

City of Fayetteville Staff Review Form

2019-0438

Legistar File ID

8/6/2019

City Council Meeting Date - Agenda Item Only
N/A for Non-Agenda Item

Tim Nyander

7/17/2019

WASTEWATER TREATMENT (730)

Submitted By

Submitted Date

Division / Department

Action Recommendation:

Staff recommends the repair of two (2) Gardner Denver brand cyclo-blowers for the West Side Treatment Facility by Blocker & Wallace Service LLC in the amount of \$31,550.00 plus applicable taxes, and approval of a budget adjustment.

Budget Impact:

5400.730.5800-5414.00	Water and Sewer
Account Number	Fund
02069.1	Plant Pumps and Equipment - WWTP
Project Number	Project Title
Budgeted Item? Yes	Current Budget \$ 1,093,868.00
	Funds Obligated \$ 1,093,864.50
	Current Balance \$ 3.50
Does item have a cost? Yes	Item Cost \$ 34,626.13
Budget Adjustment Attached? Yes	Budget Adjustment \$ 34,627.00
	Remaining Budget \$ 4.37

V20180321

Purchase Order Number: _____

Previous Ordinance or Resolution # _____

Change Order Number: _____

Approval Date: _____

Original Contract Number: _____

Comments: Taxes are estimated at \$3,076.13 for a total of 34,626.13.



MEETING OF AUGUST 6, 2019

TO: Mayor and City Council

THRU: Don Marr, Chief of Staff
Water & Sewer Committee
Tim Nyander, Utilities Director

FROM: Greg Weeks, Wastewater Treatment

DATE: July 17, 2019

SUBJECT: **Repair of Cyclo-Blowers at the West Side Treatment Facility**

RECOMMENDATION:

Staff recommends the repair of two (2) Gardner Denver brand cyclo-blowers for the West Side Treatment Facility by Blocker & Wallace Service LLC in the amount of \$31,550.00 plus applicable taxes, and approval of a budget adjustment.

BACKGROUND:

The West Side Treatment Facility utilizes a biological nutrient removal process to treat an average of 7.2 million gallons of wastewater per day (2017, Annual AVG). Microorganisms, or 'activated sludge' feed off both organic and inorganic pollutants in the wastewater. As the microorganisms feed and multiply, a portion of the process solids or sludge must be removed to maintain a proper balance between microorganism populations and available food. The removed solids or Waste Activated Sludge (WAS) are partially dewatered before being sent to the Biosolids Management Site (BMS) for further treatment and later sold as a Class-A Biosolid fertilizer.

Before WAS is dewatered or sent to the BMS, it is temporarily stored in one of two tanks. During its storage time, mechanical cyclo-blowers mix and aerate the WAS mixture to prevent solids settling and the microorganisms from dying. Five cyclo-blowers are available to mix the contents of the WAS storage tanks; recently vibration analysis results indicated that two of the cyclo-blowers had hidden, internal points-of-failure requiring disassembly inspection and repair evaluation by a certified repair facility.

DISCUSSION:

Earlier this year, a cyclo-blower unit experienced an 'Alarm' Condition Level during vibration analysis and was shipped to Blocker & Wallace Service LLC – a Gardner Denver factory authorized repair vendor – for disassembly, inspection and repair proposal. The unit's 'Alarm' Condition Level was determined to be from Head Plate bore damage, caused by an internal bearing failure, and damage to the rotary shaft from failed internal and external lip seals. The damaged bore will require re-sleeving and machining repairs while the damaged rotary shaft will

require re-sleeving and new lip seals. This unit was quoted for repair by Blocker & Wallace in the amount of \$15,725.00.

A second unit that was sent to Blocker & Wallace for disassembly and inspection has experienced similar lip seal failures and needs to be repaired in the amount of \$15,225.00. Considering that purchase prices for remanufactured or new blowers range from \$24,000 to \$33,500, staff recommends completion of the recommended repairs for the two cyclo-blower units in the amount of \$30,950.00 plus estimated freight in the amount of \$600.00. Taxes are estimated in the amount of \$3,076.13 for a total of 34,626.13.

Because it was necessary to have the repair facility disassemble the units to determine the extent of hidden and unknown damage to equipment already purchased, a bid waiver and/or formal sealed bidding is not necessary according to Ark. Code Ann. §19-11-203(14)(DD).

BUDGET/STAFF IMPACT:

Budgeted funds will be moved from the Sanitary Sewer Rehabilitation account to the Plant Pumps and Equipment account to cover the repair costs for the cyclo-blowers for the Westside WWTP. Funds being moved are budgeted funds for sewer rehabilitation/replacement and maintenance.

