Documentation of Periodic Review

Document Number: SOP-5226 Revision: 0

Title: Westbay Pressure Transducer Installation, Removal, and Maintenance

Due Date for Review: 10/15/13 Responsible Line Manager: Craig Douglass Z#: 216051

Editorial Review and Validation are suggested methods of evaluation, but are not required.

Evaluation	YES	NO	N/A
1. Editorial Review performed?	☐	☒	☐
2. Validation performed?	☐	☒	☐

Evaluation Results	YES	NO	N/A
3. Is the document, in its entirety, still needed for operations at the facility? (If No, skip questions 4 – 7 and select "Cancellation" or "Revision."	☒	☐	☐
4. Is the document technically accurate?	☒	☐	☐ HRM
5. Is the document usable in its current form?	☑	☐	☐ 10/23/14
6. Are the references current and complete? (If "No," a Minor revision should be considered)	☐	☑	☐
7. Does the document satisfy the format requirements?	☐	☑	☐

Integrated Work Document (IWD) – Equivalent Evaluation Results	YES	NO	N/A
8. Is the P300 Hazard Grading Matrix for this document still accurate?	☒	☐	☐
9. Is the document still acceptable as P300 Part 1, *Activity Specific Information*?	☐	☒	☐
10. Is this document still acceptable as P300 Part 2, *Work-Area Information*?	☐	☐	☒
11. Is this document still acceptable as P300 Part 3, *Validation and Work Release Information*?	☐	☐	☒
12. Is this document still acceptable as P300 Part 4, *Post-Job Review*?	☐	☐	☑

13. Based on this evaluation, the following action is required.

☐	None	The document is extended in accordance with its periodic review cycle.
☒	Revision	Initiate a revision in accordance with the governing procedure.
☐	Cancellation	Initiate cancellation in accordance with the governing procedure.

14. Periodic Review Evaluation Performed By:

Steve Paris	/ [signature]	/ 218118	/ 10/23/14
Name (print)	Signature	Z number	Date

Comments: Technical SME review performed by: HRM

Responsible Line Manager (RLM) Approval:

Craig Douglass	/ [signature]	/216051	/ 11/25/14
RLM/Representative (print)	Signature	Z number	Date

Facility Operations Director (FOD) Concurrence (if required):

N/A	/ N/A	/ N/A	/ N/A
FOD/Representative (print)	Signature	Z number	Date

Identifier: **SOP-5226**
(formerly ENV-WQH-SOP-064, R1)

Revision: 0

SC 10/30/08

Effective Date: ~~TBD~~ October 30, 2008

Next Review Date: October 15, 2013

Los Alamos NATIONAL LABORATORY EST. 1943

Environmental Programs Directorate

Standard Operating Procedure

For

WESTBAY® PRESSURE TRANSDUCER INSTALLATION, REMOVAL, AND MAINTENANCE

APPROVAL SIGNATURES:

Author:	**Organization**	**Signature**	**Date**
Tim Goering	WES-RS		10/15/08
Quality Assurance Specialist:	**Organization**	**Signature**	**Date**
Paul Lowe	QA-IQ		10-16-08
Responsible Line Manager:	**Organization**	**Signature**	**Date**
Dwain Farley	WES-RS		10/16/08

1. PURPOSE AND SCOPE

This procedure describes installation, removal, and maintenance procedures for the Westbay® pressure transducers placed in groundwater monitoring wells for measuring and recording groundwater levels. This procedure applies to all Los Alamos National Laboratory (LANL), Waste and Environmental Services Division (WES), LANL Water Stewardship Program (LWSP) and subcontractor personnel authorized to operate or maintain the water level recording pressure transducers, or assist with these tasks.

