Moment weigh and sequence	Touch up as required
			Box and ship	Shot peen root
			Provide Final Report	Final Dimensional Inspection
				Moment weigh and sequence
				Box and ship
				Provide Final Report
Options	Remove rail coating if applied			
	MCrAly Coating			
	Apply rail coating			

2.6.6 TURBINE SHROUD BLOCKS

The Contractor will be responsible for the inspection and repairs to the Stage 1 Shroud Blocks. Shroud Blocks shall be inspected for deposits, corrosion and erosion. Shroud Block inspections shall be complete using OEM recommended techniques, and in accordance with Chapter 5 of the Unit Maintenance Manual. Results of a Shroud Block inspection shall be documented along with the relevant information on unit operation and fuels. The contractor shall complete all required inspection forms as recommended by the OEM. Nozzle inspections shall include the following:

Stage 1 Shroud Block (Qty)				
Scope	**Insp. & Advise**	**Light Repair**	**Medium Repair**	**Heavy Repair**
	Receive and identify	Blend repair and fixture check	Pre-weld heat treat	Pre-weld heat treat
	Incoming dimensions	Grit blast	Grit blast	Grit blast
	Grit blast	Coating is priced as an option	NDT (VPI)	NDT (VPI)
	NDT (VPI)	Final fixture check and dimensions	Weld repair and fixture check	Weld repair and fixture check
	Provide report	Final NDT (Visual)	Grit blast	Grit blast
		Final grit blast	NDT (VPI)	NDT (VPI)
		Box and ship	Touch-up and fixture check	Touch-up and fixture check
		Provide Final Report	Post-weld heat treat and age	Post-weld heat treat and age
			Grit blast	Grit blast
			NDT (Visual)	NDT (Visual)
			Coating is priced as an option	Coating is priced as an option
			Final fixture check and dimensions	Final fixture check and dimensions
			Final NDT (Visual)	Final NDT (Visual)
			Final grit blast	Final grit blast
			Box and ship	Box and ship
			Provide Final Report	Provide Final Report
Options	MCrAlyl Coating			
	MCrAlyl/TBC Coating			
	New Joint Seals			

2.6.7 SHIPPING AND RECEIVING

The Contractor shall document the condition of the parts before shipping and after receiving shipment at both the plant site and the repair facility.

Plant staff will package the parts that need shipped to a repair facility. Plant staff will coordinate dedicated shipping accommodations to and from the repair facility.

The Contractor shall be responsible for packaging the repaired parts for return shipping.

Contractor shall be on site to receive repaired parts, unbox and perform a visual inspection.

2.7 TILS

The Contractor will be responsible for addressing any unresolved GE TILs that will be accessible during the hot gas path inspection. The Contractor should recommend resolutions to any unresolved TILs that are discovered in the Contractor TIL review. The Plant Staff is currently aware of the following TILs being unresolved:

UNRESOLVED TILs	
PSSB/TIL NUMBER	**DESCRIPTION**
PSSB 20180709-R3	Hexavalent Chromium Warning
T1902R1	Krypton-85 radioactive gas in spark ignitors
T1067-R3	E class Stage 2 Bucket Tip Shroud Disengagement
T1628	E and B CLASS TURBINE SHELL INSPECTION
T1214-R5	Bucket lockwire redesign and dowel pin assy. and inspection procedures
T1411-2R2	REPLACEMENT OF 6B STAGE TWO BUCKETS
T1049-R3	Determine and correct bucket movement/rock
T1872	MS6001B Axial Float
TIL 1068-R3	Variable Inlet Guide Vane inner bushing clearance inspection.
T1352-R3	MS6001B STATOR 17AND EXIT GUIDE VANE DISTRESS
T1382-R3	COMPRESSOR ROTOR STAGE 1 BLADE INSPECTION
T1634	BUCKET LOW SPEED RUB PREVENTION
T1454-2R3	STATOR BLADE DOVETAIL BASE CRACKING

2.8 REASSEMBLY

The Contractor shall remobilize to the job site when repaired parts are scheduled to be shipped back to site. The Contractor shall schedule mobilization to minimize unit downtime.

The Contractor will be responsible for the reassembly of the unit. The unit reassembly shall be in accordance with Chapters 4 and 5 of the Unit Maintenance Manual and all relevant OEM procedures.

The Contractor will be responsible for scheduling and hiring any crane service needed during reassembly.

The Contractor shall fully document the reassembly of the unit with pictures and OEM assembly forms.

During reassembly the Contractor shall complete all quality control and inspection forms as noted by the OEM. The reassembly shall include but not be limited to:

1) Prepare turbine compartment for roof removal
    a) Prepare turbine enclosure for removal
2) Remove Turbine compartment roof & side panels
3) Clean and prepare unit for reassembly
4) Install stage 1-3 buckets
5) Install stage 1 shroud blocks
6) Install upper half support ring
7) Install and align stage 1 nozzle
8) Install stage 2 nozzle
9) Record closing turbine clearances
10) Record new TP serial numbers

11) Install new TP's and lock all lock plates
12) Record closing B- C dimensions
13) Customer witness all lock plates are locked
14) Borescope lower half turbine shell (customer witness)
15) Install turbine shell and torque
16) Customer witness gas path is clean
17) Install combustion cans
18) Remove centerline jacks
19) Install outer crossfire tubes and verify all gaskets installed
20) Customer verify gas path is clean
21) Install flow sleeves
22) Install liners and crossfire tubes (record serial numbers and location)
23) Install spark plugs and flame scanners
24) Final inspect combustion (customer witness)
25) Close comb can covers
26) Install primary fuel nozzles (record serial numbers)
27) Install secondary fuel nozzles (record serial numbers)
28) Install false start tubing
29) Install fuel check valves
30) Install liquid fuel lines
31) Install water Injection lines
32) Install atomizing air lines
33) Install gas fuel lines
34) Install atomizing air extraction manifold
35) Install interconnect piping and tubing
36) Reassemble Exhaust and Inlet Duct Access Panels
37) Assemble turbine compartment roof, side panels, and doors – replace turbine enclosure
38) Cleanup, Operate and leak check unit
39) Rearm the CO2 fire protection system
40) Release to Operations

2.9 STARTUP

Contractor shall provide startup support. Contractor is to provide a startup engineer and supporting labor to monitor and fix any issues that arise during startup.

Perform pre-cranking checks as follows:

1) Record all panel counter readings
2) Check operation of the cooldown/emergency lube oil pump
3) Check operation of the auxiliary hydraulic pump
4) Make visual inspection to see if oil is flowing in bearing drains
5) Block out excitations and generator breaker equipment
6) Place unit on ratchet and observe for leaks, abnormal noises, or control deficiencies
7) Prime fuel pump (Place on turning gear)

Crank the Unit and Perform the following checks:

1) Observe pick-up rpm of speed sensors versus time
2) Inspect for casing air leaks
3) Observe and record vibration levels
4) Observe and record maximum crank speed
5) Check starting means for proper operation
6) Listen for abnormal noises
7) Check temperature of lube oil in bearing drains or at the bearing header and tank
8) Observe all panel pressure gauge readings for abnormalities
9) Trip unit using the emergency trip, and listen for abnormal noises from gas turbine and associated equipment during coast-down
10) Observe proper drop-out rpm of speed sensors

Initiate a start, and perform the following zero to full-speed:

1) Observe applicable firing check parameters
2) Check spark plugs and flame detectors
3) Observe and record acceleration rates
4) Record full set of vibration readings
5) Observe and record temperatures suppression setpoint
6) Note and record pick up time of all appropriate electrical speed relays
7) Adjust full-speed-no-load rpm to specifications
8) Check digital setpoint
9) Take a complete set of running data and record on Performance data form.
10) Make governor checks
11) Make overspeed checks per unit control specifications
12) Stake sight port plugs in place, using two stakes on each plug, after shutdown
13) Periodically recheck torque on fuel nozzle mounting flange bolts after shutdown.

After synchronizing the unit and closing the breaker, perform the following load checks:

1) Take full set of load data per a, b, and c below and record on Performance Data form:
   a) Preselected load points
      i) 21 MW
      ii) 27 MW
      iii) 32 MW
   b) Base Load
   c) Peak Load
2) Check for air, oil, fuel, gas, and water leaks

Observe normal unloading and shutdown as follows:

1) Note and record coast-down time.
2) Listen for abnormal noises from gas turbine, and associated equipment
3) Observe unit vibration readings during coast-down
4) Check to ensure sight port pipe plugs have been staked in two places after shutdown
5) Periodically recheck torque on fuel nozzle mounting flange bolts after shutdown

2.10 DOCUMENTATION

Contractor is to provide a report with pictures showing any area prior and post repairs. The report shall describe the work completed and repairs needed. Contractor shall detail all relevant clearances and measurements noted as found and as left during disassembly and reassembly. Contractor's final report shall be presented to the Plant Staff in (1) paper copy and an electronic (.pdf) form.

The Contractors report shall include all quality control forms, field inspection forms, and all shop inspection forms. It shall include a complete set of all AES/GT-FF Field forms and operating data filled out during the hot gas path inspection, including AES/GT-FF-6000 Site Information.

An electronic copy of the report shall be stored in the Customers Power Portal under reports.

2.11 MATERIALS AND WORKMANSHIP

All materials and repair procedures shall be of high quality and OEM approved.

The Contractor shall at all times keep the premises free from unnecessary debris, dirt, condemned materials, blocking, scaffold, etc. as soon as possible after accumulation and after it has served its useful purpose. After the job is complete all floors, equipment, etc. shall be given a thorough cleaning prior to leaving the jobsite.

2.12 ACCEPTANCE OF WORK

The Contractor shall correct any Work that fails to conform to the requirements of the specification herein where such failure to conform appears during the progress of the Work, and shall remedy any defects due to faulty materials, equipment or workmanship which appear within a period of one year from the Date of Final Settlement of the Contract or within such longer period of time as may be prescribed by law or by the terms of any applicable special guarantee required by the Contract Documents. The provisions of this Article apply to Work done by Subcontractors as well as to Work done by direct employees of the Contractor and are in addition to any other remedies or warranties provided by law.

No act of the Owner or the Owner's Representative, either in superintending or directing the Work, or any extension of time for the completion of the Work, shall be regarded as an acceptance of such Work or any part thereof, or of materials used therein, either wholly or in part. Acceptance shall be evidenced only by the final certificate of the Owner. Before any final certificate shall issue, Contractor shall execute an affidavit on the certificate that it accepts the same in full payment and settlement of all claims on account of Work done and materials furnished under this Contract, and that all claims for materials provided or labor performed have been paid or set aside in full.

2.13 WARRANTY

Contractor agrees to guarantee all work under this Contract for a period of one year from the date of Final Settlement by the Owner. If any unsatisfactory condition or damage develops within the time of this guaranty due to materials or workmanship that are defective, inferior, or not in accordance with the Contract, as reasonably determined by the Owner, then the Contractor shall, when notified by the Owner, immediately place such guaranteed Work in a condition satisfactory to the Owner.

3.0 BIDDING

The Contractor shall submit pricing for all repairs as described within this specification. Bids shall include, but not be limited to all expenses, equipment, labor, mobilization and demobilization, freight, and subcontractors.

Bids will be evaluated by the Owner based on adherence to the specification, quality, economy of operation, experience of contractor, schedule, and price. The primary evaluation factor will be economy of operation. 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 accept portions

of the bid while disregarding portions that the purchaser deems unnecessary. Bids must be received by 2:00 P.M. Tuesday, March 22nd, 2022.

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 BIDDING

The Contractors bid shall include a cost breakdown in accordance with Section 2.0 Scope. The bid shall include in detail all proposed materials, equipment, and services. The Bid shall provide pricing for the following line items at minimum:

- *Outage Planning (Section 2.1)*

The Contractor shall provide an estimated cost of outage planning services as described in Section 2.1. The estimated cost of outage planning shall be billed as a separate line item as a Time and Material charge. The Contractor shall include 40 hrs. of outage planning in the bid.

- *Mobilization/Disassembly/Inspection/Demobilization (Sections 2.2, 2.3, and 2.4)*

The Contractor shall provide a firm fixed cost to perform outage services associated with the disassembly and hot gas path inspection as described in Sections 2.2, 2.3, and 2.4. The Contractor described herein shall be solely responsible for adhering to these specifications and all applicable OEM and industry standards not described herein. The estimated cost of the services described in Section 2.2, 2.3 and 2.4 shall be a firm fixed price. The price shall include, but not be limited to all expenses, equipment, labor, supervision, mobilization and demobilization, freight, and subcontractors.

- *Mobilization/Reassembly/Startup/Demobilization/Documentation (Section 2.2, 2.8, 2.9, and 2.10)*

The Contractor shall provide a firm fixed cost to perform outage services as described in Sections 2.2, 2.8, 2.9, and 2.10. The Contractor described herein shall be solely responsible for adhering to these specifications and all applicable OEM and industry standards not described herein. The estimated cost of the services described in Section 2.2, 2.8, 2.9, and 2.10 shall be a firm fixed price. The price shall include, but not be limited to all expenses, equipment, labor, supervision, mobilization and demobilization, freight, and subcontractors.

- *Consumable Parts (Section 2.5)*

The Contractor shall provide and estimated quantity and cost of consumable parts to be used during the hot gas path inspection. The estimated cost of consumable parts shall be billed as a separate line item as a Time and Material charge. The Contractor shall include an itemized cost of all possible components used even if the Contractor does not anticipate using the component. The cost breakdown shall be in the following format. The contractor shall provide a total estimated cost for budgeting purposes.

Item Number	Description	OEM Part Number	Quantity	Item Price	Subtotal Price

- *Capital Components (Section 2.6)*

The Contractor shall provide firm fixed costs for each level of Capital Component repair and options described in the Subsections of Section 2.6. The final cost of each repair shall be billed per component based on the degree of repair needed and option selected. The Contractor shall provide pricing for the The price breakdown shall be in the following format:

Component (Number of Components on Machine)	
Degree of Repair/Option	**Price**
Inspect and Advise	
Light Repair	
Medium Repair	
Heavy Repair	
Option A	
Option B	

- *TIL Resolution (Section 2.7)*

The Contractor shall provide firm fixed costs to resolve the TILs listed in Section 2.7. The cost to resolve each TIL shall be listed separately. The Purchaser shall have the right to accept or decline any TIL they deem necessary or unnecessary. The Contractor shall make recommendations on any TIL resolutions and provide a more thorough list of TIL options in the bid.

3.2 PLANT LABOR RATE DEDUCT

The City of Grand Island has sufficient personnel available to dedicate unionized craft labor to supplement/assist Contractor in performing this scope of work. Contractors interested in using plant labor to supplement craft labor shall propose a discounted hourly rate and request a number of personnel to be available 10 hrs/day, 6 days/week.

3.3 SITE VISIT

A site visit prior to proposal submittal is **REQUIRED**. All contractors will be required to visit the plant site to ensure familiarity with the project requirements. Site visits may be arranged via the contact information listed herein. A site visit form shall accompany the bid documents.

3.4 SCHEDULE

The Contractor shall provide with the proposal a detailed schedule reflecting all key activities with sufficient information to demonstrate the means of completing the work in the allotted period.

3.4.1 COORDINATION

The Contractor shall be responsible for coordination of this work with all crafts, subcontractors, manufacturer's representatives, and Owner's representative.

3.4.2 TIME OF COMPLETION

The Contractors schedule shall be coordinated to insure final completion of the project on or before September 3, 2022. Outage is currently scheduled to begin May 23, 2022, but the outage start date may vary based on the stations market commitments and Contractors anticipated schedule.

3.5 CHANGE ORDERS

If any extra and/or additional work is to be done or any change in the plans and specifications is deemed necessary, the Purchaser may issue the Contractor a written change order directing that such extra work be done or that such change be made, and the Contract shall be modified accordingly. No claim for extra costs shall be allowed in the absence of a written change order. The Contractor shall give prompt written notice of any matter which they believe to involve extra cost. In the absence of such notice by the Contractor on account thereof his right to such claim shall be deemed to have been waived. Compensation to the Contractor will be calculated as an addition to or deduction from the Contract Price, based upon such written terms as may be established between

the parties, either (a) by an acceptable lump sum proposal of the Contractor, or (b) on a cost-plus limited basis not to exceed a specified limit, or (c) on a basis of the unit prices as stated in these specifications where such unit prices apply. In the event that none of the foregoing methods are agreed upon with the Contractor, the Purchaser may perform the work. The Purchaser shall be the sole judge of such action and procedure. Determination of cost-plus work shall be based upon actual cost of labor and material plus a maximum of 20% of actual Contractor cost for overhead, profit,

The Contractor shall submit a formal process for addressing work that may arise but is not described herein. All change orders shall be addressed with a detailed scope of work and approved before proceeding with scope of extra work.

