ENGINEERING CHANGE NOTICE

H

Page 1 of 2

1. ECN 643446

Proj. ECN

2. ECN Category (mark one)	3. Originator's Name, Organization, MSIN, and Telephone No.	4. USQ Required?	5. Date
Supplemental [] Direct Revision [X] Change ECN [] Temporary [] Standby [] Supersedure [] Cancel/Void []	LF Dougherty, SSTE 74800, T4-08, 376-6264	[X] Yes [] No USQ# TF-99-0148, Rev1	03/05/99
	6. Project Title/No./Work Order No. Cross Site Transfer Monitor & Control System Logic Changes	7. Bldg./Sys./Fac. No. 242-S	8. Approval Designator N/A
	9. Document Numbers Changed by this ECN (includes sheet no. and rev.) HNF-2346, Rev. 1	10. Related ECN No(s). N/A	11. Related PO No. N/A

12a. Modification Work	12b. Work Package No.	12c. Modification Work Complete	12d. Restored to Original Condition (Temp. or Standby ECN only)
[] Yes (fill out Blk. 12b) [X] No (NA Blks. 12b, 12c, 12d)	N/A	N/A Design Authority/Cog. Engineer Signature & Date	N/A Design Authority/Cog. Engineer Signature & Date

13a. Description of Change

13b. Design Baseline Document? [X Yes [] No

This ECN supplements HNF-2346 Rev. 1 with Appendix F, "Alarms Received at the OCS (242-S Control Room).

Replace Page 2, Table of Contents, with new page Rev 1A and insert Appendix F.

14a. Justification (mark one)

Criteria Change	[]	Design Improvement	[X]	Environmental	[]	Facility Deactivation	[]
As-Found	[]	Facilitate Const	[]	Const. Error/Omission	[]	Design Error/Omission	[]

14b. Justification Details

Appendix F is being added in order to provide a useful tool for determining alarm information. This information does not change the existing information but supplements it by providing the alarm information in a useful format. Design verification performed per informal review in accordance with HNF-PRO-445.

15. Distribution (include name, MSIN, and no. of copies)

RE Larson	T4-07
DP Mendoza	T4-08
JB Roberts	T4-07
MJ Sutey	S5-07

RELEASE STAMP

MAR 09 1999

DATE:

STA: 5

HANFORD RELEASE

12

ID:

A-7900-013-2 (05/96) GEF095

A-7900-013-1

ENGINEERING CHANGE NOTICE

1. ECN (use no. from pg. 1): 643446

16. Design Verification Required	17. Cost Impact				18. Schedule Impact (days)	
	ENGINEERING		CONSTRUCTION			
[X] Yes	Additional	[] $	Additional	[] $	Improvement	[]
[] No	Savings	[] $	Savings	[] $	Delay	[]

19. Change Impact Review: Indicate the related documents (other than the engineering documents identified on Side 1) that will be affected by the change described in Block 13. Enter the affected document number in Block 20.

SDD/DD	[]	Seismic/Stress Analysis	[]	Tank Calibration Manual	[]
Functional Design Criteria	[]	Stress/Design Report	[]	Health Physics Procedure	[]
Operating Specification	[]	Interface Control Drawing	[]	Spares Multiple Unit Listing	[]
Criticality Specification	[]	Calibration Procedure	[]	Test Procedures/Specification	[]
Conceptual Design Report	[]	Installation Procedure	[]	Component Index	[]
Equipment Spec.	[]	Maintenance Procedure	[]	ASME Coded Item	[]
Const. Spec.	[]	Engineering Procedure	[]	Human Factor Consideration	[]
Procurement Spec.	[]	Operating Instruction	[]	Computer Software	[]
Vendor Information	[]	Operating Procedure	[]	Electric Circuit Schedule	[]
OM Manual	[]	Operational Safety Requirement	[]	ICRS Procedure	[]
FSAR/SAR	[]	IEFD Drawing	[]	Process Control Manual/Plan	[]
Safety Equipment List	[]	Cell Arrangement Drawing	[]	Process Flow Chart	[]
Radiation Work Permit	[]	Essential Material Specification	[]	Purchase Requisition	[]
Environmental Impact Statement	[]	Fac. Proc. Samp. Schedule	[]	Tickler File	[]
Environmental Report	[]	Inspection Plan	[]	N/A	[X]
Environmental Permit	[]	Inventory Adjustment Request	[]		[]

20. Other Affected Documents: (NOTE: Documents listed below will not be revised by this ECN.) Signatures below indicate that the signing organization has been notified of other affected documents listed below.

Document Number/Revision	Document Number/Revision	Document Number Revision
N/A		

21. Approvals

	Signature	Date		Signature	Date
Design Authority PFKISON	PFKison	3/9/99	Design Agent		
Cog. Eng. JB Roberts	JB Roberts	3/9/99	PE		
Cog. Mgr. RE Larson	RE Larson per telephone 3/9/99		QA		
QA			Safety		
Safety			Design		
Environ.			Environ.		
Other (Informal Review) L.F. Dougherty	LF Dougherty	3/12/99	Other		

DEPARTMENT OF ENERGY

Signature or a Control Number that tracks the Approval Signature

ADDITIONAL

Project W-058 Monitor and Control System Logic

J.B. Roberts
Lockheed Martin Hanford Co.
Richland, WA 99352
U.S. Department of Energy Contract DE-AC06-96RL13200

EDT/ECN: 643446 UC: 2030
Org Code: 74800 Charge Code: 108460
B&R Code: 39EW31301 Total Pages: 567

Key Words: W-058, Monitor and Control System, MCS, PCS, Ladder Logic, Software Printout, RCSTS

Abstract: This supporting document contains the printout of the control logic for the Project W-058 Monitor and Control System, as developed by Programmable Control Services, Inc. The logic is arranged in six appendices, one for each programmable controller console and an alarm summary.

TRADEMARK DISCLAIMER. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof or its contractors or subcontractors.

Printed in the United States of America. To obtain copies of this document, contact: Document Control Services, P.O. Box 950, Mailstop H6-08, Richland WA 99352, Phone (509) 372-2420; Fax (509) 376-4989.

MAR 09 1999
DATE:
STA: 5
HANFORD RELEASE
12
ID:

Release Approval 3/9/99 Date

Release Stamp

Approved For Public Release

RECORD OF REVISION

(1) Document Number: HNF-2346

Page 1

(2) Title

Project W-058 Monitor and Control System Logic

Change Control Record

(3) Revision	(4) Description of Change - Replace, Add, and Delete Pages	Authorized for Release (5) Cog. Engr.	(6) Cog. Mgr. Date
RS 1	(7) Replace Rev. 0 with Rev. 1 (all pages), Per ECN 651363	[signature]	RE Lowe 2/19/99
RS 1 A	ADD APPENIX F & PAGE 2 PER ECN 643446	JB Roberts	RMoon 3/9/99

This supporting document consists of the following appendices:

Appendix A: PLC-1 Ladder Logistics	Pages i through 106
Appendix B: PLC-2 Ladder Logistics	Pages i through 186
Appendix C: PLC-3 Ladder Logistics	Pages i through 126
Appendix D: PLC-4 Ladder Logistics	Pages i through 78
Appendix E: PLC-5 Ladder Logistics	Pages i through 36
Appendix F: Alarms Received at the OCS (242-S Contol Room)	Pages i through 22

WINtelligent LOGIC 5 is a registered trademark of Rockwell Sofware Inc., of 717 West Smith Road, Medina, OH 44256

PCU-1

Cross-Site Transfer System Alarms Received at the OCS (242-S Control Room)

