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Date Received: 4/17/94 KMB	INFORMATION RELEASE REQUEST	Reference: WHC-CM-3-4
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Title TANK FARMS SURVEILLANCE AND WASTE STATUS SUMMARY REPORT FOR FEBRUARY 1994	Unclassified Category UC-721	Impact Level 2
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New or novel (patentable) subject matter? ☒ No ☐ Yes If "Yes", has disclosure been submitted by WHC or other company? ☐ No ☐ Yes Disclosure No(s).	Information received from others in confidence, such as proprietary data, trade secrets, and/or inventions? ☒ No ☐ Yes (Identify)
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**TANK FARM SURVEILLANCE AND WASTE STATUS
SUMMARY REPORT FOR FEBRUARY 1994**

B. M. Hanlon

ABSTRACT

This report is the official inventory for radioactive waste stored in underground tanks in the 200 Areas at the Hanford Site. Data that depict the status of stored radioactive waste and tank vessel integrity are contained within the report. This report provides data on each of the existing 177 large underground waste storage tanks and 49 smaller catch tanks and special surveillance facilities, and supplemental information regarding tank surveillance anomalies and ongoing investigations. This report is intended to meet the requirement of U. S. Department of Energy-Richland Operations Office Order 5820.2A, Chapter I, Section 3.e. (3) (DOE-RL, 1990, Radioactive Waste Management, U. S. Department of Energy-Richland Operation Office, Richland, Washington) requiring the reporting of waste inventories and space utilization for Hanford Tank Farm Tanks.

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METRIC CONVERSION CHART		
1 inch	=	2.54 centimeters
1 foot	=	30.48 centimeters
1 gallon	=	3.80 liters
1 ton	=	0.90 metric tons
$^{\circ}\text{F} = \left(\frac{9}{5} ^{\circ}\text{C}\right) + 32$		
1 Btu/h = 2.930711 E-01 watts (International Table)		

**TANK FARM SURVEILLANCE AND WASTE STATUS SUMMARY
REPORT FOR FEBRUARY 1994
SUMMARY**

Note: Changes from the previous month are in bold print.

I. WASTE TANK STATUS

Category	Quantity	Date of Last Change
In-Service Tanks ^c	28 double-shell	10/86
Out-of-Service Tanks ^a	149 single-shell	07/88
Assumed Leaker Tanks ^f	67 single-shell	7/93
Sound Tanks	28 double-shell 82 single-shell	1986 7/93
Interim Stabilized Tanks ^{b,d}	106 single-shell	04/93
Not Interim Stabilized ^f	43 single-shell	04/93
Intrusion Prevention Completed ^e	98 single-shell	09/91
Watch List Tanks ^g	46 single-shell 6 double-shell	2/94 ^h 6/93
Total	52 tanks	

^a Although all 149 single-shell tanks were removed from service (i.e., no longer authorized to receive waste) as of November 21, 1980, the category of "Out-of-Service" was not established until July 1988.

^b Of the 106 tanks classified as interim stabilized, 59 are listed as assumed leakers. The total of 106 interim stabilized tanks includes six tanks that do not meet current established supernatant and interstitial liquid stabilization criteria: B-104, B-110, B-111, T-102, T-112, and U-110. (These six tanks did meet the criteria in existence when they were declared interim stabilized). B-110, B-111, and U-110 are assumed leakers but surveillance data do not show an indication of a continuing leak.

^c Six double-shell tanks listed as "in service" are currently included on the Hydrogen Watch List and are thus prohibited from receiving waste in accordance with "Safety Measures for Waste Tanks at Hanford Nuclear Reservation," Section 3137 of the National Defense Authorization Act for Fiscal Year 1991, November 5, 1990, Public Law 101-510.

^d Of the 46 single-shell tanks on Watch Lists, 19 have been Interim Stabilized.

^e Of the 46 single-shell tanks on Watch Lists, 28 have completed Intrusion Prevention (this category replaced Interim Isolation). See Appendix C, Tank and Equipment Codes and Status Definitions, for "Intrusion Prevention" definition.

^f Eight of the tanks are both assumed leakers and not Interim Stabilized. See Appendix I, Leak Volume Estimates, for more details. Tank SX-102 was declared an assumed leaker in May, and reclassified as Sound in July, 1993. See "Waste Tank Investigations" section of the July 1993 report for more details.

^g See Tables A-1 through A-5 for more information on Watch List Tanks. Four tanks (S-102, SX-106, TX-118, U-107) are currently on more than one Watch List.

^h Dates for the Watch List tanks are "officially added to the Watch List" dates. See Table A-1, Watch List Tanks, for further information.

II. WASTE TANK INVESTIGATIONS

This section includes all single-shell tanks or catch tanks which are showing surface level or interstitial liquid level (ILL) decreases, or drywell/lateral radiation level increases in excess of established criteria.

There were no tanks under investigation for ILL decreases or drywell/lateral radiation level increases during the month of February 1994.

A. Assumed Leakers or Assumed Re-leakers: (See Appendix C for definition of "Re-leaker")

This section includes all single- or double-shell tanks or catch tanks for which an off-normal or unusual occurrence report has been issued for assumed leaks or re-leaks. Tanks/catch tanks will remain on this list until either a) completion of Interim Stabilization, or b) the updated occurrence report indicates that the tank/catch tank is not an assumed leaker.

Tank 241-BX-111. This tank was declared an assumed re-leaker on April 30, 1993. Pumping of the tank commenced on October 22, 1993. No pumping was done in February. Saltwell jet pumping was halted in BX-110 and BX-111 pending the results of an Operational Safety Requirement/Operations Specifications Document compliance assessment. This assessment is to assure that these documents are in compliance with the Conduct of Operations requirements for waste transfers. The BX-Emergency Pumping Program is prioritized to be one of the first programs to resume when compliance has been verified.

Resolution status: Upon completion of pumping, the surface level baseline for the tank will be adjusted.

Tank 241-T-111. The surface level has shown a steady decrease since the automatic FIC was repaired in August 1993, and was at 161.10 inches on January 31, 1994. Off-Normal Occurrence Report RL-WHC-TANKFARM-1994-0009 was issued on February 24, 1994. This tank was declared an assumed re-leaker on February 25, 1994. The surface level has remained stable at 161.10 inches through February 1994.

Evaluation of the surface level data indicates the level began decreasing in January 1993. Efforts to begin emergency pumping the tank have begun. Upon completion of pumping, the tank will be re-baselined. This tank had been previously partial interim stabilized.

Tank T-111 was also added to the Organics Watch List on February 28, 1994. See the Highlights section, item #1, for further information.