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.

3.6 TIME AND MATERIAL CHARGES

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 daily 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.

3.6.1 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.

3.7 TERMS AND CONDITIONS

Provide any standard terms and conditions which will be in effect during this completion of this scope of work.

3.8 EXCEPTIONS

The purpose of this specification is to give detail on conditions under which the new equipment will operate, scope of Contract, quality of equipment required, standards used in determining its acceptability and similar data. Each bidder shall carefully read all requirements herein set forth and shall offer equipment and services which fully comply with these requirements or shall plainly set forth all points, features, conditions, specifications, etc., wherein the equipment offered does not meet these specifications. Such exceptions as are made shall be listed by section and subsection number and shall be marked in ink in the sections of these specifications. Exceptions shall be explained in detail in a letter accompanying the bid. References shall not be made to the bidder's Proposal for exceptions and supplementary terms. Failure to outline such exceptions will require the successful bidder to comply with these specifications.

The City of Grand Island Utilities Department 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

Bids will be received only from qualified bidders. A bidder will be considered qualified if they are a recognized firm specializing in the installation, maintenance, repair, and rebuilding of General Electric European 6B combustion turbines used in the power generation industry. The bidder shall have facilities with a maximum response time 24 hrs.

The Bidder shall be a firm with qualifications and manpower to complete the scope of work described herein without the help of plant personnel. Any insufficiencies in Contractor manpower, workmanship, or qualifications, without clear written exception, that require the Contractor to employ plant personnel to complete services described in this specification shall be billed to the Contractor at $95 per man hour.

If the Contractor defaults or neglects to carry out the work in accordance with the contract documents or fails to perform any provisions of the work described herein the owner may, after 7 days written notice to the Contractor and without prejudice to any other remedy, make good the deficiencies by whatever method the Owner may deem necessary. The Purchaser may deduct the cost thereof from the payment, then or thereafter due to the Contractor or, at Owner's option, may terminate Contractor's work under the Contract and take possession of the site and all materials associated with the work scope. The Owner may then by whatever method the Owner may deem expedient remedy the deficiencies. If the unpaid balance of the Contract Sum exceeds the expense of finishing the work, such excess shall be paid to the Contractor. If expenses associated with fulfilling the specified scope of work exceeds such unpaid balance the Contractor shall pay the difference to the Owner. These rights and remedies are in addition to any right to damages or other rights and remedies allowed by law.

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.

Failure to provide this information may, at the option of the purchaser, result in the rejection of the bid.

4.1 SUPERINTENDENT

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.

5.0 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.

5.1 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.

5.2 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.*

5.3 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.

5.3.1 UNIT FIRE PROTECTION

The dedicate fire suppression system is a carbon dioxide fire suppression system. The fire suppression system will be out of service while work is being performed on the unit. The

unit will be required to have a 24-hr fire watch anytime the dedicated fire suppression system is out of service.

5.4 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.

5.5 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.

6.0 INSURANCE

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

7.0 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 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 power-of-attorney as evidence of his authority to bind the Surety on the date of execution of the bond.

8.0 RIGHT TO INSPECT

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

9.0 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:

GT 2 Borescope Report – March, 2021

Additional Files can be found at the following link:
https://giud-my.sharepoint.com/:f:/p/trobinson/EoWrUR4UVDFHixkmDt5-J_IBgF5FX1O7oA48qCjOLY1AHw?e=6HqgUL

CITY OF GRAND ISLAND

Working Together for a Better Tomorrow, Today.

REQUEST FOR BIDS - SITE CONDITIONS

Gas Turbine 2 Hot Gas Path Inspection
Burdick Generating Station

Site Visit: Bidders shall visit the site in order to inform themselves of the conditions under which the work is to be performed, concerning the site of the work, the nature of the existing facilities, the obstacles which may be encountered, the sequence of the work, and all other relevant matters concerning the work to be performed. No extra compensation shall be allowed by reason of the failure of such bidder to fully inform themselves of said site conditions prior to the bidding. The Contractor shall employ, so far as possible, such methods and means in the carrying out of their work as will not cause any interruption or interference with the City's operations and any other contractors.

A site visit may be arranged by contacting Tylor Robinson at (308) 385-5496.

Signature of person visiting site: _____

Signature of Utilities personnel witnessing visit: _____

Date of Visit: _____

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.**

GE Power
Inspection & Life Extension Services

Gas Turbine Borescope Inspection Report

City of Grand Island
Burdick Power Station
Grand Island, Nebraska, USA

Unit Serial #: 810409

Site Unit #: GT2

March 24, 2021

Table of Contents

GE Power

Inspection & Life Extension Services

Site and Unit Inspection Information

Menu Directed	6B_V1_4
Serial Number	810409
Customer	City of Grand Island
Site	Burdick Power Station
Location	Grand Island, NE
Unit Number	GT2
Inspector	Scott Irish
CPM/CSL/Site Contact	John Kottman
Fired Hours	2,312.8
Fired Starts	729
Trips	114
Date	3/24/2021
Time	08:58:41
Equipment Model	6B
ERP Project/Task #	10358974#Main1.1
Outage Type	Scheduled
Unit Water Washed	No
Unit Rolled	No

Inspection Summary

No Images No Flagged Images Flagged Images

	Inspection Points	Approved Inspection Points	Images	Flagged Images
Compressor	394	0	83	25
CDC	1	0	0	0
Comb (DLN)	152	0	32	15
Comb (STD)	99	0	5	1
HGP	61	0	45	9
Peripheral	1	0	0	0

I&LES recommends submitting an ER case on all components flagged RED

1. Foreword

This report describes and documents the borescope examination of the unit that is described in the inspection details section listed on page 3; with respect to abnormal depositing, foreign object damage (FOD) and normal wear.

A 4.5m X 6.1mm flexible videoscope was utilized for the examination. The interior of the unit was illuminated by employing fiberoptics to transmit light from an external light source.

Color images were captured with the GE Inspection Technologies/Everest Imaging XLG3/Mentor Visual iQ Videoscope System of conditions and specific areas of interest. Selected images are included as part of the photo report for documentation and comparison during future examinations.

The images included in the photo report are selected from the inspection that best represent the condition of the unit. They show typical views of the components observed. It is important to note that due to the magnification of the lens, object viewed through the videoscope may be significantly magnified. It is also important to note that videoscopes have certain minor imperfections inherent in their construction, caused by lens distortion. As a result, a surface, which is actually straight or true, may seem to appear slightly curved in a photograph. This is no problem for the inspector, since multiple views and close-ups easily yield the actual condition of the area. However, due to the possibility of optical distortion, judgments concerning any particular section of the machine are best made at the time of the examination. Interpretation of the photographs should be made by someone familiar with videoscope photography.

2. Unit Access

Access to the compressor was gained through the inlet plenum where the inlet guide vanes and the first sixteen rotating and stationary stages were examined. Borescope port in the upper compressor discharge case allowed access to stage seventeen rotating and stationary components and EGV's. Access to the combustion components was gained by entering through the DLN port located in combustion cans 1, 2, 3, 7, 8, 9 and 10. Borescope ports in the turbine casing allowed viewing of the first stage nozzle, first stage buckets, second stage nozzle, second stage buckets, third stage nozzle, and third stage buckets.

3. Technical Information Letters (TILs) Inspected

TIL Number	TIL Title
1352-R3	Stage 17 Stator and EGV Inspection
1382-R3	Stage 1 Blade Inspection
1067-R3	S2B Tip Shroud Inspection (Partial)
1562-R1	Shim Migration/Loss

4. Engineering Requests

Engineering Requests (ER)
None

5. Areas Inspected

Disposition Legend:
NA – Parts were not inspected during this inspection
NV – No visible indications / abnormal findings
AF – Observed visible / abnormal finding

Compressor Section											
	Percent Inspected	Disposition		Percent Inspected	Disposition		Percent Inspected	Disposition		Percent Inspected	Disposition
IGV	100	NV									
R0			R5	33	NV	R10	33	NV	R15	33	NV
S0			S5	33	NV	S10	33	AF	S15	33	NV
R1	100	AF	R6	33	AF	R11	33	NV	R16	33	NV
S1	50	NV	S6	33	NV	S11	33	AF	S16	33	AF
R2	33	NV	R7	33	AF	R12	33	AF	R17	100	NV
S2	33	NV	S7	33	AF	S12	33	NV	S17	100	AF
R3	33	AF	R8	33	AF	R13	33	AF	EGV 1	80	NV
S3	33	NV	S8	33	NV	S13	33	NV	EGV 2	80	NV
R4	33	NV	R9	33	AF	R14	33	AF			
S4	33	NV	S9	33	AF	S14	33	NV			

Combustion Section		
	Percent Inspected	Disposition
Flow Path	100	AF
Cold Side (TP)	0	NA
Cold Side Liner	80	NV

Turbine Section											
	Percent Inspected	Disposition		Percent Inspected	Disposition		Percent Inspected	Disposition		Percent Inspected	Disposition
S1N	75	AF	S2N	75	NV	S3N	75	NV	S4N	75	
S1B	75	NV	S2B	75	AF	S3B	75	AF	S4B	75	
S1S	75	AF	S2S	75	NV	S3S	75	NV	S4S	75	

NOTE: Percent Inspected defines the approximate inspection coverage for a section or stage. Since a portion of each component in a section or stage is not visible for inspection, 100 percent inspection coverage of every component is not feasible using remote visual inspection methods.

6. Observations

A. Peripherals

Not inspected

B. Compressor Section

The R1 and R3 blades that were inspected show PS tip discoloration. No tip curl was observed at this time.

The R6 blades that were inspected show a minor LE FOD impact on one blade. PS tip discoloration was also observed.

The R7 blades that were inspected show PS tip discoloration.

The S7 vanes that were inspected show a minor TE PS FOD impact on the vane at the six o'clock position.

The R8 blades that were examined show PS tip discoloration and SS tip curl.

The R9 blades that were examined show a minor LE FOD impact on one blade. PS tip discoloration was also observed.

The S9, S10 and S11 vanes that were examined show SS tip curl on the vanes at the six o'clock position. Rotor rub was also observed.

The R11 blades that were examined show minor LE FOD impacts. Light case rub was also observed on the lower case.

The R12 and R13 blades that were examined show PS tip discoloration and SS tip curl.

The R14 blades that were examined show LE blend repairs.

The R16 blades that were examined show a minor LE FOD impact on one blade.

The R17 blades that were examined show minor LE FOD impacts.

C. Combustion Section

The cold side of the secondary fuel nozzle in can 1 shows foreign material.

The effusion cap in cans 2 and 5 show TBC spallation.

The flow path of the liners in cans 1, 7 and 10 show TBC spallation.

The center bodies in cans 1, 3, 4, 7 and 9 show TBC spallation.

The Venturi in can 2 shows a circumferential crack approximate 3 inches in length. The venturi in can 9 shows TBC spallation.

The X-fire tubes 8-9 and 8-7 show black colored deposits.

D. Turbine Section

The S1N that was examined show ISW and OSW LE and TE cracks. ISW relief radius cracks were also observed. Additionally, TE cracks were observed on a few vanes.

Due to borescope plugs that could not be removed, S1B TE and S2N LE were not inspected.

The S1S that was examined shows rubs on the lower case at the six o'clock position.

The S2B that were examined show oxidation/erosion on the LE SS. Damping pin misalignment was also observed on the TE of the blade platforms.

The S3B that were examined show damping pin misalignment on the LE of the blade platforms.

7. Inspection Images

Compressor_Inlet_C_g_Edge_Suction_Side01001.JPG

Section	Compressor
Stage	Inlet Case
Component	Inlet Guide Vane
Location	Leading Edge
Sub-Location	Suction Side
Observation	Typical
Comments	

Compressor_Inlet_C__Edge_Pressure_Side01001.JPG

Section	Compressor
Stage	Inlet Case
Component	Inlet Guide Vane
Location	Leading Edge
Sub-Location	Pressure Side
Observation	Typical
Comments	

Compressor_1_Rotor_Blade_Leading_Edge_Suction_Side001.JPG

Section	Compressor
Stage	1
Component	Rotor Blade
Location	Leading Edge
Sub-Location	Suction Side
Observation	Typical
Comments	

Compressor_1_Rotor__Edge_Pressure_Side01001.JPG

Section	Compressor
Stage	1
Component	Rotor Blade
Location	Leading Edge
Sub-Location	Pressure Side
Observation	Typical
Comments	

Compressor_1_Rotor_Blade_Tip_Pressure_Side001-FLAG.JPG

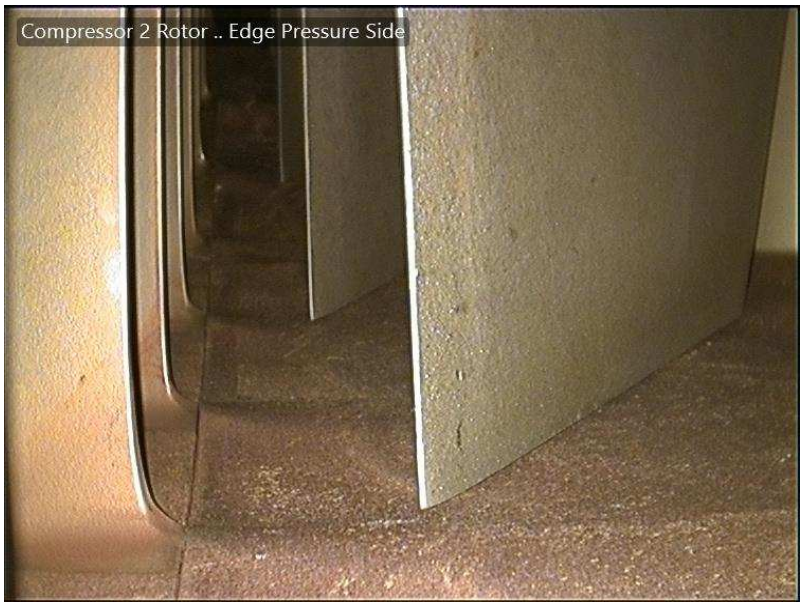
Section	Compressor
Stage	1
Component	Rotor Blade
Location	Tip
Sub-Location	Pressure Side
Observation	Discoloration
Comments	

Compressor_1_Stator_Vane_Leading_Edge_Suction_Side001.JPG

Section	Compressor
Stage	1
Component	Stator Vane
Location	Leading Edge
Sub-Location	Suction Side
Observation	Typical
Comments	

Compressor_2_Rotor_Blade_Leading_Edge_Suction_Side001.JPG

Section	Compressor
Stage	2
Component	Rotor Blade
Location	Leading Edge
Sub-Location	Suction Side
Observation	Typical
Comments	



Compressor_2_Rotor__Edge_Pressure_Side01001.JPG

Section	Compressor
Stage	2
Component	Rotor Blade
Location	Leading Edge
Sub-Location	Pressure Side
Observation	Typical
Comments	

Section	Compressor
Stage	2
Component	Stator Vane
Location	Leading Edge
Sub-Location	Suction Side
Observation	Typical
Comments	

Compressor_2_Stator_Vane_Leading_Edge_Suction_Side001.JPG

Section	Compressor
Stage	3
Component	Rotor Blade
Location	Leading Edge
Sub-Location	Pressure Side
Observation	Typical
Comments	

Compressor_3_Rotor__Edge_Pressure_Side01001.JPG

Compressor_3_Rotor_Blade_Tip_Suction_Side001.JPG

Section	Compressor
Stage	3
Component	Rotor Blade
Location	Tip
Sub-Location	Suction Side
Observation	Typical
Comments	

Compressor_3_Rotor_Blade_Tip_Pressure_Side001-FLAG.JPG

Section	Compressor
Stage	3
Component	Rotor Blade
Location	Tip
Sub-Location	Pressure Side
Observation	Discoloration
Comments	

Section	Compressor
Stage	3
Component	Stator Vane
Location	Leading Edge
Sub-Location	Suction Side
Observation	Typical
Comments	

Compressor_3_Stator_Vane_Leading_Edge_Suction_Side001.JPG

Section	Compressor
Stage	4
Component	Rotor Blade
Location	Leading Edge
Sub-Location	Suction Side
Observation	Typical
Comments	

Compressor_4_Rotor_Blade_Leading_Edge_Suction_Side001.JPG

Compressor_4_Rotor__Edge_Pressure_Side01001.JPG

Section	Compressor
Stage	4
Component	Rotor Blade
Location	Leading Edge
Sub-Location	Pressure Side
Observation	Typical
Comments	

Compressor_4_Stator_Vane_Leading_Edge_Suction_Side001.JPG

Section	Compressor
Stage	4
Component	Stator Vane
Location	Leading Edge
Sub-Location	Suction Side
Observation	Typical
Comments	

