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ENGINEERING DATA TRANSMITTAL

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17. SIGNATURE/DISTRIBUTION (See Approval Designator for required signatures)											
(G) Reason	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN	(G) Reason	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN
1		Design Authority	W. F. ZUROFF	3/7/00	57-24						
1		Design Agent	B. R. JOHNS	3/6/00	57-24						
1		Cog. Eng.	B. R. JOHNS	3/6/00	57-24						
1		Cog. Mgr.	M. R. KOCH	3/10/00	57-24						
1		QA	J. J. VERDELL	3/10/00							
1		Safety	C. D. JACKSON	3/10/00							
		Env.	N/A								

18. <u>BR Johns</u> B. R. JOHNS Signature of EDT Originator Date: <u>3/6/00</u>		19. <u>M.R. Koch</u> M. R. KOCH Authorized Representative for Receiving Organization Date: <u>3/10/00</u>		20. <u>W.F. Zuroff</u> W. F. ZUROFF Design Authority/Cognizant Manager Date: <u>3/7/00</u>		21. DOE APPROVAL (if required) Ctrl No. <u>N/A</u> <input type="radio"/> Approved <input type="radio"/> Approved w/comments <input type="radio"/> Disapproved w/comments	
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5

# ACCEPTANCE FOR BENEFICIAL USE PUMPING INSTRUMENTATION AND CONTROL SKID "N"

M. R. KOCH  
CH2MHILL HANFORD GROUP, INC  
Richland, WA 99352  
U.S. Department of Energy Contract DE-AC06-99RL14047

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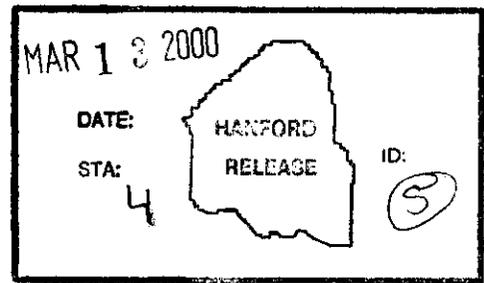
**Abstract:**

This Acceptance for Beneficial Use documents that Pumping Instrumentation and Control (PIC) skid "N" is ready for field use. This document does not cover the field installation or operational testing.

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Release Approval Date



Release Stamp

**Approved For Public Release**

## **ACCEPTANCE FOR BENEFICIAL USE PUMPING INSTRUMENTATION AND CONTROL SKID "N"**

### **1.0 INTRODUCTION**

This is a final Acceptance for Beneficial Use (ABU) for Pumping and Instrumentation Control (PIC) skid "N". PIC skid "N" is ready for pumping tank U-109. All the testing and documentation has been completed as required on the ABU checklist. This ABU covers only the readiness of the PIC skid "N". Other U-farm preparations including dilution tank fabrication, portable exhauster readiness, leak detection, valve pit preparation, and the Operation Control Station readiness are not part of this ABU.

PIC skid "N" is a new skid fabricated and tested at Site Fabrication Services. The skid controls the jet pump and monitors various instruments associated with the pumping operation. This monitoring includes leak detection along the waste transfer route and flammable gases in the pump pit.

### **2.0 DESCRIPTION OF WORK COMPLETED**

#### **2.1 ENGINEERING TASK PLAN**

Engineering Task Plan (ETP) HNF-3828, revision 0 was written and issued to outline the work required for completion of the PIC skid projects. This document includes an estimated schedule for the completion of eleven PIC skids.

#### **2.2 DESIGN CRITERIA**

Functional design criteria document HNF-4481, revision 0 was prepared and issued. This document outlines the basic functional requirements for the PIC skid. The design is based upon PIC skids already in use in the field.

#### **2.3 ACCEPTANCE TESTING**

An acceptance test was performed upon completion of the fabrication of skid "N". The Acceptance Test Procedure (ATP) was provided in document RPP-5489, revision 0. The results of the testing are documented in RPP-5490, revision 0.

