DEC 14 1994

ENGINEERING DATA TRANSMITTAL

Page 1 of 2

1. EDT 603046

2. To: (Receiving Organization) Waste Tank Plant Engineering	3. From: (Originating Organization) Upgrades Technical Support	4. Related EDT No.: NA
5. Proj./Prog./Dept./Div.: 7EA50 N2L51	6. Cog. Engr.: EG Elfner	7. Purchase Order No.: NA
8. Originator Remarks: ETN-95-0002		9. Equip./Component No.: NA
		10. System/Bldg./Facility: 241-GEN
		12. Major Assm. Dwg. No.: H-2-824485 H-2-85445
11. Receiver Remarks:		13. Permit/Permit App. No.: NA
		14. Required Response Date: 15 December 1994

15. DATA TRANSMITTED					(F)	(G)	(H)	(I)
(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Desc. of Data Transmitted	Impact Level	Reason for Trnsmt.	Origi- nator Disp.	Receiver Disposi- tion
1	WHC-SD-WM-ETP-125		0	ETP for Enraf Nonius Densitometer Assembly Design	NA	1	1	

16. KEY							
Impact Level (F)		Reason for Transmittal (G)			Disposition (H) & (I)		
1, 2, 3, or 4 (see MRP 5.43)		1. App. 4. Review 2. Rel. 5. Post-Review 3. Info. 6. Dist. (Recpt. Acknow. Req.)			1. App. no/comment 4. Rev. 2. App. w/comment 5. Rev. w/comment 3. Disapp. w/comment 6. Receipt Acknow.		
(G)	(H)	17. SIGNATURE/DISTRIBUTION (See Impact Level for required signatures)				(G)	(H)
Reason	Disp.	(J) Name (L) Date	(K) Signature (M) MSIN	(J) Name (L) Date	(K) Signature (M) MSIN	Reason	Disp.
1	1	Cog. Eng.: EG Elfner	EG Elfner 12/14/94 S2-24	Central Files	48-04	3	
1	1	Cog. Mgr.: WW Jenkins	WW Jenkins 12/14/94 S2-24	O.S.T. I (2)	28-07	3	
1	1	KG Carothers	KG Carothers 12/14/94 R1-51				
1	1	HL Humphreys	HL Humphreys 12/14/94				

18. EG Elfner <i>EG Elfner</i> Sig. of EDT Originator 7 December 1994 Date	19. WW Jenkins <i>WW Jenkins</i> Auth. Rep. for Rec. Org. 12/21/94 Date	20. WW Jenkins <i>WW Jenkins</i> Cog./Proj. Eng. Mgr. 12/21/94 Date	21. DOE APPROVAL (if required) Ltr. No. ☐ Approved ☐ Approved w/comments ☐ Disapproved w/comments
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RELEASE AUTHORIZATION

Document Number: WHC-SD-WM-ETP-125, REV.0

Document Title: Engineering Task Plan for Enraf Nonius Densitometer Assembly Design

Release Date: December 13, 1994

**This document was reviewed following the
procedures described in WHC-CM-3-4 and is:**

APPROVED FOR PUBLIC RELEASE

WHC Information Release Administration Specialist:

Kara M. Broz

December 13, 1994

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SUPPORTING DOCUMENT		1. Total Pages 6
2. Title Engineering Task Plan for Enraf Nonius Densitometer Assembly Design	3. Number WHC-SD-WM-ETP-125	4. Rev No. 0
5. Key Words Ball Valve, Densitometer, Displacer, Enraf Nonius, Liquid Level Gauge, Rinse Spool Assembly, Sight Glass APPROVED FOR PUBLIC RELEASE <i>RMB 12/13/94</i>	6. Author Name: EG Elfner <i>EG Elfner</i> Signature Organization/Charge Code 7EA50/N2L51	
7. Abstract A supporting assembly will be designed to accommodate the Enraf Nonius densitometer. The design will include a sight glass or calibration chamber, a rinse spool assembly, and a ball valve. The assembly will be based on the Enraf Nonius liquid level gauge assembly.		
		8. RELEASE STAMP OFFICIAL RELEASE BY WHC DATE DEC 14 1994 <i>STA#3</i>

