



Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

DEC 20 2006

07-AMCP-0062

Ms. Jane A. Hedges, Program Manager
Nuclear Waste Program
State of Washington
Department of Ecology
3100 Port of Benton
Richland, Washington 99354

Dear Ms. Hedges:

CLOSURE CERTIFICATION FOR THE 241-Z TREATMENT AND STORAGE TANKS

The purpose of this letter is to transmit the enclosed 241-Z Treatment and Storage Tanks Closure Certifications: Owner/Co-Operator Closure Certification prepared by the U.S. Department of Energy, Richland Operations Office (RL), Co-Operator Certification by Fluor Hanford, Inc. (Enclosure 1), and the Professional Engineer Closure Certification prepared by Mr. Phillip C. Ohl, Vista Engineering Technologies, L.L.C., Kennewick, Washington (Enclosure 2) for the State of Washington Department of Ecology's acceptance.

The 241-Z Treatment and Storage Tanks System has been undergoing closure as a Part V Treatment, Storage, and/or Disposal unit in the Hanford Facility RCRA Permit. The aqueous waste stream from Plutonium Finishing Plant (PFP) processes was treated and stored prior to transfer to Tank Farms. The waste stream from PFP had previously been eliminated along with transfers to Tank Farms.

The closure activities were performed in accordance with the approved closure plan, Hanford Facility Dangerous Waste Closure Plan, 241-Z Treatment and Storage Tanks, DOE/RL-96-82, Revision 1, and are complete. These closure certifications were prepared in accordance with Washington Administrative Code 173-303-610 and the closure plan. Physical Closure activities were completed in September 2006. Ecology acceptance of the enclosed closure certifications will grant the 241-Z Treatment and Storage Tanks System clean closure and completion of Tri-Party Agreement Milestone M-83-32.

Ms. Jane A. Hedges
07-AMCP-0062

-2-

DEC 20 2006

If you have any questions, please contact me, or your staff may contact Matt McCormick, Assistant Manager for the Central Plateau, on (509) 373-9971.

Sincerely,



Keith A. Klein
Manager

AMCP:EMM

Enclosures

cc w/encls:

J. Ayres, Ecology

R. Bond, Ecology

G. Bohnee, NPT

N. Ceto, EPA

S. Harris, CTUIR

R. Jim, YN

Administrative Record

Environmental Portal

Ecology Library, Kennewick

cc w/o encls:

R. W. Bloom, FHI

R. H. Engelmann, EFSH

R. W. Oldham, FHI

R. E. Piippo, FHI

ENCLOSURE 1

**CLOSURE CERTIFICATION
FOR THE
241-Z TREATMENT AND STORAGE TANKS**

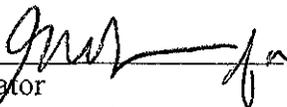
We, the undersign hereby certify that the 241-Z Treatment and Storage Tanks Unit closure activities were performed in accordance with the specifications in the approved Closure Plan.



Owner/Co-Operator
Keith A. Klein, Manager
U.S. Department of Energy
Richland Operations Office

12/20/06

Date



Co-Operator
Ronald G. Gallagher
President and
Chief Executive Officer
Fluor Hanford, Inc.

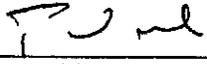
12/8/06

Date

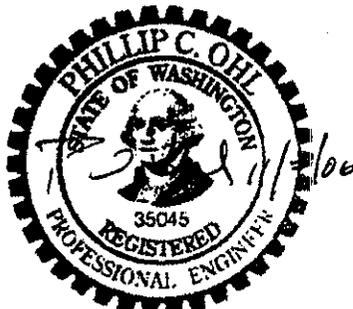
ENCLOSURE 2

**PROFESSIONAL ENGINEER'S CERTIFICATION FOR
THE RCRA CLOSURE OF THE 241-Z TREATMENT
AND STORAGE TANKS FACILITY**

I, the undersigned, an independent registered Professional Engineer, hereby certify that, to the best of my knowledge, all closure activities for the 241-Z Treatment and Storage Tanks Facility are complete and were performed in accordance with the specifications in the approved *Hanford Facility Dangerous Waste Closure Plan, 241-Z Treatment and Storage Tanks*, DOE/RL-96-82, Revision 1. This certification is based on inspection activities and review of the applicable Log Books, Operating Procedures, and Clean Closure Checklists as described in the individual certifications for D-4 Cell, D-5 Cell, D-7 Cell, D-8 Cell, and 241-Z Ancillary.

 11/7/06

Phillip C. Ohi, PE
Washington State PE License No. 35045
Vista Engineering Technologies, LLC
Kennewick, Washington 99336

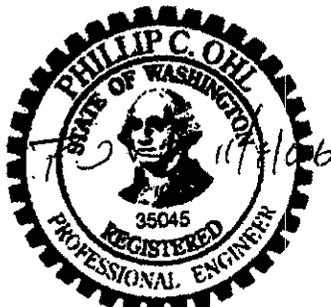


EXPIRES: 3/29/09

**PROFESSIONAL ENGINEER'S CERTIFICATION FOR
THE RCRA CLOSURE OF THE 241-Z TREATMENT
AND STORAGE TANKS FACILITY D-4 CELL**

I, the undersigned, an independent registered Professional Engineer, hereby certify that, to the best of my knowledge, all closure activities for the D-4 Cell of the 241-Z Treatment and Storage Tanks Facility are complete and were performed in accordance with the specifications in the approved *Hanford Facility Dangerous Waste Closure Plan, 241-Z Treatment and Storage Tanks, DOE/RL-96-82, Revision 1*. This certification is based on inspection activities and review of the applicable Log Book, Operating Procedures, and Clean Closure Checklists as described in the attached Specifications and Limitations of Professional Engineer's Certification.