Alarm File	Computer Graphics	File	Rung	Label	Alarm Description	Alarm Operable for Transfer		Comment	Setpoints
						Supernate	Slurry		
		4	9	B3/48	ANALOG MODULE INPUT CHANNEL UNDER OR OVER RANGE ALARMS NOT ACTIVE	YES		N/A	N/A
YES	YES	4	10	FI-302C-1_A (FE/FT)	PCU-1 INPUT ANALOG OVER AND UNDER RANGE ALARM	YES		Pump not required for supernate transfer (Raw Water Pressure only)	+5, -5
YES	YES	4	11	FIC-302C-2_A (FE/FT, FQI)	PCU-1 INPUT ANALOG OVER AND UNDER RANGE ALARM	YES		Incoming raw water flow	+5, -5
YES	YES	4	12	LI-302C-1_A (LIT)	PCU-1 INPUT ANALOG OVER AND UNDER RANGE ALARM	NO		Tank not being used for transfer line flushes (LIT non-functional, Interlock 18)	+48, -48
YES	YES	4	13	II-3102_A	PCU-1 INPUT ANALOG OVER AND UNDER RANGE ALARM	YES		Amperage for pump	+1, -1
YES	YES	4	14	LI-3102_A	PCU-1 INPUT ANALOG OVER AND UNDER RANGE ALARM	NO		ENRAF input not available	+1, -1
YES	YES	4	18	TI-302C-1_A (TE)	PCU-1 INPUT THERMOCOUPLE OVER AND UNDER RANGE ALARM	NO		No water in the 302C tank (displays ambient temperature)	0-180 F N/A
YES	YES	4	20	TI-302C-2_A (TE)	PCU-1 INPUT THERMOCOUPLE OVER AND UNDER RANGE ALARM	YES		Use when performing line fill or flush	N/A
YES		5	1	HB_OCS_PLC1 (COM-OCS_1)	HEARTBEAT FROM OCS TO PLC1	YES			
YES		5	3	COM-1_OCS	COMMUNICATION WITH OCS IGNORED	YES			B3/0
YES		5	4	BATT_BAD_PLC1	PLC-1 BATTERY IS BAD OR MISSING	YES			
YES		5	8	COM-12	COMMUNICATION WITH PCU-2 IGNORED	YES			
YES		5	13	COM-13	COMMUNICATION WITH PCU-3 IGNORED	YES			
YES		5	18	COM-14	COMMUNICATION WITH PCU-4 IGNORED	YES			

PCU-1

Cross-Site Transfer System Alarms Received at the OCS (242-S Control Room)

Alarm File	Computer Graphics	File	Rung	Label	Alarm Description	Alarm Operable for Transfer		Comment	Setpoints
						Supernate	Slurry		
YES		5	23	COM-15	COMMUNICATION WITH PCU-5 IGNORED	YES			
YES		6	2	LAL-3102 (LIT-WST-3102)	TANK 241-SY-102 LOW LEVEL	NO		ENRAF input not available (Interlocks 3, 9, and 20)	5 B3/0
YES	YES	6	24	XA-058W	200-W MASTER SHUTDOWN CIRCUIT ACTIVATED, Y-77.1	YES		K-6241 RELAY	N/A
YES		6	27	FT-302C-1	FLUSH PUMP P-3100A OUTLET FLOW	NO			10
YES		6	28	LAL-302C-1 (LIT-302C-1)	TANK TK-302C-1 LEVEL BIT, Y-90.1 (N:013/006)	NO		Tank not being used for transfer line flushes (Interlock 18)	600 B3/0
YES		6	37	FAL-P3100A	FLUSH PUMP P-3100A LOW FLOW, Y-90.1	NO		Pump not required for supernate transfer (raw water pressure only)	N/A
YES				TAH-302C-1A (TSH-302C-4A)	CIRCULATION HEATER #1, HTR-302C-1 OUTLET TEMP. (OFF = ALARM)	YES		For post transfer flush only	N/A
YES				TAH-302C-1B (TSH-302C-4B)	CIRCULATION HEATER #2, HTR-302C-2 OUTLET TEMP. (OFF = ALARM)	YES		For post transfer flush only	N/A

PCU-2

Cross-Site Transfer System Alarms Received at the OCS (242-S Control Room)

Alarm File	Computer Graphics	File	Rung	Label	Alarm Description	Alarm Operable for Transfer		Comment	Setpoint
						Supernate	Slurry		
YES	YES	4	15	TI-3125B1_A (TIR/TSH)	PCU-2 INPUT R.T.D. TEMP. OVER OR UNDER RANGE ALARM	NO		Inboard bearing temperature Booster Pump P-3125B	Thrust End Bearing
YES	YES	4	16	TI-3125B2_A (TIR/TSH)	PCU-2 INPUT R.T.D. TEMP. OVER OR UNDER RANGE ALARM	NO		Outboard bearing temperature Booster Pump P-3125B	Drive End Bearing
YES	YES	4	17	TI-3125A1_A (TIR/TSH)	PCU-2 INPUT R.T.D. TEMP. OVER OR UNDER RANGE ALARM	NO		Inboard bearing temperature Booster Pump P-3125A	Thrust End Bearing
YES	YES	4	18	TI-3125A2_A (TIR/TSH)	PCU-2 INPUT R.T.D. TEMP. OVER OR UNDER RANGE ALARM	NO		Outboard bearing temperature Booster Pump P-3125A	Drive End Bearing
YES	YES	4	23	TI-3125A_A (TE)	PCU-2 INPUT THERMOCOUPLE OVER OR UNDER RANGE ALARM	NO		Slurry Line temperature	
YES	YES	4	25	TI-3125B_A (TE)	PCU-2 INPUT THERMOCOUPLE OVER OR UNDER RANGE ALARM	NO		Supernate Line temperature	
		4	31	B3/48	ANALOG MODULE INPUT CHANNEL UNDER OR OVER RANGE ALARMS NOT ACTIVE				
YES	YES	4	32	FIC-3125_A (FIT/FE)	PCU-2 INPUT ANALOG OVER OR UNDER RANGE ALARM	NO		Slurry line fluid flow downstream of Booster Pumps	
YES	YES	4	33	PI-3125A_A (PT)	PCU-2 INPUT ANALOG OVER OR UNDER RANGE ALARM	NO		Booster Pump P-3125A fluid inlet pressure	
YES	YES	4	34	PI-3125B_A (PT)	PCU-2 INPUT ANALOG OVER OR UNDER RANGE ALARM	NO		Booster Pump P-3125B fluid inlet pressure	
YES	YES	4	35	PI-3125C_A (PT)	PCU-2 INPUT ANALOG OVER OR UNDER RANGE ALARM	NO		Booster Pump P-3125A fluid outlet pressure	
YES	YES	4	36	PI-3125D_A (PT)	PCU-2 INPUT ANALOG OVER OR UNDER RANGE ALARM	NO		Booster Pump P-3125B fluid outlet pressure	

3/8/99

Based on HNF-2346, Rev. 1

PCU-2

Cross-Site Transfer System Alarms Received at the OCS (242-S Control Room)

