

TITLE: HYDROSTATIC TESTING (CRITICAL SERVICE)

1.0 SCOPE

1.1 This specification covers the hydrostatic testing of the pressure containing sub-assembly (less internal parts) or the fully assembled pump, ordered for critical service use.

* Test to be performed on the fully assembled pump except when "Components of Pressure Containing Sub-Assembly" is specified on the Factory Order.

1.2 This procedure shall meet the requirements of the ASME Boiler and Pressure Vessel Code, Section III (Nuclear Power Plant Components) with Addendums and the American Petroleum Institute (API Standard 610).

1.3 This test uses water pressure to detect leaks and also to confirm the structural integrity of the pump's pressure boundaries.

1.4 The specific requirements for hydrotest pressure shall be stated on the Factory Order.

2.0 CUSTOMER WITNESS

2.1 When required by the Factory Order, a customer representative may witness the test. The customer shall be given reasonable advance notice of the scheduled test date.

EBASCO SERVICES
INCORPORATED
3.0 TEST PRESSURE
QUALITY
ASSURANCE
ENGINEERING pumps, in all materials, shall be tested at no less than one and one half (1 1/2) times design pressure (1.4).

This Document is:
 Reviewed Without Comment
 Reviewed With Comments as Noted:
Incorporate Comments, and
4.0. EXTERNAL PIPING
 Rejected Review
and Resubmit

3.2 Exception - Water jacketed parts shall be given a secondary test (Jacket Chamber) at 150 PSI as required by the Factory Order.
1 External piping for drains, flush lines, separators, filters, heat exchangers, etc., when they are part of the pump pressure boundary shall be tested at the casing hydrotest pressure. To conduct this test, all piping, welded and threaded, up to the first field connection shall be attached to the pump and shall be blanked off.

NOTE:
Review of this document shall be out compliance with the original and in no way release the contractor from all responsibility for delivery of all materials, equipment, services and documentation in strict accordance with the Purchase Order.

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PDR ADCK 05000400
E. PDR

BY: LE
DATE: 7/1/80

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WRITTEN AND REVIEWED BY: Patricia J. Haney
APPROVED BY: Robert J. Haney
Q.A. Manager



5.0 PRESSURE GAGES

- 5.1 Pressure type gage shall be of the indicating type and shall be connected directly to the vessel being tested. It shall preferably have a dial graduated over a range of about double the intended maximum test pressure but in no case shall the range be less than one and one half (1½) nor more than four (4) times that pressure.
- 5.2 Calibration of gages shall be by a dead weight tester and as a minimum, shall be calibrated on at least a six (6) month basis.

6.0 TEST PROCEDURE AND ACCEPTANCE STANDARDS

- 6.1 All openings shall be sealed. Externally supported sealing devices, which may reduce stresses on the pressure boundaries, shall not be employed (example: hydraulic rams). Units shall be set up such that proper venting of air can be accomplished during filling. When filled, the unit must be at approximately the same temperature as the water before test pressure is applied. Following initial pressure build-up, a preliminary visual check for leaks shall be made.
- 6.2 Sub-assemblies (less internals) do not have mechanical seals or packing installed, and the shaft opening is securely blocked off. Therefore, after the preliminary visual check for leaks, the inlet valve shall be closed so that no make up water is available. The pump shall be considered acceptable only if there is no drop in pressure after thirty (30) minutes and no leaks are apparent.
- 6.2.1 Test Medium - The test medium shall be demineralized water.
- 6.3 Fully assembled pumps have mechanical seals or packing installed which, in all likelihood, will leak slightly under the high pressure applied. Therefore, the inlet valve will be left open. The pump shall be considered acceptable if no leaks are apparent through the pressure containing parts or gasket after a thirty (30) minute test period.
- 6.3.1 Test Medium - The test medium shall be ambient temperature tap water.
- 6.4 Immediately following completion of the test, the test water shall be drained out and the pump casing shall be immediately flushed with demineralized water. Demineralized water shall be maintained through the use of an automatic conductivity meter set at 1.0 micromhos or 1,000,000 OHM resistance, total dissolved solids 0.4 ppm with a permanent automatic alarm system utilized in the event water quality deteriorates below the meter setting. The conductivity meter shall be calibrated on an annual basis.

7.0 TEST REPORT

- 7.1 A report, certifying that the Hydraulic Test was satisfactorily performed according to this procedure shall be maintained in the Quality Assurance Department. Copies shall be furnished to the customer according to the Factory Order Requirements.

210,49

ADDENDA Q.A.G.#81-71

TITLE: HYDROSTATIC TESTING (Critical Service)

1.0 SCOPE

This Addenda shall be applicable to Goulds factory orders as specified below:

<u>Goulds F.O. No.</u>	<u>Customer</u>	<u>Cust. P.O.#</u>
N232724	Carolina Power &	NY-435042.
N232725	Light/Ebasco	

2.0 PROCEDURE

2.1 Personnel performing hydrostatic tests shall be trained and certified per the requirements of Goulds QAI-212 Rev. 3 (attached to customer Addenda for reference only).

DATE OF ORIGINAL ISSUE 6/15/81

WRITTEN & REVIEWED BY Patricia A. Hanson

DATE OF REVISION _____

APPROVED BY: R. H. Hinde