Phillip C. Ohi 11/7/06
Phillip C. Ohi, PE
Washington State PE License No. 35045
Vista Engineering Technologies, LLC
Kennewick, Washington 99336



EXPIRES: 3/29/07

241-Z, D-4 Cell

**SPECIFICATIONS AND LIMITATIONS OF
PROFESSIONAL ENGINEER'S CERTIFICATION FOR
THE RCRA CLOSURE OF THE 241-Z TREATMENT
AND STORAGE TANKS FACILITY D-4 CELL**

November 7, 2006

BACKGROUND

The 241-Z Treatment and Storage Tanks (241-Z) is a *Resource Conservation and Recovery Act of 1976* (RCRA) treatment, storage, and/or disposal (TSD) unit consisting of the below grade D-4, D-5, D-7, D-8 tanks, an overflow tank located in a concrete containment vault, and the associated ancillary piping and equipment. The tank system is located beneath the 241-Z Building, which is not a portion of the TSD unit. Waste managed at the TSD unit was received via underground piping from Plutonium Finishing Plant (PFP) sources. Tank D-6 within the vault D-6 is a past-practice tank that never operated as a portion of the RCRA unit.

CLOSURE REQUIREMENTS

The scope of activities certified in this statement address closure of the D-4 Cell of 241-Z. The portions applicable to the D-4 Cell include the D-4 tank, piping and ancillary equipment, tank structural support pad, interior cell surfaces (including the floor, sump, and void space beneath the tank), cell walls, and soil beneath the cell.

The 241-Z Cell D-4 underwent closure to the performance standards of WAC 173-303-610 with respect to dangerous waste contamination from RCRA operations as specified in the approved DOE/RL-96-82, *Hanford Facility Dangerous Waste Closure Plan, 241-Z Treatment and Storage Tanks* (closure plan). Clean closure of metal and concrete materials was achieved by removal or by meeting the visual and/or analytical closure performance standards identified in Section 6.2.1 of the closure plan. Closure of soils was achieved by meeting closure performance standards for underlying soils identified in Section 6.2.2 of the closure plan. Sampling and analysis activities were performed in accordance with HNF-25105, *Sampling and Analysis Plan for Characterizing 241-Z Tank System Piping*. The clean closed cell D-4 tank and structures do not require removal under the closure plan and may remain after closure for future disposition in conjunction with PFP decommissioning activities.

RCRA Closure activities for other portions of the 241-Z Tank system are planned to be completed and documented in phases in conjunction with the terminal cleanout of the various parts of the system. It is anticipated that the closure will be documented in a minimum of five parts for the four tank cells and the remainder of the residuals.

DOCUMENTATION REVIEWED

Documentation reviewed for this certification activity included:

- Closure Plan (DOE/RL-96-82);
- D-4 Cell closure summary document (HNF-31197), including the Closure Checklist;
- D-4 Cell field work package (2Z-04-01447), including facility modification package (HNF-FMP-04-22343) and field logbook; and
- Swab and swipe sample result reports (05-ATL-118 and 06-ATL-135).

A walk down of the 241-Z building by Phillip Ohl and Carolyn Ervin was completed on 10/05/06. In addition, remote video footage and video tapes of cell D-4 were viewed on 8/9/06 and 10/5/06 by Phillip Ohl and Carolyn Ervin to review cleaning progress.

CERTIFICATION

The decontamination, removal, sampling, and inspection activities in the 241-Z D-4 Cell were performed over the period between July and September 2006:

- D-4 tank (internal) was manually decontaminated and visually inspected* to be within clean debris surface requirements.
- D-4 tank (external) was visually inspected and sampled; results met analytical closure standard.
- Processing piping[†] within the cell was removed up to cell walls; analytical closure standards met via D-8 process piping sample results. Sample results were supplemented by field NDA results, demonstrating the effectiveness of pre-closure flushing of process piping and tanks.
- Transfer pump (steam jet) in D-4 Cell meets analytical closure standards via D-8 process piping sample and NDA results.
- Agitator was visually inspected to be within clean debris surface requirements.
- D-4 Cell floor and sump were manually decontaminated. The sump was visually inspected to be within clean debris surface requirements. The floor near the sump was sampled; results met analytical closure standard.
- D-4 Cell walls were visually inspected and sampled (below the watermark approximately 18 inches above the floor); results met analytical closure standard.
- Void space beneath D-4 tank was visually inspected; no cracking of the tank base or void space was indicated.
- Concrete base of D-4 tank was visually inspected; only minor cracking of cell walls was evident, but none were evaluated to have the potential to penetrate the concrete to the underlying soil.

* All visual inspections were performed via remote video.

† Non-process piping (water, steam) is outside the RCRA closure scope.

241-Z, D-4 Cell

This certification was conducted in accordance with WAC 173-303-610 to independently certify that the closure activities for D-4 Cell are complete and were performed in accordance with the approved closure plan and other relevant closure documents.

LIMITATIONS

Sampling and removal activities were not witnessed in person and training records of operators performing the activities were not verified. This certification did not review alternative closure methods or alternative closure standards. All activities necessary to close the D-4 Cell as stipulated by the closure document (DOE/RL-96-82) are complete. There are no discrepancies or exceptions noted for the D-4 Cell.