Compressor_5_Rotor_Blade_Leading_Edge_Suction_Side001.JPG

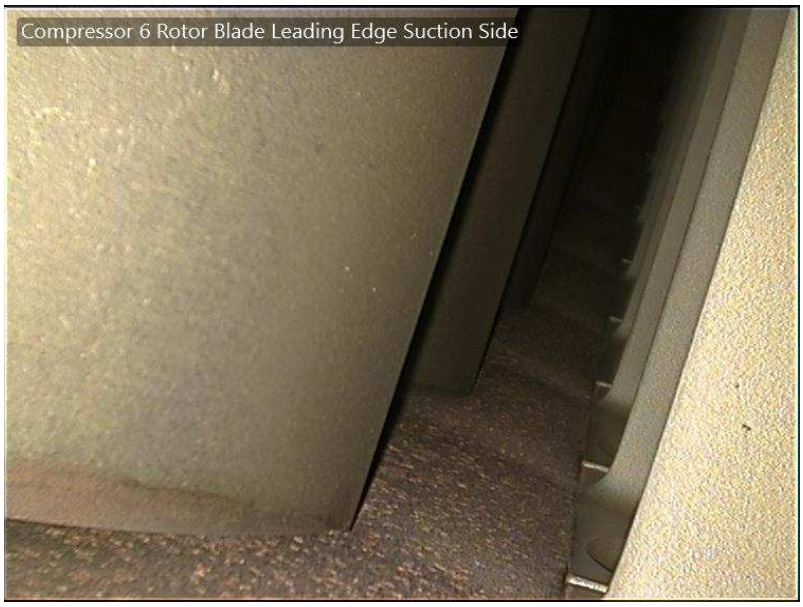
Section	Compressor
Stage	5
Component	Rotor Blade
Location	Leading Edge
Sub-Location	Suction Side
Observation	Typical
Comments	

Compressor_5_Rotor__Edge_Pressure_Side01001.JPG

Section	Compressor
Stage	5
Component	Rotor Blade
Location	Leading Edge
Sub-Location	Pressure Side
Observation	Typical
Comments	

Compressor_5_Stator_Vane_Leading_Edge_Suction_Side001.JPG

Section	Compressor
Stage	5
Component	Stator Vane
Location	Leading Edge
Sub-Location	Suction Side
Observation	Typical
Comments	



Compressor_6_Rotor_Blade_Leading_Edge_Suction_Side001.JPG

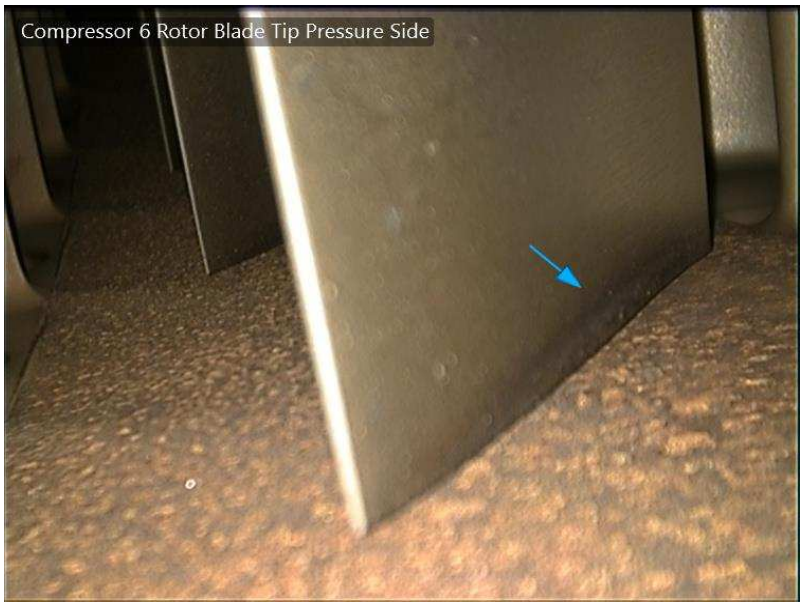
Section	Compressor
Stage	6
Component	Rotor Blade
Location	Leading Edge
Sub-Location	Suction Side
Observation	Typical
Comments	

Compressor_6_Rotor__Edge_Pressure_Side01001.JPG

Section	Compressor
Stage	6
Component	Rotor Blade
Location	Leading Edge
Sub-Location	Pressure Side
Observation	Typical
Comments	

Compressor_6_Rotor__Edge_Pressure_Side01002-FLAG.JPG

Section	Compressor
Stage	6
Component	Rotor Blade
Location	Leading Edge
Sub-Location	Pressure Side
Observation	FOD
Comments	



Compressor_6_Rotor_Blade_Tip_Pressure_Side001-FLAG.JPG

Section	Compressor
Stage	6
Component	Rotor Blade
Location	Tip
Sub-Location	Pressure Side
Observation	Discoloration
Comments	

Compressor_6_Stator_Vane_Leading_Edge_Suction_Side001.JPG

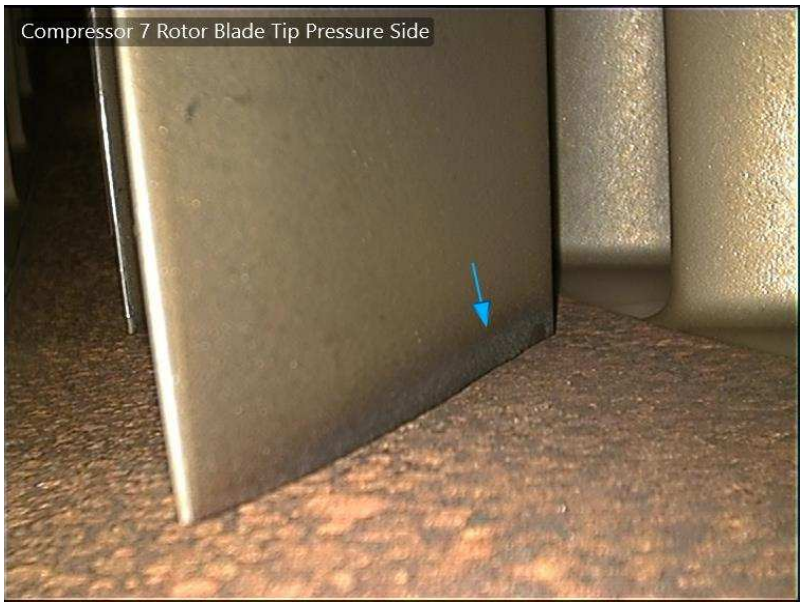
Section	Compressor
Stage	6
Component	Stator Vane
Location	Leading Edge
Sub-Location	Suction Side
Observation	Typical
Comments	

Compressor_7_Rotor_Blade_Leading_Edge_Suction_Side001.JPG

Section	Compressor
Stage	7
Component	Rotor Blade
Location	Leading Edge
Sub-Location	Suction Side
Observation	Typical
Comments	

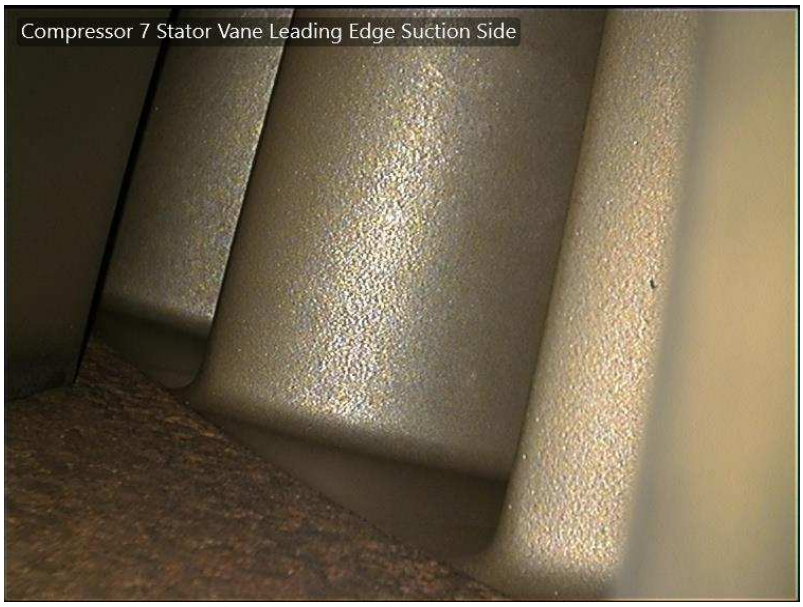
Compressor_7_Rotor__Edge_Pressure_Side01001.JPG

Section	Compressor
Stage	7
Component	Rotor Blade
Location	Leading Edge
Sub-Location	Pressure Side
Observation	Typical
Comments	



Compressor_7_Rotor_Blade_Tip_Pressure_Side001-FLAG.JPG

Section	Compressor
Stage	7
Component	Rotor Blade
Location	Tip
Sub-Location	Pressure Side
Observation	Discoloration
Comments	



Compressor_7_Stator_Vane_Leading_Edge_Suction_Side001.JPG

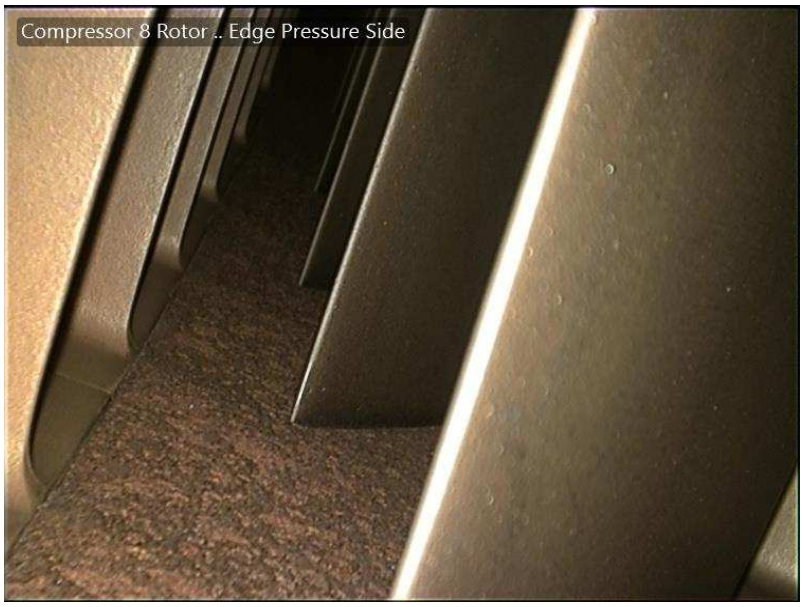
Section	Compressor
Stage	7
Component	Stator Vane
Location	Leading Edge
Sub-Location	Suction Side
Observation	Typical
Comments	

Compressor_7_Stato__Edge_Pressure_Side02001-FLAG.JPG

Section	Compressor
Stage	7
Component	Stator Vane
Location	Trailing Edge
Sub-Location	Pressure Side
Observation	FOD
Comments	

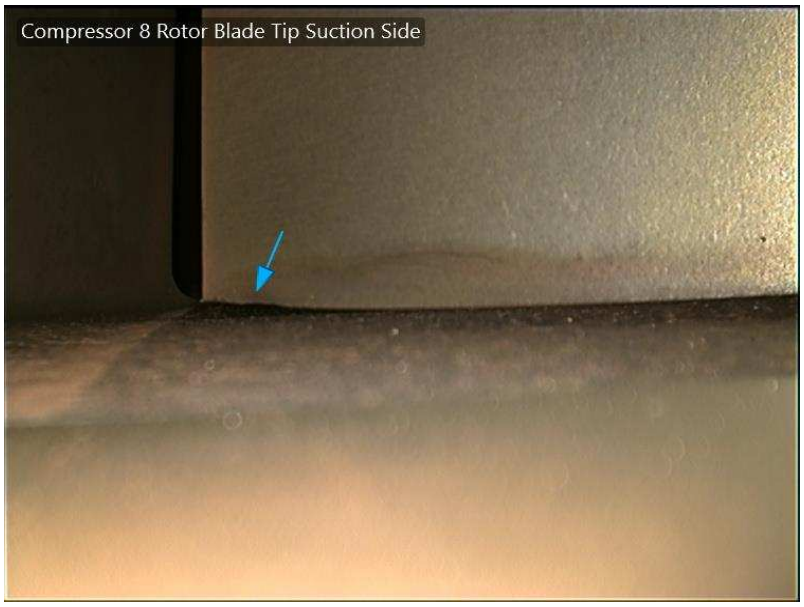
Compressor_8_Rotor_Blade_Leading_Edge_Suction_Side001.JPG

Section	Compressor
Stage	8
Component	Rotor Blade
Location	Leading Edge
Sub-Location	Suction Side
Observation	Typical
Comments	



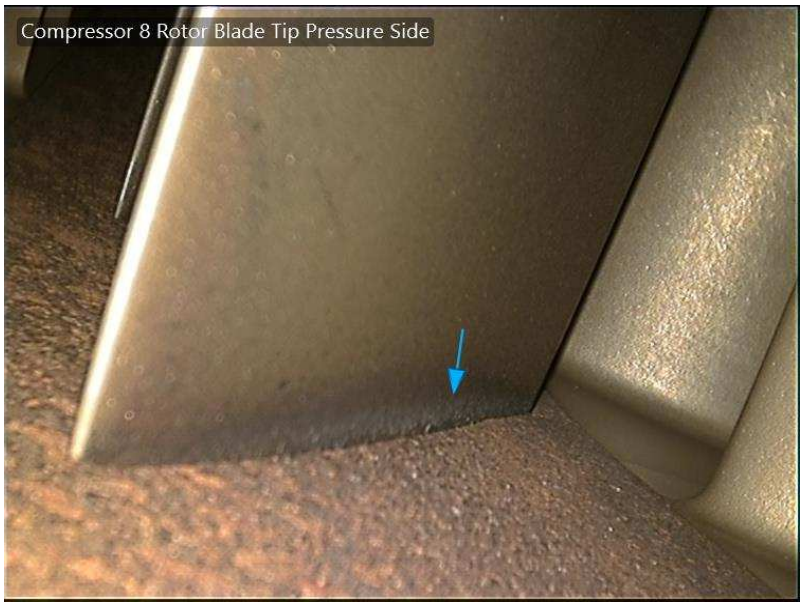
Compressor_8_Rotor__Edge_Pressure_Side01001.JPG

Section	Compressor
Stage	8
Component	Rotor Blade
Location	Leading Edge
Sub-Location	Pressure Side
Observation	Typical
Comments	



Compressor_8_Rotor_Blade_Tip_Suction_Side001-FLAG.JPG

Section	Compressor
Stage	8
Component	Rotor Blade
Location	Tip
Sub-Location	Suction Side
Observation	Tip Curl
Comments	



Compressor_8_Rotor_Blade_Tip_Pressure_Side001-FLAG.JPG

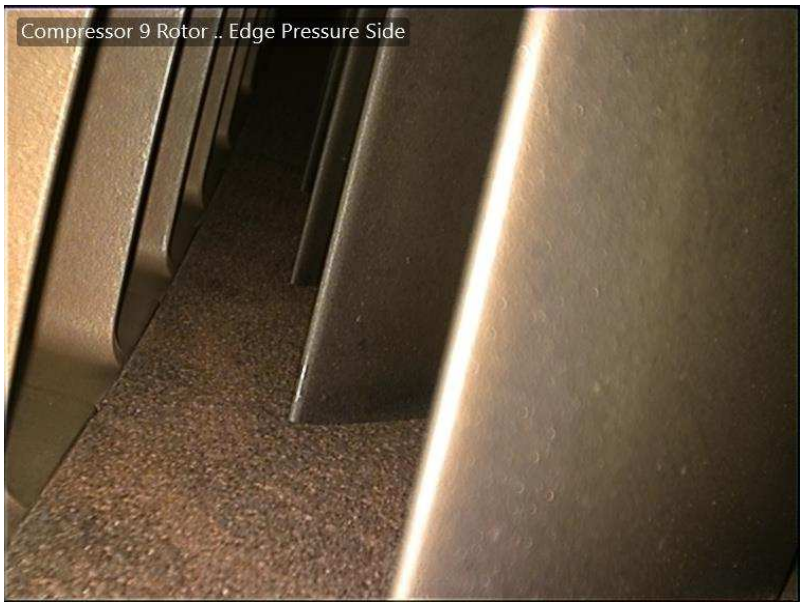
Section	Compressor
Stage	8
Component	Rotor Blade
Location	Tip
Sub-Location	Pressure Side
Observation	Discoloration
Comments	

