

COUNCIL ACTION FORM

**SUBJECT: POWER PLANT STEAM TURBINE UNIT #7 PARTS
PROCUREMENT**

BACKGROUND:

This project is for the procurement of critical and miscellaneous parts for the Power Plant's Unit #7 Turbine-Generator Overhaul project. This unit is scheduled to be disassembled, inspected, and repaired at the same time as the Unit 7 Boiler Repair Project being performed this year. This work is required to replace worn parts found during the inspection of the turbine and generator. Repairs and replacement of worn parts will be completed as the inspection progresses. Experience has shown that certain parts require replacement every major overhaul and some parts become unusable during the disassembly process. This overhaul and parts replacement is required and recommended by boiler and machinery insurance carriers and follows accepted industry standards.

This portion of the project is for the purchase and delivery of turbine parts required to replenish inventory items and parts expected to be used during the overhaul.

Bid documents were issued to 23 firms and four plan rooms. The bid was advertised on the Current Bid Opportunities section of the Purchasing webpage and a Legal Notice was published on the websites of a contractor plan room service with statewide circulation and the Iowa League of Cities. On April 16, 2019, two responsive bids were received. On April 23, 2019, bids were reported to City Council and award of contract(s) were delayed to allow staff time to more thoroughly evaluate the bids and verify that the parts offered fully meet GE specifications.

The engineer's estimate for anticipated parts was \$515,000 based on preliminary quotes received from General Electric, the turbine-generator original equipment manufacturer (OEM).

The approved FY 2018/19 Capital Improvements Plan includes the following funding for the Unit 7 Turbine Generator Overhaul.

2017/18 Engineering/Parts	\$750,000
2018/19 Labor	\$1,500,000
2018/19 GE Tech Support	<u>\$300,000</u>
TOTAL	\$2,550,000

The specification was written to allow purchasing individual parts from different bidders. **Staff reviewed the bids, obtained documentation and references, and determined that most parts would be awarded to the lowest bidder, but to insure correct fit of precision parts, the critical parts would be awarded to the OEM (Original Equipment Manufacturer).**

A turbine-Generator overhaul is only performed every 5-10 years depending on the service demand. This is because of the difficulty and cost of such a repair project. It is essential that the parts installed are a perfect fit for the required application in order to avoid costly lead times and repairs or possible catastrophic damages.

ALTERNATIVES:

The bid prices and proposed award amounts for each of the two bidders are shown on Attachment 1.

1. a. Award a contract to Argo Turboserve Corporation, Rutherford, New Jersey in the amount of \$264,044.00 plus non-taxable freight in the amount of \$1,650.00 for a total award amount of \$265,694.00. Applicable sales taxes will be paid directly to the State of Iowa by the City as the vendor is not licensed to collect and remit Iowa Sales Taxes.
- b. Award a contract to Mechanical Dynamics & Analysis LLC (MD & A), Clifton Park, New York in the amount of \$106,181.00 plus Iowa sales taxes in the amount of \$7,432.67 and non-taxable freight in the amount of \$1,000.00 for a total award amount of \$114,613.67.

The total award amount for turbine parts is:

Argo Turboserve Corporation	\$265,694.00 plus sales tax to be paid direct
Mechanical Dynamics & Analysis LLC	<u>\$114,613.67</u>
Total	\$380,307.67

2. Only award each part to the lowest bidder and purchase the critical parts from a non-OEM, providing greater risk of fit up issues.

For this alternative, the proposed award amounts for each of the two bidders are shown on Attachment 2.

- a. Award a contract to Argo Turboserve Corporation, Rutherford, New Jersey in the amount of \$110,802.00 plus non-taxable freight in the amount of \$787.00 for a total award amount of \$111,589.00. Applicable sales taxes

will be paid directly to the State of Iowa by the City as the vendor is not licensed to collect and remit Iowa Sales Taxes.

- b. Award a contract to Mechanical Dynamics & Analysis LLC (MD & A), Clifton Park, New York in the amount of \$223,851.00 plus Iowa sales taxes in the amount of \$16,019.57 and non-taxable freight in the amount of \$4,000.00 for a total award amount of \$248,870.57.

The total award amount for turbine parts is:

Argo Turboserve Corporation	\$111,589.00 plus sales tax to be paid direct
Mechanical Dynamics & Analysis LLC	<u>\$248,870.57</u>
Total	\$360,459.57

- 3. Reject all bids and delay purchase of steam turbine parts.

CITY MANAGER'S RECOMMENDED ACTION:

These parts that are being solicited will most likely be needed for the Power Plant's Unit 7 Turbine-Generator Overhaul project. If not used, they will be placed in inventory. Securing these parts before opening the turbine and generator greatly reduces the possibility of waiting on a needed, long lead time part, causing significant delays and quickly driving costs up.

Therefore, it is the recommendation of the City Manager that the City Council adopt Alternative No. 1 as stated above.

