



**Allen Pump
Chas G Allen, Inc**

25 Williamsville Road

Barre, MA 01005

Tel 978-355-2911

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October 4, 2017

Corrosion Products

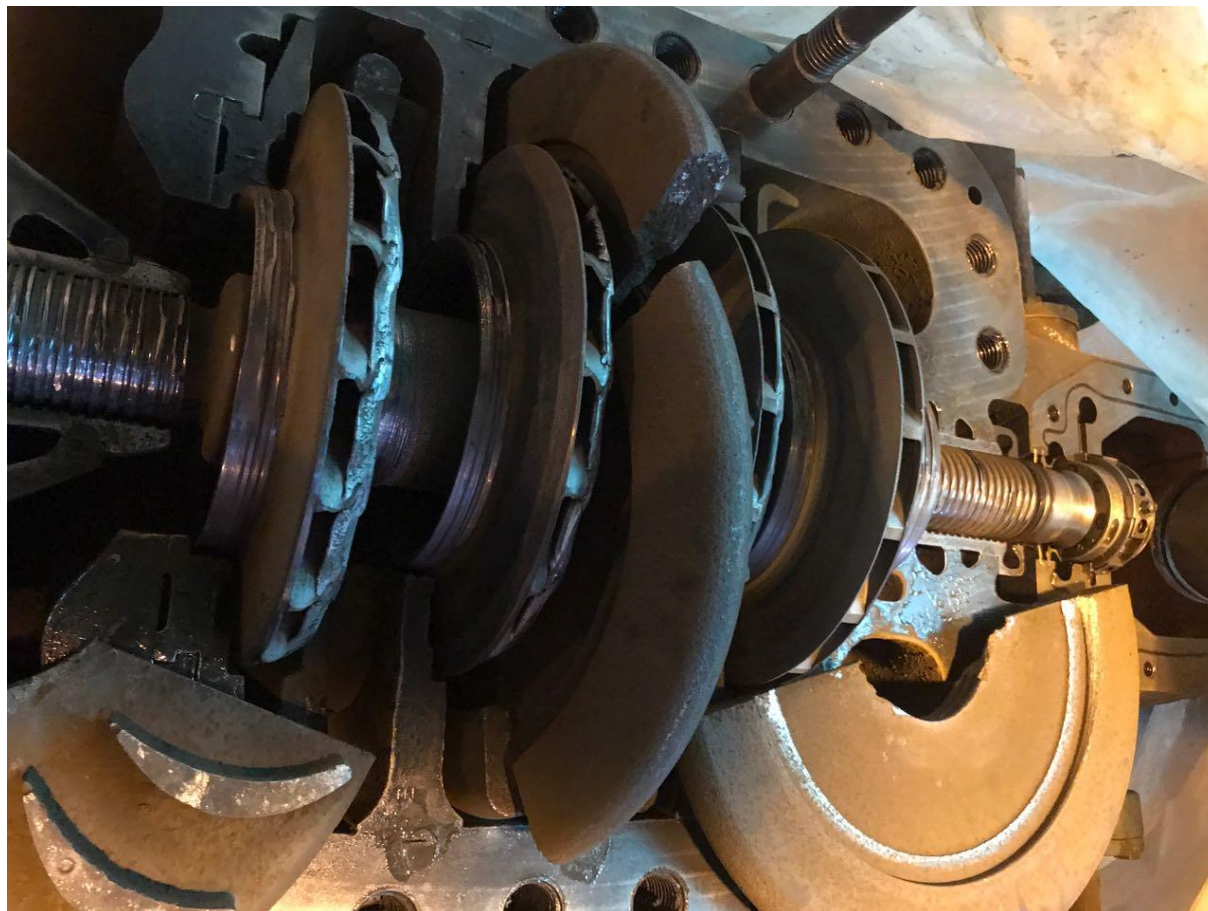
Jamaica Power Station

Attn.: Mr. Peter Tortorella

Re: Compressor Blower Inspection/Overhaul
Brown Boveri V408379
Proposal No. AP-1326-17