Compressor_8_Stator_Vane_Leading_Edge_Suction_Side001.JPG

Section	Compressor
Stage	8
Component	Stator Vane
Location	Leading Edge
Sub-Location	Suction Side
Observation	Typical
Comments	

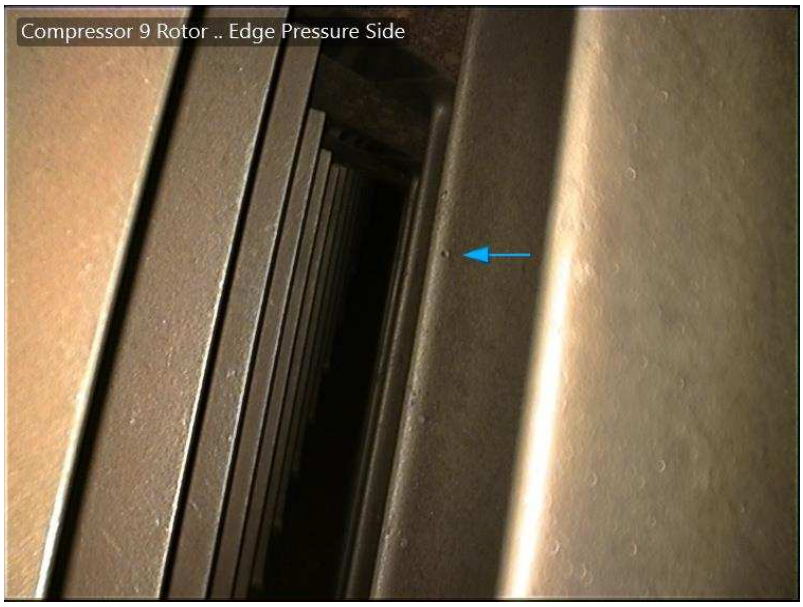
Compressor_9_Rotor_Blade_Leading_Edge_Suction_Side001.JPG

Section	Compressor
Stage	9
Component	Rotor Blade
Location	Leading Edge
Sub-Location	Suction Side
Observation	Typical
Comments	



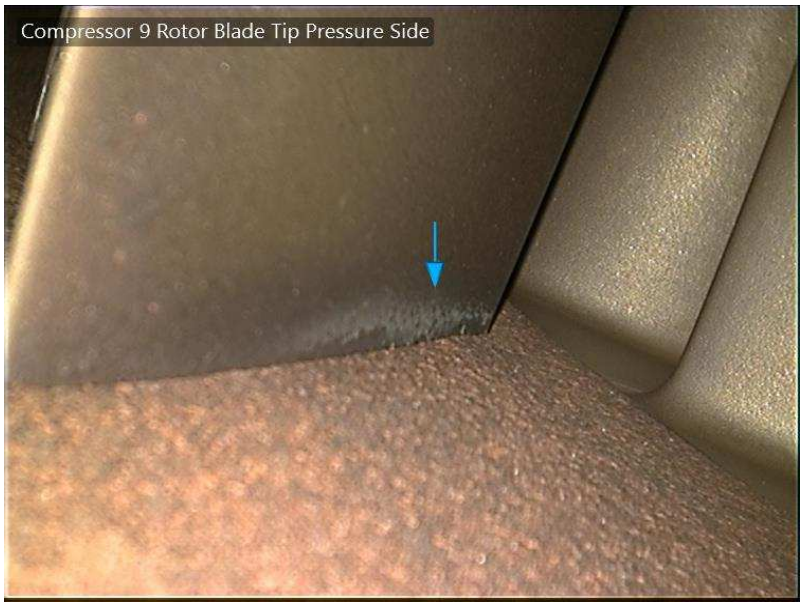
Compressor_9_Rotor__Edge_Pressure_Side01001.JPG

Section	Compressor
Stage	9
Component	Rotor Blade
Location	Leading Edge
Sub-Location	Pressure Side
Observation	Typical
Comments	



Compressor_9_Rotor__Edge_Pressure_Side01002-FLAG.JPG

Section	Compressor
Stage	9
Component	Rotor Blade
Location	Leading Edge
Sub-Location	Pressure Side
Observation	FOD
Comments	



Compressor_9_Rotor_Blade_Tip_Pressure_Side001-FLAG.JPG

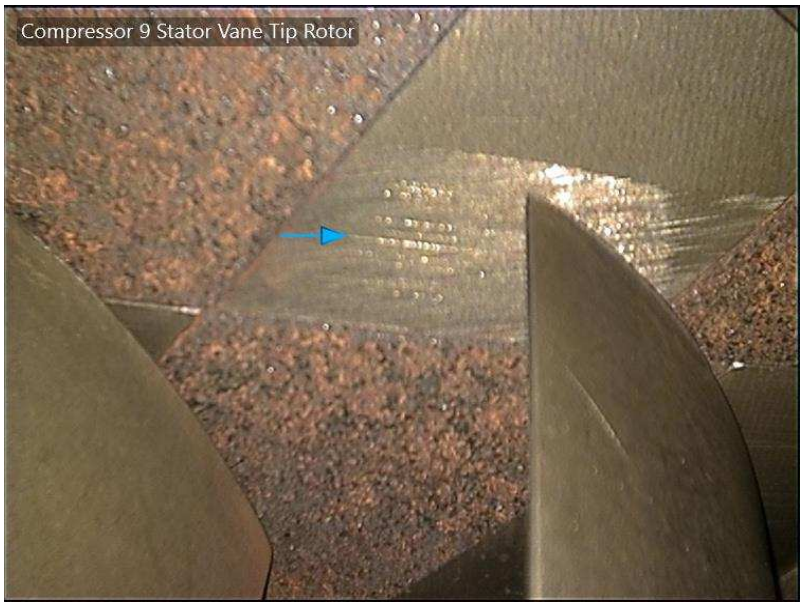
Section	Compressor
Stage	9
Component	Rotor Blade
Location	Tip
Sub-Location	Pressure Side
Observation	Discoloration
Comments	

Compressor_9_Stator_Vane_Leading_Edge_Suction_Side001.JPG

Section	Compressor
Stage	9
Component	Stator Vane
Location	Leading Edge
Sub-Location	Suction Side
Observation	Typical
Comments	

Compressor_9_Stator_Vane_Tip_Suction_Side001-FLAG.JPG

Section	Compressor
Stage	9
Component	Stator Vane
Location	Tip
Sub-Location	Suction Side
Observation	Tip Curl
Comments	



Compressor_9_Stator_Vane_Tip_Rotor001-FLAG.JPG

Section	Compressor
Stage	9
Component	Stator Vane
Location	Tip
Sub-Location	Rotor
Observation	Rub
Comments	

Compressor_10_Roto_g_Edge_Suction_Side01001.JPG

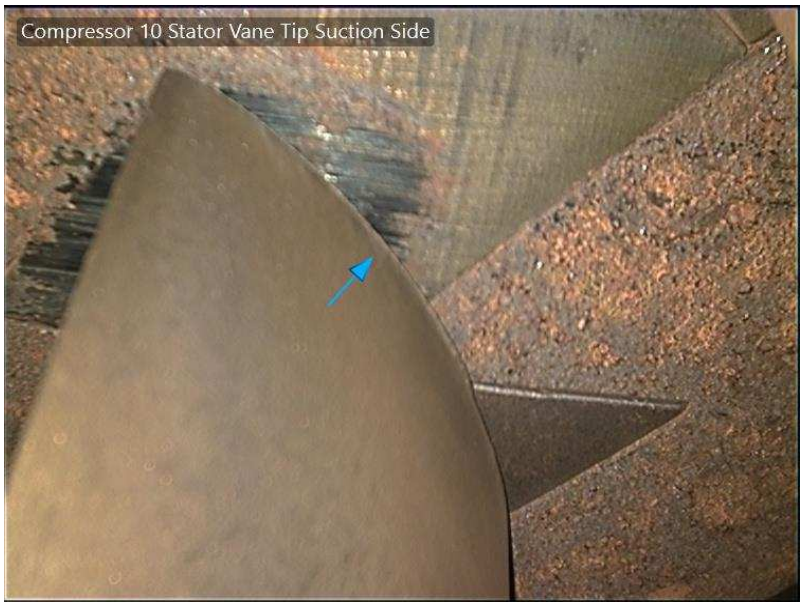
Section	Compressor
Stage	10
Component	Rotor Blade
Location	Leading Edge
Sub-Location	Suction Side
Observation	Typical
Comments	

Compressor_10_Roto__Edge_Pressure_Side01001.JPG

Section	Compressor
Stage	10
Component	Rotor Blade
Location	Leading Edge
Sub-Location	Pressure Side
Observation	Typical
Comments	

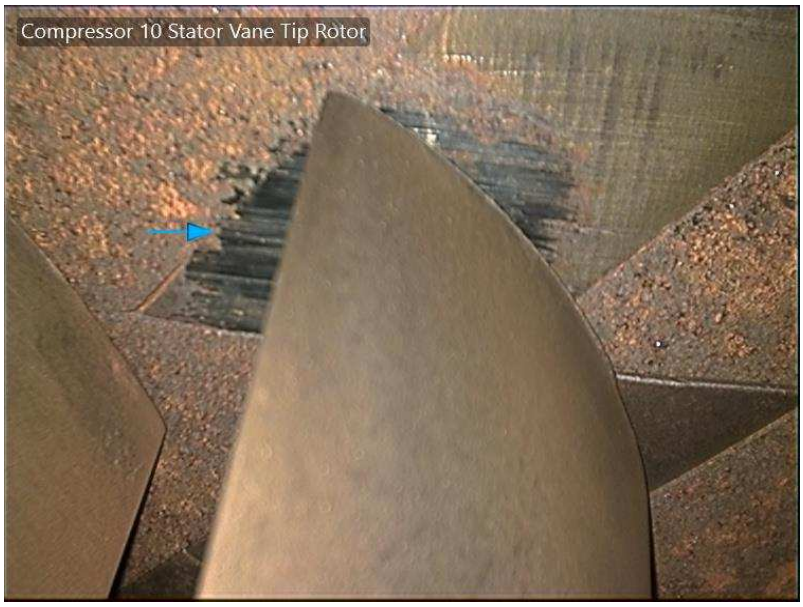
Compressor_10_Stat_g_Edge_Suction_Side01001.JPG

Section	Compressor
Stage	10
Component	Stator Vane
Location	Leading Edge
Sub-Location	Suction Side
Observation	Typical
Comments	



Compressor_10_Stator_Vane_Tip_Suction_Side001-FLAG.JPG

Section	Compressor
Stage	10
Component	Stator Vane
Location	Tip
Sub-Location	Suction Side
Observation	Tip Curl
Comments	



Compressor_10_Stator_Vane_Tip_Rotor001-FLAG.JPG

Section	Compressor
Stage	10
Component	Stator Vane
Location	Tip
Sub-Location	Rotor
Observation	Rub
Comments	

Compressor_11_Roto_g_Edge_Suction_Side01001.JPG

Section	Compressor
Stage	11
Component	Rotor Blade
Location	Leading Edge
Sub-Location	Suction Side
Observation	Typical
Comments	

Compressor_11_Roto__Edge_Pressure_Side01001.JPG

Section	Compressor
Stage	11
Component	Rotor Blade
Location	Leading Edge
Sub-Location	Pressure Side
Observation	Typical
Comments	

Compressor_11_Roto__Edge_Pressure_Side01002-FLAG.JPG

Section	Compressor
Stage	11
Component	Rotor Blade
Location	Leading Edge
Sub-Location	Pressure Side
Observation	FOD
Comments	

Compressor_11_Rotor_Blade_Tip_Case001-FLAG.JPG

Section	Compressor
Stage	11
Component	Rotor Blade
Location	Tip
Sub-Location	Case
Observation	Rub (Lower Case)
Comments	

Compressor_11_Stat_g_Edge_Suction_Side01001.JPG

Section	Compressor
Stage	11
Component	Stator Vane
Location	Leading Edge
Sub-Location	Suction Side
Observation	Typical
Comments	

Compressor_11_Stator_Vane_Tip_Suction_Side001-FLAG.JPG

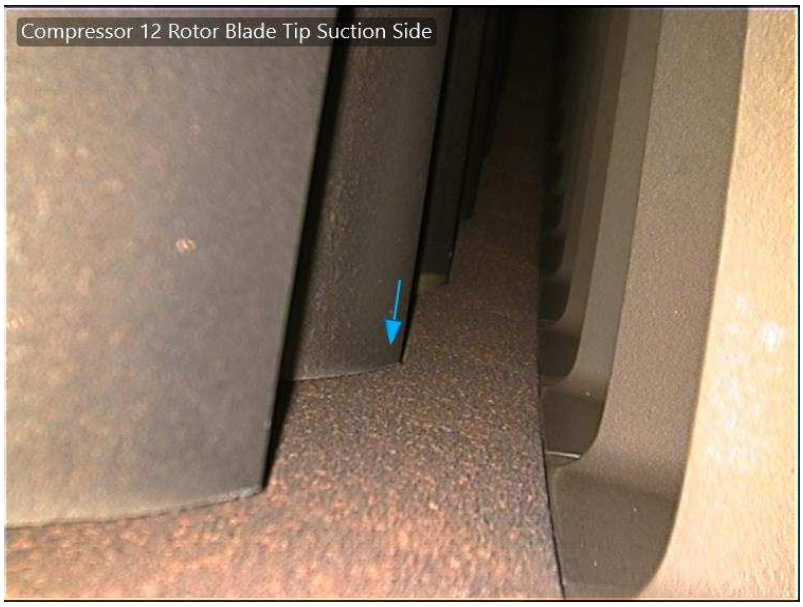
Section	Compressor
Stage	11
Component	Stator Vane
Location	Tip
Sub-Location	Suction Side
Observation	Tip Curl
Comments	

Compressor_12_Roto_g_Edge_Suction_Side01001.JPG

Section	Compressor
Stage	12
Component	Rotor Blade
Location	Leading Edge
Sub-Location	Suction Side
Observation	Typical
Comments	

Compressor_12_Roto__Edge_Pressure_Side01001.JPG

Section	Compressor
Stage	12
Component	Rotor Blade
Location	Leading Edge
Sub-Location	Pressure Side
Observation	Typical
Comments	



Compressor_12_Rotor_Blade_Tip_Suction_Side001-FLAG.JPG

Section	Compressor
Stage	12
Component	Rotor Blade
Location	Tip
Sub-Location	Suction Side
Observation	Tip Curl
Comments	

Compressor_12_Rotor_Blade_Tip_Pressure_Side001-FLAG.JPG

Section	Compressor
Stage	12
Component	Rotor Blade
Location	Tip
Sub-Location	Pressure Side
Observation	Discoloration
Comments	

Compressor_12_Stat_g_Edge_Suction_Side01001.JPG

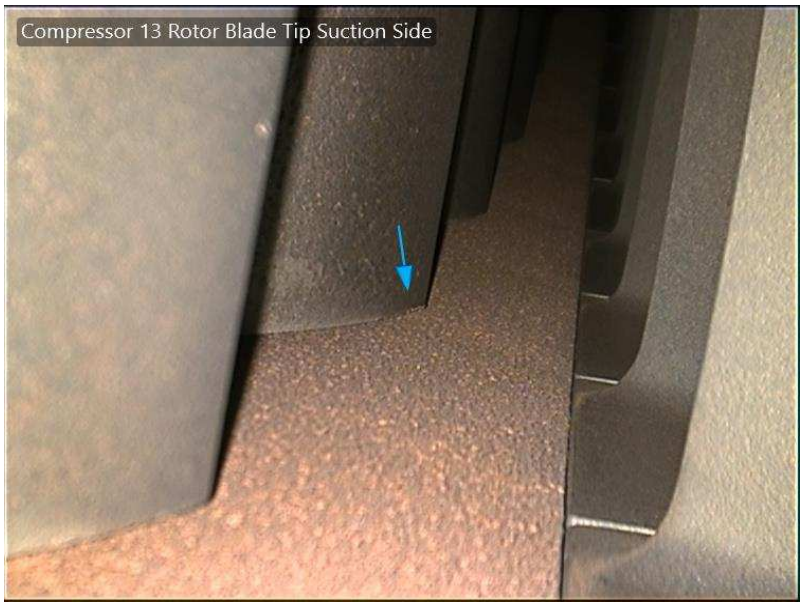
Section	Compressor
Stage	12
Component	Stator Vane
Location	Leading Edge
Sub-Location	Suction Side
Observation	Typical
Comments	

Compressor_13_Roto_g_Edge_Suction_Side01001.JPG

Section	Compressor
Stage	13
Component	Rotor Blade
Location	Leading Edge
Sub-Location	Suction Side
Observation	Typical
Comments	

