

**PLUTONIUM FINISHING PLANT
PLUTONIUM RECLAMATION**

TRANSFER WASTE SOLUTIONS TO TK-D5 AND TK-D8

ZO-180-038
Rev/Mod C-0
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1. INTRODUCTION

1.1. Purpose

This procedure provides instructions for transfer of waste solutions to TK-D5 or TK-D8.

1.2. Scope

This procedure provides instructions for transferring high salt waste from tanks TK-19, TK-39, TK-40 and TK-WM-1 to either TK-D5 or TK-D8.

1.3. Applicability

High salt waste solutions are produced by the PRF process. TK-19, TK-39, TK-40 and TK-WM-1 contain a large portion of this waste. These tanks are first sampled and then transferred to either TK-D5 or TK-D8. Waste is then pumped to Tank Farms via TK-D5 for disposal.

These 241-Z waste receiver tanks have a 90 day waste accumulation limit. The regulation (WAC 173-303-200) requires that solutions be treated and transferred to tank farms within 90 days.

2. PRECAUTION AND LIMITATIONS

2.1. Criticality

All transfers to TK-D5 shall be approved by supervision.

Pu concentration of solution in TK-D5 or TK-D8 shall not exceed 0.05 g/gal or 0.0132 g/L.

Maximum concentration of Pu in TK-19, TK-39, TK-40 and TK-WM1 shall not exceed 7.0 g/L. Operating limits require that concentration not exceed 1 g/L.

Total amount of Pu which has passed through individual tank TK-D5 or TK-D8 shall not exceed 400 g between NDAs.

No multiple phases or solids shall be visible in solution.

Transfer shall not cause TK-D5 or TK-D8 contents to exceed 55 WF divisions.

Transfer shall not cause TK-D5 or TK-D8 contents to exceed the CPS limit of 400 g Pu.

Liquid spills shall be cleaned up to less than 1 in. within 24 hrs.

Maximum depth of any solid and solution accumulations in hood bays, shall not exceed 1 in.

2. PRECAUTION AND LIMITATIONS (Cont.)

2.2. Warning

Leather gloves shall be worn when positioning tank selection valve to prevent puncture wounds.

2.3. Caution

PRF waste and RMC waste shall not be blended in TK-D8. Blending of PRF and RMC waste may cause severe damage to the tank.

3. PREREQUISITE ACTION

Sample results of the transfer tank have been received from Analytical Laboratory. A transfer record for non-geometrically favorable vessels, TK-D5 RECEIVING AND TRANSFER DATA SHEET, has been completed and signed by supervision.

If TK-D5 is the receiver tank, verify that TK-D5 has received caustic per ZO-101-013 before continuing with TK-19, TK-39, TK-40, or TK-WM-1 to TK-D5 transfer.

4. TOOLS, EQUIPMENT AND MATERIAL

4.1. References

Radiation Work Requirements and Permits Manual, WHC-CM-4-15, Vol. 2
Radiation Protection Manual, WHC-CM-4-10
Radiation Work Permit, Z-7
Criticality Prevention Specifications CPS-Z-165-80701, -80708 and -80741

4.1.1. Referenced Documents

ZO-101-013, PERFORM REVERSE STRIKE IN TK-D5
ZO-101-020, TRANSFER TK-D8 CONTENTS TO TK-D5
ZO-180-022, TRANSFER SOLUTIONS FROM TK-10, TK-12 AND TK-15
ZO-180-200, SAMPLE

4.1.2. Records

VALVE VERIFICATION CHECKSHEET
DIVERTER VALVE VERIFICATION CHECKSHEET

4.2. Tools

Leather Gloves
PRF LOG SHEET
PRF SAMPLE SCHEDULE
PRF SAMPLE LOG
TK-D8 90-DAY ACCUMULATION DATA SHEET
TK-D5 RECEIVING AND TRANSFER DATA SHEET
TK-D8 RECEIVING AND TRANSFER DATA SHEET
TK-D5/TK-D8 PLUTONIUM THROUGHPUT DATA SHEET

5. PERFORMANCE

5.1. Transfer Waste Solutions To TK-D5 And TK-D8

A. Transfer Solution From TK-19 To TK-D5 Or TK-D8

1. IF TK-D5 is the receiver tank, verify that TK-D5 has received caustic per ZO-101-013 before continuing with TK-19 to TK-D5 transfer.
2. VALVE VERIFICATION CHECKSHEET shall be completed for each transfer.

Sample Transfer Tank

3. IF transfer Tank TK-19 has been sampled and supervision has approved transfer, GO TO Step 5. IF NOT, CONTINUE.

NOTE

Anytime TK-19 is transferred to 241-Z, two samples are required.

4. Sample transfer Tank TK-19 per ZO-180-200. Request analyses specified on PRF SAMPLE SCHEDULE.
5. Wait for sample results and record results in PRF SAMPLE LOG.