B. Tanks with increases indicating possible intrusions:

This section includes all single-shell tanks for which the surveillance data show that the surface level or ILL has met or exceeded the increase criteria, or are still being investigated.

Tank 241-B-202. A steady increase in the surface level measurement has been observed since December 1984. The manual tape pencil plummet is contacting

liquid. When the quarterly reading was obtained on October 6, 1992, the level was recorded as 144.75 inches, thus exceeding the 2.00-inch increase criteria from the established baseline of 142.50 inches. The surface level measurement was rechecked on October 9, 1992, (145.50 inches) and October 13 (145.00 inches), verifying the increase and that the criteria had been exceeded. The surface level remained stable at 145.50 inches during February 1994. The monitoring frequency has been increased from quarterly to daily. Occurrence Report RL-WHC-TANKFARM-1993-0024 was issued February 13, 1993. This tank is Sound, Interim Stabilized, and Intrusion Prevention completed.

Resolution status: A photo package was initiated on May 11, 1993, to investigate the possibility of an intrusion. Review of previous photos was inconclusive. New photos are required to determine the actual supernatant increase, if any. A temporary baseline was established at 145.25 inches, until the new photos are available.

Tank 241-BX-101. On September 2, 1993, the surface level increased from 10.00 to 12.00 inches. The surface level was 11.75 inches on February 28, 1994. In-tank photographs show the manual tape donut plummet contacting liquid in a shallow pool. This tank is an Assumed Leaker, Interim Stabilized, and Intrusion Prevention completed.

Resolution Status: Comparison of October 1986 photos with November 1988 photos shows evidence of an ongoing intrusion. A work package was initiated October 14, 1993, to obtain in-tank photographs which will be used to inspect the area under the plummet and investigate the possible intrusion. A site-wide in-tank photography program is being formed and photo schedules will be produced upon finalization. A finalized photo schedule is not complete, however, in-tank photos for this tank may be available by late 1995.

Tank 241-BX-103. This tank has shown an erratic increase in surface level measurements since January 6, 1986. On January 18, 1993, the surface level measurement in 103-BX exceeded the 0.50-inch increase criteria from the reference baseline of 19.50 inches, and was verified on January 20, 1993. Discrepancy Report S&DA 93-522 was issued January 21, 1993. Occurrence Report RL-WHC-TANKFARM-1993-0036 was issued March 25, 1993. The surface level measurement is currently 19.50 inches. The FIC plummet is contacting liquid as indicated by in-tank photographs taken October 31, 1986. This tank is Sound, Interim Stabilized, and Intrusion Prevention completed.

Resolution status: The current level is greater than that prior to stabilization in November 1983. The tank was previously determined to have experienced an intrusion from 1977 to March 1983 (prior to stabilization). Subsequent isolation was expected to halt the intrusion, however, the intrusion is apparently ongoing. A work package was initiated on May 11, 1993, to re-seal pits and risers and to obtain in-tank photos. The photos will be used to assess the current stabilization status of the tank. A visual survey of the area was performed to determine possible paths for precipitation to enter the tank. The weather covering on the pits and risers was found in place and undamaged. The existing grade is level and revealed no obvious draining problems. Ongoing design/isolation drawing review revealed that nozzles, floor drains and some transfer lines entering the heel pit have been left open. Photo verification of the intrusion will determine the need to provide additional isolation measures. A finalized photo schedule is not complete, however, in-tank photos for this tank may be available by late 1995.

Tank 241-BY-105. The ILL is currently at 13.85 feet. The baseline is 13.812 feet. Although the surface level and ILL are within the criteria of $\pm .11$ feet, the data indicates unusual behavior trends that merit continued observation. The monitoring frequency has been increased from quarterly to weekly. The manual tape surface level measurement does not show an increase. This tank is on the ferrocyanide Watch List, an Assumed Leaker, and not yet Interim Stabilized.

Resolution Status: The surface level and ILL are displaying behavior similar to TX-113 and TX-115. The ILL is showing an increase, while the surface level measurement is showing a decrease. This phenomena could be due to either solids dissolution or formation of a depression in the solids beneath the plummet in conjunction with an intrusion. Review of previous photos indicates the liquid volume is increasing, although it cannot be verified that the solids level is decreasing. A photo package was initiated to investigate the possibility of intrusion, or solids dissolution. A finalized photo schedule is not complete, however, in-tank photos for this tank may be available by late 1995.

Tank 241-S-102. The FIC was out of service from November 16, 1993, to January 14, 1994. The surface level reading after the FIC was repaired on January 14 was 207.00 inches. This level exceeded the 3.00-inch increase criteria from the reference baseline of 202.30 inches. Reference Discrepancy Report S&DA-904-672. This tank has a history of erratic increases/decreases. In-tank photographs taken March 18, 1988, show the FIC plummet contacting an uneven, dry surface. A verification of the reference elevation was completed February 27, 1994. The FIC counter was found to be out of calibration by +2.60 inches. The FIC surface level reading on February 27 was 205.40 inches. The LOW ILL was within the 0.10-foot tolerance when last scanned on February 28, 1994.

Resolution status: Photos taken in March 1988, show the surface consists of very uneven solids with scattered liquid pools. Photos taken in 1983 compared with the 1988 photos indicate the waste is shifting, possibly causing a change in surface level under the plummet. Reevaluation of the ILL using the "new method" shows an increasing trend of about 0.4 inches per year. Occurrence Report 77-191 attributed previous intrusions into the tank to drainage from the SA and SB valve pits. Because neither the tank nor the pits are interim isolated, the intrusion is likely ongoing. A photo package was initiated on May 17, 1993, to confirm the ongoing intrusion. This tank is on the hydrogen and organic salts Watch List. A safety evaluation has been issued establishing required controls in order to perform photo missions on hydrogen Watch List tanks. Either intrinsically safe camera equipment must be used, or a continuous flammable gas monitoring system must be installed. An engineering service request (ESR) was submitted on January 6 to perform a vendor search for an acceptable camera design. A monitoring system is not expected to be in place before mid-1994.

Tank 241-S-103. The FIC was out of service from March 8 to May 14, 1993. The surface level increased from 104.15 inches on March 8 to 104.80 inches after FIC repair on May 14, 1993. On August 20, 1993, a temporary baseline of 104.80 inches was established, with a criteria of +2.00 inches. This tank has previously been on report for an increase but showed an erratic decreasing trend the latter part of November 1993. The readings ranged from 104.80 to

103.80 inches. The surface level readings were erratic during December and January, 1994, ranging from 104.10 to 104.60 inches. The surface level on February 28, 1994, was 104.10 inches. A request has been made for a reference elevation verification. The LOW, last scanned January 31, 1994, did not exceed the .08-foot tolerance. This tank is Sound, and not yet Interim Stabilized.