		Bid Amount			Bid Amount		Award to		
		ARGO TURBOSERVE CORP			MECHANICAL DYNAMICS & ANALYSIS (MD & A) LLC		ARGO TURBOSERVE CORP / MECHANICAL DYNAMICS & ANALYSIS (MD & A) LLC		
COA LINE ITEM	DESCRIPTION	QTY	Unit Price	Extended Cost	Unit Price	Extended Cost	Category	Extended Cost	Extended Cost
1	H.P. LINING	1	\$ 17,456.00	\$ 17,456.00	\$ 12,900.00	\$ 12,900.00	Bearing - Shaft Seals	\$ 17,456.00	
2	L.P. LINING	1	\$ 23,030.00	\$ 23,030.00	\$ 18,000.00	\$ 18,000.00		\$ 23,030.00	
3	THRUST RING ACTIVE	1	\$ 9,150.00	\$ 9,150.00	\$ 8,600.00	\$ 8,600.00	Thrust Bearings	\$ 9,150.00	
4	THRUST RING INACTIVE	1	\$ 6,640.00	\$ 6,640.00	\$ 5,685.00	\$ 5,685.00		\$ 6,640.00	
5	SHIM	1	\$ 2,340.00	\$ 2,340.00	no bid			\$ 2,340.00	
6	SHIM	1	\$ 1,948.00	\$ 1,948.00	\$ 1,250.00	\$ 1,250.00			\$ 1,250.00
7	H.P. OIL DEFLECTOR	1	\$ 5,032.00	\$ 5,032.00	\$ 6,795.00	\$ 6,795.00	Oil Deflectors	\$ 5,032.00	
8	L.P. OIL DEFLECTOR TE	1	\$ 5,614.00	\$ 5,614.00	\$ 5,800.00	\$ 5,800.00		\$ 5,614.00	
9	L.P. OIL DEFLECTOR GE	1	\$ 5,921.00	\$ 5,921.00	\$ 8,900.00	\$ 8,900.00		\$ 5,921.00	
10	HOLDING SCREW	8	\$ 52.00	\$ 416.00	\$ 35.00	\$ 280.00			\$ 280.00
11	PACKING RING	1	\$ 2,022.00	\$ 2,022.00	\$ 1,950.00	\$ 1,950.00		\$ 1,950.00	
12	SPRING	6	\$ 18.00	\$ 108.00	\$ 10.00	\$ 60.00		\$ 60.00	
13	PACKING RING	1	\$ 3,279.00	\$ 3,279.00	\$ 2,300.00	\$ 2,300.00		\$ 2,300.00	
14	SPRING	6	\$ 18.00	\$ 108.00	\$ 10.00	\$ 60.00		\$ 60.00	
15	PACKING RING	2	\$ 3,279.00	\$ 6,558.00	\$ 2,300.00	\$ 4,600.00		\$ 4,600.00	
16	SPRING	12	\$ 18.00	\$ 216.00	\$ 10.00	\$ 120.00		\$ 120.00	
17	PACKING RING	2	\$ 4,044.00	\$ 8,088.00	\$ 2,750.00	\$ 5,500.00		\$ 5,500.00	
18	SPRING	12	\$ 18.00	\$ 216.00	\$ 10.00	\$ 120.00		\$ 120.00	
19	PACKING RING	1	\$ 3,279.00	\$ 3,279.00	\$ 3,000.00	\$ 3,000.00		\$ 3,000.00	
20	SPRING	6	\$ 18.00	\$ 108.00	\$ 10.00	\$ 60.00		\$ 60.00	
21	PACKING RING	2	\$ 2,550.00	\$ 5,100.00	\$ 3,000.00	\$ 6,000.00		\$ 5,100.00	
22	SPRING	12	\$ 18.00	\$ 216.00	\$ 10.00	\$ 120.00		\$ 120.00	
23	PACKING RING	2	\$ 2,550.00	\$ 5,100.00	\$ 3,000.00	\$ 6,000.00		\$ 5,100.00	