Attachments:

Quotes from Blocker & Wallace Service LLC
Budget Adjustment

Customer: Jeff Hickle
Company: City of Fayetteville'
Location: Fayetteville, AR
Fax: _____
Phone: _____

From: Neil Brinkmeyer
Pages: 3
Date: 6/19/2019
B&W Job # 15314

QUOTE # M29164

Blower Repair Quote / Evaluation Report

Blower Model: Cycloblower 9CDL18
Serial Number: S257153A18 **Last Repair Date:** 1/25/2018

Customer Tracking Information:

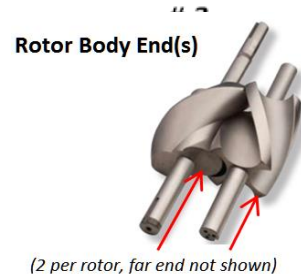
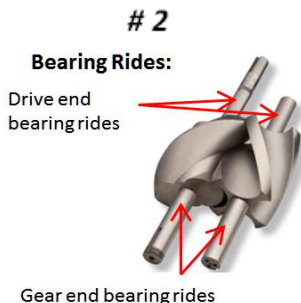
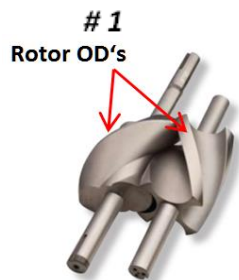
Cause Of Failure:

Internal seal failure lead to a bearing failure.

Drive Rotor Evaluation Results:

Drive Rotor OD: (# 1)	Within factory allowable tolerances.
Drive Bearing Ride: (# 2)	Within factory allowable tolerances / specifications .
Gear End Bearing Ride: (# 2)	Within factory allowable tolerances / specifications .
Rotor End Condition: (# 3)	Within factory allowable tolerances / specifications .

Comments:



Driven Rotor Evaluation Results:

Driven Rotor OD: (# 1)	Within factory allowable tolerances.
Drive Bearing Ride: (# 2)	Within factory specifications and is ok to reuse.
Gear End Bearing Ride: (# 2)	Within factory specifications and is ok to reuse.
Rotor End Condition: (# 3)	Within factory specifications and is ok to reuse.

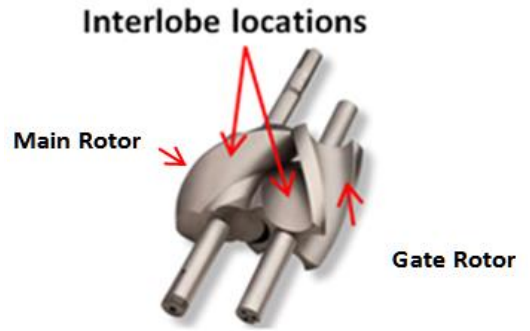
Comments:

Interlobe:

Interlobe condition: Within factory allowable tolerances / specifications .

Comments:

Interlobe clearances (rotor to rotor clearance) are the internal sealing tolerances and are critical to overall blower performance. Interlobe damage cannot be repaired due to the rotor body profile / design. Excessive Interlobe clearances will allow air to slip in the housing chamber which causes a loss of performance and potentially lead to overheating.



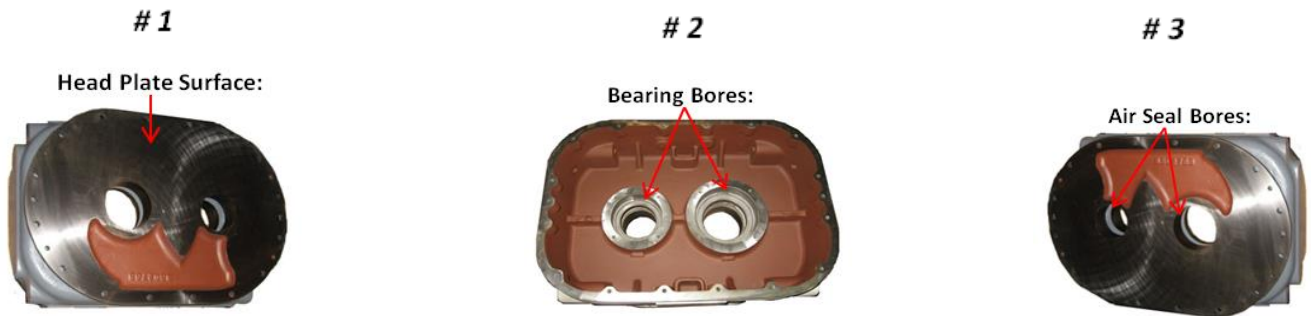
Discharge End Head Plate:

Surface Condition: (# 1) Within factory allowable tolerances / specifications .