Dear Mr. Tortorella,

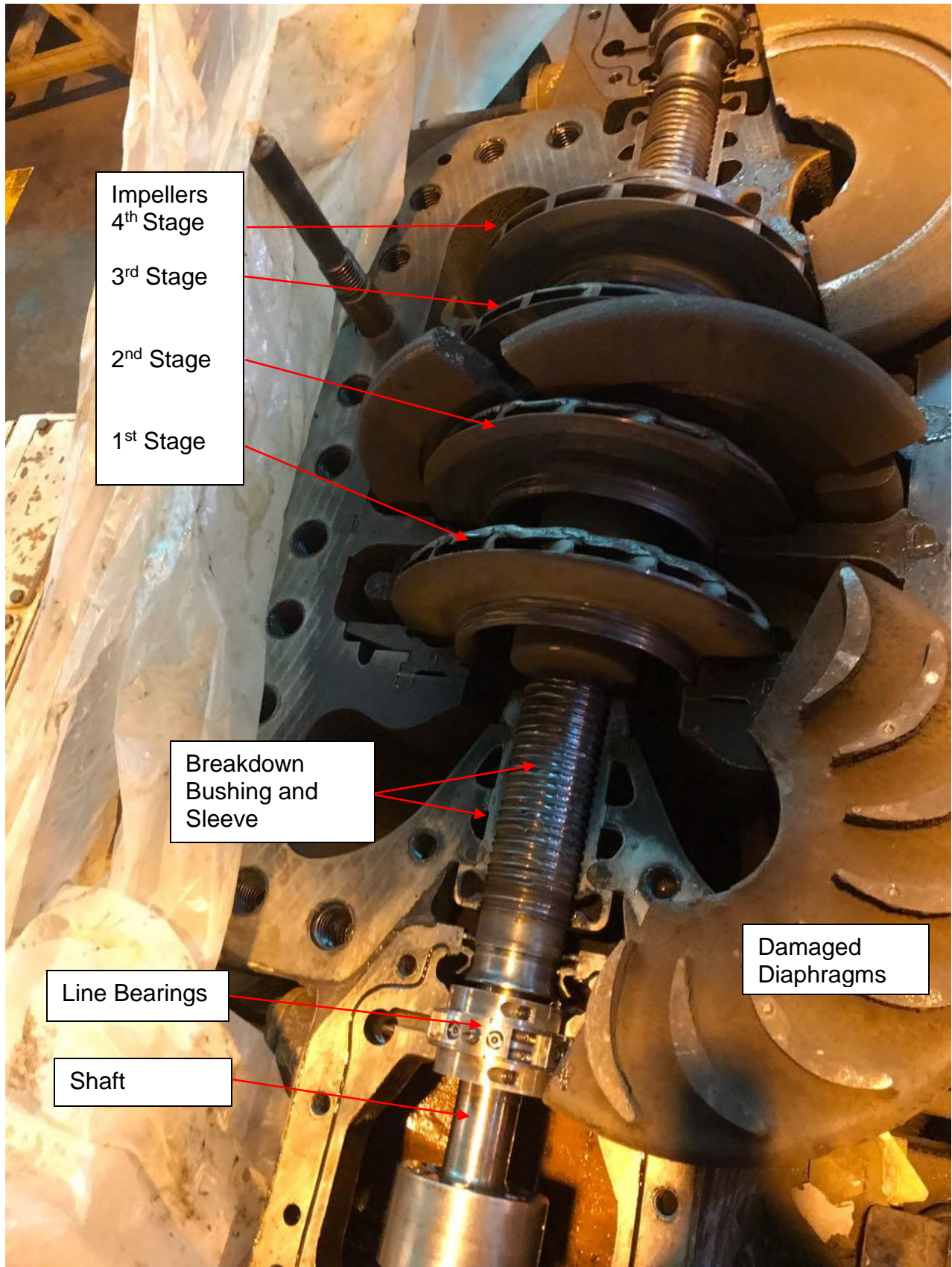
We are please to offer the following services to receive at our service center located in Barre, MA USA. The scope would include disassembling and performing full inspection of all components. Submit report with findings and recommended correction action plan. Note from the photos of the equipment, it appears the unit has suffered a catastrophic failure, we have listed know items that will require replacement at a minimum under planned items.