Compressor_13_Roto__Edge_Pressure_Side01001.JPG

Section	Compressor
Stage	13
Component	Rotor Blade
Location	Leading Edge
Sub-Location	Pressure Side
Observation	Typical
Comments	



Compressor_13_Rotor_Blade_Tip_Suction_Side001-FLAG.JPG

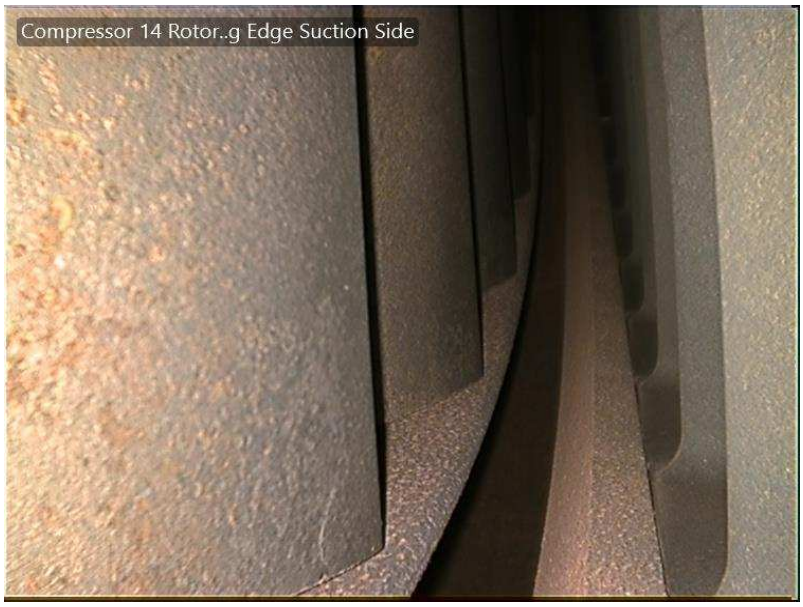
Section	Compressor
Stage	13
Component	Rotor Blade
Location	Tip
Sub-Location	Suction Side
Observation	Tip Curl
Comments	

Compressor_13_Rotor_Blade_Tip_Pressure_Side001-FLAG.JPG

Section	Compressor
Stage	13
Component	Rotor Blade
Location	Tip
Sub-Location	Pressure Side
Observation	Discoloration
Comments	

Compressor_13_Stat_g_Edge_Suction_Side01001.JPG

Section	Compressor
Stage	13
Component	Stator Vane
Location	Leading Edge
Sub-Location	Suction Side
Observation	Typical
Comments	

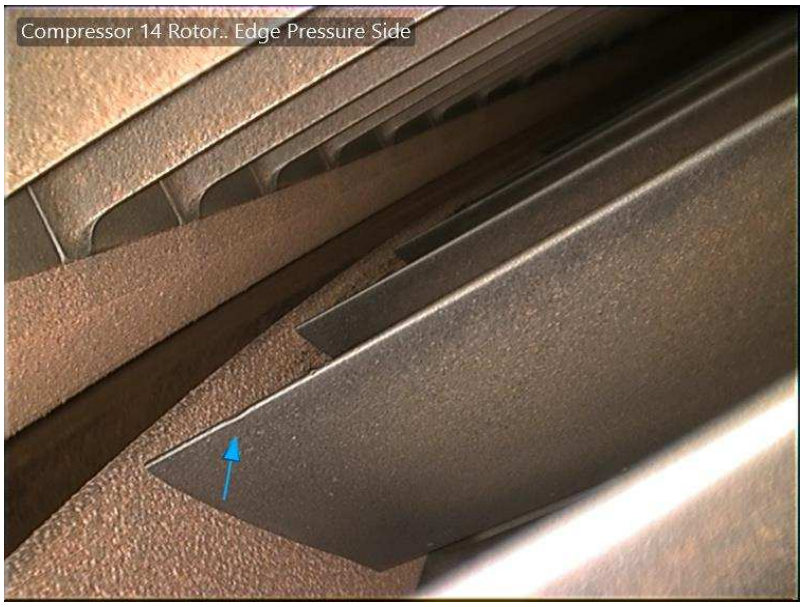


Section	Compressor
Stage	14
Component	Rotor Blade
Location	Leading Edge
Sub-Location	Suction Side
Observation	Typical
Comments	

Compressor_14_Roto_g_Edge_Suction_Side01001.JPG

Section	Compressor
Stage	14
Component	Rotor Blade
Location	Leading Edge
Sub-Location	Pressure Side
Observation	Typical
Comments	

Compressor_14_Roto__Edge_Pressure_Side01001.JPG



Compressor_14_Roto__Edge_Pressure_Side01002.JPG

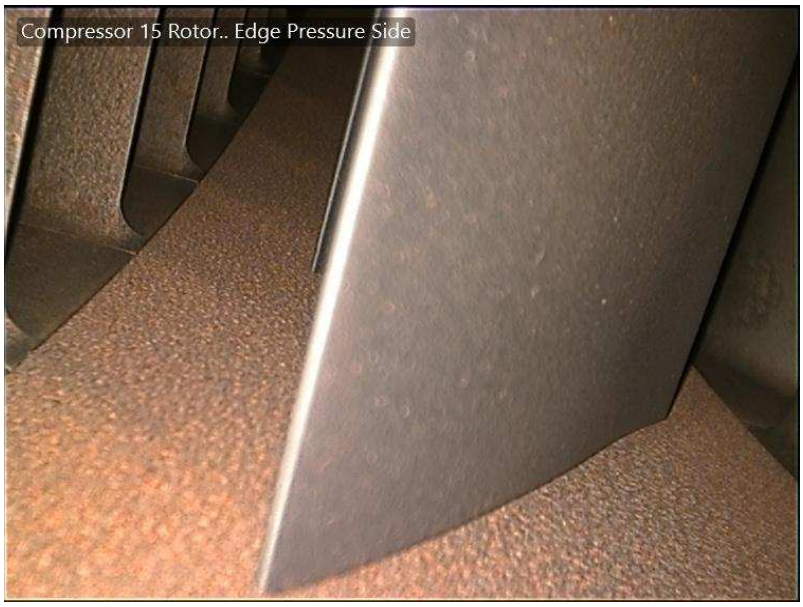
Section	Compressor
Stage	14
Component	Rotor Blade
Location	Leading Edge
Sub-Location	Pressure Side
Observation	Blade Repair
Comments	

Compressor_14_Stat_g_Edge_Suction_Side01001.JPG

Section	Compressor
Stage	14
Component	Stator Vane
Location	Leading Edge
Sub-Location	Suction Side
Observation	Typical
Comments	

Compressor_15_Roto_g_Edge_Suction_Side01001.JPG

Section	Compressor
Stage	15
Component	Rotor Blade
Location	Leading Edge
Sub-Location	Suction Side
Observation	Typical
Comments	



Compressor_15_Roto__Edge_Pressure_Side01001.JPG

Section	Compressor
Stage	15
Component	Rotor Blade
Location	Leading Edge
Sub-Location	Pressure Side
Observation	Typical
Comments	

Compressor_15_Stat_g_Edge_Suction_Side01001.JPG

Section	Compressor
Stage	15
Component	Stator Vane
Location	Leading Edge
Sub-Location	Suction Side
Observation	Typical
Comments	

Compressor_16_Roto_g_Edge_Suction_Side01001.JPG

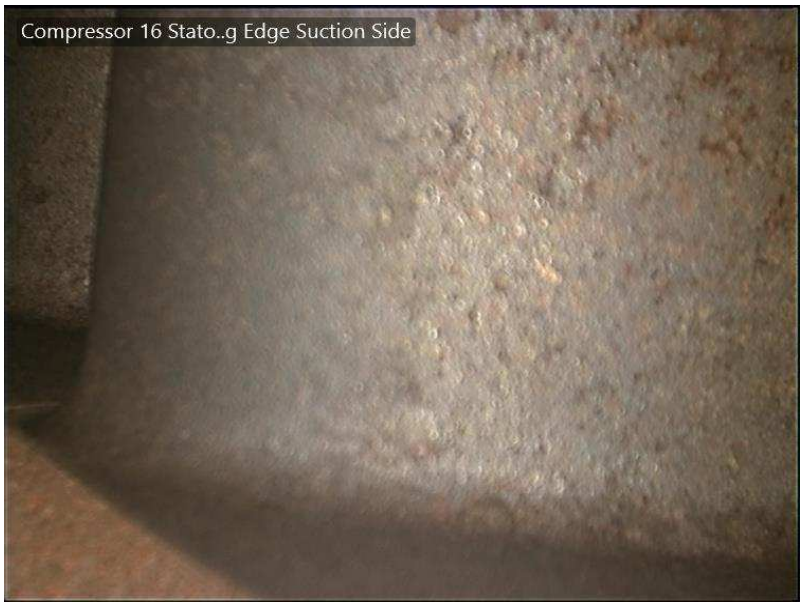
Section	Compressor
Stage	16
Component	Rotor Blade
Location	Leading Edge
Sub-Location	Suction Side
Observation	Typical
Comments	

Compressor_16_Roto__Edge_Pressure_Side01001.JPG

Section	Compressor
Stage	16
Component	Rotor Blade
Location	Leading Edge
Sub-Location	Pressure Side
Observation	Typical
Comments	

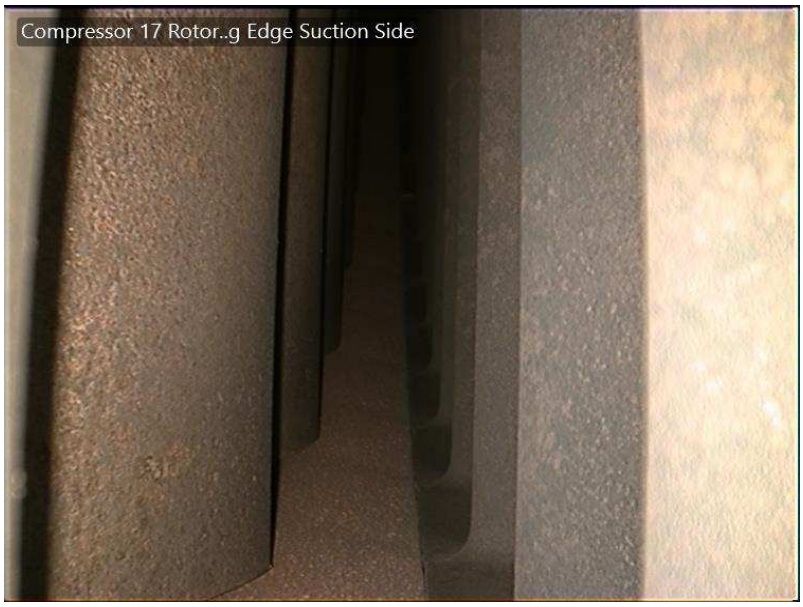
Compressor_16_Roto__Edge_Pressure_Side01002-FLAG.JPG

Section	Compressor
Stage	16
Component	Rotor Blade
Location	Leading Edge
Sub-Location	Pressure Side
Observation	FOD
Comments	



Compressor_16_Stat_g_Edge_Suction_Side01001.JPG

Section	Compressor
Stage	16
Component	Stator Vane
Location	Leading Edge
Sub-Location	Suction Side
Observation	Typical
Comments	



Compressor_17_Roto_g_Edge_Suction_Side01001.JPG

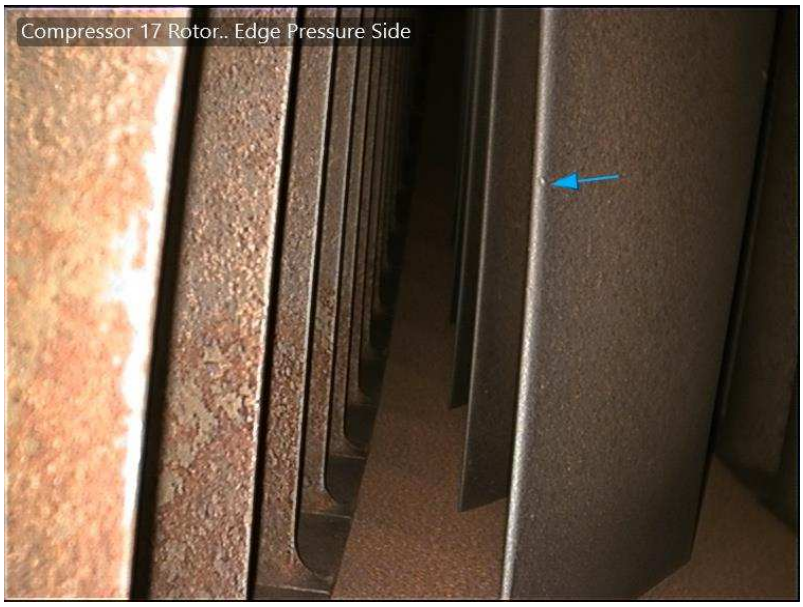
Section	Compressor
Stage	17
Component	Rotor Blade
Location	Leading Edge
Sub-Location	Suction Side
Observation	Typical
Comments	

Compressor_17_Roto_g_Edge_Suction_Side01002-FLAG.JPG

Section	Compressor
Stage	17
Component	Rotor Blade
Location	Leading Edge
Sub-Location	Suction Side
Observation	FOD
Comments	

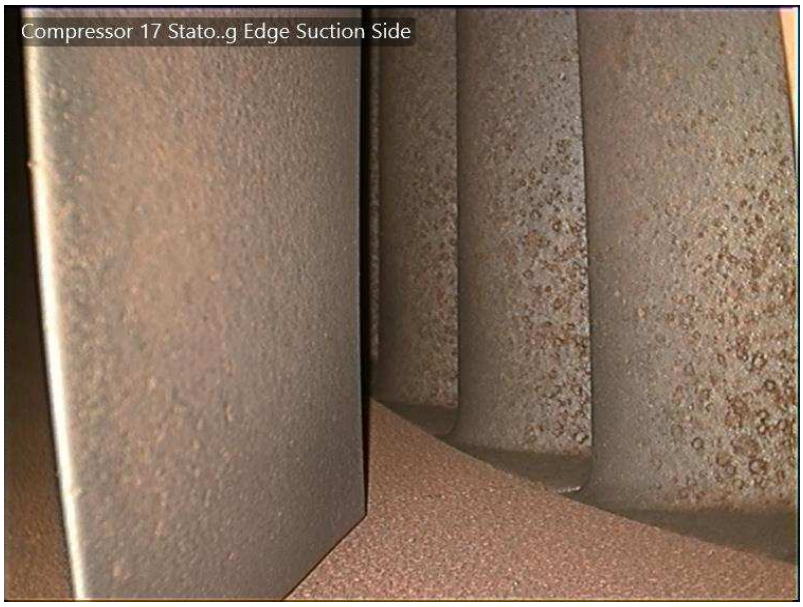
Compressor_17_Roto__Edge_Pressure_Side01001.JPG

Section	Compressor
Stage	17
Component	Rotor Blade
Location	Leading Edge
Sub-Location	Pressure Side
Observation	Typical
Comments	



Compressor_17_Roto__Edge_Pressure_Side01002-FLAG.JPG

Section	Compressor
Stage	17
Component	Rotor Blade
Location	Leading Edge
Sub-Location	Pressure Side
Observation	FOD
Comments	

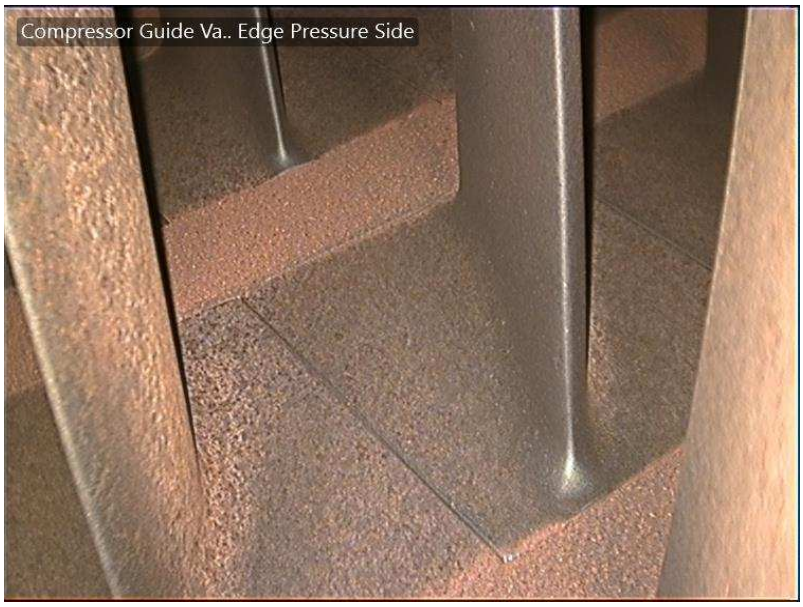


Compressor_17_Stat_g_Edge_Suction_Side01001.JPG

Section	Compressor
Stage	17
Component	Stator Vane
Location	Leading Edge
Sub-Location	Suction Side
Observation	Typical
Comments	