2. BACKGROUND AND PRECAUTIONS

2.1 Background

The Westbay® MP (Multi-Port) System is a modular multilevel groundwater monitoring system that consists of plastic casing components that are permanently installed in selected monitoring wells at LANL to monitor multiple zones of saturation and/or multiple zones within the regional aquifer. The plastic casing components utilize monitoring ports at specific depths in the well to access pressure information (water level data) and to collect groundwater samples. Deionized (DI) water is placed inside the Westbay® plastic casing below the level of the regional aquifer to prevent collapse at depth from formation water pressure and to reduce buoyancy of the plastic casing. The well completion reports provide detailed information about the construction and installation of the each of the Westbay® MP Systems.

A MOSDAX transducer probe is used to access the monitoring ports and obtain pressure data. Individual MOSDAX transducers may be connected to each monitoring port for extended periods to collect relatively continuous pressure/groundwater level data. When multiple transducers are deployed, multiple sections of cable connect all transducers to a Westbay® data logger at the surface.

Pressure transducer equipment is used to periodically measure water levels in individual wells or surface water locations at user-specified intervals and record these values in computer memory for later retrieval.

Two types of transducer equipment are currently used in monitoring wells at LANL:

1. “Compensated” or “gauged” pressure transducers have pressure sensors that are compensated for atmospheric pressure. One side of the pressure sensor diaphragm is vented to the atmosphere, thus compensating for changes in atmospheric pressure and measuring water pressure only (pounds per square inch gauged or psig). Using these transducers, calculations of water depth above the transducer exclude atmospheric pressure considerations. These transducers use a tube in the cabling to vent the transducer to the atmosphere and are used in most shallow monitoring wells and single-completion deep monitoring wells.
2. “Absolute” or “uncompensated” pressure transducers measure absolute pressure (pounds per square inch absolute, psia) and are not compensated for atmospheric pressure. Pressure measurements from this type of transducer include atmospheric pressure as a component; therefore, atmospheric pressure must be subtracted from the absolute measurement to determine the pressure from water. All transducers used with the Westbay® MP monitoring system measure absolute pressure.

2.2 Precautions

Actions specified within this procedure, unless preceded with “should” or “may,” are to be considered mandatory (i.e., “shall,” “must”).

The major operations performed are contained under the major headings in the performance section of the procedure. Depending on the nature and extent of the work to be performed at the time all or a portion of these

operations may be performed. The sequence of the major sections may be performed in any sequence as dictated by the nature of the work to be performed as directed by the Field Team Leader (FTL).

Two people, one supervising operator and one assistant, are required to install or remove a Westbay® pressure transducer from a monitoring well. A single operator is adequate to retrieve data from the recording data logger if approved by the Line Manager, and only when using Enhanced Communications Procedures (see EP-ERSS-SOP-50AC, Radio and Cellular Telephone Usage).

Pressure transducer equipment must be properly maintained and calibrated according to manufacturer instructions. Equipment maintenance and calibration records must be maintained to insure the quality of data from transducer equipment. Westbay® transducers are factory calibrated by Westbay® personnel.

Well cross-contamination should be avoided when working with transducers. Transducer equipment is typically installed in a specific well and dedicated to that well to minimize the risk of cross-contamination. If it is necessary to remove a transducer from a well, label the transducer equipment with the well number for future reinstallation. If transducer equipment is to be used in a different well, the cable and transducer housing shall be wiped with a clean cloth soaked in DI water before they are installed to prevent cross-contamination.

3. EQUIPMENT AND TOOLS

See Attachment 1, Equipment and Supplies Checklist for Westbay® Transducer Installation/Removal and Maintenance.

4. STEP BY STEP PROCESS DESCRIPTION

4.1 Prerequisites and Initial Conditions

Field Team Member	1.	Test data loggers and transducers for functionality before leaving for the well site. Refer to Section 4.2 of this procedure for further guidance.
	2.	Set the time on transducer clocks, and internal clocks in portable computers used with the transducer equipment, to Mountain Standard Time (MST) at all times (i.e., without any daylight savings time adjustment in the spring and fall). To prevent the clock from changing to daylight saving time automatically, disable the daylight saving time adjustment setting in Microsoft Windows based computers used with transducer equipment.