Alarm File	Computer Graphics	File	Rung	Label	Alarm Description	Alarm Operable for Transfer		Comment	Setpoint
						Supernate	Slurry		
YES	YES	4	37	PI-3125E_A (PT)	PCU-2 INPUT ANALOG OVER OR UNDER RANGE ALARM	NO		Supernate line pressure, Interlock 21	
YES	YES	4	38	SI-3125A_A	PCU-2 INPUT ANALOG OVER OR UNDER RANGE ALARM	NO		VSD-1, Booster Pump P-3125A motor speed	0-3600 rpm
YES	YES	4	39	SI-3125B_A	PCU-2 INPUT ANALOG OVER OR UNDER RANGE ALARM	NO		VSD-2, Booster Pump P-3125B motor speed	0-3600 rpm
		4	40	B3/49	ANALOG MODULE INPUT CHANNEL UNDER OR OVER RANGE ALARMS NOT ACTIVE				
YES	YES	4	41	VI-3125A1_A (VE/VT)	PCU-2 INPUT ANALOG OVER OR UNDER RANGE ALARM	NO		Inboard vibration on Booster Pump P-3125A Thrust end	
YES	YES	4	42	VI-3125B1_A (VE/VT)	PCU-2 INPUT ANALOG OVER OR UNDER RANGE ALARM	NO		Inboard vibration on Booster Pump P-3125B Thrust end	
YES	YES	4	43	VI-3125A2_A (VE/VT)	PCU-2 INPUT ANALOG OVER OR UNDER RANGE ALARM	NO		Outboard vibration on Booster Pump P-3125A Drive end	
YES	YES	4	44	VI-3125B2_A (VE/VT)	PCU-2 INPUT ANALOG OVER OR UNDER RANGE ALARM	NO		Outboard vibration on Booster Pump P-3125B Drive end	
YES	YES	4	45	PI-3173_A (PT)	PCU-2 INPUT ANALOG OVER OR UNDER RANGE ALARM	YES		Sump Pump P-3115 line pressure	-4, 4 psi
YES	YES	4	46	PI-3182_A (PT)	PCU-2 INPUT ANALOG OVER OR UNDER RANGE ALARM	YES		Supernate line pressure	-3, 3 psi
YES	YES	4	47	PI-3183_A (PT)	PCU-2 INPUT ANALOG OVER OR UNDER RANGE ALARM	NO		Slurry line pressure	
YES		5	1	HB_OCS_PLC2 (COM-OCS_2)	HEARTBEAT FROM OCS TO PLC2	YES			
YES		5	3	COM-2_OCS	COMMUNICATION WITH OCS IGNORED	YES			B3/0
YES		5	4	BATT_BAD_PLC2	PLC-2 BATTERY IS BAD OR MISSING	YES			

3/8/99

Based on HNF-2346, Rev. 1

PCU-2

Cross-Site Transfer System Alarms Received at the OCS (242-S Control Room)

Alarm File	Computer Graphics	File	Rung	Label	Alarm Description	Alarm Operable for Transfer		Comment	Setpoint
						Supernate	Slurry		
YES		5	8	COM-21	COMMUNICATION WITH PCU-1 IGNORED	YES			
YES		5	13	COM-23	COMMUNICATION WITH PCU-3 IGNORED	YES			
YES		5	18	COM-24	COMMUNICATION WITH PCU-4 IGNORED	YES			
YES		5	23	COM-25	COMMUNICATION WITH PCU-5 IGNORED	YES			
YES		6	6	ZA-3182A2	VALVE (SOV-3182A) FAILED TO CLOSE, Y-71.1	YES		Supernate Line, No Interlock	
YES		6	8	ZA-3182A1	VALVE (SOV-3182A) FAILED TO OPEN, Y-71.1	YES		Supernate Line, No Interlock	
YES	YES	6	11	ZA-3182A	VALVE (SOV-3182A) POSITION SWITCH FAILURE, Y-71.1	YES		Supernate Line, No Interlock	
YES		6	19	ZA-3182B2	VALVE (SOV-3182B) FAILED TO CLOSE, Y-71.1	YES		Supernate Line, No Interlock	
YES		6	21	ZA-3182B1	VALVE (SOV-3182B) FAILED TO OPEN, Y-71.1	YES		Supernate Line, No Interlock	
YES	YES	6	24	ZA-3182B	VALVE (SOV-3182B) POSITION SWITCH FAILURE, Y-71.1	YES		Supernate Line, No Interlock	
YES		6	32	ZA-3184-2	VALVE (SOV-3184) FAILED TO CLOSE, Y-71.1	YES		Supernate Line, No Interlock	
YES		6	34	ZA-3184-1	VALVE (SOV-3184) FAILED TO OPEN, Y-71.1	YES		Supernate Line, No Interlock	
YES	YES	6	37	ZA-3184	VALVE (SOV-3184) POSITION SWITCH FAILURE, Y-71.1	YES		Supernate Line, No Interlock	
YES		6	45	ZA-3183A2	VALVE (SOV-3183A) FAILED TO CLOSE, Y-71.1	NO		Slurry Line, No Interlock	
YES		6	47	ZA-3183A1	VALVE (SOV-3183A) FAILED TO OPEN, Y-71.1	NO		Slurry Line, No Interlock	
YES	YES	6	50	ZA-3183A	VALVE (SOV-3183A) POSITION SWITCH FAILURE, Y-71.1	NO		Slurry Line, No Interlock	
YES		6	58	ZA-3183B2	VALVE (SOV-3183B) FAILED TO CLOSE, Y-71.1	NO		Slurry Line, No Interlock	

Based on HNF-2346, Rev. 1

PCU-2

Cross-Site Transfer System Alarms Received at the OCS (242-S Control Room)

Alarm File	Computer Graphics	File	Rung	Label	Alarm Description	Alarm Operable for Transfer		Comment	Setpoint
						Supernate	Slurry		
YES		6	60	ZA-3183B1	VALVE (SOV-3183B) FAILED TO OPEN, Y-71.1	NO		Slurry Line, No Interlock	
YES	YES	6	63	ZA-3183B	VALVE (SOV-3183B) POSITION SWITCH FAILURE, Y-71.1	NO		Slurry Line, No Interlock	
YES		6	67	PAH-3173 (PI/PT)	VALVE SOV-3173A/B FAILURE, Y-73.1	YES		Interlock 20	10 psig (S/D 10 psig)
YES		6	69	PAH-3182 (PI/PT)	VALVE SOV-3182A/B FAILURE, Y-73.1	YES			>200 psig
YES		6	71	PAH-3183 (PI/PT)	VALVE SOV-3183A/B FAILURE, Y-73.1	NO			10 psig (S/D 10 psig)
YES	YES	6	72	LDA-3150 (LDK-3150, 3150A) (LDXA-3150)	LEAK DETECTED AT DIVERSION BOX 6241-A SUMP, Y-72.1	YES		Interlocks 1, 11, 12, and 13	
YES	YES	6	73	LDA-3160 (LDE/LDK)	CONTINUOUS LEAK DETECTION DIVERSION BOX, 6241-A	YES		Encasement leak detection, Interlock 1	
YES		7	4	XA-3125A	BOOSTER PUMP P-3125A FAILURE, Y-74.1	NO		Interlock 6 (See interlocks 1,2, 7, 8, 9, 11, 15)	
YES		7	6	PAL-3125A	BOOSTER PUMP P-3125A LOW INLET PRESSURE, Y-74.1	NO			S/D <10 psig
YES		7	15	XA-3125B	BOOSTER PUMP P-3125B FAILURE, Y-74.2	NO		Interlock 6 (See interlocks 1,2, 7, 8, 9, 11, 15)	
YES		7	17	PAL-3125B	BOOSTER PUMP P-3125A LOW INLET PRESSURE, Y-74.2	NO			S/D <10 psig
YES		7	33	PAH-3125A	BOOSTER PUMP P-3125A HIGH INLET PRESSURE, Y-75.1	NO		Interlocks 7 and 10	70 psig (S/D 70 psig)

Based on HNF-2346, Rev. 1

Cross-Site Transfer System Alarms Received at the OCS (242-S Control Room)