REFERENCES

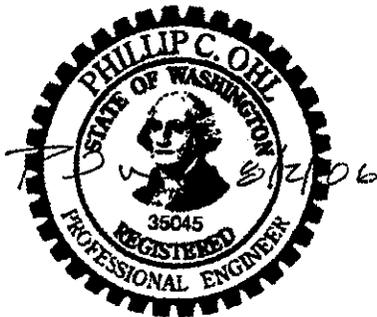
- 05-ATL-118, 2005, *Final Report for the Swab Samples Received From the Plutonium Finishing Plant in November 2005; SAF Number R06-007*, (letter 05-ATL-118, from RA Bushaw to R Clinton dated 12/8/05), Advanced Technologies and Laboratories International Inc., Richland, Washington.
- 06-ATL-135, 2006, *Final Report for the Swipe Samples From the Plutonium Finishing Plant 241-Z 4-D Pit in August 2006*, (letter 06-ATL-135, from GP Ritenour to R Clinton dated 9/1/06), Advanced Technologies and Laboratories International Inc., Richland, Washington.
- 2Z-04-01447, 2006, *D&D 241-Z Tank D4 / Remove Piping & Equipment*, Fluor Hanford Inc., Richland, Washington.
- DOE/RL-96-82, 2004, *Hanford Facility Dangerous Waste Closure Plan, 241-Z Treatment and Storage Tanks*, Rev. 1, United States Department of Energy – Richland Office, Richland, Washington.
- HNF-25105, 2005, *Sampling and Analysis Plan for Characterizing 241-Z Tank System Piping*, Rev. 1, Fluor Hanford Inc., Richland, Washington.
- HNF-31197, 2006, *241-Z D-4 Cell RCRA Closure*, Rev. 0, Fluor Hanford Inc., Richland, Washington.
- HNF-FMP-04-22343, 2006, *241-Z D4 Vault Isolation*, Rev. 0, Fluor Hanford Inc., Richland, Washington.
- WAC 173-303-610, "Dangerous Waste Regulations – Closure and Post-Closure," *Washington Administrative Code*, as amended.

**PROFESSIONAL ENGINEER'S CERTIFICATION FOR
THE RCRA CLOSURE OF THE 241-Z TREATMENT
AND STORAGE TANKS FACILITY D-5 CELL**

I, the undersigned, an independent registered Professional Engineer, hereby certify that, to the best of my knowledge, all closure activities for the D-5 Cell of the 241-Z Treatment and Storage Tanks Facility are complete and were performed in accordance with the specifications in the approved *Hanford Facility Dangerous Waste Closure Plan, 241-Z Treatment and Storage Tanks*, DOE/RL-96-82, Revision 1. This certification is based on inspection activities and review of the applicable Log Book, Operating Procedures, and Clean Closure Checklists as described in the attached Specifications and Limitations of Professional Engineer's Certification.

Phillip C. Ohl 8/2/06

Phillip C. Ohl, PE
Washington State PE License No. 35045
Vista Engineering Technologies, LLC
Kennewick, Washington 99336



EXPIRES: 3/29/07

241-Z, D-5 Cell

**SPECIFICATIONS AND LIMITATIONS OF
PROFESSIONAL ENGINEER'S CERTIFICATION FOR
THE RCRA CLOSURE OF THE 241-Z TREATMENT
AND STORAGE TANKS FACILITY D-5 CELL**

August 2, 2006

BACKGROUND

The 241-Z Treatment and Storage Tanks (241-Z) is a *Resource Conservation and Recovery Act of 1976* (RCRA) treatment, storage, and/or disposal (TSD) unit consisting of the below grade D-4, D-5, D-7, D-8 tanks, an overflow tank located in a concrete containment vault, and the associated ancillary piping and equipment. The tank system is located beneath the 241-Z Building, which is not a portion of the TSD unit. Waste managed at the TSD unit was received via underground piping from Plutonium Finishing Plant (PFP) sources. Tank D-6 within the vault D-6 is a past-practice tank that never operated as a portion of the RCRA unit.

CLOSURE REQUIREMENTS

The scope of closure activities certified in this statement address closure of the D-5 Cell of 241-Z. The portions applicable to the D-5 Cell include the D-5 tank and ancillary equipment, tank structural support pad, interior cell surfaces (including the floor, sump, and void space beneath the tank), cell walls, and soil beneath the cell.

The 241-Z, Cell D-5, underwent closure to the performance standards of WAC 173-303-610 with respect to dangerous waste contamination from RCRA operations as specified in the approved DOE/RL-96-82, *Hanford Facility Dangerous Waste Closure Plan, 241-Z Treatment and Storage Tanks* (closure plan). Clean closure of metal and concrete materials was achieved by removal or by meeting the visual and/or analytical closure performance standards identified in Section 6.2.1 of the closure plan. Closure of soils was achieved by meeting closure performance standards for underlying soils identified in Section 6.2.2 of the closure plan. Sampling and analysis activities were performed in accordance with HNF-25105, *Sampling and Analysis Plan for Characterizing 241-Z Tank System Piping*. The clean closed cell D-5 tank and structures do not require removal under the closure plan and may remain after closure for future disposition in conjunction with PFP decommissioning activities.

RCRA Closure activities for other portions of the 241-Z Tank system are planned to be completed and documented in phases in conjunction with the terminal cleanout of the various parts of the system. It is anticipated that the closure will be documented in a minimum of five parts for the four tank cells and the remainder of the residuals.

241-Z, D-5 Cell

DOCUMENTATION REVIEWED

Documentation reviewed for this certification activity included:

- Closure plan (DOE/RL-96-82);
- D-5 Cell closure summary document (HNF-30206), including the Closure Checklist;
- D-5 Cell field work package (2Z-04-07735), including facility modification package (HNF-FMP-04-22341-R0) and field logbook; and
- Swab and swipe sample result reports (05-ATL-118, 06-ATL-044 and 06-ATL-089).