Resolution status: After recalibration of the FIC on June 7, 1993, the surface level (SL) remained stable at approximately 104.65 inches. Historical SL shows a general increase since 1981. The SL has continued to increase since the recent jump following FIC calibration. Normally, recalibration returns the SL to previous levels. Reevaluation of surface level data indicates a steady decrease from 104.90 on November 18, to 104.40 inches on December 31, 1993, meaning the FIC may require another calibration. Evaluation of ILL data back to 1986 using the "new method" analysis reveals an increasing trend of 0.161 inch/year which is further substantiated by a previous intrusion investigation performed in 1984. A work package will be initiated by February 15, 1994, to calibrate the FIC. The in-tank photo package will confirm the ongoing intrusion identified in 1984. A finalized photo schedule is not complete, however, in-tank photos for this tank may be available by late 1995.

Tank 241-TX-111. Although the surface level and ILL measurements do not exceed the criteria, the data indicates unusual behavior trends that merit continued observation. This tank is Sound, Interim Stabilized, and Intrusion Prevention completed.

Resolution Status: The ILL trend was re-analyzed for this tank using the new "count rate" method. A steady, significant increase of 1.32 inch/year is evident. Surface level data is showing a decrease. Photos show a dry surface. The surface level decrease is expected to be caused by crumbling of the waste beneath the plummet. Overall, the waste level behavior of the tank is similar to that of TX-113 and 115. A photo package was initiated on October 13, 1993, to investigate the possibility of an intrusion. A finalized photo schedule is not complete, however, in-tank photos for this tank may be available by late 1995.

Tank 241-TX-113. Although the surface level and ILL measurements do not exceed the criteria, the data indicates unusual behavior trends that merit continued observation. This tank is an Assumed Leaker, Interim Stabilized, and Intrusion Prevention completed.

Resolution status: The technical evaluation of the alert condition in this tank was completed April 14, 1993. The results were inconclusive, with recommendation to accelerate the October 1997 waste characterization of the tank. This characterization is expected to confirm that solids are dissolving, causing an increase in ILL. Acceleration of waste characterization is not possible. Watch List tanks have first priority for core sampling. A photo package has been written. LOW scans and SL readings have been increased from a quarterly to a monthly frequency. A finalized photo schedule is not complete, however, in-tank photos for this tank may be available by late 1995.

Tank 241-TX-115. Although the surface level and ILL measurements do not exceed the criteria, the data indicates unusual behavior trends that merit

continued observation. This tank is an Assumed Leaker, Interim Stabilized, and Intrusion Prevention completed.

Resolution status: The technical evaluation of the alert condition in this tank was completed April 14, 1993. The results were inconclusive, with recommendation to accelerate the October 1997 waste characterization. Waste characterization is expected to confirm that solids are dissolving, causing an increase in ILL. Acceleration of waste characterization is not possible for non-Watch List tanks. The 1981 photos show evidence of rain intrusion through a central pump pit riser. However, it cannot be concluded from the 1988 photos that the intrusion is ongoing. This tank will be included in the waste characterization with TX-113. LOW scans are taken weekly, and surface level readings have been increased from a quarterly to a monthly frequency. A finalized photo schedule is not complete, however, in-tank photos for this tank are may be available by late 1995.

Tank 241-TY-102. Discrepancy Report S&DA-92-489 was issued November 9, 1992, when the surface level measurement exceeded the 0.50-inch increase criteria from the established baseline of 31.40 inches. The increase criteria of 0.50 inch, considered to be an extremely tight tolerance for this tank, was revised to 1.00 inch, which is more in line with other tanks that exhibit similar erratic surface level behavior. The tank has a history of intrusions and icicle-shaped mineral buildup on the FIC plummet. The FIC plummet is contacting a shallow pool of liquid. The surface level measurement remained stable during February 1994. This tank is Sound, Interim Stabilized, and Intrusion Prevention completed.

Resolution status: This tank is experiencing an ongoing intrusion as is evident by comparison of November 1984 photos with July 1987 photos and an increasing trend in surface level data. A visual survey was conducted to determine possible paths for precipitation to enter the tank. The grade around the tank is level and weather covering is on the pits and intact. The photo package, initiated May 17, 1993, will be required to assess the current stabilization status of the tank, and to assist in determining the possible paths of intrusion. Ongoing design/isolation drawing review revealed that nozzles, floor drains and some transfer lines entering the pump pit have been left open. Photo verification of the intrusion will determine the need to provide additional isolation measures. A finalized photo schedule is not complete, however, in-tank photos for this tank may be available by late 1995.

S-304 Catch Tank. The S-304 Catch Tank was put into service November 4, 1991. The surface level measurement was recorded as 1.80 inches. The level showed a steady increase until September 30, 1993, when the level was recorded as 56.80 inches. On October 1, 1993, the level decreased from 56.80 to 54.30 inches and continued to decrease to 52.30 inches by February 28, 1994. An analysis for this catch tank was completed February 2, 1994. The results indicated that evaporation could account for the decrease in liquid level. The baseline was adjusted from 56.80 to 52.70 (-4.10) inches on February 5, 1994. No liquid has been detected in the sump.

Resolution status. A tank leak is considered highly unlikely at this time since S-304 is located in a concrete vault containing a sump, and the sump has been verified as totally dry. It is doubtful a leak of this size (160 gallons) could bypass the sump completely.

Catch tank S-304 will not appear in this report unless further activity warrants its inclusion.

241-E/W-151 Vent Station Catch Tank. The zip cord surface level reading exceeds the maximum operating limit of 36.00 inches. The manual tape has been out of service since July 7, 1992. A temporary zip cord was installed December 16, 1992. The level was 45.50 inches which exceeded the active tank limit of 50% volume of 40 inches (400 gallons). Discrepancy Report S&DA-92-511 was issued December 24, 1992. Transfers are not permitted until the tank is pumped and the level is within limits. A new calibrated zip cord was installed December 16, 1993, and the surface level reading went from 71.00 to 59.00 inches. Discrepancy Report 93-655 was issued December 17, 1993. The zip cord was replaced on December 23, 1993, with a new manual tape that read 60.50 inches. The surface level reading on February 28, 1994, was 62.75 inches.

Resolution status: The catch tank was sampled and a new manual tape was installed on December 23, 1993. Two resolutions are underway:

- 1) Transfer catch tank waste using existing cross-site lines. Required procedure is in approval stages, USQs and required PCA to be completed by March 1, 1994. Transferring with this method could be ready by March 22, 1994.
- 2) Transfer catch tank waste by tanker truck. Procedure, USQs, and jumper fabrication needed to begin pumping. These should be ready by April 1, 1994.

