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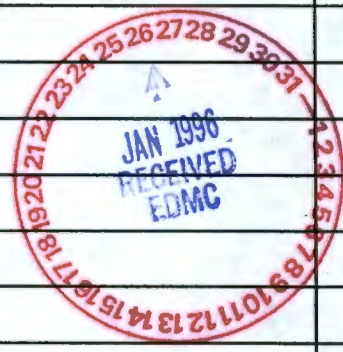
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Title: 200-ZP-1 IRM GROUNDWATER TREATMENT SYSTEM
INSTRUMENT CALIBRATION PROCEDURES

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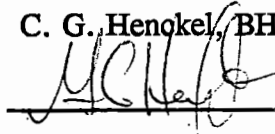
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INSTRUMENT CALIBRATION PROCEDURES

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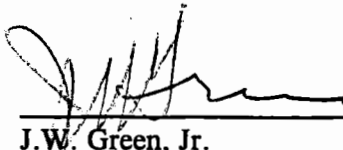
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**200-ZP-1 IRM GROUNDWATER TREATMENT SYSTEM
INSTRUMENT CALIBRATION PROCEDURES**

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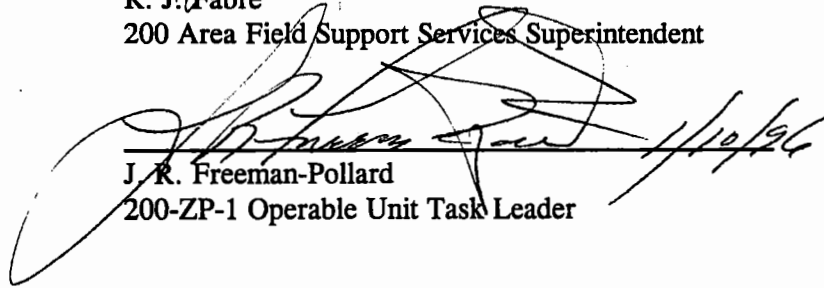
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200-ZP-1 IRM Groundwater Treatment System Instrument Calibration Procedures

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TABLE OF CONTENTS

1.0 PURPOSE 1

2.0 INFORMATION 1

3.0 REQUIRED PERSONNEL 1

4.0 PROCEDURE COMPLIANCE 1

5.0 PREREQUISITES 2

6.0 FLOWMETERS 2

7.0 TEMPERATURE LOOPS 9

8.0 MILLTRONICS MULTIRANGER LEVEL TRANSMITTERS 11

9.0 JOHNSON-YOKAGOWA DIFF. PRESS. TRANSMITTERS 16

10.0 DWYER DIFFERENTIAL PRESSURE TRANSMITTERS 18

11.0 DIGITAL PROCESS INDICATORS 20

12.0 PRESSURE SWITCH LOOPS 21

13.0 FLOWSWITCHES 23

14.0 WELL LEVEL ALARMS 25

15.0 PRESSURE GAUGES 27

APPENDICES

A INSTRUMENT CALIBRATION LIST 200-ZP-1 A-1

B DATA SHEETS B-1

1.0 PURPOSE

This procedure provides a safe and consistent method for calibrating the instruments for the 200-ZP-1 Operable Unit Interim Remedial Measures (IRM) Groundwater Treatment System.

2.0 INFORMATION

The information to be used in performing instrument calibration include this procedure, vendor manuals, and other information. Obtain work package from maintenance supervisor/scheduler.

3.0 REQUIRED PERSONNEL

The following personnel are required while calibrating instruments:

- Instrument Craftsman (IC)
- Health Physics Technician (HPT), as required
- Field Operations Personnel, as required
- Field Supervisor.

4.0 PROCEDURE COMPLIANCE

If any of the following conditions occur while performing this procedure, **immediately** stop work, place equipment in a safe condition, and notify Field Supervisor:

- Any equipment malfunction that could prevent fulfillment of its functional requirements
- Personnel error or procedural inadequacy that could prevent fulfillment of procedural requirements.

Contact Field Supervisor for additional instructions if changing system conditions affect work or work extends past end of shift.

Comply with Bechtel Hanford, Inc. (BHI) and U.S. Department of Energy (DOE) environmental standards, as applicable, when disposing of any waste generated during performance of this procedure. Consult Field Supervisor/Area Hazardous Waste Coordinator for specific instructions.

Comply with BHI and site-specific lock and tag requirements, as applicable.

If any steps in this procedure are not required for procedure completion, steps not performed shall be indicated as such by entering "N/A" in appropriate Data Sheet signoff space and explained in COMMENTS/REMARKS section of Data Sheet.

Sections or steps of this procedure may be performed out of sequence to suit maintenance or plant conditions.

When calibrating instruments in a loop, all instruments in that loop should at least be checked for calibration. In addition, verify proper functioning of interlocks in the specific loop. Appendix A provides a list of the equipment included in this procedure. Appendix B contains Data Sheets that are to be used to document performance of the calibration procedure(s).

5.0 PREREQUISITES

Notify Field Supervisor prior to performing this procedure. If a potential for radiological contamination exists, request Field Supervisor to provide an HPT to perform equipment survey(s) prior to beginning maintenance or prior to removal of equipment or component from its installed location.

Verify that applicable lock and tag requirements have been satisfied.

If any instrument is found defective, repair or replace (with Field Supervisor concurrence) and repeat applicable steps for calibration.

6.0 FLOWMETERS

This section provides instructions for calibrating the Treatment System flowmeters. The Signet Model MK-585 Flow Indicator-Alarm, Signet Model MK-575 Flow Indicator-Totalizer, and the Omega Model FPM-740 Battery Operated Flow Indicator/Totalizers are used as flow indicators/totalizers/alarms. These flow indicator/controllers utilize either the MK-515 Rotor-X Flow Sensor, or the Omega FP5300 Paddlewheel Flow Sensor as the flow

element. These flow sensors send a frequency output to the flow controllers/indicators which condition the signal providing either a voltage or current signal that is sent to a local and/or remote indicator. When calibrating or performing maintenance on one item in a loop, verify that the other items in the loop are functional and within tolerance. For example, when calibrating flowmeters, verify the function of the remote indicator(s) or alarms, if used in the loop. Refer to Section 11.0 for Digital Process Indicators.

Determine which model of flowmeter is to be calibrated and proceed to the appropriate model provided in Sections 6.2 through 6.4.

After flowmeters have been calibrated electronically, or at a designated frequency by the cognizant engineer, perform a physical flow calibration on each flowmeter by measuring the rate of rise in a storage tank (utilizing either the site gauge or level indicator). Align valving through the selected flowmeter and measure the time to fill the tank to a specified level equivalent to a known volume in gallons (the 20,000-gal tanks are 980 gal/ft of height). If the flow is greater or less than 20% of electronically calibrated flow, perform rate of rise measurement again or verify electronic calibration.

6.1 SPECIAL TOOLS, EQUIPMENT, AND MATERIALS

The following tools, equipment, and materials are required for calibrating Treatment System flowmeters:

- Digital Volt Meter (DVM)
- Frequency generator/counter
- Oscilloscope.

6.2 SIGNET MODEL MK-585 FLOW INDICATOR-ALARM

The following steps provide instructions for operating the Signet Model MK-585 Flow Indicator-Alarm:

1. Disconnect sensor input wiring from rear of instrument.
2. Connect test equipment to MK-585 Flow Indicator-Alarm as follows:
 - a. DVM (set for volts direct current [VDC]) across **R-** and **R+** terminals.
 - b. Frequency generator/counter to **SHLD** and **RED** terminals (upper terminal strip).
 - c. Oscilloscope to **PULSE RTN** and **PULSE OUT** terminals.

3. Insert a 5-volt peak-peak square wave signal with frequencies called for in Data Sheet corresponding to the instrument being calibrated.
4. Record 'AS FOUND' display readings on the Data Sheet. If instrument loop has a remote indicator, record 'AS FOUND' data for the remote as well.
5. If the display readings are correct, record 'AS LEFT' data on Data Sheet and go to **Section 6.6 (RESTORATION)**; if not, continue with **Step 6** below.
6. Determine maximum frequency at full scale flow as follows:

$$\text{Maximum full scale frequency} = \frac{\text{Full Scale Flow (GPM)}}{\text{A-Factor}}$$

(NOTE: The A-Factor is a value representing the flow rate from a Signet MK-515 Flow Sensor at a 1 HZ (cycles per second) output, and it varies in different sized pipe and material. In a 1-in. polyvinyl chloride (PVC) pipe a 1 HZ output equals 0.327 GPM and in a 2-in. PVC pipe equals 1.789 GPM. The Instruction Manual for the MK-515 Flow Sensor has a Table of A-Factors and K-Factors).

7. Using chart below select the correct pulse width setting based upon calculated maximum frequency from **Step 6**.

If maximum frequency is:	Set pulse width to:
up to 50 HZ	8 ms
51 to 150 HZ	4 ms
151 to 200 HZ	3 ms
201 to 300 HZ	2 ms
301 to 500 HZ	1 ms

8. Adjust frequency generator to input a 30 HZ, 5-volt square wave.
9. Using the oscilloscope, set proper pulse width by adjusting the pulse width potentiometer, **R3** (pulse width is from the table above using the maximum frequency calculated in **Step 6**).
10. Disconnect oscilloscope.
11. Set DVM to measure current.
12. Adjust frequency generator to 0 HZ.

13. Turn AC power on. Adjust **ZERO** potentiometer **R20** until output current reads **4.00 mA +/- 0.03 mA**.
14. Adjust frequency generator to maximum input frequency (from Step 6).
15. Adjust **C.GAIN** potentiometer, **R17** until output current reads **20.00 mA +/- 0.03 mA**. The **ZERO** and **C.GAIN** adjustments are interactive. Repeat Steps 12 through 15 until readings are satisfactory.

NOTE: If the instrument is 4 to 20 mA output, calibration is complete, go to **Section 6.5 (TESTING AND ACCEPTANCE)**. If instrument is 0 to 5 VDC output, continue.

16. Turn AC power off. Set blue jumpers, **J1** and **J2**, to the voltage position (**V+** and **V-**).
17. Input maximum frequency for maximum flow range used (per Step 6).
18. Adjust the gain potentiometer **R7** until the DVM reads **5.00 VDC +/- 0.03 DC**.
19. Proceed to **Section 6.5 (TESTING AND ACCEPTANCE)**.

6.3 SIGNET MODEL MK-575 FLOW INDICATOR-TOTALIZER

The following steps provide instructions for operating the Signet Model MK-575 Flow Indicator-Totalizer:

1. Disconnect sensor input wiring from rear of instrument.
2. Connect frequency generator/counter to sensor **INPUT**, (**XDCR**) terminals marked **RED** and **SHLD**.
3. Insert a 5-volt peak-peak square wave signal with frequencies called for in Data Sheet corresponding to the instrument being calibrated.
4. Record **`AS FOUND'** display readings on the Data Sheet. If instrument loop has a remote indicator, record **`AS FOUND'** data for the remote as well.
5. If the display readings are correct, record **`AS LEFT'** values on Data Sheet and go to **Step 6.5 (TESTING AND ACCEPTANCE)**; if not, continue with **Step 6**, below.
6. On the back of MK-575 Flow Indicator-Totalizer, input a **30 HZ**, **5-volt** square wave to the **RED** and **SHLD** terminals.