		ARGO TURBOSERVE CORP			MECHANICAL DYNAMICS & ANALYSIS (MD & A) LLC			ARGO TURBOSERVE CORP	MECHANICAL DYNAMICS & ANALYSIS (MD & A)	
COA LINE ITEM	DESCRIPTION	QTY	Unit Price	Extended Cost	Unit Price	Extended Cost	Category	Extended Cost	Extended Cost	
24	SPRING	12	\$ 18.00	\$ 216.00	\$ 10.00	\$ 120.00	Packing Rings & Hardware		\$ 120.00	
25	PACKING RING	1	\$ 2,550.00	\$ 2,550.00	\$ 3,000.00	\$ 3,000.00		\$ 2,550.00		
26	SPRING	6	\$ 18.00	\$ 108.00	\$ 10.00	\$ 60.00			\$ 60.00	
27	PACKING RING	2	\$ 2,550.00	\$ 5,100.00	\$ 3,000.00	\$ 6,000.00		\$ 5,100.00		
28	SPRING	12	\$ 18.00	\$ 216.00	\$ 10.00	\$ 120.00			\$ 120.00	
29	PACKING RING	4	\$ 3,077.00	\$ 12,308.00	\$ 3,000.00	\$ 12,000.00			\$ 12,000.00	
30	SPRING	24	\$ 18.00	\$ 432.00	\$ 10.00	\$ 240.00			\$ 240.00	
31	PACKING RING	2	\$ 3,077.00	\$ 6,154.00	\$ 3,000.00	\$ 6,000.00			\$ 6,000.00	
32	SPRING	12	\$ 18.00	\$ 216.00	\$ 10.00	\$ 120.00			\$ 120.00	
33	PACKING RING	1	\$ 4,205.00	\$ 4,205.00	\$ 3,000.00	\$ 3,000.00			\$ 3,000.00	
34	SPRING	6	\$ 18.00	\$ 108.00	\$ 10.00	\$ 60.00			\$ 60.00	
35	PACKING RING	1	\$ 4,205.00	\$ 4,205.00	\$ 3,000.00	\$ 3,000.00			\$ 3,000.00	
36	SPRING	6	\$ 18.00	\$ 108.00	\$ 10.00	\$ 60.00			\$ 60.00	
37	PACKING RING	1	\$ 4,205.00	\$ 4,205.00	\$ 3,000.00	\$ 3,000.00			\$ 3,000.00	
38	SPRING	6	\$ 18.00	\$ 108.00	\$ 10.00	\$ 60.00			\$ 60.00	
39	PACKING LOCK	1	\$ 201.00	\$ 201.00	\$ 60.00	\$ 60.00			\$ 60.00	
40	PACKING LOCK	8	\$ 181.00	\$ 1,448.00	\$ 60.00	\$ 480.00			\$ 480.00	
41	VALVE SEAT	1	\$ 7,280.00	\$ 7,280.00	\$ 9,250.00	\$ 9,250.00			\$ 7,280.00	
42	GASKET	2	\$ 41.00	\$ 82.00	\$ 30.00	\$ 60.00				\$ 60.00
43	BUSHING	1	\$ 2,574.00	\$ 2,574.00	\$ 2,200.00	\$ 2,200.00			\$ 2,574.00	
44	STEM	1	\$ 4,063.00	\$ 4,063.00	\$ 3,200.00	\$ 3,200.00	\$ 4,063.00			
45	BUSHING	1	\$ 1,625.00	\$ 1,625.00	\$ 1,395.00	\$ 1,395.00	\$ 1,625.00			
46	PIN	1	\$ 52.00	\$ 52.00	\$ 60.00	\$ 60.00	\$ 52.00			
47	BUSHING	1	\$ 738.00	\$ 738.00	\$ 325.00	\$ 325.00			\$ 325.00	
48	BYPASS VALVE	1	\$ 3,075.00	\$ 3,075.00	\$ 1,900.00	\$ 1,900.00	\$ 3,075.00			
49	CAP SCREW	6	\$ 47.00	\$ 282.00	\$ 45.00	\$ 270.00			\$ 270.00	
50	PIN	1	\$ 67.00	\$ 67.00	\$ 55.00	\$ 55.00			\$ 55.00	

ARGO TURBOSERVE CORP					MECHANICAL DYNAMICS & ANALYSIS (MD & A) LLC			ARGO TURBOSERVE CORP	MECHANICAL DYNAMICS & ANALYSIS (MD & A)
COA LINE ITEM	DESCRIPTION	QTY	Unit Price	Extended Cost	Unit Price	Extended Cost	Category	Extended Cost	Extended Cost
51	PIN	1	\$ 2.00	\$ 2.00	\$ 5.00	\$ 5.00	Main Stop Valve	\$ 2.00	
52	GASKET	2	\$ 180.00	\$ 360.00	\$ 140.00	\$ 280.00			\$ 280.00
53	HEIM JOINT	1	\$ 32.00	\$ 32.00	\$ 30.00	\$ 30.00			\$ 30.00
54	PACKING	1	\$ 278.00	\$ 278.00	\$ 245.00	\$ 245.00			\$ 245.00
55	GASKET	1	\$ 83.00	\$ 83.00	\$ 45.00	\$ 45.00			\$ 45.00
56	GASKET	1	\$ 20.00	\$ 20.00	\$ 69.00	\$ 69.00		\$ 20.00	
57	PISTON RING	2	\$ 453.00	\$ 906.00	\$ 1.00	error on bid item		\$ 906.00	
58	GASKET	1	\$ 50.00	\$ 50.00	\$ 40.00	\$ 40.00			\$ 40.00
59	GASKET	1	\$ 21.00	\$ 21.00	\$ 30.00	\$ 30.00		\$ 21.00	
60	PISTON RING	2	\$ 223.00	\$ 446.00	\$ 125.00	\$ 250.00			\$ 250.00
61	GASKET	1	\$ 83.00	\$ 83.00	\$ 85.00	\$ 85.00		\$ 83.00	
62	FINE / COURSE SCREEN KIT	2	\$ 2,880.00	\$ 5,760.00	no bid			\$ 5,760.00	
63	SPILL STRIP	16	\$ 145.00	\$ 2,320.00	\$ 80.00	\$ 1,280.00			\$ 1,280.00
64	SPRING	15	\$ 17.00	\$ 255.00	\$ 15.00	\$ 225.00			\$ 225.00
65	SPRING	1	\$ 17.00	\$ 17.00	\$ 15.00	\$ 15.00			\$ 15.00
66	SPILL STRIP	16	\$ 145.00	\$ 2,320.00	\$ 80.00	\$ 1,280.00			\$ 1,280.00
67	SPRING	15	\$ 17.00	\$ 255.00	\$ 15.00	\$ 225.00			\$ 225.00
68	SPRING	1	\$ 17.00	\$ 17.00	\$ 15.00	\$ 15.00			\$ 15.00
69	SPILL STRIP	16	\$ 145.00	\$ 2,320.00	\$ 80.00	\$ 1,280.00			\$ 1,280.00
70	SPRING	15	\$ 17.00	\$ 255.00	\$ 15.00	\$ 225.00			\$ 225.00
71	SPRING	1	\$ 17.00	\$ 17.00	\$ 15.00	\$ 15.00			\$ 15.00
72	SPILL STRIP	16	\$ 145.00	\$ 2,320.00	\$ 80.00	\$ 1,280.00			\$ 1,280.00
73	SPRING	15	\$ 17.00	\$ 255.00	\$ 15.00	\$ 225.00			\$ 225.00
74	SPRING	1	\$ 17.00	\$ 17.00	\$ 15.00	\$ 15.00			\$ 15.00
75	SPILL STRIP	16	\$ 145.00	\$ 2,320.00	\$ 80.00	\$ 1,280.00			\$ 1,280.00
76	SPRING	15	\$ 17.00	\$ 255.00	\$ 15.00	\$ 225.00			\$ 225.00