4.2 Maintaining Westbay® Pressure Transducer Equipment

Field Team Member	1.	Document equipment maintenance and performance checks on Attachment 2, Westbay® Transducer Performance Check and Maintenance Form, and maintain these records to provide defensible quality data for transducer equipment.

Field Team Member (Continued)	2.	Perform the below listed routine maintenance each time a transducer is installed or removed from a well: • Check and lubricate O-rings • Check cables for kinks or deterioration • Perform surface check of transducer arm and shoe functions • Wipe transducers with a clean cloth soaked in DI water during removal from the well and wipe dry before storing in cases • Cap all connections to prevent damage from rust and corrosion.

4.3 Performance Checks of Pressure Transducers

[NOTE: A transducer may be considered to be properly calibrated as long as the transducer returns values that are within predetermined measurement precision specifications. The measurement precision of a Westbay® MOSDAX transducer is 0.1% of the pressure rating. How long a transducer will maintain calibration depends on the amount of regular use the transducer gets, whether or not the transducer was exposed to environmental extremes, and how the transducer was handled during use, transportation, and storage. Westbay® transducer calibration is performed by the manufacturer.]

[NOTE: To conduct a calibration performance check on the Westbay® MP System Transducer, bench-check atmospheric pressure measurements of each transducer by comparing transducer atmospheric pressure measurements with a local meteorological station. This check must be done at the TA-64 compound, using meteorological data from the TA-06 meteorological station, to get an accurate result. Other locations must be evaluated prior to use.]

Field Team Member	1.	Record the performance check location, time, and the transducer barometric measurement in psi on the Westbay® Transducer Calibration Check and Maintenance Form (Attachment 2).
	2.	Record the local barometric pressure, station location, and the date and time of the measurement on the Westbay® Transducer Calibration Check and Maintenance Form (Attachment 2). The barometric pressure recorded at TA-6 can be found on the LANL weather web page, http://www.weather.lanl.gov. (Measurements are not available on the web site for 1–2 hours after being recorded.) Convert pressure in millibars (mb) to psi by multiplying the pressure in mb by 0.01450 psi/mb. Record the atmospheric pressure in psi on the Westbay® Transducer Performance Check and Maintenance Form.
	3.	Add 0.026 psi to the TA-06 meteorological station pressure value to compensate for the elevation difference between the TA-6 station and the TA-64 ENV-WQH Compound Building.
	4.	Determine the error tolerance of the transducer by multiplying the pressure rating of the transducer (psi) by 0.001 (0.1%). Record the error tolerance on the Westbay Transducer Calibration Check and Maintenance Form (Attachment 2).

Field Team Member (Continued)	5.	Determine the acceptable range of atmospheric pressure measurements by adding/subtracting the error tolerance determined in step 4 to/from the atmospheric pressure obtained from the corrected meteorological station value. Record the acceptable range on the Westbay® Transducer Performance Check and Maintenance Form (Attachment 2).
	6.	Compare the atmospheric pressure measured by the transducer with the acceptable range.
	7.	Verify that measurements are within the acceptable range and document on the Westbay Transducer Performance Check and Maintenance Form (Attachment 2).
	8.	If atmospheric pressure measurements do not compare with meteorological values: • Recheck the pressure measurements. • If necessary, return transducer to manufacturer for calibration and/or repair.

4.4 Transducer Selection for Installation of Westbay® Transducers

Field Team Member	1.	Do not submerge transducers to water depths with pressures greater than the specific pressure rating of the transducer. The pressure rating is provided by the manufacturer for each transducer. At standard pressures and temperatures in water, a general pressure-depth conversion is 2.31 ft/psi. Table 1, below, provides guidance for maximum depths a transducer can go below the surface of the water before the pressure sensor is damaged. Westbay® MP casings are often filled with DI water to compensate for outside formation water pressure and to reduce buoyancy of the plastic casing. The depth below ground surface of this DI water varies in each well.

Table 1.

