ENGINEERED PUMP SERVICES, INC.
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CLOSING REPORT

CUSTOMER	: East Kentucky Power Cooperative	**REPORT DATE**	: 12/22/23
PLANT NAME	: Spurlock Generating Station	**REPORT NO.**	: 57036-CR1
CITY/STATE	: Maysville, Kentucky	**CUST. ORDER**	: SP10870
EQUIPMENT	: 06 X 08 X 13 HDB-6 Stage	**COPY**	: Eddy Meek
SERVICE	: Boiler Feed		
MANF.	: Byron-Jackson	**FILE**	: 57036
SERIAL NO.	: Element From Unit 1B	**PAGE**	: 1 of 3

I. SUMMARY OF REPAIRS AND ASSEMBLY

The subject pump arrived at EPS on 10/17/22 for inspection and repair; it was pulled from service after a large vibration spike in fall 2022. As mentioned in the inspection report (57036-IR1), the pump was significantly damaged with many case rings being fused to the impeller turns as well as a bent shaft. It did have the takeoff tube with correct length installed as received. A recommended repair specification and price quotation were submitted on 02/28/23, and approval was received to proceed with the recommended repairs on 05/18/23.

The pump was completely repaired and rebuilt in accordance with EPS specification 57036-RS1; the total indicated runout of the rotating element was under .002", and all floats and lifts measured to acceptable values. Overall, there were no issues with the pump repair or assembly. The completed pump element was returned to Spurlock station on 09/23/23.

Please see the following page of this report for a dimensional summary of all critical fits and clearances. Generally speaking, this element is in the best condition of all three unit #1 feed pumps. It has new a new shaft, chrome plated impeller bores, and impeller turns that have been upgraded with DLD coating. Dimensionally speaking, all critical fits and lengths are very close to OEM specifications.

BY: Aaron Stull
Aaron Stull

CLOSING REPORT

CUSTOMER : EKPC - Spurlock **REPORT DATE : 12/22/23**
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II. SUMMARY OF FITS AND CLEARANCES

Impeller, 1st Stage	Fit Bore	4.2500	4.2505	Series Stage Pieces	Clr. Bore	5.655	5.656
Shaft	Fit Turn	4.2525	4.2530	Series Imp. (hub)	Clr. Turn	5.640	5.641
Resulting Fit		**(.0030)**	**(.0020)**	**Resulting Clr.**		**.014**	**.016**
Design Fit		**(.0030)**	**(.0020)**	**Design Clearance**		**.014**	**.016**
Impeller, 2nd & 5th Stg.	Fit Bore	4.5200	4.5205	1-2 Stage Piece	Clr. Bore	5.859	5.860
Shaft	Fit Turn	4.5225	4.5230	1-2 Stage Sleeve	Clr. Turn	5.844	5.845
Resulting Fit		**(.0030)**	**(.0020)**	**Resulting Clr.**		**.014**	**.016**
Design Fit		**(.0030)**	**(.0020)**	**Design Clearance**		**.014**	**.016**
Impeller, 3rd & 6th Stg.	Fit Bore	4.5250	4.5255	Balance Stage Piece	Clr. Bore	5.292	5.293
Shaft	Fit Turn	4.5275	4.5280	Balance Sleeve	Clr. Turn	5.277	5.278
Resulting Fit		**(.0030)**	**(.0020)**	**Resulting Clr.**		**.014**	**.016**
Design Fit		**(.0025)**	**(.0015)**	**Design Clearance**		**.014**	**.016**
Impeller, 4th Stage	Fit Bore	4.5150	4.5155	Casing	Fit Bore	7.787	7.788
Shaft	Fit Turn	4.5175	4.5180	All Wear Rings	Fit Turn	7.785	7.786
Resulting Clr.		**(.0030)**	**(.0020)**	**Resulting Clr.**		**.001**	**.003**
Design Clearance		**(.0025)**	**(.0015)**	**Design Clr.**		**.001**	**.003**
Series Case Rings	Clr. Bore	6.998	6.999	Casing	Fit Bore	8.787	8.788
Series Impeller (eye)	Clr. Turn	6.983	6.984	Volute Bushing	Fit Turn	8.785	8.786
Resulting Clr.		**.014**	**.016**	**Resulting Clr.**		**.001**	**.003**
Design Clearance		**.014**	**.016**	**Design Clr.**		**.001**	**.003**
Series Stage Pieces	Clr. Bore	5.655	5.656	**TOTAL FLOAT**			**.320**
Series Impeller (hub)	Clr. Turn	5.640	5.641	**CE LIFT (0°, 90°)**		**.015**	**.016**
Resulting Clr.		**.014**	**.016**	**TE LIFT (0°, 90°)**		**.021**	**.023**
Design Clearance		**.014**	**.016**	**PARALLEL LIFTS**		**.016**	**.016**
1st Stage Case Ring, CE	Clr. Bore	6.952	6.953				
1st Stage Impeller, CE	Clr. Turn	6.937	6.938				
Resulting Clr.		**.014**	**.016**				
Design Clearance		**.014**	**.016**				
Booster Case Ring	Clr. Bore	7.342	7.343				
Booster Impeller (eye)	Clr. Turn	7.327	7.328				
Resulting Clr.		**.014**	**.016**				
Design Clearance		**.014**	**.016**				
Booster Stage Piece	Clr. Bore	6.170	6.171				
Booster Impeller (hub)	Clr. Turn	6.155	6.156				
Resulting Clr.		**.014**	**.016**				
Design Clearance		**.014**	**.016**				