Alarm File	Computer Graphics	File	Rung	Label	Alarm Description	Alarm Operable for Transfer		Comment	Setpoint
						Supernate	Slurry		
YES		7	36	PAH-3125C	BOOSTER PUMP P-3125A HIGH DISCHARGE PRESSURE, Y-78.1	NO		Interlock 14	1250 psig (S/D 1250 psig)
YES		7	37	TAH-3125A1	PUMP P-3125A INBOARD BEARING HIGH TEMP. FAULT, Y-76.1	NO			190 F (S/D 200 F)
YES		7	39	TAH-3125A2	PUMP P-3125A OUTBOARD BEARING HIGH TEMP. FAULT, Y-76.1	NO			190 F (S/D 200 F)
YES		7	41	VAH-3125A1	PUMP P-3125A HIGH MOTOR VIBRATION ALARM, Y-76.1	NO			0.3"/sec. (0.6"/ sec.)
YES		7	43	VAH-3125A2	PUMP P-3125A HIGH MOTOR VIBRATION ALARM, Y-76.1	NO			0.3"/sec. (0.6"/ sec.)
YES		7	45	FAH-3125A1 (FSH-3125A1)	LOW AIR FLOW PUMP SEAL PUMP P-3125A (OFF = ALARM), Y-76	NO		Inboard bearing seal	
YES		7	45	FAH-3125A2 (FSH-3125A2)	LOW AIR FLOW PUMP SEAL PUMP P-3125A (OFF = ALARM), Y-76	NO		Outboard bearing seal	
YES		7	45	LAL-3125A1 (LSL-3125A1)	PUMP P-3125A LOW OIL LEVEL, Y-76	NO		Inboard bearing	
YES		7	45	LAL-3125A2 (LSL-3125A2)	PUMP P-3125A LOW OIL LEVEL, Y-76	NO		Outboard bearing	
YES		7	45	PAL-3125A1 (PSL-3125A1)	PUMP P-3125A SEAL FAILURE (OFF = ALARM), Y-76	NO		Inboard bearing seal, Forced ON to clear the alarm (valve closed)	
YES		7	45	PAL-3125A2 (PSL-3125A2)	PUMP P-3125A SEAL FAILURE (OFF = ALARM), Y-76	NO		Outboard bearing seal, Forced ON to clear the alarm (valve closed)	

PCU-2

Cross-Site Transfer System Alarms Received at the OCS (242-S Control Room)

Alarm File	Computer Graphics	File	Rung	Label	Alarm Description	Alarm Operable for Transfer		Comment	Setpoint
						Supernate	Slurry		
YES		7	45	TAH-3125A (TSH-3125A)	PUMP P-3125A MOTOR WINDING TEMPERATURE HIGH (OFF = ALARM), Y-76	NO			
YES		7	46	PAH-3125B	BOOSTER PUMP P-3125B HIGH INLET PRESSURE, Y-75.1	NO		Interlocks 7 and 10	70 psig (S/D 70 psig)
YES		7	49	PAH-3125D	BOOSTER PUMP P-3125B HIGH DISCHARGE PRESSURE, Y-78.1	NO		Interlock 14	1250 psig (S/D 1250 psig)
YES		7	50	TAH-3125B1	PUMP P-3125B INBOARD BEARING HIGH TEMP. FAULT, Y-76.1	NO			190 F (S/D 200 F)
YES		7	52	TAH-3125B2	PUMP P-3125B OUTBOARD BEARING HIGH TEMP. FAULT, Y-76.1	NO			190 F (S/D 200 F)
YES		7	54	VAH-3125B1	PUMP P-3125B HIGH MOTOR VIBRATION ALARM, Y-76.1	NO			0.3"/sec. (0.6"/ sec.)
YES		7	56	VAH-3125B2	PUMP P-3125B HIGH MOTOR VIBRATION ALARM, Y-76.1	NO			0.3"/sec. (0.6"/ sec.)
YES		7	58	FAH-3125B1 (FSH-3125B1)	LOW AIR FLOW PUMP SEAL PUMP P-3125B (OFF = ALARM), Y-76	NO		Inboard bearing seal	
YES		7	58	FAH-3125B2 (FSH-3125B2)	LOW AIR FLOW PUMP SEAL PUMP P-3125B (OFF = ALARM), Y-76	NO		Outboard bearing seal	
YES		7	58	LAL-3125B1 (LSL-3125B1)	PUMP P-3125B LOW OIL LEVEL, Y-76	NO		Inboard bearing	
YES		7	58	LAL-3125B2 (LSL-3125B2)	PUMP P-3125B LOW OIL LEVEL, Y-76	NO		Outboard bearing	

Based on HNF-2346, Rev. 1

Cross-Site Transfer System Alarms Received at the OCS (242-S Control Room)

Alarm File	Computer Graphics	File	Rung	Label	Alarm Description	Alarm Operable for Transfer		Comment	Setpoint
						Supernate	Slurry		
YES		7	58	PAL-3125B1 (PSL-3125B)	PUMP P-3125B SEAL FAILURE (OFF = ALARM), Y-76	NO		Inboard bearing seal, Forced ON to clear the alarm (valve closed)	
YES		7	58	PAL-3125B2 (PSL-3125B2)	PUMP P-3125B SEAL FAILURE (OFF = ALARM), Y-76	NO		Outboard bearing seal, Forced ON to clear the alarm (valve closed)	
YES		7	58	TAH-3125B (TSH-3125B)	PUMP P-3125B MOTOR WINDING TEMPERATURE HIGH (OFF = ALARM), Y-76	NO			
YES	YES	8	1	MOV-3125AA-O	OPEN (DRAIN) VALVE MOV-3125AA, Y-79.1	NO		Slurry Line, P-3125A, Interlock 15	
YES	YES	8	2	MOV-3125AA-C	CLOSE (DRAIN) VALVE MOV-3125AA, Y-79.1	NO		Slurry Line, P-3125A, Interlock 15	
YES	YES	8	3	MOV-3125AB-O	OPEN (DRAIN) VALVE MOV-3125AB, Y-79.1	NO		Slurry Line, P-3125A, Interlock 15	
YES	YES	8	4	MOV-3125AB-C	CLOSE (DRAIN) VALVE MOV-3125AB, Y-79.1	NO		Slurry Line, P-3125A, Interlock 15	
YES	YES	8	5	MOV-3125AC-O	OPEN (DRAIN) VALVE MOV-3125AC, Y-79.1	NO		Slurry Line, P-3125A, Interlock 15	
YES	YES	8	6	MOV-3125AC-C	CLOSE (DRAIN) VALVE MOV-3125AC, Y-79.1	NO		Slurry Line, P-3125A, Interlock 15	
YES	YES	8	7	MOV-3125AD-O	OPEN (DRAIN) VALVE MOV-3125AD, Y-79.1	NO		Slurry Line, P-3125A, Interlock 15	
YES	YES	8	8	MOV-3125AD-C	CLOSE (DRAIN) VALVE MOV-3125AD, Y-79.1	NO		Slurry Line, P-3125A, Interlock 15	
YES	YES	8	9	MOV-3125AE-O	OPEN (DRAIN) VALVE MOV-3125AE, Y-79.1	NO		Slurry Line, P-3125A, Interlock 15	
YES	YES	8	10	MOV-3125AE-C	CLOSE (DRAIN) VALVE MOV-3125AE, Y-79.1	NO		Slurry Line, P-3125A, Interlock 15	
YES	YES	8	11	MOV-3125AF-O	OPEN (DRAIN) VALVE MOV-3125AF, Y-79.1	NO		Slurry Line, P-3125A, Interlock 15	

PCU-2

Cross-Site Transfer System Alarms Received at the OCS (242-S Control Room)