CRITICALITY

Transfer shall not cause TK-D5 or TK-D8 contents to exceed the CPS limit of 400 g Pu throughput.

6. Request supervision to specify receiving tank.

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A. Transfer Solution From TK-19 To TK-D5 Or TK-D8 (Cont.)

NOTE

Either TK-D5 RECEIVING AND TRANSFER DATA SHEET or TK-D8 RECEIVING AND TRANSFER DATA SHEET will be used.

The TK-D5 and TK-D8 RECEIVING AND TRANSFER DATA SHEETS can be found in ZO-101-020.

7. Fill out the appropriate DATA SHEET.

- a. Record the following:
 - Date
 - Source Tank
 - Sample Number
 - Transfer Number
- b. From sample results, record the following:
 - SpG
 - Organic
 - Pu (g/L)
 - Am (g/L)
 - H+
 - Solids

NOTE

The information in Steps 8-13 is not to be entered on the RECEIVING AND TRANSFER DATA SHEET.

8. Estimate volume to be transferred.
9. Estimate amount of Pu to be transferred by multiplying estimated volume, times g/L of Pu found on sample results (volume (L) X g/L Pu = grams of Pu.).
10. Add estimated amount of Pu from Step 9 to total amount of Pu currently in receiving tank. Total Pu content can be found in the 241-Z THROUGHPUT LOGBOOK (supervision will provide location).
11. IF the estimated values of Pu exceed 400 g, notify supervision.

A. Transfer Solution From TK-19 To TK-D5 Or TK-D8 (Cont.)

CRITICALITY

Total amount of Pu that has passed through individual tank TK-D5 or TK-D8 shall not exceed 400 g between NDAs.

NOTE

The TK-D5/TK-D8 PLUTONIUM THROUGHPUT DATA SHEET can be found in ZO-101-020.

12. Add value calculated in Step 10 to current total on appropriate THROUGHPUT DATA SHEET. IF value calculated in Step 10 exceeds 300 g. notify supervision to schedule NDA.

NOTE

TK-D8 90-DAY ACCUMULATION DATA SHEET can be found in ZO-101-020.

13. IF starting new batch, in TK-D8, record date on TK-D8 90-DAY ACCUMULATION DATA SHEET.

Start Transfer

14. IF PRF is operating, verify selector switch 32-SS-W (B-4) is not in position 4-CAW to TK-19.
15. Check D5/D8 WF gage, panel B-4:
 - a. For receiving tank TK-D5, IF WF is greater than 10, THEN check panel B-2 annunciator to ensure agitator is ON. IF agitator is not ON, send operator to 241-Z to turn ON, THEN continue.
 - b. For receiving tank TK-D8, IF WF is greater than 10, notify surveillance operator and ensure agitator was observed ON during most recent surveillance rounds. IF agitator was not ON, send operator to 241-Z to turn ON, THEN continue.

A. Transfer Solution From TK-19 To TK-D5 Or TK-D8 (Cont.)

WARNING

Leather gloves shall be worn while positioning tank diverter valve to prevent puncture wounds.

NOTE

Tank selection valve is located on the far south wall of Tunnel 3 in 234-5Z basement.

A sign is located on the wall for reference in positioning valve.

16. Check D-5/D-8 DIVERTER VALVE VERIFICATION CHECKSHEET to ensure that D-5/D-8 diverter valve is in the proper position for transfer. IF valve is not in the correct position, reposition D-5/D-8 diverter valve and record new position on checksheet.

17. Position valves on 1st floor as follows:

VALVE	POSITION	FUNCTION	LOCATION
274	CLOSE	TK-19 Drain	WJ-1
276	CLOSE	TK-19 Sampler	WJ-1
275	OPEN	TK-19 Block Valve	WJ-1
378	OPEN	Isolation Drain Valve to TKs-D5/D8	WW-1

18. Set selector switch 19-SS-J (A-7) to Position 2, RECIRCULATION.

19. Observe reading on Chart 42, TK-19 WF stripchart.

NOTE

Keys to unlock the EMV switches can be obtained from supervision and must be returned.

20. Obtain key for switch 19-SS-A (A-7) from supervision.

A. Transfer Solution From TK-19 To TK-D5 Or TK-D8 (Cont.)

NOTE

IF key switch 19-SS-A (A-7) is in the OFF position, the green light should be on. IF the switch is in the ON position, the red light should be on.

21. Set panelboard controls as follows:

EMV/MOP/DOV	CONTROLLER/ KEY SWITCH	SETTING (KEY LOCK)	PANEL NO.
EMV-WM-1A	EMV-WM1A	OFF	A-1
EMV-39-G	39-SS-G	OFF	B-1
EMV-40-J	40-SS-J	OFF	B-6
EMV-19-A	19-SS-A	ON	A-7

22. Set pump switch 19-SS-D (A-7) to START.
23. Monitor TK-19 (Chart 42) and TK-D5/TK-D8 WF gages, panel B-4, during transfer. IF no change in charts occurs OR IF no solution is transferred, perform end transfer activity. Control Room operator will check operability of charts and monitor other charts for deviations. Floor operators will check for proper valving and leaks. Notify supervision of findings and action taken.
24. WHEN receiving tank is full or contains required solution volume, End Transfer activity should be performed.

CRITICALITY

Liquid spills shall be cleaned up to less than 1 in. within 24 hrs.

25. Floor operators will monitor hood bays and piping during transfer. IF a leak is observed, notify Control Room operator of location and severity of leak.

End Transfer

26. WHEN TK-19 WF (Chart 42) reading is zero (or as specified by supervision), set pump switch 19-SS-D (A-7) to STOP.
27. Turn switch 19-SS-A (A-7) to OFF. Verify that green light is on. IF not, notify supervision.

A. Transfer Solution From TK-19 To TK-D5 Or TK-D8 (Cont.)

28. Return key to supervision.
29. Close valves 275 (WJ-1) and 378 (WW-1). Initial CHECKSHEET.
30. Record volume of solution transferred in Column B on appropriate RECEIVING AND TRANSFER DATA SHEET.
31. Calculate and record the following:
 - SpG times volume in column AxB
 - Volume times C Pu (g/L) in column BxC Pu (g)
 - Volume times D Am (g/L) in column BxD Am (g).
32. Add amounts of Pu(g) and Am(g) to Running Total Columns. IF Pu running total exceeds 400 g, notify supervision.

B. Transfer Solution From TK-39 To TK-D5 Or TK-D8

1. IF TK-D5 is the receiver tank, verify that TK-D5 has received caustic per ZO-101-013 before continuing with TK-39 to TK-D5 transfer.
2. VALVE VERIFICATION CHECKSHEET shall be completed for each transfer.

Sample Transfer Tank

3. IF transfer Tank TK-39 has been sampled and supervision has approved transfer, GO TO Step 5. IF NOT, CONTINUE.

NOTE

Anytime CAW is transferred to 241-Z, two samples are required.

4. Sample transfer Tank TK-39 per ZO-180-200. Request analyses specified on PRF SAMPLE SCHEDULE.
5. Wait for sample results and record results in PRF SAMPLE LOG.

CRITICALITY

Transfer shall not cause TK-D5 or TK-D8 contents to exceed the CPS limit of 400 g Pu throughput.

6. Request supervision to specify receiving tank.

B. Transfer Solution From TK-39 To TK-D5 To TK-D8 (Cont.)

NOTE

Either TK-D5 RECEIVING AND TRANSFER DATA SHEET or TK-D8 RECEIVING AND TRANSFER DATA SHEET will be used.

The TK-D5 and TK-D8 RECEIVING AND TRANSFER DATA SHEETS can be found in ZO-101-020.

7. Fill out the appropriate DATA SHEET.
 - a. Record the following:
 - Date
 - Source Tank
 - Sample Number
 - Transfer Number
 - b. From sample results, record the following:
 - SpG
 - Organic
 - Pu (g/L)
 - Am (g/L)
 - H+
 - Solids

NOTE

The information in Steps 8-13 is not to be entered on the RECEIVING AND TRANSFER DATA SHEET.

8. Estimate volume to be transferred.

CAUTION

Transfer of solution from TK-39 to TK-D5 or TK-D8 is not permitted for estimated TK-39 volume of less than 1.5 L or between 55 and 63 L.

9. Estimate amount of Pu to be transferred by multiplying estimated volume, times g/L of Pu found on sample results (volume (L) X g/L Pu = grams of Pu).
10. Add estimated amount of Pu from Step 9 to total amount of Pu currently in receiving tank. Total Pu content can be found in the 241-Z THROUGHPUT LOGBOOK.

B. Transfer Solution From TK-39 To TK-D5 Or TK-D8 (Cont.)

11. IF the estimated values of Pu exceed 400 g, notify supervision. Do NOT continue if over 400 g Pu.

CRITICALITY

Total amount of Pu that has passed through individual tank TK-D5 or TK-D8 shall not exceed 400 g between NDAs.

NOTE

The TK-D5/TK-D8 PLUTONIUM THROUGHPUT DATA SHEET can be found in ZO-101-020.

12. Add value calculated in Step 10 to current total on appropriate THROUGHPUT DATA SHEET. IF value calculated in Step 9 exceeds 300 g, notify supervision to schedule NDA.

NOTE

TK-D8 90-DAY ACCUMULATION DATA SHEET can be found in ZO-101-020.

13. IF starting new batch, in TK-D8, record date on TK-D8 90-DAY ACCUMULATION DATA SHEET.

Start Transfer

14. IF PRF is operating, verify selector switch 32-SS-W (B-4) is not in Position 3-CAW to TK-39.
15. Check D5/D8 WF gage, panel B-4.
- For receiving tank TK-D5, IF WF is greater than 10, THEN check panel B-2 annunciator to ensure agitator is ON. IF agitator is not ON, send operator to 241-Z to turn ON, THEN continue.
 - For receiving tank TK-D8, IF WF is greater than 10, notify surveillance operator and ensure agitator was observed ON during most recent surveillance rounds. IF agitator was not ON, send operator to 241-Z to turn ON, THEN continue.

B. Transfer Solution From TK-39 To TK-D5 Or TK-D8 (Cont.)

WARNING

Leather gloves shall be worn while positioning tank diverter valve to prevent puncture wounds.

NOTE

Tank diverter valve is located on the far south wall of Tunnel 3 in 234-5Z basement.

A sign is located on the wall for reference in positioning valve.

16. Check D-5/D-8 DIVERTER VALVE VERIFICATION CHECKSHEET to ensure that D-5/D-8 diverter valve is in proper position for transfer. IF valve is not in correct position, reposition D-5/D-8 diverter valve and record new position on checksheet
17. Position valves on 1st floor as follows:

VALVE	POSITION	FUNCTION	LOCATION
289	CLOSE	TK-41 Filter to TK-39	WK-1
290	CLOSE	TK-39 Drain	WL-1
292	CLOSE	TK-39 Sampler	WL-1
489	CLOSE	TK-39 to TK-40	WL-3
493	CLOSE	C4 to TK-39	WL-3
291	OPEN	TK-39 Block Valve	WL-1
371	OPEN	Isolation Drain Valve to TKs-D5/D8	WW-1

NOTE

Keys to unlock the EMV switches can be obtained from supervision and must be returned.

18. Obtain key for switch 39-SS-G (B-1) from supervision.

NOTE

IF key switch 39-SS-G (B-1) is in the OFF position, the green light should be on. IF the switch is in the ON position, the red light should be on.

B. Transfer Solution From TK-39 To TK-D5 Or TK-D8 (Cont.)

19. Set panelboard controls as follows:

EMV/MOP/DOV	CONTROLLER/ KEY SWITCH	SETTING (KEY LOCK)	PANEL NO.
EMV-WM-1A	EMV-WM1A	CLOSE	A-1
EMV-19-A	19-SS-A	OFF	A-7
EMV-40-J	40-SS-J	OFF	B-6
EMV-39-G	39-SS-G	ON	B-1

20. Monitor TK-39 WF (Chart 44) and TK-D5/TK-D8 WF gages, panel B-4, during transfer. IF no change in chart occurs OR IF no solution is transferred, perform end transfer activity. Control Room operator will check for operability of charts and monitor other charts for deviations. Floor operators will check for proper valving and leaks. Notify supervision of findings and actions taken.

21. WHEN receiving tank is full or contains required solution volume, End Transfer activity should be performed.

CRITICALITY

Liquid spills shall be cleaned to less than 1 in. up within 24 hrs.

22. Floor operators will monitor hood bays and piping during transfer. IF a leak is observed, notify Control Room operator of location and severity of leak.

End Transfer

23. WHEN TK-39 WF (Chart 44) reading is zero (or as specified by supervision), set panel board control 39-SS-G (B-1) to OFF.

24. Verify that green light is on. IF not, notify supervision.

25. Return key to supervision.

26. Close manual valves 291 (WL-1) and 378 (WW-1). Initial CHECKSHEET.

27. Record volume of solution transferred in Column B on appropriate RECEIVING AND TRANSFER DATA SHEET.

B. Transfer Solution From TK-39 To TK-D5 Or TK-D8 (Cont.)

28. Calculate and record the following:
- SpG times volume in column AxB
 - Volume times C Pu (g/L) in column BxC Pu(g)
 - Volume times D Am (g/L) in column BxD Am(g)
29. Add amounts of Pu(g) and Am(g) to Running Total Columns.
IF Pu(g) running total exceeds 400 g, notify supervision.

C. Transfer Solution From TK-40 To TK-D5 Or TK-D8

1. IF TK-D5 is the receiver tank, verify that TK-D5 has received caustic per ZO-101-013 before continuing with TK-40 to TK-D5 transfer.
2. VALVE VERIFICATION CHECKSHEET shall be completed for each transfer.

Sample Transfer Tank

3. IF transfer Tank (TK-40) has been sampled and supervision has approved transfer, GO TO Step 5. IF NOT, CONTINUE.

NOTE

Anytime TK-40 is transferred to 241-Z, two samples are required.

4. Sample transfer tank (TK-40) per ZO-180-200. Request analyses specified on PRF SAMPLE SCHEDULE.
5. Wait for sample results and record results in PRF SAMPLE LOG.

CRITICALITY

Transfer shall not cause TK-D5 or TK-D8 contents to exceed the CPS limit of 400 g Pu throughput.

6. Request supervision to specify receiving tank.

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C. Transfer Solution From TK-40 To TK-D5 Or TK-D8 (Cont.)

NOTE

Either TK-D5 RECEIVING AND TRANSFER DATA SHEET or TK-D8 RECEIVING AND TRANSFER DATA SHEET will be used.

The TK-D5 and TK-D8 RECEIVING AND TRANSFER DATA SHEETS can be found in ZO-101-020.

7. Fill out the appropriate DATA SHEET.

- a. Record the following:
 - Date
 - Source Tank
 - Sample Number
 - Transfer Number
- b. From sample results, record the following:
 - SpG
 - Organic
 - Pu (g/L)
 - Am (g/L)
 - H+
 - Solids

NOTE

The information in Steps 8-13 is not to be entered on the RECEIVING AND TRANSFER DATA SHEET.

8. Estimate volume to be transferred.
9. Estimate amount of Pu to be transferred by multiplying estimated volume times g/L of Pu found on sample results (volume (L) X g/L pu = grams of Pu).
10. Add estimated amount of Pu from Step 9 to total amount of Pu currently in receiving tank. Total Pu content can be found in the 241-Z THROUGHPUT LOGBOOK.
11. IF the estimated values of Pu exceed 400 g, notify supervision. Do NOT continue if over 400g Pu.

C. Transfer Solution From TK-40 To TK-D5 Or TK-D8 (Cont.)

CRITICALITY

Total amount of Pu that has passed through individual tank TK-D5 or TK-D8 shall not exceed 400 g between NDAs.

NOTE

The TK-D5/TK-D8 PLUTONIUM THROUGHPUT DATA SHEET can be found in Z0-101-020.

12. Add value calculated in Step 10 to current total on appropriate THROUGHPUT DATA SHEET. IF value exceeds 300 g, notify supervision to schedule NDA.

NOTE

TK-D8 90-DAY ACCUMULATION DATA SHEET can be found in Z0-101-020.

13. IF starting new batch, in TK-D8, record date on TK-D8 90-DAY ACCUMULATION DATA SHEET.

Start Transfer

14. Check D5/D8 WF gage, panel B-4.
- For receiving tank TK-D5, IF WF is greater than 10, THEN check panel B-2 annunciator to ensure agitator is ON. IF agitator is not ON, send operator to 241-Z to turn ON, THEN continue.
 - For receiving tank TK-D8, IF WF is greater than 10, notify surveillance operator and ensure agitator was observed ON during most recent surveillance rounds. IF agitator was not ON, send operator to 241-Z to turn ON, THEN continue.

C. Transfer Solution From TK-40 To TK-D5 Or TK-D8 (Cont.)

WARNING

Leather gloves shall be worn while positioning tank diverter valve to prevent puncture wounds.

NOTE

Tank diverter valve is located on the far south wall of Tunnel 3 in 234-5Z basement.

A sign is located on the wall for reference in positioning valve.

15. Check D-5/D-8 DIVERTER VALVE VERIFICATION CHECKSHEET to ensure that D-5/D-8 diverter valve is in the proper position for transfer. IF valve is not in the correct position, reposition D-5/D-8 diverter valve and record new position on checksheet.

16. Position valves on 1st floor as follows:

VALVE	POSITION	FUNCTION	LOCATION
319	CLOSE	TK-40 Drain	WP-1
321	CLOSE	TK-40 Sampler	WP-1
322	CLOSE	TK-69 Drain to TK-40	WF-1
329	CLOSE	TK-39 to TK-40	WF-2
336	CLOSE	TK-29 to TK-40	WR-1
361	CLOSE	CAS to Vacuum Header	WT-1
523	CLOSE	CXP, TK-70 to TK-40	WP-4
320	OPEN	TK-40 Block Valve	WP-1
378	OPEN	Isolation Drain Valve to TKs-D5/D8	WW-1

NOTE

Keys to unlock the EMV switches can be obtained from supervision and must be returned.

17. IF key is required, obtain key from supervision.

NOTE

IF key switch 40-SS-J (B-6) is in the OFF position, the green light should be on. IF the switch is in the ON position, the red light should be on.

C. Transfer Solution From TK-40 To TK-D5 Or TK-D8 (Cont.)

18. Set panelboard controls as follows:

EMV/MOP/DOV	CONTROLLER/ KEY SWITCH	SETTING (KEY LOCK)	PANEL NO.
EMV-WM-1A	EMV-WM1A	CLOSE	A-1
EMV-19-A	19-SS-A	OFF	A-7
EMV-39-G	39-SS-G	OFF	B-1
EMV-40-J	40-SS-J	ON	B-6

19. Monitor TK-40 WF (Chart 80) and TK-D5/TK-D8 WF gages, panel B-4, during transfer. IF no change in charts occurs OR IF no solution is transferred, perform end transfer activity. Control Room operator will check operability or charts and monitor other charts for deviations. Floor operators will check for proper valving and leaks. Notify supervision of findings and actions taken.

20. WHEN receiving tank is full or contains required solution volume, End Transfer activity should be performed.

<p>CRITICALITY</p> <p>Liquid spills shall be cleaned up to less than 1 in. within 24 hr.</p>
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21. Floor operators will monitor hood bays and piping during transfer. IF a leak is observed, notify Control Room operator of location and severity of leak.

End Transfer

22. WHEN TK-40 WF (Chart 80) reading is zero (or as specified by supervision), set panel board control 40-SS-J (B-6) to OFF.

23. Verify that green light is on. IF not, notify supervision.

24. Return key to supervision.

25. Close manual valves 320 (WP-1) and 378 (WW-1). Initial CHECKSHEET.

26. Record volume of solution transferred in Column B on appropriate RECEIVING AND TRANSFER DATA SHEET.

C. Transfer Solution From TK-40 To TK-D5 Or TK-D8 (Cont.)

27. Calculate and record the following:
- SpG times volume in column AxB
 - Volume times C Pu (g/L) in column BxC Pu(g)
 - Volume times D Am (g/L) in column BxD Am(g)
28. Add amount of Pu(g) and AM(g) to Running Total Column. IF running total exceeds 400 g, notify supervision.

D. Transfer Solution From TK-WM-1 To TK-D5 Or TK-D8

1. IF TK-D5 is the receiver tank, verify that TK-D5 has received caustic per Z0-101-013 before continuing with TK-WM-1 to TK-D5 transfer.
2. VALVE VERIFICATION CHECKSHEET shall be completed for each transfer.

Sample Transfer Tank

3. IF transfer Tank (TK-WM-1) has been sampled and supervision has approved transfer, GO TO Step 5. IF not, continue.
4. Sample transfer Tank (TK-WM-1) per Z0-180-200. Request analyses specified on PRF SAMPLE SCHEDULE.

NOTE

Anytime TK-WM-1 is transferred to 241-Z, two samples are required.

5. Wait for sample results and record results in PRF SAMPLE LOG.

CRITICALITY

Transfer shall not cause TK-D5 or TK-D8 contents to exceed the CPS limit of 400 g Pu throughput.

6. Request supervision to specify receiving tank.

D. Transfer Solution From TK-WM-1 To TK-D5 Or TK-D8 (Cont.)

NOTE

Either TK-D5 RECEIVING AND TRANSFER DATA SHEET or TK-D8 RECEIVING AND TRANSFER DATA SHEET will be used.

The TK-D5 and TK-D8 RECEIVING AND TRANSFER DATA SHEETS can be found in 70-101-020.

7. Fill out the appropriate DATA SHEET.

- a. Record the following:
 - Date
 - Source Tank
 - Sample Number
 - Transfer Number
- b. From sample results, record the following:
 - SpG
 - Organic
 - Pu (g/L)
 - Am (g/L)
 - H+
 - Solids

NOTE

The information in Steps 8-13 is not to be entered on the RECEIVING AND TRANSFER DATA SHEET.

8. Estimate volume to be transferred.
9. Estimate amount of Pu to be transferred by multiplying estimated volume, times g/L of Pu found on sample results (volume (L) x g/L = grams of Pu).
10. Add estimated amount of Pu from Step 9 to total amount of Pu currently in receiving tank. Total Pu content can be found in the 241-Z THROUGHPUT LOGBOOK.

D. Transfer Solution From TK-WM-1 To TK-D5 Or TK-D8 (Cont.)

11. IF the estimated values of Pu exceed 400 g, notify supervision. Do NOT continue if over 400g Pu.

CRITICALITY

Total amount of Pu that has passed through individual tank TK-D5 or TK-D8 shall not exceed 400 g between NDAs.

NOTE

The TK-D5/TK-D8 PLUTONIUM THROUGHPUT DATA SHEET can be found in ZO-101-020.

12. Add value calculated in Step 10 to current total on appropriate THROUGHPUT DATA SHEET. IF value calculated in Step 10 exceeds 300 g, notify supervision to schedule NDA.

NOTE

TK-D8 90-DAY ACCUMULATION DATA SHEET can be found in ZO-101-020.

13. IF starting new batch, in TK-D8, record date on TK-D8 90-DAY ACCUMULATION DATA SHEET.

Start Transfer

14. IF PRF is operating, verify selector switch 32-SS-W is not in Position 5-CAW to TK-WM-1.
15. Check D5/D8 WF gage, panel B-4.
- For receiving tank TK-D5, IF WF is greater than 10, THEN check panel B-2 annunciator to ensure agitator is ON. IF agitator is not ON, send operator to 241-Z to turn ON, THEN continue.
 - For receiving tank TK-D8, IF WF is greater than 10, notify surveillance operator and ensure agitator was observed ON during most recent surveillance rounds. IF agitator was not ON, send operator to 241-Z to turn ON, THEN continue.

D. Transfer Solution From TK-WM-1 To TK-D5 Or TK-D8 (Cont.)

WARNING

Leather gloves shall be worn while positioning tank diverter valve to prevent puncture wounds.

NOTE

Tank diverter valve is located on the far south wall of Tunnel 3 in 234-5Z basement.

A sign is located on the wall for reference in positioning valve.

16. Check D-5/D-8 DIVERTER VALVE VERIFICATION CHECKSHEET to ensure that D-5/D-8 diverter valve is in the proper position for transfer. IF valve is not in the correct position, reposition D-5/D-8 diverter valve and record position on verification checksheet.

17. Position 1st Floor valves as follows:

VALVE	POSITION	FUNCTION	LOCATION
249	CLOSE	WM-1 Drain	1st Fl (WE-1)
251	CLOSE	WM-1 Sampler	1st Fl (WE-1)
250	OPEN	WM-1 Block Valve	1st Fl (WE-1)
252	OPEN	WM-1 to TK-D5	1st Fl (WE-1)
378	OPEN	Isolation Drain Valve to TKs-D5/D8	1st Fl (WW-1)

NOTE

Keys to unlock the EMV switches can be obtained from supervision and must be returned.

18. Obtain key for switch EMV-WM-1A (A-1) from supervision.

NOTE

IF key switch EMV-WM-1A (A-1) is in the OFF position, the green light should be on. IF the switch is in the ON position, the red light should be on.

D. Transfer Solution From TK-WM-1 To TK-D5 Or TK-D8 (Cont.)

19. Set panel board controls as follows:

EMV/MOP/DOV	CONTROLLER/ KEY SWITCH	SETTING (KEY LOCK)	PANEL NO.
EMV-19-A	19-SS-A	OFF	A-7
EMV-39-G	39-SS-G	OFF	B-1
EMV-40-J	40-SS-J	OFF	B-6
EMV-WM-1A	EMV-WM-1A	OPEN	A-1

20. Set the WM1-SS-A pump switch (A-1) to START.
21. Monitor TK-WM-1 WF (Chart 1) and TK-D5/TK8 WF gages, panel B-4, during transfer. IF change in charts occurs OR IF no solution is transferred, perform end transfer activity. Control Room operator will check operability of charts and monitor other charts for deviations. Floor operators will check for proper valving and leaks. Notify supervision of findings and actions taken.
22. WHEN receiving tank is full or contains required solution volume, End Transfer activity should be performed.

CRITICALITY

Liquid spills shall be cleaned up to less than 1 in. within 24 hr.

23. Floor operators will monitor hood bays and piping during transfer. IF a leak is observed, notify Control Room operator of location and severity of leak.

End Transfer

24. WHEN TK-WM-1 WF (Chart 1) reading is zero (or as specified by supervision), or receiving tank is full, set WM1-SS-A pump switch (A-1) to STOP.
25. Turn EMV-WM1A (A-1) to CLOSE. Observe that green light is on. IF NOT, notify supervision.
26. Return key to supervision.

D. Transfer Solution From TK-WM-1 To TK-D5 Or TK-D8 (Cont.)

27. Close the following valves and initial CHECKSHEET.

VALVE	POSITION	FUNCTION	LOCATION
250	CLOSE	WM-1 Block Valve	1st Fl (WE-1)
252	CLOSE	WM1 to TK-D5	1st Fl (WE-1)
378	CLOSE	Isolation Drain Valve to TKs-D5/D8	1st Fl (WW-1)

28. Record volume of solution transferred in Column B on appropriate RECEIVING AND TRANSFER DATA SHEET.

29. Calculate and record the following:

- SpG times volume in column AxB
- Volume times C Pu (g/L) in column BxC Pu(g)
- Volume times D Am (g/L) in column BxD Am(g)

30. Add amounts of Pu(g) and Am(g) to Running Total Columns. If Pu running total exceeds 400 g, notify supervision.

Attachment 1 - VALVE VERIFICATION CHECKSHEET
Page 1 of 2

Supervision Review _____

Time Started _____ Date _____
Time Completed _____ Shift _____

STEP	VALVE POSITION	FUNCTION	LOCATION	INITIALS		
				POSITIONER	VERIFIER	
TK-19 TO TK-D5/TK-D8						
A.17.	274	CLOSE	TK-19 Drain	1st F1 WJ-1	_____	_____
	276	CLOSE	TK-19 Sampler	1st F1 WJ-1	_____	_____
	275	OPEN	TK-19 Block Valve	1st F1 WJ-1	_____	_____
	378	OPEN	Isolation Drain to TK-D5/D8	1st F1 WW-1	_____	_____
A.29.	275	CLOSE	TK-19 Block Valve	1st F1 WJ-1	_____	_____
	378	CLOSE	Isolation Drain to TK-D5/D8	1st F1 WW-1	_____	_____
TK-39 TO TK-D5/TK-D8						
B.17.	289	CLOSE	TK-41 Filter to TK-39	1st F1 WK-1	_____	_____
	290	CLOSE	TK-39 Drain	1st F1 WL-1	_____	_____
	292	CLOSE	TK-39 Sampler	1st F1 WL-1	_____	_____
	489	CLOSE	TK-39 to TK-40	2nd F1 WL-3	_____	_____
	493	CLOSE	C44 to TK-39	2nd F1 WL-3	_____	_____
	291	OPEN	TK-39 Block Valve	1st F1 WL-1	_____	_____
378	OPEN	Isolation Drain to TK-D5/D8	1st F1 WW-1	_____	_____	
B.26.	291	CLOSE	TK-39 Block Valve	1st F1 WL-1	_____	_____
	378	CLOSE	Isolation Drain to TK-D5/D8	1st F1 WW-1	_____	_____