ARGO TURBOSERVE CORP					MECHANICAL DYNAMICS & ANALYSIS (MD & A) LLC			ARGO TURBOSERVE CORP	MECHANICAL DYNAMICS & ANALYSIS (MD & A) LLC
COA LINE ITEM	DESCRIPTION	QTY	Unit Price	Extended Cost	Unit Price	Extended Cost	Category	Extended Cost	Extended Cost
77	SPRING	1	\$ 17.00	\$ 17.00	\$ 15.00	\$ 15.00	Spill Strips		\$ 15.00
78	SPILL STRIP	16	\$ 145.00	\$ 2,320.00	\$ 80.00	\$ 1,280.00			\$ 1,280.00
79	SPRING	15	\$ 17.00	\$ 255.00	\$ 15.00	\$ 225.00			\$ 225.00
80	SPRING	1	\$ 17.00	\$ 17.00	\$ 15.00	\$ 15.00			\$ 15.00
81	SPILL STRIP	18	\$ 145.00	\$ 2,610.00	\$ 80.00	\$ 1,440.00			\$ 1,440.00
82	SPRING	17	\$ 17.00	\$ 289.00	\$ 15.00	\$ 255.00			\$ 255.00
83	SPRING	1	\$ 17.00	\$ 17.00	\$ 1.00	\$ 1.00			\$ 1.00
84	SPILL STRIP	18	\$ 145.00	\$ 2,610.00	\$ 80.00	\$ 1,440.00			\$ 1,440.00
85	SPRING	17	\$ 17.00	\$ 289.00	\$ 15.00	\$ 255.00			\$ 255.00
86	SPRING	1	\$ 17.00	\$ 17.00	\$ 15.00	\$ 15.00			\$ 15.00
87	SPILL STRIP	24	\$ 145.00	\$ 3,480.00	\$ 80.00	\$ 1,920.00			\$ 1,920.00
88	SPRING	23	\$ 17.00	\$ 391.00	\$ 15.00	\$ 345.00			\$ 345.00
89	SPRING	1	\$ 17.00	\$ 17.00	\$ 15.00	\$ 15.00			\$ 15.00
90	SPILL STRIP	24	\$ 145.00	\$ 3,480.00	\$ 80.00	\$ 1,920.00			\$ 1,920.00
91	SPRING	23	\$ 17.00	\$ 391.00	\$ 15.00	\$ 345.00			\$ 345.00
92	SPRING	1	\$ 17.00	\$ 17.00	\$ 15.00	\$ 15.00			\$ 15.00
93	SPILL STRIP	24	\$ 145.00	\$ 3,480.00	\$ 80.00	\$ 1,920.00			\$ 1,920.00
94	SPRING	23	\$ 17.00	\$ 391.00	\$ 15.00	\$ 345.00			\$ 345.00
95	SPRING	1	\$ 17.00	\$ 17.00	\$ 15.00	\$ 15.00			\$ 15.00
96	SPILL STRIP	26	\$ 145.00	\$ 3,770.00	\$ 80.00	\$ 2,080.00			\$ 2,080.00
97	SPRING	25	\$ 17.00	\$ 425.00	\$ 15.00	\$ 375.00		\$ 375.00	
98	SPRING	1	\$ 17.00	\$ 17.00	\$ 15.00	\$ 15.00		\$ 15.00	
99	BOLT	13	\$ 103.00	\$ 1,339.00	\$ 98.00	\$ 1,274.00	Diaphragm Hardware		\$ 1,274.00
100	CAULKING STRIPS	24	\$ 70.00	\$ 1,680.00	\$ 50.00	\$ 1,200.00			\$ 1,200.00
101	BOLTS	7	\$ 159.00	\$ 1,113.00	\$ 175.00	\$ 1,225.00		\$ 1,113.00	
102	BUSHING	4	\$ 737.00	\$ 2,948.00	\$ 175.00	\$ 700.00			\$ 700.00