Alarm File	Computer Graphics	File	Rung	Label	Alarm Description	Alarm Operable for Transfer		Comment	Setpoint
						Supernate	Slurry		
YES	YES	8	12	MOV-3125AF-C	CLOSE (DRAIN) VALVE MOV-3125AF, Y-79.1	NO		Slurry Line, P-3125A, Interlock 15	
YES	YES	8	13	MOV-3125AG-O	OPEN (DRAIN) VALVE MOV-3125AG, Y-79.1	NO		Slurry Line, P-3125A, Interlock 15	
YES	YES	8	14	MOV-3125AG-C	CLOSE (DRAIN) VALVE MOV-3125AG, Y-79.1	NO		Slurry Line, P-3125A, Interlock 15	
YES	YES	8	15	MOV-3125AH-O	OPEN (DRAIN) VALVE MOV-3125AH, Y-79.1	NO		Slurry Line, P-3125A, Interlock 15	
YES	YES	8	16	MOV-3125AH-C	CLOSE (DRAIN) VALVE MOV-3125AH, Y-79.1	NO		Slurry Line, P-3125A, Interlock 15	
YES	YES	8	17	MOV-3125AJ-O	OPEN (DRAIN) VALVE MOV-3125AJ, Y-79.2	NO		Slurry Line, P-3125A, Interlock 15	
YES	YES	8	18	MOV-3125AJ-C	CLOSE (DRAIN) VALVE MOV-3125AJ, Y-79.2	NO		Slurry Line, P-3125A, Interlock 15	
YES	YES	8	19	MOV-3125AK-O	OPEN (DRAIN) VALVE MOV-3125AK, Y-79.2	NO		Slurry Line, P-3125A, Interlock 15	
YES	YES	8	20	MOV-3125AK-C	CLOSE (DRAIN) VALVE MOV-3125AK, Y-79.2	NO		Slurry Line, P-3125A, Interlock 15	
YES	YES	8	21	MOV-3125BA-O	OPEN (DRAIN) VALVE MOV-3125BA, Y-80.1	NO		Slurry Line, P-3125B, Interlock 15	
YES	YES	8	22	MOV-3125BA-C	CLOSE (DRAIN) VALVE MOV-3125BA, Y-80.1	NO		Slurry Line, P-3125B, Interlock 15	
YES	YES	8	23	MOV-3125BB-O	OPEN (DRAIN) VALVE MOV-3125BB, Y-80.1	NO		Slurry Line, P-3125B, Interlock 15	
YES	YES	8	24	MOV-3125BB-C	CLOSE (DRAIN) VALVE MOV-3125BB, Y-80.1	NO		Slurry Line, P-3125B, Interlock 15	
YES	YES	8	25	MOV-3125BC-O	OPEN (DRAIN) VALVE MOV-3125BC, Y-80.1	NO		Slurry Line, P-3125B, Interlock 15	
YES	YES	8	26	MOV-3125BC-C	CLOSE (DRAIN) VALVE MOV-3125BC, Y-80.1	NO		Slurry Line, P-3125B, Interlock 15	
YES	YES	8	27	MOV-3125BD-O	OPEN (DRAIN) VALVE MOV-3125BD, Y-80.1	NO		Slurry Line, P-3125B, Interlock 15	
YES	YES	8	28	MOV-3125BD-C	CLOSE (DRAIN) VALVE MOV-3125BD, Y-80.1	NO		Slurry Line, P-3125B, Interlock 15	

3/8/99

Based on HNF-2346, Rev. 1

Cross-Site Transfer System Alarms Received at the OCS (242-S Control Room)

Alarm File	Computer Graphics	File	Rung	Label	Alarm Description	Alarm Operable for Transfer		Comment	Setpoint
						Supernate	Slurry		
YES	YES	8	29	MOV-3125BE-O	OPEN (DRAIN) VALVE MOV-3125BE, Y-80.1	NO		Slurry Line, P-3125B, Interlock 15	
YES	YES	8	30	MOV-3125BE-C	CLOSE (DRAIN) VALVE MOV-3125BE, Y-80.1	NO		Slurry Line, P-3125B, Interlock 15	
YES	YES	8	31	MOV-3125BF-O	OPEN (DRAIN) VALVE MOV-3125BF, Y-80.1	NO		Slurry Line, P-3125B, Interlock 15	
YES	YES	8	32	MOV-3125BF-C	CLOSE (DRAIN) VALVE MOV-3125BF, Y-80.1	NO		Slurry Line, P-3125B, Interlock 15	
YES	YES	8	33	MOV-3125BG-O	OPEN (DRAIN) VALVE MOV-3125BG, Y-80.1	NO		Slurry Line, P-3125B, Interlock 15	
YES	YES	8	34	MOV-3125BG-C	CLOSE (DRAIN) VALVE MOV-3125BG, Y-80.1	NO		Slurry Line, P-3125B, Interlock 15	
YES	YES	8	35	MOV-3125BH-O	OPEN (DRAIN) VALVE MOV-3125BH, Y-80.1	NO		Slurry Line, P-3125B, Interlock 15	
YES	YES	8	36	MOV-3125BH-C	CLOSE (DRAIN) VALVE MOV-3125BH, Y-80.1	NO		Slurry Line, P-3125B, Interlock 15	
YES	YES	8	37	MOV-3125BJ-O	OPEN (DRAIN) VALVE MOV-3125BJ, Y-80.2	NO		Slurry Line, P-3125B, Interlock 15	
YES	YES	8	38	MOV-3125BJ-C	CLOSE (DRAIN) VALVE MOV-3125BJ, Y-80.2	NO		Slurry Line, P-3125B, Interlock 15	
YES	YES	8	39	MOV-3125BK-O	OPEN (DRAIN) VALVE MOV-3125BK, Y-80.2	NO		Slurry Line, P-3125B, Interlock 15	
YES	YES	8	40	MOV-3125BK-C	CLOSE (DRAIN) VALVE MOV-3125BK, Y-80.2	NO		Slurry Line, P-3125B, Interlock 15	
YES	YES	8	41	SOV-3163-O	OPEN VALVE SOV-3163, Y-80.2	NO		Slurry Line, P-3125A and P-3125B, Interlock 15	
YES	YES	8	42	SOV-3163-C	CLOSE VALVE SOV-3163, Y-79.2 AND Y-80.2	NO		Slurry Line, P-3125A and P-3125B, Interlock 15	
YES		9	5	ZA-3125E2	VALVE SOV-3125E FAILED TO CLOSE, Y-83.1	NO		Slurry Line, No Interlock, P-3125A Inlet	

PCU-2

Cross-Site Transfer System Alarms Received at the OCS (242-S Control Room)

Alarm File	Computer Graphics	File	Rung	Label	Alarm Description	Alarm Operable for Transfer		Comment	Setpoint
						Supernate	Slurry		
YES		9	7	ZA-3125E1	VALVE SOV-3125E FAILED TO OPEN, Y-83.1	NO		Slurry Line, No Interlock, P-3125A Inlet	
YES	YES	9	10	ZA-3125E	VALVE SOV-3125E POSITION SWITCH FAILURE, Y-83.1	NO		Slurry Line, No Interlock, P-3125A Inlet	
YES		9	17	ZA-3125C2	VALVE SOV-3125C FAILED TO CLOSE, Y-84.1	NO		Interlock, P-3125A Outlet	
YES		9	19	ZA-3125C1	VALVE SOV-3125C FAILED TO OPEN, Y-84.1	NO		Interlock, P-3125A Outlet	
YES	YES	9	22	ZA-3125C	VALVE SOV-3125C POSITION SWITCH FAILURE, Y-84.1	NO		Interlock, P-3125A Outlet	
YES		9	29	ZA-3125G2	VALVE SOV-3125G FAILED TO CLOSE, Y-85.1	NO		Slurry Line, No Interlock, P-3125B Inlet	
YES		9	31	ZA-3125G1	VALVE SOV-3125G FAILED TO OPEN, Y-85.1	NO		Slurry Line, No Interlock, P-3125B Inlet	
YES	YES	9	34	ZA-3125G	VALVE SOV-3125G POSITION SWITCH FAILURE, Y-85.1	NO		Slurry Line, No Interlock, P-3125B Inlet	
YES		9	41	ZA-3125D2	VALVE SOV-3125D FAILED TO CLOSE, Y-86.1	NO		Interlock, P-3125B Outlet	
YES		9	43	ZA-3125D1	VALVE SOV-3125D FAILED TO OPEN, Y-86.1	NO		Interlock, P-3125B Outlet	
YES	YES	9	46	ZA-3125D	VALVE SOV-3125D POSITION SWITCH FAILURE, Y-86.1	NO		Interlock, P-3125B Outlet	
NO		10	2	PT-3125E (PI)	SUPERNATE LINE PRESSURE	YES		Interlock 21	>0 psig (No
YES		10	7	ZA-3173A2	VALVE SOV-3173A FAILED TO CLOSE, Y-87.1	YES		Sump line to Supernate line (Interlocks 4 & 21)	