Pressure Rating (psi)	Maximum Water Depth (ft)
100	231.0
250	577.5
500	1155.0
1000	2310.0

	2.	Compile a pressure profile of each port at the time of MP casing installation. This pressure profile includes the formation water pressures outside of each measuring port (Po), and the corresponding pressure inside of the casing (Pi). This information is needed to select the appropriate transducer for each port.

Field Team Member (Continued)	3.	Before installing a transducer in a well: • Determine the pressure outside of the MP casing for each port in which a transducer will be installed • Determine the pressure inside of the MP casing for each port in which a transducer will be installed • Determine the range of expected water level fluctuations in the zone.
	4.	The pressure rating on the transducer must be greater than the pressure inside and outside of the MP casing to avoid damaging the pressure sensor. Use a transducer with the lowest pressure rating possible, because measurement precision decreases with higher pressure ratings.

4.5 Westbay® Pressure Transducer Installation Preparation

Field Team Member	1.	Set up transducer winch and mast or monopod at well site.
	2.	Ensure mast is securely bolted to well-riser plate.
	3.	Inspect O-rings on transducers and cables to check for nicks, cracks, or wear.
	4.	Apply silicone lubricant to O-rings on transducers.

4.6 Transducer Installation

		[NOTE: Always have a spotter outside trailer to help winch operator when raising sample string to ensure sample string is raised to at least 3 inches (in.) below the mast wheel.]
Field Team Member	1.	Connect the bottom transducer to the lowest section of transducer cable. [NOTE: Ensure the power to the transducer string is disconnected or paused using the MLog Software prior to connecting or disconnecting a transducer to avoid getting an electric shock.]
	2.	Connect transducer cable to MOSDAX pressure probe and to MOSDAX data logger/portable computer according to manufacturer instructions.
	3.	Check for appropriate communications with transducer.
	4.	Perform surface check of arm out, shoe out, shoe in, and arm in functions.
	5.	Record the transducer serial number and well information on Attachment 3, MOSDAX Probe String Installation/Removal Field Form.

Field Team Member (Continued)	6.	Carefully lower the MOSDAX transducer string into the well. • Do not allow cable to rub against sharp edge of metal casing. • Do not allow the transducer to contact DI water at high rate of speed; this will damage the pressure sensor.
	7.	Continue to connect each transducer and section of cable by repeating steps 2–6 until the entire set of transducer are in the well.
	8.	Lower the transducer string while watching the pressure and collar detection on the bottom transducer.
	9.	Locate the measurement port, and land the transducer.
	10.	Document Pi of MP casing on the MOSDAX Probe String Installation/Removal Field Form (Attachment 3).
	11.	Connect the transducer to the port, and record formation pressure (Po) on the MOSDAX Probe String Installation/Removal Field Form (Attachment 3). [NOTE: Ensure the transducer has properly connected to the port by watching the formation pressure after the port has opened. The formation pressure value (Po) should be a stable value. Any slow increase or decrease of pressure is an indicator that the transducer is not properly connected to the port. Failure to correct an improperly connected transducer can cause water to leak into the MP casing from the formation water, or for MP casing DI water to leak into the formation water.]
	12.	Repeat Steps 8–11 for each transducer to be installed, working up the transducer string from the bottom.
	13.	When all the transducers in the string are properly connected to the measurement ports, disconnect the data logger, and set up logger in the data logger housing box next to the well.
	14.	Ensure the solar panel and battery are functioning properly.
	15.	Ensure the data logger is set to the appropriate time in MST, and initiate data logging.
	16.	Remove mast or monopod from well casing, and lock and secure well.

4.7 Westbay® Pressure Transducer Data Retrieval

[NOTE: Retrieve transducer data from wells at least quarterly to insure the continued quality of the transducer data.]

Field Team Member	1.	Connect a portable computer to the data logger and start the MLog software to download the data.