		ARGO TURBOSERVE CORP			MECHANICAL DYNAMICS & ANALYSIS (MD & A) LLC			ARGO TURBOSERVE CORP	MECHANICAL DYNAMICS & ANALYSIS (MD & A)
COA LINE ITEM	DESCRIPTION	QTY	Unit Price	Extended Cost	Unit Price	Extended Cost	Category	Extended Cost	Extended Cost
103	BUSHING UPPER	2	\$ 1,009.00	\$ 2,018.00	\$ 975.00	\$ 1,950.00	V1 Valve Gear Assy		\$ 1,950.00
104	BUSHING LOWER	2	\$ 1,468.00	\$ 2,936.00	\$ 1,400.00	\$ 2,800.00			\$ 2,800.00
105	BUSHING	2 4CA:ST C#16	\$ 989.00	\$ 1,978.00	\$ 225.00	\$ 900.00			\$ 900.00
106	BUSHING	2	\$ 1,028.00	\$ 2,056.00	\$ 295.00	\$ 590.00			\$ 590.00
107	CLEVIS PIN	1	\$ 591.00	\$ 591.00	\$ 325.00	\$ 325.00			\$ 325.00
108	BEARING	1	\$ 544.00	\$ 544.00	\$ 495.00	\$ 495.00			\$ 495.00
109	RELIEF DIAPHRAGM	1	\$ 979.00	\$ 979.00	\$ 1,450.00	\$ 1,450.00		Exhaust Casing Hardware	\$ 979.00
110	VALVE	1	\$ 5,069.00	\$ 5,069.00	\$ 2,350.00	\$ 2,350.00	Steam Seal Regulator Access.	\$ 5,069.00	
111	VALVE SEAT	1	\$ 2,967.00	\$ 2,967.00	\$ 1,900.00	\$ 1,900.00		\$ 2,967.00	
112	VALVE SEAT	1	\$ 1,233.00	\$ 1,233.00	\$ 950.00	\$ 950.00		\$ 1,233.00	
113	VALVE	1	\$ 1,948.00	\$ 1,948.00	\$ 3,450.00	\$ 3,450.00		\$ 1,948.00	
114	GASKET	1	\$ 14.00	\$ 14.00	\$ 15.00	\$ 15.00		\$ 14.00	
115	PIVOT ROD	1	\$ 611.00	\$ 611.00	\$ 485.00	\$ 485.00			\$ 485.00
116	NUT	2	\$ 2.00	\$ 4.00	\$ 5.00	\$ 10.00		\$ 4.00	
117	PIVOT ROD	1	\$ 603.00	\$ 603.00	\$ 475.00	\$ 475.00			\$ 475.00
118	PIVOT BLOCK	1	\$ 567.00	\$ 567.00	\$ 375.00	\$ 375.00			\$ 375.00
119	BEARING	2	\$ 26.00	\$ 52.00	\$ 18.00	\$ 36.00			\$ 36.00
120	SHAFT	1	\$ 291.00	\$ 291.00	\$ 795.00	\$ 795.00		\$ 291.00	
121	SPRING	1	\$ 685.00	\$ 685.00	\$ 625.00	\$ 625.00			\$ 625.00
122	SPRING	1	\$ 495.00	\$ 495.00	\$ 450.00	\$ 450.00			\$ 450.00
123	BEARING	1	\$ 159.00	\$ 159.00	\$ 110.00	\$ 110.00			\$ 110.00
124	BUSHING	2	\$ 665.00	\$ 1,330.00	\$ 600.00	\$ 1,200.00			\$ 1,200.00
125	PISTON RING	1	\$ 180.00	\$ 180.00	\$ 80.00	\$ 80.00			\$ 80.00
126	PILOT VALVE	1	\$ 1,447.00	\$ 1,447.00	\$ 1,900.00	\$ 1,900.00		\$ 1,447.00	
127	BELLOWS ASSY	1	\$ 3,131.00	\$ 3,131.00	\$ 3,400.00	\$ 3,400.00	\$ 3,131.00		