3/8/99

Based on HNF-2346, Rev. 1

PCU-2

Cross-Site Transfer System Alarms Received at the OCS (242-S Control Room)

Alarm File	Computer Graphics	File	Rung	Label	Alarm Description	Alarm Operable for Transfer		Comment	Setpoint
						Supernate	Slurry		
YES		10	9	ZA-3173A1	VALVE SOV-3173A FAILED TO OPEN, Y-87.1	YES		Sump line to Supernate line (Interlocks 4 & 21)	
YES	YES	10	11	ZA-3173A	VALVE SOV-3173A POSITION SWITCH FAILURE, Y-87.1	YES		Sump line to Supernate line (Interlocks 4 & 21)	
YES		10	18	ZA-3173B2	VALVE SOV-3173B FAILED TO CLOSE, Y-87.2	YES		Sump line to Supernate line (Interlocks 4 & 21)	
YES		10	20	ZA-3173B1	VALVE SOV-3173B FAILED TO OPEN, Y-87.2	YES		Sump line to Supernate line (Interlocks 4 & 21)	
YES	YES	10	22	ZA-3173B	VALVE SOV-3173B POSITION SWITCH FAILURE, Y-87.2	YES		Sump line to Supernate line (Interlocks 4 & 21)	
YES		10	28	ZA-3156A2	VALVE MOV-3156A FAILED TO CLOSE, Y-89.1	YES		Encasement Drain, Supernate line (No Interlocks)	
YES		10	30	ZA-3156A1	VALVE MOV-3156A FAILED TO OPEN, Y-89.1	YES		Encasement Drain, Supernate line (No Interlocks)	
YES	YES	10	32	ZA-3156A	VALVE SOV-3156A POSITION SWITCH FAILURE, Y-89.1	YES		Encasement Drain, Supernate line (No Interlocks)	
YES		10	38	ZA-3156B2	VALVE MOV-3156B FAILED TO CLOSE, Y-89.2	NO		Encasement Drain, Slurry line (No Interlocks)	
YES		10	40	ZA-3156B1	VALVE MOV-3156B FAILED TO OPEN, Y-89.2	NO		Encasement Drain, Slurry line (No Interlocks)	
YES	YES	10	42	ZA-3156B	VALVE SOV-3156B POSITION SWITCH FAILURE, Y-89.2	NO		Encasement Drain, Slurry line (No Interlocks)	

Based on HNF-2346, Rev. 1

PCU-2

Cross-Site Transfer System Alarms Received at the OCS (242-S Control Room)

Alarm File	Computer Graphics	File	Rung	Label	Alarm Description	Alarm Operable for Transfer		Comment	Setpoint
						Supernate	Slurry		
YES	YES			PAL-3100A	LOW PRESSURE ON AIR RECEIVER	YES		No Interlock	
YES	YES			YA-3101A (PSE-3101-A)	ENCASEMENT RUPTURE DISK ACTIVATED	YES		Supernate line	60 psig
YES	YES			YA-3101B (PSE-3101-B)	ENCASEMENT RUPTURE DISK ACTIVATED	NO		Slurry line	60 psig
YES	YES			YA-3101C (PSE-3101-C)	ENCASEMENT RUPTURE DISK ACTIVATED	YES		Supernate line	60 psig
YES	YES			YA-3101D (PSE-3101-D)	ENCASEMENT RUPTURE DISK ACTIVATED	NO		Slurry line	60 psig
YES				YA-3101E	PUMP P-3125A RUPTURE DISK ACTIVATED	NO		Slurry line	1370 psig
YES				YA-3101F	PUMP P-3125A RUPTURE DISK ACTIVATED	NO		Slurry line	1370 psig
YES				YA-3101G	PUMP P-3125B RUPTURE DISK ACTIVATED	NO		Slurry line	1370 psig
YES				YA-3101H	PUMP P-3125B RUPTURE DISK ACTIVATED	NO		Slurry line	1370 psig

Based on HNF-2346, Rev. 1

PCU-3

Cross-Site Transfer System Alarms Received at the OCS (242-S Control Room)

Alarm File	Computer Graphics	File	Rung	Label	Alarm Description	Alarm Operable for Transfer		Comment	Setpoints
						Supernate	Slurry		
YES	YES	4	7	TI-3126A_A (TE-3126A)	PCU-3 INPUT THERMOCOUPLE OVER OR UNDER RANGE ALARM	YES		Supernate Line Temperature	
YES	YES	4	9	TI-3126B_A (TE-3126B)	PCU-3 INPUT THERMOCOUPLE OVER OR UNDER RANGE ALARM	NO		Slurry Line Temperature	
YES	YES	4	16	PI-3126A_A (PT-3126AR)	PCU-3 INPUT ANALOG OVER OR UNDER RANGE ALARM	YES		Supernate Line Pressure (Interlocks 5 & 21)	-3, 3 psi
YES	YES	4	17	PI-3126B_A (PT-3126BR)	PCU-3 INPUT ANALOG OVER OR UNDER RANGE ALARM	NO		Slurry Line Pressure (Interlock 5)	-10, 10 psi
YES	YES	4	18	PI-3167_A (PT-3167R)	PCU-3 INPUT ANALOG OVER OR UNDER RANGE ALARM	YES		Sump Pump Line Pressure (Interlock 20)	-2, 2 psi
YES	YES	4	19	PI-3168_A (PT-3168R)	PCU-3 INPUT ANALOG OVER OR UNDER RANGE ALARM	NO		Slurry Vent Line Pressure (Interlock 2)	-17, -13 psi
YES	YES	4	20	PI-3185_A (PT-3185R)	PCU-3 INPUT ANALOG OVER OR UNDER RANGE ALARM	YES		Supernate Vent Line Pressure (Interlock 20)	-17, -13 psi
YES		5	1	HB_OCS_PLC3 (COM-OCS_3)	HEARTBEAT FROM OCS TO PLC3	YES			
YES		5	3	COM-3 OCS	COMMUNICATION WITH OCS IGNORED	YES			B3/0
YES		5	4	BATT_BAD_PLC3	PLC-3 BATTERY IS BAD OR MISSING	YES			
YES		5	8	COM-31	COMMUNICATION WITH PCU-1 IGNORED	YES			
YES		5	13	COM-32	COMMUNICATION WITH PCU-2 IGNORED	YES			
YES		5	18	COM-34	COMMUNICATION WITH PCU-4 IGNORED	YES			
YES		5	23	COM-35	COMMUNICATION WITH PCU-5 IGNORED	YES			
YES		6	6	ZA-3165A2	VALVE (SOV-3165A) FAILED TO CLOSE Y71	YES		Supernate Line (No Interlock)	
YES		6	8	ZA-3165A1	VALVE (SOV-3165A) FAILED TO OPEN Y71	YES		Supernate Line (No Interlock)	

3/8/99

Based on HNF-2346, Rev. 1

PCU-3

Cross-Site Transfer System Alarms Received at the OCS (242-S Control Room)