Bearing Bore Condition: (# 2) The head-plate bearing bore oversized due to the bearings failure and required machine work for repair .

Air Seal Bore Condition: (# 3) Within factory allowable tolerances / specifications .

Comments:



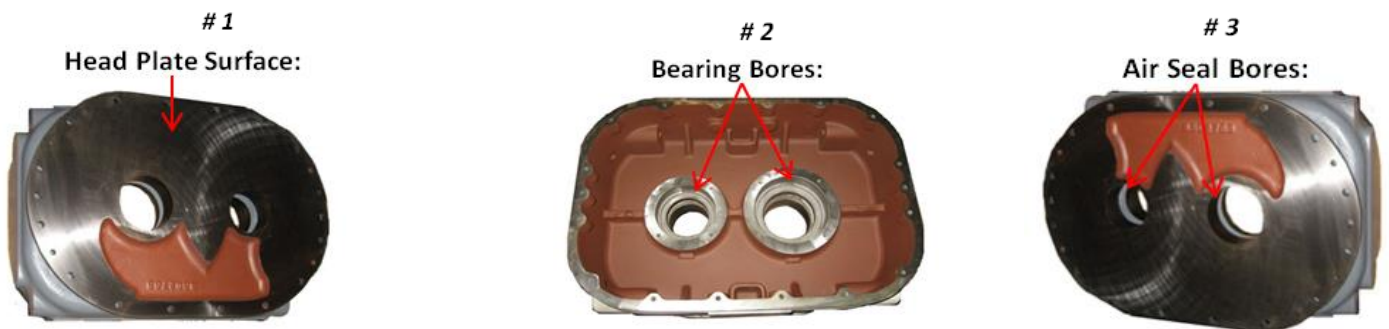
Suction End Head Plate:

Surface Condition: Within factory allowable tolerances / specifications .

Bearing Bore Condition: Damaged / oversized due to a bearing failure and will require re-sleeving / machining for repair.

Air Seal Bore Condition: Within factory allowable tolerances / specifications .

Comments:



Timing Gears:

Overall Condition: Within factory allowable tolerances / specifications .

Comments:

Timing gears are essential to proper blower operation, by way of holding the rotor lobe positions which ensures contact free operation. Worn or damaged gears can potentially lead too Interlobe contact (rotor to rotor contact) or overall loss of internal operating clearances.

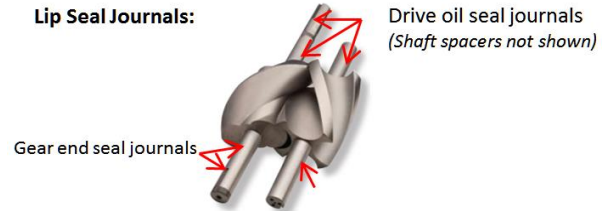


Seal Journals:

Internal Seal Journals: Damaged due to grooves created by the old lip seals and will require repair with Speedie sleeves.

External Seal Journals: Damaged due to grooves created by the old lip seals and will require repair with Speedie sleeves.

A seal journal is the area where the lip seal contacts the drive shaft. The seal journal condition is crucial in obtaining proper sealing. Over long periods of operation, lip seals can cut a groove into the steel shaft which creates a unacceptable sealing surface. Damaged seal journals typically require sleeving for repair to insure proper sealing.



Housing:

Overall Condition: Within factory allowable tolerances.

Repair Estimate:

\$15,725

90 - 92 (+/-5%) Estimated performance with a complete overhaul including a complete Factory INPRO Seal Overhaul Kit, sleeve gear headplate bearing bore, new oil sight gauges, new oil sump breather(s), sandblasting, polishing, assembly by factory trained technician, dynamically balanced rotors, testing & diagnostics under simulated load, paint, & decals. Completed in 2 - 3 weeks from DOA, subject to current shop load and parts availability at time of approval.

Options:

1.) New 9CDL18 CycloBlower

Availability:

6-8 weeks

\$34,320.00

Subject to prior sale

2) Remanufactured 9CDL18PX

Availability:

4 - 6 weeks

\$23,804.00

Subject to prior sale

*Price shown is using the blower quoted above for repair to cover the "Factory Core Charge".