Compressor_17_Stat_g_Edge_Suction_Side01002.JPG

Section	Compressor
Stage	17
Component	Stator Vane
Location	Leading Edge
Sub-Location	Suction Side
Observation	Typical
Comments	



Compressor_Guide_V__Edge_Pressure_Side01001-FLAG.JPG

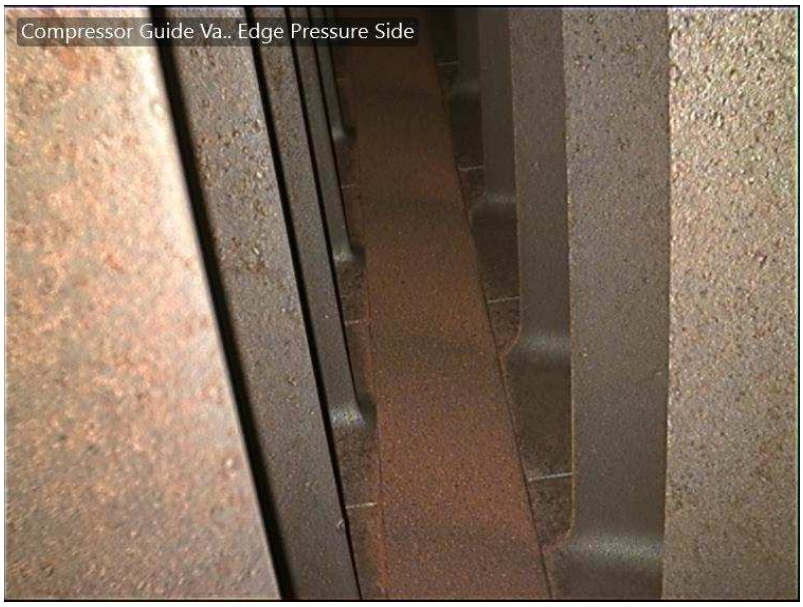
Section	Compressor
Stage	Guide Vane
Component	EGV1
Location	Leading Edge
Sub-Location	Pressure Side
Observation	Typical
Comments	

Compressor_Guide_V__Edge_Pressure_Side01002.JPG

Section	Compressor
Stage	Guide Vane
Component	EGV1
Location	Leading Edge
Sub-Location	Pressure Side
Observation	Typical
Comments	

Compressor_Guide_V__Edge_Pressure_Side03001.JPG

Section	Compressor
Stage	Guide Vane
Component	EGV2
Location	Leading Edge
Sub-Location	Pressure Side
Observation	Typical
Comments	



Compressor_Guide_V__Edge_Pressure_Side03002.JPG

Section	Compressor
Stage	Guide Vane
Component	EGV2
Location	Leading Edge
Sub-Location	Pressure Side
Observation	Typical
Comments	

Comb_(DLN)_General_Cap_Flow_Path_General001.JPG

Section	Comb (DLN)
Stage	General
Component	Cap
Location	Flow Path
Sub-Location	General
Observation	Typical
Comments	

Comb_(DLN)_General_y_Flow_Path_General01001.JPG

Section	Comb (DLN)
Stage	General
Component	Fuel Nozzle Primary
Location	Flow Path
Sub-Location	General
Observation	Typical
Comments	

Comb_(DLN)_General_y_Flow_Path_General01002.JPG

Section	Comb (DLN)
Stage	General
Component	Fuel Nozzle Primary
Location	Flow Path
Sub-Location	General
Observation	Typical
Comments	

Comb_(DLN)_General_y_Flow_Path_General02001.JPG

Section	Comb (DLN)
Stage	General
Component	Fuel Nozzle Secondary
Location	Flow Path
Sub-Location	General
Observation	Typical
Comments	

Comb_(DLN)_General__ry_Cold_Side_General001.JPG

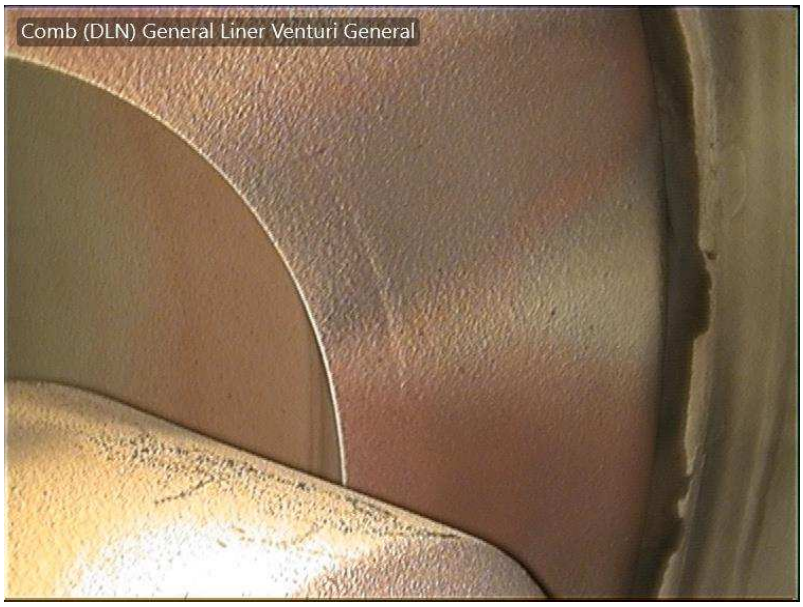
Section	Comb (DLN)
Stage	General
Component	Fuel Nozzle Secondary
Location	Cold Side
Sub-Location	General
Observation	Typical
Comments	

Comb_(DLN)_General_Liner_Flow_Path_General001.JPG

Section	Comb (DLN)
Stage	General
Component	Liner
Location	Flow Path
Sub-Location	General
Observation	Typical
Comments	

Comb_(DLN)_General_Liner_Flow_Path_General002.JPG

Section	Comb (DLN)
Stage	General
Component	Liner
Location	Flow Path
Sub-Location	General
Observation	X-Fire Tube (Typical)
Comments	



Comb_(DLN)_General_Liner_Venturi_General001.JPG

Section	Comb (DLN)
Stage	General
Component	Liner
Location	Venturi
Sub-Location	General
Observation	Typical
Comments	

Comb_(DLN)_General_Liner_Cold_Side_General001.JPG

Section	Comb (DLN)
Stage	General
Component	Liner
Location	Cold Side
Sub-Location	General
Observation	X-Fire Tube Retaining Clip (Typical)
Comments	

Section	Comb (DLN)
Stage	General
Component	Liner
Location	Cold Side
Sub-Location	General
Observation	Typical
Comments	

Comb_(DLN)_General_Liner_Cold_Side_General002.JPG

Section	Comb (DLN)
Stage	General
Component	Liner
Location	Cold Side
Sub-Location	General
Observation	Spring Seal (Typical)
Comments	

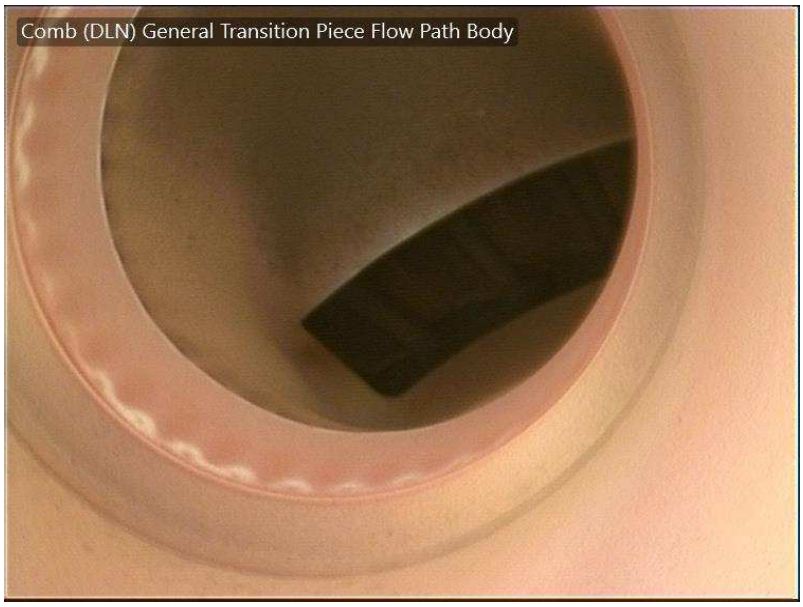
Comb_(DLN)_General_Liner_Cold_Side_General003.JPG

Comb_(DLN)_General_Liner_Cold_Side_General004.JPG

Section	Comb (DLN)
Stage	General
Component	Liner
Location	Cold Side
Sub-Location	General
Observation	X-Fire Tube Retaining Clip (Typical)
Comments	

Comb_(DLN)_General_Liner_Cold_Side_General005.JPG

Section	Comb (DLN)
Stage	General
Component	Liner
Location	Cold Side
Sub-Location	General
Observation	Liner Stop (Typical)
Comments	



Comb_(DLN)_General_Transition_Piece_Flow_Path_Body001.JPG

Section	Comb (DLN)
Stage	General
Component	Transition Piece
Location	Flow Path
Sub-Location	Body
Observation	Typical
Comments	

Comb_(DLN)_Can_1_Fu_ry_Cold_Side_General001-FLAG.JPG

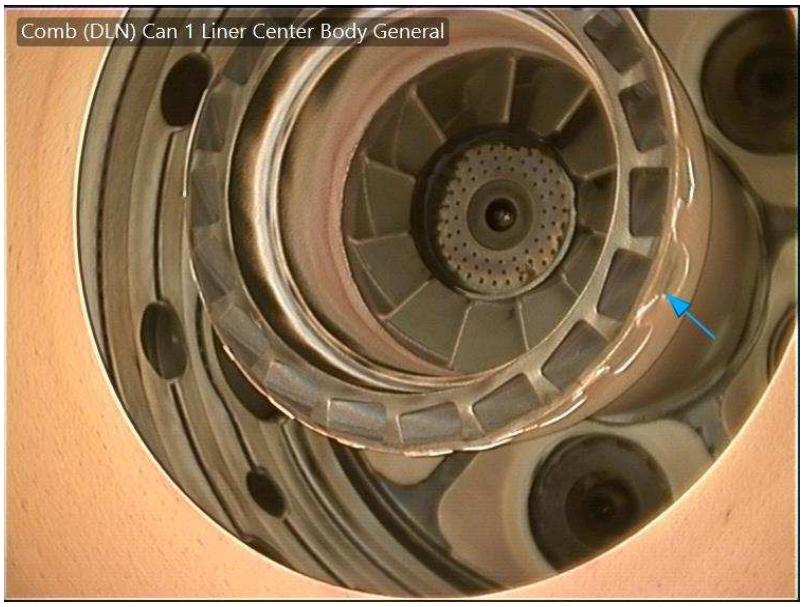
Section	Comb (DLN)
Stage	Can 1
Component	Fuel Nozzle Secondary
Location	Cold Side
Sub-Location	General
Observation	Foreign Debris
Comments	

Comb_(DLN)_Can_1_Liner_Flow_Path_General001.JPG

Section	Comb (DLN)
Stage	Can 1
Component	Liner
Location	Flow Path
Sub-Location	General
Observation	Typical
Comments	

Comb_(DLN)_Can_1_Liner_Flow_Path_General002-FLAG.JPG

Section	Comb (DLN)
Stage	Can 1
Component	Liner
Location	Flow Path
Sub-Location	General
Observation	TBC Spallation
Comments	

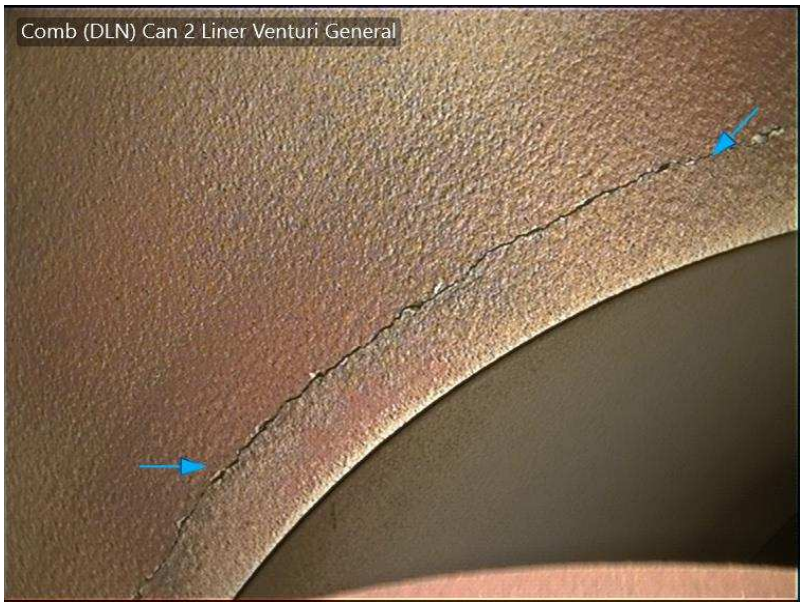


Comb_(DLN)_Can_1_Liner_Center_Body_General001-FLAG.JPG

Section	Comb (DLN)
Stage	Can 1
Component	Liner
Location	Center Body
Sub-Location	General
Observation	TBC Spallation
Comments	

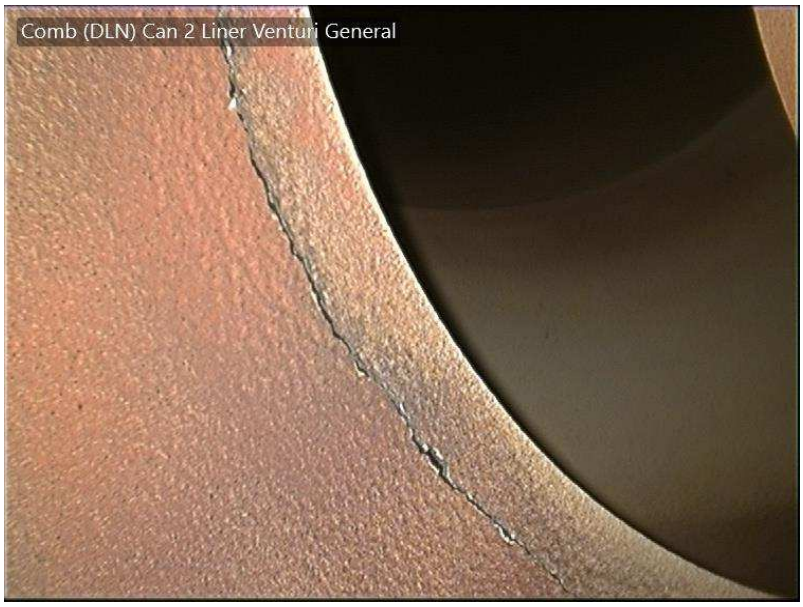
Comb_(DLN)_Can_2_Cap_Flow_Path_General001-FLAG.JPG

Section	Comb (DLN)
Stage	Can 2
Component	Cap
Location	Flow Path
Sub-Location	General
Observation	TBC Spallation
Comments	



Comb_(DLN)_Can_2_Liner_Venturi_General001-FLAG.JPG

Section	Comb (DLN)
Stage	Can 2
Component	Liner
Location	Venturi
Sub-Location	General
Observation	Crack
Comments	



Comb_(DLN)_Can_2_Liner_Venturi_General002-FLAG.JPG

Section	Comb (DLN)
Stage	Can 2
Component	Liner
Location	Venturi
Sub-Location	General
Observation	Crack
Comments	

Comb_(DLN)_Can_3_Liner_Center_Body_General001-FLAG.JPG

Section	Comb (DLN)
Stage	Can 3
Component	Liner
Location	Center Body
Sub-Location	General
Observation	TBC Spallation
Comments	