	2.	Record memory storage, battery information, first record, last record, and the name of the file downloaded in the field notebook. The data file name should include the well name, the start date, and the date of download or end date.
	3.	View the data file in the Westbay WinGT software, and look for any gaps in data or abnormalities. Check that the data logger clock is set to the correct time (MST).
	4.	Copy the data to a removable electronic storage media for backup and transfer to the server.
	5.	Transmit data file to the server: • Insure that data file is secured and data transmittal is completed. • Do not remove data file from the portable computer or removable media until data is backed up on a server. The server is backed up nightly.

4.8 Westbay® Pressure Transducer Removal

Field Team Member	1.	Connect a portable computer to the data logger, and stop logging.
	2.	Retrieve transducer data from data logger as described in Section 4.7 above.
	3.	Record the Po for each port on the MOSDAX Pressure Probe Installation/Removal Form (Attachment 3).
	4.	Disconnect each of the MOSDAX pressure probes from the monitoring ports, recording the Pi after disconnecting on the MOSDAX Pressure Probe Installation/Removal Form (Attachment 3).
	5.	Set up trailer and mast for removal of the transducer string.
	6.	Remove the cable and transducer(s) from the well. The cable should not scrape against sharp edges of the well casing. [NOTE: Always have a spotter outside trailer to help winch operator when raising sample string to ensure sample string is not raised more than 3 in. below the mast wheel. Ensure the power to the transducer sting is disconnected or paused using the MLog Software prior to connecting or disconnecting a transducer to avoid getting an electric shock.]
	7.	Rinse transducers with DI water and wipe dry with a paper towel prior to storing in a transport case.
Field Team Member (Continued)	8.	Ensure that spools of cable are properly labeled with the name of the well, the section number, and the length of the cable.

4.9 Records Management

Field Team Leader	1.	Maintains and submits the following records and/or documents generated to the Records Processing Facility according to EP-DIR-SOP-4004, Records Transmittal and Retrieval Process: • MOSDAX Probe String Installation/Removal Field Form (Attachment 3) • Westbay® Transducer Calibration Check and Maintenance Form (Attachment 2) • Raw water level data electronic file on electronic media • Field logbook summary of individual installations/removals, and data retrievals with dates

5. DEFINITIONS

Absolute pressure – The total pressure measured by a sensor without correction for atmospheric pressure. A pressure measurement that includes atmospheric pressure is an absolute pressure. Units are expressed in psia (pounds per square inch absolute).

Calibration – Pressure transducers are factory calibrated. Calibration checks can be done to determine the accuracy of a pressure transducer reading against a known value.

Gage pressure –The pressure measured relative to atmospheric pressure. Measurements exclude atmospheric pressure and are said to be compensated or gaged for atmospheric pressure. A vented or gaged pressure transducer sensor uses a vent tube in the cable that exposes one side of the pressure sensor to atmospheric pressure, measuring only pressure of the water column. Units are expressed in psig (pounds per square inch gage).

Ground elevation – The elevation of the ground surface of the well expressed in feet above mean sea level. If the well has a concrete surface pad, usually the elevation of the top of the concrete pad is used. If a brass cap is present to identify a well, usually the elevation of the brass cap in the concrete pad.

Piezometric water level – Water level based on hydraulic pressure head.

Pressure head – The height in feet of a column of water that can be calculated from the gage pressure measured at a point in a well.

Pressure transducer (Transducer) – A device that measures pressure. There are two types of pressure transducers, those that measure absolute pressure, and those that measure gage pressure.

Pi – Pressure inside the Westbay® casing. Pi measured above the DI water column in the Westbay® casing is equal to atmospheric pressure at a given port elevation; calculated piezometric elevation will approximate the elevation of the port. Pi measured below the deionized water level inside the Westbay® casing will be the pressure head of the DI water column; calculated piezometric elevation will be that of the elevation of the top of the DI water column.