7. Connect an oscilloscope to terminals "PULSE OUT" and "SIG.GND."
8. From the formula below, calculate the pulse width needed as measured on the oscilloscope:

$$\text{Pulse Width (in ms)} = \frac{\text{A Factor} \times .7 \times 1000}{\text{full scale GPM}}$$

(A-Factor is the flow rate represented by 1 HZ output from the MK-515 Flow Sensor)

9. Observe oscilloscope waveform and if necessary adjust pulse width potentiometer **R2** to that calculated in Step 8. **R2** is accessed by removing the four corner screws from the back of the MK-575 Flow Indicator-Totalizer box and sliding electronics out of enclosure.
10. Reposition electronics back into case, if necessary, and disconnect oscilloscope.
11. Calculate GPM value (and corresponding frequency) representing **66%** of full scale and input into the MK-575 Flow Indicator-Totalizer.
12. If necessary, adjust Gain potentiometer **R7** (located on rear of instrument) until front display reads calculated value from previous step.
13. Adjust input as necessary to check linearity.
14. Check the totalizer timing by inserting a frequency to drive the MK-575 Flow Indicator to a desired point. Time the totalizer counts for 60, 120, or 180 sec., etc. and compare counts to MK-575 Flow Indicator.
15. If counts are off, minor corrections can be made by adjusting potentiometer **SW1** (upper left hand pot on back of instrument).
16. Proceed to **Section 6.5 (TESTING AND ACCEPTANCE)**.

6.4 OMEGA MODEL FPM-740 FLOW INDICATOR

The following steps provide instructions for operating the Omega Model FPM-740 Flow Indicator:

1. Disconnect sensor input wiring from rear of instrument.
2. Connect frequency generator/counter to **SENSOR** terminals marked **RED** and **SHLD**.

3. Insert a 5-volt peak-peak square wave signal with frequencies called for in Data Sheet corresponding to instrument that is being calibrated.
4. Record 'AS FOUND' display readings on the Data Sheet.
5. If data is satisfactory, go to Section 6.5 (TESTING AND ACCEPTANCE); if not, continue to next step.
6. To adjust K-Factor and/or check parameters:
 - a. Press **CALIB.** button, then press **SELECT** button within 1 second; "**CAL**" will show on the display.
 - b. Within 10 seconds, press **CALIB.** button, "**CAL 0**" mode is displayed along with the K-Factor on the lower display.
 - c. If the K-Factor needs to be changed, press **CALIB.** button within 10 seconds; "**CAL 1**" mode is displayed and the least significant digit of the K-Factor will begin flashing.
 - d. By holding down **CALIB.** button, the flashing digit will begin to cycle from "0 to 9".
 - e. Once the correct number is set, release the **CALIB.** button.
 - f. To make the next most significant digit flash, press **SELECT** and hold down, then momentarily press **CALIB.** - immediately release both switches.
 - g. Follow Steps e and f until the desired K-Factor is displayed.
 - h. To enter the K-Factor into memory after the most significant digit has been adjusted, press **SELECT** and hold, momentarily press **CALIB.**, then release both switches.
 - i. "**CAL 2**" mode will automatically be displayed with the decimal point setting 0, 1, or 2.

$$0 = X.XXX \text{ or } 0 = 0.XXX$$
$$1 = XX.XX$$
$$2 = XXX.X$$
 - j. The decimal point setting for the readout is determined by the K-Factor (using setting 2 if the K-Factor has its decimal point at XXX.X, setting 1 if the K-Factor has its decimal point at XX.XX, and setting 0 if the K-Factor has its

decimal point at X.XXX or 0.XXX). To change the decimal point setting for the readout, press **CALIB.** and hold; decimal will cycle - release **CALIB.** on proper setting.

- k. To enter the decimal point into memory, press **SELECT** and hold down, then momentarily press **CALIB** - immediately release both switches.
 - l. The display will automatically read "CAL 0" and the N-divide number. The N-divide number is the number of pulses needed to increment the totalizer by 1 count. For example, with a K-Factor of 451.299 (pulses/gal), an N-divide number of 451 would increment the totalizer 1 count per gallon, and with an N-divide number of 4512 would increment the totalizer 1 count for every 10 gallons ($4512 \div 451.299 \text{ pulses/gal} = 10 \text{ gal/count}$).
 - m. To change the N-divide number follow **Steps d through f.**
 - n. The display will automatically return to normal.
7. Proceed to **Section 6.5 (TESTING AND ACCEPTANCE).**

6.5 TESTING AND ACCEPTANCE

Testing and acceptance is required before using any flowmeter:

1. Establish flow through the flow sensor to ensure flow reading(s) indicate proper system conditions. One method to verify flow readings is to perform rate of rise physical calibration in conjunction with field operations personnel.
2. If flow reading(s) is not acceptable, connect a frequency counter to the sensor inputs of the particular instrument (leaving flow sensor inputs connected) and observe display of flow indicator and frequency counter.
3. If counter does not agree with flow indicator display, stop flow and remove sensor. Clean sensor and reinstall, or repair/replace.
4. Repeat **Step 1.**
5. Notify Field Supervisor that calibration has been completed, and that flowmeter represents system conditions.

6.6 RESTORATION

Perform the following steps when restoring test equipment:

1. If flow indicator and counter agree, disconnect frequency counter and restore system to normal.
2. When finished calibration/maintenance, ensure test equipment has been disconnected and removed.
3. Ensure alarms are reset or cleared.

6.7 DISPOSITION

After maintenance/calibration is complete, perform the following:

1. Apply calibration labels, as required.
2. Inform Field Supervisor when maintenance or calibrations are complete.
3. Send a copy of Work Package to Cognizant Engineer/Field Supervisor, then return Work Package to Maintenance Supervisor.

7.0 TEMPERATURE LOOPS

This section provides instructions for calibrating temperature loops where a thermocouple, transmitter, indicator, and power supply are utilized in the loop. When calibrating or performing maintenance on one item in a loop, verify that the other items in the loop are functional and within tolerance. For example, when calibrating temperature transmitters, verify the function of the remote indicator(s) or alarms, if used in the loop. Refer to Section 11.0 for Digital Process Indicators.

7.1 SPECIAL TOOLS, EQUIPMENT, AND MATERIALS

The following tools, equipment, and materials are required for calibrating temperature loops:

- DVM
- Thermocouple calibrator/simulator - Type T.

7.2 INSTRUCTIONS

The following steps provide instructions for calibrating temperature loops:

1. Remove thermocouple leads from transmitter and insert thermocouple simulator leads.
2. Vary the simulator input per Data Sheet of desired loop and record values (read from the temperature indicator) in the "As Found" column of the Data Sheet.
3. If the "As Found" values are within tolerances, record data in the "As Left" column of Data Sheet and proceed to **Section 7.4 (RESTORATION)**. If values are not in tolerance then proceed with calibration.
4. Connect a DVM in series with the power supply common of transmitter, set meter to read milliamps.
5. To check or adjust the calibration (using the thermocouple calibrator/simulator): Locate the Z (zero) and S (span) potentiometers.
6. Set the DC mV source to the selected Z (zero) mV value. Adjust the "Z" potentiometer to read 4.00 mA on the monitoring instrument.
7. Set the DC mV source to the selected S (span) mV value. Adjust the "S" potentiometer to read 20.00 mA on the monitoring instrument.
8. Repeat **Steps 6 and 7**, as required, until the readings are exactly 4.00 and 20.00 mA. This procedure is necessary since there is interaction between the two potentiometers.
9. Vary input of calibrator/simulator per Data Sheet and adjust temperature transmitter output potentiometer to meet desired specifications.
10. If temperature transmitter is adjusted properly and temperature display is not reading correctly then adjust the indicator display potentiometer for the desired value.
11. Repeat any steps necessary to assure the loop is operating properly, then go to **Section 7.4 (RESTORATION)**.
12. If any instrument in loop will not calibrate properly then replace suspect instrument and repeat **Section 7.2 (INSTRUCTIONS)**.

7.3 TESTING AND ACCEPTANCE

Verify (with a thermometer) that temperature reading is consistent with system conditions.

7.4 RESTORATION

Perform the following steps when restoring test equipment:

1. Ensure test equipment has been disconnected and removed.
2. Ensure alarms are reset or cleared.

7.5 DISPOSITION

After maintenance/calibration is complete, perform the following:

1. Apply calibration labels, as required.
2. Inform Field Supervisor when calibration or maintenance is complete.
3. Send a copy of Work Package to Cognizant Engineer/Field Supervisor, then return Work Package to Maintenance Supervisor.

8.0 MILLTRONICS MULTIRANGER LEVEL TRANSMITTERS

This section provides instructions for calibrating the level indicating-control loops for the Feed (LIT-1) and Effluent (LIT-2) Storage Tanks. The level control loops consist of Milltronics "Multiranger" level transmitters with indicators and level control relays, level alarms, and interlocks. The Multiranger is a pulse echo type of level instrument that utilizes a transducer to send and receive an ultrasonic pulse that is sent to the Multiranger controller for processing to a level signal for display. The Multiranger is calibrated with a calibrator obtained from Milltronics. The calibrator has a magnetic base that allows it to be attached to the face of the Multiranger controller.

NOTE: To avoid false echoes, the transducer should be installed such that the sound path/beam does not "see" fill spouts, incoming water, or other objects inside the tank. The transducer must be mounted 1 ft from the side wall for every 10 ft of tank depth to avoid false echoes (e.g., 2 ft for a 20-ft-tall tank). It is important to "aim" the transducer perpendicular to the liquid surface.

In addition to electronically calibrating the level loops, perform periodic physical calibrations by verifying level readings against site gauge readings.

8.1 SPECIAL TOOLS, EQUIPMENT, AND MATERIALS

The following tools, equipment, and materials are required for calibrating the level indicating-control loops:

- Milltronics Multiranger Programmable Level System Instruction Manual
- Milltronics calibrator for Multiranger system
- DVM, as necessary
- Oscilloscope, as necessary for performing transmitter test (referring to page 62 of Instruction Manual and Parameter P-57 Description).

8.2 INSTRUCTIONS

The following steps provide instructions for calibrating the level indicating-control loops:

1. Install calibrator on the window of the transmitter.
2. Press "RUN/CAL" button, 'CAL' will be displayed.
3. Press "*" button. The display should read 'P-1' (if "*" is not pressed within 1 minute of pressing the "RUN/CAL" button, the 'CAL' display will revert to run mode).
4. If a complete calibration is required, perform the following:
 - a. Select P-99 (press keypad number button "9" twice, 'P-99' will be displayed), then press "CLR". The display will go blank.
 - b. Press "ENT", C.ALL will momentarily appear after a few seconds, then '----' will be displayed.
 - c. All parameters are now at their factory settings.
5. Select P-1, then press "ALT/DISP" button, the contents of P-1 will be displayed. Press the keypad numbers to change the contents to desired value, then press "ENT" to enter the value.

6. To set the next parameter, press "↑" button, the next parameter (P-2 and so on) will be momentarily displayed, followed by a display of its contents. The contents may be changed as in Step 5. **NOTE:** A parameter may be directly accessed by pressing "ALT/DISP", which will display a parameter (P-#). Enter the desired P-#, then again press "ALT/DISP" to display contents which now can be changed as discussed above. Table 1 shows the values for each parameter for both LIT-1 and LIT-2.
7. When all parameters are set, press "RUN/CAL" button to return to normal operation mode.
8. Compare display reading with sight glass reading. If necessary adjust parameter P-3 to obtain correct reading.
9. If transmitter has a remote indicator associated with it, compare displays. If remote indicator does not agree with the local indicator on the transmitter, adjust parameters P-68 (zero) and P-69 (span).

8.3 TESTING AND ACCEPTANCE

Testing and acceptance is required before using the Multiranger:

1. Verify transmitter and associated displays are consistent with sight glass reading.
2. Test proper function of the Multiranger by performing the simulation test to show level display, relay control and analog output. See page 63 of Instruction Manual and discussion of Parameter 60/61 Descriptions.
3. Test the level annunciator alarms and interlocks either during the test done in Step 2, or by forcing the relays in the programmable logic controller (PLC) and verifying correct actions.

8.4 RESTORATION

Perform the following steps when restoring test equipment:

1. Ensure test equipment has been disconnected and removed.
2. Ensure alarms are reset or cleared.

8.5 DISPOSITION

After maintenance/calibration is complete, perform the following:

1. Apply calibration labels, as required.
2. Inform Field Supervisor when calibration or maintenance is complete.
3. Send a copy of Work Package to Cognizant Engineer/Field Supervisor, then return Work Package to Maintenance Supervisor.