Comb_(DLN)_Can_4_Liner_Center_Body_General001.JPG

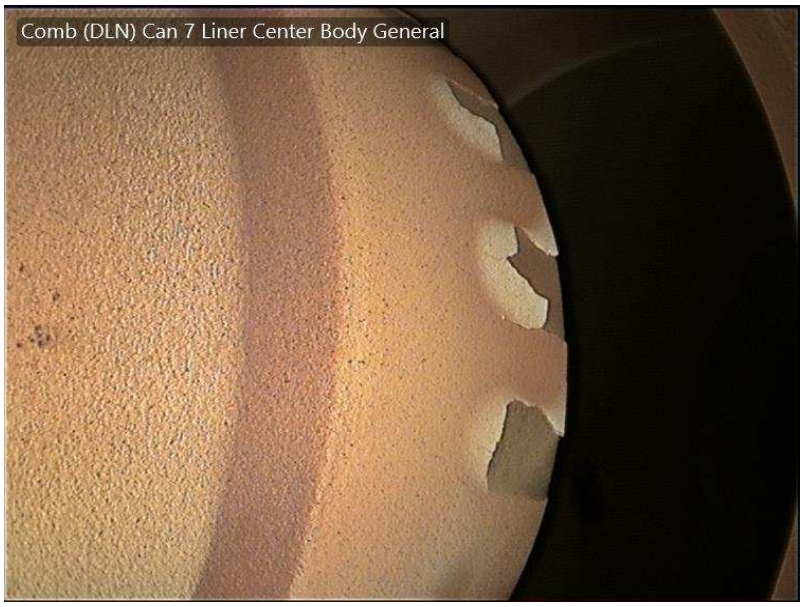
Section	Comb (DLN)
Stage	Can 4
Component	Liner
Location	Center Body
Sub-Location	General
Observation	TBC Spallation
Comments	

Comb_(DLN)_Can_5_Cap_Flow_Path_General001-FLAG.JPG

Section	Comb (DLN)
Stage	Can 5
Component	Cap
Location	Flow Path
Sub-Location	General
Observation	TBC Spallation
Comments	

Comb_(DLN)_Can_7_Liner_Flow_Path_General001-FLAG.JPG

Section	Comb (DLN)
Stage	Can 7
Component	Liner
Location	Flow Path
Sub-Location	General
Observation	TBC Spallation
Comments	



Comb_(DLN)_Can_7_Liner_Center_Body_General001-FLAG.JPG

Section	Comb (DLN)
Stage	Can 7
Component	Liner
Location	Center Body
Sub-Location	General
Observation	TBC Spallation
Comments	

Comb_(DLN)_Can_8_Liner_Flow_Path_General001-FLAG.JPG

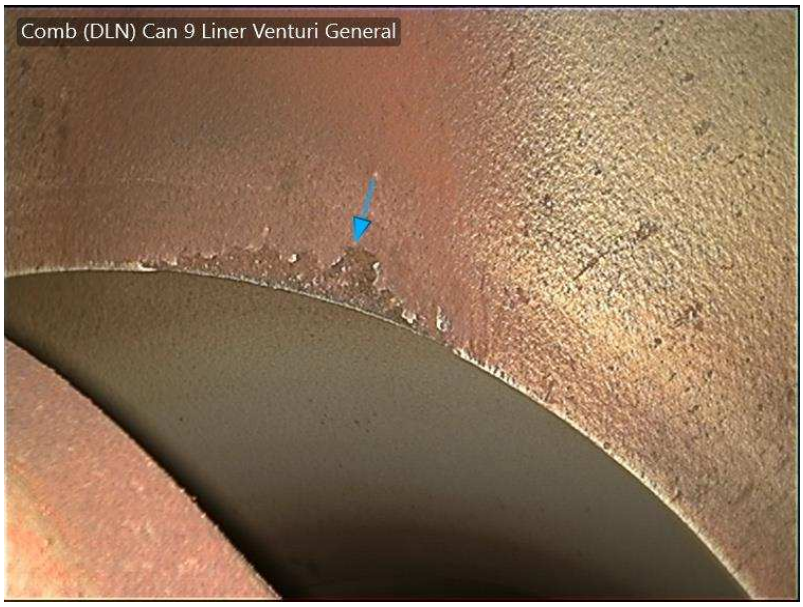
Section	Comb (DLN)
Stage	Can 8
Component	Liner
Location	Flow Path
Sub-Location	General
Observation	Deposits, 8-9
Comments	

Comb_(DLN)_Can_8_Liner_Flow_Path_General002-FLAG.JPG

Section	Comb (DLN)
Stage	Can 8
Component	Liner
Location	Flow Path
Sub-Location	General
Observation	Deposits, Deposits, XF 8-7, XF 8-7
Comments	

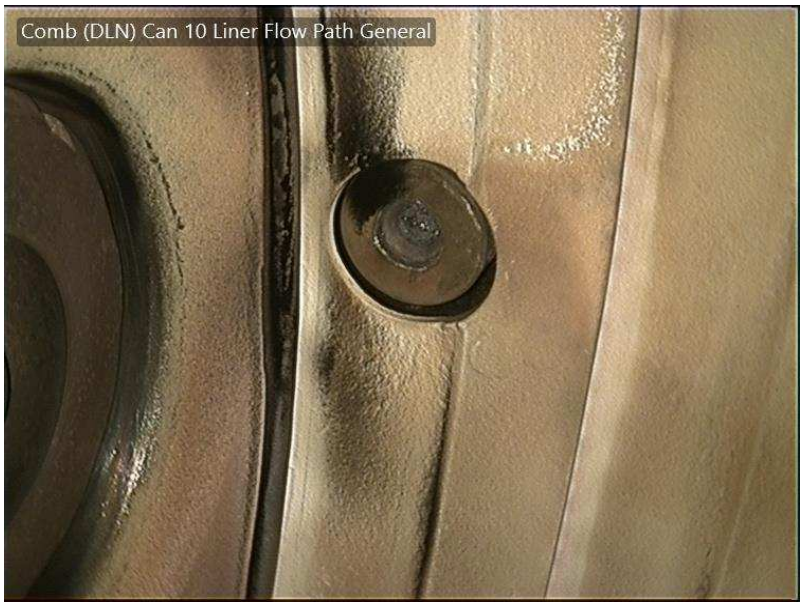
Comb_(DLN)_Can_9_Liner_Center_Body_General001-FLAG.JPG

Section	Comb (DLN)
Stage	Can 9
Component	Liner
Location	Center Body
Sub-Location	General
Observation	TBC Spallation
Comments	



Comb_(DLN)_Can_9_Liner_Venturi_General001-FLAG.JPG

Section	Comb (DLN)
Stage	Can 9
Component	Liner
Location	Venturi
Sub-Location	General
Observation	TBC Spallation
Comments	



Comb_(DLN)_Can_10_Liner_Flow_Path_General001.JPG

Section	Comb (DLN)
Stage	Can 10
Component	Liner
Location	Flow Path
Sub-Location	General
Observation	Typical
Comments	Spark Plug

Comb_(DLN)_Can_10_Liner_Flow_Path_General002-FLAG.JPG

Section	Comb (DLN)
Stage	Can 10
Component	Liner
Location	Flow Path
Sub-Location	General
Observation	TBC Spallation
Comments	

Comb_(STD)_General_Liner_Flow_Path_General001.JPG

Section	Comb (STD)
Stage	General
Component	Liner
Location	Flow Path
Sub-Location	General
Observation	Spring Seal (Typical)
Comments	

Comb_(STD)_General___Flow_Path_Side_Seal001.JPG

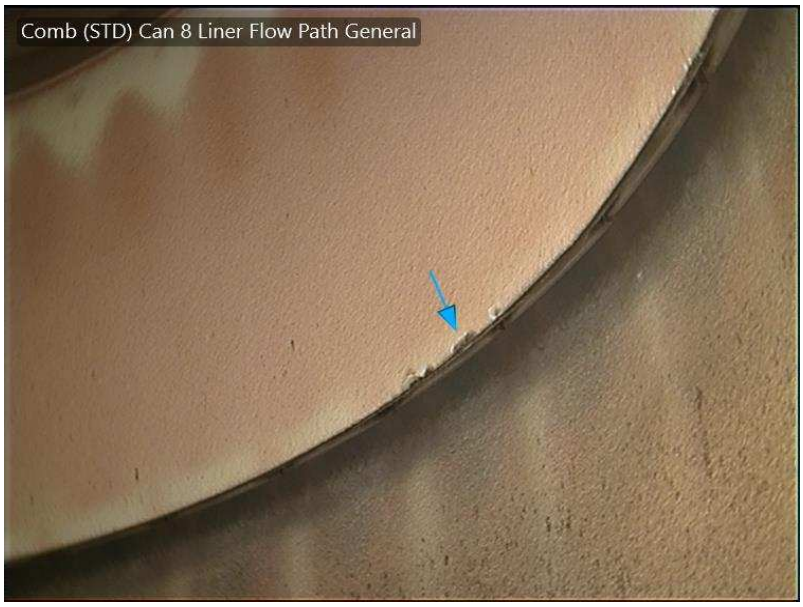
Section	Comb (STD)
Stage	General
Component	Transition Piece
Location	Flow Path
Sub-Location	Side Seal
Observation	Typical
Comments	

Comb_(STD)_General___Inner_Floating_Seal001.JPG

Section	Comb (STD)
Stage	General
Component	Transition Piece
Location	Flow Path
Sub-Location	Inner Floating Seal
Observation	Typical
Comments	

Comb_(STD)_General___Outer_Floating_Seal001.JPG

Section	Comb (STD)
Stage	General
Component	Transition Piece
Location	Flow Path
Sub-Location	Outer Floating Seal
Observation	Typical
Comments	



Comb_(STD)_Can_8_Liner_Flow_Path_General001-FLAG.JPG

Section	Comb (STD)
Stage	Can 8
Component	Liner
Location	Flow Path
Sub-Location	General
Observation	TBC Spallation
Comments	

HGP_1_Nozzle_General_Inner_Sidewall_LE001-FLAG.JPG

Section	HGP
Stage	1
Component	Nozzle
Location	General
Sub-Location	Inner Sidewall LE
Observation	Crack
Comments	

HGP_1_Nozzle_General_Inner_Sidewall_LE002-FLAG.JPG

Section	HGP
Stage	1
Component	Nozzle
Location	General
Sub-Location	Inner Sidewall LE
Observation	Crack (Relief Radius)
Comments	

HGP_1_Nozzle_General_Inner_Sidewall_LE003-FLAG.JPG

Section	HGP
Stage	1
Component	Nozzle
Location	General
Sub-Location	Inner Sidewall LE
Observation	Crack
Comments	

HGP_1_Nozzle_General_Leading_Edge_SS001.JPG

Section	HGP
Stage	1
Component	Nozzle
Location	General
Sub-Location	Leading Edge SS
Observation	Typical
Comments	

HGP_1_Nozzle_General_Leading_Edge_SS002.JPG

Section	HGP
Stage	1
Component	Nozzle
Location	General
Sub-Location	Leading Edge SS
Observation	Typical
Comments	

HGP_1_Nozzle_General_Leading_Edge_PS001.JPG

Section	HGP
Stage	1
Component	Nozzle
Location	General
Sub-Location	Leading Edge PS
Observation	Typical
Comments	

HGP_1_Nozzle_General_Leading_Edge_PS002.JPG

Section	HGP
Stage	1
Component	Nozzle
Location	General
Sub-Location	Leading Edge PS
Observation	Typical
Comments	

HGP_1_Nozzle_General_Trailing_Edge_SS001.JPG

Section	HGP
Stage	1
Component	Nozzle
Location	General
Sub-Location	Trailing Edge SS
Observation	Typical
Comments	

HGP_1_Nozzle_General_Trailing_Edge_PS001.JPG

Section	HGP
Stage	1
Component	Nozzle
Location	General
Sub-Location	Trailing Edge PS
Observation	Typical
Comments	

HGP_1_Nozzle_General_Trailing_Edge_PS002-FLAG.JPG

Section	HGP
Stage	1
Component	Nozzle
Location	General
Sub-Location	Trailing Edge PS
Observation	Crack
Comments	

HGP_1_Nozzle_General_Outer_Sidewall_TE001-FLAG.JPG

Section	HGP
Stage	1
Component	Nozzle
Location	General
Sub-Location	Outer Sidewall TE
Observation	Crack
Comments	

HGP_1_Blade_Leading_Edge_Suction_Side001.JPG

Section	HGP
Stage	1
Component	Blade
Location	Leading Edge
Sub-Location	Suction Side
Observation	Typical
Comments	

HGP_1_Blade_Leading_Edge_Pressure_Side001.JPG

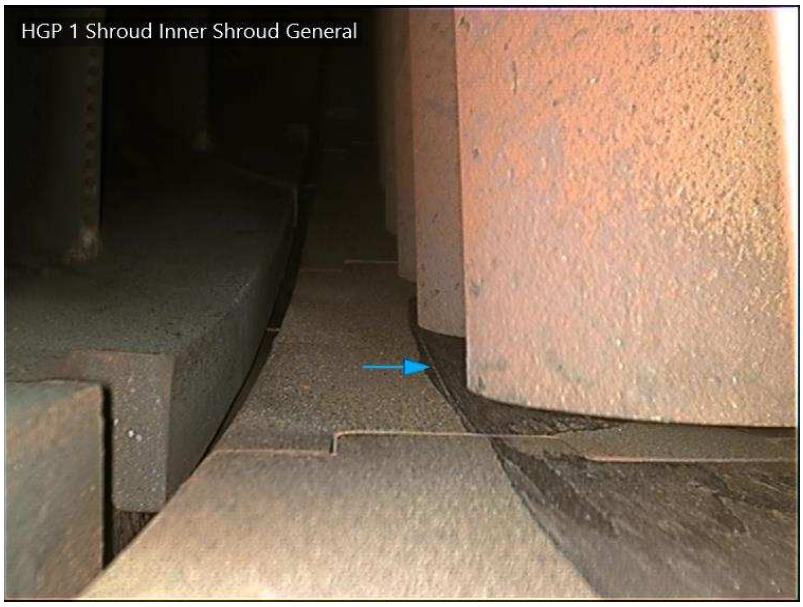
Section	HGP
Stage	1
Component	Blade
Location	Leading Edge
Sub-Location	Pressure Side
Observation	Typical
Comments	

HGP_1_Blade_Platform_Leading_Edge_SS001.JPG

Section	HGP
Stage	1
Component	Blade
Location	Platform
Sub-Location	Leading Edge SS
Observation	Typical
Comments	

HGP_1_Blade_Platform_Leading_Edge_PS001.JPG

Section	HGP
Stage	1
Component	Blade
Location	Platform
Sub-Location	Leading Edge PS
Observation	Typical
Comments	



HGP_1_Shroud_Inner_Shroud_General001-FLAG.JPG

Section	HGP
Stage	1
Component	Shroud
Location	Inner Shroud
Sub-Location	General
Observation	Rubs, 6:00, 6:00
Comments	

HGP_2_Nozzle_General_Trailing_Edge_SS001.JPG

Section	HGP
Stage	2
Component	Nozzle
Location	General
Sub-Location	Trailing Edge SS
Observation	Typical
Comments	

HGP_2_Nozzle_General_Trailing_Edge_PS001.JPG

Section	HGP
Stage	2
Component	Nozzle
Location	General
Sub-Location	Trailing Edge PS
Observation	Typical
Comments	

HGP_2_Blade_Leading_Edge_Suction_Side001.JPG

Section	HGP
Stage	2
Component	Blade
Location	Leading Edge
Sub-Location	Suction Side
Observation	Typical
Comments	

HGP_2_Blade_Leading_Edge_Suction_Side002-FLAG.JPG

Section	HGP
Stage	2
Component	Blade
Location	Leading Edge
Sub-Location	Suction Side
Observation	Oxidation/Erosion
Comments	

HGP_2_Blade_Leading_Edge_Pressure_Side001.JPG

Section	HGP
Stage	2
Component	Blade
Location	Leading Edge
Sub-Location	Pressure Side
Observation	Typical
Comments	

HGP_2_Blade_Trailing_Edge_Suction_Side001.JPG

Section	HGP
Stage	2
Component	Blade
Location	Trailing Edge
Sub-Location	Suction Side
Observation	Typical
Comments	

HGP_2_Blade_Trailing_Edge_Pressure_Side001.JPG

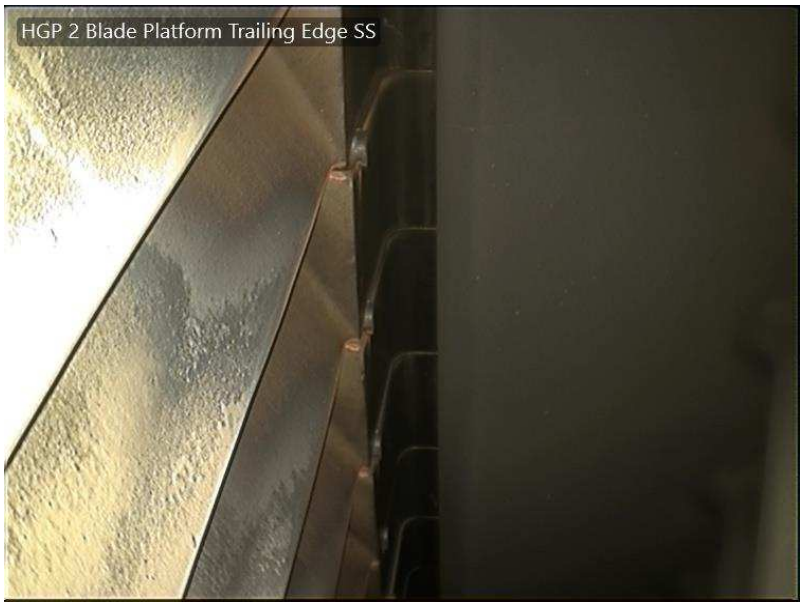
Section	HGP
Stage	2
Component	Blade
Location	Trailing Edge
Sub-Location	Pressure Side
Observation	Typical
Comments	