UX-302-A Catch Tank. The surface level measurement exceeds the maximum operating limit of 50.00 inches. Discrepancy report S&DA-92-465 was issued May 12, 1992. The current surface level reading is 66.90 inches, which exceeds the 50% volume of 54 inches (8840 gallons). The FIC plummet is contacting liquid.

Resolution status: Work packages for the transfer of waste from UX-302-A and the repair of necessary instrumentation are being prepared, and the transfer of waste is being scheduled as a prestart item for the cross-site transfer. A work package has been prepared to sample/pump this catch tank. Transfer will begin after completing Vent Station transfer. Procedures are being prepared.

III. SURVEILLANCE AND WASTE TANK STATUS HIGHLIGHTS

1. Tank 241-T-111

On February 25, 1994, Tank 241-T-111 was reclassified as a "Re-leaker." (See Occurrence Report RL-WHC-TANKFARMS-1994-0009 below for further information).

On February 28, 1994, Tank T-111 was placed on the Organics Watch List, based on an analysis of the waste classified as "conditionally safe." A single-shell tank with waste classified as "conditionally safe" (>5 wt.% TOC [dry basis] and its moisture content is ± 17 wt.%) is to be placed on the Organics Watch List. Pacific Northwest Laboratories analysis indicated exothermic activity of 215 cal/g (dry basis) in a dried sample, and moisture

content was confirmed to be approximately 80 wt.%. The analysis also shows that 151 cal/g represents the energy equivalent of a 5 wt.% TOC (dry basis) organic-nitrate/nitrite mixture, and that the waste in tank T-111 would be classified as "conditionally safe" in view of its 215 cal/g exotherm and 80 wt.% moisture content. See also Occurrence Report RL-WHC-TANKFARMS-1993-0110 which reports that there is not an Unresolved Safety Question associated with this tank.

2. BX Tanks Saltwell Jet Pumping

Saltwell jet pumping in both tanks 241-BX-110 and 111 has been shut down awaiting the results of an Operational Safety Requirements/Operating Specifications Document compliance assessment. This assessment is to assure that the documents are in compliance with the Conduct of Operations requirements. The BX-Emergency Pumping Program is prioritized to be one of the first programs to resume when compliance with these documents are verified.

Tank 241-BX-110 - Saltwell jet pumping began December 4, 1993, to pump contents of this tank into 244-BX Double Container Receiver Tank (DCRT). Saltwell pumping was shut down on December 9, 1993, for repair of system air leaks. After repair of the leaks, it was determined other problems existed, resulting in a work order to modify the system to run the pump manually. It is uncertain whether any further waste can actually be pumped. A total of 4,000 gallons has been pumped from BX-110.

Tank 241-BX-111 - Saltwell jet pumping began on October 22, 1993, to pump tank BX-111 into 244-BX Double Container Receiver Tank. A total of 72,100 gallons has been pumped. No gallons were pumped this month because of the compliance assessment (see above).

3. Tank Waste Remediation System Safety Initiatives

The U. S. Secretary of Energy has directed that six safety initiatives be implemented in the Tank Waste Remediation System Program to accelerate the mitigation/resolution of the higher priority waste tank safety issues at the Hanford Site. Forty-two milestones were established for accomplishing the initiatives. One milestone was completed and approved in February: (2b) "Approval of the Broad Based Environmental Assessment." A second milestone was completed in February and forwarded to DOE for approval: (2s) "Close Ferrocyanide Unreviewed Safety Question."

(2b) Approval of the broad Waste Tank Safety Program Environmental Assessment and the accompanying Finding of No Significant Impact provided an envelope of conditions under which intrusive activities in the waste tanks (e.g., sample collection, instrument insertion and minor modifications) could be performed. Without this umbrella approval each separate activity in each tank would require its own individual, often redundant, Environmental Assessment, which could take several weeks to review and approve. The approval of the above document has greatly enhanced the flexibility for planning and accelerated the ability to conduct field work in the tank farms.

4. Tank Farms Stand Down (Administrative Hold)

On August 12, 1993, non-essential work activities in the tank farms were put on administrative hold by WHC senior management until operators, supervisors and managers are retrained to perform their duties in a safe and accountable manner. Minimal essential activities required for safety, monitoring and compliance, including the daily "pump-bumping" of the SY-101 mixer pump, will continue. The administrative hold has impacted several programmatic goals for Tank Waste Remediation System (TWRS). A letter from WHC senior management has been submitted to DOE-RL addressing these programmatic delays. Further corrective actions were addressed in a Tank Waste Remediation System Tank Farm Resumption of Work Plan, dated September 13, 1993. Contained within the Work Plan is the Integrated Schedule for reinitiating individual work activities on an ongoing basis.

Testing of the SY-101 mixer pump continues to be successfully accomplished. Radioactive waste being saltwell pumped from BX-111 has been halted pending the results of an Operational Safety Requirements/Operating Specifications Document compliance assessment (see item #1 above). Many other tank farm work activities have now been fully resumed. In addition, reorganization is taking place to reduce management layers, and the Integrated Upgrade Plan of Action was issued January 31, 1994.

5. Tank 241-SY-101 Mixer Pump

Full Scale Test #10 of the Post-Phase B mitigation mixer pumping was started on February 28, 1993. The pump was run for 5 minutes at 1000 RPM in the 35-degree orientation.

6. Criticality Safety Issues

On April 30, 1992, an Unreviewed Safety Question (USQ) concerning criticality safety issues in the Tank Farms was declared to be a reportable event. Unusual Occurrence report RL-WHC-TANKFARM-1992-0037 was issued. A prohibition was placed on all waste transfers into and between the tank farm facilities which is negatively affecting various Hanford programs. On September 1, 1992, the approved Justification For Continued Operations (JCO) was received. This establishes the limitations for all tanks receiving transfers and also excludes any interim stabilization of single-shell tanks until further evaluations are completed and approved by DOE-HQ. On December 15, 1992, the approved JCO was issued as WHC-SD-WM-JCO-001, "Justification for Continued Operations of Hanford High Level Waste Tanks Resulting From the Criticality USQ, 492-CRITSAS."

7. Tank 241-C-102 Treated as an Organic Watch List Tank

Tank C-102 is currently being treated as a Watch List tank, relative to tank intrusive activities. A safety concern exists, related to the potential for a fire on the "dry" surface of the waste in this tank, due to the presence of absorbed (interstitially bound) organic liquid. Treating Tank C-102 as an Organic Watch List tank is a precautionary measure pending completion of the Level I Interim Safety Basis (ISB) Topical Report by September 30, 1994. The Topical Report will assess the relevant safety hazards (if any) and specify controls required (if any) to ensure continued safe interim storage.