**ENGINEERING TASK PLAN FOR
ENRAF NONIUS DENSITOMETER ASSEMBLY DESIGN**

7 December 1994

E. G. Elfner

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ENGINEERING TASK PLAN FOR ENRAF NONIUS DENSITOMETER ASSEMBLY DESIGN

1.0 PURPOSE

The assemblies which support Enraf Nonius liquid level gauges require modification in order to be used with Enraf Nonius densitometers. The densitometers are upgraded versions of the liquid level gauge. They will initially be installed on Tank AN-107.

2.0 SCOPE

Final selection of the Enraf Nonius Densitometer instrument, as well as the ball valve which is located at the bottom of the assembly, has been made. The sight glass used with the liquid level gauge does not have an access port large enough to accommodate the densitometer displacer. This unit will need to be replaced with a suitable sight glass or with an Enraf Nonius Calibration Chamber. The rinse spool assembly which is used with the liquid level gauge will not adequately perform the task of rinsing the densitometer displacer and line. A new unit will have to be designed. The densitometer assembly design will be reviewed against the seismic analysis of the liquid level gauge to determine whether or not a new analysis is needed. A cost estimate for fabrication of two rinse spool assemblies will be obtained.

3.0 ENGINEERING TASKS

1. Select an appropriate sight glass or an Enraf Nonius Calibration Chamber for use with the densitometer.
2. Design a rinse spool assembly which will adequately rinse the densitometer displacer and line.
3. Provide information for new drawings of the rinse spool assembly and for installation of the densitometer assembly.
3. Review the densitometer assembly design against the seismic analysis of the liquid level gauge to determine whether or not a new analysis is needed.
4. Obtain a cost estimate for fabrication of two rinse spool assemblies.

4.0 DELIVERABLES

1. New drawings which depict installation of the densitometer assembly.

2. New drawings which depict assembly of the rinse spool assembly.
3. New seismic analysis, if needed.
4. Cost estimate for fabrication of two rinse spool assemblies.

5.0 ORGANIZATION RESPONSIBILITIES

Upgrades Technical Support:

1. Prepare schedule for the design effort. Prepare cost estimates for the design effort. Determine safety classification and acceptance levels for documentation of the new assembly. Prepare supporting documentation and obtain approval.
2. Perform mechanical design for new instrument assembly. Have new drawings of the assembly prepared. Separate drawings will depict assembly and installation. The drawings will be produced as part of the existing design effort under which the densitometer electrical drawings are being produced.
3. Have the densitometer design reviewed, against that of the Enraf Nonius liquid level gauge, by the organization performing that analysis. Have new seismic analysis performed if required.
4. Obtain a cost estimate for fabrication of two rinse spool assemblies. This includes both the cost of shop materials and a labor breakdown of the hours required to build the assemblies.

Engineering Manager: WW Jenkins
Engineer: EG Elfner

6.0 COST ESTIMATE

The Rough Order of Magnitude estimate for the design of a new densitometer assembly is as provided below.

1. Design	
- research/select components	7 days
- configure system	6 days
2. Seismic Analysis	
- review	1 day
- perform calculations (if necessary)	1 day

3. Documentation Preparation

- preparation	6 days
- review	1 day
- get comments and incorporate	4 days
- approval and release	2 days

4. Fabrication Cost Estimate (Rinse Spool Assembly) 2 days

Total: 30 days

Total Cost Estimate: $\$59.06 \times 224 \text{ hours} = \$13,229.44$

Note: This is the cost if the seismic analysis is performed. If review determines that an analysis is not required, the cost will be somewhat lower.

7.0 QUALITY ASSURANCE

Quality Assurance (QA) for this effort will be in accordance with Reference 1. All documents produced will be reviewed in accordance with Reference 2.

8.0 REFERENCES

1. WHC-CM-4-2, Quality Assurance Manual;
2. WHC-CM-3-5, Document Control and Records Management Manual, Section 12.7, "Approval of Environmental, Safety, and Quality Affecting Documents".