Alarm File	Computer Graphics	File	Rung	Label	Alarm Description	Alarm Operable for Transfer		Comment	Setpoints
						Supernate	Slurry		
YES	YES	6	11	ZA-3165A	VALVE (SOV-3165A) POSITION SWITCH FAILURE Y71	YES		Supernate Line (No Interlock)	
YES		6	19	ZA-3166A2	VALVE (SOV-3166A) FAILED TO CLOSE Y71	YES		Supernate Line (No Interlock)	
YES		6	21	ZA-3166A1	VALVE (SOV-3166A) FAILED TO OPEN Y71	YES		Supernate Line (No Interlock)	
YES	YES	6	24	ZA-3166A	VALVE (SOV-3166A) POSITION SWITCH FAILURE Y71	YES		Supernate Line (No Interlock)	
YES		6	32	ZA-3165B2	VALVE (SOV-3165B) FAILED TO CLOSE Y71	NO		Slurry Line (No Interlock)	
YES		6	34	ZA-3165B1	VALVE (SOV-3165B) FAILED TO OPEN Y71	NO		Slurry Line (No Interlock)	
YES	YES	6	37	ZA-3165B	VALVE (SOV-3165B) POSITION SWITCH FAILURE Y71	NO		Slurry Line (No Interlock)	
YES		6	45	ZA-3166B2	VALVE (SOV-3166B) FAILED TO CLOSE Y71	NO		Slurry Line (No Interlock)	
YES		6	47	ZA-3166B1	VALVE (SOV-3166B) FAILED TO OPEN Y71	NO		Slurry Line (No Interlock)	
YES	YES	6	50	ZA-3166B	VALVE (SOV-3166B) POSITION SWITCH FAILURE Y71	NO		Slurry Line (No Interlock)	
YES		7	5	ZA-3185A2	VALVE (SOV-3185A) FAILED TO CLOSE Y81-1	YES		Supernate Line Vent Valve (Interlock 5)	
YES		7	7	ZA-3185A1	VALVE (SOV-3185A) FAILED TO OPEN Y81-1	YES		Supernate Line Vent Valve (Interlock 5)	
YES	YES	7	9	ZA-3185A	VALVE (SOV-3185A) POSITION SWITCH FAILURE Y81-1	YES		Supernate Line Vent Valve (Interlock 5)	
YES		7	16	ZA-3185B2	VALVE (SOV-3185B) FAILED TO CLOSE Y81-2	YES		Supernate Line Vent Valve (Interlock 5)	
YES		7	18	ZA-3185B1	VALVE (SOV-3185B) FAILED TO OPEN Y81-2	YES		Supernate Line Vent Valve (Interlock 5)	
YES	YES	7	20	ZA-3185B	VALVE (SOV-3185B) POSITION SWITCH FAILURE Y81-2	YES		Supernate Line Vent Valve (Interlock 5)	
YES		7	27	ZA-3168A2	VALVE (SOV-3168A) FAILED TO CLOSE Y81-3	NO		Slurry Line Vent Valve (Interlock 5)	

3/8/99

Based on HNF-2346, Rev. 1

Cross-Site Transfer System Alarms Received at the OCS (242-S Control Room)

Alarm File	Computer Graphics	File	Rung	Label	Alarm Description	Alarm Operable for Transfer		Comment	Setpoints
						Supernate	Slurry		
YES		7	29	ZA-3168A1	VALVE (SOV-3168A) FAILED TO OPEN Y81-3	NO		Slurry Line Vent Valve (Interlock 5)	
YES	YES	7	31	ZA-3168A	VALVE (SOV-3168A) POSITION SWITCH FAILURE Y81-3	NO		Slurry Line Vent Valve (Interlock 5)	
YES		7	38	ZA-3168B2	VALVE (SOV-3168B) FAILED TO CLOSE Y81-4	NO		Slurry Line Vent Valve (Interlock 5)	
YES		7	40	ZA-3168B1	VALVE (SOV-3168B) FAILED TO OPEN Y81-4	NO		Slurry Line Vent Valve (Interlock 5)	
YES	YES	7	42	ZA-3168B	VALVE (SOV-3168B) POSITION SWITCH FAILURE Y81-4	NO		Slurry Line Vent Valve (Interlock 5)	
YES		8	8	ZA-3167A2	VALVE (SOV-3167A) FAILED TO CLOSE Y88-1	YES		Sump Pump P-3116 Valve (Interlocks 4 & 21)	
YES		8	10	ZA-3167A1	VALVE (SOV-3167A) FAILED TO OPEN Y88-1	YES		Sump Pump P-3116 Valve (Interlocks 4 & 21)	
YES	YES	8	12	ZA-3167A	VALVE (SOV-3167A) POSITION SWITCH FAILURE Y88-1	YES		Sump Pump P-3116 Valve (Interlocks 4 & 21)	
YES		8	19	ZA-3167B2	VALVE (SOV-3167B) FAILED TO CLOSE Y88-2	YES		Sump Pump P-3116 Valve (Interlocks 4 & 21)	
YES		8	21	ZA-3167B1	VALVE (SOV-3167B) FAILED TO OPEN Y88-2	YES		Sump Pump P-3116 Valve (Interlocks 4 & 21)	
YES	YES	8	23	ZA-3167B	VALVE (SOV-3167B) POSITION SWITCH FAILURE Y88-2	YES		Sump Pump P-3116 Valve (Interlocks 4 & 21)	
YES	YES	12	4	LDA-3151 (LDK-3151, 3151A) (LDXA-3151)	LEAK DETECTED AT VENT STATION 6241-V SUMP Y72.1	YES		Sump Leak Detection (Interlocks 1, 11, 12, & 13)	
YES	YES	12	9	LDA-3161 (LDA-TR-LINE, LDK-3161)	TRANSFER LINE LEAK DETECTED Y72	YES		Encasement Leak Detection (Interlock 1)	
YES		12	11	PAH-3167	VALVE SOV-3167 A/B FAILURE Y73	YES		Interlock 20	10 psig (S/D 10 psig)

PCU-3

Cross-Site Transfer System Alarms Received at the OCS (242-S Control Room)

Alarm File	Computer Graphics	File	Rung	Label	Alarm Description	Alarm Operable for Transfer		Comment	Setpoints
						Supernate	Slurry		
YES		12	13	PAH-3168	VALVE SOV-3168A/B FAILURE Y73	NO		Interlock 2	10 psig (S/D 10 psig)
YES		12	15	PAH-3185	VALVE SOV-3185A/B FAILURE Y73	YES		Interlock 20	10 psig (S/D 10 psig)
YES	YES			PAL-3100B	LOW PRESSURE ON AIR RECEIVER	YES		No Interlock	
YES				YA-3102A (PSE-3102A)	ENCASEMENT RUPTURE DISK ACTIVATED (SUPERNATE LINE)	YES		No Interlock	60 psig
YES				YA-3102C (PSE-3102C)	ENCASEMENT RUPTURE DISK ACTIVATED (SUPERNATE LINE)	YES		No Interlock	60 psig
YES				YA-3102B (PSE-3102B)	ENCASEMENT RUPTURE DISK ACTIVATED (SLURRY LINE)	NO		No Interlock	60 psig
YES				YA-3102D (PSE-3102D)	ENCASEMENT RUPTURE DISK ACTIVATED (SLURRY LINE)	NO		No Interlock	60 psig

PCU-4

Cross-Site Transfer System Alarms Received at the OCS (242-S Control Room)