#### **2.4 OPERATIONAL TESTING**

Operational Test Procedure OTP-200-004, revision A-23 shall be completed for the testing of PIC skid "N". Most of the operational testing was completed in the shop under the ATP procedure, with the remaining testing completed upon set up at U-109

## 2.5 DESIGN DRAWINGS

Skid drawings have been released under ECN 633146 and ECN 657780. Supplemental ECN 633151 modifies skid "N" for installation of a Combustible Gas Monitor instrument to replace the FGM. Supplemental ECN 657789 modifies skid "N" for a third leak detector for the over-ground transfer line. Supplemental ECN 657830 modifies skid "N" for heat trace power for the over-ground transfer line. ECN 657800 was a direct revision ECN which updated the drawings to reflect the new flow computer and related details. ECN 657815 is a direct revision ECN that adds an hourmeter to the skid to monitor pump run time. ECN 657846 is a supplemental ECN that adds a remote display on the skid for the suction and discharge pressures and the pump flow rate. This work will be performed at a future date after the pump has been placed in service.

## 2.6 INSPECTIONS

A pressure vessel inspection was performed on the air compressor and pressurized water tanks. This inspection verified proper ASME rated tanks and proper relief valves installation. Reference test report RPP-5490 for copy of inspection reports.

A National Electrical Code (NEC) inspection was performed on the electrical power equipment and wiring on the skid. A blue inspection sticker was placed on the inside of the door of the distribution panel indicating a satisfactory inspection. Reference test report RPP-5490 for copy of inspection report.

Material inspections are performed by Quality Assurance at receipt inspection against inspection plans prepared by CHG Quality Assurance. CGI dedication was performed on the leak detection relays at the fabrication shop and witnessed by Quality Assurance.

## 2.7 SOFTWARE CONFIGURATION

Programs were written and installed on the PIC skid for the Programmable Logic Controller (PLC) and the Data Table Access Module (DTAM). These programs were based upon the existing programs installed in the PIC skid "K". For skid "N", these programs are documented in RPP-5492, revision 0, *PLC/DTAM SOFTWARE PROGRAMS FOR PUMPING AND INSTRUMENTATION CONTROL SKID "N"*.

## 2.8 TRAINING

PIC skid "N" is similar to PIC skids "K", "L" and "M". Information for PIC skid "K" has been forwarded to the training department for incorporation into the continuing training program. No special training sessions will be required for the operators prior to startup of PIC skid "N" at U-109 since it is very similar to PIC skid "K". No special training is required for maintenance. The same type instruments and controls are used on the new skid as on skid "K".

## 2.9 OPERATING AND MAINTENANCE PROCEDURES

Operating and maintenance procedures have been updated for the deployment of PIC skid "N" in the field. The following is a list of procedures and data sheets that were updated for the operation and maintenance of the new PIC skid "N".

### 2.9.1 Operating Procedures

TO-505-109, (Pump operation including startup and shutdown)  
TO-430-102, (Material Balance calculations)  
ARP-T-501-001, (Alarm response guide)

### 2.9.2 Calibration Procedures

6-TF-509, *Pressure and Vacuum Gauges Calibration*  
6-CVT-520, *Foxboro E69 Series Current to Pneumatic Signal Converter*  
6-PCD-508, *Calibrate Diaphragm Operated Pressure Switches*  
6-PCD-361, *Foxboro Intelligent Pressure Transmitter*  
6-PCD-524, *Omega Model PX880/PX881 Electronic Pressure Transmitter Calibration*  
6-FCD-454, *Yokogawa Model AE14 Magnetic Flow Converter Calibration*  
TF-FT-309-001, *Perform Saltwell Flush Water High Pressure Detection*  
6-GENI-135, *General Calibration of Digital Indicator*  
6-GM-484, *Calibrate Det-tronics Infiniti Gas Transmitter*

### 2.9.3 Data Sheets

WT-06478, SALW-PS-6004N: Air compressor control switch  
WT-06508, SALW-LT-6003N: Water tank level transmitter  
WT-06497, SALW-SGT-6001N: Specific gravity transmitter  
WT-06477, SALW-FQIT-6001N: Magnetic flow converter  
WT-06496, SALW-WFT-6002N: Weight factor transmitter  
WT-06509, SALW-CONV-6001N: Current to pneumatic converter  
WT-06486, SALW-PI-6001N: Water pressure on drip system  
WT-06487, SALW-PI-6002N: Air pressure at low side weight factor dip tube  
WT-06488, SALW-PI-6003N: Air pressure at low side specific gravity dip tube  
WT-06489, SALW-PI-6004N: Air pressure at high side dip tube  
WT-06491, SALW-PI-6006N: Air compressor pressure indicator  
WT-06492, SALW-PI-6007N: After filter air pressure indicator  
WT-06493, SALW-PI-6008N: Air pressure on water tank  
WT-06490, SALW-PI-6005N: Air pressure to DOV  
WT-06494, SALW-PI-6011N: Discharge pressure indicator  
WT-06495, SALW-PI-6012N: Suction pressure indicator  
WT-06483, SALW-PT-6014N: Jumper flush pressure transducer  
WT-06481, SALW-PT-6013N: Recirculation flush pressure transducer  
WT-06482, SALW-PT-6013N: Recirculation flush pressure transducer setpoint