Table 1. Level Transmitter Calibration.

Component ID: LIT-1 & LIT-2, ZP-1	Recall #:	Procedure:
Description: INFLUENT AND EFFLUENT TANK LEVEL TRANSMITTERS		Location: SITE ZP-1 ANN. PANEL

PARAMETERS FOR MILLTRONICS LEVEL TRANSMITTERS - SITE ZP-1

ADDRESS	LIT-1	LIT-2	ADDRESS	LIT-1	LIT-2	ADDRESS	LIT-1	LIT-2	ADDRESS	LIT-1	LIT-2
P1	1	1	P26	0.000	0.000	P51	----	----	P76	1	1
P2	1	1	P27	1129	1129	P52	N/A	N/A	P77	0	0
P3	22.75	22.00	P28	----	----	P53	----	----	P78	3	3
P4	20.00	20.00	P29	0.000	0.000	P54	----	----	P79	1	1
P5	0.070	0.070	P30	0	0	P55	----	----	P80	20	20
P6	1.500	1.500	P31	0.000	0.000	P56	----	----	P81	N/A	N/A
P7	1.700	1.700	P32	0	0	P57	----	----	P82	N/A	N/A
P8	19.00	19.00	P33	3	3	P58	12	12	P83	N/A	N/A
P9	18.80	18.80	P34	3	3	P59	N/A	N/A	P84	N/A	N/A
P10	19.80	19.80	P35	----	----	P60	N/A	N/A	P85	N/A	N/A
P11	19.60	19.60	P36	1.550	1.550	P61	N/A	N/A	P86	N/A	N/A
P12	1.000	1.000	P37	1000	1000	P62	N/A	N/A	P87	N/A	N/A
P13	2	2	P38	0	0	P63	N/A	N/A	P88	N/A	N/A
P14	2	2	P39	5.000	5.000	P64	20C	20C	P89	N/A	N/A
P15	2.000	2.000	P40	1	1	P65	20C	20C	P90	N/A	N/A
P16	0	0	P41	1	1	P66	20C	20C	P91	N/A	N/A
P17	0.000	0.000	P42	----	----	P67	0.00	0.00	P92	N/A	N/A
P18	0.000	0.000	P43	0.000	0.000	P68	11	11	P93	N/A	N/A
P19	1	2	P44	0	0	P69	218	218	P94	N/A	N/A
P20	2.000	2.000	P45	N/A	N/A	P70	10	10	P95	N/A	N/A
P21	4	4	P46	N/A	N/A	P71	5	5	P96	N/A	N/A
P22	1	1	P47	N/A	N/A	P72	N/A	N/A	P97	N/A	N/A
P23	1	1	P48	N/A	N/A	P73	N/A	N/A	P98	N/A	N/A
P24	1	1	P49	N/A	N/A	P74	N/A	N/A	P99	----	----
P25	0	0	P50	3.4	3.4	P75	N/A	N/A			

- Are there any deviations from the table?..... Y / N
- If yes, enter the address and new value. _____

Signature of Performer _____ DATE _____ Work Order No. _____

9.0 JOHNSON-YOKAGOWA DIFF. PRESS. TRANSMITTERS

This section provides instructions for calibrating the differential pressure transmitter control loops. The differential pressure control loops consist of Johnson-Yokagowa transmitters with local indicators, two types of remote indicators (Wilkerson and Omega) and Acromag solid state relay alarm modules. When calibrating or performing maintenance on one item in a loop, verify that the other items in the loop are functional and within tolerance. For example, when calibrating the differential pressure transmitters, verify the function of the remote indicator(s) or alarms, if used in the loop. Refer to Section 11.0, Digital Process Indicators.

9.1 SPECIAL TOOLS, EQUIPMENT, AND MATERIALS

The following tools, equipment, and materials are required for calibrating the differential pressure transmitter control loops:

- DVM
- Pressure Source (capable of generating 60 PSI)
- Pressure Gauge (0 to 60 PSI)
- 4 to 20 mA current source.

9.2 INSTRUCTIONS

The following steps provide instructions for calibrating the differential pressure transmitter control loops:

1. Valve out the differential pressure transmitter to isolate it from the process and verify no pressure exists.
2. Disconnect tubing from **Low** pressure port to vent to atmosphere.
3. Disconnect tubing from **High** pressure port and connect test pressure source and gauge to this port.
4. Input test pressures per Data Sheet for the instrument being tested.
5. Record `AS FOUND' data in proper column of Data Sheet for the transmitter display, for any remote displays and the alarm actuation trip point (if any of these options are present).
6. If all values are satisfactory, go to **Section 9.4 (RESTORATION)**. If any value is out of tolerance, continue with next step.

7. Remove wire from **neg.** terminal of transmitter and install a DVM in series, set for current.
8. Input varying pressures (for example 0, 50, and 100%) and check the output current to determine if the **Transmitter Output** is correct and/or which instrument in the loop (remote display, alarm module) is out of tolerance.
9. If the **Transmitter Output** is not correct, vary the input pressures per Data Sheet and adjust the **zero/span** potentiometer as needed. Go to **Step 12**.
10. If the **Remote Display** is out of tolerance, vary the pressure source and make adjustments with the **zero/span** pots on the remote display(s).
11. If the **Alarm** did not actuate at the desired set point per the Data Sheet, vary the input pressure and adjust the setpoint potentiometer (located on the alarm module) to set the alarm. Go to **Step 12**.
12. Vary the input pressures per Data Sheet. If all data is in tolerance, record the data in the **'AS LEFT'** column of Data Sheet and go to **Section 9.4 (RESTORATION)**. If the values are still unacceptable, repeat **Steps 7 through 11** until values are within tolerance.
13. If any of the items in the differential pressure loop cannot be brought into tolerance, refer to the individual manuals for replacement or repair of components and repeat **Section 7.0 (TEMPERATURE LOOPS)**.

9.3 TESTING AND ACCEPTANCE

Ensure all display readings are consistent with system conditions.

9.4 RESTORATION

Perform the following steps when restoring test equipment:

1. Ensure test equipment has been disconnected and removed.
2. Ensure alarms are reset or cleared.

9.5 DISPOSITION

After maintenance/calibration is complete, perform the following:

1. Apply calibration labels, as required.
2. Inform Field Supervisor when calibration or maintenance is complete.
3. Send a copy of Work Package to the Cognizant Engineer/Field Supervisor, then return Work Package to Maintenance Supervisor.

10.0 DWYER DIFFERENTIAL PRESSURE TRANSMITTERS

This section provides instructions for calibrating the Dwyer 600 Series Differential Pressure Transmitters. When calibrating or performing maintenance on one item in a loop, verify that the other items in the loop are functional and within tolerance. For example, when calibrating the differential pressure transmitters, verify the function of the remote indicator(s) or alarms, if used in the loop. Refer to **Section 11.0 (DIGITAL PROCESS INDICATORS)**.

10.1 SPECIAL TOOLS, EQUIPMENT, AND MATERIALS

The following tools, equipment, and materials are required for calibrating differential pressure transmitters:

- Milliamp meter
- Calibrated gauge for inches of water or PSI
- Vendor supplied spanner type key.

10.2 INSTRUCTIONS

The following steps provide instructions for calibrating the differential pressure transmitters:

1. Verify that operations personnel have configured system to allow performance of this procedure.
2. Calibration.
3. Isolate transmitter from normal operation.
4. Remove HI and LO sensing lines (calibration caps) from transmitter with an HPT present, if necessary.
5. Connect air supply and calibrated gauge to input of transmitter.

6. Connect milliamp meter to output of transmitter.
7. Apply pressure inputs per Data Sheet and record outputs in "As-Found" column of Data Sheet.
8. If "As-Found" output values are within the tolerance specified on Data Sheet, and no adjustments are desired, record As-Found values in "As-Left" column of Data Sheet. Proceed to **Section 10.4 (RESTORATION)**. If output data is not in tolerance, then proceed with calibration.
9. With no signal applied, adjust ZERO Adjustment with spanner type key for a 4 mA output.
10. Apply a signal equal to maximum desired pressure from Data Sheet and adjust SPAN Adjustment for a 20 mA output.
11. Go back to **Step 7** and repeat steps to calibrate to Data Sheet.
12. If transmitter cannot be calibrated, repair or replace instrument. Then repeat **Steps 3 through 9**.
13. Apply input pressures per Data Sheet and record "As-Left" output values on Data Sheet.

10.3 TESTING AND ACCEPTANCE

Testing and acceptance is required before using the Dwyer Differential Pressure Transmitters:

1. Return equipment to original configuration, connecting sensor lines.
2. If pressure/vacuum is present, verify gauge reading or display reading represents appropriate system conditions.
3. Check for any leaks.

10.4 RESTORATION

Perform the following steps when restoring test equipment:

1. Ensure test equipment has been disconnected and removed.
2. Ensure alarms are reset or cleared.

10.5 DISPOSITION

After maintenance/calibration is complete, perform the following:

1. Apply calibration labels, as required.
2. Inform Field Supervisor when calibration or maintenance is complete.
3. Send a copy of Work Package to the Cognizant Engineer/Field Supervisor, then return Work Package to Maintenance Supervisor.

11.0 DIGITAL PROCESS INDICATORS

This section provides instructions for calibrating digital panel process indicators that receive a 4 to 20 mA current input driven from either its own power supply or power supplied from another instrument in the loop. These indicators will also have a means for adjusting the readout (display).

11.1 SPECIAL TOOLS, EQUIPMENT, AND MATERIALS

The following tools, equipment, and materials are required for calibrating digital panel process indicators:

- 4 to 20 mA current source
- DVM.

11.2 INSTRUCTIONS

The following steps provide instructions for calibrating the digital panel process indicators:

1. Remove the leads from the 4 to 20 mA input connections of the indicator.
2. Connect a DVM in series with the current source and connect both instruments to the input of the indicator. It may not be necessary to connect a DVM in the loop if the current source has a calibrated indicator of appropriate accuracy as an integral part of the equipment.

3. Vary input to the instrument according to Data Sheet for individual indicator and record "AS FOUND" data.
4. If data is within tolerance, record "AS LEFT" data on Data Sheet and go to **Section 11.4 (RESTORATION)**. If not within tolerance, then make necessary adjustments using **ZERO** and **SPAN** pots located on indicator.
5. If display can be adjusted to within specifications, record "AS LEFT" data on Data Sheet and go to **Section 11.4 (RESTORATION)**; if not, then replace indicator and repeat **Section 11.2 (INSTRUCTIONS)**.

11.3 TESTING AND ACCEPTANCE

Ensure display reading is in agreement with plant conditions.

11.4 RESTORATION

Perform the following steps when restoring test equipment:

1. Ensure test equipment has been disconnected and removed.
2. Ensure alarms are reset or cleared.

11.5 DISPOSITION

After maintenance/calibration is complete, perform the following:

1. Apply calibration labels, as required.
2. Inform Field Supervisor when calibration or maintenance is complete.
3. Send a copy of Work Package to the Cognizant Engineer/Field Supervisor, then return Work Package to Maintenance Supervisor.

12.0 PRESSURE SWITCH LOOPS

This section provides instructions for calibrating the pressure switch loops. The pressure switch loops consist of Omega Type PSW, Model 108 pressure switches which provide input

to the PLC for annunciation and interlock control. When calibrating or performing maintenance on one item in a loop, verify that the other items in the loop are functional and within tolerance. For example, when calibrating the pressure transmitters, verify the function of the remote indicator(s) or alarms, if used in the loop.

12.1 SPECIAL TOOLS, EQUIPMENT, AND MATERIALS

The following tools, equipment, and materials are required for calibrating the pressure switch loops:

- DVM
- Pressure Source (capable of generating 60 PSI)
- Pressure Gauge (0 to 60 PSI).

12.2 INSTRUCTIONS

The following steps provide instructions for calibrating the pressure switch loops:

1. Valve out the pressure switch to isolate it from the process and verify no pressure exists.
2. Either disconnect tubing from pressure switch or remove cap from pressure tap (tubing tee above switch) and connect test pressure source and gauge.
3. Check Data Sheet for pressure setpoint(s) for the pressure switch being calibrated, and input varying pressures above and below the setpoint. Record the alarm actuation trip point in the 'AS FOUND' column of Data Sheet.
4. If the Alarm actuated at the setpoint pressure per the Data Sheet, go to Section 12.4 (RESTORATION); if not, continue with next step.
5. To adjust the pressure switch, remove switch cover and connect a DVM (set for voltage) to the switch terminals. Turn the adjusting nut to set the actuation setpoint as indicated by actuation of the switch via the DVM.
6. Vary pressure up and down to verify alarm set point. (NOTE: The pressure should be adjusted to actuate on pressure rising). If setpoint value is in tolerance, verify actuation of the alarm setpoint in the entire loop by verifying annunciator alarm and that appropriate LED on PLC Input Module is actuated. If pressure switch loop is in tolerance, record the data in the 'AS LEFT' column of Data Sheet and go to Section 12.4 (RESTORATION).

7. If the pressure loop cannot be brought into tolerance, replace the pressure switch and repeat Section 12.2 (INSTRUCTIONS).

12.3 TESTING AND ACCEPTANCE

Ensure all display readings are consistent with system conditions.

12.4 RESTORATION

Perform the following steps when restoring test equipment:

1. Ensure test equipment has been disconnected and removed.
2. Replace switch cover.
3. Ensure alarms are reset or cleared.

12.5 DISPOSITION

After maintenance/calibration is complete, perform the following:

1. Apply calibration labels, as required.
2. Inform Field Supervisor when calibration or maintenance is complete.
3. Send a copy of Work Package to the Cognizant Engineer/Field Supervisor, then return Work Package to Maintenance Supervisor.

13.0 FLOWSWITCHES

This section provides instructions for calibrating flow switches. The flow switch loops consist of Kobold, Model FPS/R (FPS-6100) flow switches, which provide input to the PLC for annunciation and interlock control. When calibrating or performing maintenance on one item in a loop, verify that the other items in the loop are functional and within tolerance. For example, when calibrating flowswitches, verify the function of the remote indicator(s) or alarms, if used in the loop.

13.1 SPECIAL TOOLS, EQUIPMENT, AND MATERIALS

The following equipment is required for calibrating flow switches:

- DVM.

13.2 INSTRUCTIONS

The following steps provide instructions for calibrating flow switches:

1. Vary the flow through the flow switch to check operation of the alarms and interlocks. If the flow switch is inoperable, proceed to **Step 8**. If the switch actuates the alarms, continue with the next step.
2. If the **Alarm** actuated at the setpoint flow per the Data Sheet, go to **Section 13.4 (RESTORATION)**; if not, continue with next step.
3. Valve out the flow switch to isolate it from the process.
4. Verify that flow switch is installed correctly to indicate flow in the direction as noted by arrow.
5. Adjust the flow switch by removing switch cover. Connect a DVM (set for voltage) to the switch terminals. Turn the setpoint screw to adjust the actuation setpoint as indicated by actuation of the switch via the DVM (turning the screw clockwise increases actuation flow setpoint).
6. Establish flow and vary flow up and down to verify alarm set point. (**NOTE:** The switch should be adjusted to actuate on falling flow). If setpoint value is in tolerance, verify actuation of the alarm setpoint in the entire loop by verifying annunciator alarm and that appropriate LED on PLC Input Module is actuated. If flow switch loop is in tolerance, record the data in the 'AS LEFT' column of Data Sheet and go to **Section 13.4 (RESTORATION)**.
7. If the flow switch cannot be brought into tolerance, replace the switch and repeat **Section 13.2 (INSTRUCTIONS)**.
8. Remove flow switch from piping.
9. Actuate lever to see if there is a response. If no response, replace switch and repeat **Section 13.2 (INSTRUCTIONS)**.

10. If there is a response, determine if the paddle is hanging up in the pipe; if so trim paddle and reinstall flow switch and repeat **Section 13.2 (INSTRUCTIONS)**.

13.3 TESTING AND ACCEPTANCE

Ensure all display readings are consistent with system conditions.

13.4 RESTORATION

Perform the following steps when restoring test equipment:

1. Ensure test equipment has been disconnected and removed.
2. Replace switch cover.
3. Ensure alarms are reset or cleared.

13.5 DISPOSITION

After maintenance/calibration is complete, perform the following:

1. Apply calibration labels, as required.
2. Inform Field Supervisor when calibration or maintenance is complete.
3. Send a copy of Work Package to the Cognizant Engineer/Field Supervisor, then return Work Package to Maintenance Supervisor.

14.0 WELL LEVEL ALARMS

This section provides instructions for calibrating the well level alarm loops for the Extraction Well (LSL-1A) and the Disposal Well (LSH-3). The level alarm loops consist of Warrick conductivity level probes suspended on PVC jacketed wire to the groundwater; and Warrick solid state, plug-in level modules; level alarms and interlocks. (**NOTE:** In some cases the level probe wiring uses the pump casing for the ground/reference probe, others utilize a separate wire to groundwater).

The level control relays are Warrick Model 16VM B1A0, which are Direct Acting, 10K ohms sensitivity, 120 VAC operation, 11 pin octal socket control relay enclosed in a clear Lexan plug-in housing. Direct acting means that with the high probe (terminal 3) and reference probe/ground (terminal 5) connected, rising water reaching the high level probe energizes the relay (and LED on) and changes the state of the load contacts. The extraction well is to alarm on low level (after a 2 min. time delay). The disposal well is to alarm on high level. When calibrating or performing maintenance on one item in a loop, verify that the other items in the loop are functional and within tolerance. For example, when calibrating level alarms, verify the function of the remote indicator(s) or alarms, if used in the loop.

14.1 SPECIAL TOOLS, EQUIPMENT, AND MATERIALS

The following equipment is required for calibrating well level alarm loops:

- DVM.

14.2 INSTRUCTIONS

The following steps provide instructions for calibrating well level alarm loops:

1. If the annunciator alarms/interlocks are not properly functioning, remove the covers of the electrode fitting enclosure and the level control relay enclosure.
2. Check for continuity between the level probe and reference probe/or ground. If no continuity exists, check the probes and correct.
3. Verify the action of the level control relay and if not functioning, replace.

14.3 TESTING AND ACCEPTANCE

Either pull the level control relay, or short out high level probe and ground contacts to actuate relay and verify all annunciator alarms are properly functioning.

14.4 RESTORATION

Perform the following steps when restoring test equipment:

1. Ensure test equipment has been disconnected and removed.
2. Replace enclosure covers.

3. Ensure alarms are reset or cleared.

14.5 DISPOSITION

After maintenance/calibration is complete, perform the following:

1. Apply calibration labels, as required.
2. Inform Field Supervisor when calibration or maintenance is complete.
3. Send a copy of Work Package to the Cognizant Engineer/Field Supervisor, then return Work Package to Maintenance Supervisor.

15.0 PRESSURE GAUGES

This section provides instructions for calibrating the pressure gauges. The pressure gauges are generally Ashcroft, Model 35-1009AWL-02L, or equal, oil filled pressure gauges, 0-100 PSI range.

NOTES: Because of the variety of Bourdon Tube and linkage configurations between manufacturers and pressure ranges, caution is required when attempting to make span adjustments. Refer to vendor information for the specific gauge when span adjustments are desired.

15.1 SPECIAL TOOLS, EQUIPMENT, AND MATERIALS

The following equipment is required for calibrating pressure gauges:

- Variable Pressure Source (manometer, dead weight tester, etc. capable of generating 100 PSI).
- Pressure Gauge (0 to 100 PSI)

15.2 INSTRUCTIONS

The following steps provide instructions for calibrating pressure gauges:

1. Valve out gauge to isolate it from the process and verify that no pressure exists.

2. If necessary to properly calibrate gauge, remove gauge from installed location.
3. Connect input pressure source and test gauge.
4. Input test pressure(s) specified per the Data Sheet, and record measured values in the 'AS FOUND' column of the Data Sheet.
5. If the measured values are within the tolerance specified on the Data Sheet, record the 'AS FOUND' values in the 'AS LEFT' column of the Data Sheet and go to Step 4. If values are not correct, continue to the next step.
6. If "zero" needs adjustment either use ZERO Adjusting screw, OR if none exists remove needle from spindle, and without moving spindle reattach pointer to spindle so pointer indicates "zero".
7. Repeat test, starting at Step 4. If measured values are within tolerance, record on 'AS LEFT' column of Data Sheet; if not, determine whether span can be adjusted.
8. If the gauge cannot be brought into tolerance, replace gauge and repeat test starting at Step 3.

15.3 TESTING AND ACCEPTANCE

Ensure gauge readings are consistent with system conditions.

15.4 RESTORATION

Perform the following steps when restoring test equipment:

1. Disconnect test equipment and remove.
2. If calibrating in line, ensure alarms are reset or cleared.
3. If bench calibrated, reinstall gauge in system.

15.5 DISPOSITION

After maintenance/calibration is complete, perform the following:

1. Apply calibration labels, as required.

2. Inform Field Supervisor when calibration or maintenance is complete.
3. Send a copy of Work Package to the Cognizant Engineer/Field Supervisor, then return Work Package to Maintenance Supervisor.

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BHI-OP-00058
Rev. 0

APPENDIX A INSTRUMENT CALIBRATION LIST 200-ZP-1

INSTRUMENT LOOP	FUNCTION	CALIBRATION FREQUENCY
LSL-1A	Extraction Well Low Level Alarm	Semi-Annually
FIT-1A, FS-1A, FI-1A	Influent Flow Indicator Totalizer, Switch, Alarm	Quarterly
TT-1, TI-1	Influent Temperature Loop	Annually
LIT-1, LSL-2, LSH-1, LSHH-1	Influent Tank Level Indicator & Alarms	Semi-Annually
FS-2	Flow Switch (end of hose to Influent Skid)	Semi-Annually
PDIT-1, PDSH-1, PDI-1	Differential Pressure Ind. & Alarm, Influent Filters	Semi-Annually
FS-3	Flow Switch (end of hose to Process Skid)	Semi-Annually
PSH-1	Pressure Switch (IX Cols. safety pressure switch)	Semi-Annually
FIT-2 & FSH-7	Flow Indicator & Flow Alarm	Quarterly
PDIT-2, PDSH-2, PDI-2	Differential Pressure Ind. & Alarm, IX Col. (TK-2)	Semi-Annually
PDIT-3, PDSH-3, PDI-3	Differential Pressure Ind. & Alarm, IX Col. (TK-3)	Semi-Annually
PDIT-4, PDSH-4, PDI-4	Differential Pressure Ind. & Alarm, IX Col. (TK-4)	Semi-Annually
PDIT-7, PDSH-7, PDI-7	Differential Pressure Ind. & Alarm, GAC Col. (TKS-10/11)	Semi-Annually
PDIT-8, PDSH-8, PDI-8	Differential Pressure Ind. & Alarm, GAC Col. (TKS-12/13)	Semi-Annually
PSH-2	Pressure Switch (GAC Cols. TKS-10/11 safety press. sw.)	Semi-Annually
PSH-3	Pressure Switch (GAC Cols. TKS-12/13 safety press. sw.)	Semi-Annually
FS-4	Flow Switch (end of hose to Effluent Tank)	Semi-Annually
LIT-2, LSL-3, LSH-2, LSHH-2	Effluent Tank Level Indicator & Alarms	Semi-Annually
FS-5	Flow Switch (end of hose to Effluent Skid)	Semi-Annually
PDIT-6, PDSH-6, PDI-6	Differential Pressure Ind. & Alarm, Effluent Filters	Semi-Annually
TT-2, TI-2	Effluent Temperature Loop	Annually
FIT-3, FI-3	Influent Flow Indicator Totalizer, Alarm	Quarterly
FS-6	Flow Switch (end of hose to Disposal Well)	Semi-Annually

INSTRUMENT LOOP	FUNCTION	CALIBRATION FREQUENCY
LSH-3	Disposal Well High Level Alarm	Semi-Annually
PI-1, PI-2, PI-3, PI-4, PI-5, PI-6, PI-7, PI-8, PI-9, PI-10, PI-11, PI-12, PI-13, PI-14, PI-15	Pressure Gauges, Oil Filled	Semi-Annually

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BHI-OP-00058
Rev. 0

APPENDIX B DATA SHEETS

Form Number	Form Title	Procedure No.	Effective Date
BHI-OP-001	PSH-2, Pressure Switch	BHI-OP-00058	Jan-96
BHI-OP-002	PSH-3, Pressure Switch	BHI-OP-00058	Jan-96
BHI-OP-003	PI-1, Pressure Gauge	BHI-OP-00058	Jan-96
BHI-OP-004	PI-2, Pressure Gauge	BHI-OP-00058	Jan-96
BHI-OP-005	PI-3, Pressure Gauge	BHI-OP-00058	Jan-96
BHI-OP-006	PI-4, Pressure Gauge	BHI-OP-00058	Jan-96
BHI-OP-007	PI-5, Pressure Gauge	BHI-OP-00058	Jan-96
BHI-OP-008	PI-6, Pressure Gauge	BHI-OP-00058	Jan-96
BHI-OP-009	PI-7, Pressure Gauge	BHI-OP-00058	Jan-96
BHI-OP-010	PI-8, Pressure Gauge	BHI-OP-00058	Jan-96
BHI-OP-011	PI-9, Pressure Gauge	BHI-OP-00058	Jan-96
BHI-OP-012	PI-10, Pressure Gauge	BHI-OP-00058	Jan-96
BHI-OP-013	PI-11, Pressure Gauge	BHI-OP-00058	Jan-96
BHI-OP-014	PI-12, Pressure Gauge	BHI-OP-00058	Jan-96
BHI-OP-015	PI-13, Pressure Gauge	BHI-OP-00058	Jan-96
BHI-OP-016	PI-14, Pressure Gauge	BHI-OP-00058	Jan-96
BHI-OP-017	PI-15, Pressure Gauge	BHI-OP-00058	Jan-96
BHI-OP-024	FIT-1A, Flow Indicator and Transmitter	BHI-OP-00058	Jan-96
BHI-OP-025	FI-1A, Flow Indicator	BHI-OP-00058	Jan-96
BHI-OP-026	FIT-2, Flow Indicator and Transmitter	BHI-OP-00058	Jan-96
BHI-OP-027	FI-2, Flow Indicator	BHI-OP-00058	Jan-96
BHI-OP-028	FIT-3, Flow Indicator and Transmitter	BHI-OP-00058	Jan-96
BHI-OP-029	FI-3, Flow Indicator	BHI-OP-00058	Jan-96
BHI-OP-030	PDIT-1, Diff. Pressure Transmitter	BHI-OP-00058	Jan-96
BHI-OP-031	PDI-1, Diff. Pressure Indicator	BHI-OP-00058	Jan-96
BHI-OP-032	PDIT-2, Diff. Pressure Transmitter	BHI-OP-00058	Jan-96
BHI-OP-033	PDI-2, Diff. Pressure Indicator	BHI-OP-00058	Jan-96
BHI-OP-046	PDSH-1, Diff. Pressure Alarm Mod.	BHI-OP-00058	Jan-96
BHI-OP-047	PDSH-2, Diff. Pressure Alarm Mod.	BHI-OP-00058	Jan-96
BHI-OP-054	TT-1, Temp. Transmitter	BHI-OP-00058	Jan-96
BHI-OP-055	TI-1, Temp. Indicator	BHI-OP-00058	Jan-96
BHI-OP-056	TT-2, Temp. Transmitter	BHI-OP-00058	Jan-96
BHI-OP-057	TI-2, Temp. Indicator	BHI-OP-00058	Jan-96
BHI-OP-058	PSH-1, Pressure Switch	BHI-OP-00058	Jan-96
BHI-OP-059	FS-1, Flow Switch	BHI-OP-00058	Jan-96
BHI-OP-060	FS-2, Flow Switch	BHI-OP-00058	Jan-96
BHI-OP-061	FS-3, Flow Switch	BHI-OP-00058	Jan-96
BHI-OP-062	FS-4, Flow Switch	BHI-OP-00058	Jan-96
BHI-OP-063	FS-5, Flow Switch	BHI-OP-00058	Jan-96
BHI-OP-064	FS-6, Flow Switch	BHI-OP-00058	Jan-96
BHI-OP-065	FS-7, Flow Switch	BHI-OP-00058	Jan-96

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DATA SHEET

DATE:

Component/Activity	System	Group No.	Equipment No.	Bldg.	Cell	Panel
<u>FIT-1A</u>			<u>ZP-1</u>		<u>INF</u>	<u>SKID</u>
Description	Cat. Freq.	RI Code	Plant Cond.	FSAR	IS	Page

FLOW INDICATOR AND TRANSMITTER

Date Last	Date Due	RT	Tolerance History	Group Accuracy	Device Accuracy
-----------	----------	----	-------------------	----------------	-----------------

Manufacturer Name	Manufacturer Serial Number
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SIGNET, Model 9010	6940824 760
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Remarks

A-factor= 1.001, K-factor= 59.935 FOR 1-1/2" PVC WITH SIGNET #515 SENSOR

Dev. Proc.	Group Proc.	PTS No.	Date Performed	Calibration Standard	Res. Act. Hrs.
			Loop Check		
			OK		

Signature of performer

X

Comments

Additional Information

ITEM	INSTRUCTIONS	Signal/Action	Desired	ANS 1 As Found	I/O	ANS 2 As Left
01	TRANSMITTER DISPLAY					
02	0 HZ	0 HZ	0 GPM			
03	40.0	40.0	40			
04	80.0	80.0	80			
05	TRANSMITTER OUTPUT					
06	0 HZ	0 HZ	4 mA			
07	40.0	40.0	12			
08	80.0	80.0	20			
09	ALARM SETPOINT (FSL)					
10	2 HZ	2 HZ	2 GPM			
11						
12	K-FACTOR (Record as found and as left K-Factor)					
13						

DATA SHEET

DATE:

Component/Activity	System	Group No.	Equipment No.	Bldg.	Cell	Panel
FI-1A			ZP-1			ANN. PANEL
Description	Cat. Freq.	RI Code	Plant Cond.	FSAR	IS	Page

FLOW INDICATOR

Date Last	Date Due	RT	Tolerance History	Group Accuracy	Device Accuracy
-----------	----------	----	-------------------	----------------	-----------------

Manufacturer Name	Manufacturer Serial Number
-------------------	----------------------------

OMEGA	MOD. TX82A
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Remarks

Panel Mounted Current Loop Indicator

Dev. Proc.	Group Proc.	PTS No.	Date Performed	Calibration Standard	Res. Act. Hrs.
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Signature of performer	Loop Check		
X	OK		

Comments

Additional Information

ITEM	INSTRUCTIONS		Signal/Action	Desired	ANS 1		ANS 2	
	Parameter/Step				As Found	I/O	As Left	
01	0	GPM	4 mA	0 GPM				
02	40		12	40				
03	80		20	80				
04								
05								
06								
07								
08								
09								
10								
11								
12								
13								

DATA SHEET

DATE: _____

Component/Activity	System	Group No.	Equipment No.	Bldg.	Cell	Panel	
FI-2			ZP-1		ANN. PANEL		
Description	Cat.	Freq.	RI Code	Plant Cond.	FSAR	IS	Page

FLOW INDICATOR

Date Last	Date Due	RT	Tolerance History	Group Accuracy	Device Accuracy

Manufacturer Name _____ Manufacturer Serial Number _____

OMEGA MOD. TX82A

Remarks _____

Dev. Proc.	Group Proc.	PTS No.	Date Performed	Calibration Standard	Res. Act. Hrs.

Signature of performer _____
 X _____
 Loop Check _____
 OK _____

Comments _____

Additional Information _____

ITEM	INSTRUCTIONS	Signal/Action	Desired	ANS 1 As Found	I/O	ANS 2 As Left
01	0 GPM	4 mA	0 GPM	_____	_____	_____
02	40	12	40	_____	_____	_____
03	80	20	80	_____	_____	_____
04				_____	_____	_____
05				_____	_____	_____
06				_____	_____	_____
07				_____	_____	_____
08				_____	_____	_____
09				_____	_____	_____
10				_____	_____	_____
11				_____	_____	_____
12				_____	_____	_____
13				_____	_____	_____

9613470.1170

DATA SHEET

DATE: _____

Component/Activity	System	Group No.	Equipment No.	Bldg.	Cell	Panel	
FIT-3			ZP-1		EFF	SKID	
Description	Cat.	Freq.	RI Code	Plant Cond.	FSAR	IS	Page

FLOW INDICATOR AND TRANSMITTER

Date Last	Date Due	RT	Tolerance	History	Group Accuracy	Device Accuracy
-----------	----------	----	-----------	---------	----------------	-----------------

Manufacturer Name _____ Manufacturer Serial Number _____

SIGNET, Model 9010 _____ 6940819 455

Remarks _____

A-factor= 143HZ/90GPM, K-factor= 95.785 FOR 2" PVC WITH SIGNET #2530 SENSOR

Dev. Proc.	Group Proc.	PTS No.	Date Performed	Calibration Standard	Res. Act. Hrs.
------------	-------------	---------	----------------	----------------------	----------------

Signature of performer _____
 X _____
 Loop Check _____
 OK _____

Comments _____

Additional Information _____

ITEM	INSTRUCTIONS	Signal/Action	Desired	ANS 1 As Found	I/O	ANS 2 As Left
01	TRANSMITTER DISPLAY					
02	0 HZ	0 HZ	0 GPM			
03	72.5	72.5	45			
04	143	143	90			
05	TRANSMITTER OUTPUT					
06	0 HZ	0 HZ	4 mA			
07	72.5	72.5	12			
08	143	143	20			
09	ALARM SETPOINT (FSL)					
10	3.18 HZ	3.18 HZ	2 GPM			
11						
12	K-FACTOR (Record as found and as left K-Factor)					
13						

DATA SHEET

DATE: _____

Component/Activity	System	Group No.	Equipment No.	Bldg.	Cell	Panel	
FI-3			ZP-1		ANN. PANEL		
Description	Cat.	Freq.	RI Code	Plant Cond.	FSAR	IS	Page

FLOW INDICATOR

Date Last	Date Due	RT	Tolerance History	Group Accuracy	Device Accuracy
-----------	----------	----	-------------------	----------------	-----------------

Manufacturer Name _____ Manufacturer Serial Number _____

WILKERSON INST. _____ MOD. 471-24 _____

Remarks _____

Dev. Proc.	Group Proc.	PTS No.	Date Performed	Calibration Standard	Res. Act. Hrs.
------------	-------------	---------	----------------	----------------------	----------------

Signature of performer _____
 X _____
 Loop Check _____
 OK _____

Comments _____

Additional Information _____

ITEM	INSTRUCTIONS Parameter/Step	Signal/Action	Desired	ANS 1 As Found	I/O	ANS 2 As Left
01	0 GPM	4 mA	0 GPM	_____	_____	_____
02	45	12	45	_____	_____	_____
03	90	20	90	_____	_____	_____
04				_____	_____	_____
05				_____	_____	_____
06				_____	_____	_____
07				_____	_____	_____
08				_____	_____	_____
09				_____	_____	_____
10				_____	_____	_____
11				_____	_____	_____
12				_____	_____	_____
13				_____	_____	_____

9613470.1171

DATA SHEET

DATE:

Component/Activity	System	Group No.	Equipment No.	Bldg.	Cell	Panel
PDIT-1			ZP-1		INF	SKID
Description	Cat.	Freq.	RI Code	Plant Cond.	FSAR	IS

DIFF. PRESSURE TRANSMITTER						
Date Last	Date Due	RT	Tolerance History	Group Accuracy	Device Accuracy	

Manufacturer Name	Manufacturer Serial Number
JOHNSON-YOKOGAWA	JF514NA052 428

Remarks

Dev. Proc.	Group Proc.	PTS No.	Date Performed	Calibration Standard	Res. Act. Hrs.
Signature of performer			Loop Check	_____	_____
X			OK	_____	_____

Comments

Additional Information

ITEM	INSTRUCTIONS	Signal/Action	Desired	ANS 1 As Found	I/O	ANS 2 As Left
01	TRANSMITTER READOUT			_____	_____	_____
02	0 PSIG	4 mA	0 %	_____	_____	_____
03	30	12	50	_____	_____	_____
04	60	20	100	_____	_____	_____
05	TRANSMITTER OUTPUT			_____	_____	_____
06	0 PSIG	0 PSIG	4 mA	_____	_____	_____
07	30	30	12	_____	_____	_____
08	60	60	20	_____	_____	_____
09	ALARM SETPOINT			_____	_____	_____
10	30 PSIG	12 mA	30 PSIG	_____	_____	_____
11	RESET (record only)			_____	_____	_____
12				_____	_____	_____
13				_____	_____	_____

DATA SHEET

DATE:

Component/Activity	System	Group No.	Equipment No.	Bldg.	Cell	Panel	
<u>PDI-1</u>			<u>ZP-1</u>		<u>ANN. PANEL</u>		
Description	Cat.	Freq.	RI Code	Plant Cond.	FSAR	IS	Page

DIFF. PRESSURE INDICATOR

Date Last	Date Due	RT	Tolerance History	Group Accuracy	Device Accuracy
-----------	----------	----	-------------------	----------------	-----------------

Manufacturer Name _____ Manufacturer Serial Number _____

WILKERSON INST. _____ MOD. 471-24 _____

Remarks

Dev. Proc.	Group Proc.	PTS No.	Date Performed	Calibration Standard	Res. Act. Hrs.
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Signature of performer	Loop Check	_____	_____
X _____	OK	_____	_____

Comments

Additional Information

ITEM	INSTRUCTIONS Parameter/Step	Signal/Action	Desired	ANS 1		ANS 2	
				As Found	I/O	As Left	
01	0 PSIG	4 mA	0 PSIG	_____	_____	_____	_____
02	30	12	30	_____	_____	_____	_____
03	60	20	60	_____	_____	_____	_____
04				_____	_____	_____	_____
05				_____	_____	_____	_____
06				_____	_____	_____	_____
07				_____	_____	_____	_____
08				_____	_____	_____	_____
09				_____	_____	_____	_____
10				_____	_____	_____	_____
11				_____	_____	_____	_____
12				_____	_____	_____	_____
13				_____	_____	_____	_____

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BHI-OP-00058
Rev. 0

DATA SHEET

DATE:

Component/Activity	System	Group No.	Equipment No.	Bldg.	Cell	Panel	
PDIT-2			ZP-1				
Description	Cat.	Freq.	RI Code	Plant Cond.	FSAR	IS	Page

DIFF. PRESSURE TRANSMITTER						
Date Last	Date Due	RT	Tolerance History	Group Accuracy	Device Accuracy	

Manufacturer Name	Manufacturer Serial Number
JOHNSON-YOKOGAWA	JF514NA054 430
Remarks	

Dev. Proc.	Group Proc.	PTS No.	Date Performed	Calibration Standard	Res. Act. Hrs.
Signature of performer			Loop Check		
X			OK		

Comments

Additional Information

ITEM	INSTRUCTIONS				ANS 1		ANS 2	
	Parameter/Step	Signal/Action	Desired	As Found	I/O	As Left		
01	TRANSMITTER READOUT							
02	0 PSIG	4 mA	0 %					
03	30	12	50					
04	60	20	100					
05	TRANSMITTER OUTPUT							
06	0 PSIG	0 PSIG	4 mA					
07	30	30	12					
08	60	60	20					
09	ALARM SETPOINT							
10	30 PSIG	12 mA	30 PSIG					
11	RESET (record only)							
12								
13								

DATA SHEET

DATE: _____

Component/Activity	System	Group No.	Equipment No.	Bldg.	Cell	Panel	
PDSH-2			ZP-1		ANN. PANEL		
Description	Cat.	Freq.	RI Code	Plant Cond.	FSAR	IS	Page

DIFF. PRESSURE ALARM MOD.

Date Last	Date Due	RT	Tolerance History	Group Accuracy	Device Accuracy

Manufacturer Name	Manufacturer Serial Number
ACROMAG	MOD. 260 A

Remarks

Dev. Proc.	Group Proc.	PTS No.	Date Performed	Calibration Standard	Res. Act. Hrs.
			Loop Check	_____	_____
			OK	_____	_____
				_____	_____

Signature of performer
X _____

Comments

Additional Information

ITEM	INSTRUCTIONS	Signal/Action	Desired	ANS 1 As Found	I/O	ANS 2 As Left
01	ALARM SETPOINT			_____	_____	_____
02	30 PSIG	12 mA	12 mA	_____	_____	_____
03	RESET (record only)			_____	_____	_____
04				_____	_____	_____
05				_____	_____	_____
06				_____	_____	_____
07				_____	_____	_____
08				_____	_____	_____
09				_____	_____	_____
10				_____	_____	_____
11				_____	_____	_____
12				_____	_____	_____
13				_____	_____	_____

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DATA SHEET

DATE:

Component/Activity	System	Group No.	Equipment No.	Bldg.	Cell	Panel
TT-1			ZP-1		INF. SKID	
Description	Cat.	Freq.	RI Code	Plant Cond.	FSAR	IS Page

TEMP. TRANSMITTER

Date Last	Date Due	RT	Tolerance History	Group Accuracy	Device Accuracy
-----------	----------	----	-------------------	----------------	-----------------

Manufacturer Name Manufacturer Serial Number

OMEGA MOD. TX91

Remarks

Dev. Proc.	Group Proc.	PTS No.	Date Performed	Calibration Standard	Res. Act. Hrs.
------------	-------------	---------	----------------	----------------------	----------------

Signature of performer Loop Check _____

X OK _____

Comments

Additional Information

ITEM	INSTRUCTIONS Parameter/Step	Signal/Action	Desired	ANS 1		ANS 2	
				As Found	I/O	As Left	
01	40 DEG.F	40 DEG.F	7.20 mA	_____	_____	_____	_____
02	80	80	10.40	_____	_____	_____	_____
03	120	120	13.60	_____	_____	_____	_____
04				_____	_____	_____	_____
05				_____	_____	_____	_____
06				_____	_____	_____	_____
07				_____	_____	_____	_____
08				_____	_____	_____	_____
09				_____	_____	_____	_____
10				_____	_____	_____	_____
11				_____	_____	_____	_____
12				_____	_____	_____	_____
13				_____	_____	_____	_____

DATA SHEET

DATE: _____

Component/Activity	System	Group No.	Equipment No.	Bldg.	Cell	Panel	
TI-1			ZP-1		ANN.	PANEL	
Description	Cat.	Freq.	RI Code	Plant Cond.	FSAR	IS	Page

TEMP. INDICATOR						
Date Last	Date Due	RT	Tolerance History	Group Accuracy	Device Accuracy	

Manufacturer Name _____ Manufacturer Serial Number _____

WILKERSON INST. _____ MOD. 471-24 _____

Remarks _____

Dev. Proc.	Group Proc.	PTS No.	Date Performed	Calibration Standard	Res. Act. Hrs.
------------	-------------	---------	----------------	----------------------	----------------

Signature of performer	Loop Check	_____	_____
X _____	OK	_____	_____

Comments _____

Additional Information _____

ITEM	INSTRUCTIONS Parameter/Step	Signal/Action	Desired	ANS 1	I/O	ANS 2
				As Found		As Left
01	40 DEG.F	7.2 mA	40 DEG.F	_____	_____	_____
02	80	10.40	80	_____	_____	_____
03	120	13.60	120	_____	_____	_____
04				_____	_____	_____
05				_____	_____	_____
06				_____	_____	_____
07				_____	_____	_____
08				_____	_____	_____
09				_____	_____	_____
10				_____	_____	_____
11				_____	_____	_____
12				_____	_____	_____
13				_____	_____	_____

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BHI-OP-00058
Rev. 0

DATA SHEET

DATE:

Component/Activity	System	Group No.	Equipment No.	Bldg.	Cell	Panel
PSH-1			ZP-1			
Description	Cat.	Freq.	RI Code	Plant Cond.	FSAR	IS

PRESSURE SWITCH

Date Last	Date Due	RT	Tolerance History	Group Accuracy	Device Accuracy
-----------	----------	----	-------------------	----------------	-----------------

Manufacturer Name	Manufacturer Serial Number
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OMEGA, MODEL PSW 347

Remarks

Dev. Proc.	Group Proc.	PTS No.	Date Performed	Calibration Standard	Res. Act. Hrs.
------------	-------------	---------	----------------	----------------------	----------------

Signature of performer	Loop Check		
X	OK		

Comments

Additional Information

ITEM	INSTRUCTIONS	Signal/Action	Desired	ANS 1 As Found	I/O	ANS 2 As Left
01	ALARM SETPOINT					
02	25 PSIG	25 PSI	25 PSI			
03	RESET (record only)					
04						
05						
06						
07						
08						
09						
10						
11						
12						
13						

DATA SHEET

DATE:

Component/Activity	System	Group No.	Equipment No.	Bldg.	Cell	Panel	
PSH-2			ZP-1				
Description	Cat.	Freq.	RI Code	Plant Cond.	FSAR	IS	Page

PRESSURE SWITCH						
Date Last	Date Due	RT	Tolerance History	Group Accuracy	Device Accuracy	

Manufacturer Name _____ Manufacturer Serial Number _____

OMEGA, MODEL PSW 347

Remarks

Dev. Proc.	Group Proc.	PTS No.	Date Performed	Calibration Standard	Res. Act. Hrs.
Signature of performer			Loop Check	_____	_____
X _____			OK	_____	_____

Comments

Additional Information

ITEM	INSTRUCTIONS Parameter/Step	Signal/Action	Desired	ANS 1	I/O	ANS 2
				As Found		As Left
01	ALARM SETPOINT			_____	_____	_____
02	25 PSIG	25 PSI	25 PSI	_____	_____	_____
03	RESET (record only)			_____	_____	_____
04				_____	_____	_____
05				_____	_____	_____
06				_____	_____	_____
07				_____	_____	_____
08				_____	_____	_____
09				_____	_____	_____
10				_____	_____	_____
11				_____	_____	_____
12				_____	_____	_____
13				_____	_____	_____

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BHI-OP-00058
Rev. 0

DATA SHEET

DATE:

Component/Activity	System	Group No.	Equipment No.	Bldg.	Cell	Panel	
PSH-3			ZP-1			PROC. SKID	
Description	Cat.	Freq.	RI Code	Plant Cond.	FSAR	IS	Page

PRESSURE SWITCH						
Date Last	Date Due	RT	Tolerance History	Group Accuracy	Device Accuracy	

Manufacturer Name	Manufacturer Serial Number
-------------------	----------------------------

OMEGA, MODEL PSW 347

Remarks

Dev. Proc.	Group Proc.	PTS No.	Date Performed	Calibration Standard	Res. Act. Hrs.
Signature of performer			Loop Check	_____	_____
X _____			OK	_____	_____

Comments

Additional Information

ITEM	INSTRUCTIONS	Signal/Action	Desired	ANS 1 As Found	I/O	ANS 2 As Left
01	ALARM SETPOINT			_____	_____	_____
02	25 PSIG	25 PSI	25 PSI	_____	_____	_____
03	RESET (record only)			_____	_____	_____
04				_____	_____	_____
05				_____	_____	_____
06				_____	_____	_____
07				_____	_____	_____
08				_____	_____	_____
09				_____	_____	_____
10				_____	_____	_____
11				_____	_____	_____
12				_____	_____	_____
13				_____	_____	_____

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DATA SHEET

DATE:

Component/Activity	System	Group No.	Equipment No.	Bldg.	Cell	Panel
FS-2			ZP-1			INFLUENT SKID
Description	Cat.	Freq.	RI Code	Plant Cond.	FSAR	IS Page

FLOW SWITCH						
Date Last	Date Due	RT	Tolerance History	Group Accuracy	Device Accuracy	

Manufacturer Name _____ Manufacturer Serial Number _____

KOBOLD MODEL FPS/R, FPS6100
Remarks _____

Dev. Proc.	Group Proc.	PTS No.	Date Performed	Calibration Standard	Res. Act. Hrs.
Signature of performer			Loop Check	_____	_____
X _____			OK	_____	_____

Comments _____

Additional Information _____

ITEM	INSTRUCTIONS Parameter/Step	Signal/Action	Desired	ANS 1 As Found	I/O	ANS 2 As Left
01	ALARM SETPOINT			_____	_____	_____
02	10 - 17.6 GPM	Actuation	10 GPM	_____	_____	_____
03	4 - 15.9 GPM	De-Actuation	5 GPM	_____	_____	_____
04				_____	_____	_____
05				_____	_____	_____
06				_____	_____	_____
07				_____	_____	_____
08				_____	_____	_____
09				_____	_____	_____
10				_____	_____	_____
11				_____	_____	_____
12				_____	_____	_____
13				_____	_____	_____

DATA SHEET

DATE: _____

 Component/Activity System Group No. Equipment No. Bldg. Cell Panel

FS-3 _____ _____ ZP-1 _____ PROC.SKID
 Description Cat. Freq. RI Code Plant Cond. FSAR IS Page

FLOW SWITCH
 Date Last Date Due RT Tolerance History Group Accuracy Device Accuracy

 Manufacturer Name Manufacturer Serial Number

KOBOLD MODEL FPS/R, FPS6100

Remarks

 Dev. Proc. Group Proc. PTS No. Date Performed Calibration Standard Res. Act. Hrs.

Signature of performer Loop Check _____
 X OK _____

Comments

Additional Information

ITEM	INSTRUCTIONS Parameter/Step	Signal/Action	Desired	ANS 1 As Found	I/O	ANS 2 As Left
01	ALARM SETPOINT			_____	_____	_____
02	10 - 17.6 GPM	Actuation	10 GPM	_____	_____	_____
03	4 - 15.9 GPM	De-Actuation	5 GPM	_____	_____	_____
04				_____	_____	_____
05				_____	_____	_____
06				_____	_____	_____
07				_____	_____	_____
08				_____	_____	_____
09				_____	_____	_____
10				_____	_____	_____
11				_____	_____	_____
12				_____	_____	_____
13				_____	_____	_____

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DATA SHEET

DATE:

Component/Activity	System	Group No.	Equipment No.	Bldg.	Cell	Panel
FS-4			ZP-1			EFFLUENT TANK
Description	Cat.	Freq.	RI Code	Plant Cond.	FSAR	IS

FLOW SWITCH

Date Last	Date Due	RT	Tolerance History	Group Accuracy	Device Accuracy
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Manufacturer Name	Manufacturer Serial Number
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KOBOLD MODEL FPS/R, FPS6100

Remarks

Dev. Proc.	Group Proc.	PTS No.	Date Performed	Calibration Standard	Res. Act. Hrs.
------------	-------------	---------	----------------	----------------------	----------------

Signature of performer	Loop Check		
X	OK		

Comments

Additional Information

ITEM	INSTRUCTIONS Parameter/Step	Signal/Action	Desired	ANS 1 As Found	I/O	ANS 2 As Left
01	ALARM SETPOINT					
02	10 - 17.6 GPM	Actuation	10 GPM			
03	4 - 15.9 GPM	De-Actuation	5 GPM			
04						
05						
06						
07						
08						
09						
10						
11						
12						
13						

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DATA SHEET

DATE:

Component/Activity	System	Group No.	Equipment No.	Bldg.	Cell	Panel	
FS-6			ZP-1			INJECTION WELL	
Description	Cat.	Freq.	RI Code	Plant Cond.	FSAR	IS	Page

FLOW SWITCH						
Date Last	Date Due	RT	Tolerance History	Group Accuracy	Device Accuracy	

Manufacturer Name	Manufacturer Serial Number
-------------------	----------------------------

KOBOLD MODEL FPS/R, FPS6100

Remarks

Dev. Proc.	Group Proc.	PTS No.	Date Performed	Calibration Standard	Res. Act. Hrs.
Signature of performer			Loop Check	_____	_____
X			OK	_____	_____

Comments

Additional Information

ITEM	INSTRUCTIONS	Signal/Action	Desired	ANS 1 As Found	I/O	ANS 2 As Left
01	ALARM SETPOINT			_____	_____	_____
02	10 - 17.6 GPM	Actuation	10 GPM	_____	_____	_____
03	4 - 15.9 GPM	De-Actuation	5 GPM	_____	_____	_____
04				_____	_____	_____
05				_____	_____	_____
06				_____	_____	_____
07				_____	_____	_____
08				_____	_____	_____
09				_____	_____	_____
10				_____	_____	_____
11				_____	_____	_____
12				_____	_____	_____
13				_____	_____	_____

DATA SHEET

DATE: _____

Component/Activity System Group No. Equipment No. Bldg. Cell Panel

FS-7 _____ _____ ZP-1 _____ PROC.SKID

Description Cat. Freq. RI Code Plant Cond. FSAR IS Page

FLOW SWITCH, PRV BLOWOFF

Date Last Date Due RT Tolerance History Group Accuracy Device Accuracy

Manufacturer Name Manufacturer Serial Number

OMEGA, MODEL LVC-E11/S1/512 (Level Conductivity Loop)

Remarks

Dev. Proc. Group Proc. PTS No. Date Performed Calibration Standard Res. Act. Hrs.

Signature of performer Loop Check _____
X OK _____

Comments

Additional Information

ITEM	INSTRUCTIONS Parameter/Step	Signal/Action	Desired	ANS 1		ANS 2	
				As Found	I/O	As Left	
01	ALARM SETPOINT			_____	_____	_____	_____
02	25 PSIG	25 PSI	25 PSI	_____	_____	_____	_____
03	RESET (record only)			_____	_____	_____	_____
04				_____	_____	_____	_____
05				_____	_____	_____	_____
06				_____	_____	_____	_____
07				_____	_____	_____	_____
08				_____	_____	_____	_____
09				_____	_____	_____	_____
10				_____	_____	_____	_____
11				_____	_____	_____	_____
12				_____	_____	_____	_____
13				_____	_____	_____	_____

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DATA SHEET

DATE:

Component/Activity	System	Group No.	Equipment No.	Bldg.	Cell	Panel
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PI-1				ZP-1	INFLUENT TANK	
Description	Cat.	Freq.	RI Code	Plant Cond.	FSAR	IS

PRESSURE GAUGE			6months			
Date Last	Date Due	RT	Tolerance History	Group Accuracy	Device Accuracy	

+/- 2%

Manufacturer Name	Manufacturer Serial Number
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ASHCROFT	35-1009AWL-02L
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Remarks

Dev. Proc.	Group Proc.	PTS No.	Date Performed	Calibration Standard	Res. Act. Hrs.
------------	-------------	---------	----------------	----------------------	----------------

Signature of performer	Loop Check				
X	OK				

Comments

Additional Information

ITEM	INSTRUCTIONS Parameter/Step	Signal/Action	Desired	ANS 1 As Found	I/O	ANS 2 As Left
01	psig	0 psig	0 psig			
02	psig	50 psig	50 psig			
03	psig	100 psig	100 psig			
04						
05						
06						
07						
08						
09						
10						
11						
12						
13						

DATA SHEET

DATE: _____

Component/Activity	System	Group No.	Equipment No.	Bldg.	Cell	Panel
PI-2				ZP-1	INFLUENT	SKID
Description	Cat.	Freq.	RI Code	Plant Cond.	FSAR	IS
PRESSURE GAUGE		6months				
Date Last	Date Due	RT	Tolerance	History	Group Accuracy	Device Accuracy
						+/- 2%
Manufacturer Name			Manufacturer Serial Number			
ASHCROFT			35-1009AWL-02L			
Remarks						

Dev. Proc.	Group Proc.	PTS No.	Date Performed	Calibration Standard	Res. Act. Hrs.
			Loop Check	_____	_____
Signature of performer			OK	_____	_____
X _____			_____	_____	_____

Comments _____

Additional Information _____

ITEM	INSTRUCTIONS Parameter/Step	Signal/Action	Desired	ANS 1 As Found	I/O	ANS 2 As Left
01	psig	0 psig	0 psig	_____	_____	_____
02	psig	50 psig	50 psig	_____	_____	_____
03	psig	100 psig	100 psig	_____	_____	_____
04				_____	_____	_____
05				_____	_____	_____
06				_____	_____	_____
07				_____	_____	_____
08				_____	_____	_____
09				_____	_____	_____
10				_____	_____	_____
11				_____	_____	_____
12				_____	_____	_____
13				_____	_____	_____

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BHI-OP-00058
Rev. 0

DATA SHEET

DATE:

Component/Activity	System	Group No.	Equipment No.	Bldg.	Cell	Panel
PI-3	ZP-1				INFLUENT	SKID
Description	Cat.	Freq.	RI Code	Plant Cond.	FSAR	IS
PRESSURE GAUGE		6months				
Date Last	Date Due	RT	Tolerance	History	Group Accuracy	Device Accuracy
						+/- 2%
Manufacturer Name			Manufacturer Serial Number			
ASHCROFT			35-1009AWL-02L			
Remarks						

Dev. Proc.	Group Proc.	PTS No.	Date Performed	Calibration Standard	Res. Act. Hrs.
			Loop Check		
Signature of performer			OK		
X					

Comments

Additional Information

ITEM	INSTRUCTIONS Parameter/Step	Signal/Action	Desired	ANS 1 As Found	I/O	ANS 2 As Left
01	psig	0 psig	0 psig			
02	psig	50 psig	50 psig			
03	psig	100 psig	100 psig			
04						
05						
06						
07						
08						
09						
10						
11						
12						
13						

DATA SHEET

DATE: _____

Component/Activity	System	Group No.	Equipment No.	Bldg.	Cell	Panel
PI-4	ZP-1		PROCESS LINE	TENT		SKID
Description	Cat.	Freq.	RI Code	Plant Cond.	FSAR	IS Page
PRESSURE GAUGE		6months				
Date Last	Date Due	RT	Tolerance History	Group Accuracy	Device Accuracy	+/- 2%
Manufacturer Name	Manufacturer Serial Number					
ASHCROFT	35-1009AWL-02L					
Remarks						

Dev. Proc.	Group Proc.	PTS No.	Date Performed	Calibration Standard	Res. Act. Hrs.
			Loop Check	_____	_____
			OK	_____	_____
Signature of performer				_____	_____
X _____				_____	_____

Comments _____

Additional Information _____

ITEM	INSTRUCTIONS Parameter/Step	Signal/Action	Desired	ANS 1 As Found	I/O	ANS 2 As Left
01	psig	0 psig	0 psig	_____	_____	_____
02	psig	50 psig	50 psig	_____	_____	_____
03	psig	100 psig	100 psig	_____	_____	_____
04				_____	_____	_____
05				_____	_____	_____
06				_____	_____	_____
07				_____	_____	_____
08				_____	_____	_____
09				_____	_____	_____
10				_____	_____	_____
11				_____	_____	_____
12				_____	_____	_____
13				_____	_____	_____

