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ENGINEERING DATA TRANSMITTAL

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5. Proj./Prog./Dept./Div.: S-Farm Overground Transfer (OGT) Line/Interim Stabilization Project		6. Design Authority/ Design Agent/Cog. Engr.: WF Zuroff/FDNW/JN Doeler		7. Purchase Order No.: N/A	
8. Originator Remarks: For the S-Farm Overground Transfer (OGT) line between valve pits 241-S-B and 241-S-D, the attached Construction Integrity Assessment Report demonstrates that the construction of the S-Farm OGT was performed in accordance with the provisions of WAC-173-303-640(3)(c), (e), (f), and (h).				9. Equip./Component No.: N/A	
11. Receiver Remarks: 11A. Design Baseline Document? X Yes <input type="checkbox"/> No Approval of the S-Farm Overground Transfer Line Construction Integrity Assessment Report is indicated by signature on this EDT.				12. Major Assm. Dwg. No.: N/A	
11.A Refer to Design Verification for S-Farm Overground Transfer Line, HNF-3381, Rev. 0, dated September 1998.				13. Permit/Permit Application No.: N/A	
				14. Required Response Date: May 20, 1999	

15. DATA TRANSMITTED					(F)	(G)	(H)	(I)
(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	Approval Designator	Reason for Transmittal	Originator Disposition	Receiver Disposition
1	HNF-4445	--	0	Construction Integrity Assessment Report, S-Farm Overground Transfer Line	SQ	1	1	2

16. KEY

Approval Designator (F)	Reason for Transmittal (G)	Disposition (H) & (I)
(Ref. HNF-PRO-233)	1. Approval 2. Release 3. Information 4. Review 5. Post-Review 6. Dist. (Receipt Acknow. Required)	1. Approved 2. Approved w/comment 3. Disapproved w/comment 4. Reviewed no/comment 5. Reviewed w/comment 6. Receipt acknowledged

17. SIGNATURE/DISTRIBUTION (See Approval Designator for required signatures)											
(G) Rea-Son	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN	(G) Rea-Son	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN
2	1	DF Hicks	<i>[Signature]</i>	6/14/99	S7-24	1	1	LA Gaddis	<i>[Signature]</i>	5/4/99	H5-57
2	1	QA/MC Tipps	<i>[Signature]</i>	5/25/99	S7-34	1	1	CH Brevick	<i>[Signature]</i>	5/11/99	B4-57
2	1	Safety/OM Jaka	<i>[Signature]</i>	6/14/99	S7-34	2	1	JN Doeler	<i>[Signature]</i>	6/20/99	T4-07
2	1	DesAuth/WF Zuroff	<i>[Signature]</i>	6-15-99	S7-24						

18. DF Hicks <i>[Signature]</i> 6/21/99 Signature of EDT Date Originator		19. N/A Authorized Representative Date for Receiving Organization		20. MR Koch <i>[Signature]</i> 6-21-99 Design Authority/ Cognizant Manager		21. DOE APPROVAL (if required) Ctrl. No. <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/comments <input type="checkbox"/> Disapproved w/comments	
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CONSTRUCTION INTEGRITY ASSESSMENT REPORT

(ETN-98-0005)

S-Farm Overground Transfer (OGT) System Valve Pit 241-S-B to Valve Pit 241-S-D

Dale F. Hicks

Numatec Hanford Corporation, POB 1300, Richland, WA 99352
U.S. Department of Energy Contract DE-AC06-96RL13200


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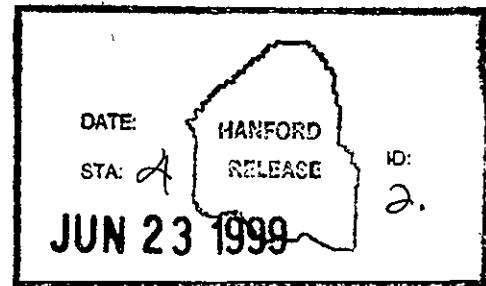
Key Words: OGT, Overground Transfer, Interim Stabilization, 241-S, 241-S-B, 241-S-D, saltwell pumping, construction integrity assessment, WAC-173-303-640(3).

Abstract: This document addresses compliance of the 241-S Overground Transfer (OGT) system with the provisions of Washington Administrative Code, WAC-173-303-640(3)(c), (e), (f), & (h).

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Release Approval Date



Approved for Public Release

CONSTRUCTION INTEGRITY ASSESSMENT REPORT

S-FARM OVERGROUND TRANSFER LINE

VALVE PIT 241-S-B TO VALVE PIT 241-S-D

1.0 INTRODUCTION

1.1 Purpose

This Construction Integrity Assessment Report (CIAR) is prepared by Fluor Daniel Northwest for Numatec Hanford Corporation / Lockheed Martin Hanford Corporation, the operations contractor, and the U. S. Department of Energy, the system owner. The CIAR is intended to verify that construction was performed in accordance with the provisions of Washington Administrative Code, WAC-173-303-640 (3) (c), (e), (f), and (h).

