

PLANT: Ginna Nuclear Power PlantCATALYTIC CONTRACT NO. 36720CLIENT: Rochester Gas & Electric Corp.SPECIFICATION NO. 37276-1300-00-81LOCATION: Ontario, New York

SPECIFICATION

for

Pressure Testing of Reactor Vessel Head Vent System

4/7/80	CONSISTING OF	
	CONSTRUCTION	Explain
	LIMITED CONSTRUCTION: AS NOTED	
	PRELIMINARY NOT FOR CONSTRUCTION	
Reference Attachments:	BIDDING PURPOSES	
DATE	RELEASED FOR	ENGR.

2ND LEVEL
REVIEW
COMPLETED
FORM

REV.	ENGR.	DATE
B	JmB	4/4/80
O	N.R.	RLS

Item Number

Description

Safety Related ☒Non-Nuclear Safety ☐

Approved

Thomas L. Snyder
PROJECT MANAGER

Date

APRIL 4, 1980

Approved

RL Patel
PROJECT ENGINEER

Date

4-4-1980

Approved

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QUALITY ASSURANCE ENGINEER

Date

4-9-80

Prepared By

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Date

3/21/80

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Amendment	Approved	Date	Approved	Date	Approved	Date	Approved	Date	
	Lead Engineer		Q.A. Engineer		Project Engineer		Project Manager		

PRESSURE TESTING OF REACTOR
VESSEL HEAD VENT SYSTEM

SPECIFICATION NO. 37276-1300-00-81

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PRESSURE TESTING OF REACTOR
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Page 11.0 SCOPE

- 1.1 This specification establishes the requirements for testing of ASME Section III, Class 1 and 2 nuclear and ANSI B31.1 non-nuclear power piping systems for mechanical modifications at Rochester Gas & Electric's Ginna Station.

2.0 APPLICABLE DOCUMENTS

- 2.1 The following documents shall be considered as a part of this specification to the extent specified. The specifications, codes and standards shall be the editions specified.
- a. ASME Boiler and Pressure Vessel Code, Section III, 1977 Edition with addenda through Summer 1979.
 - b. ASME Boiler and Pressure Vessel Code, Section XI, 1977 Edition with addenda through Summer 1979.
 - c. ANSI Code for Pressure Piping - Section B31.1, "Power Piping," 1977 Edition with addenda through Summer 1979.
 - d. ANSI N45.2.6 - 1978 "Qualification of Inspection, Examination, and Testing Personnel for Nuclear Power Plants."
 - e. ANSI N45.2.8 - 1975, "Supplementary Quality Assurance Requirements for Installation, Inspection, and Testing of Mechanical Equipment and Systems for the Construction Phase of Nuclear Power Plants."
- 2.2 Nothing in this specification shall be interpreted as in any way permitting deviation from the requirements of the aforementioned codes and standards to the extent referenced herein.

3.0 GENERAL

- 3.1 All hydrostatic tests or initial service leak tests shall be in accordance with the requirements of Articles NB-6000 and NC-6000 of Section III; Paragraph 137 of B31.1; or Articles IWA-5000, IWB-5000 and IWC-5000 of Section XI, as specified on the attached "Piping Pressure Test" sheets.
- 3.2 Test personnel shall be qualified in accordance with ANSI N 45.2.6.
- 3.3 Pressurizing ports and vent valves indicated on Pressure Test sheets are recommended only. Alternate valves may be used to suit field testing requirements. Special materials shown on Pressure Test sheets are recommended only. Alternate equivalent materials may be used.

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- 3.4 Gagging of relief valves may be substituted for removal and capping.

4.0 TEST PRESSURES

- 4.1 Tests shall be conducted at the pressure specified on the attached "Piping Pressure Test" sheets.
- 4.2 Retesting of lines after repairs shall be done at pressures originally specified for the test. The same requirements for records (Section 6.0) apply for retests as for original test.

5.0 PRECAUTIONS

- 5.1 Every precaution shall be taken during testing to insure the safety of the operator. The source of medium for testing shall be provided with calibrated relief valves and gauges to prevent overpressurization of the system being tested. The relief valves shall be set at 106% of test pressure as specified on the attached "Piping Pressure Test" sheets.
- 5.2 System pressure gauges shall not be subjected to pressure in excess of their scale range. All pieces of equipment which do not have their test pressures indicated or whose test pressures are below the piping system test pressure shall be excluded from these tests.
- 5.3 Unless otherwise specified, system pressure relief valves shall be excluded from these tests.
- 5.4 All welded and flanged joints in the boundary of each test shall have been completed and, if required, non-destructive examined and stress relieved with satisfactory results prior to the performance of that test.
- 5.5 Before every test, the piping systems shall be visually inspected to assure that there are no visual defects and that all connections are tight, and that all supports are installed.
- 5.6 No repair welding shall be done on any section of piping that contains water, or is under pressure.
- 5.7 Inadvertent pressurization of any other system shall be avoided by proper valve line-up and venting of adjacent systems. (For valve line-ups, see attached "Piping Pressure Test" sheets).