Po – Pressure in the formation outside the Westbay® casing at a specific monitoring port. Po of “dry” monitoring ports will approximate Pi at that port if the port is above the DI water column. Po of “wet” monitoring ports should not normally equal the Pi of the port. Calculated piezometric elevation represents the piezometric water level at the location of the monitoring port.

psi – Unit of pressure measurement in pounds per square inch.

psia – Unit of pressure measurement in pounds per square inch absolute. See absolute pressure.

psig – Unit of pressure measurement in pounds per square inch gage. See gage pressure.

Raw data files – Electronic pressure transducer data files that are obtained from pressure transducers or data loggers at a well site. Raw data files are usually binary computer files that can be opened, read, and interpreted only by software developed by the transducer manufacturer. The raw data files must be stored and archived appropriately in order to protect the original data from the pressure transducer. Raw data files contain information entered into the transducer software program at the time of installation, such as well name, date/time, measurement interval, reference water elevation, etc.

Water elevation – The elevation of the surface of the water in a well, expressed in feet above mean sea level.

Water level – (1) Depth to water (DTW) in a well below ground surface expressed in feet, of (2) the water elevation expressed in feet above mean sea level. Refer to EP-ERSS-SOP-5101, Manual Groundwater Level Measurements.

6. PROCESS FLOW CHART

Not applicable.

7. ATTACHMENTS

Attachment 1 Equipment and Supplies Checklist for Westbay® Transducer Installation/Removal and Maintenance

Attachment 2 Westbay® Transducer Performance Check and Maintenance Form

Attachment 3 MOSDAX Probe String Installation/Removal Field Form

8. REVISION HISTORY

Revision No. *(Enter current revision number, beginning with Rev.0)*	Effective Date *(DCC inserts effective date for revision)*	Description of Changes *(List specific changes made since the previous revision)*	Type of Change *(Technical [T] or Editorial [E])*
0	01/05	New document.	T
1	11/05	Incorporated changes resulting from procedure walk-down.	T
0	10/31/08	Details added for pressure transducer installation, removal, and data retrieval. Section describing good practices to minimize potential for cross-contamination between wells re-added to procedure. Supersedes ENV-WQH-SOP-064, R1.	T

ATTACHMENT 1: EQUIPMENT AND SUPPLIES CHECKLIST FOR WESTBAY® TRANSDUCER INSTALLATION/REMOVAL AND MAINTENANCE

SOP-5226-1

Equipment and Supplies Checklist for Westbay® Transducer Installation/Removal and Maintenance

Records Use Only

Los Alamos NATIONAL LABORATORY EST. 1943

- ☐ Pressure transducer(s)
- ☐ Transducer cable(s)
- ☐ Data logger
- ☐ Copy of SOP-5226 and associated forms
- ☐ Manufacturer operating manuals
- ☐ Potable computer and RS-232 direct cable connection for communicating with transducer equipment and retrieving water level data
- ☐ Removable electronic media for data storage
- ☐ Silicon grease
- ☐ Waterproof ink pens
- ☐ Well construction diagram
- ☐ MP casing installation report
- ☐ Previous transducer installation and removal field records
- ☐ Installation/Removal field form
- ☐ Mast or Monopod with transducer wheel
- ☐ Generator with ground-fault circuit interrupter (GCFI)
- ☐ Electrical extension cord
- ☐ Deionized water
- ☐ Paper towels
- ☐ Trash bags
- ☐ Keys to well and access gates (where necessary)
- ☐ Radio, cell phone, pager
- ☐ First aid kit

ATTACHMENT 2: WESTBAY® TRANSDUCER PERFORMANCE CHECK AND MAINTENANCE FORM

SOP-5226-2

Records Use Only

Westbay® Transducer Performance Check and Maintenance Form

Los Alamos National Laboratory
Water Stewardship Program
Westbay® **Transducer Performance Check and Maintenance Form**

Transducer Serial Number:_____ **psi Rating:**_____ **Error Tolerance (psi):** _____

	Meteorological Station					Calibration Check						
Date	Station Name	Time of Reading (MST)	Barometric Pressure (mb)	Barometric Pressure (psia)	Add 0.026 for Calibration check at TA-64	Calibration Check Location	Time of Reading (MST)	Transducer Barometric Pressure (psia)	Acceptable Range (psia)	Calib Check Passed	Inspector Name	Comments (Equipment Condition, Describe Maintenance, Calibration Check)