ESTIMATED SHIPPING COST : **\$300.00**



GD
GARDNER DENVER
Authorized Distributor

Shipping Terms: Pre pay & add or collect on your specified carrier.

Payment Terms: Net 30 Days - applicable taxes not included

Quote Terms: Validity - 30 days, all repairs and sales are subject to Blocker and Wallace Service LLC Terms & Conditions of Sale. (Form# BWTCSA2012)

Neil Brinkmeyer

901-274-0708 Office

901-278-4796 Fax

www.blockerandwallace.com

Neil Brinkmeyer

** NOTICE: Un resolved Equipment for repair that is not approved for rebuild or replaced with a new or remanufactured unit may incur a tear down / inspection fee and may also be scrapped out / thrown away / by Blocker & Wallace Service LLC after 90 days.

**Pictures shown are for reference purposes only, styles and parts may vary.

Gardner Denver Factory Authorized Distributor, Repair, & Warranty Center

Customer: Jeremy Lacoce
Company: City of Fayetteville
Location: Fayetteville, AR
Fax:
Phone:

From: Neil Brinkmeyer
Pages: 3
Date: 7/12/2019

B&W Job # 15372

QUOTE # M29366

Blower Repair Quote / Evaluation Report

Blower Model: Cycloblower 9CDL18
Serial Number: S257462
Org. Sale Date: 4/29/2007

Customer Tracking Information:

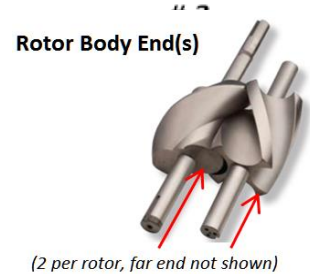
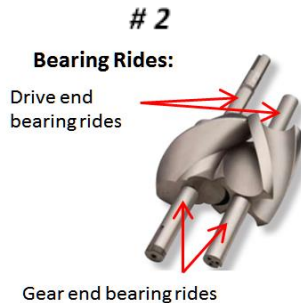
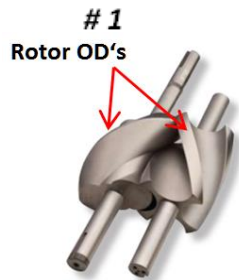
Cause Of Failure:

Corrosion contamination closed up the internal operating clearances resulting in the unit failing.

Drive Rotor Evaluation Results:

Drive Rotor OD: (# 1)	Within factory allowable tolerances.
Drive Bearing Ride: (# 2)	Within factory allowable tolerances / specifications .
Gear End Bearing Ride: (# 2)	Within factory allowable tolerances / specifications .
Rotor End Condition: (# 3)	Within factory allowable tolerances / specifications .

Comments: The rotor body surface has abrasions due to the rust contamination which will be removed with additional polishing.



Driven Rotor Evaluation Results:

Driven Rotor OD: (# 1)	Within factory allowable tolerances.
Drive Bearing Ride: (# 2)	Within factory specifications and is ok to reuse.
Gear End Bearing Ride: (# 2)	Within factory specifications and is ok to reuse.
Rotor End Condition: (# 3)	Within factory specifications and is ok to reuse.

Comments: The rotor body surface has abrasions due to the rust contamination which will be removed with additional polishing.

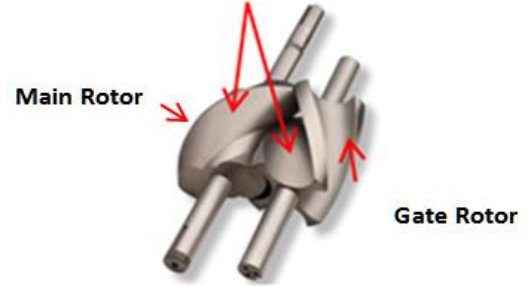
Interlobe:

Interlobe condition: Within factory allowable tolerances / specifications .

Comments:

Interlobe clearances (rotor to rotor clearance) are the internal sealing tolerances and are critical to overall blower performance. Interlobe damage cannot be repaired due to the rotor body profile / design. Excessive Interlobe clearances will allow air to slip in the housing chamber which causes a loss of performance and potentially lead to overheating.

Interlobe locations



Discharge End Head Plate:

Surface Condition: (# 1) Within factory allowable tolerances / specifications .

Bearing Bore Condition: (# 2) Within factory allowable tolerances / specifications .

Air Seal Bore Condition: (# 3) Within factory allowable tolerances / specifications .