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- 5.8 Where valves are used for pressure boundary isolation, the valve shall be tagged to prevent unauthorized opening.
- 5.9 Test blinds shall be installed using gaskets specified on "Piping Pressure Test" sheets and shall be fully bolted with the correct size and number of bolts allowed for by the flange design.
- 5.10 Suitable precautions shall be taken to eliminate hazards to personnel and safety-related equipment in the event of leakage in the proximity of lines being tested.
- 6.0 PRESSURE TEST PROCEDURES AND RECORDS
- 6.1 All tests shall be performed in accordance with detailed written procedures and/or checklists which clearly indicate the extent of each test.
- 6.2 Test pressures shall be maintained a sufficient length of time to permit thorough inspection of all joints. The minimum holding time shall be ten (10) minutes. Inspection shall not begin until after the holding time.
- 6.3 Test pressures shall not be applied until the piping system and the testing medium have reached thermal equilibrium.
- 6.4 The results of all tests shall be recorded in accordance with the applicable specifications and codes. All such information shall be recorded as is required to completely identify the system tested, the results and all the actions taken, including but not necessarily limited to:
- a. Line designation number(s)
 - b. Code or specification used for test
 - c. Extent of test or test number
 - d. Type of test
 - e. Test Pressure
 - f. Length of time held
 - g. Ambient and test medium temperature
 - h. Date of test
 - i. Test by/witness
 - j. Results
 - k. Serial number and calibration date of the test gauge.
- 6.5 Control valves, unless being used for test boundary, shall be set and maintained in the wide open position.

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6.6 Lines containing check valves shall have the pressure applied upstream of the check valve so that pressure is applied under the seat.

6.7 All in-line instruments, gauge glasses, flow meter pots, liquid level float gauges, and all other pressure parts of instruments shall be included in these tests, where feasible.

6.8 Test procedures shall be in accordance with ANSI N 45.2.8.

6.9 Initial service leak test, if specified on the "Piping Pressure Test" sheets, shall be conducted in the same manner as hydrostatic leak test except that the system need not be totally isolated as long as test pressure can be maintained.

7.0 TEST REQUIREMENTS

7.1 A test pump shall be available that is capable of at least 120% of test pressure.

7.2 Test pumps shall be used and controlled such that no pump that was used to pressurize oil/hydraulic systems will be used on water systems or vice versa. Prior to connecting the test pump to a system, the pump and any hoses associated with it shall be flushed to ensure that the pump discharge will meet the hydro cleanliness requirements of the applicable specification.

7.3 An "official" test pressure gauge shall be installed on the test pump discharge line. This gauge shall be calibrated prior to test and have a range between $1\frac{1}{2}$ and 3 times the test pressure. This gauge shall be visible to the person controlling the pump.

7.4 Systems shall be vented during filling by use of vents provided for the purpose or by loosening flanged joints or instrument connections. Small lines may be cleared of air by flushing with water.

7.5 Prior to application of pressure, water temperature shall be 60°F. minimum and 100°F. maximum.

7.6 Demineralized water shall be used for testing.

7.7 Lines that are spring or counterweight supported and all gas and vapor lines shall be temporarily supported during test in order to support the hydrostatic load, if specified on the attached "Piping Pressure Test" sheets.

7.8 System shall be brought up to test pressure slowly.

7.9 Test pressure shall be maintained a minimum of ten minutes before visual examination of joints begins, and then shall be maintained until all joints are examined.

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7.10 During the tests, hydrostatic pressures shall be monitored and corrections shall be made to compensate for thermal expansion or contraction. By this procedure the test pressure shall be kept between 100% and 105% of its intended value.

7.11 Acceptance Criteria

7.11.1 Following the application of the hydrostatic test pressure for a minimum of ten (10) minutes, visual examination for weeping or leaking shall be made of all joints and connections, and of all regions of high stress, such as regions around openings and thickness-transition section. The piping system exclusive of possible localized instances, such as at a pump or valve packing, shall show no visual evidence of weeping or leaking. Weeping or leaking at pump or valve packing shall be noted and evaluated after the test. Wetting of a flanged joint gasket is acceptable; however, if weeping or leaking persists to a point where the test medium continually flows, the joint shall be rejected.

7.12 Joints found to be defective shall be repaired and retested.

7.13 Tested systems shall be vented and drained immediately upon successful completion of the test and shall be blown dry with clean, oil free, dry air or nitrogen.

8.0 QUALITY ASSURANCE REQUIREMENTS

8.1 Testing of Seismic Category I piping systems (as indicated on drawings) shall be in accordance with the Quality Assurance requirements of Rochester Gas & Electric Corporation.