Example

NOTE: To convert millibar (mb) pressure measurements to psia, use conversion factor: 0.01450psi/mb

ATTACHMENT 3: MOSDAX PROBE STRING INSTALLATION/REMOVAL FIELD FORM

SOP-5226-3

MOSDAX Probe String Installation/Removal Field Form

Records Use Only

Los Alamos National Laboratory
Water Stewardship Program

MOSDAX Probe String Installation/Removal Field Form

Well name:		**Personnel:**	
Surface elevation (ft):		**Date:**	

Installation Data: _____ **Removal Data:** _____

Port No.	Zone No.	Port Depth (ft)	Collar depth (ft)	Cable No.	Cable Length (ft)	Tool No.	Probe Serial No.	Prev. Pi (psia)	Prev. Po (psia)	Pi Inside MP (psia)	Po Outside MP (psia)	Comments

Data Logging Settings

Schedule				MDL Settings	
Scan Rate:				**Power save:**	
Collect Rate:				**Beeper:**	
Start Time:				**External Power:**	

Installation/Retrieval Notes:

SAVE PRINT

Section 16.1 Attachment 3 - Procedure Change Request

Procedure Change Request

Section #1- Type of Request

Manual/Procedure No. (if known): SOP-5226 Revision: 0

Title: Westbay Pressure Transducer Installation, Removal, and Maintenance

Detailed description of requested change (Attach additional sheets if needed. Number additional sheets):

Supersedes ENV-WQH-SOP-064, R1

Requestor Signature:	Print Name:	Phone:	Date:
Ellena Martinez	Ellena Martinez	665-2751	10/15/08

Section #2 Procedure Owner Supervisor Approval For Processing

☑ New Procedure ☐ Major Revision ☐ Minor Revision ☐ Special Procedure

☐ IPC ☐ Deactivation ☐ Cancellation ☐ IPC Rollup

☑ Approved ☐ Disapproved (Return to originator) Priority: Medium

Procedure Owner Supervisor Signature:	Print Name:	Date:
Paul Huber	Paul Huber	10/16/08

Section #3 -Review and Concurrence

IPC # N/A IPCs Incorporated: N/A Affected Pages: N/A

Other affected facilities or N/A: N/A Obtain Concurrence all facilities/organizations affected by this change

Review and Concurrence: Review organizations (N/A if not required); document additional review organizations, if needed on continuation sheet. CSE approval required for all technical procedures except minor revisions, IPC Rollup, and non-AB related cancellations/deactivations. CSE approval always required for changes affecting safety basis steps.

Department:	Print Name:	Signature:	Date:
QA	Laura Ortega	[signature]	10/16/08
Central Training	Pam Flores	Pam Flores	10/20/08
LWSP SME	Michael Alexander	[signature]	10/20/08

CSE USQ Number (as applicable): USQD-ENV-09.0035-MAW, R.0 Val Rhodes [signature] 10/01/08

ADC: ☑ Unclassified ☐ OUO ☐ UCNI ☐ Classified

Print Name Scott Miller Signature [signature]

Section #4 - Final Approval By Procedure Owner

Validation Required? ☑ Yes ☐ No

Document is Authorized to serve as Part 1 of the IWD ☑ Yes ☐ No

Periodic Review Requirements Satisfied? ☐ Yes ☑ No

Training Required: ☐ Yes ☑ No

☐ Classroom/Briefing ☐ On the Job ☐ Just-in-Time ☑ Required Reading ☐ Hold for Completion of Training ☐ Release Procedure to field

Approval Signature:	Print Name:	Z Number:	Date:	Phone:
[signature]	Tim Goering	140890	10/15/08	665-0996

Training Review Completed. ~~Con Ops~~ briefing should be completed in the future. PF 10/20/08

Course # assigned 17875