Alarm File	Computer Graphics	File	Rung	Label	Alarm Description	Alarm Operable for Transfer		Comment	Setpoints
						Supernate	Slurry		
YES	YES	4	8	DI-850_A (DY, SGT)	PCU-4 INPUT ANALOG OVER OR UNDER RANGE ALARM	NO		Specific Gravity of Sump	9, 11
YES	YES	4	9	LI-850_A (LY, WFT)	PCU-4 INPUT ANALOG OVER OR UNDER RANGE ALARM	NO		Weight Factor of Sump	-1, 1
YES	YES	4	10	RI-851_A (RY)	PCU-4 INPUT ANALOG OVER OR UNDER RANGE ALARM	NO		244-A Exhaust Radiation Monitoring	-5, 25
YES	YES	4	11	FI-851_A (FY, FE/FT)	PCU-4 INPUT ANALOG OVER OR UNDER RANGE ALARM	NO		244-A Exhaust Flow Monitoring	-75, 1
YES	YES	4	12	DI-853_A (DY, SGT)	PCU-4 INPUT ANALOG OVER OR UNDER RANGE ALARM	NO		Specific Gravity of Tank	9, 11
YES	YES	4	13	LI-853_A (LY, WFT)	PCU-4 INPUT ANALOG OVER OR UNDER RANGE ALARM	YES		Weight Factor of Tank	-1, 1
YES	YES	4	14	PI-841_A (PT-841R)	PCU-4 INPUT ANALOG OVER OR UNDER RANGE ALARM	NO		Supernate Jumper Pressure	-75, 1
YES	YES	4	15	PI-842_A (PT-842R)	PCU-4 INPUT ANALOG OVER OR UNDER RANGE ALARM	NO		Slurry Jumper Pressure	-1, 1
YES	YES	4	16	TI-841_A (TE)	PCU-4 INPUT THERMOCOUPLE OVER OR UNDER RANGE ALARM	NO		Supernate Jumper Temperature	
YES	YES	4	18	TI-842_A (TE)	PCU-4 INPUT THERMOCOUPLE OVER OR UNDER RANGE ALARM	NO		Slurry Jumper Temperature	
YES		5	1	HB_OCS_PLC4 (COM-OCS_4)	HEARTBEAT FROM OCS TO PLC4	YES			
YES		5	3	COM-4_OCS	COMMUNICATION WITH OCS IGNORED	YES			B3/0
YES		5	4	BATT_BAD_PLC4	PLC-4 BATTERY BAD OR MISSING	YES			
YES		5	8	COM-41	COMMUNICATIONS WITH PCU-1 IGNORED	YES			
YES		5	13	COM-42	COMMUNICATIONS WITH PCU-2 IGNORED	YES			
YES		5	18	COM-43	COMMUNICATIONS WITH PCU-3 IGNORED	YES			
YES		5	23	COM-45	COMMUNICATIONS WITH PCU-5 IGNORED	YES			

3/8/99

Based on HNF-2346, Rev. 1

PCU-4

Cross-Site Transfer System Alarms Received at the OCS (242-S Control Room)

Alarm File	Computer Graphics	File	Rung	Label	Alarm Description	Alarm Operable for Transfer		Comment	Setpoints
						Supernate	Slurry		
YES		6	7	ZA-843-1	VALVE (MOV-843) FAILED TO REACH POSITION 1, Y-71.2	NO		Supernate Jumper Valve (No Interlock)	
YES		6	9	ZA-843-2	VALVE (MOV-843) FAILED TO REACH POSITION 2, Y-71.2	NO		Supernate Jumper Valve (No Interlock)	
YES		6	11	ZA-843-3	VALVE (MOV-843) FAILED TO REACH POSITION 3, Y-71.2	NO		Supernate Jumper Valve (No Interlock)	
YES	YES	6	13	ZA-843	VALVE (MOV-843) POSITION SWITCH FAILURE, Y-71.2	NO		Supernate Jumper Valve (No Interlock)	
YES		6	23	ZA-844-1	VALVE (MOV-844) FAILED TO REACH POSITION 1, Y-71.3	NO		Slurry Jumper Valve (No Interlock)	
YES		6	25	ZA-844-2	VALVE (MOV-844) FAILED TO REACH POSITION 2, Y-71.3	NO		Slurry Jumper Valve (No Interlock)	
YES		6	27	ZA-844-3	VALVE (MOV-844) FAILED TO REACH POSITION 3, Y-71.3	NO		Slurry Jumper Valve (No Interlock)	
YES	YES	6	29	ZA-844	VALVE (MOV-844) POSITION SWITCH FAILURE, Y-71.3	NO		Slurry Jumper Valve (No Interlock)	
YES		6	39	ZA-845-2	VALVE (MOV-845) FAILED TO CLOSE, Y-71	NO		Slurry Jumper Valve (No Interlock)	
YES		6	41	ZA-845-1	VALVE (MOV-845) FAILED TO OPEN, Y-71	NO		Slurry Jumper Valve (No Interlock)	
YES	YES	6	43	ZA-845	VALVE (MOV-845) POSITION SWITCH FAILURE, Y-71	NO		Slurry Jumper Valve (No Interlock)	
YES		6	52	ZA-846-2	VALVE (MOV-846) FAILED TO CLOSE, Y-71	NO		Supernate Jumper Valve (No Interlock)	
YES		6	54	ZA-846-1	VALVE (MOV-846) FAILED TO OPEN, Y-71	NO		Supernate Jumper Valve (No Interlock)	
YES	YES	6	56	ZA-846	VALVE (MOV-846) POSITION SWITCH FAILURE, Y-71	NO		Supernate Jumper Valve (No Interlock)	
YES	YES	6	60	LDA-841 (LDE/LDK-PP)	LEAK DETECTED AT 244-A LIFT STATION SUMP, Y-72.1	YES		244-A Pump pit leak detector, Interlock 1	
YES	YES	6	61	XA-058E (KMS-244A-1)	200 EAST AREA MASTER SHUTDOWN CIRCUIT ACTIVATED, Y-77.1	YES		Interlock 1	

Cross-Site Transfer System Alarms Received at the OCS (242-S Control Room)

Alarm File	Computer Graphics	File	Rung	Label	Alarm Description	Alarm Operable for Transfer		Comment	Setpoints
						Supernate	Slurry		
YES	YES	6	64	YAS-841 (YA) (PSE-841)	ENCASEMENT RUPTURE DISK ACTIVATED (OFF = ALARM), Y-78, SUPERNATE LINE	NO		Rupture disk integrity (Interlock 8)	
YES	YES	6	64	YAS-842 (YA) (PSE-842)	ENCASEMENT RUPTURE DISK ACTIVATED (OFF = ALARM), Y-78, SLURRY LINE	NO		Rupture disk integrity (Interlock 8)	
YES		6	65	RAH-851 (RY)	STACK 296-A-25 HIGH RADIATION	NO			>2500 cpm
YES		6	66	FAL-851 (FY)	STACK 296-A-25 LOW FLOW	NO			
YES		6	67	PAH-842 (PT)	SLURRY LINE HIGH PRESSURE	NO		Interlock 2	200 psig (S/D > 200 psig)
YES				RXA-852	STACK 296-A-25 MONITOR FAILURE	NO			

PCU-5

Cross-Site Transfer System Alarms Received at the OCS (242-S Control Room)

Alarm File	Computer Graphics	File	Rung	Label	Alarm Description	Alarm Operable for Transfer		Comment	Setpoints
						Supernate	Slurry		
YES		5	1	HB_OCS_PLC5 (COM-OCS_5)	HEARTBEAT FROM OCS TO PLC5	YES			
YES		5	3	COM-5_OCS	COMMUNICATION WITH OCS IGNORED	YES			B3/0
YES		5	4	BATT_BAD_PLC5	PLC-5 BATTERY IS BAD OR MISSING	YES			
YES		5	8	COM-51	COMMUNICATIONS WITH PCU-1 IGNORED	YES			
YES		5	13	COM-52	COMMUNICATIONS WITH PCU-2 IGNORED	YES			
YES		5	18	COM-53	COMMUNICATIONS WITH PCU-3 IGNORED	YES			
YES		5	23	COM-54	COMMUNICATIONS WITH PCU-4 IGNORED	YES			
YES	YES	6	1	LDA-3162 (LDK-3162) (PCU-4)	244-A ENCASEMENT LEAK DETECTION (OFF = ALARM), Y-72	YES		Leak Detected in Line to 244-A Lift Station, Interlock 1	

DISTRIBUTION SHEET

To	From	Page 1 of 1
DISTRIBUTION	SINGLE SHELL TANK ENGINEERING	Date 03/09/99
Project Title/Work Order		EDT No. N/A
REPLACEMENT CROSS SITE TRANSFER SYSTEM		ECN No. 643446

Name	MSIN	Text With All Attach.	Text Only	Attach./ Appendix Only	EDT/ECN Only
R.E. LARSON	T4-07	X			
D.P. MENDOZA	T4-08	X			
J.B. ROBERTS	T4-07	X			
M.J. SUTEY	S5-07	X			
D.C. LARSEN	T4-08	X			
CENTRAK FILES	B1-07	X			