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COA LINE ITEM	DESCRIPTION	QTY	Unit Price	Extended Cost	Unit Price	Extended Cost	Category	Extended Cost	Extended Cost
128	SPRING	1	\$ 735.00	\$ 735.00	\$ 575.00	\$ 575.00			\$ 575.00
129	SPRING	1	\$ 579.00	\$ 579.00	\$ 585.00	\$ 585.00		\$ 579.00	
130	BUSHING	2	\$ 206.00	\$ 412.00	\$ 145.00	\$ 290.00	Turning Gear		\$ 290.00
131	OIL SEAL	1	\$ 17.00	\$ 17.00	\$ 20.00	\$ 20.00		\$ 17.00	
132	BUSHING	2	\$ 252.00	\$ 504.00	\$ 275.00	\$ 550.00		\$ 504.00	
133	BUSHING	2	\$ 187.00	\$ 374.00	\$ 135.00	\$ 270.00			\$ 270.00
134	KEY	1	\$ 206.00	\$ 206.00	no bid			\$ 206.00	
135	BUSHING	2	\$ 623.00	\$ 1,246.00	\$ 200.00	\$ 400.00			\$ 400.00
136	O-RING	1	\$ 4.00	\$ 4.00	\$ 5.00	\$ 5.00		\$ 4.00	
137	GASKET	1	\$ 18.00	\$ 18.00	\$ 30.00	\$ 30.00		\$ 18.00	
138	ROD END	2	\$ 18.00	\$ 36.00	\$ 20.00	\$ 40.00		\$ 36.00	
139	SWITCH	1	\$ 2,079.00	\$ 2,079.00	no bid			\$ 2,079.00	
140	GASKET	2	\$ 74.00	\$ 148.00	\$ 52.00	\$ 104.00			\$ 104.00
141	GASKET	1	\$ 28.00	\$ 28.00	\$ 50.00	\$ 50.00		\$ 28.00	
142	GASKET	2	\$ 202.00	\$ 404.00	no bid			\$ 404.00	
143	GASKET	1	\$ 6.00	\$ 6.00	\$ 25.00	\$ 25.00		\$ 6.00	
144	OIL SEAL	1	\$ 24.00	\$ 24.00	\$ 32.00	\$ 32.00		\$ 24.00	
145	GASKET	2	\$ 17.00	\$ 34.00	\$ 15.00	\$ 30.00			\$ 30.00
146	OIL SEAL	1	\$ 18.00	\$ 18.00	\$ 18.00	\$ 18.00	\$ 18.00	\$ 18.00	
147	GASKET	1	\$ 59.00	\$ 59.00	\$ 72.00	\$ 72.00	Control Gear-Front Standard	\$ 59.00	
148	GASKET	2	\$ 21.00	\$ 42.00	no bid			\$ 42.00	
149	GASKET	1	\$ 29.00	\$ 29.00	no bid			\$ 29.00	
150	GASKET	1	\$ 8.00	\$ 8.00	\$ 65.00	\$ 65.00	Main Pump Assembly	\$ 8.00	
151	BEARING	2	\$ 1,233.00	\$ 2,466.00	\$ 1,350.00	\$ 2,700.00		\$ 2,466.00	
152	SHAFT	1	\$ 8,935.00	\$ 8,935.00	\$ 7,250.00	\$ 7,250.00		\$ 8,935.00	
153	QUILL	1	\$ 6,700.00	\$ 6,700.00	\$ 5,900.00	\$ 5,900.00		\$ 6,700.00	
154	THRUST PLATE	1	\$ 6,505.00	\$ 6,505.00	\$ 3,650.00	\$ 3,650.00		\$ 6,505.00	

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COA LINE ITEM	DESCRIPTION	QTY	Unit Price	Extended Cost	Unit Price	Extended Cost	Category	Extended Cost	Extended Cost
155	SEAL RING	2	\$ 735.00	\$ 1,470.00	\$ 975.00	\$ 1,950.00		\$ 1,470.00	
156	KEY	1	\$ 175.00	\$ 175.00	\$ 100.00	\$ 100.00		\$ 175.00	
157	IMPELLER	1	\$ 23,087.00	\$ 23,087.00	no bid			\$ 23,087.00	
158	PILOT VALVE	1	\$ 3,131.00	\$ 3,131.00	\$ 3,150.00	\$ 3,150.00	Emergency Trip	\$ 3,131.00	
159	SEAL	1	\$ 19.00	\$ 19.00	\$ 18.00	\$ 18.00	Reset Mechanism		\$ 18.00
160	SPRING	1	\$ 579.00	\$ 579.00	\$ 550.00	\$ 550.00			\$ 550.00
161	SPRING	1	\$ 685.00	\$ 685.00	no bid			\$ 685.00	
162	SEAL	1	\$ 28.00	\$ 28.00	\$ 20.00	\$ 20.00			\$ 20.00
163	GASKET	1	\$ 10.00	\$ 10.00	\$ 35.00	\$ 35.00			\$ 10.00
164	BEARING LINING TE -GEN	1	\$ 21,290.00	\$ 21,290.00	\$ 18,895.00	\$ 18,895.00	Generator Bearings & Deflector	\$ 21,290.00	
165	BEARING LINING CE-GEN	1	\$ 21,735.00	\$ 21,735.00	\$ 18,995.00	\$ 18,995.00		\$ 21,735.00	
166	H2 SEAL RING TE	1	\$ 5,510.00	\$ 5,510.00	\$ 4,400.00	\$ 4,400.00		\$ 5,510.00	
167	SPRING	2	\$ 306.00	\$ 612.00	\$ 345.00	\$ 690.00		\$ 612.00	
168	OIL DEFLECTOR	1	\$ 2,555.00	\$ 2,555.00	\$ 2,100.00	\$ 2,100.00			\$ 2,100.00
169	H2 SEAL RING CE	1	\$ 5,510.00	\$ 5,510.00	\$ 4,400.00	\$ 4,400.00		\$ 5,510.00	
170	SPRING	2	\$ 306.00	\$ 612.00	\$ 345.00	\$ 690.00		\$ 612.00	
171	OIL DEFLECTOR	1	\$ 2,555.00	\$ 2,555.00	\$ 2,100.00	\$ 2,100.00			\$ 2,100.00
172	OIL FELECTOR	2	\$ 7,430.00	\$ 14,860.00	\$ 7,450.00	\$ 14,900.00		\$ 14,860.00	
173	OIL FELECTOR	2	\$ 7,545.00	\$ 15,090.00	\$ 7,200.00	\$ 14,400.00		\$ 14,400.00	
	TOTAL MATERIALS COST			\$ 409,069.00		\$ 318,679.00		\$ 264,044.00	\$ 106,181.00
	Iowa Sales Taxes							not licensed	\$ 7,432.67
	FREIGHT AMOUNT							\$ 1,650.00	\$ 1,000.00
	TOTAL COST							\$ 265,694.00	\$ 114,613.67