1.2 System Description

The S-Farm overground transfer (OGT) line will bypass the existing line(s), between valve pits 241-S-B and 241-S-D that no longer meet system requirements. The new OGT line will provide a waste transfer pipeline between these valve pits in support of saltwell pumping activities. The length of the OGT line is approximately 180 ft from pit to pit. The primary pipe is nominal 1-in. diameter stainless steel (SST) braided Ethylene-propylene Diene Monomer (EPDM) hose. The encasement pipe is a nominal 3-in., flanged, SST pipe made up of several different length pipe spool pieces (drawing H-2-829564, sh. 1 and sh. 2).

The OGT line slopes from valve pit 241-S-B toward valve pit 241-S-D. At each end, the primary and encasement pipe connect to a pit entry spool piece. The pit entry spool pieces are constructed of prefabricated SST materials. These spool pieces allow for the separation of the primary and encasement pipelines after the pipes have entered the valve pits (drawing H-2-818280, sh. 2). The pit entry spool pieces also allow for leak detection of the encasement pipe at each end (drawing H-2-829564, sh. 2).

The OGT encasement pipeline is supported above ground by adjustable height unistrut brackets and precast concrete bases (drawing H-2-829654, sh. 1). The pipeline is heat-traced and insulated. The heat tracing and insulation supply and retain latent heat that prevents waste solidification during transfers and provides freeze protection. The total length of the pipeline is above ground, thereby negating the need for cathodic corrosion protection.

Note: The S-Farm OGT system was designed and constructed in two separate sequences. The initial effort (January 1995 through October 1997) designed, procured materials (primary and encasement pipe, pipe supports, pit entry spool pieces, and concrete shielding blocks), and constructed the pipelines with supports. This effort was suspended by a stop work at the

close of FY 97 before the project was complete. On March 11, 1998, nonconformance report (NCR) LMHC-98-010 identified problems with the spacing of the in-place pipe supports and concrete blocks stacked under the pipe supports.

The final design and construction effort started in July 1998. The design activities started with a response to the NCR and redesign of the pipeline supports (drawing H-2-829564, sh. 1 and sh. 2). Revised construction activities included: replacement of the pipe supports, realignment of the pipeline, survey verification of the pipeline location, performing again the pneumatic pressure test of the encasement pipe, etc. Construction was completed October 1, 1998.

1.3 Scope

This CIAR applies to the OGT line described above and is based on periodic personal observations and inspections performed by qualified personnel. Inspections and testing were performed on the OGT system using applicable codes, standards, and properly maintained equipment.

1.4 Comments of Certification

Section 4.0 contains a certificate attesting to the accuracy of the information presented in this CIAR. The certificate is signed and sealed by an independent, qualified, registered professional engineer in accordance with WAC-173-303-810 (13)(a).

2.0 ASSESSMENT

The OGT system described in section 1.2 is properly installed in accordance with the drawings, specifications, and applicable codes. This assessment is based upon personal observations and inspections performed by qualified personnel during the construction phases of the project.

2.1 Weld Breaks

As described in section 1.2, the encasement pipe and the pit entry piece were welded spool pieces. The spool pieces were fabricated from various length and sizes of SST pipe and then assembled in the field using bolted flange connectors. The encasement pipe spool pieces were procured off site from Diversified Metal Products (Procurement Specification *ER5313-P1, Overground Transfer System Piping*) and the pit entry spool pieces were fabricated on site at the ICF Kaiser Hanford Company Inc. (ICF-KH) fabrication shops.

Diversified Metal Products welding personnel and procedures were prequalified and approved, via submittal process, to ASME B31.3, paragraph 328.2 before fabricating the various encasement pipe spool pieces. Likewise, Diversified Metal Products certified welding inspection personnel were approved for the project. Submitted documents from Diversified Metal Products confirm that all

encasement pipe spool pieces were fabricated, inspected, and tested in accordance with specification requirements. ICF-KH inspection personnel further verified that the pipe spool pieces were fabricated, inspected, and hydrostatically pressure-tested in accordance with approved documentation, September 12-14, 1994.

ICF-KH shops fabricated the pit entry spool pieces through a J-10 Fabrication Request Work Package, 2H9501076F. This package identified the applicable procedures and specification, fabrication/inspection instructions, work instructions, weld data sheets, bill of materials, pressure/leak test certification, inprocess inspection reports, and applicable pit entry spool piece drawings and sketches. Quality Control inspection records verify that the pit entry spool pieces were fabricated, inspected, and hydrostatically pressure-tested in accordance with approved documentation, December 12, 1995 through January 4, 1996.

2.2 Punctures

The primary pipe is a SST braided EPDM hose. Upon receipt of the hose from the supplier, the hose was checked for correct inside diameter and hydrostatically pressure-tested. After the hose had been installed inside the encasement pipe and attached to the pit entry spool pieces, the hose was again hydrostatically pressure-tested. This inspection and testing would have identified if any punctures were present in the hose.

The encasement pipe spool pieces were each pressure tested by the fabricator before shipment. Upon arrival at the site, all pieces were receipt-inspected for any damage that may have occurred during shipping. This inspection ensured that the spool pieces were not punctured during fabrication and transportation to the site. After the spool pieces were assembled in the field, the pieces were again inspected and the total encasement pipeline was pressure tested. This inspection and final pressure test verified that no punctures were present in either the encasement pipe or the primary pipe.