Attachment 1 - VALVE VERIFICATION CHECKSHEET
Page 2 of 2

Supervision Review _____

Time Started _____
Time Completed _____

Date _____
Shift _____

STEP	VALVE POSITION	FUNCTION	LOCATION	INITIALS	
				POSITIONER	VERIFIER
TK-40 TO TK-D5/TK-D8					
C.16.	319	CLOSE	TK-40 Drain	1st F1 WP-1	_____
	321	CLOSE	TK-40 Sampler	1st F1 WP-1	_____
	322	CLOSE	TK-69 Drain to TK-40	1st F1 WP-1	_____
	329	CLOSE	TK-39 to TK-40	1st F1 WP-2	_____
	336	CLOSE	TK-29 to TK-40	1st F1 WR-1	_____
	361	CLOSE	CAS to Vacuum Header	1st F1 WT-1	_____
	523	CLOSE	CXP, TK-70 to TK-40	2nd F1 WP-4	_____
	320	OPEN	TK-40 Block Valve	1st F1 WP-1	_____
	378	OPEN	Isolation Drain to TK-D5/D8	1st F1 WW-1	_____
C.25.	320	CLOSE	TK-40 Block Valve	1st F1 WP-1	_____
	378	CLOSE	Isolation Drain to TK-D5/D8	1st F1 WW-1	_____
TK-WM-1 TO TK-D5/TK-D8					
D.17.	249	CLOSE	WM1 Drain	1st F1 WE-1	_____
	251	CLOSE	WM1 Sampler	1st F1 WE-1	_____
	250	OPEN	WM1 Block Valve	1st F1 WE-1	_____
	252	OPEN	WM1 to TK-D5	1st F1 WE-1	_____
	378	OPEN	Isolation Drain to TK-D5/D8	1st F1 WW-1	_____
D.27.	250	CLOSE	WM1 Block Valve	1st F1 WE-1	_____
	252	CLOSE	WM1 TO TK-D5	1st F1 WE-1	_____
	378	CLOSE	Isolation Drain to TK-D5/D8	1st F1 WW-1	_____

Attachment - 2 DIVERTER VALVE VERIFICATION CHECKSHEET
Page 1 of 1

DESTINATION TANK	VALVE HANDLE POSITION
D-5	Vertical
D-8	Horizontal

TANK*	POSITION*	DATE	TIME	POSITIONER	VERIFIER
D-5 / D-8	VERTICAL / HORIZONTAL	_____	_____	_____	_____
D-5 / D-8	VERTICAL / HORIZONTAL	_____	_____	_____	_____
D-5 / D-8	VERTICAL / HORIZONTAL	_____	_____	_____	_____
D-5 / D-8	VERTICAL / HORIZONTAL	_____	_____	_____	_____
D-5 / D-8	VERTICAL / HORIZONTAL	_____	_____	_____	_____
D-5 / D-8	VERTICAL / HORIZONTAL	_____	_____	_____	_____
D-5 / D-8	VERTICAL / HORIZONTAL	_____	_____	_____	_____
D-5 / D-8	VERTICAL / HORIZONTAL	_____	_____	_____	_____
D-5 / D-8	VERTICAL / HORIZONTAL	_____	_____	_____	_____
D-5 / D-8	VERTICAL / HORIZONTAL	_____	_____	_____	_____
D-5 / D-8	VERTICAL / HORIZONTAL	_____	_____	_____	_____
D-5 / D-8	VERTICAL / HORIZONTAL	_____	_____	_____	_____
D-5 / D-8	VERTICAL / HORIZONTAL	_____	_____	_____	_____
D-5 / D-8	VERTICAL / HORIZONTAL	_____	_____	_____	_____
D-5 / D-8	VERTICAL / HORIZONTAL	_____	_____	_____	_____
D-5 / D-8	VERTICAL / HORIZONTAL	_____	_____	_____	_____
D-5 / D-8	VERTICAL / HORIZONTAL	_____	_____	_____	_____
D-5 / D-8	VERTICAL / HORIZONTAL	_____	_____	_____	_____
D-5 / D-8	VERTICAL / HORIZONTAL	_____	_____	_____	_____
D-5 / D-8	VERTICAL / HORIZONTAL	_____	_____	_____	_____
D-5 / D-8	VERTICAL / HORIZONTAL	_____	_____	_____	_____

* For TANK and POSITION, circle the correct choice that indicates the Destination Tank and Valve Handle Position AFTER the valve has been repositioned.

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