It was concluded that adequate information to perform an Unreviewed Safety Question (USQ) screening does not exist at this time. An auger sample is scheduled to be taken during April 1994, the analysis of which should provide more information.

8. Liquid Level Monitoring in SSTs 241-C-102, -107, and -110

The installed liquid level monitoring instruments for SSTs 241-C-102, -107, and -110 cannot indicate liquid level in the tanks due to their surface characteristics. Liquid level readings were successfully obtained in February 1994, for each of these tanks from their saltwell screens, using the tank dip tubes. Liquid level measurements will be obtained at least monthly, until stabilization pumping of these tanks resumes in August 1994.

9. Occurrence Reports

RL-WHC-TANKFARM-1994-0009 (UNUSUAL OCCURRENCE) - APPARENT DECREASE IN LIQUID LEVEL IN SINGLE-SHELL UNDERGROUND STORAGE TANK 241-T-111 (10-Day report, 2/28/94)

The liquid level in Tank 241-T-111, as measured by an automatic surface level indicating device, has decreased 1.6 inches during the past year.

Tank 241-T-111 was previously declared an assumed leaker in 1984 with an assumed leak volume of <1000 gallons. From 1984 to January 1993, the level has shown a steadily increasing trend (liquid level increased approximately 0.6 inches above the baseline). Since January 1993, the level has decreased to 1.0 inches below the liquid level baseline. The leak detection decrease criteria for this tank is 2 inches. This criteria has not been exceeded. This tank was pumped in 1978. Approximately 87,000 gallons were transferred out.

In addition to the automatic liquid level surface measurements taken on this tank, periodic Liquid Observation Well (LOW) readings are taken. This method uses a neutron source inserted into a drywell installed in the tank and measures liquid level by the reflection of radiation from the liquid surface interface. These readings also appear to show a decrease in liquid level during this time period although it is difficult to quantify the exact amount.

A review of drywell data which measures underground gamma radiation levels outside of the tank does not indicate any leakage to the soil surrounding the tank.

The last in-tank photographs were taken in 1984.

Tank 241-T-111 contains 458,000 gallons of waste material (predominantly sludge); 51,000 gallons of liquid of which 45,000 is assumed pumpable.

This tank is currently being treated as a Watch List tank (Organics).

On February 25, the occurrence was upgraded from Off-Normal to Unusual Occurrence.

RL-WHC-TANKFARM-1994-005 (OFF-NORMAL) - ALARMS FOR DOUBLE-CONTAINED RECEIVER TANKS DISCOVERED NOT INSTALLED RESULTS IN OSD NON-CONFORMANCE: OSD LIMITS FOR LEVEL/PRESSURE NOT EXCEEDED (10-Day Report, 2/10/94)

On January 27, 1994, during a review of operating procedures, it was discovered that requirements of OSD-T-151-00011, "Operating Specifications for Saltwell Receiver Vessels," section 11.2.B, "Liquid Level," and section 11.2.E, "Primary Tank Pressure," had not been met.

Section 11.2.B requires a high liquid level alarm be connected to the liquid level conductivity probe. This alarm has not been installed in the Double-Contained Receiver Tanks (DCRT).

Section 11.2.E requires a high pressure alarm for the primary tank pressure. This alarm has not been installed in the DCRTs.

It has been determined that 244-TX and 244-BX are in non-conformance to the OSD, and it is assumed that the remaining DCRTs are also deficient. Tanks 244-TX, 244-S, 244-U and 244-CR are in a static condition, either receiving or transferring waste. Tank 244-BX is being used to receive saltwell liquid. On January 28, the transfer of waste from 241-BX-111 to 244-BX DCRT was secured following verification of the non-conformance. At that time, tank pressure and liquid levels were within OSD limits.

All OSDs are being reviewed by Tank Waste Operations to ensure that adequate implementation can be demonstrated.

The root cause is inadequate administrative control. The OSD for Saltwell Receiver Vessel DCRTs was developed, issued and implemented for use by operations without an adequate field verification process. This allowed for sections of the OSD to be implemented without the necessary equipment in place for compliance.

RL-WHC-TANKFARM-1994-0002 (OFF-NORMAL) - SOIL LOADING OF WASTE TANK 241-SY-101 EXCEEDS OPERATIONS SPECIFICATION DOCUMENT (OSD) OSD-T-151-00007 LIMIT (10-Day Report, [latest], 2/24/94)

On January 8, 1994, a tank dome survey for SY-101 was performed to determine the amount of soil and gravel on top of the dome. The results of the survey were forwarded to Waste Tank Operations (WTO) personnel on January 10, 1994.

On January 11, the survey results were reviewed and determined to be a violation of OSD-T-151-00007 had occurred in relation to soil loading for this tank. Note: There are no Operational Safety Requirements (OSR) for tank dome loading. There are 3 limits specified in the OSD, when the three are added together, they result in a violation of the first level of control.

Immediate actions were taken to restrict vehicle access to the SY Tank Farm until concurrence from Waste Tank Plant Engineering can be obtained. Additionally, a snow blower has been staged in the event of a major snow accumulation atop Tank SY-101.

As of this 10-day report dated February 24, 1994, further investigation is being conducted as to the cause of why no further safety review was conducted prior to the gravel addition.

RL-WHC-TANKFARM-1993-0110 (OFF-NORMAL) - POTENTIAL REACTIVE COMPONENT DISCOVERED IN SINGLE-SHELL WASTE TANK 241-T-111 (10-Day Report, [latest], 2/28/94)

On December 1, 1993, WHC Tank Farms Plant Review Committee (PRC) reviewed a potential unreviewed safety question (USQ) relating to Tank T-111. Core samples taken in 1991 were analyzed in 1992. An uncharacterized reactive component (exotherm) was identified in the sample area. Background information indicated there are data in composite samples taken in 1974 that also show exotherms, however, the data have been questionable.

On February 10, 1994, the Plant Review Committee reviewed the data and determined that an Unresolved Safety Question does not exist on the discovery of a potential reactive component within the waste contents of this tank.

Corrective actions are being taken to correct inadequate administrative control caused by no criteria being established for early screening and notification of anomalous data.

(Although not shown in this occurrence report, this tank was added to the Organic Salts Watch List on February 28, 1994. See item #1 above for further information).

RL-WHC-TANKFARM-1993-0105 (UNUSUAL) - DISCOVERY OF NEW GAS (METHANE GAS) IN WASTE TANK 241-SY-101 FOUND WHEN REVIEWING DATA FROM EVENT I AT LEVELS OF 1000 PPM (10-Day Update [latest], 2/11/94)

On December 2, 1993, WHC Operations was notified by Los Alamos National Laboratories (LANL) that upon further review of the data from Tank SY-101 window "I" which occurred on June 26, 1993, methane gas (CH_4) was found in the amount of 1000 parts per million (ppm) in the tank vapor space. LANL also advice WHC operations that methane has 3.2 times the heating value of hydrogen (H_2). This in turn adds fuel to the burn analysis in the current safety assessment.