In addition, remote video footage and video tapes of cell D-5 were viewed on 3/15/06 by Phillip Ohl to review cleaning progress.

CERTIFICATION

The decontamination, removal, sampling, and inspection activities in the 241-Z D-5 Cell were performed over the period between December 2005 and June 2006:

- D-5 tank (internal) was manually decontaminated and visually inspected* to be within clean debris surface requirements. (D-5 tank had been water-flushed twice following its final transfer.)
- D-5 tank (external) was visually inspected and sampled; results met analytical closure standard.
- Processing piping† was removed up to cell walls; analytical closure standards met via D-8 process piping sample results. Samples demonstrated effectiveness of pre-closure flushing of process piping and D-8/D-5 tanks.
- Transfer pump in D-5 Cell was removed (suction piping remains); analytical closure standards met via D-8 process piping sample results.
- Agitator was visually inspected to be within clean debris surface requirements; analytical closure standards met via D-8 process piping sample results.
- D-5 Cell floor and sump were manually decontaminated and sampled; results met analytical closure standard. (Meeting clean debris surface requirements was not done for ALARA reasons).
- D-5 Cell walls were visually inspected and sampled; results met analytical closure standard.
- Void space beneath D-5 tank was visually inspected; no cracking of the tank base or void space was indicated.
- Concrete base of D-5 tank was visually inspected; only minor cracking of cell walls was evident, but none penetrated the concrete to the underlying soil.

* All visual inspections were performed via remote video.

† Non-process piping (water, steam) is outside the RCRA closure scope.

241-Z, D-5 Cell

This certification was conducted in accordance with WAC 173-303-610 to independently certify that the closure activities for D-5 Cell are complete and were performed in accordance with the approved closure plan and other relevant closure documents.

LIMITATIONS

Sampling and removal activities were not witnessed in person and training records of operators performing the activities were not verified. This certification did not review alternative closure methods or alternative closure standards. All activities necessary to close the D-5 Cell as stipulated by the closure document (DOE/RL-96-82) are complete. There are no discrepancies or exceptions noted for the D-5 Cell.

REFERENCES

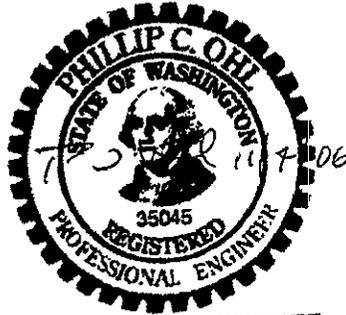
- 05-ATL-118, 2005, *Final Report for the Swab Samples Received From the Plutonium Finishing Plant in November 2005*; SAF Number R06-007, (letter 05-ATL-118, from RA Bushaw to R Clinton dated 12/8/05), Advanced Technologies and Laboratories International Inc., Richland, Washington.
- 06-ATL-044, 2006, *Final Report for the Swipe Samples From the Plutonium Finishing Plant Received in March 2006*; SAF Number R06-017, (letter 06-ATL-044, from GP Ritenour to R Clinton dated 4/5/06), Advanced Technologies and Laboratories International Inc., Richland, Washington.
- 06-ATL-089, 2006, *Final Report for the Swipe Samples Received From the Plutonium Finishing Plant in May 2006*; SAF Number R06-023, (letter 06-ATL-089, from GP Ritenour to R Clinton dated 6/1/06), Advanced Technologies and Laboratories International Inc., Richland, Washington.
- 2Z-04-07735 / WCN-2, 2006, *D&D 241-Z Tank D5 / Remove Piping & Equipment*, Fluor Hanford Inc., Richland, Washington.
- DOE/RL-96-82, 2004, *Hanford Facility Dangerous Waste Closure Plan, 241-Z Treatment and Storage Tanks*, Rev. 1, United States Department of Energy – Richland Office, Richland, Washington.
- HNF-25105, 2005, *Sampling and Analysis Plan for Characterizing 241-Z Tank System Piping*, Rev.1, Fluor Hanford Inc., Richland, Washington.
- HNF-30206, 2006, *241-Z D-5 Cell RCRA Closure*, Rev. 0, Fluor Hanford Inc., Richland, Washington.
- HNF-FMP-04-22341-R0, 2006, *241-Z D5 Vault Isolation*, Fluor Hanford Inc., Richland, Washington.
- WAC 173-303-610, "Dangerous Waste Regulations – Closure and Post-Closure," *Washington Administrative Code*, as amended.

**PROFESSIONAL ENGINEER'S CERTIFICATION FOR
THE RCRA CLOSURE OF THE 241-Z TREATMENT
AND STORAGE TANKS FACILITY D-7 CELL**

I, the undersigned, an independent registered Professional Engineer, hereby certify that, to the best of my knowledge, all closure activities for the D-7 Cell of the 241-Z Treatment and Storage Tanks Facility are complete and were performed in accordance with the specifications in the approved *Hanford Facility Dangerous Waste Closure Plan, 241-Z Treatment and Storage Tanks, DOE/RL-96-82, Revision 1*. This certification is based on inspection activities and review of the applicable Log Book, Operating Procedures, and Clean Closure Checklists as described in the attached Specifications and Limitations of Professional Engineer's Certification.