			Alternative 2		
COA LINE ITEM	DESCRIPTION	QTY		MECHANICAL DYNAMICS & ANALYSIS (MD & A) LLC	ARGO TURBOSERVE CORP
1	H.P. LINING	1	Bearing - Shaft Seals	\$ 12,900.00	
2	L.P. LINING	1		\$ 18,000.00	
3	THRUST RING ACTIVE	1	Thrust Bearings	\$ 8,600.00	
4	THRUST RING INACTIVE	1		\$ 5,685.00	
5	SHIM	1			\$ 2,340.00
6	SHIM	1		\$ 1,250.00	
7	H.P. OIL DEFLECTOR	1	Oil Deflectors		\$ 5,032.00
8	L.P. OIL DEFLECTOR TE	1			\$ 5,614.00
9	L.P. OIL DEFLECTOR GE	1			\$ 5,921.00
10	HOLDING SCREW	8		\$ 280.00	
11	PACKING RING	1		\$ 1,950.00	
12	SPRING	6		\$ 60.00	
13	PACKING RING	1		\$ 2,300.00	
14	SPRING	6		\$ 60.00	
15	PACKING RING	2		\$ 4,600.00	
16	SPRING	12		\$ 120.00	
17	PACKING RING	2		\$ 5,500.00	
18	SPRING	12		\$ 120.00	
19	PACKING RING	1		\$ 3,000.00	
20	SPRING	6		\$ 60.00	
21	PACKING RING	2			\$ 5,100.00
22	SPRING	12		\$ 120.00	
23	PACKING RING	2			\$ 5,100.00
24	SPRING	12		\$ 120.00	
25	PACKING RING	1			\$ 2,550.00
26	SPRING	6	Packing Rings & Hardware	\$ 60.00	
27	PACKING RING	2			\$ 5,100.00
28	SPRING	12		\$ 120.00	
29	PACKING RING	4		\$ 12,000.00	
30	SPRING	24		\$ 240.00	
31	PACKING RING	2		\$ 6,000.00	
32	SPRING	12		\$ 120.00	
33	PACKING RING	1		\$ 3,000.00	
34	SPRING	6		\$ 60.00	
35	PACKING RING	1		\$ 3,000.00	
36	SPRING	6		\$ 60.00	
37	PACKING RING	1		\$ 3,000.00	

			Alternative 2	
COA LINE ITEM	DESCRIPTION	QTY	MECHANICAL DYNAMICS & ANALYSIS (MD & A) LLC	ARGO TURBOSERVE CORP
38	SPRING	6	\$ 60.00	
39	PACKING LOCK	1	\$ 60.00	
40	PACKING LOCK	8	\$ 480.00	
41	VALVE SEAT	1		\$ 7,280.00
42	GASKET	2	\$ 60.00	
43	BUSHING	1	\$ 2,200.00	
44	STEM	1	\$ 3,200.00	
45	BUSHING	1	\$ 1,395.00	
46	PIN	1		\$ 52.00
47	BUSHING	1	\$ 325.00	
48	BYPASS VALVE	1	\$ 1,900.00	
49	CAP SCREW	6	\$ 270.00	
50	PIN	1	\$ 55.00	
51	PIN	1		\$ 2.00
52	GASKET	2	\$ 280.00	
53	HEIM JOINT	1	\$ 30.00	
54	PACKING	1	\$ 245.00	
55	GASKET	1	\$ 45.00	
56	GASKET	1		\$ 20.00
57	PISTON RING	2	\$ 2.00	\$ 906.00
58	GASKET	1	\$ 40.00	
59	GASKET	1		\$ 21.00
60	PISTON RING	2	\$ 250.00	
61	GASKET	1		\$ 83.00
62	FINE / COURSE SCREEN KIT	2		\$ 5,760.00
63	SPILL STRIP	16	\$ 1,280.00	
64	SPRING	15	\$ 225.00	
65	SPRING	1	\$ 15.00	
66	SPILL STRIP	16	\$ 1,280.00	
67	SPRING	15	\$ 225.00	
68	SPRING	1	\$ 15.00	
69	SPILL STRIP	16	\$ 1,280.00	
70	SPRING	15	\$ 225.00	
71	SPRING	1	\$ 15.00	
72	SPILL STRIP	16	\$ 1,280.00	
73	SPRING	15	\$ 225.00	
74	SPRING	1	\$ 15.00	
75	SPILL STRIP	16	\$ 1,280.00	