All mixer pump activities were halted, with the exception of the pump bump operations, until further resolution was obtained. The Technical Review Group met with LANL and concurred with the presentation from LANL to continue with mixer pump testing. DOE-RL concurred with WHC to lower the maximum level to 406 inches and continue with pump testing. The control to lower the maximum level to 406 inches was implement on December 2, 1993. The current level of the tank is 400 inches and an auto shut-off is installed that would immediately shut off the pump if the tank level rises two inches during pump bump operations.

The lowering of the maximum level allowable for mixer pump operations from 408 to 406 inches will provide an adequate safety margin bounded within the current safety assessment. The impact of the occurrence on

the environment, safety and health of workers and the public, is negligible.

LANL prepared a document to outline the controls needed to allow continued mixer pump operations and testing. The basis for the LANL report was that methane adds approximately 10% fuel to the burn analysis. With this additional fuel LANL's recommendation was to lower the maximum level for mixer pump operations to 406 inches from 408 inches. The current level of the tank is 400 inches and an automatic shut-off is installed that would immediately shut off the pump if the tank level rises two inches during pump bump operations.

A root cause analysis is being conducted on this occurrence and is scheduled to be completed by January 31, 1994. The final report will be postponed from the current due date of January 17 to February 7, 1994, to allow time for the root cause analysis team to complete their investigation.

On February 10, 1994, the Plant Review Committee declared the event an Unreviewed Safety Question. It was also concluded that the safest configuration for the tank was to continue pump operation and maintain waste levels below 406 inches with a preferred level of 402 inches. A Justification for Continued Operation (JCO) is not required since operation in the safest configuration is within the limits of the authorization basis.

On February 11, 1994, the occurrence was upgraded to an Unusual Occurrence.

9. Changes to the Report

A new category has been added to Appendix C "Tank and Equipment Code/Status Definitions" under Section 3. Definitions:

TERMS/ACRONYMS - This category will provide definitions for terms and acronyms broadly used in this document (see page C-8).

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APPENDIX A

WASTE TANK SURVEILLANCE MONITORING TABLES

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TABLE A-1. WATCH LIST TANKS (Sheet 1 of 2)

These tanks have been identified as Watch List Tanks in accordance with Public Law 101-510, Section 3137, "Safety Measures for Waste Tanks at Hanford Nuclear Reservation," (1990). These tanks have been identified as the Priority 1 Hanford Site Tank Farm Safety Issues: "Issues/situations that contain most necessary conditions that could lead to worker (onsite) or offsite radiation exposure through an uncontrolled release of fission products, e.g., Tank SY-101."

February 28, 1994

Single-Shell Tanks			Single-Shell Tanks			Single-Shell Tanks		
Tank No.	Category	Officially Added to Watch List	Tank No.	Category	Officially Added to Watch List	Tank No.	Category	Officially Added to Watch List
A-101 (2)	Hydrogen	1/91	S-102 (2)	Hydrogen, Organic Salts	1/91	TY-101 (2)	Ferrocyanide	1/91
AX-101 (2)	Hydrogen	1/91			1/91	TY-103 (2)	Ferrocyanide	1/91
AX-103 (2)	Hydrogen	1/91	S-111 (2)	Hydrogen	1/91	TY-104 (2)	Ferrocyanide	1/91
B-103 (2)	Organic Salts	1/91	S-112 (2)	Hydrogen	1/91	U-103 (2)	Hydrogen	1/91
BX-102 (2)	Ferrocyanide	1/91	SX-101 (1)(2)	Hydrogen	1/91	U-105 (2)	Hydrogen	1/91
BX-106 (2)	Ferrocyanide	1/91	SX-102 (1)(2)	Hydrogen	1/91	U-106 (2)	Organic Salts	1/91
BY-103 (2)	Ferrocyanide	1/91	SX-103 (1)(2)	Hydrogen	1/91	U-107 (2)	Organic Salts	1/91
BY-104 (2)	Ferrocyanide	1/91	SX-104 (1)(2)	Hydrogen	1/91		(6) Hydrogen	12/93
BY-105 (2)	Ferrocyanide	1/91	SX-105 (1)(2)	Hydrogen	1/91	U-108 (2)	Hydrogen	1/91
BY-106 (2)	Ferrocyanide	1/91	SX-106 (1)(2)	Hydrogen, Organic Salts	1/91	U-109 (2)	Hydrogen	1/91
BY-107 (2)	Ferrocyanide	1/91		(1)(2) Organic Salts	1/91	U-111 (7)	Organic Salts	8/93
BY-108 (2)	Ferrocyanide	1/91	SX-109 (1)(2)	Hydrogen because other tanks vent thru it	1/91	46 Tanks		
BY-110 (2)	Ferrocyanide	1/91				Double-Shell Tanks		
BY-111 (2)	Ferrocyanide	1/91	T-107 (3)	Ferrocyanide	2/91	Tank No.	Category	
BY-112 (2)	Ferrocyanide	1/91	T-110 (2)	Hydrogen	1/91	AN-103 (1)(2)	Hydrogen	1/91
C-103 (2)(4)	Organic Salts	1/91	T-111 (8)	Organic Salts	2/94	AN-104 (1)(2)	Hydrogen	1/91
C-106 (2)	High Heat Load	1/91	TX-105 (2)	Organic Salts	1/91	AN-105 (1)(2)	Hydrogen	1/91
C-108 (2)	Ferrocyanide	1/91	TX-118 (2)	Ferrocyanide, Organic Salts	1/91	AW-101 (1)(5)	Hydrogen	6/93
C-109 (2)	Ferrocyanide	1/91				SY-101 (1)(2)	Hydrogen	1/91
C-111 (2)	Ferrocyanide	1/91				SY-103 (1)(2)	Hydrogen	1/91
C-112 (2)	Ferrocyanide	1/91				6 Tanks		

Four tanks (S-102, SX-106, TX-118, U-107) are on more than one Watch List
See footnotes next page

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TABLE A-1 WATCH LIST TANKS (Sheet 2 of 2)

Footnotes:

- (1) These eight single-shell tanks and the six double-shell tanks on the Watch List are actively ventilated.