Phillip C. Ohl 11/7/06

Phillip C. Ohl, PE
Washington State PE License No. 35045
Vista Engineering Technologies, LLC
Kennewick, Washington 99336



EXPIRES: 3/29/07

241-Z, D-7 Cell

**SPECIFICATIONS AND LIMITATIONS OF
PROFESSIONAL ENGINEER'S CERTIFICATION FOR
THE RCRA CLOSURE OF THE 241-Z TREATMENT
AND STORAGE TANKS FACILITY D-7 CELL**

November 7, 2006

BACKGROUND

The 241-Z Treatment and Storage Tanks (241-Z) is a *Resource Conservation and Recovery Act of 1976* (RCRA) treatment, storage, and/or disposal (TSD) unit consisting of the below grade D-4, D-5, D-7, D-8 tanks, an overflow tank located in a concrete containment vault, and the associated ancillary piping and equipment. The tank system is located beneath the 241-Z Building, which is not a portion of the TSD unit. Waste managed at the TSD unit was received via underground piping from Plutonium Finishing Plant (PFP) sources. Tank D-6 within the vault D-6 is a past-practice tank that never operated as a portion of the RCRA unit.

CLOSURE REQUIREMENTS

The scope of activities certified in this statement address closure of the D-7 Cell of 241-Z. The portions applicable to the D-7 Cell include the D-7 tank, piping and ancillary equipment, tank structural support pad, interior cell surfaces (including the floor, sump, and void space beneath the tank), cell walls, and soil beneath the cell.

The 241-Z Cell D-7 underwent closure to the performance standards of WAC 173-303-610 with respect to dangerous waste contamination from RCRA operations as specified in the approved DOE/RL-96-82, *Hanford Facility Dangerous Waste Closure Plan, 241-Z Treatment and Storage Tanks* (closure plan). Clean closure of metal and concrete materials was achieved by removal or by meeting the visual and/or analytical closure performance standards identified in Section 6.2.1 of the closure plan. Closure of soils was achieved by meeting closure performance standards for underlying soils identified in Section 6.2.2 of the closure plan. Sampling and analysis activities were performed in accordance with HNF-25105, *Sampling and Analysis Plan for Characterizing 241-Z Tank System Piping*. The clean closed cell D-7 tank and structures do not require removal under the closure plan and may remain after closure for future disposition in conjunction with PFP decommissioning activities.

RCRA Closure activities for other portions of the 241-Z Tank system are planned to be completed and documented in phases in conjunction with the terminal cleanout of the various parts of the system. It is anticipated that the closure will be documented in a minimum of five parts for the four tank cells and the remainder of the residuals.

DOCUMENTATION REVIEWED

Documentation reviewed for this certification activity included:

- Closure plan (DOE/RL-96-82);
- D-7 Cell closure summary document (HNF-31198), including the Closure Checklist;
- D-7 Cell field work package (2Z-04-07736), including facility modification package (HNF-FMP-04-22342) and field logbook; and
- Swab and swipe sample result reports (05-ATL-118 and 06-ATL-145).

A walk down of the 241-Z building by Phillip Ohl and Carolyn Ervin was completed on 10/05/06. In addition, remote video footage and video tapes of cell D-7 were viewed on 8/9/06 by Phillip Ohl and Carolyn Ervin to review cleaning progress.

CERTIFICATION

The decontamination, removal, sampling, and inspection activities in the 241-Z D-7 Cell were performed over the period between July and September 2006:

- D-7 tank (internal) was manually decontaminated and visually inspected* to be within clean debris surface requirements.
- D-7 tank (external) was visually inspected and no evidence was found to indicate any dangerous waste contact.
- Processing piping† was removed up to cell walls; analytical closure standards met via D-8 process piping sample results. Sample results were supplemented by field NDA results, demonstrating the effectiveness of pre-closure flushing of process piping and tanks.
- Transfer pump (steam jet) in D-7 Cell meets analytical closure standards via D-8 process piping sample and NDA results.
- Agitator was visually inspected to be within clean debris surface requirements.
- The overflow tank and associated piping was cut up and removed (visual inspection found no evidence of leakage).
- D-7 Cell floor and sump were manually decontaminated; visual inspection found no evidence of dangerous waste contact.
- D-7 Cell walls were visually inspected and no evidence was found to indicate any dangerous waste contact.
- Void space beneath D-7 tank was visually inspected; no cracking of the tank base or void space was indicated. No evidence was found to indicate any dangerous waste contact.
- Limited visual inspection revealed cracking in the cell floor; with no evidence of release of dangerous waste from the system, the cracking did not provide a path to soil beneath D-7 Cell.

* All visual inspections were performed via remote video.

† Non-process piping (water, steam) is outside the RCRA closure scope.

241-Z, D-7 Cell

This certification was conducted in accordance with WAC 173-303-610 to independently certify that the closure activities for D-7 Cell are complete and were performed in accordance with the approved closure plan and other relevant closure documents.

LIMITATIONS

Sampling and removal activities were not witnessed in person and training records of operators performing the activities were not verified. This certification did not review alternative closure methods or alternative closure standards. All activities necessary to close the D-7 Cell as stipulated by the closure document (DOE/RL-96-82) are complete. There are no discrepancies or exceptions noted for the D-7 Cell.