HGP_2_Blade_Platform_Leading_Edge_SS001.JPG

Section	HGP
Stage	2
Component	Blade
Location	Platform
Sub-Location	Leading Edge SS
Observation	Typical
Comments	

HGP_2_Blade_Platform_Leading_Edge_PS001.JPG

Section	HGP
Stage	2
Component	Blade
Location	Platform
Sub-Location	Leading Edge PS
Observation	Typical
Comments	



HGP_2_Blade_Platform_Trailing_Edge_SS001.JPG

Section	HGP
Stage	2
Component	Blade
Location	Platform
Sub-Location	Trailing Edge SS
Observation	Typical
Comments	

HGP_2_Blade_Platform_Trailing_Edge_PS001.JPG

Section	HGP
Stage	2
Component	Blade
Location	Platform
Sub-Location	Trailing Edge PS
Observation	Typical
Comments	

HGP_2_Blade_Platform_Trailing_Edge_PS002-FLAG.JPG

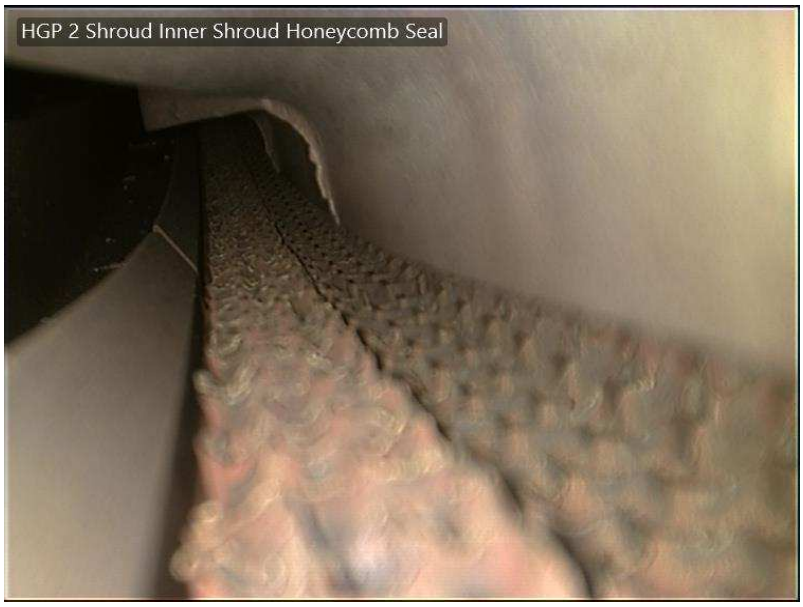
Section	HGP
Stage	2
Component	Blade
Location	Platform
Sub-Location	Trailing Edge PS
Observation	Damping Pin Migration
Comments	

HGP_2_Blade_Tip_Shroud_Z-Form001.JPG

Section	HGP
Stage	2
Component	Blade
Location	Tip Shroud
Sub-Location	Z-Form
Observation	Typical
Comments	

HGP_2_Blade_Tip_Shroud_Cutter_Tooth001.JPG

Section	HGP
Stage	2
Component	Blade
Location	Tip Shroud
Sub-Location	Cutter Tooth
Observation	Typical
Comments	



HGP_2_Shroud_Inner_Shroud_Honeycomb_Seal001.JPG

Section	HGP
Stage	2
Component	Shroud
Location	Inner Shroud
Sub-Location	Honeycomb Seal
Observation	Typical
Comments	

HGP_3_Nozzle_General_Leading_Edge_SS001.JPG

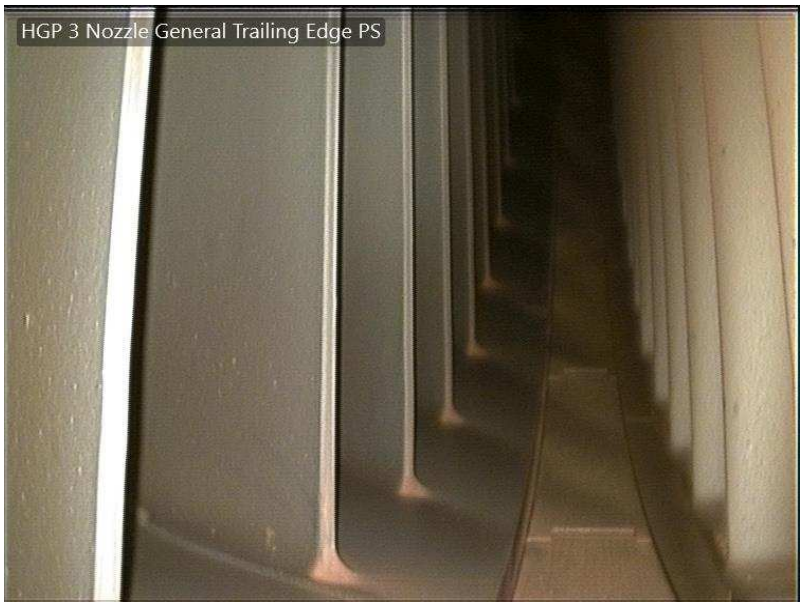
Section	HGP
Stage	3
Component	Nozzle
Location	General
Sub-Location	Leading Edge SS
Observation	Typical
Comments	

HGP_3_Nozzle_General_Leading_Edge_PS001.JPG

Section	HGP
Stage	3
Component	Nozzle
Location	General
Sub-Location	Leading Edge PS
Observation	Typical
Comments	

HGP_3_Nozzle_General_Trailing_Edge_SS001.JPG

Section	HGP
Stage	3
Component	Nozzle
Location	General
Sub-Location	Trailing Edge SS
Observation	Typical
Comments	

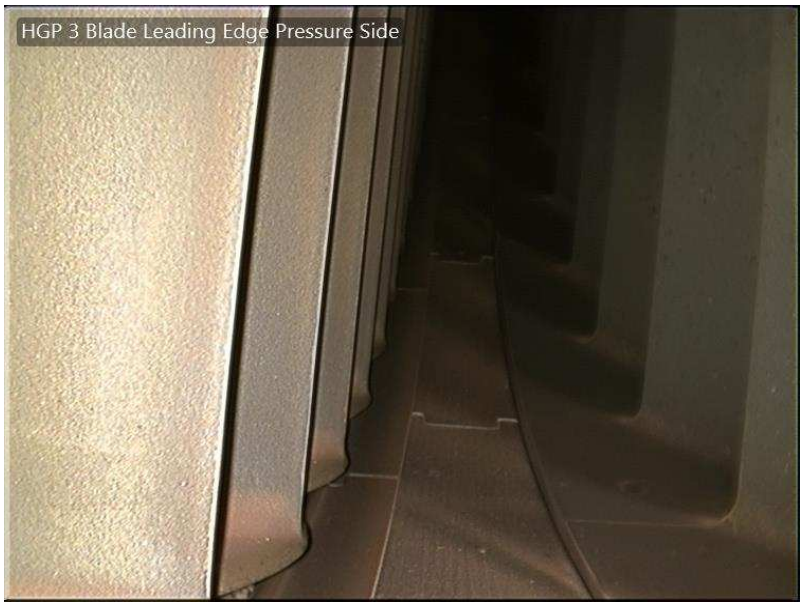


HGP_3_Nozzle_General_Trailing_Edge_PS001.JPG

Section	HGP
Stage	3
Component	Nozzle
Location	General
Sub-Location	Trailing Edge PS
Observation	Typical
Comments	

HGP_3_Blade_Leading_Edge_Suction_Side001.JPG

Section	HGP
Stage	3
Component	Blade
Location	Leading Edge
Sub-Location	Suction Side
Observation	Typical
Comments	



HGP_3_Blade_Leading_Edge_Pressure_Side001.JPG

Section	HGP
Stage	3
Component	Blade
Location	Leading Edge
Sub-Location	Pressure Side
Observation	Typical
Comments	

HGP_3_Blade_Trailing_Edge_Suction_Side001.JPG

Section	HGP
Stage	3
Component	Blade
Location	Trailing Edge
Sub-Location	Suction Side
Observation	Typical
Comments	

HGP_3_Blade_Trailing_Edge_Pressure_Side001.JPG

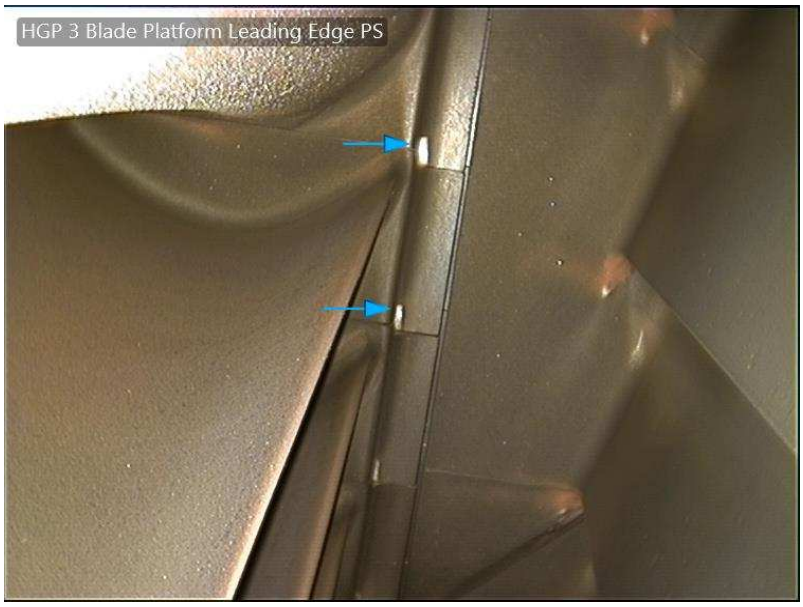
Section	HGP
Stage	3
Component	Blade
Location	Trailing Edge
Sub-Location	Pressure Side
Observation	Typical
Comments	

HGP_3_Blade_Platform_Leading_Edge_SS001.JPG

Section	HGP
Stage	3
Component	Blade
Location	Platform
Sub-Location	Leading Edge SS
Observation	Typical
Comments	

HGP_3_Blade_Platform_Leading_Edge_PS001.JPG

Section	HGP
Stage	3
Component	Blade
Location	Platform
Sub-Location	Leading Edge PS
Observation	Typical
Comments	

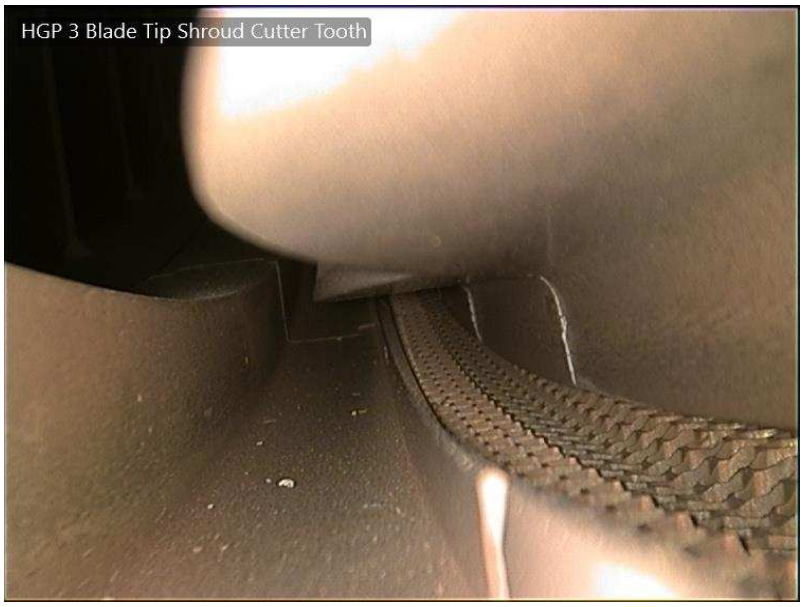


HGP_3_Blade_Platform_Leading_Edge_PS002-FLAG.JPG

Section	HGP
Stage	3
Component	Blade
Location	Platform
Sub-Location	Leading Edge PS
Observation	Damping Pin Migration
Comments	

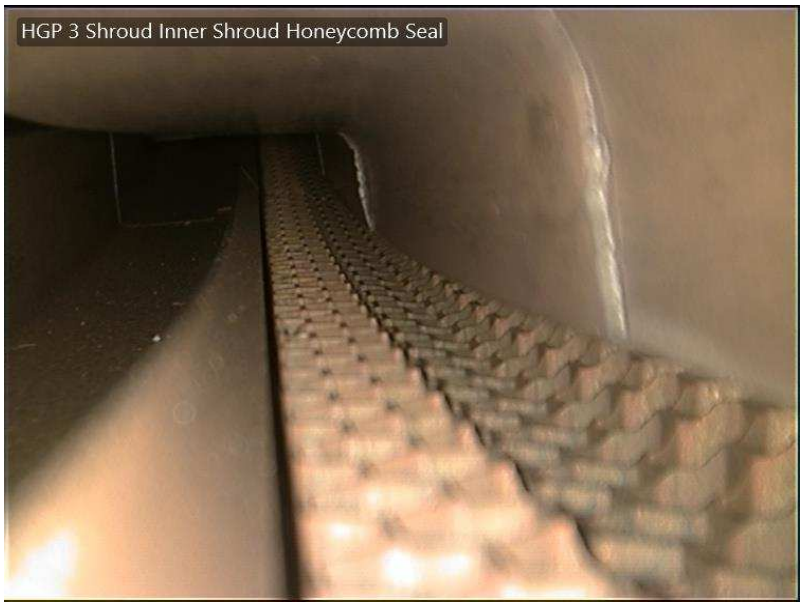
HGP_3_Blade_Tip_Shroud_Z-Form001.JPG

Section	HGP
Stage	3
Component	Blade
Location	Tip Shroud
Sub-Location	Z-Form
Observation	Typical
Comments	



HGP_3_Blade_Tip_Shroud_Cutter_Tooth001.JPG

Section	HGP
Stage	3
Component	Blade
Location	Tip Shroud
Sub-Location	Cutter Tooth
Observation	Typical
Comments	



HGP_3_Shroud_Inner_Shroud_Honeycomb_Seal001.JPG

Section	HGP
Stage	3
Component	Shroud
Location	Inner Shroud
Sub-Location	Honeycomb Seal
Observation	Typical
Comments	

8. Abbreviations

Abbreviations			
BI	Borescope Inspection	RHJ	Right Horizontal Joint
BS	Borescope	RS	Right Side
CDM	Combustion Dynamics Monitoring	S	Compressor Stator Vane Row
CI	Combustion Inspection	SD	Service Director
CPM	Contractual Performance Manager	S1B	Stage 1 Blade
CSL	Customer Service Leader	S2B	Stage 2 Blade
CSM	Customer Service Manager	S3B	Stage 3 Blade
DLN	Dry Low NOx	S4B	Stage 4 Blade
DOD	Domestic Object Damage	S1N	Stage 1 Nozzle
EGV	Compressor Exit Guide Vane	S2N	Stage 2 Nozzle
ER	Engineering Request	S3N	Stage 3 Nozzle
FN	Fuel Nozzle	S4N	Stage 4 Nozzle
FOD	Foreign Object Damage	S1S	Stage 1 Shroud Block
HGP	Hot Gas Path	S2S	Stage 2 Shroud Block
IGV	Compressor Inlet Guide Vane	S3S	Stage 3 Shroud Block
IS	Impingement Sleeve	S4S	Stage 4 Shroud Block
ISW	Inner Side Wall	SS	Suction Side
LE	Leading Edge	TFA	Technical Field Advisor
LHJ	Left Horizontal Joint	TBC	Thermal Barrier Coating
LS	Left Side	TC	Thermocouple
N/A	Not Applicable/Not Inspected	TE	Trailing Edge
OSW	Outer Side Wall	TIL	Technical Information Letter
PM	Pre Mixer	TP	Transition Piece
PS	Pressure Side	V	Nozzle Segment Vane
R	Compressor Rotor Blade Row	VSV	Variable Stator Vane