Although on various dates beginning in March 1990, WHC identified tanks containing ferrocyanide, organic salts, etc., which were then added to this report as Watch List tanks, the following official notifications were made to DOE-RL:

- (2) Letter 9059124, H. D. Harmon, WHC, to R. E. Gerton, DOE-RL, "Safety Measures for Waste Tanks at Hanford Site, Richland, Washington," dated January 8, 1991, identified 23 ferrocyanide tanks, 23 tanks with potential for accumulation of flammable gas, eight organic tanks, and one high heat load tank, as being Watch List tanks. (52 tanks)
The ferrocyanide and hydrogen tanks were declared Unresolved Safety Questions (USQ); the organic tanks and the high heat load tank were within the safety envelope as defined by the safety analysis reports and were not designated as USQs.
- (3) Letter 9059124.1 (revision to 9059124 above), dated February 8, 1991, added T-107 to the Ferrocyanide Watch List. (53 tanks)
- (4) Tank C-103 was declared a USQ per Unusual Occurrence Report RL-WHC-TANKFARM-1992-0069, issued September 1992, because of an organic layer covering the surface. This tank was previously identified as a Watch List tank in footnote (2) above.
- (5) Letter 9354700, J. C. Fulton, WHC, to R. E. Gerton, DOE-RL, "Addition of Tank 241-AW-101 to Flammable Gas Watch List," dated June 3, 1993, added this double-shell tank to the Watch List. (54 tanks)
- (6) Letter 9353957, J. C. Fulton, WHC, to R. E. Gerton, DOE-RL, "Single-Shell Waste Tank 241-U-111," dated May 24, 1993, recommended this tank be included on the Organic Tanks Watch List. This tank was added to the Watch List on August 31, 1993.
- (7) Tank U-107 was declared a USQ per Occurrence Report RL-WHC-TANKFARM-1993-0115, issued December 1993, because of an increase in slurry growth. This tank is also on the Organics Watch List.
- (8) Tank T-111 was added to the Organic Salts Watch List on February 28, 1994, upon recommendation by WHC Waste Tank Safety Program.

Note: BX-110, BX-111, BY-101 and T-101 were removed from the Ferrocyanide Watch List in July 1993, per letter 93-CAB-223, John H. Anttonen, DOE-RL, to T. M. Anderson, WHC, "Resolution of Unreviewed Safety Question for Four Ferrocyanide Tanks," dated July 9, 1993.

TABLE A-2. TANKS CONTAINING >1000 GRAM MOLE OF FERROCYANIDE (Watch List Tanks)(Sheet 1 of 2)

These tanks have been declared an Unreviewed Safety Question (USQ) because their explosion potential exceeds previously reported safety analysis consequences (1).

Temperatures in these tanks did not exceed the maximum temperature criteria for February 1994.

All Watch List tanks are reviewed for increasing temperature trends. Tanks connected to TMACS are required to be monitored continuously; those not connected are required to be monitored weekly. Temperatures are taken in the waste unless indicated otherwise.

Tank No.	Riser No.	Highest Temperature Reading in Waste (F.)	Date of Reading	Readings Taken by TMACS (5)	Total Waste (inches) (6)	FeCN (2) (x1000 g mol)	Estimated Heat Load (3)		Date Declared Assumed Leaker	Interim Stabilized Date
							(Btu/h)	(kW)		
BX-102	8	63	02/21/94	No	42	<1	2800	<2.93	1971	11/78
BX-106	1	64	02/19/94	No	24	<1	2500	<2.93	Sound	N/A
BX-106	7	63	02/19/94	No	24	<1	2500	<2.93	Sound	N/A
BY-103	1	81	02/21/94	Yes	153	66	5500	2.52	1973	N/A
BY-104	1	128	02/06/94	Yes	155	83	8700	1.61	Sound	1/85
BY-104	10B	114	02/20/94	Yes	155	83	8700	1.61	Sound	1/85
BY-105	10C	113	02/27/94	Yes	190	36	8700	0.97	1984	N/A
BY-105	1	120	02/20/94	Yes	190	36	8700	0.97	1984	N/A
BY-106	1	129	02/20/94	Yes	241	70	10100	0.97	1984	N/A
BY-107	1	93	02/27/94	Yes	104	42	8900	4.25	1984	7/79
BY-108	8	110	02/20/94	Yes	90	58	9200	6.74	1972	2/85
BY-110	1	116	02/28/94	Yes	152	71	6900	7.39	Sound	1/85
BY-110	10A	109	02/06/92	Yes	152	71	6900	7.39	Sound	1/85
BY-111	LOW	87	02/27/94	Yes	174	6	5500	10.02	Sound	1/85
BY-111	14	84	02/27/94	Yes	174	6	5500	10.02	Sound	1/85
BY-112	LOW	83	02/27/94	Yes	113	2	6100	<2.93	Sound	5/85
BY-112	5	90	02/27/94	Yes	113	2	6100	<2.93	Sound	5/85
C-108	5	74	02/28/94	No	31	25	6000	<2.93	Sound	3/84
C-108	1	76	02/22/92	No	31	25	6000	<2.93	Sound	3/84
C-109	8	78	02/28/94	No	31	30	7000	1.11	Sound	11/83
C-109	3	76	02/13/94	No	31	30	7000	1.11	Sound	11/83
C-111	5	72	02/07/94	No	28	33	6400	<2.93	1986	3/84
C-112	1	80	02/13/94	No	45	31	7500	<2.93	Sound	9/90
C-112	8	76	02/02/94	No	45	31	7500	<2.93	Sound	9/90
T-107	4	65	02/22/94	No	73	5	3000	<2.93	1984	N/A
TX-118 (4)	4	77	02/27/94	No	134	<1	4600	1.44	Sound	4/83
TY-101	4	65	02/14/94	No	50	23	3100	<2.93	1973	8/83
TY-103	4	69	02/06/94	No	66	28	4000	<2.93	1973	2/83
TY-104	4	65	02/06/94	No	24	12	3000	<2.93	1981	1/83
20 Tanks			Legend: TMACS = Tank Monitor & Control System							

Note: Tanks BX-110, BX-111, BY-101 and T-101 were removed from this Watch List in July 1993, per letter 93-CAB-223, John H. Anttonen, DOE-RL, to T. M. Anderson, WHC, "Resolution of Unreviewed Safety Question for Four Ferrocyanide Tanks," dated July 9, 1993.