2.3 Scrapes of Protective Coatings

Neither the primary pipe nor the encasement pipe has protective coating.

2.4 Cracks

Based on the inspections and hydrostatic pressure tests performed, cracks are not apparent in either the primary pipe or the encasement pipe.

2.5 Other Structural Damages

Based on inspections performed during construction, no structural damage was noted to the encasement pipe of the pipe supports.

Tightness Testing

The primary pipe (SST braided EPDM hose) was hydrostatically pressure-tested (January 11, 1996) after receipt from the vendor and again after installation (April 29, 1998). The 3-in. SST encasement pipe was tested initially at the fabrication shop (September 1994), tested after field installation (May 28, 1996), and then a final test was performed after replacement of the pipe supports and final pipeline alignment (September 19, 1998). Documentation of the primary and secondary pipe testing is found in the construction job control system (JCS) package, WS-95-00163

2.6 Corrosion Protection System

This S-Farm OGT line is installed totally above ground, therefore corrosion protection of the system is not warranted.

2.7 Support System

The pipe supports along the total length of the encasement pipe were replaced in September 1998 in accordance with redesign (drawing H-2-829564, sh. 1 and sh. 2). This included the modifications to the support of the pit entry spool piece at valve pit 241-S-B.

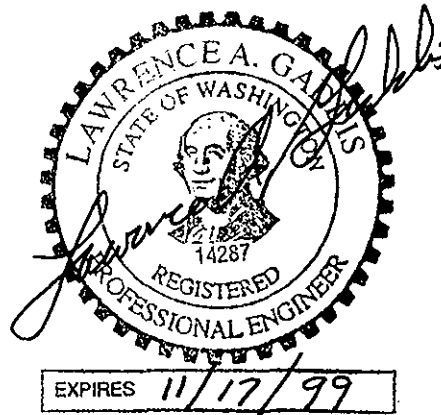
3.0 REFERENCES

- 3.1 WAC-173-303-640, Washington Administrative Code, Department of Ecology, *Dangerous Waste Regulations, Tank Systems*.
- 3.2 NCR LMHC-98-010, Nonconformance Report, Lockheed Martin Hanford Company, 1998, *Pipe Supports for Overground Transfer Line*.
- 3.3 ASME B31.1, American Society of Mechanical Engineers, *Code for Pressure Piping*.
- 3.4 2H9501076/F, J-10 Fabrication Request, 1995, *Fabricate S-Farm Pit Entry Spools and Mounting Brackets* (Records Holding Box – 133276).
- 3.5 ER5313-P1, Procurement Specification, *Overground Transfer System Piping* (Records Holding Box – 138009)
- 3.6 WS-95-00163, Construction Job Control System Package, *S-Farm Valve Pit OGT Line and Shielding*.
- 3.7 Drawings
 H-2-829564, sh. 1 & 2, Rev. 1, *Civil/Piping – 241-S OGT Piping*.
 H-2-818280, sh. 1, Rev. 1, *Piping – Emer Pumping, OGT System - Components/ Assemblies*.
 H-2-818280, sh. 2, Rev. 0, *Piping – Emer Pumping, OGT System - Components/ Assemblies*.

4.0 CERTIFICATION

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Lawrence A. Gaddis P.E.
Fluor Daniel Northwest, Inc.



DISTRIBUTION SHEET

To Distribution	From Interim Stabilization Engineering	Page 1 of 1 Date 05/10/99
Project Title/Work Order S-Farm Overground Transfer (OGT) Line/103360/EF00-588/50		EDT No. 623850 ECN No. N/A

Name	MSIN	Text With All Attach.	Text Only	Attach./ Appendix Only	EDT/ECN Only
Brevick, Chris H.	B4-57	X			
Crawford, Jim A.	S7-20	X			
Doeler, Jeff N.	T4-07	X			
Ellingson, Kelly	S7-24	X			
Erlandson, Bradley G.	R1-51	X			
Gaddis, Larry A.	H5-57	X			
Hicks, Dale F.	S7-24	X			
Holbrook, Doug S.	S5-50	X			
Hull, Kevin J.	T4-07	X			
Jaka, Omar M.	S7-34	X			
Koch, Mike R.	S7-24	X			
Larson, Rich E.	T4-07	X			
McDonald, J. Dan	S7-20	X			
Miller, Phillip C.	R1-51	X			
Nguyen, Toan H.	S7-24	X			
Raven, Bexa P.	S7-21	X			
Saueressig, Dave J.	S7-20	X			
Swarers, Tom A.	S7-20	X			
Tipps, Mike C.	S7-34	X			
True, Roger R.	T4-07	X			
Volkman, Terry J.	T4-07	X			
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Wiggins, Dirk D.	S7-24	X			
Wiggins, J. Dewayne	S7-20	X			
Zuroff, Bill F.	S7-24	X			
DOE-RL Reading Room	H2-55	X			
FDNW TDC	E6-02	X			