			Alternative 2		
COA LINE ITEM	DESCRIPTION	QTY		MECHANICAL DYNAMICS & ANALYSIS (MD & A) LLC	ARGO TURBOSERVE CORP
76	SPRING	15	Spill Strips	\$ 225.00	
77	SPRING	1		\$ 15.00	
78	SPILL STRIP	16		\$ 1,280.00	
79	SPRING	15		\$ 225.00	
80	SPRING	1		\$ 15.00	
81	SPILL STRIP	18		\$ 1,440.00	
82	SPRING	17		\$ 255.00	
83	SPRING	1		\$ 1.00	
84	SPILL STRIP	18		\$ 1,440.00	
85	SPRING	17		\$ 255.00	
86	SPRING	1		\$ 15.00	
87	SPILL STRIP	24		\$ 1,920.00	
88	SPRING	23		\$ 345.00	
89	SPRING	1		\$ 15.00	
90	SPILL STRIP	24		\$ 1,920.00	
91	SPRING	23		\$ 345.00	
92	SPRING	1		\$ 15.00	
93	SPILL STRIP	24		\$ 1,920.00	
94	SPRING	23		\$ 345.00	
95	SPRING	1		\$ 15.00	
96	SPILL STRIP	26	\$ 2,080.00		
97	SPRING	25	\$ 375.00		
98	SPRING	1	\$ 15.00		
99	BOLT	13	Diaphragm Hardware	\$ 1,274.00	
100	CAULKING STRIPS	24		\$ 1,200.00	
101	BOLTS	7			\$ 1,113.00
102	BUSHING	4	V1 Valve Gear Assy	\$ 700.00	
103	BUSHING UPPER	2		\$ 1,950.00	
104	BUSHING LOWER	2		\$ 2,800.00	
105	BUSHING	2 4CA;STC#1 6		\$ 900.00	
106	BUSHING	2		\$ 590.00	
107	CLEVIS PIN	1		\$ 325.00	
108	BEARING	1	\$ 495.00		
109	RELIEF DIAPHRAGM	1	Exhaust Casing Hardware		\$ 979.00
110	VALVE	1		\$ 2,350.00	
111	VALVE SEAT	1		\$ 1,900.00	

			Alternative 2		
COA LINE ITEM	DESCRIPTION	QTY	MECHANICAL DYNAMICS & ANALYSIS (MD & A) LLC	ARGO TURBOSERVE CORP	
112	VALVE SEAT	1	Steam Seal Regulator Access.		
113	VALVE	1		\$ 950.00	\$ 1,948.00
114	GASKET	1			\$ 14.00
115	PIVOT ROD	1		\$ 485.00	
116	NUT	2			\$ 4.00
117	PIVOT ROD	1		\$ 475.00	
118	PIVOT BLOCK	1		\$ 375.00	
119	BEARING	2		\$ 36.00	
120	SHAFT	1			\$ 291.00
121	SPRING	1		\$ 625.00	
122	SPRING	1		\$ 450.00	
123	BEARING	1		\$ 110.00	
124	BUSHING	2		\$ 1,200.00	
125	PISTON RING	1		\$ 80.00	
126	PILOT VALVE	1			\$ 1,447.00
127	BELLOWS ASSY	1			\$ 3,131.00
128	SPRING	1		\$ 575.00	
129	SPRING	1			\$ 579.00
130	BUSHING	2		Turning Gear	\$ 290.00
131	OIL SEAL	1			\$ 17.00
132	BUSHING	2			\$ 504.00
133	BUSHING	2	\$ 270.00		
134	KEY	1			\$ 206.00
135	BUSHING	2	\$ 400.00		
136	O-RING	1			\$ 4.00
137	GASKET	1			\$ 18.00
138	ROD END	2			\$ 36.00
139	SWITCH	1			\$ 2,079.00
140	GASKET	2	\$ 104.00		
141	GASKET	1			\$ 28.00
142	GASKET	2			\$ 404.00
143	GASKET	1			\$ 6.00
144	OIL SEAL	1			\$ 24.00
145	GASKET	2	\$ 30.00		
146	OIL SEAL	1	\$ 18.00		\$ 18.00
147	GASKET	1	Control Gear- Front Standard	\$ 59.00	
148	GASKET	2			\$ 42.00
149	GASKET	1			\$ 29.00

			Alternative 2	
COA LINE ITEM	DESCRIPTION	QTY	MECHANICAL DYNAMICS & ANALYSIS (MD & A) LLC	ARGO TURBOSERVE CORP
150	GASKET	1		\$ 8.00
151	BEARING	2		\$ 2,466.00
152	SHAFT	1	\$ 7,250.00	
153	QUILL	1	\$ 5,900.00	
154	THRUST PLATE	1	\$ 3,650.00	
155	SEAL RING	2		\$ 1,470.00
156	KEY	1	\$ 100.00	
157	IMPELLER	1		\$ 23,087.00
158	PILOT VALVE	1	Emergency Trip	\$ 3,131.00
159	SEAL	1	\$ 18.00	
160	SPRING	1	\$ 550.00	
161	SPRING	1		\$ 685.00
162	SEAL	1	\$ 20.00	
163	GASKET	1		\$ 10.00
164	BEARING LINING TE -GEN	1	\$ 18,895.00	
165	BEARING LINING CE-GEN	1	\$ 18,995.00	
166	H2 SEAL RING TE	1	\$ 4,400.00	
167	SPRING	2		\$ 612.00
168	OIL DEFLECTOR	1	\$ 2,100.00	
169	H2 SEAL RING CE	1	\$ 4,400.00	
170	SPRING	2		\$ 612.00
171	OIL DEFLECTOR	1	\$ 2,100.00	
172	OIL FELECTOR	2		\$ 14,860.00
173	OIL FELECTOR	2	\$ 14,400.00	
TOTAL PARTS COST			\$ 228,853.00	\$ 110,802.00
Delete Item 57 bid error			\$ (2.00)	
Subtotal			\$ 228,851.00	\$ 110,802.00
Iowa Sales Tax			\$ 16,019.57	not licensed
Freight			\$ 4,000.00	\$ 787.00
			\$ 248,870.57	\$ 111,589.00