Comments:

1

Head Plate Surface:



2

Bearing Bores:



3

Air Seal Bores:



Suction End Head Plate:

Surface Condition: Within factory allowable tolerances / specifications .

Bearing Bore Condition: Within factory allowable tolerances / specifications .

Air Seal Bore Condition: Within factory allowable tolerances / specifications .

Comments:

1

Head Plate Surface:



2

Bearing Bores:



3

Air Seal Bores:



**Gardner
Denver**

AUTHORIZED DISTRIBUTOR

Timing Gears:

Overall Condition: Slight wear but are within factory backlash tolerances and will be reusable.

Comments: The timing gears have slight back lash but are within factory allowable tolerances.

Timing gears are essential to proper blower operation, by way of holding the rotor lobe positions which ensures contact free operation. Worn or damaged gears can potentially lead too Interlobe contact (rotor to rotor contact) or overall loss of internal operating clearances.

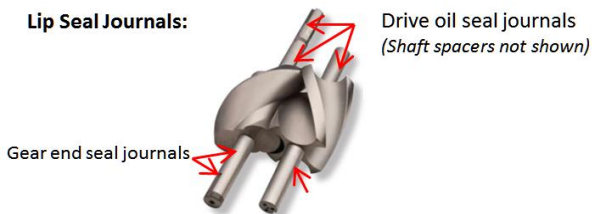


Seal Journals:

Internal Seal Journals: Damaged due to grooves created by the old lip seals and will be repaired with new rotor shaft sleeves.

External Seal Journals: Damaged due to grooves created by the old lip seals and will be repaired with new rotor shaft sleeves.

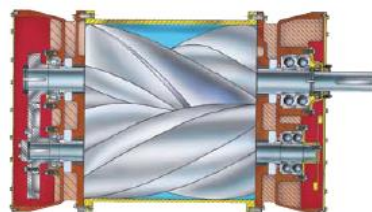
A seal journal is the area where the lip seal contacts the drive shaft. The seal journal condition is crucial in obtaining proper sealing. Over long periods of operation, lip seals can cut a groove into the steel shaft which creates a unacceptable sealing surface. Damaged seal journals typically require sleeving for repair to insure proper sealing.



Housing:

Overall Condition: Abrasions caused by product contamination which will polish out with the standard overhaul.

Comments: The housing surface has abrasions due to the rust contamination which can be removed with additional polishing



Pictures for reference only

Repair Estimate:

\$15,225

Page 3

90 - 92 (+/-5%) Estimated performance with a complete overhaul including a complete Factory INPRO Seal Overhaul Kit, new oil sight gauges, new oil sump breather(s), sandblasting, polishing, assembly by factory trained technician, dynamically balanced rotors, testing & diagnostics under simulated load, paint, & decals. Completed in 2 - 3 weeks from DOA, subject to curent shop load and parts av ailability at time of approval.

ESTIMATED SHIPPING COST : **\$300.00**



Options:

3.) New 9CDL18 CycloBlower

Availability:

8-12 weeks

\$34,320.00

Subject to prior sale



4.) Remanufactured 9CDL18PX

\$23,804.00 *

Availability: 6-8 weeks Subject to prior sale

*Price shown is using the blower quoted above for repair to cover the "Factory Core Charge".

Shipping Terms: Pre pay & add or collect on your specified carrier.

Payment Terms: Net 30 Days - applicable taxes not included

Quote Terms: Validity - 30 days, all repairs and sales are subject to Blocker and Wallace Service LLC Terms & Conditions of Sale. (Form# BWTCSA2012)

Neil Brinkmeyer

901-274-0708 Office

901-278-4796 Fax

www.blockerandwallace.com



** NOTICE: Un resolved Equipment for repair that is not approved for rebuild or replaced with a new or remanufactured unit may incccur a tear down / inspection fee and may also be scrapped out / thrown away / by Blocker & Wallace Service LLC after 90 days.

**Pictures shown are for reference purposes only, styles and parts may vary.

Copyright 2013 -2016 Blocker & Wallace Service LLC. CONFIDENTIALITY NOTICE: This Document, including any attachments and/or linked documents, is intended for the sole use of the intended addressee and may contain information that is privileged, confidential, proprietary, or otherwise protected by law. Any unauthorized review, dissemination, distribution, or copying is prohibited. If you are not the intended recipient, you are hereby formally notified that any unauthorized review, dissemination, use, copying, or distribution of this document, in whole or in part, is strictly prohibited. Please notify the sender by return e-mail and delete this document from your system.
