



Logistical support of ARMCO model J-531-M6DF

Industry:	Power - nuclear
Region:	Americas
Territory:	North America
Category:	Re-engineering
API Type:	Reciprocating pump

ClydeUnion Pumps Aftermarket Technical Services team has experience across a range of services on critical rotating and reciprocating equipment to improve operational safety, reliability and efficiency. The logistical support for ARMCO charging pumps for the nuclear market is one of our success stories documented in our library of case studies. These case studies highlight the requirement from the customer, how we achieved the goal and the process we followed to deliver the improvements.

Image left: Nuclear power plant

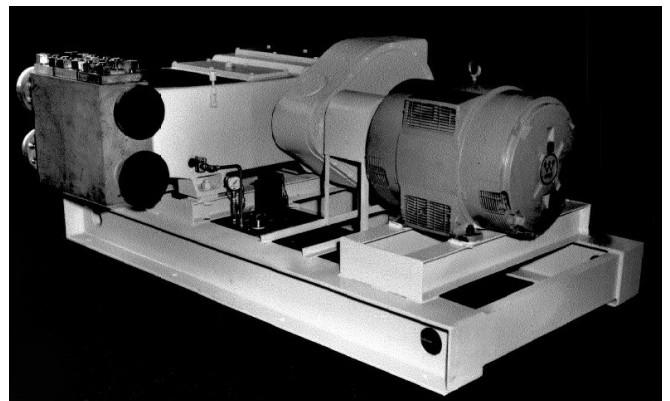
Situation

In 1996, ARMCO a supplier of reciprocating charging pumps for several USA PWR nuclear power plants, made the decision not to support their nuclear quality program. Certain ARMCO parts failed and nuclear power plants could not purchase parts manufactured to nuclear quality standards. ARMCO chose to get out of the nuclear business.

Challenge

ClydeUnion Pumps was approached by St. Lucie nuclear power plant to become a supplier of replacement parts for the ARMCO J-531-M6DF. The ARMCO J-531-M6DF is a triplex plunger pump designed to operate at 3125 psi at 206 rpm using 2 1/8" plungers and 5" stroke. It is driven by a Westinghouse 100 HP electric motor through an ARMCO single-reduction, helical gear reducer. ClydeUnion Pumps, an expert in triplex pumps and a continuous holder of nuclear quality certifications, was well positioned to provide parts for the ARMCO pump.

ClydeUnion Pumps was awarded a contract by St. Lucie nuclear power plant to take over the logistical support of the ARMCO coolant charging pumps.



ARMCO pump

Solution

The following work was undertaken and completed by ClydeUnion Pumps:

- Re-engineering report
- Part number cross-reference
- Project schedule
- Metallurgical reports (sample)
- Material code documentation (sample)
- Engineering change records (sample)
- Inspection report (sample)
- ARMCO pump description
- Sectional drawings

The work resulted in the creation of ClydeUnion Pumps parts numbers on the St. Lucie approved vendor list. ClydeUnion Pumps is now a source of logistical support for the ARMCO charging pumps.

Benefits

- St. Lucie and other ARMCO charging pump users have a reliable source of logistical support in ClydeUnion Pumps
- ClydeUnion Pumps now has technical information (design reports) to modify the existing ARMCO design for MTBF improvement, hydraulic changes for example per nuclear station present and future situations (i.e. plant re-rates)
- ClydeUnion Pumps stands ready to go through the work scope to provide logistical support for Gaulin pumps

ClydeUnion Pumps now also provides reliable logistical and design support for ARMCO charging pumps and is positioned well to perform the work necessary to become a source of logistical support and design for Gaulin charging pumps.

Applicability

The following USA nuclear stations have ARMCO units installed.

- St. Lucie
- Calvert Cliffs 1 & 2
- Millstone 2

The following USA nuclear power plants originally had Gaulin triplex units installed. These will have to go through the same work scope noted above for ClydeUnion Pumps to logistically support them.

- Arkansas Nuclear One 2
- Braidwood 1 & 2
- Byron 1 & 2
- Fort Calhoun 1
- Palisades 1
- Palo Verde 1, 2, 3
- San Onofre 2, 3
- Waterford 2



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