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INSPECTION OF INSTALLATION OF RADIOACTIVE WASTE MANAGEMENT SYSTEMS (RWMS)	PREPARED BY: <u><i>Michael D. [Signature]</i></u> ^{LMB} _{7/16/84} <u>7/17/84</u> DATE			
	APPROVED BY: <u><i>C. Negro</i></u> <u>7/27/84</u> DATE			

1.0 REFERENCES

- 1-A Branch Technical Position - ETSB No. 11-1 Rev 1, "Design Guidance for Radioactive Waste Management Systems Installed in Light-Water - Cooled Nuclear Power Reactor Plants"
- 1-B QI-QP-11.21-1, "Requirements for Visual Weld Inspection"
- 1-C QI-QP-16.0-5, "Reporting of Base Metal Defects"
- 1-D QI-QP-19.5-1, "Surveillance and Inspection of Completed Installations for Separation/Spacing (Unit I & Common)"
- 1-E QI-QP-19.5-1A, "Surveillance and Inspection of Completed Installations for Separation/Spacing (Unit II Buildings)"
- 1-F CP-CPM-6.9I, "Pressure Testing"
- 1-G ANSI B31.1, Power Piping, 1973 Edition, Winter 74 Addenda
- 1-H CP-QP-18.0, "Inspection Reports"
- 1-I CP-QP-16.0, "Nonconformances"

2.0 GENERAL

2.1 PURPOSE

The purpose of this procedure is to provide inspection criteria for inspection and Hydrostatic Testing of the RWMS piping in compliance with Reference 1-A.

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2.2 SCOPE

The scope of work shall include those items that are designated as RWMS, on the flow diagrams, as follows:

1. Installation inspection of all Non-ASME RWMS piping
2. Hydrostatic Pre-test and testing verification of all Non-ASME RWMS piping

3.0 PROCEDURE

3.1 FINAL INSTALLATION INSPECTION

3.1.1 Visual Inspection of Welds

All welds on piping shall be visually inspected in accordance with Reference 1-B.

3.1.2 Base Metal Defects

Base metal defects shall be reported in accordance with Reference 1-C.

3.1.3 Erection Tolerance

The inspector shall verify that the piping is installed within the following erection tolerances:

- a. "Gradient - 3/16 inch per foot maximum (this applies to horizontal lines deviating from level only. Deviation from plumbness of vertical lines and horizontal departures from design centerline of horizontal lines will be controlled by the two-inch tolerance on location)."
- b. Slope - minimum as designated on drawing.
- c. Constraints
 - 1) A minimum 2 inch clearance shall be maintained, including insulation, with respect to other piping when one or both lines have an operating temperature of 200° F or greater. All other lines, may be installed with a minimum of one-inch clearance, including insulation, with respect to other piping.

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- 2) For clearance of pipe (with an operating temperature of 200 F or greater) from hangers, walls, ceiling, handrails, etc., other than pipe to pipe, a minimum of one inch shall be maintained, including pipe insulation, however on a case by case basis it might be necessary to notch insulation to establish clearance which will require engineering approval.

All other lines may be installed with a clearance only for insulation. However, on a case by case basis, it might be necessary to notch the insulation to establish clearance, which will require Engineering approval.

- d. Span - span between pipe supports shall not exceed maximum span specified on Attachment 1.

NOTE: This inspection will be documented on an Inspection Report, Attachment 2.

Prior to completion of this inspection the inspector shall attach As-Built Tags (Attachment 3) to the line. These tags shall be placed at strategic locations along the line to prevent oversight by other plant personnel. Prior to performance of any work on a tagged line or its components QC shall be notified.

- 3.1.4 QC will verify that inspections per Reference 1-D and 1-E have been completed and indicate on the Inspection Report, Attachment 2.

3.2 HYDROSTATIC TESTING

3.2.1 QC Document Review

Prior to hydro, QC shall review existing documentation to verify that all welds within the hydro boundary have been visually inspected and accepted. This shall include any attachable welds, and all areas of welded repair. If acceptable, QC documentation accountability shall be signed off on the Hydro/Pneumatic Test Record, Figure 6.9I-1 of Reference 1-F, by inspector's initial and date on the QE Pretest Concurrence block. All other documentation associated with the Hydro-Test package shall be completed and transmitted in accordance with Reference 1-F.

NOTE: Inspection per paragraph 3.1.3 need not be completed prior to hydro.