Engineered Pump Division
Service, Parts and Repairs

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Gary A. Boudreau
Tel 508-272-6578



**A. INSPECTION PROCEDURE**

- a. Check / record rotating element float
- b. Check / record direction of rotation
- c. Disassemble blower complete
- d. Remove all impellers
- e. Grit blast all parts except the following:
 - Shaft – clean with solvent and polish
 - Bearing Housings-clean with solvent
- f. Match-mark critical components as needed for reassembly.
- g. Visually inspect all parts looking for evidence of wear, cavitation, impact damage, cracks, rubs, wash-out, worn threads, corrosion, erosion, fretting, looseness, misalignment damage, vibration damage, out of roundness, etc.
Record unusual or important findings.
- h. Inspect shafts: Inspect using MT or PT paying special attention to critical areas such as keyways and threads. Inspect for signs of previous straightening activities. Inspect for evidence of looseness / wobble. Inspect for indications of fretting, erosion, corrosion, impacts, rubs, wear and washout.
Record findings.
- i. Scrap all gaskets and O-rings.
- j. Inspect the upper and lower casing halves, for concentricity and perpendicularity of fits and bores
Record Findings
- k. Clean and visually inspect all fastening hardware and ensure correct material composition,
Record findings
- l. Clean and visually inspect all fastening hardware and ensure correct material composition, replace any hardware that is not re-usable or the wrong material.
- m. Inspect the following using MT and / or PT.
Record findings
 - All fabrication welds
 - All bolt circle ligaments where found
 - Injection water supply & leak-off welded connections
 - Casing cover port holes where found
 - Pump shaft at critical fits, threads and keyways
 - Impeller vane roots
 - Impeller keyways
 - Diaphragms
- n. Check run-out of all shaft sections. Record findings
- o. Complete PMI of parts
- p. Complete running and stationary clearance checks
- q. Submit report with findings and recommended corrective action plan

A. INSPECTION COST-\$4,850.00

Lead-time after receipt of equipment 3-4 weeks

**B. PLANNED ITEMS**

Item #	QTY	Description	Material	Unit Cost US Dollars
1	1	Impeller 1 st Stage	CA6NM	\$ 26,950.00
2	1	Impeller 2 nd Stage	CA6NM	\$ 26,950.00
3	1	Impeller 3 rd Stage	CA6NM	\$ 26,950.00
4	1	Impeller 4 th Stage	CA6NM	\$ 26,950.00
5	1	Shaft	410SS	\$ 16,880.00
6	4	Inter-Stage Diaphragms	416SS Milled from solid	\$ 14,780.00 59,120
5	1	Rotating Assembly Balance 4W/N	All components mounted on shaft	\$ 3,150.00
6	1	Assembly	Reassemble as a complete unit	\$ 27,660.00
7	1	Miscellaneous Hardware	B-7 Grade Hardware	\$ 4,600.00
8	2	Fixed Breakdown Bushing	416SS HT 38-42 Rc	\$ 9,670.00 19,430
9	2	Breakdown Sleeve	416SS HT 28-22 Rc	\$ 4,320.00 8,640
10	2	Sleeve Bearings	Bronze and Babbitt	\$ 2,650.00 5,300
11	1	Package for Oversea Shipment	Special Wood	\$ 4,500.00
12	1	Service Team On-Site for Commissioning of equipment after installation by others, check alignment, startup, check vibration, temperatures and pressures for proper operation	Travel Time, Airfares, Subsistence, Limited to Three (3) Eight (8) Hour days at site	\$ 27,500.00 Estimate, actual cost based on signed time sheets
				\$ 284,490.00

All Parts to analyzed for material composition, hardness and reversed engineered

Lead-times

- Castings Impellers-22-26 Weeks, ARO
- Reassembling-4-6 Weeks, After Receipt of Castings
- Shipping 3-4 Weeks After Completion of Equipment

COST BREAKDOWN

A. INSPECTION-	\$ 4,850.00
B. PLANNED WORK SCOPE-	\$284,490.00
Total Estimated Cost	\$289,340.00

Pricing in US Dollars and is valid for Forty-five days from date of issue



This offer and any work performed as a result are exclusively governed by our Terms and Conditions, form FS 1-2017, which is attached. Any additional or conflicting terms contained in any document or purchase order issued authorizing work are expressly objected to in advance and shall not apply, except with written consent of Chas. G. Allen Inc.

If you have any questions please free to contact

Very truly yours,

Gary A. Boudreau
Service Manager