REFERENCES

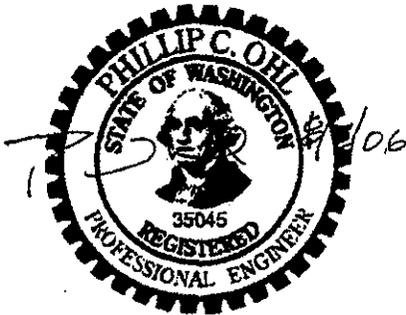
- 05-ATL-118, 2005, *Final Report for the Swab Samples Received From the Plutonium Finishing Plant in November 2005; SAF Number R06-007*, (letter 05-ATL-118, from RA Bushaw to R Clinton dated 12/8/05), Advanced Technologies and Laboratories International Inc., Richland, Washington.
- 06-ATL-145, 2006, *Final Report for the Swipe Samples From the Plutonium Finishing Plant, Building 241-Z D-7 Tank in September 2006*, (letter 06-ATL-145, from GP Ritenour to R Clinton dated 9/06), Advanced Technologies and Laboratories International Inc., Richland, Washington.
- 2Z-04-07736, 2006, *D&D 241-Z Tank D7 / Remove Piping & Equipment*, Fluor Hanford Inc., Richland, Washington.
- DOE/RL-96-82, 2004, *Hanford Facility Dangerous Waste Closure Plan, 241-Z Treatment and Storage Tanks*, Rev. 1, United States Department of Energy – Richland Office, Richland, Washington.
- HNF-25105, 2005, *Sampling and Analysis Plan for Characterizing 241-Z Tank System Piping*, Rev.1, Fluor Hanford Inc., Richland, Washington.
- HNF-31198, 2006, *241-Z D-7 Cell RCRA Closure*, Rev. 0, Fluor Hanford Inc., Richland, Washington.
- HNF-FMP-04-22342, 2006, *241-Z D7 Vault Isolation*, Rev. 0, Fluor Hanford Inc., Richland, Washington.
- WAC 173-303-610, "Dangerous Waste Regulations – Closure and Post-Closure," *Washington Administrative Code*, as amended.

**PROFESSIONAL ENGINEER'S CERTIFICATION FOR
THE RCRA CLOSURE OF THE 241-Z TREATMENT
AND STORAGE TANKS FACILITY D-8 CELL**

I, the undersigned, an independent registered Professional Engineer, hereby certify that, to the best of my knowledge, all closure activities for the D-8 Cell of the 241-Z Treatment and Storage Tanks Facility are complete and were performed in accordance with the specifications in the approved *Hanford Facility Dangerous Waste Closure Plan, 241-Z Treatment and Storage Tanks, DOE/RL-96-82, Revision 1*. This certification is based on inspection activities and review of the applicable Log Book, Operating Procedures, and Clean Closure Checklists as described in the attached Specifications and Limitations of Professional Engineer's Certification.

PC Ohl 8/2/06

Phillip C. Ohl, PE
Washington State PE License No. 35045
Vista Engineering Technologies, LLC
Kennewick, Washington 99336



EXPIRES: 3/29/07

241-Z, D-8 Cell

**SPECIFICATIONS AND LIMITATIONS OF
PROFESSIONAL ENGINEER'S CERTIFICATION FOR
THE RCRA CLOSURE OF THE 241-Z TREATMENT
AND STORAGE TANKS FACILITY D-8 CELL**

August 2, 2006

BACKGROUND

The 241-Z Treatment and Storage Tanks (241-Z) is a *Resource Conservation and Recovery Act of 1976* (RCRA) treatment, storage, and/or disposal (TSD) unit consisting of the below grade D-4, D-5, D-7, D-8 tanks, an overflow tank located in a concrete containment vault, and the associated ancillary piping and equipment. The tank system is located beneath the 241-Z Building, which is not a portion of the TSD unit. Waste managed at the TSD unit was received via underground piping from Plutonium Finishing Plant (PFP) sources. Tank D-6 within the vault D-6 is a past-practice tank that never operated as a portion of the RCRA unit.

CLOSURE REQUIREMENTS

The scope of closure activities certified in this statement address closure of the D-8 Cell of 241-Z. The portions applicable to the D-8 Cell include the D-8 tank and ancillary equipment, tank structural support pad, interior cell surfaces (including the floor, sump, and void space beneath the tank), cell walls, and soil beneath the cell.

The 241-Z, Cell D-8, underwent closure to the performance standards of WAC 173-303-610 with respect to dangerous waste contamination from RCRA operations as specified in the approved DOE/RL-96-82, *Hanford Facility Dangerous Waste Closure Plan, 241-Z Treatment and Storage Tanks* (closure plan). Clean closure of metal and concrete materials was achieved by removal or by meeting the visual and/or analytical closure performance standards identified in Section 6.2.1 of the closure plan. Closure of soils was achieved by meeting closure performance standards for underlying soils identified in Section 6.2.2 of the closure plan. Sampling and analysis activities were performed in accordance with HNF-25105, *Sampling and Analysis Plan for Characterizing 241-Z Tank System Piping*. The clean closed cell D-8 tank and structures do not require removal under the closure plan and may remain after closure for future disposition in conjunction with PFP decommissioning activities.

RCRA Closure activities for other portions of the 241-Z Tank system are planned to be completed and documented in phases in conjunction with the terminal cleanout of the various parts of the system. It is anticipated that the closure will be documented in a minimum of five parts for the four tank cells and the remainder of the residuals.

241-Z, D-8 Cell

DOCUMENTATION REVIEWED

Documentation reviewed for this certification activity included:

- Closure Plan (DOE/RL-96-82);
- D-8 Cell closure summary document (HNF-30205), including the Closure Checklist;
- D-8 Cell field work package (2Z-04-07738), including facility modification package (HNF-FMP-04-22340-R1) and field logbook; and
- Swab and swipe sample result reports (05-ATL-118 and 06-ATL-044).

In addition, remote video footage and video tapes of cell D-8 were viewed on 3/15/06 by Phillip Ohl to review cleaning progress. A video tape of the cell floor and tank base (dated 4/27/06) was viewed by Carolyn Ervin (engineering assistant to Phillip Ohl) on 4/28/06.