CLOSING REPORT

CUSTOMER : EKPC - Spurlock
REPORT NO. : 57036-CR1

Digital Photographs:

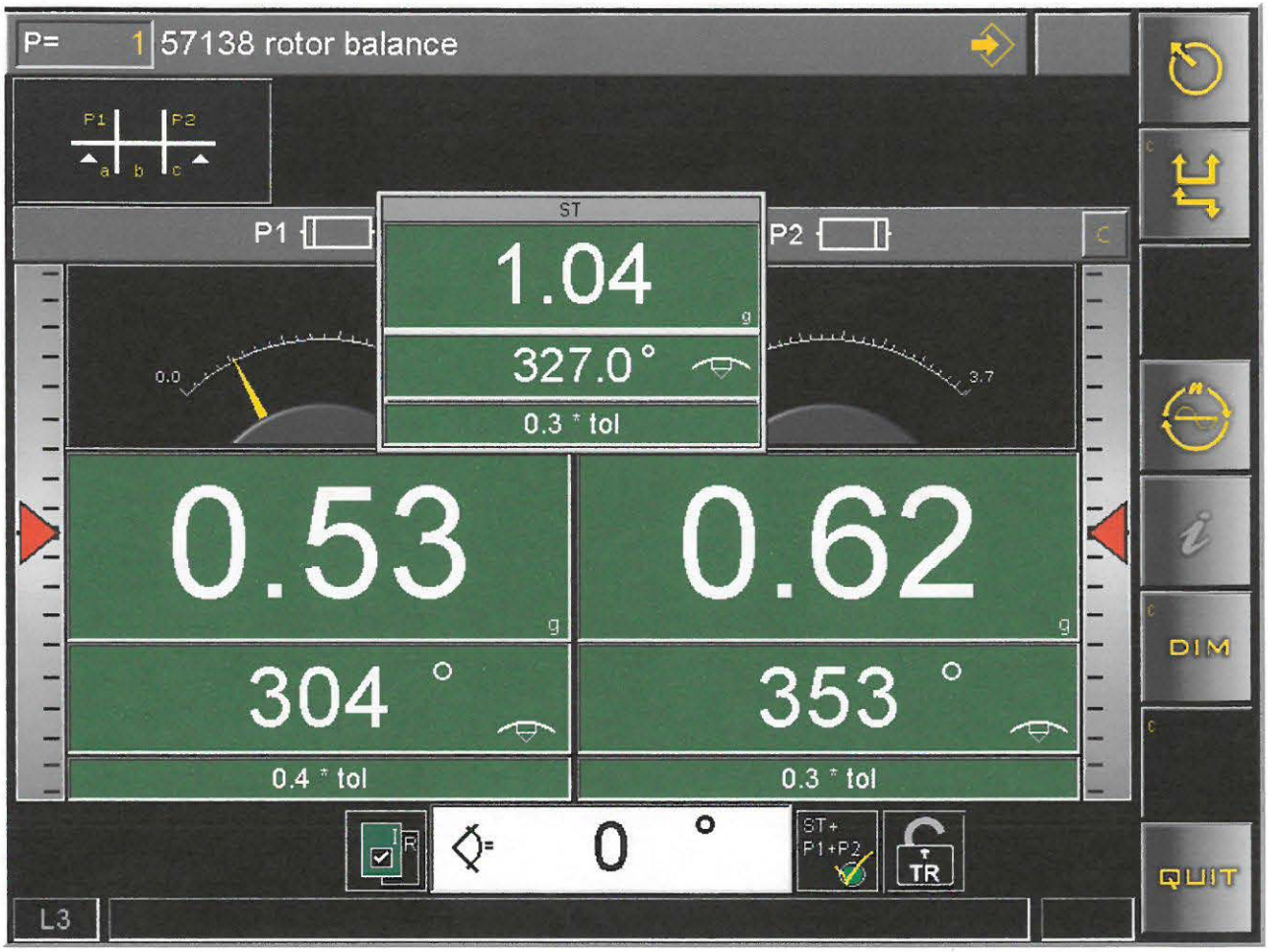
Photo 1: Center Impeller Assembly Balance


Photo 2: Trial Fit Of Stationary Rings


Photo 3: Final Assembly


Photo 4: Completed Element In Shipping Crate

Label Should Be 57036



CEMB

Costruzioni Elettro Meccaniche ing. Buzzi & C. S.p.a.

Balancing Certificate

Customer : XYZ S.p.A 57036		Date : 09/27/2023 04:13:46
Prog. N^ 1	57138 rotor balance	
ISO G: 1.00	Total Weight: 540.00 lb	Service Speed: 5600 rpm

	Tol (g)	r (inch)	Dim (inch)	
P1	1.370	6.00	a	32.75
ST	3.132	5.25	b	19.25
P2	1.827	4.50	c	16.62

Initial Unbalances:

P1 (g)	ST (g)	P2 (g)
29.22	**48.83**	**18.05**
24.0°	**22.7°**	**19.8°**

Residual Unbalances:

P1 (g)	ST (g)	P2 (g)
0.53	**1.04**	**0.62**
304.1°	**326.8°**	**352.8°**

Measuring speed = 751 rpm

perator: Rossi Mario

Sign : Aaron Stull

OTES: