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PLUTONIUM FINISHING PLANT

PLUTONIUM RECLAMATION FACILITY

PERFORM 236-Z SURVEILLANCE AND RESPONSES

ZO-180-600
Rev/Mod H-1
Page 1 of 73

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1. INTRODUCTION

1.1. Purpose

This procedure provides instructions for the surveillance of process and chemical vessels in PRF, alarm panels, and the necessary responses to any unusual conditions identified during surveillance.

1.2. Scope

Surveillance for the process gloveboxes includes observations to detect leaks, hazardous objects, or other unusual conditions. Surveillance of protected process water surge tanks for TK-36, TK-37, TK-38, TK-120 and TK-C-4 is performed to detect coil leakage. Surveillance for the filtrate evaporator TK-21 and product concentrator TK-43 is performed to detect steam leaks into the evaporator concentrator. The SHIFT SURVEILLANCE SCHEDULE will be used to determine the individual areas of responsibility for performance of Task E for each shift.

Surveillance of the alarm panels is performed to identify and document the status of all alarm panels. Alarm status and unusual conditions will be recorded in the logbook located in PRF control room.

1.3. Applicability

Surveillance is done to keep up to date records of alarm panels and notice any unusual occurrences (leaks, hazardous objects, etc.) happening around the plant. This procedure is performed by surveillance operators generally when PRF is in standby/shutdown condition. While PRF is operating these surveillance checks are performed with other procedures by the PRF operators.

2. PRECAUTION AND LIMITATIONS

2.1. Criticality

All posted criticality prevention limits shall be read and followed.

The maximum depth of any solid and solution accumulations in hood bays shall not exceed 1 in.

The maximum depth of any solid or solution accumulations in miscellaneous treatment gloveboxes shall not exceed 1/2 in. A single spill in excess of 1/2 in. is not a violation. The spill shall be cleaned up before any further movement or operations.

Evaporator tube bundle failure may result in a discharge of Pu bearing solutions to non-critically safe tanks at 241-Z. Valve 163 on 1st floor east (ET-1) shall be closed and supervision and Process Engineering notified immediately.

No more than 5 rags are allowed per bay.

2.2. Warning
Red alarm windows indicate an OSR/Safety related alarm and require immediate response.

The 17 in. vacuum operates the CAM monitors in the PRF. Sounding of the 17 in. vacuum alarm requires immediate evacuation the 236-Z building. Supervision shall notify Health Physics.

2.4. Management Information
If for any reason data sheet readings can not be taken or completed, reason(s) shall be recorded on DATA SHEET(s) and shift supervision shall sign DATA SHEET(s).

3. PREREQUISITE ACTION
Solvent Extraction is in standby/shutdown condition

4. TOOLS, EQUIPMENT AND MATERIAL

4.1. References
Radiation Work Requirements and Permits Manual, WHC-CM-4-15
Radiation Work Permit Z-007
Radiation Protection Manual, WHC-CM-4-10
Plant Administration M anual, WHC-CM-5-8, Section 1.13
RHO-CD-1244, Appendix H
Criticality Prevention Specifications CPS-Z-165-80180, -80701, -80707, -80708, -80709, -80710, -80715, -80716, - 80717, -80731 and -80741

4.1.1. Referenced Documents
ZO-170-038, RESPOND TO CONDUCTIVITY ALARM/CHEMICAL DISCHARGE
ZO-170-318, RESPOND TO CHEMICAL SPILL/LEAK IN PRF
ZO-181-012, ADD OF BUTT TK-37 OR TK-38 ORGANIC
ZO-182-003, SHUTDOWN FILTRATE EVAPORATOR AND CONDENSER
ZO-182-011, SHUTDOWN PRODUCT EVAPORATOR

4. TOOLS, EQUIPMENT AND MATERIAL (Cont.)

4.1.2. Records

STANDBY SURVEILLANCE - PROCESS VESSELS DATA SHEET WEEKDAY FOR WXYZ SHIFT OPERATIONS
STANDBY SURVEILLANCE - PROCESS VESSELS DATA SHEET WEEKDAY FOR P-Q SHIFT OPERATIONS
STANDBY SURVEILLANCE - PROCESS VESSELS DATA SHEET WEEKEND/HOLIDAY
STANDBY SURVEILLANCE - ONCE-PER-SHIFT PRF SURGE TANK DATA SHEET
STANDBY SURVEILLANCE - FILTRATE EVAPORATOR OSR DATA SHEET
STANDBY SURVEILLANCE - PRODUCT CONCENTRATOR OSR DATA SHEET
STANDBY SURVEILLANCE - CHEMICAL PREPARATION DATA SHEET
ONCE-PER-DAY SAFETY/HOUSEKEEPING/CRITICALITY SURVEILLANCE CHECKSHEET
ONCE-PER-SHIFT SECONDARY GLOVEBOX SURVEILLANCE DATA SHEET
PRF PANEL BOARD TEST DATA SHEET
SAFETY/HOUSEKEEPING/CRITICALITY WXYZ SHIFT SURVEILLANCE SCHEDULE
SAFETY/HOUSEKEEPING/CRITICALITY P-Q SHIFT SURVEILLANCE SCHEDULE

4.2. Tools

Binoculars
Jet Light

OSR/OPERATING MATRIX

	OPERATING LIMIT		OSR LIMIT	
CONDITION/ VARIABLE	OPERATING RANGE	ACTION FOR OPERATING RANGE VIOLATION	LIMITING CONDITION FOR OPERATION(LCO)*	ACTION FOR LCO VIOLATION
Filtrate Evaporator Solution Temperature	< 130 °C	Notify Supervisior. See OSD-Z-184-00007 Sect. 7.3	< 140 °C	SHUTDOWN FILTRATE EVAPORATOR. See RHO-CD-1244 Appendix H Sect. 6.1.2.5
Filtrate Evaporator Steam supply pressure	< 30 psig	Notify Supervisior. See OSD-Z-184-00007 Sect. 7.3	< 54 psig	SHUTDOWN FILTRATE EVAPORATOR. See RHO-CD-1244 Appendix H Sect. 6.2.1.5
Product Concentrator Solution Temperature	< 125 °C	Notify Supervisior. See OSD-Z-184-00009 Sect. 9.6	< 140 °C	SHUTDOWN PRODUCT CONCENTRATOR. See RHO-CD-1244 Appendix H Sect. 6.1.1.5
Product Concentrator Steam supply pressure	< 50 psig	Notify Supervisior. See OSD-Z-184-00009 Sect. 9.6	< 54 psig	SHUTDOWN FILTRATE EVAPORATOR. See RHO-CD-1244 Appendix H Sect. 6.2.1.5

* Supervision shall initiate recovery steps per Section 11.6.1.2 Of RHO-CD-1244 and Section 11.5.6.2 of SD-HS-SAR-025 within 24 hr. Supervision shall immediately contact the Duty Manager, Manager of process affected, Plant Manager, PFP Process Engineering, and Facility Safety Engineer. The situation, notifications and start time of the event shall be recorded in operations logbook.

6. PERFORMANCE

6.1. Perform 236-Z Surveillance And Responses

A. Perform Process Vessels WF Surveillance

> NOTE
>
> At the start of each week, a weekly listing of all annunciators that are illuminated shall be written in the PRF ALARM LOGBOOK.

1. Check panel board annunciators in PRF Control room.

   a. IF alarms sound and no light is flashing, press TEST button to find which light(s) is out.

   b. Respond to any and all new alarms per appropriate Attachment and notify supervision.

   c. Silence alarm by pressing ACKNOWLEDGE button.

   d. Record any and all new alarms in PRF ALARM LOGBOOK and PANEL BOARD TEST DATA SHEET.

   e. Test control panels, record in PRF ALARM LOGBOOK and PANEL BOARD TEST DATA SHEET.

   f. The first Operations shift of the week (Monday graveyard for XYZ and day shift for PQ unless Monday is a holiday), shall record all illuminated annunciators in PRF ALARM LOGBOOK.

2. Obtain and record time, date, and initials on applicable STANDBY SURVEILLANCE - PROCESS VESSELS DATA SHEET - WEEKDAY XYZ, WEEKDAY PQ or WEEKEND/HOLIDAY.

   a. IF for any reason data sheet readings can not be taken or completed, record reason(s) on data sheet(s) and ensure shift supervision has signed data sheet(s).

A. Perform Process Vessels WF Surveillance (Cont.)

NOTE

For shift surviellance covered by facility services, recording of data need be taken only once a shift, followed by an observation only walk-through inspection during the second half of the shift.

3. Every 4 hrs or as required on appropriate data sheet, record on DATA SHEET WF readings for all vessels. Circle in red all out of specification or non-normal readings.

4. Compare WF readings for each vessel to previous readings.

   a. IF difference in WF readings is less than 1, GO TO Task B.

   b. IF difference in WF readings is greater than 1 AND/OR IF TK-D4, D5, D7, or D8 WF is above 55% of chart, notify supervision.

   c. Continue to monitor. IF difference is greater than 10 WF, check hoods and canyon for leaks and notify supervision.

   d. IF one of the following is involved, isolate cooling coil discharge by closing appropriate valve(s). THEN CONTINUE.

TANK	VALVE	LOCATION
TK-36	V-545	WT-4
TK-37	V-509	WM-3
TK-38	V-508	WN-3
TK-120	V-455	WF-3
TK-C-4	V-619	MT-6

NOTE

A gradual decrease in the WF may be due to a slow leak, solution evaporation, or instrument malfunction.

5. IF any WF readings decrease by more than 1, notify supervision.

6. IF TK-37, TK-38 or TK-120 WF is decreasing, notify supervision that an aqueous cap may be required per ZO-181-012.

A. Perform Process Vessels WF Surveillance (Cont.)

7. Check TKs-52.1-52.4 to see if they are receiving solution. IF solution is going into any tanks, attempt to determine amount and source, THEN notify supervision of results.

> NOTE
>
> A jet light can be found on 1st floor East/West.
>
> Binoculars are located in 236-Z shift office.

8. IF processing or extreme change in tank WF, check PRF canyon tanks for leaks using jet light and binoculars through canyon viewing windows and maintenance cell glass portals on each floor. Record any leaks or abnormal conditions on DATA SHEET and notify supervision.

9. Check all glovebox floors on East and West side of canyon for any liquid that may be from leak.

   a. IF any leaks are found, determine source (line, valve, tank, etc.) and notify supervision.

   b. IF valve or line is leaking, request supervision specify appropriate valve(s) to close to stop leak.

B. Perform Once-Per-Shift Inside Surveillance

Perform 3rd Floor Surge Vessel Surveillance

1. Obtain and record time, date and initials on STANDBY SURVEILLANCE - ONCE-PER-SHIFT PRF SURGE TANK DATA SHEET.

   a. IF for any reason data sheet readings can not be taken or completed, record reason(s) on DATA SHEET(s) and ensure shift supervision has signed DATA SHEET(s).

2. Once a shift, record on DATA SHEET pressure readings for the following surge vessels on 3rd floor. Circle in red, all out of specification or abnormal readings.
   - TK-36
   - TK-38
   - TK-37
   - TK-120

3. Compare readings for each vessel to previous readings.

   a. IF difference in vessel pressure readings is less than 10 psig, GO TO Step 5.

B. Perform Once-Per-Shift Inside Surveillance (Cont.)

3. b. IF difference in vessel pressure readings is greater than 10 psig, notify supervision.

4. IF requested by supervision, perform the following:

a. IF TK-36 or TK-120 is involved, request supervision to have instrument technician isolate tank pressure transducers.

NOTE

TK-36 pressure transducers are located on 2nd floor section WS-3 (PE-DTK36-2) and 3rd West (PE-DTK36-1).

TK-120 pressure transducers are located on 1st floor section WG-2 (PE-DTK120-2) and 3rd West (PE-DTK120-1).

b. Verify that the following cooling coil discharge valves are closed:

TANK	VALVE	LOCATION
TK-36	V-545	WT-4
TK-37	V-509	WM-3
TK-38	V-508	WN-3
TK-120	V-455	WF-3

c. Request supervision to initiate work authorization to determine if cooling coil leak has occurred.

B. Perform Once-Per-Shift Inside Surveillance (Cont.)

Perform Product Concentrator/Filtrate Evaporator Temperature Surveillance

5. Obtain and record time, date and initials on STANDBY SURVEILLANCE - FILTRATE EVAPORATOR OSR DATA SHEET and STANDBY SURVEILLANCE - PRODUCT CONCENTRATOR OSR DATA SHEET.

CAUTION

Temperatures over 140 °C in Filtrate Evaporator or Product Concentrator are OSR violations. The shift manager Building Emergency Director (BED) shall be contacted for recovery actions.

6. IF Filtrate Evaporator, TK-21, is operating, record Chart 89 temperature from Panel board B-7 in PRF Control Room on OSR DATA SHEET each shift.

   a. IF temperature reading is greater than 130 °C (50 °C if evaporator is in shutdown mode), notify supervision.

   b. IF temperature reading is less than or equal to 130 °C (50 °C if evaporator is in shutdown mode), CONTINUE.

7. IF Procuct Concentrator, TK-43, is operating, record Chart 84 temperature from Panel board B-7 in PRF Control Room on OSR DATA SHEET each shift.

   a. IF temperature reading is greater than 125 °C (50 °C if concentrator is in shutdown mode), notify supervision.

   b. IF temperature reading is less than or equal to 125 °C (50 °C if concentrator is in shutdown mode), CONTINUE.

CAUTION

A steam pressure of more than 54 psi in either the filtrate evaporator or product concentrator during operation is an OSR violation. Shift manager or BED shall be contacted for recovery actions.

8. IF operating, record filtrate evaporator steam supply pressure (21-PI-B on 3rd East) on STANDBY SURVEILLANCE - FILTRATE EVAPORATOR OSR DATA SHEET.

   a. IF steam pressure reading is over 30 psi, notify shift manager.

   b. IF steam pressure reading is 30 psi or less, CONTINUE.

B. Perform Once-Per-Shift Inside Surveillance (Cont.)

9. IF operating, record product concentrator steam supply pressure (43-PI-1 on 3rd North) on STANDBY SURVEILLANCE - PRODUCT CONCENTRATOR OSR DATA SHEET.

   a. IF pressure reading is over 50 psi, notify shift manager.

   b. IF pressure reading is 50 psi or less, CONTINUE.

10. Record any unusual conditions on current TK-21/43 TEMPERATURE section of DATA SHEET.

C. Perform Miscellaneous Treatment (Rm 41) Alarm Surveillance

1. Check panel board annunciators in Room 41.

   a. IF alarms sound and no light is flashing, press TEST button to find which light(s) is out.

   b. Respond to any and all alarms per Attachment 17 and notify supervision.

   c. Silence alarm(s) by pressing ACKNOWLEDGE button.

   d. Record any and all alarms in PRF ALARM LOGBOOK and PANEL BOARD TEST DATA SHEET.

   e. Test control panel and record results in PRF CONTROL ROOM LOGBOOK and PANEL BOARD TEST DATA SHEET.

2. Record on DATA SHEET and notify supervision location of any unusual condition.

D. Perform Chemical Preparation (RM 40) Surveillance

1. Obtain and record time, date and initials on STANDBY SURVEILLANCE - CHEMICAL PREPARATION DATA SHEET.

   a. IF for any reason data sheet readings can not be taken or completed, record reason(s) on DATA SHEET(s) and ensure shift supervision has signed DATA SHEET(s).

2. Once per shift, record chemical preparation vessel manometer, metal strip, digital readout level or scale weight reading for all vessels. Circle in red, all out of specification or abnormal readings.

D. Perform Chemical Preparation (RM 40) Surveillance (Cont.)

NOTE

A gradual decrease in manometer, metal strip, digital readout level, or scale weight reading may be due to a slow leak, solution evaporation, or instrument malfunction.

3. Compare manometer/metal strip/digital readout level/scale weight readings for each vessel to previous readings.

   a. IF reading difference is less than 1 manometer division, OR IF 1 in. for metal strip, OR IF 1 in. digital readout, OR IF 8 lb for scale weight, GO TO Task D.

   b. IF reading difference is more than 1 manometer division, OR IF 1 in. for metal strip, OR IF 1 in. for digital readout, OR IF 8 lb for scale weight, notify supervision and CONTINUE.

NOTE

Chemical discharges must be reported in accordance with Administrative Directive and Procedure 1.13 of Plant Administration Manual, WHC-CM-5-8.

4. Check for leaks.

   a. IF any leaks are found, exit room and request supervision to provide instructions for isolating leak.

   b. Clean up spill per ZO-170-318.

E. Perform Once-Per-Day PRF Safety/Housekeeping/Criticality Surveillance

NOTE

The SAFETY/HOUSEKEEPING/CRITICALITY SHIFT SURVEILLANCE SCHEDULE determines which section each shift will perform.

1. Obtain and record time, date, and initials on ONCE-PER-DAY SAFETY/HOUSEKEEPING/CRITICALITY SURVEILLANCE CHECKSHEET.

CRITICALITY

The maximum depth of any solids or liquid accumulation in miscellaneous treatment gloveboxes shall not exceed 1/2 inch. A single spill in excess of 1/2 inch in depth is not a violation. The spill shall be cleaned up before any further movement or operations are allowed.

NOTE

Unusual conditions include such things as cracked windows, ruptured gloves\bags, failed glovebox lights, hood postings not consistent with scrap stored in glovebox, or anything out of the ordinary.

2. Record information of unusual conditions in COMMENTS section of CHECKSHEET and contact supervision immediately. Circle in red all out of specification or abnormal conditions.

3. IF for any reason checksheet data can not be taken or completed, record reason(s) on CHECKSHEETS(s) and ensure shift supervision has signed CHECKSHEETS(s).

F. Perform Once-Per-Shift PRF Secondary Glovebox Surveillance

NOTE

This task is to be performed by each shift by both supervision and assigned surveillance operators. Using the PRF WORK CONTROL DATA SHEET the shift supervisor will record any room and/or glovebox in which work was done during that shift and specify the work. This Data Sheet will be a reference for the oncoming shift surveillance to perfrom the secondary glovebox surveillance.

1. Obtain ONCE-PER-SHIFT PRF WORK CONTROL DATASHEET (reference WHC-CM-5-8, Section 1.2) completed by supervision during previous shift.

2. Obtain and record time, date, and initials on ONCE-PER-SHIFT SECONDARY PRF GLOVEBOX SURVEILLANCE DATA SHEET.

3. Using PRF WORK CONTROL DATA SHEET conduct thorough inspection of all rooms/gloveboxes in which work was performed during previous shift.

CRITICALITY

The maximum depth of any solids or liquid accumulation in miscellaneous treatment gloveboxes shall not exceed 1/2 inch. A single spill in excess of 1/2 inch in depth is not a violation. The spill shall be cleaned up before any further movement or operations are allowed.

NOTE

Unusual conditions include such things as cracked windows, ruptured gloves\bags, failed glovebox lights, hood postings not consistent with scrap stored in glovebox, or anything out of the ordinary.

4. Record information of unusual conditions in COMMENTS section of ONCE-PER-SHIFT SECONDARY PRF GLOVEBOX SURVEILLANCE DATA SHEET and contact supervision immediately. Circle in red all out of specification or abnormal conditions.

5. <u>IF</u> for any reason data sheet data can not be taken or completed, record reason(s) on DATA SHEETS(s) and ensure shift supervision has signed DATA SHEETS(s).

Attachment 1 - PANEL BOARD A-2
Page 1 of 1

1	HIGH WF TK-WM-1 2	HIGH CCl_4 * 3	CCl_4 MONITOR FAILURE 4
5	LOW WF TK-WM-1 6	LOW CCl_4 * 7	17 IN. VACUUM PROBLEM * 8
HIGH WF TK-127 9	TK-A105/A106 HIGH LEVEL * 10	11	CHEM PREP FLOOR LIQUID * 12
LOW WF TK-127 13	CHEM PREP CONDUCTIVITY ALARM * 14	15	16
TK-12 DP (12 LPAD) * 17	18	19	20
ED CONDENSER DIFF PRESS-HIGH ED-DPA-DI * 21	MT-5 HOT PLATE ALARM 22	23	24
25	26	27	28
29	30	31	32

ACKNOWLEDGE TEST

* Indicates the cover is RED.

Attachment 2 - PANEL BOARD RESPONSES A-2
Page 1 of 4

PANEL WINDOW NUMBER	ALARM		RESPONSE
2	High WF TK-WM-1	A.	Acknowledge alarm, check TK-52.4 level indicator (Panel B-9) and WM-1 WF (panel A-1), for any increasing WF. If there is no WF increase, stop here.
		B.	Visually check tanks 52.3 and 52.4 (WW-1) to verify if solution is entering. If solution is entering immediately notify supervision and verify switch 32-SS-W (panel B-4) is in position 1.
3	High CCL4	A.	Turn signs on outside of Room 40 (Chem Prep) to indicate FRESH AIR status is required.
		B.	Verify all personnel have exited Room 40 and ensure access to room is not allowed.
		C.	Notify supervision and respond to alarm per ZO-120-021.
4	CCL4 Monitor Failure	A.	Turn signs on outside of Room 40 (chem prep) to indicate FRESH AIR status is required.
		B.	Verify all personnel have exited Room 40 and ensure access to room is not allowed.
		C.	Notify supervision and respond to alarm per ZO-120-021.
6	Low WF TK-WM-1	A.	Acknowledge alarm, check TK-52.4 level indicator(Panel B-9) and WM-1 stripchart (Panel A-1) for increasing or decreasing WF readings. If there is no WF increase or decrease, stop here. NOTE: No response is required if SX is operating.
		B.	Visually inspect tanks 52.3 and 52.4 (WW-1) to verify if solution is entering. If solution is entering, immediately notify supervision and verify valves 249 (WE-1), 250 (WE-1), 251 (WE-1) and 378 (WW-1) are closed.

Attachment 2 - PANEL BOARD RESPONSES A-2 (Cont.)
Page 2 of 4

6.	Low WF TK-WM-1	C.	Visually inspect hood bays for leaks or excessive solution on 1st and 2nd floor west.
7.	Low CCL4	A.	Turn signs on outside of Room 40 (Chem Prep) to indicate FRESH AIR status is required.
		B.	Verify all personnel have exited Room 40 and ensure access to the room is not allowed.
		C.	Notify supervision and respond to alarm per ZO-120-021.
8.	17 in. Vacuum Problem	A.	Repeat the following announcement twice over the PAX phone: ATTENTION ALL BUILDING PERSONNEL, ATTENTION ALL BUILDING PERSONNEL, THE CONTINUOUS AIR MONITORING SYSTEM FOR THE 236-Z BUILDING IS OUT-OF-SERVICE. PLEASE EVACUATE ALL AREAS OF THE 236-Z BUILDING. PLEASE EVACUATE ALL AREAS OF THE 236-Z BUILDING.
		B.	Evacuate 236-Z building.
		C.	Notify both supervision and radiation monitoring.
9.	High WF Tk-127	A.	Acknowledge alarm, check TK-52 2 level indicator(Panel B-9) and 127 stripchart (Panel A-1) for any increasing WF. If there is no WF increase, stop here.
		B.	Visually check tank 52.1 and 52.2 (EW-1) to verify if solution is entering. If solution is entering immediately notify supervision. If 127 WF is increasing verify valves 68 (EG-1), 69 (EE-1) and 78 (EE-1) are closed and 127 MOP is off. If increase does not stop, continue.
		C.	Check all readings, in PRF control room for decreasing WF to verify that no other tanks are draining. Report all findings to supervision.

Attachment 2 - PANEL BOARD RESPONSES A-2 (Cont.)
Page 3 of 4

10.	TK-A-105 TK-A-106 High level	A.	If transfer is in progress respond per applicable transfer procedure. Proceed to Room 40 and look for overflowing solution near east riser for chem prep floor drain. If spill is present, continue. If no spill is present check for increase in WF for Tk-A105 and A106 on surveillance check sheet. Notify supervision of any increase.
		B.	Ensure supply pump at 2735-Z is turned off, controls for pumps are located on south wall of Room 40 and at 2735-Z.
		C.	Notify supervision of all findings and respond to any chemical spill per ZO-170-318.
12.	Chem. Prep. Floor liquid	A.	Open middle door to Room 40 and verify if solution is on floor. If solution is present on floor do not enter chem prep without fresh air and full acid suit (nearest SCBAs are in corridor near door 105).
		B.	Notify supervision of all findings and respond to spill per ZO-170-038.
13.	Low WF TK-127	A.	Acknowledge alarm, check TK-52.2 level indicator(Panel B-9) and 127 strip chart (Panel A-1) for increasing or decreasing WF readings. If there is no increase or decrease in WF, stop here.
		B.	If WF is decreasing, verify that valves 68 (EG-1), 69 (EE-1), 70 (EE-1), 77 (EE-1) and 78 (EE-1) are closed.
		C.	Visually inspect tanks 52.1 and 52.2 (EW-1) to verify if solution is entering. If solution is entering, immediately notify supervision.
14.	Chem. Prep. Conductivity Alarm	A.	Deactivated, no response necessary.
17	TK-12 DP	A.	No response is necessary when slag and crucible dissolution is not in progress.
21.	ED Condenser DP-high	A.	No response is necessary when slag and crucible dissolution is not in progress.

Attachment 2 - PANEL BOARD RESPONSES A-2 (Cont.)
Page 4 of 4

22	MT-5 Hot Plate Alarm	NOTE: This is a generic trouble alarm for MT-5. If alarming proceed to Room 41 and verify the specific alarm on the MT-5 alarm panel. A. No response is necessary when MT-5 dissolution is not in progress.

Attachment 3 - PANEL BOARD A-5
Page 1 of 1

HIGH Wr TK-10 1	LOW WF TK-10 2	HIGH WF TK-12 3	LOW WF TK-12 4	NO N2 SPARGE FLOW 5	ED DISSOLV N2 SPARGE LOW ED-LFA-D 6
HIGH WF TK-15 7	LOW WF TK-15 8	HIGH WF TK-17 9	LOW WF TK-17 10	HIGH WF TK-18 11	LOW WF TK-18 12
HIGH WF TK-19 13	LOW WF TK-19 14	HIGH WF TK-25 15	LOW WF TK-25 16	HIGH WF TK-26 17	LOW WF TK-26 18
HIGH WF TK-28 19	LOW WF TK-28 20	WEST HOOD OVERFLOW * 21	EAST HOOD OVERFLOW * 22	HIGH WF TK-126 23	LOW WF TK-126 24

ACKNOWLEDGE TEST

* Indicates cover is RED.

Attachment 4 - PANEL BOARD RESPONSES A-5
Page 1 of 6

PANEL WINDOW NUMBER	ALARM	RESPONSE
1.	High WF TK-10	A. Acknowledge alarm, check TK-52.2 level indicator (Panel B-9) and 10 stripchart (Panel A-5) for any increasing WF. If there is no WF increase, stop here. B. Visually check tanks 52.1 and 52.2 (EW-1) to verify if solution is entering. If solution is entering immediately notify supervision and verify switch 10-SS-F (Panel A-5) is in Position 1. C. Check all readings in PRF control room for decreasing WF to verify that no other tanks are draining. Report all findings to supervision.
2.	Low WF TK-10	A. Acknowledge alarm, check TK-52.2 level indicator (Panel B-9) and TK-10 stripchart (Panel A-5) for increasing or decreasing WF readings. If there is no increase or decrease in WF, stop here. B. Visually inspect tanks 52.1 and 52.2 (EW-1) to verify if solution is entering. If solution is entering, immediately notify supervision and verify valves 79, 80 and 81 are closed. C. Visually inspect hood bays for leaks or excessive solution on first and second floor east.
3.	High WF TK-12	A. Acknowledge alarm, and check Tk-12 stripchart (Panel A-6) for any increasing WF. If there is no WF increase, stop here. B. Verify switch 12-SS-F (Panel A-6) is in Position 1. C. Check all readings in PRF control room for decreasing WF to verify that no other tanks are draining. Report all findings to supervision.

Attachment 4 - PANEL BOARD RESPONSES A-5 (Cont.)
Page 2 of 6

4.	Low WF TK-12	A.	Acknowledge alarm, check TK-52.2 level indicator (Panel B-9) and TK-12 stripchart for increasing WF readings. If there is no WF increase or decrease, stop here.
		B.	Visually inspect tanks 52.1 and 52.2 (EW-1) to verify if solution is entering. If solution is entering, immediately notify supervision and verify valves 82 (EH-1) , 83 (EH-1) and 84 (EH-1) are closed.
		C.	Visually inspect hood bays for leaks or excessive solution on first and second floor east.
5.	No. N_2 Sparge Flow TK-EC	A.	No response necessary. Normally alarmed when slag and crucible dissolution is shutdown.
6.	ED DISSOLVER N_2 SPARGE LOW ED-LFA-D	A.	No response necessary. Normally alarmed when slag and crucible dissolution is shutdown.
7.	High WF TK-15	A.	Respond per Panel Window 1, High WF TK-10.
8.	Low WF TK-15	A.	Acknowledge alarm, check TK-52.2 level indicator, located in the southeast corner of panel board B, and TK-15 stripchart (Panel A-4) for increasing or decreasing WF readings.
		B.	Visually inspect tanks 52.1 and 52.2 (EW-1) to verify if solution is entering. If solution is entering, immediately notify supervision and verify valves 85 (EJ-1), 86 (EJ-1) and 87 (EJ-1) are closed.
		C.	Visually inspect hood bays for leaks or excessive solution on first and second floor east. If found, notify supervision.

Attachment 4 - PANEL BOARD RESPONSES A-5 (Cont.)
Page 3 of 6

9.	High WF TK-17	A.	Acknowledge alarm, check TK-52.4 level indicator (Panel B-9) and Tk-17 stripchart (Panel A-6) for any increasing WF. If Tk-17 WF is increasing verify switch 17-SS-E (Panel A-6) is in Position 1. If there is no increase in WF, stop here.
		B.	Visually check tanks 52.3 and 52.4 (WW-1) to verify if solution is entering. If solution is entering immediately notify supervision.
		C.	Check all readings in PRF control room for decreasing WF to verify that no other tanks are draining.
10.	Low WF Tk-17	A.	Acknowledge alarm, check TK-52.4 level indicator (Panel B-9) and Tk-17 stripchart (Panel A-6) for increasing or decreasing WF readings. If there is no WF increase or decrease, stop here.
		B.	Visually inspect tanks 52.3 and 52.4 (WW-1) to verify if solution is entering. If solution is entering, verify valves 263 (WG-1), 264 (WG-1) and 265 (WG-1) are closed and immediately notify supervision.
		C.	Visually inspect hood bays for leaks or excessive solution on first and second floor west. If found, notify supervision.
11.	High WF TK-18	A.	Acknowledge alarm, check TK-52.4 level indicator (Panel B-9) and Tk-18 stripchart (Panel A-6) for any increasing WF. If TK-18 WF is increasing verify switch 18-SS-E (Panel A-6) is in Position 1. If there is no increase in WF, stop here.
		B.	Visually check tanks 52.3 and 52.4 (WW-1) to verify if solution is entering. If solution is entering immediately notify supervision.
		C.	Check all readings in PRF control room for decreasing WF to verify that no other tanks are draining.

Attachment 4 - PANEL BOARD RESPONSES A-5 (Cont.)
Page 4 of 6

12.	Low WF TK-18	A.	Acknowledge alarm, check TK-52.4 level indicator (Panel B-9) and TK-18 stripchart (Panel A-6) for increasing or decreasing WF readings.
		B.	Visually inspect tanks 52.3 and 52.4 (WW-1) to verify if solution is entering. If solution is entering, verify valves 266(WH-1), 267 (WH-1) and 268 (WH-1) are closed and immediately notify supervision.
		C.	Visually inspect hood bays for leaks or excessive solution on first and second floor west. If found, notify supervision.
13.	High WF TK-19	A.	Acknowledge alarm, check TK-52.4 level indicator (Panel B-9) and Tk-19 stripchart (Panel A-7) for any increasing WF. If Tk-19 WF is increasing verify switch 19-SS-E (Panel A-7) is in Position 1. If there is no increase in WF, stop here.
		B.	Visually check tanks 52.3 and 52.4 (WW-1) to verify if solution is entering. If solution is entering immediately notify supervision.
		C.	Check all readings in PRF control room for decreasing WF to verify that no other tanks are draining.
14.	Low WF TK-19	A.	Acknowledge alarm, check TK-52.4 level indicator (Panel B-9) and Tk-19 stripchart (Panel A-7) for increasing or decreasing WF readings. If there is no WF increase or decrease, stop here.
		B.	Visually inspect tanks 52.3 and 52.4 (WW-1) to verify if solution is entering. If solution is entering, verify valves 274 (WJ-1), 275 (WJ-1), 276 (WJ-1) and 378 (WW-1) are closed and immediately notify supervision.
		C.	Visually inspect hood bays for leaks or excessive solution on first and second floor west. If found, notify supervision.

Attachment 4 - PANEL BOARD RESPONSES A-5 (Cont.)
Page 5 of 6

15.	High WF TK-25	A.	Acknowledge alarm, check TK-52.2 level indicator (Panel B-9) and 25 stripchart (Panel A-5) for any increasing WF. If there is no WF increase, stop here.
		B.	Visually check tanks 52.1 and 52.2 (EW-1) to verify if solution is entering. If solution is entering immediately notify supervision and verify switch 25-SS-F (Panel A-5) is in Position 1.
		C.	Check all readings in PRF control room for decreasing WF to verify that no other tanks are draining. Report all findings to supervision.
16.	Low WF TK-25	A.	Acknowledge alarm, check TK-52.2 level indicator (Panel B-9) and TK-25 stripchart (Panel A-5) for increasing or decreasing WF readings. If there is no WF increase or decrease, stop here.
		B.	Visually inspect tanks 52.1 and 52.2 (EW-1) to verify if solution is entering. If solution is entering, verify valves 124 (EN-1), 125 (EN-1) and 126 (EN-1) are closed and immediately notify supervision.
		C.	Visually inspect hood bays for leaks or excessive solution on first and second floor east. If found, notify supervision.
17.	High WF TK-26	A.	Respond per panel window #1, High WF TK-10.
18.	Low WF TK-26	A.	Acknowledge alarm, check TK 52.2 level indicator (Panel B-9) for increasing WF readings.
		B.	Visually inspect tanks 52.1 and 52.2 (EW-1) to verify if solution is entering. If solution is entering, immediately notify supervision.
		C.	Visually inspect hood bays for leaks or excessive solution on first and second floor east. If found, notify supervision.
		D.	Verify that valve 120 (EM-1) is closed.
19.	High WF TK-28	A.	Deactivated. No response necessary.

Attachment 4 - PANEL BOARD RESPONSES A-5 (Cont.)
Page 6 of 6

20.	Low WF TK-28	A.	Deactivated. No response necessary.
21.	West Hood Overflow	A.	Acknowledge alarm, proceed to first west WW section and check for excess solution under 52 tanks. If no excess solution, stop here.
		B.	Check first and second west floor glovebox hoodbays for leaks or excessive solution.
		C.	Check tanks 52.3 and 52.4 (WW-1) for any solution present and notify supervision of all findings.
22.	East Hood Overflow	A.	Acknowledge alarm, proceed to first east EW-section and check for excess solution under 52 tanks. If no excess solution, stop here.
		B.	Check first and second floor east glovebox hoodbays for leaks or excessive solution.
		C.	Check tanks 52.1 and 52.2 (EW-1) for any solution present and notify supervision of all findings.
23.	High WF TK-126	A.	Respond per Panel Window #1, High WF TK-10.
24.	Low WF TK-125.	A.	Acknowledge alarm, check TK-52.2 level indicator (Panel B-9) for increasing WF readings.
		B.	Visually inspect tanks 52.1 and 52.2 (EW-1) to verify if solution is entering. If solution is entering, immediately notify supervision.
		C.	Visually inspect hood bays for leaks or excessive solution on first and second floor east. If found, notify supervision.
		D.	Verify that valves 62 (EF-1), 63 (EF-1) and 64 (EF-1) are closed.

Attachment 5 - PANEL BOARD B-2
Page 1 of 1

OVERFLOW CU COLUMN TK-123 1	LOW WEIGHT FACTOR CPF PUMP TANK TK-121 2	LOW WEIGHT FACTOR CAP PUMP TANK TK-120 3
OVERFLOW CP COLUMN TK-122 4	HIGH WEIGHT FACTOR CPF PUMP TANK TK-121 5	HIGH WEIGHT FACTOR CAP PUMP TANK TK-120 6
LOW pH TK-70 7	CAUSTIC STORAGE D-9 LEVEL AND TEMP * 8	TK-120 D P * 9
HIGH CAW 10	D-5 AGITATOR DE-ENERGIZER * 11	ALARM BUILDING 241-Z * 12

ACKNOWLEDGE TEST

* Indicates cover is RED.

Attachment G - PANEL BOARD RESPONSES B-2
Page 1 of 2

PANEL WINDOW NUMBER	ALARM		RESPONSES
1.	Overflow CU Column TK-123	A.	Acknowledge alarm, check TK-52.4 level indicator (Panel B-9) for any increasing WF. If there is no WF increase, stop here.
		B.	Visually check tanks 52.3 and 52.4 (WW-1) to verify if solution is entering. If solution is entering, verify valve C-288 (Room 40) is closed and immediately notify supervision.
2.	Low WF TK-121	A.	Deactivated. No response necessary.
3.	Low WF TK-120	A.	Acknowledge alarm, check TK-52.4 level indicator (Panel B-9) for increasing WF readings.
		B.	Visually inspect tanks 52.3 and 52.4 (WW-1) to verify if solution is entering. If solution is entering, immediately notify supervision.
		C.	Visually inspect hood bays for leaks or excessive solution on first and second floor west. If found, notify supervision.
		D.	Verify that valves 254 (WF-1), 255 (WF-1), 256 (WF-1) and 455 (WF-3) are closed.
4.	Overflow CF Column TK-122	A.	Deactivated. No response necessary.
5.	High WF TK-121	A.	Deactivated. No response necessary.
6.	High WF TK-120	A.	Acknowledge alarm, check TK-52.4 level indicator (Panel B-9) and TK-120 stripchart (Panel B-2) for any increasing WF. If there is no WF increase, stop here.
		B.	Visually check tanks 52.3 and 52.4 (WW-1) to verify if solution is entering. If solution is entering verify valves 428 (WC-3) and 437 (WD-3) are closed and immediately notify supervision.
7.	Low pH TK-70	A.	No response is necessary, when solvent extraction process is shutdown or in standby.

Attachment 6 - PANEL BOARD RESPONSES B-2 (Cont.)
Page 2 of 2

8.	Caustic Storage TK-D9 Level and Temp.	A.	Proceed to 241-ZA to check temperature and level of TK-D9.
		B.	Operating ranges are 40-50°C (104-120°F) and 18 to 88% full on digital level indicator.
		C.	Notify supervision of all findings.
9.	TK-120 D P	A.	No response necessary when solvent extraction is shutdown or in standby. Normally alarmed during shutdown or standby.
10.	High CAW	A.	Deactivated. No response necessary.
11.	D5 Agitator De-energizer	A.	Check D-5 WF indicator on B-4 panel board if WF reads <10, no response is necessary.
		B.	If WF reads >10, Surveillance Operator proceed to 241-ZA. Observe WF and agitator operation and notify supervision with results. Request direction as to whether or not to restart the agitator, if not running.
12.	Alarm Building 241-ZA	A.	Proceed to 241-ZA and follow appropriate response per 241-ZA panel board response guide.

Attachment 7 - PANEL BOARD B-6
Page 1 of 1

HIGH WF TK-27 1	LOW WF TK-27 2	HIGH WF TK-29 3	LOW WF TK-29 4	HIGH WF TK-37 5	LOW WF TK-37 6	HIGH WF TK-38 7	LOW WF TK-38 8
HIGH WF TK-30 9	LOW WF TK-30 10	HIGH WF TK-36 11	LOW WF TK-36 12	HIGH WF TK-40 13	LOW WF TK-40 14	HIGH WF TK-41 15	LOW WF TK-41 16
HIGH WF TK-42 17	LOW WF TK-42 18	HIGH WF TK-45 19	LOW WF TK-45 20	HIGH WF TK-46 21	LOW WF TK-46 22	HIGH WF TK-20 23	LOW WF TK-20 24
HIGH DIFF PRESS TK-21 * 25	HIGH WF TK-23 26	LOW WF TK-23 27	HIGH WF TK-24 28	LOW WF TK-24 29	OVERFLOW CX COLUMN TK-69 30	HIGH WF TK-21 31	LOW WF TK-21 32
LOW FLOW CAF TK-32 CA 33	LOW FLOW CCX TK-33 CC 34	HIGH WF TK-70 35	LOW WF TK-70 36	LOW FLOW CAX TK-32 F 37	HIGH WF TK-50 * 38	HIGH TEMP TK-43 * 39	40
OVERFLOW TK 32-CA 41	OVERFLOW TK 33 CC 42	OVERFLOW TK 34 CO 43	HIGH WF TK-49 44	LOW WF TK-49 45	TK-36 DIFF PRESS 46	HIGH WF TK-52.2 47	HIGH WF TK-52.4 48

Attachment 8 - PANEL BOARD RESPONSES B-6
Page 1 of 11

PANEL WINDOW NUMBER	ALARM	RESPONSE
1.	High WF TK-27	A. Acknowledge alarm, check TK-52.4 level indicator (Panel B-9) for any increasing WF. B. Visually check tanks 52.3 and 52.4 (WW-1) to verify if solution is entering. If solution is entering verify that switch 27-SS-K (Panel B-3) is in Position 1 and immediately notify supervision. C. Check all readings in PRF control room for decreasing WF to verify that no other tanks are draining. Notify supervision of all findings.
2.	Low WF TK-27	A. Acknowledge alarm, check TK-52.4 level indicator (Panel B-9) for increasing WF readings. B. Visually inspect tanks 52.3 and 52.4 (WW-1) to verify if solution is entering. If solution is entering, immediately notify supervision. C. Visually inspect hood bays for leaks or excessive solution on first floor east. If found, notify supervision. D. Verify that valves 100 (EL-1), 101 (EL-1) and 102 (EL-1) are closed.
3.	High WF TK 29	A. Acknowledge alarm, check TK 52.4 level indicator (Panel B-9) for any increasing WF. B. Visually check tanks 52.3 and 52.4 (WW-1) to verify if solution is entering. If solution is entering verify that valves C-119 and C-121 (Room 40) are closed and immediately notify supervision.

Attachment 8 - PANEL BOARD RESPONSES B-6 (Cont.)
Page 2 of 11

4.	Low WF TK-29	A.	Acknowledge alarm, check TK-52.4 level indicator (Panel B-9) for increasing WF readings.
		B.	Visually inspect tanks 52.3 and 52.4 (WW-1) to verify if solution is entering. If solution is entering, immediately notify supervision.
		C.	Visually inspect hood bays for leaks or excessive solution on first floor west. If found, notify supervision.
		D.	Verify that valves 240 (WD-1), 241 (WD-1) and 242 (WD-1) are closed.
5.	High WF TK-37	A.	Acknowledge alarm, check TK-52.4 level indicator (Panel B-9) for any increasing WF.
		B.	Visually check tanks 52.3 and 52.4 (WW-1) to verify if solution is entering. If solution is entering verify that switch 37-SS-E (Panel B-5) is in Position 1 and immediately notify supervision.
6.	Low WF TK-37	A.	Acknowledge alarm, check TK-52.4 level indicator (Panel B-9) for increasing WF readings.
		B.	Visually inspect tanks 52.3 and 52.4 (WW-1) to verify if solution is entering. If solution is entering, immediately notify supervision.
		C.	Visually inspect hood bays for leaks or excessive solution on first and second floor west. If found, notify supervision.
		D.	Verify that valves 293 (WM-1), 294 (WM-1), 295 (WM-1) and 509 (WM-3) are closed.
7.	High WF TK-38	A.	Acknowledge alarm, check TK-52.4 level indicator (Panel B-9) for any increasing WF.
		B.	Visually check tanks 52.3 and 52.4 (WW-1) to verify if solution is entering. If solution is entering verify that switch 38-SS-E (Panel B-6) is in Position 1 and immediately notify supervision.

Attachment 8 - PANEL BOARD RESPONSES B-6 (Cont.)
Page 3 of 11

8.	Low WF TK-38	A.	Acknowledge alarm, check TK-52.4 level indicator (Panel B-9) for increasing WF readings.
		B.	Visually inspect tanks 52.3 and 52.4 (WW-1) to verify if solution is entering. If solution is entering, immediately notify supervision.
		C.	Visually inspect hood bays for leaks or excessive solution on first and second floor west. If found, notify supervision.
		D.	Verify that valve 306 (WN-1), 307 (WN-1), 308 (WN-1) and 508 (WN-1) are closed.
9.	High WF TK-30	A.	Acknowledge alarm, check TK-52.4 level indicator (Panel B-9) for any increasing WF.
		B.	Visually check tanks 52.3 and 52.4 (WW-1) to verify if solution is entering. If solution is entering verify that valves C-132 and C-133 (room 40) are closed and immediately notify supervision.
10.	Low WF TK-30	A.	Acknowledge alarm, check TK-52.4 level indicator (Panel B-9) for increasing WF readings.
		B.	Visually inspect tanks 52.3 and 52.4 (WW-1) to verify if solution is entering. If solution is entering, immediately notify supervision.
		C.	Visually inspect hood bays for leaks or excessive solution on first and second floor west. If found, notify supervision.
		D.	Verify that valves 226 (WC-1), 227 (WC-1) and 228 (WC-1) are closed.
11.	High WF TK-36	A.	Acknowledge alarm, check TK-52.4 level indicator (Panel B-9) for any increasing WF.
		B.	Visually check tanks 52.3 and 52.4 (WW-1) to verify if solution is entering. If solution is entering verify that valves 36-C1 and 36-C2 (3rd west) are closed and switch 40-SS-E (Panel B-6) is in Position 1 and immediately notify supervision.

Attachment 8 - PANEL BOARD RESPONSES B-6 (Cont.)
Page 4 of 11

12.	Low WF TK-36	A.	Acknowledge alarm, check TK-52.4 level indicator (Panel B-9) for increasing WF readings.
		B.	Visually inspect tanks 52.3 and 52.4 (WW-1) to verify if solution is entering. If solution is entering, immediately notify supervision.
		C.	Visually inspect hood bays for leaks or excessive solution on first and second floor west. If found, notify supervision.
		D.	Verify that valves 541 (WT-3), 542 (WT-3), 543 (WT-3) and 545 (WT-4) are closed.
13.	High WF TK-40	A.	Acknowledge alarm, check TK-52.4 level indicator (Panel B-9) for any increasing WF.
		B.	Visually check tanks 52.3 and 52.4 (WW-1) to verify if solution is entering. If solution is entering verify that valves V-40-U1 (3rd West) and V-40-U2 (3rd West) are closed and switch 70-SS-9 (Panel B-1) is in Position 1 and immediately notify supervision.
14.	Low WF TK-40	A.	Acknowledge alarm, check TK-52.4 level indicator (Panel B-9) for increasing WF readings.
		B.	Visually inspect tanks 52.3 and 52.4 (WW-1) to verify if solution is entering. If solution is entering, immediately notify supervision.
		C.	Visually inspect hood bays for leaks or excessive solution on first and second floor west. If found, notify supervision.
		D.	Verify that valves 319 (WP-1), 320 (WP-1), 321 (WP-1) and 378 (WP-1) are closed.
15.	High WF TK-41	A.	Acknowledge alarm, check TK-52.4 level indicator (Panel B-9) for any increasing WF.
		B.	Visually check tanks 52.3 and 52.4 (WW-1) to verify if solution is entering. If solution is entering verify that valves C-288, C-293, C-294 (room 40), 530 (WR-3), 57-2A (third west), 57-2B (third west) are closed and immediately notify supervision.

16.	Low WF TK-41	A.	Acknowledge alarm, check TK-52.4 level indicator (Panel B-9) for increasing WF readings.
		B.	Visually inspect tanks 52.3 and 52.4 (WW-1) to verify if solution is entering. If solution is entering, immediately notify supervision.
		C.	Visually inspect hood bays for leaks or excessive solution on first and second floor west. If found, notify supervision.
		D.	Verify that valves 277 (WK-1), 278 (WK-1) and 279 (WK-1) are closed.
17.	High WF TK-42	A.	Acknowledge alarm, check TK-52.4 level indicator (Panel B-9) for any increasing WF.
		B.	Visually check tanks 52.3 and 52.4 (WW-1) to verify if solution is entering. If solution is entering verify switch 42-SS-E (Panel) is in Position 1 and immediately notify supervision.
18.	Low WF TK-42	A.	Acknowledge alarm, check TK-52.4 level indicator (Panel B-9) for increasing WF readings.
		B.	Visually inspect tanks 52.3 and 52.4 (WW-1) to verify if solution is entering. If solution is entering, immediately notify supervision.
		C.	Visually inspect hood bays for leaks or excessive solution on first and second floor west. If found, notify supervision.
		D.	Verify that valves 531 (WS-3), 532 (WS-3) and 533 (WS-3) are closed.
19.	High WF TK-45	A.	Respond per Panel Window #3, High WF TK-29.

Attachment 8 - PANEL BOARD RESPONSES B-6 (Cont.)
Page 6 of 11

20.	Low WF TK-45	A.	Acknowledge alarm, check TK-52.4 level indicator (Panel B-9) for increasing WF readings.
		B.	Visually inspect tanks 52.3 and 52.4 (WW-1) to verify if solution is entering. If solution is entering, immediately notify supervision.
		C.	Visually inspect hood bays for leaks or excessive solution on first and second floor west. If found, notify supervision.
		D.	Verify that valves 348 (WS-1) and 349 (WS-1) are closed.
21.	High WF TK-46	A.	Respond per Panel Window #3, High WF TK-29.
22.	Low WF TK-46	A.	Acknowledge alarm, check TK-52.4 level indicator (Panel B-9) for increasing WF readings.
		B.	Visually inspect tanks 52.3 and 52.4 (WW-1) to verify if solution is entering. If solution is entering, immediately notify supervision.
		C.	Visually inspect hood bays for leaks or excessive solution on first and second floor west. If found, notify supervision.
		D.	Verify that valves 358 (WT-1) and 359 (WT-1) are closed.
23.	High WF TK-20	A.	Acknowledge alarm, check TK-52.4 level indicator (Panel B-9) for any increasing WF.
		B.	Visually check tanks 52.3 and 52.4 (WW-1) to verify if solution is entering. If solution is entering verify that switch 20-SS-E (Panel B-7) is in Position 1 and immediately notify supervision.
		C.	Check all readings in PRF control room for decreasing WF to verify that no other tanks are draining.

Attachment 8 - PANEL BOARD RESPONSES B-6 (Cont.)
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24.	Low WF TK-20	A.	Acknowledge alarm, check TK-52.4 level indicator (Panel B-9) for increasing WF readings.
		B.	Visually inspect tanks 52.3 and 52.4 (WW-1) to verify if solution is entering. If solution is entering, immediately notify supervision.
		C.	Visually inspect hood bays for leaks or excessive solution on first and second floor east. If found, notify supervision.
		D.	Verify that valves 147 (ES-1), 148 (ES-1) and 149 (ES-1) are closed.
25.	High DP TK-21	A.	No response necessary when filtrate evaporator is not in use.
26.	High WF TK-23	A.	Acknowledge alarm, check TK-52.4 level indicator (Panel B-9) for any increasing WF.
		B.	Visually check for decrease of Tk-21 WF. If there is decrease in Tk-21 WF verify that switch 23/24-SS-B (Panel B-8) is in Position 2 and watch for an increase in Tk-24 WF. If increase continues in Tk-23 WF close valves 151 (ES-1), 152 (ES-2) and 154 (ES-2). Visually check tanks 52.3 and 52.4 (WW-1) to verify if solution is entering. If solution is entering immediately notify supervision.
		C.	Check all readings in PRF control room for decreasing WF to verify that no other tanks are draining.
27.	Low WF TK-23	A.	Acknowledge alarm, check TK-52.4 level indicator (Panel B-9) for increasing WF readings.
		B.	Visually inspect tanks 52.3 and 52.4 (WW-1) to verify if solution is entering. If solution is entering, notify supervision.
		C.	Visually inspect hood bays for leaks or excessive solution on first and second floor east. If found, notify supervision.
		D.	Verify that valves 137 (ER-1), 138 (ER-1) and 139 (ER-1) are closed.

Attachment 8 - PANEL BOARD RESPONSES B-6 (Cont.)
Page 8 of 11

28.	High WF TK-24	A.	Acknowledge alarm, check TK-52.4 level indicator (Panel B-9) for any increasing WF.
		B.	Visually check for decrease of TK-21 WF (Panel B-7). If there is decrease in Tk-21 WF verify tha switches 23-SS-B (Panel B-8) and 24-SS-B (Panel B-8) are in Position 1 and watch for an increase in TK-23 WF (Panel B-8). If increase continues in TK-24 WF (Panel B-8) close valves 152 (ES-2) and 154 (ES-2). Visually check tanks 52.3 and 52.4 (WW-1) to verify if solution is entering. If solution is entering immediately notify supervision.
		C.	Check all readings in PRF control room for decreasing WF to verify that no other tanks are draining.
29.	Low WF TK-24	A.	Acknowledge alarm, check TK-52.4 level indicator (Panel B-9) for increasing WF readings.
		B.	Visually inspect tanks 52.3 and 52.4 (WW-1) to verify if solution is entering. If solution is entering, immediately notify supervision.
		C.	Visually inspect hood bays for leaks or excessive solution on first and second floor east. If found, notify supervision.
		D.	Verify that valves 134 (EP-1), 135 (EP-1) and 136 (EP-1) are closed.
30.	Overflow CX Column TK-69	A.	Acknowledge alarm, check TK-52.4 level indicator (Panel B-9) for any increasing WF.
		B.	Visually check tanks 52.3 and 52.4 (WW-1) to verify if solution is entering. If solution is entering verify that switch 70-SS-G (Panel B-1) is in Position 1 and immediately notify supervision.
		C.	Check all readings in PRF control room for decreasing WF to verify that no other tanks are draining.

Attachment 8 - PANEL BOARD RESPONSES B-6 (Cont.)
Page 9 of 11

31.	High WF TK-21	A.	Acknowledge alarm, check TK-52.4 level indicator (Panel B-9) for any increasing WF.
		B.	Visually check tanks 52.3 and 52.4 (WW-1) to verify if solution is entering. If solution is entering verify that valves V-160 (ET-1) and V-161 (ET-1) are closed and immediately notify supervision.
		C.	Check all readings in PRF control room for decreasing WF to verify that no other tanks are draining.
32.	Low WF TK-21	A.	No response necessary. Normally alarmed when filtrate evaporator is not in use.
33.	Low Flow CAF TK-32	A	No response is necessary. Normally alarmed when solvent extraction is shutdown or in standby.
34.	Low flow CCX	A.	No response is necessary. Normally alarmed when solvent extraction is shutdown or in standby.
35.	High WF TK-70	A.	Acknowledge alarm, check TK-52.4 level indicator (Panel B-9) for any increasing WF.
		B.	Visually check tanks 52.3 and 52.4 (WW-1) to verify if solution is entering. If solution is entering verify that switch 70-SS-A (Panel B-1) is in Position 1 and immediately notify supervision.
36.	Low WF TK-70	A.	Acknowledge alarm, check tank 52.4 level indicator (Panel B-9) for increasing WF readings.
		B.	Visually inspect tanks 52.3 and 52.4 (WW-1) to verify if solution is entering. If solution is entering, notify supervision.
		C.	Visually inspect hood bays for leaks or excessive solution on first and second floor west. If found, notify supervision.
		D.	Verify that valves 365 (WU-1), 366 (WU-1) and 367 (WU-1) are closed.
37.	Low CAX Flow TK-32	A.	No response necessary. Normally alarmed when solvent extraction is not in progress.

Attachment 8 - PANEL BOARD RESPONSES B-6 (Cont.)
Page 10 of 11

38.	High WF TK-50	A.	Tank 50 provides vacuum for all vacuum transfers in PRF. If this tank is alarming on High WF, verify valves 583 (WY-3), 584 (WY-3) and 585 (WY-4) are closed.
		B.	Verify selector switch 50-SS-D (Panel B-9) is in VENT position and notify supervision of criticality posting violation if over 65 WF.
39.	High Temp TK-43	A.	Check charts 84 and 85 on B-7 panel. If temperature has exceeded 125°C or is increasing, verify steam valves 43-B1 (third west) and 43-C1 (third West) are closed.
		B.	Notify supervision immediately of all findings.
41.	Overflow TK 32-CA	A.	Acknowledge alarm, check tank 52.4 level indicator (Panel B-9) for any increasing WF.
		B.	Visually CA column in sixth floor for overflow condition. If solution is overflowing immediately notify supervision.
42.	Overflow TK 33-CC	A.	Acknowledge alarm, check tank 52.4 level indicator (Panel B-9) for any increasing WF.
		B.	Visually check CC column on sixth floor for overflow condition. If solution is overflowing and immediately notify supervision.
43.	Overflow TK 34-CO	A.	Respond per Panel Window #3, High WF TK-29.
44.	High WF TK-49	A.	Respond per Panel Window #3, High WF TK-29.

Attachment 8 - PANEL BOARD RESPONSES B-6 (Cont.)
Page 11 of 11

45.	Low WF TK-49	A.	Acknowledge alarm, check tank 52.4 level indicator (Panel B-9) for increasing WF readings.
		B.	Visually inspect tanks 52.3 and 52.4 (WW-1) to verify if solution is entering. If solution is entering, immediately notify supervision.
		C.	Visually inspect hood bays for leaks or excessive solution on first and second floor west. If found, notify supervision.
		D.	Verify that valves 376 (WV-1), 380 (WW-1) and (WV-1) 381 are closed.
46.	TK-36 Diff. Press.	A.	No response necessary. Normally alarmed when solvent extraction is shutdown or in standby.
47.	High WF TK-52.2	A.	Visually inspect tanks 52.1 and 52.2 (EW-1).
		B.	If solution is entering, check all tank WF readings for decreases and close all block and drain valves on east side.
		C.	Notify supervision of all findings.
48.	High WF TK-52.4	A.	Visually inspect tanks 52.3 and 52.4 (WW-1).
		B.	If solution is entering check all tank WF readings for decreases and close all block and drain valves on west side.
		C.	Notify supervision of all findings.

Attachment 9 - PANEL BOARD B-7
Page 1 of 1

HIGH WEIGHT FACTOR TK-128 1	LOW WEIGHT FACTOR TK-128 2	HIGH WEIGHT FACTOR TK-39 3
4	5	LOW WEIGHT FACTOR TK-39 6
TUBE FAILURE TK-21 * 7	HIGH TEMPERATURE TK-21 * 8	9
TUBE FAILURE TK-43 * 10	11	12

ACKNOWLEDGE TEST

* Indicates cover is RED.

Attachment 10 - PANEL BOARD RESPONSES B-7
Page 1 of 2

PANEL WINDOW NUMBER	ALARM		RESPONSE
1.	High WF TK-128	A.	Acknowledge alarm, check tank 52.4 level indicator (Panel B-9) and Tk-128 stripchart for any increasing WF. If there is no WF increase, stop here.
		B.	Visually check tanks 52.3 and 52.4 (WW-1) to verify if solution is entering. If solution is entering check tanks 45 (PanelB-8), 46 (Panel B-8) and 42 (Panel B-6) for decreasing WF and immediately notify supervision.
2.	Low WF TK-128	A.	Acknowledge alarm, check tank 52.4 level indicator (Panel B-9) for increasing WF readings.
		B.	Visually inspect tanks 52.3 and 52.4 (WW-1) to verify if solution is entering. If solution is entering, immediately notify supervision.
		C.	Visually inspect the hood bays for leaks or excessive solution on second floor west. If found, notify supervision.
		D.	Verify that valves 551 (WV-3) and 560 (WV-3) are closed.
3.	High WF TK-39	A.	Acknowledge alarm, check tank 52.4 level indicator (Panel B-9) and Tk-39 stripchart (Panel B-1) for any increasing WF. If there is no WF increase, stop here.
		B.	Visually check tanks 52.3 and 52.4 (WW 1) to verify if solution is entering. If solution is entering verify that switch 32-SS-W (Panel B-4) is in position 1 and immediately notify supervision.

Attachment 10 - PANEL BOARD RESPONSES B-7 (Cont.)
Page 2 of 2

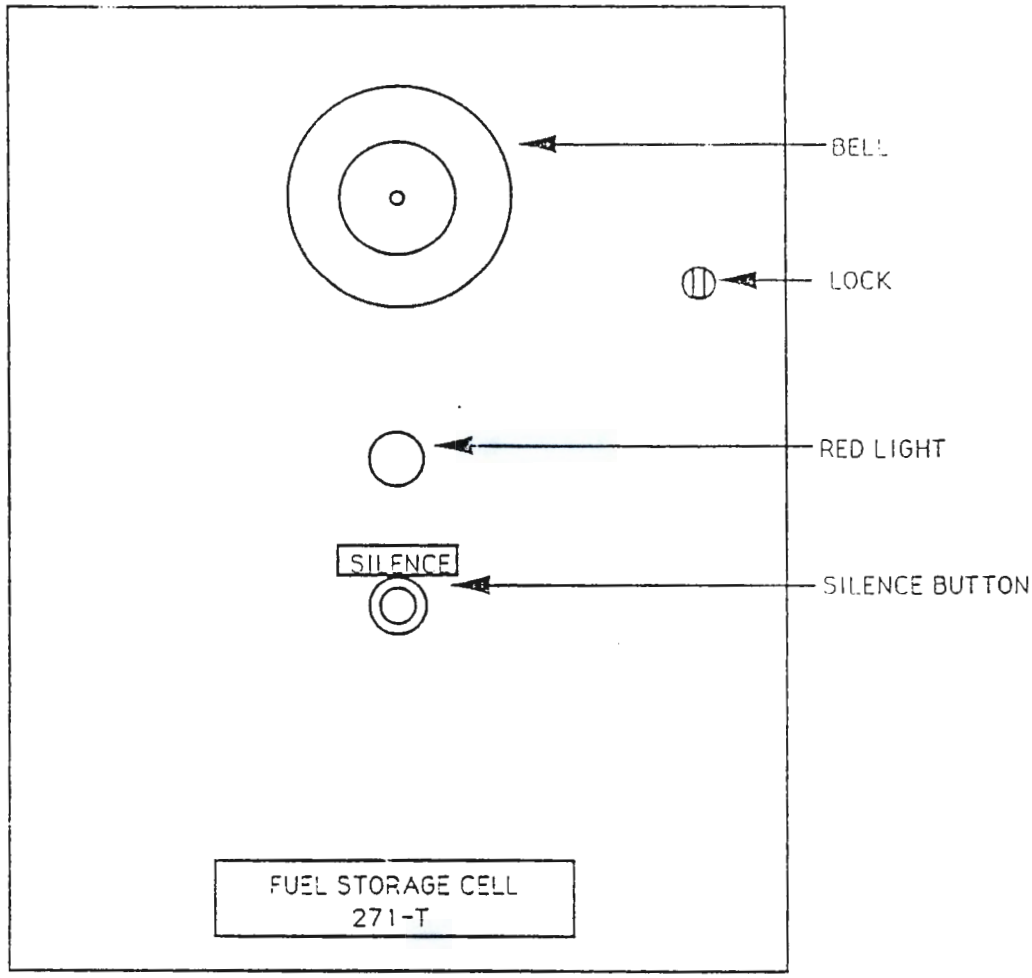
6.	Low WF TK-39	A.	Acknowledge alarm, check tank 52.4 level indicator (Panel B-9) for increasing WF readings.
		B.	Visually inspect tanks 52.3 and 52.4 (WW-1) to verify if solution is entering. If solution is entering, immediately notify supervision.
		C.	Visually inspect hood bays for leaks or excessive solution on first and second floor west. If found, notify supervision.
		D.	Verify that valves 290 (WL-1), 291 (WL-1) and 292 (WL-1) are closed.
7.	Tube Failure TK-21	A.	Verify valve V-163 (ET-1) is closed.
		B.	Check the following charts and record current values. Note any changes visible on chart readings.

CHART	PANEL	PEN COLOR	DESCRIPTION
88	B-7	Red	Steam Flow to TK-21
89	B-7	Red	TK-21 Temp
92	B-7	Red	Tk-21 WF

		C.	Notify supervision of all findings.
8.	High Temp. TK-21	A.	Check chart 89 on B-7 panel board, if temperature had exceeded 125°C verify steam valves 21-E1 and 21-E2, on 3rd floor east, are closed, and record steam pressure if greater than 30 psi.
		B.	Notify supervision of all findings.
10.	Tube Failure TK-43	A	Verify valve 341 (WR-2) is closed.
		B.	Check the following charts and record current values. Note any changes visible on chart readings.

CHART	PANEL	PEN COLOR	DESCRIPTION
84	B-7	Green	TK-43 Temp.
85	B-7	Red	Strip steam to TK-43

Attachment 11 - 271-T STORAGE CELL
Page 1 of 1



Attachment 12 - 271-T STORAGE CELL ALARM RESPONSE

Page 1 of 1

PANEL WINDOW NUMBER	ALARM	RESPONSE
RED LIGHT	271-T STORAGE CELL	1. Acknowledge alarm and immediately contact Facility Operations supervisor.

Attachment 13 - ROOM 40 CHEM PREP ALARM PANEL
Page 1 of 1

TK-A105 LEVEL HIGH LAH-A-105 1	TK-A116 LEVEL HIGH LAH-A-116 2	TK-A106 LEVEL HIGH LAH-A-106 3	TK-A112 LEVEL HIGH LAH-A-112 4	5
TK-A114 LEVEL HIGH LAH-A-114 6	TK-A113 LEVEL HIGH LAH-A-113 7	TK-A108 LEVEL HIGH LAH-A-108 8	9	10
TK-A115 LEVEL HIGH LAH-A-115 11	12	TK-A103 LEVEL HIGH LAH-A-103 13	14	15
TK-A107 LEVEL HIGH LAH-A-107 16	17	TK-A101 LEVEL HIGH LAH-A-101 18	19	20
TK-A110 LEVEL HIGH LAH-A-110 21	INSTRUMENT MALFUNCTION LIS-40A 22	TK-A102 LEVEL HIGH LAH-A-102 23	INSTRUMENT MALFUNCTION LIS-40B 24	25
TK-A117 LEVEL HIGH LAH-A-117 26	DOWNTIME MONITOR 40A ROOM 40 27	TK-A109 LEVEL HIGH LAH-A-109 28	DOWNTIME MONITOR 40B ROOM 40 29	30

Attachment 14 - ROOM 44 CHEM PREP ALARM PANEL
Page 1 of 1

TK-A105 LEVEL HIGH LAH-A-105 1	TK-A116 LEVEL HIGH LAH-A-116 2	TK-A106 LEVEL HIGH LAH-A-106 3	TK-A112 LEVEL HIGH LAH-A-112 4	5
TK-A114 LEVEL HIGH LAH-A-114 6	TK-A113 LEVEL HIGH LAH-A-113 7	TK-A108 LEVEL HIGH LAH-A-108 8	INSTRUMENT MALFUNCTION LI -40B 9	10
TK-A115 LEVEL HIGH LAH-A-115 11	INSTRUMENT MALFUNCTION LIS-40A 12	TK-A103 LEVLE HIGH LAH-A-103 13	DOWNTIME MONITOR 40B ROOM 40 14	15
TK-A107 LEVEL HIGH LAH-A-107 16	DOWNTIME MONITOR 40A ROOM 40 17	TK-A101 LEVEL HIGH LAH-A-101 18	19	20
TK-A110 LEVEL HIGH LAH-A-110 21	22	TK-A102 LEVEL HIGH LAH-A-102 23	24	TEST ACK
TK-A117 LEVEL HIGH LAH-A-117 25	26	TK-A109 LEVEL HIGH LAH-A-109 27	28	

Attachment 15 - ROOM 40 AND 44 CHEM PREP ALARM RESPONSES
Page 1 of 5

PANEL WINDOW NUMBER	ALARM		RESPONSE
1.	TK-A105 LEVEL HIGH LAH-A-105	A.	If transfer is in progress respond per applicable transfer procedure. Proceed to Room 40 and look for overflowing solution near east riser for chem prep floor drain. If spill is present, continue. If no spill is present check for increase in WF for TK-A105 on surveillance check sheet. Notify supervision of any increase.
		B.	Ensure supply at 2735-Z is turned off, controls for pumps are located on south wall of Room 40 and at 2735-Z.
		C.	Notify supervision of all findings and respond to any chemical spill per ZO-170-318.
2.	TK-A116 LEVEL HIGH LAH-A-116	A.	If transfer is in progress respond per applicable transfer procedure. Proceed to Room 40 and look for overflowing solution near east riser for chem prep floor drain. If spill is present, continue. If no spill is present check for increase in WF for TK-A116 on surveillance check sheet. Notify supervision of any increase.
		B.	Notify supervision of all findings and respond to any chemical spill per ZO-170-318.
3.	TK-A106 LEVEL HIGH LAH-A-106	A.	If transfer is in progress respond per applicable transfer procedure. Proceed to Room 40 and look for overflowing solution near east riser for chem prep floor drain. If spill is present, continue. If no spill is present check for increase in WF for TK-A106 on surveillance check sheet. Notify supervision of any increase.
		B.	Ensure supply at 2735-Z is turned off, controls for pumps are located on south wall of Room 40 and at 2735-Z.
		C.	Notify supervision of all findings and respond to any chemical spill per ZO-170-318.

Attachment 15 - ROOM 40 AND 44 CHEM PREP ALARM RESPONSES (Cont.)
Page 2 of 5

PANEL WINDOW NUMBER	ALARM	RESPONSE
4.	TK-A112 LEVEL HIGH LAH-A-112	A. If transfer is in progress respond per applicable transfer procedure. Proceed to Room 40 and look for overflowing solution near east riser for chem prep floor drain. If spill is present, continue. If no spill is present check for increase in WF for Tk-A112 on surveillance check sheet. Notify supervision of any increase. B. Notify supervision of all findings and respond to any chemical spill per ZO-170-318.
6.	TK-A114 LEVEL HIGH LAH-A-114	A. If transfer is in progress respond per applicable transfer procedure. Proceed to Room 40 and look for overflowing solution near east riser for chem prep floor drain. If spill is present, continue. If no spill is present check for increase in WF for Tk-A114 on surveillance check sheet. Notify supervision of any increase. B. Notify supervision of all findings and respond to any chemical spill per ZO-170-318.
7.	TK-A113 LEVEL HIGH LAH-A-113	A. If transfer is in progress respond per applicable transfer procedure. Proceed to Room 40 and look for overflowing solution near east riser for chem prep floor drain. If spill is present, continue. If no spill is present check for increase in WF for Tk-A113 on surveillance check sheet. Notify supervision of any increase. B. Notify supervision of all findings and respond to any chemical spill per ZO-170-318.
8.	TK-A108 LEVEL HIGH LAH-A-108	A. If transfer is in progress respond per applicable transfer procedure. Proceed to Room 40 and look for overflowing solution near east riser for chem prep floor drain. If spill is present, continue. If no spill is present check for increase in WF for Tk-A108 on surveillance check sheet. Notify supervision of any increase. B. Notify supervision of all findings and respond to any chemical spill per ZO-170-318.

Attachment 15 - ROOM 40 AND 44 CHEM PREP ALARM RESPONSES (Cont.)
Page 3 of 5

PANEL WINDOW NUMBER	ALARM		RESPONSE
9. or 24.	INSTRUMENT MALFUNCTION LIS-40B	A.	Acknowledge alarm and notify supervision.
11.	TK-A115 LEVEL HIGH LAH-A-115	A.	If transfer is in progress respond per applicable transfer procedure. Proceed to Room 40 and look for overflowing solution near east riser for chem prep floor drain. If spill is present, continue. If no spill is present check for increase in WF for Tk-A115 on surveillance check sheet. Notify supervision of any increase.
		B.	Notify supervision of all findings and respond to any chemical spill per ZO-170-318.
12. or 22.	INSTRUMENT MALFUNCTION LIS-40-A	A.	Acknowledge alarm and notify supervision.
13.	TK-A103 LEVEL HIGH LAH-A-103	A.	If transfer is in progress respond per applicable transfer procedure. Proceed to Room 40 and look for overflowing solution near east riser for chem prep floor drain. If spill is present, continue. If no spill is present check for increase in WF for Tk-A103 on surveillance check sheet. Notify supervision of any increase.
		B.	Notify supervision of all findings and respond to any chemical spill per ZO-170-318.
14. or 29.	DOWNTIME MONITOR 40B ROOM 40	A.	Acknowledge alarm and notify supervision.
16.	TK-A107 LEVEL HIGH LAH-A-107	A.	If transfer is in progress respond per applicable transfer procedure. Proceed to Room 40 and look for overflowing solution near east riser for chem prep floor drain. If spill is present, continue. If no spill is present check for increase in WF for Tk-A107 on surveillance check sheet. Notify supervision of any increase.
		B.	Notify supervision of all findings and respond to any chemical spill per ZO-170-318.

Attachment 15 - ROOM 40 AND 44 CHEM PREP ALARM RESPONSES (Cont.)
Page 4 of 7

PANEL WINDOW NUMBER	ALARM	RESPONSE
17. or 27.	DOWNTIME MONITOR 40A ROOM 40	A. Acknowledge alarm and notify supervision.
18.	TK-A101 LEVEL HIGH LAH A-101	A. If transfer is in progress respond per applicable transfer procedure. Proceed to Room 40 and look for overflowing solution near east riser for chem prep floor drain. If spill is present, continue. If no spill is present check for increase in WF for Tk-A101 on surveillance check sheet. Notify supervision of any increase. B. Notify supervision of all findings and respond to any chemical spill per ZO-170-318.
21.	TK-A110 LEVEL HIGH LAH-A-110	A. If transfer is in progress respond per applicable transfer procedure. Proceed to Room 40 and look for overflowing solution near east riser for chem prep floor drain. If spill is present continue. If no spill is present check for increase in WF for Tk-A110 on surveillance check sheet. Notify supervision of any increase. B. Notify supervision of all findings and respond to any chemical spill per ZO-170-318.
23.	TK-A102 LEVEL HIGH LAH-A-102	A. If transfer is in progress respond per applicable transfer procedure. Proceed to Room 40 and look for overflowing solution near east riser for chem prep floor drain. If spill is present, continue. If no spill is present check for increase in WF for Tk-A102 on surveillance check sheet. Notify supervision of any increase. B. Notify supervision of all findings and respond to any chemical spill per ZO-170-318.

Attachment 15 - ROOM 40 AND 44 CHEM PREP ALARM RESPONSES (Cont.)
Page 5 of 5

PANEL WINDOW NUMBER	ALARM		RESPONSE
25.	TK-A117 LEVEL HIGH LAH-A-117	A.	If transfer is in progress respond per applicable transfer procedure. Proceed to Room 40 and look for overflowing solution near east riser for chem prep floor drain. If spill is present, continue. If no spill is present check for increase in WF for Tk-A117 on surveillance check sheet. Notify supervision of any increase.
		B.	Notify supervision of all findings and respond to any chemical spill per ZO-170-318.
27. or 28.	TK-A109 LEVEL HIGH LAH-A-109	A.	If transfer is in progress respond per applicable transfer procedure. Proceed to Room 40 and look for overflowing solution near east riser for chem prep floor drain. If spill is present, continue. If no spill is present check for increase in WF for Tk-A109 on surveillance check sheet. Notify supervision of any increase.
		B.	Notify supervision of all findings and respond to any chemical spill per ZO-170-318.

Attachment 16 - ROOM 41 (MT) PANEL BOARD
Page 1 of 1

SOUTH WALL

GLOVEBOX 5 HIGH WATER FLOW A-1	GLOVEBOX 6 HIGH WATER FLOW A-2		

HOT PLATE

HI TEMPERATURE HOT PLATE 1 ANN-1	HI TEMPERATURE HOT PLATE 3 ANN-5	HI TEMPERATURE HOT PLATE 5 ANN-9	
TROUBLE HOT PLATE 1 ANN-2	TROUBLE HOT PLATE 3 ANN-6	TROUBLE HOT PLATE 5 ANN-10	
HI TEMPERATURE HOT PLATE 2 ANN-3	HI TEMPERATURE HOT PLATE 4 ANN-7		
TROUBLE HOT PLATE 2 ANN-4	TROUBLE HOT PLATE 4 ANN-8		

(NON-FUNCTIONING)

Attachment 17 - ROOM 41 (MT) PANEL BOARD RESPONSES
Page 1 of 1

PANEL WINDOW NUMBER	ALARM		RESPONSE
A-1	Glovebox 5 High Water Flow	A.	Check for any leaking in gloveboxes 3, 4, 5 and 6.
		B.	Verify PPW V-50 on south wall is closed and notify supervision of all findings.
A-2	Glovebox 6 High Water Flow	A.	Respond per A-1 Glovebox 5, High Water flow.
			HOT PLATE PANEL
ANN-1	High Temp Hot Plate 1	A.	Verify red SYSTEM POWER light is OFF. If light is off then no response is necessary.
		B.	If red SYSTEM POWER light is ON, then press EMERGENCY STOP button.
		C.	Notify supervision. NOTE: Procedure ZO-183-010 contains an alarm response matrix for operational modes.
ANN-2	Trouble Hot Plate 1	A.	Respond as per Panel Window #1, High Temp Hot Plate 1.
ANN-3	High Temp Hot Plate 2	A.	Respond as per Panel Window #1, High Temp Hot Plate 1.
ANN-4	Trouble Hot Plate 2	A.	Respond as per Panel Window #1, High Temp Hot Plate 1.
ANN-5	High Temp Hot Plate 3	A.	Respond as per Panel Window #1, High Temp Hot Plate 1.
ANN-6	Hot Plate Trouble 3	A.	Respond as per Panel Window #1, High Temp Hot Plate 1.
ANN-7	Hot Plate High Temp 4	A.	Respond as per Panel Window #1, High Temp Hot Plate 1.
ANN-8	Hot Plate Trouble 4	A.	Respond as per Panel Window #1, High Temp Hot Plate 1.
ANN-9	High Temp Hot Plate 5	A.	Respond as per Panel Window #1, High Temp Hot Plate 1.
ANN-10	Trouble Hot Plate 5	A.	Respond as per Panel Window #1, High Temp Hot Plate 1.

Attachment 18 - STANDBY SURVEILLANCE - PROCESS VESSELS DATA SHEET WEEKDAY
FOR WXYZ SHIFT OPERATIONS
Page 1 of 2

Report any change greater than +1 in. WF to supervision immediately. Return to PNP managment at 0700.

Date

	0100	0500	0900	1300	1700	2100	COMMENTS
TIME (hr)							
WM-1							
127							
16							
126							
15*						*	
10*						*	
25							
26							
2							
17*						*	
18*						*	
19							
39							
70							
120							
128							
27							
36							
29							
OPERATOR INIT							
SUPERVISION INI							

NOTE - CIRCLE IN RED ALL OUT OF SPECIFICATIONS OR ABNORMAL READINGS.
* Contingency Tankage (use planned storage space first)

Attachment 18 - STANDBY SURVEILLANCE - PROCESS VESSELS DATA SHEET WEEKDAY
FOR WXYZ SHIFT OPERATIONS (Cont.)
Page 2 of 2

Report any change greater than +1 in. WF to supervision immediately. Return to PNP managment at 0700.

Date

	0100	0500	0900	1300	1700	2100	COMMENTS
D-4							
D-5							
D-7							
D-8							
D-9							
30							
37							
38							
42							
40							
41							
20							
21							
45							
46							
23							
24							
52.2							
52.4							
49							
50							
OPERATOR INIT							
SUPERVISION INI							

NOTE - CIRCLE IN RED ALL OUT OF SPECIFICATIONS OR ABNORMAL READINGS.
- NOTIFY SUPERVISION IF D-4, D-5, D-7 OR D-8 IS ABOVE 55% OF CHART.

Attachment 19 - STANDBY SURVEILLANCE - PROCESS VESSELS DATA SHEET WEEKDAY FOR P-Q SHIFT OPERATIONS
Page 1 of 2

Report any change greater than +1 in. WF to supervision immediately. Return to PNP managment at 0700.

Date

	0100	0500	0900	1300	1700	2100	COMMENTS
TIME (hr)							
WM-1		WALK THROUGH ONLY					
127							
16							
126							
15*						*	
10*						*	
25							
26							
12							
17*						*	
18*						*	
19							
39							
70							
120							
128							
27							
26							
29							
OPERATOR INIT							
SUPERVISION INI							

NOTE - CIRCLE IN RED ALL OUT OF SPECIFICATIONS OR ABNOPMAL READINGS.
* Contingency Tankage (use planned storage space first)
\- On GRAVEYARD SHIFT during P-Q operations, Record Data Only Once a Shift, Followed By An Observation Only Walk-Through

Attachment 19 - STANDBY SURVEILLANCE - PROCESS VESSELS DATA SHEET WEEKDAY
FOR P-Q SHIFT OPERATIONS (Cont.)
Page 2 of 2

Report any change greater than +1 in. WF to supervision immediately. Return to PNP managment at 0700.

Date

	0100	0500	0900	1300	1700	2100	COMMENTS
D-4		WALK THROUGH ONLY					
D-5							
D-7							
D-8							
D-9							
30							
37							
38							
42							
40							
41							
20							
21							
45							
46							
23							
24							
52.2							
52.4							
49							
50							
OPERATOR INIT							
SUPERVISION INI							

NOTE - CIRCLE IN RED ALL OUT OF SPECIFICATIONS OR ABNORMAL READINGS.
- NOTIFY SUPERVISION IF D-4, D-5, D-7 OR D-8 IS ABOVE 55% OF CHART.
- On GRAVEYARD SHIFT during P-Q operations, Record Data Only Once a Shift, Followed By An Observation Only Walk-Through

Attachment 20 - STANDBY SURVEILLANCE - PROCESS VESSELS DATA SHEET
WEEKEND/HOLIDAY
Page 1 of 2

Report any change greater than +1 in. WF to supervision immediately. Return to PNP management at 0700.

DATE_____

	0100	0500	0900	1300	1700	2100	COMMENTS
TIME (hr)							
WM-1		W		W		W	
127		A		A		A	
16		L		L		L	
126		K		K		K	
15*							
10*		T		T		T	
25		H		H		H	
26		R		R		R	
12		O		O		O	
17*		U		U		U	
18*		G		G		G	
019		H		H		H	
39							
70		O		O		O	
120		N		N		N	
128		L		L		L	
27		Y		Y		Y	
36							
29							
OPERATOR INIT							
SUPERVISOR INIT							

NOTE - CIRCLE IN RED ALL OUT OF SPECIFICATIONS OR ABNORMAL READINGS.
- On Weekends and Holidays, Record Data Only Once a Shift, Followed By An Observation Only Walk-Through

Attachment 20 - STANDBY SURVEILLANCE - PROCESS VESSELS DATA SHEET WEEKEND/HOLIDAY (Cont.)

Page 2 of 2

Report any change greater than +1 in. WF to supervision immediately. Return to PNP managment at 0700.

Date

	0100	0500	0900	1300	1700	2100	COMMENTS
D-4							
D-5		W		W		W	
D-7		A		A		A	
D-8		L		L		L	
D-9		K		K		K	
30							
37		T		T		T	
38		H		H		H	
42		R		R		R	
40		O		O		O	
41		U		U		U	
20		G		G		G	
21		H		H		H	
45							
46		O		O		O	
23		N		N		N	
24		L		L		L	
52.2		Y		Y		Y	
52.4							
49							
50							
OPERATOR INIT							
SUPERVISOR INIT							

NOTE - CIRCLE IN RED ALL OUT OF SPECIFICATIONS OR ABNORMAL READINGS.
- NOTIFY SUPERVISION IF D-4, D-5, D-7 OR D-8 IS ABOVE 55% OF CHART.
- On Weekends and Holidays, record data only once a shift, followed by an observation only walk-through

Attachment 21 - STANDBY SURVEILLANCE - ONCE-PER-SHIFT
PRF SURGE TANK DATA SHEET
Page 1 of 1

Report any change greater than +1 in. WF to supervision immediately. Return to PNP managment at 0700.

	GRAVE	DAYS	SWING	
DATE				COMMENTS
TIME (hr)				
3 RD FLOOR				
SURGE VESSELS PRESSURE READING				
a. TK-36				
b. TK-37				
c. TK-38				
d. TK-120				
OPERATOR INIT				
SUPERVISOR INIT				

NOTE - CIRCLE IN RED ALL OUT OF SPECIFICATIONS OR ABNORMAL READINGS.

Attachment 22 - STANDBY SURVEILLANCE - FILTRATE EVAPORATOR
OSR DATA SHEET
Page 1 of 1

DATE:	TIME OF DAY		GRAVE	DAY	SWING
DESCRIPTION	OPERATING RANGE	LCO LIMIT			
Filtrate Evaporator Operating?	Yes/No				
TK-21 Temperature					
21-TR-C Chart 89 red pen, Panel B-7	130 °C MAXIMUM	140 °C MAXIMUM			
TK-21 Steam Pressure					
21-PI-B 3rd East	30 psi MAXIMUM	54 psi MAXIMUM			
Operator's Initials:					
Supervison's Signature					

COMMENTS: _____

_____

_____

1. Reading outside of Operating Range:

   A. Take IMMEDIATE action as follows:
      * Termperature greater than 130 °C - Shut down Filtrate Evaporator.
      * Pressure greater than 30 psi - Shut down Filtrate Evaporator.

   B. Notify supervision immediately. Supervision must take action; see OSR Matrix in front of procedure.

2. If LCO is exceeded, supervision will initate OSR recovery actions per the OSR Matrix and OSR in RHO-CD-1244, Appendix H Section 6.1.2 (Filtrate Evaporator Temperature) and 6.2.1 (Steam Pressure. Immediately contact Duty Manager and Plant Manager. Record start time of the event in the Operation's Shift Log Book.

3. Circle all values outside of Operating Range in red.

4. Copy this sheet on canary yellow paper for recording data.

Attachment 23 - STANDBY SURVEILLANCE - PRODUCT CONCENTRATOR
OSR DATA SHEET
Page 1 of 1

DATE:	TIME OF DAY		GRAVE	DAY	SWING
DESCRIPTION	OPERATING RANGE	LCO LIMIT			
Product Concentrator Operating?	Yes/No				
TK-43 Temperature					
43-TR-A Chart 84 green pen, Panel B-7	125 °C MAXIMUM	140 °C MAXIMUM			
TK-43 Steam Pressure					
43-PI-1 3rd North	50 psi MAXIMUM	54 psi MAXIMUM			
Operator's Initials:					
Supervison's Signature					

COMMENTS: _____

_____

_____

1. Reading outside of Operating Range:
   A. Take IMMEDIATE action as follows:
      * Temperature greater than 125 °C - Shut down Product Concentrator.
      * Pressure greater than 50 psi - Shut down Product Concentrator.

   B. Notify supervision immediately. Supervision must take action; see OSR Matrix in front of procedure.

2. If LCO is exceeded, supervision will initate OSR recovery actions per the OSR Matrix and OSR in RHO-CD-1244, Appendix H Section 6.1.2 (Filtrate Evaporator Temperature) and 6.2.1 (Steam Pressure. Immediately contact Duty Manager and Plant Manager. Record start time of the event in the Operation's Shift Log Book.

3. Circle all values outsideof Operating Range in red.

4. Copy this sheet on canary yellow paper for recording data.

Attachment 24 - STANDBY SURVEILLANCE - CHEMICAL PREPRATION DATA SHEET
Page 1 of 1

Report any changes greater than ±1 in manometer, or ±1 in metalstrip/scaleweight reading, or ±1 digital readout to supervision immediately. Return to PNP management at 0700.

	GRAVE	DAYS	SWING	
DATE				COMMENTS
TIME (hr)				
TK-A105 ANN DIGITAL READOUT				
TK-A106 ANN DIGITAL READOUT				
TK-A112 SCALE WT				
TK-A113 MISTRON/ HNO_3 SCALE WT				
TK-A116 $NaNO_2$/ HNO_3 SCALE WT				
TK-A114 TBP/CCl_4 DIGITAL READOUT				
TK-A115 CCl_4 DIGITAL READOUT				
TK-A104 SCALE WT				
TK-A109 HN/HNO_3 SCALE WT				
TK-A102 SCALE WT				
TK-A101 SCALE WT				
TK-A103 50%NaOH MANOMETER				
TK-A108 HNO_3 SCALE WT				
TK-A107 $NaCO_3$ METAL STRIP-L				
TK-A110 HF/HNO_3 METAL STRIP-L				
TK-A117 B-ACID METAL STRIP-L				
OPERATOR INIT				
SUPERVISOR INIT				

NOTE - CIRCLE IN RED ALL OUT OF SPECIFICATIONS OR ABNORMAL READINGS.

Attachment 25 - ONCE-PER-DAY PRF SAFETY/HOUSEKEEPING/CRITICALITY SURVEILLANCE CHECK SHEET

Page 1 of 2

DATE _____ Shift (circle) X Y Z Days Swing Graveyard

Room Areas	Cor 10	Cor 11	Cor 13	Cor 14	Cor 20	Cor 21	Cor 25	Rm 27	Rm 41	Rm 42	Rm 43	Rm 50	Rm 60
Any Fissile pkg? Meet postings OK?													
LLW box label/CIS OK?													
Suspect TRU Waste drum label/CIS OK?													
Supply cabinets neat/stocked?													
Chemicals in cabinet OK?													
If greenhouse, neat? Exhauster OK?													
Combustibles at minimum?													
Operator Initials													
SUPERVISION INITIALS													

COMMENTS

_____

_____

_____

_____

NOTE - CIRCLE IN RED ALL OUT OF SPECIFICATION OR ABNORMAL READING.

Attachment 25 - ONCE-PER-DAY PRF SAFETY/HOUSEKEEPING/CRITICALITY SURVEILLANCE CHECK SHEET (Cont.)

DATE _____ Shift (circle) X Y Z Days Swing Graveyard

Glovebox/ Room	1st W	1st E	2nd W	2nd E	27	MT 1	MT 3	MT 4	MT 5	MT 6	Pulse Hd	Charge Hd	S&C GB	4th Cl	5th Cl	6th Cl
Posting in Place?																
Leaks seen?																
If containers in box, is spacing OK?																
Rags/waste in box OK?																
Solution on Floor? <1 in. Hood bays <1/2 in. MT																
Solids on Floor? <1 in. Hood bays <1/2 in. MT																
Combustibles at minimum?																
Tools off Floor?																
Visiblity OK?																
Gloves all in?																
Accountable items all present?																
DP/Neg OK?																
Operator Initials																
SUPERVISION INITIALS																

COMMENTS

_____

_____

_____

_____

NOTE - CIRCLE IN RED ALL OUT OF SPECIFICATION OR ABNORMAL READING.

Attachment 26 - ONCE-PER-SHIFT PRF SECONDARY GLOVEBOX SURVEILLANCE DATA SHEET
Page 1 of 1

GLOVEBOX ROOM	COMMENTS	DATE TIME(hr)
Posting in place?	YES / NO	
Leaks seen?	YES / NO	
If containers in Lab, is spacing OK?	YES / NO	
Rags/waste in box OK?	YES / NO	
Solution on floor? <1 in. Hood bays <1/2 in. MT	YES / NO	
Solids on floor? <1 in. Hood bays <1/2 in. MT	YES / NO	
Combustibles at minimum?	YES / NO	
Tools off floor?	YES / NO	
Visibility OK?	YES / NO	
Gloves all in?	YES / NO	
OPERATORS INITIALS		
SUPERVISORS INITIALS		

NOTE - CIRCLE IN RED ALL OUT OF SPECIFICATIONS OR ABNORMAL READINGS.

Attachment 27 - PRF PANEL BOARD TEST DATA SHEET
Page 1 of 1

DATE						
TIME OF DAY						
SHIFT	GRAV	DAYS	SWING	GRAV	DAYS	SWING
PANEL A-2 OK (Y/N)						
PANEL A-5 OK (Y/N)						
PANEL B-2 OK (Y/N)						
PANEL B-6 OK (Y/N)						
PANEL B-7 OK (Y/N)						
241-ZA OK (Y/N)						
ROOM 41 HOT PLATE OK (Y/N)						
ROOM 41 SOUTH WALL OK (Y/N)						
ROOM 40 CHEM PREP PANEL OK (Y/N)						
ROOM 44 CHEM PREP PANEL OK (Y/N)						
OPERATOR INITIALS						
SUPERVISION INITIALS						

COMMENTS: _____

Attachment 28 - SAFETY/HOUSEKEEPING/CRITICALITY WXYZ SHIFT SURVEILLANCE SCHEDULE

Page 1 of 1

NOTE - This schedule determines which section each shift will perform. All other surveillances will be performed at the frequency specified within the procedure.

Weekdays Schedule

DAY SHIFT (Plant) - RMC: Rooms - 227, 228A, 228B, 263. CORRIDOR 5 AND 6, 336, 337. Gloveboxes 227T, 227S, HC-[illegible], HC-9P, HC-10, HC-11S, HC-1 (228A AND 228B), HC-12S, HC-13MD, HC-15ABC, HC-16CC.

SWING SHIFT - RMC: Rooms - 232, 166, 228C, 230A and 230B. Gloveboxes HC-17DC, HC-17P, HC-17SBB, HC-18BS, HC-18M, HC-5 (228C), HC-21C, HC-21A, HC-4, HC-6, HA-46.

GRAVEYARD SHIFT - PRF: Corridors 10, 11, 13, 14, 20, 21, 25. Rooms - 27, 41, 43, 42, 50, 60. Gloveboxes - 1st West, 1st East, 2nd West, 2nd East, 27, MT-1, MT-5, MT-6, Pulse Hood, Charging Hood, S&C Hood, 4th Column, 5th Column, 6th Column.

NOTE - Try to coordinate Section 4 surveillances while rooms are accessed (i.e. sump probe vacuum trap checks, vault 174, 175 checks, or 236 air sampler.)

DAY SHIFT W (Trng) - Weekly: - Rooms - 169, 170, 230-C, 235A$_1$, A$_2$, A$_3$, 235-B/C, 174, 175, 236. Gloveboxes HA-40F, HC-45F, HC-60, HC-[illegible], HC-4, HA-28, HA-19, HA-20MB, HA-21I, HA-22, HA-23S, 235B-2 (Repackage Glovebox).

Weekend and Holiday Schedule

During this period Facilities Operations personnel will perform surveillance per ZO-100-030 and will also perform a minimum of once per shift surveillance per ZO-180-600, ZO-180-601 and ZO-190-029.

Attachment 29 - SAFETY/HOUSEKEEPING/CRITICALITY P-Q SHIFT SURVEILLANCE SCHEDULE

Page 1 of 1

NOTE - This schedule should be used during long term shut down. This schedule determines which section each shift will perform. All other surveillances will be performed at the frequency specified within the procedure.

Weekdays Schedule

Date	Shift	Section
January - April	P	1
	Q	2
	DAY	3
May - August	P	2
	Q	1
	DAY	3
September - December	P	1
	Q	2
	DAY	3

Section 1 - RMC: Rooms - 227, 228A, 228B, 263, Corridor 5 and 6, 336, 337. Gloveboxes 227T, 227S, HC-7, HC-9B, HC-10, HC-11S, HC-1 (228A AND 228B), HC-12S, HC-13MD, HC-15ABC, HC-16CC.
PRF: Corridors 10, 11, 13, 14, 20, 21 and 22. Rooms 27, 41, 42, 43, 50 and 60.

Section 2 - RMC: Rooms - 232, 166, 228C, 230A and 23[illegible]. Gloveboxes HC-17DC, HC-17P, HC-17SDB, HC-18BC, HC-18H, HC-5 (228C), HC-21C, HC-21A, HC-4, HC-6, HA-46.
PRF: Gloveboxes - 1st West, 1st East, 2nd West, 2nd East, 27, MT-1, MT-5, MT-6, Pulse Hood, Charging Hood, S&C Hood, 4th, 5th, 6th Floor Column Hoods.

Section 3 - Weekly: - Rooms - 169, 170, 230-C, 235A$_1$, A$_2$, A$_3$, 235-B/C, 174, 175, 236. Gloveboxes HA-40F, HC-46F, HC-60, HC-3, HC-4, HA-28, HA-19, HA-20MB, HA-21I, HA-22, HA-23S, 235B-2 (Repackage Glovebox).

NOTE - Surveillance checks also included in Sections 1 and 2 above; PRF Control Room and 241-Z strip chart tank levels every 4 hours. OSR readings, CHEM PREP tank levels, 2735-Z area (ANN and HNO_3 tanks), 241-Z area, secondary containments, D-9 temperature and the D tank agitators are taken once-per-shift.

WEEKEND AND HOLIDAY SCHEDULES WILL REMAIN THE SAME.

ORIGINAL

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Part 1

ORIGINAL ZO-180-600

ID Number RWH1

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