CERTIFICATION

The decontamination, removal, sampling, and inspection activities in the 241-Z D-8 Cell were performed over the period between November 2005 and June 2006:

- D-8 tank (internal) was manually decontaminated and visually inspected* to be within clean debris surface requirements.
- D-8 tank (external) was visually inspected and sampled; results met analytical closure standard.
- Processing piping† and sample pump were removed up to cell walls and sampled; results met analytical closure standard. Samples demonstrated effectiveness of pre-closure flushing of process piping and tank.
- Transfer pump in D-8 Cell meets analytical closure standards via process piping sample results.
- Agitator was visually inspected to be within clean debris surface requirements; analytical closure standards met via process piping sample results.
- D-8 Cell floor and sump were manually decontaminated. The sump was visually inspected to be within clean debris surface requirements. The floor was sampled; results met analytical closure standard.
- D-8 Cell walls were visually and radiologically inspected; no contact with dangerous waste was confirmed.
- Void space beneath D-8 tank was visually and radiologically inspected; no void space in area of known spill was found.
- Concrete base of D-8 tank was visually inspected; no crack pathway to the soil in area of known spill was found.

* All visual inspections were performed via remote video.

† Non-process piping (water, steam) is outside the RCRA closure scope.

241-Z, D-8 Cell

This certification was conducted in accordance with WAC 173-303-610 to independently certify that the closure activities for D-8 Cell are complete and were performed in accordance with the approved closure plan and other relevant closure documents.

LIMITATIONS

Sampling and removal activities were not witnessed in person and training records of operators performing the activities were not verified. This certification did not review alternative closure methods or alternative closure standards. All activities necessary to close the D-8 Cell as stipulated by the closure document (DOE/RL-96-82) are complete. There are no discrepancies or exceptions noted for the D-8 Cell.

REFERENCES

- 05-ATL-118, 2005, *Final Report for the Swab Samples Received From the Plutonium Finishing Plant in November 2005*; SAF Number R06-007, (letter 05-ATL-118, from RA Bushaw to R Clinton dated 12/8/05), Advanced Technologies and Laboratories International Inc., Richland, Washington.
- 06-ATL-044, 2006, *Final Report for the Swipe Samples From the Plutonium Finishing Plant Received in March 2006*; SAF Number R06-017, (letter 06-ATL-044, from GP Ritenour to R Clinton dated 4/5/06), Advanced Technologies and Laboratories International Inc., Richland, Washington.
- 2Z-04-07738 / WCN-3, 2006, *D&D 241-Z Tank D8 / Remove Piping & Equipment*, Fluor Hanford Inc., Richland, Washington.
- DOE/RL-96-82, 2004, *Hanford Facility Dangerous Waste Closure Plan, 241-Z Treatment and Storage Tanks*, Rev. 1, United States Department of Energy – Richland Office, Richland, Washington.
- HNF-25105, 2005, *Sampling and Analysis Plan for Characterizing 241-Z Tank System Piping*, Rev.1, Fluor Hanford Inc., Richland, Washington.
- HNF-30205, 2006, *241-Z D-8 Cell RCRA Closure*, Rev. 0, Fluor Hanford Inc., Richland, Washington.
- HNF-FMP-04-22340-R1, 2006, *241-Z D8 Vault Isolation*, Fluor Hanford Inc., Richland, Washington.
- WAC 173-303-610, "Dangerous Waste Regulations – Closure and Post-Closure," *Washington Administrative Code*, as amended.

**PROFESSIONAL ENGINEER'S CERTIFICATION FOR
THE RCRA CLOSURE OF THE 241-Z TREATMENT
AND STORAGE TANKS FACILITY - 241-Z ANCILLARY**

I, the undersigned, an independent registered Professional Engineer, hereby certify that, to the best of my knowledge, all closure activities for the 241-Z Ancillary (i.e., tank system ancillary piping and equipment that includes the sample glovebox and piping external to tank cells D-4, D-5, D-7, and D-8) of the 241-Z Treatment and Storage Tanks Facility are complete and were performed in accordance with the specifications in the approved *Hanford Facility Dangerous Waste Closure Plan, 241-Z Treatment and Storage Tanks, DOE/RL-96-82, Revision 1*. This certification is based on inspection activities and review of the applicable Log Book, Operating Procedures, and Clean Closure Checklists as described in the attached Specifications and Limitations of Professional Engineer's Certification.

PC Ohl 11/7/06

Phillip C. Ohl, PE
Washington State PE License No. 35045
Vista Engineering Technologies, LLC
Kennewick, Washington 99336



EXPIRES: 3/29/07

241-Z, Ancillary

**SPECIFICATIONS AND LIMITATIONS OF
PROFESSIONAL ENGINEER'S CERTIFICATION FOR
THE RCRA CLOSURE OF THE 241-Z TREATMENT
AND STORAGE TANKS FACILITY - 241-Z ANCILLARY**

November 7, 2006

BACKGROUND

The 241-Z Treatment and Storage Tanks (241-Z) is a *Resource Conservation and Recovery Act of 1976* (RCRA) treatment, storage, and/or disposal (TSD) unit consisting of the below grade D-4, D-5, D-7, D-8 tanks, an overflow tank located in a concrete containment vault, and the associated ancillary piping and equipment. The tank system is located beneath the 241-Z Building, which is not a portion of the TSD unit. Waste managed at the TSD unit was received via underground piping from Plutonium Finishing Plant (PFP) sources. Tank D-6 within the vault D-6 is a past-practice tank that never operated as a portion of the RCRA unit.