PIPING PRESSURE TEST #1

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Page 6TEST TYPE: HydrostaticTEST PRESSURE: 3125 PSIG + 150 PSIG
- 0 PSIGSYSTEM: Reactor Vessel Head VentTEST MEDIUM: Demineralized WaterEWR: 2447APPLICABLE CODES: ASME III and ASME XIREF. DWG.: A-13651VALVE LINE-UP:

SV-590	Closed
SV-591	Closed
SV-592	Open
SV-593	Open
3/4"-T58	Closed

PREREQUISITES:

1. Electric power required to open solenoid valves.
2. Verify that electric power to SV-590 and SV-591 is locked out after venting system.

SPECIAL MATERIALS:

1. 3/4" 2500 lb. S.O. flange, R.F., ASTM A105, ANSI B16.5.
2. 3/4" dia. x 6" long nipple, ASTM A106, Grade B, threaded one end, plain one end, schedule 160 wall.
3. 3/4" 2500 lb. spiral wound gasket, 304 S.S., asbestos filled, Flexitallic type CG or equal.

SPECIAL INSTRUCTIONS:

1. This piping is Seismic Category I and test procedures must comply with RG&E Quality Assurance requirements.



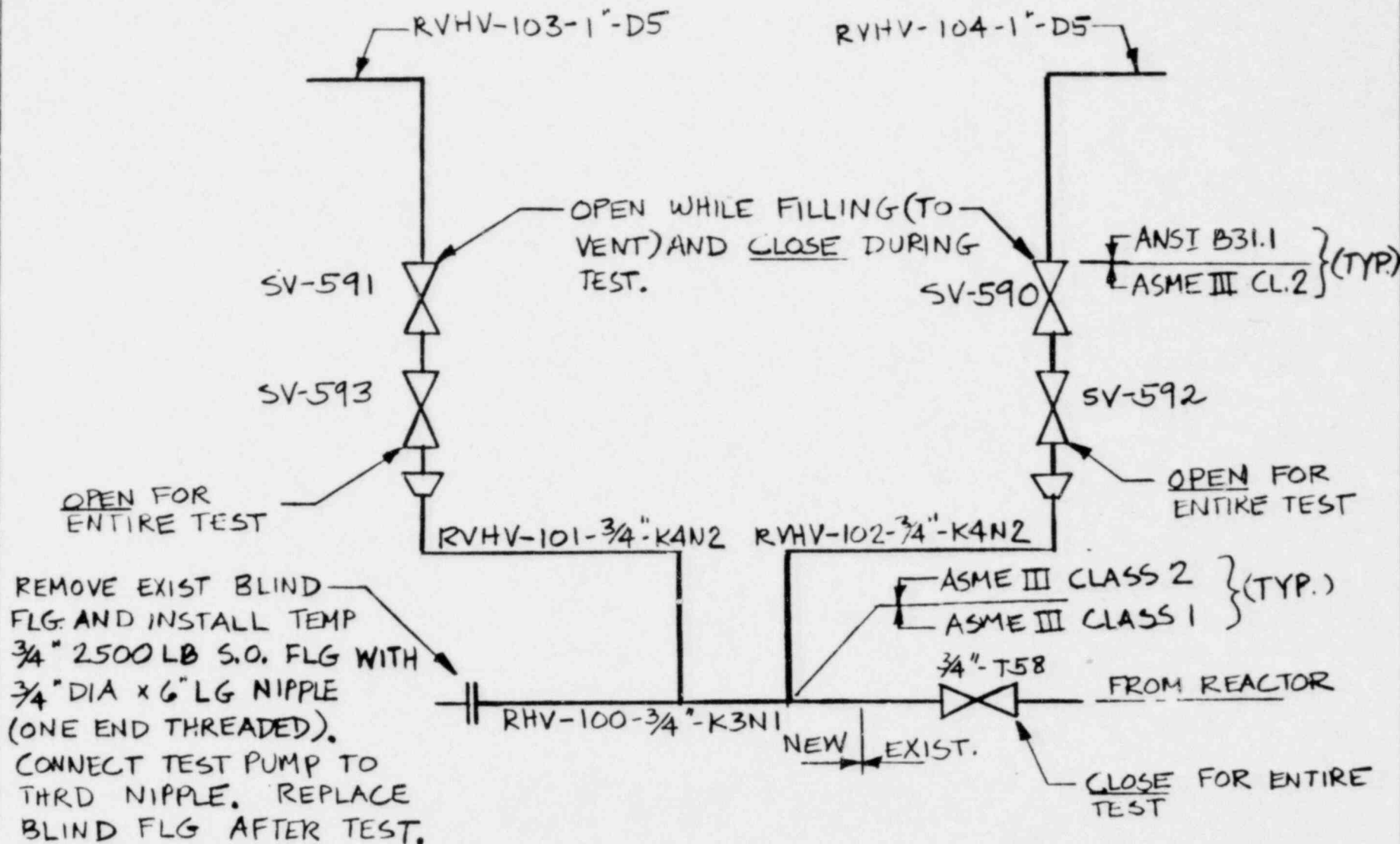
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DIAGRAM OF RVHV SYSTEM TEST