DATA SHEET

DATE:

Component/Activity	System	Group No.	Equipment No.	Bldg.	Cell	Panel
PI-5	ZP-1		TANK-2	TENT		SKID
Description	Cat.	Freq.	RI Code	Plant Cond.	FSAR	IS
PRESSURE GAUGE		6months				
Date Last	Date Due	RT	Tolerance History	Group Accuracy	Device Accuracy	
+/- 2%						
Manufacturer Name			Manufacturer Serial Number			
ASHCROFT			35-1009AWL-02L			
Remarks						

Dev. Proc.	Group Proc.	PTS No.	Date Performed	Calibration Standard	Res. Act. Hrs.
Signature of performer			Loop Check	_____	_____
X _____			OK	_____	_____

Comments

Additional Information

ITEM	INSTRUCTIONS Parameter/Step	Signal/Action	Desired	ANS 1 As Found	I/O	ANS 2 As Left
01	psig	0 psig	0 psig	_____	_____	_____
02	psig	50 psig	50 psig	_____	_____	_____
03	psig	100 psig	100 psig	_____	_____	_____
04				_____	_____	_____
05				_____	_____	_____
06				_____	_____	_____
07				_____	_____	_____
08				_____	_____	_____
09				_____	_____	_____
10				_____	_____	_____
11				_____	_____	_____
12				_____	_____	_____
13				_____	_____	_____

DATA SHEET

DATE: _____

Component/Activity	System	Group No.	Equipment No.	Bldg.	Cell	Panel	
PI-6	ZP-1		TANK-2	TENT	SKID		
Description	Cat.	Freq.	RI Code	Plant Cond.	FSAR	IS	Page

PRESSURE GAUGE		6months			
Date Last	Date Due	RT	Tolerance History	Group Accuracy	Device Accuracy
					+/- 2%

Manufacturer Name	Manufacturer Serial Number
ASHCROFT	35-1009AWL-02L

Remarks

Dev. Proc.	Group Proc.	PTS No.	Date Performed	Calibration Standard	Res. Act. Hrs.

Signature of performer	Loop Check
X _____	OK _____

Comments

Additional Information

ITEM	INSTRUCTIONS	Signal/Action	Desired	ANS 1 As Found	I/O	ANS 2 As Left
01	psig	0 psig	0 psig	_____	_____	_____
02	psig	50 psig	50 psig	_____	_____	_____
03	psig	100 psig	100 psig	_____	_____	_____
04				_____	_____	_____
05				_____	_____	_____
06				_____	_____	_____
07				_____	_____	_____
08				_____	_____	_____
09				_____	_____	_____
10				_____	_____	_____
11				_____	_____	_____
12				_____	_____	_____
13				_____	_____	_____

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DATA SHEET

DATE:

Component/Activity	System	Group No.	Equipment No.	Bldg.	Cell	Panel
PI-7	ZP-1		TANK-2	TENT	SKID	
Description	Cat.	Freq.	RI Code	Plant Cond.	FSAR	IS

PRESSURE GAUGE	6months	
Date Last	Date Due	RT

Manufacturer Name	Manufacturer Serial Number
ASHCROFT	35-1009AWL-02L

Remarks

Dev. Proc.	Group Proc.	PTS No.	Date Performed	Calibration Standard	Res. Act. Hrs.
			Loop Check		
			OK		

Comments

Additional Information

ITEM	INSTRUCTIONS	Signal/Action	Desired	ANS 1 As Found	I/O	ANS 2 As Left
01	psig	0 psig	0 psig			
02	psig	50 psig	50 psig			
03	psig	100 psig	100 psig			
04						
05						
06						
07						
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11						
12						
13						

DATA SHEET

DATE:

Component/Activity System Group No. Equipment No. Bldg. Cell Panel

PI-8 ZP-1 TANK-3 TENT SKID

Description Cat. Freq. RI Code Plant Cond. FSAR IS Page

PRESSURE GAUGE 6months

Date Last Date Due RT Tolerance History Group Accuracy Device Accuracy

+/- 2%

Manufacturer Name Manufacturer Serial Number

ASHCROFT 35-1009AWL-02L

Remarks

Dev. Proc. Group Proc. PTS No. Date Performed Calibration Standard Res. Act. Hrs.

Signature of performer Loop Check _____
X OK _____
_____ _____ _____

Comments

Additional Information

ITEM	INSTRUCTIONS Parameter/Step	Signal/Action	Desired	ANS 1		ANS 2
				As Found	I/O	As Left
01	psig	0 psig	0 psig	_____	_____	_____
02	psig	50 psig	50 psig	_____	_____	_____
03	psig	100 psig	100 psig	_____	_____	_____
04				_____	_____	_____
05				_____	_____	_____
06				_____	_____	_____
07				_____	_____	_____
08				_____	_____	_____
09				_____	_____	_____
10				_____	_____	_____
11				_____	_____	_____
12				_____	_____	_____
13				_____	_____	_____

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BHI-OP-00058
Rev. 0

DATA SHEET

DATE:

Component/Activity	System	Group No.	Equipment No.	Bldg.	Cell	Panel
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PI-9	ZP-1		TANK-3	TENT	SKID	
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Description	Cat. Freq.	RI Code	Plant Cond.	FSAR	IS	Page
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PRESSURE GAUGE			6months			
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Date Last	Date Due	RT	Tolerance History	Group Accuracy	Device Accuracy	
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+/- 2%

Manufacturer Name	Manufacturer Serial Number
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ASHCROFT	35-1009AWL-02L
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Remarks

Dev. Proc.	Group Proc.	PTS No.	Date Performed	Calibration Standard	Res. Act. Hrs.
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Signature of performer	Loop Check				
X	OK				

Comments

Additional Information

ITEM	INSTRUCTIONS Parameter/Step	Signal/Action	Desired	ANS 1	I/O	ANS 2
				As Found		As Left
01	psig	0 psig	0 psig			
02	psig	50 psig	50 psig			
03	psig	100 psig	100 psig			
04						
05						
06						
07						
08						
09						
10						
11						
12						
13						

BHI-OP-011

DATA SHEET

DATE:

Component/Activity	System	Group No.	Equipment No.	Bldg.	Cell	Panel	
PI-10	ZP-1		TANK-3	TENT	SKID		
Description	Cat.	Freq.	RI Code	Plant Cond.	FSAR	IS	Page

DATE	DESCRIPTION	6months	GROUP ACCURACY	DEVICE ACCURACY
	PRESSURE GAUGE			

Manufacturer Name	Manufacturer Serial Number
ASHCROFT	35-1009AWL-02L

Remarks

Dev. Proc.	Group Proc.	PTS No.	Date Performed	Calibration Standard	Res. Act. Hrs.

Signature of performer _____
 X _____

Comments

Additional Information

ITEM	INSTRUCTIONS Parameter/Step	Signal/Action	Desired	ANS 1	I/O	ANS 2
				As Found		As Left
01	psig	0 psig	0 psig			
02	psig	50 psig	50 psig			
03	psig	100 psig	100 psig			
04						
05						
06						
07						
08						
09						
10						
11						
12						
13						

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DATA SHEET

DATE:

Component/Activity	System	Group No.	Equipment No.	Bldg.	Cell	Panel
PI-11	ZP-1		TANK-4	TENT	SKID	
Description	Cat.	Freq.	RI Code	Plant Cond.	FSAR	IS

PRESSURE GAUGE	6months					
Date Last	Date Due	RT	Tolerance	History	Group Accuracy	Device Accuracy

+/- 2%

Manufacturer Name	Manufacturer Serial Number
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ASHCROFT 35-1009AWL-02L
Remarks

Dev. Proc.	Group Proc.	PTS No.	Date Performed	Calibration Standard	Res. Act. Hrs.
------------	-------------	---------	----------------	----------------------	----------------

Signature of performer _____
X _____
Loop Check _____
OK _____

Comments

Additional Information

ITEM	INSTRUCTIONS	Signal/Action	Desired	ANS 1 As Found	I/O	ANS 2 As Left
01	psig	0 psig	0 psig	_____	_____	_____
02	psig	50 psig	50 psig	_____	_____	_____
03	psig	100 psig	100 psig	_____	_____	_____
04				_____	_____	_____
05				_____	_____	_____
06				_____	_____	_____
07				_____	_____	_____
08				_____	_____	_____
09				_____	_____	_____
10				_____	_____	_____
11				_____	_____	_____
12				_____	_____	_____
13				_____	_____	_____

DATA SHEET

DATE:

Component/Activity	System	Group No.	Equipment No.	Bldg.	Cell	Panel
PI-12	ZP-1		TANK-4	TENT	SKID	
Description	Cat.	Freq.	RI Code	Plant Cond.	FSAR	IS
PRESSURE GAUGE		6months				
Date Last	Date Due	RT	Tolerance History	Group Accuracy	Device Accuracy	
						+/- 2%
Manufacturer Name			Manufacturer Serial Number			
ASHCROFT			35-1009AWL-02L			
Remarks						

Dev. Proc.	Group Proc.	PTS No.	Date Performed	Calibration Standard	Res. Act. Hrs.
			Loop Check		
Signature of performer			OK		
X					

Comments

Additional Information

ITEM	INSTRUCTIONS Parameter/Step	Signal/Action	Desired	ANS 1 As Found	I/O	ANS 2 As Left
01	psig	0 psig	0 psig			
02	psig	50 psig	50 psig			
03	psig	100 psig	100 psig			
04						
05						
06						
07						
08						
09						
10						
11						
12						
13						

DATA SHEET

DATE: _____

Component/Activity	System	Group No.	Equipment No.	Bldg.	Cell	Panel	
PI-14	ZP-1						
Description	Cat.	Freq.	RI Code	Plant Cond.	FSAR	IS	Page

PRESSURE GAUGE			6months			
Date Last	Date Due	RT	Tolerance	History	Group Accuracy	Device Accuracy

+/- 2%

Manufacturer Name	Manufacturer Serial Number
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ASHCROFT	35-1009AWL-02L
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Remarks _____

Dev. Proc.	Group Proc.	PTS No.	Date Performed	Calibration Standard	Res. Act. Hrs.
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Signature of performer	Loop Check	_____	_____
X _____	OK	_____	_____

Comments _____

Additional Information _____

ITEM	INSTRUCTIONS Parameter/Step	Signal/Action	Desired	ANS 1		ANS 2	
				As Found	I/O	As Left	
01	psig	0 psig	0 psig	_____	_____	_____	_____
02	psig	50 psig	50 psig	_____	_____	_____	_____
03	psig	100 psig	100 psig	_____	_____	_____	_____
04				_____	_____	_____	_____
05				_____	_____	_____	_____
06				_____	_____	_____	_____
07				_____	_____	_____	_____
08				_____	_____	_____	_____
09				_____	_____	_____	_____
10				_____	_____	_____	_____
11				_____	_____	_____	_____
12				_____	_____	_____	_____
13				_____	_____	_____	_____

DATA SHEET

DATE:

Component/Activity	System	Group No.	Equipment No.	Bldg.	Cell	Panel
PI-15	ZP-1				EFFLUENT	SKID
Description	Cat.	Freq.	RI Code	Plant Cond.	FSAR	IS
PRESSURE GAUGE	6months					
Date Last	Date Due	RT	Tolerance	History	Group Accuracy	Device Accuracy
						+/- 2%
Manufacturer Name			Manufacturer Serial Number			
ASHCROFT			35-1009AWL-02L			
Remarks						

Dev. Proc.	Group Proc.	PTS No.	Date Performed	Calibration Standard	Res. Act. Hrs.
			Loop Check		
Signature of performer			OK		
X					

Comments

Additional Information

ITEM	INSTRUCTIONS Parameter/Step	Signal/Action	Desired	ANS 1 As Found	I/O	ANS 2 As Left
01	psig	0 psig	0 psig			
02	psig	50 psig	50 psig			
03	psig	100 psig	100 psig			
04						
05						
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