RPP-5491  
REVISION 0

WT-06484, SALW-PT-6014N: Jumper flush pressure transducer setpoint  
WT-06485, SALW-PT-6015N: Pressure transducer  
WT-06479, SALW-PT-6011N: Discharge pressure transducer  
WT-06480, SALW-PT-6012N: Suction pressure transducer  
WT-06536, SALW-CGT-6001N: Combustible gas transmitter

## **2.10 SPARE PARTS**

The spare parts list has been updated to include parts for the new skid. This is documented in support document RPP-4853, revision 0. Spare parts stocking has not been completed.

## **2.11 VENDOR INFORMATION**

Vendor information for the components on the new skid has been assembled and will be added to the existing Certified Vendor Information (CVI) file. The vendor file to be updated is VI 22726.

RPP-5491  
REVISION 0

ACCEPTANCE FOR BENEFICIAL USE					
	ENGINEERING	RESPONSIBLE		ADP	RESPONSIBLE
X	Engineering Task Plan	Engineering	X	Software Configuration Mgmt	Engineering
X	Activity Schedule	Engineering		System Requirement Spec.	
	FSAR Report			Software Design Description	
	Interim Safety Basis update			Software Validation/Verification	
	Safety Assessment				
	Safety Equipment List			<b>TRAINING</b>	
	Operational Safety Req.			Training Plan	
	Operational Safety Doc.			Training Manuals	
X	Design Criteria	Engineering	X	Training to Operating Crew (3)	Operations/Trng.
	System Design Description		X	Training to Maintenance Crew (3)	Maint/Trng.
	Test Plan/Specifications			Training Mock-Up	
X	Acceptance Test Procedure and Final Test Report	Engineering			
X	Operational Test Procedure (1)	Engineering			
X	Final Test Report (2)	Engineering		<b>OPERATIONS/MAINT</b>	
	Environmental Impact Statement			Operating and Maintenance Manuals	
	Environmental Report		X	Operating Procedures	*Eng/Proc. Wtr.
	Environmental Permit		X	Surveillance Procedures	*Eng/Proc. Wtr.
	Hazardous Waste Disposal Plan/Procedures		X	Calibration Procedures	*Eng/Proc. Wtr.
	Solid Waste Disposal Plan or Procedures		X	Preventative Maintenance Procedures	*Eng/Proc. Wtr.
	Stress/Seismic Analysis			Repair/Maintenance Procedure	
	Stress/Design Report			Functional Check Procedures	
	Design Specifications/Report		X	PM/S Datasheets	*Eng/Proc. Wtr.
	Equipment Specifications		X	Final Joint Safety walkdown by Operations, Engineering, maintenance, and Health Physics	Engineering
X	Procurement Specifications	Engineering#			
	Construction Specifications			<b>QUALITY ASSURANCE</b>	
	Essential Material Specs.		X	Inspection Plan	*QC/Eng.
X	Final Design Drawings	Eng/Drafting		QAPP	
	Installation Drawings			QAPjP	
	Installation Work Plan				
X	As-built Drawings	*Eng/Drafting		<b>PROCUREMENT</b>	
	Interface Control Drawings		X	Vendor Information Files (2)	Engineering
	IEFD Drawings			Comprehensive Equip. List	
	System Drawings		X	Spare Parts List	Engineering
	Drawing Tree		X	Spare Parts in Stock (2)	Engineering
X	Incorporate Outstanding Project Generated ECNs	*Eng/Drafting	X	NEC Inspection	NEC Inspector
X	Third Party Inspection	Third Party Insp			

\*Lead Organization #Required only if PIC skids procured off-site

(1) The Operation Test shall be satisfactorily completed prior to startup of U-109.

(2) These items do not require completion prior to start up of U-109. See sections 2.4, 2.10 and 2.11 for additional information.

(3) See section 2.8 for additional information.