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3.2.2 QC Pretest Inspection

Prior to commencement of testing, the QC Inspector shall verify:

- a. All welded joints, attachments, and area of welded repairs which have not been previously tested are accessible for inspection.
- b. High points of the system are vented.
- c. All surfaces are free of arc strikes.

NOTE: The above verifications need not be made sequentially. Upon acceptable completion of the above verifications, and those of the Test Engineer, pressure testing may proceed in accordance with Reference 1-E.

3.2.3 Hydrostatic Test Pressure and Holding Time

The system or partial system shall be subjected to a hydrostatic test pressure as indicated in Reference 1-G.

The pressure shall be maintained for 30 minutes and examined for leakage.

3.2.4 Witnessing of Tests

The test shall be inspected by the Test Engineer and QC.

All joints, high stress areas, and exposed accessible pressurized surfaces shall be inspected. Acceptance criteria shall be as defined in Reference 1-F.

3.2.5 Acceptance of Tests

The QC Inspector shall document inspection activities and approval of pressure tests by signing applicable pressure test record forms and drawings provided by the Test Engineer. The QC Inspector shall review applicable forms for completeness and accuracy before signing. Pressure tests that are not accepted shall not receive a QC signoff until acceptable conditions have been resolved.

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3.3 STATUSING

A log shall be maintained by the QC noting the status of the inspection effort.

3.4 DISCREPANCIES

Discrepancies found during inspections will be documented on the I.R. and/or a NCR, per References 1-H and 1-I respectively, as directed by the QC Supervisor.

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ATTACHMENT 1

Figure 1 Pipe Support Spacing

Nominal Pipe Size Inches	Maximum Span			
	Water Service		Steam, Gas, or Air Service	
	Feet	m	Feet	m
1	7	2.1	9	2.7
2	10	3.0	13	4.0
3	12	3.7	15	4.6
4	14	4.3	17	5.2
6	17	5.2	21	6.4
8	19	5.8	24	7.3
12	23	7.0	30	9.1
16	27	8.2	35	10.7
20	30	9.1	39	11.9
24	32	9.8	42	12.8

Pipe support spacing shall be measured from center to center of the load bearing member of each support.

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ATTACHMENT 2

COMANCHE PEAK STEAM ELECTRIC STATION

INSPECTION REPORT

ITEM DESCRIPTION RMS Piping		IDENTIFICATION NO.		SYSTEM / STRUCTURE DESIGNATION							
SPEC. NO.	REV.	REF. G.C. DOC. & REV. & CHANGE NO.		MEASURE OR TEST EQUIPMENT NO.							
		CP-QP-11.12 Rev.									
<input type="checkbox"/> IN PROCESS INSPECTION		<input type="checkbox"/> PRE INSTALLATION VERIFICATION		<input type="checkbox"/> INSTALLATION INSPECTION							
				<input type="checkbox"/> FINAL INSPECTION							
				<input type="checkbox"/> PRE TEST INSPECTION							
INSPECTION RESULTS											
<input type="checkbox"/> INSPECTION COMPLETED, ALL APPLICABLE ITEMS SATISFACTORY											
<input type="checkbox"/> INSPECTION COMPLETED, UNSATISFACTORY ITEMS LISTED BELOW											
ITEM NO.	INSPECTION ATTRIBUTES				QC INSPECTOR						
					DATE						
1.	GRADIENT: Less than 3/16" per foot.										
2.	Slope is as designated on drawing.										
3.	Constraints - minimum clearances as specified in Para. ...										
4.	Span does not exceed maximum.										
5.	Separation verify in accordance with QI-QP-19.5-1/ QI-QP-19.5-1-A.										
<p style="text-align: center; font-size: 2em; opacity: 0.5;">TYPICAL</p>											
REMARKS (DWGS, SPECS, ETC.)											
RELATEDCR NO.	I.R. CLOSED <input type="checkbox"/>		DATE	SIGNATURE							
				QC INSPECTOR							

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ATTACHMENT 3

LEITZ GRAPHIC SYSTEMS, INC.
Germantown, Pa. LAMA TAG®

**Comancho Peak
Steam Electric Station**

**DO NOT
REMOVE
THIS TAG
WITHOUT
QC AUTHORITY**


CPSES

AS-BUILT

VERIFICATION TAG

LINE NO. _____

DWG. NO. _____

LOCATION _____

THIS LINE IS BEING INSPECTED FOR
AS-BUILT PURPOSES.

CONTACT _____

AT ENT. _____

PRIOR TO PERFORMING ANY WORK OTHER
THAN INSPECTION AND TESTING ON THIS
LINE.