CLOSURE REQUIREMENTS

The scope of closure activities certified in this statement address closure of the 241-Z Ancillary piping and equipment that includes the sample glovebox and piping external to the tank cells D-4, D-5, D-7, and D-8. The external piping includes RCRA piping in D-6 cell, sample lines, embedded piping in 241-Z cell walls, piping in PFP tunnels, and underground piping between PFP and 241-Z.

The 241-Z Ancillary underwent closure to the performance standards of WAC 173-303-610 with respect to dangerous waste contamination from RCRA operations as specified in the approved DOE/RL-96-82, *Hanford Facility Dangerous Waste Closure Plan, 241-Z Treatment and Storage Tanks* (closure plan). Clean closure of metal and concrete materials was achieved by removal or by meeting the visual and/or analytical closure performance standards identified in Section 6.2.1 of the closure plan. Closure of soils was achieved by meeting closure performance standards for underlying soils identified in Section 6.2.2 of the closure plan. Sampling and analysis activities were performed in accordance with HNF-25105, *Sampling and Analysis Plan for Characterizing 241-Z Tank System Piping*. The clean closed tanks and structures do not require removal under the closure plan and may remain after closure for future disposition in conjunction with PFP decommissioning activities under the ongoing Comprehensive Environmental Response, Compensation, and Liabilities Act (CERCLA) removal action.

RCRA Closure activities for other portions of the 241-Z Tank system are planned to be completed and documented in phases in conjunction with the terminal cleanout of the various parts of the system. It is anticipated that the closure will be documented in a minimum of five parts for the four tank cells and the remainder of the residuals.

241-Z, Ancillary

DOCUMENTATION REVIEWED

Documentation reviewed for this certification activity included:

- Closure Plan (DOE/RL-96-82);
- 241-Z Ancillary closure summary document (HNF-31199), including the Closure Checklist;
- Glovebox Removal field work packages (2Z-06-0261 and 2Z-05-07422) including field logbook;
- Swab and swipe sample result report (05-ATL-118), and
- NDA result reports (M2100-06-175 and M2100-06-176).

In addition, a walk down of the D-4 and D-5 piping in the PFP tunnels was performed on 10/5/06 by Phillip Ohl and Carolyn Ervin to view NDA shot locations.

CERTIFICATION

The decontamination, removal, sampling, and inspection activities in the 241-Z Ancillary were performed over the period between July and September 2006:

- The sample glovebox subject to RCRA closure was isolated and removed from 241-ZA. The closure documentation incorrectly identified the sample glovebox that operated as a portion of the TSD with glovebox number GB-2-241-ZA instead of GB-1-241-ZA. However, because both gloveboxes were removed in accordance with the provisions of the TSD unit closure plan, no discrepancy exists.
- Piping leaving PFP was previously blanked and plugs installed upstream of the blanks in sink drains, as appropriate. Analytical closure standards for the RCRA piping in D-6, sample lines, embedded piping in 241-Z cell walls, piping in PFP tunnels, and underground piping between PFP and 241-Z were met via D-8 process piping sample results. Sample results were supplemented by field NDA results, demonstrating the effectiveness of pre-closure flushing of process piping. NDA results did detect a localized plutonium concentration in the D-5 pipe approximately 10 feet before it joins the D-4 pipe (near the south end of the PFP tunnels). Piping had been previously reworked in this section and the prescribed slope was not maintained, causing deposition in the low spot.

This certification was conducted in accordance with WAC 173-303-610 to independently certify that the closure activities for 241-Z Ancillary are complete and were performed in accordance with the approved closure plan and other relevant closure documents.

241-Z, Ancillary

LIMITATIONS

Sampling and removal activities were not witnessed in person and training records of operators performing the activities were not verified. This certification did not review alternative closure methods or alternative closure standards. All activities necessary to close the 241-Z Ancillary as stipulated by the closure document (DOE/RL-96-82) are complete. There are no discrepancies or exceptions noted for the 241-Z Ancillary.

REFERENCES

- 05-ATL-118, 2005, *Final Report for the Swab Samples Received From the Plutonium Finishing Plant in November 2005; SAF Number R06-007*, (letter 05-ATL-118, from RA Bushaw to R Clinton dated 12/8/05), Advanced Technologies and Laboratories International Inc., Richland, Washington.
- 2Z-06-0261, 2006, *Isolation and Removal GB-1-241-ZA*, Fluor Hanford Inc., Richland, Washington.
- 2Z-05-07422, 2006, *Isolation & Removal Of Glovebox GB-2-241-ZA*, Fluor Hanford Inc., Richland, Washington.
- DOE/RL-96-82, 2004, *Hanford Facility Dangerous Waste Closure Plan, 241-Z Treatment and Storage Tanks*, Rev. 1, United States Department of Energy – Richland Office, Richland, Washington.
- HNF-25105, 2005, *Sampling and Analysis Plan for Characterizing 241-Z Tank System Piping*, Rev. 1, Fluor Hanford Inc., Richland, Washington.
- HNF-31199, 2006, *241-Z Ancillary RCRA Closure*, Rev. 0, Fluor Hanford Inc., Richland, Washington.
- M2100-06-175, “NDA Results for the Sections of the D-4 and D-5 Drain Lines Which Are Considered Under RCRA in the 234-5Z Tunnel,” (memo M2100-06-175, from BD Keele to GE Hickman dated 9/25/06), Fluor Hanford Inc., Richland, Washington.
- M2100-06-176, “Summary of NDA Results for the Piping Within 241-Z Tanks,” (memo M2100-06-176, from BD Keele to GA Johnston dated 9/25/06), Fluor Hanford Inc., Richland, Washington.
- WAC 173-303-610, “Dangerous Waste Regulations – Closure and Post-Closure,” *Washington Administrative Code*, as amended.