FOOTNOTES: See next page

TABLE A-2. TANKS CONTAINING >1000 GRAM MOLE OF FERROCYANIDE (Watch List Tanks) (Sheet 2 of 2)

FOOTNOTES:

- (1) This Priority 1 Waste Tank Safety Issue is stated as follows: "Could the concentrations and distribution of ferrocyanide and nitrate/nitrite in the tanks lead to an explosion if allowed to heat up or if an uncontrolled exothermic reaction could occur?"
- (2) The amount of FeCN reported in the tanks is based on WHC-SD-WM-ER-133-REV 0, "An Assessment of the Inventories of the FeCN Watch List Tanks," (Table 3-7), October 1991.
- (3) The estimated heat generation rates are from WHC-EP-0709, "Estimation of Heat Load in Waste Tanks Using Average Vapor Space Temperatures," December 1993. This document analyzed all ferrocyanide tanks.
- (4) This tank also contains a high concentration (>3% wt TOC) of organic salts.
- (5) This column indicates which tanks are being monitored by the Tank Monitor & Control System (TMACS); automatic temperature readings are taken continuously. Temperatures in tanks connected to TMACS but temporarily not being monitored by TMACS are taken manually.
- (6) Total waste in Kgal taken from Table E-5, Inventory and Status by Tanks for SSTs. Kgal/inches calculations for the temperature tables are as follows: (waste in inches is an approximation only for these temperature tables)

$$\frac{\text{Kgal waste} - 12.5 \text{ Kgal waste}^*}{2.75 \text{ Kgal/inch}} + 12 \text{ inches}^*$$

* The bottom 12 inches in dish bottom tanks contain 12.5 Kgal. All tanks are calculated as dish bottom tanks for the temperature tables, although A and AX farms have flat bottoms. Inches are from centerline tank bottom.

**TABLE A-3. TANKS WITH POTENTIAL FOR HYDROGEN OR FLAMMABLE GAS ACCUMULATION
ABOVE THE FLAMMABILITY LIMIT (Watch List Tanks)**

These tanks have an Unreviewed Safety Question (USQ) because of the potential consequences of a radiological release resulting from a flammable gas burn, an event not analyzed in the SST Safety Analysis Report.

Temperatures in these tanks did not exceed the applicable maximum temperature criteria for the month of February 1994.

All Watch List tanks are reviewed for increasing temperature trends. Temperatures are taken in the waste unless indicated otherwise.

Tank No.		Highest Temperature Reading (F.) in Waste	Date of Reading	Total Waste (3) (inches)	Monitoring Frequency	Assumed Leaked Date	Interim Stabilized Date
A-101		156	02/21/94	354	Weekly	SOUND	N/A
AX-101		139	02/21/94	279	Weekly	SOUND	N/A
AX-103		115	02/21/94	48	Weekly	SOUND	8/87
S-102 (2)		108	02/18/94	207	Weekly	SOUND	N/A
S-111		93	02/07/94	224	Weekly	SOUND	N/A
S-112		88	02/07/94	239	Weekly	SOUND	N/A
SX-101 (5)		139	02/26/94	173	Weekly	SOUND	N/A
SX-102		158	02/26/94	206	Weekly	1993	N/A
SX-103		177	02/26/94	245	Weekly	SOUND	N/A
SX-104		169	02/26/94	231	Weekly	1988	N/A
SX-105		182	02/26/94	256	Weekly	SOUND	N/A
SX-106 (2)		110	02/01/94	203	Weekly	SOUND	N/A
SX-109 (1)	Riser 2	154	02/12/94	98	Weekly	1965	5/81
SX-109 (1)	Riser 8	163	02/26/94	80	Weekly	1985	5/81
T-110		62	02/27/94	145	Weekly	SOUND	N/A
U-103		87	02/21/94	178	Weekly	SOUND	N/A
U-105		90	02/07/94	159	Weekly	SOUND	N/A
U-107 (2)(5)		78	02/21/94	165	Weekly	SOUND	N/A
U-108		87	02/21/94	178	Weekly	SOUND	N/A
U-109		86	02/16/94	178	Weekly	SOUND	N/A
AN-103	Double-shell tank	118	02/21/94		Weekly	SOUND	N/A
AN-104	Double-shell tank	122	02/21/94		Weekly	SOUND	N/A
AN-105	Double-shell tank	116	02/21/94		Weekly	SOUND	N/A
AW-101 (4)	Double-shell tank	103	02/28/94		Weekly	SOUND	N/A
SY-101	Riser 17b	119	02/14/94		Daily	SOUND	N/A
SY-101	Riser 17c	118	02/19/94		Daily	SOUND	N/A
SY-103	Double-shell tank	98	02/21/94		Weekly	SOUND	N/A
25 Tanks							Legend: N/A = Not Applicable

(1) Tank SX-109 has the potential for flammable gas accumulation only because other SX tanks vent through it.

(2) Tanks S-102, SX-106, and U-107 are also on the Organics Watch List.

(3) See footnote (6) in Table A-2 (Ferrocyanide Tanks) for Total Waste/Inches calculations. Waste in inches is an approximation for temperature tables only.

(4) Tank AW-101 was added to this list per letter 9354700, J. C. Fulton, WHC, To R. E. Gerton, DOE-RL, "Addition of Tank 241-AW-101 to Flammable Gas Watch List," dated June 3, 1993.

(5) Tank U-107 was added to this list per Unusual Occurrence Report RL-WHC-TANKFARM-0115, issued December 1993, because of an increase in slurry growth.

**TABLE A-4. SINGLE-SHELL TANKS CONTAINING CONCENTRATIONS OF ORGANIC SALTS
>3 WEIGHT % TOTAL ORGANIC CARBON (TOC) (Watch List Tanks) (Sheet 1 of 2)**

These tanks have organic chemicals which are potentially flammable and mixtures of organic materials mixed with nitrate and nitrate salts can deflagrate. They are listed here because of their "potential for release of high level waste because of uncontrolled increases in the temperature or pressure." Double-Shell tanks have >3 Weight % TOC and are not on the Watch List because they contain mostly liquid and there is no credible organic safety concern for tanks which contain mostly liquid. The safety concern is with tanks that primarily contain solids because they could dry out and heat up, and "high organic concentrations in the tanks could support an exothermic reaction at elevated temperatures (350 degrees F/180 degrees C)." These tanks (with the exception of C-103), do not have an associated USQ because the presence of organic material was reviewed in the SST Safety Analysis Report.

Temperatures in these tanks did not exceed the applicable maximum temperature criteria for the month of February 1994. These tanks are monitored weekly. All Watch List tanks are reviewed for increasing temperature trends.

Temperatures are taken in the waste unless indicated otherwise.

Tank No.	Temperature Reading (F.) in waste	Date of Reading	Total Waste Inches (4)	Assumed Leaked Date	Interim Stabilized Date	Source of Waste (11)	Organic Content (wt.%) (6)	NaNO 3 and NaNO 2 (wt.%) (6)	TOC (WT.%) (7)	Waste Surface Potentially Dry (8)	Last Date Sampled
B-103	60	02/28/94	29	1978	2/85	First and second cycle waste from B Plant and in-tank solidification (ITS-1 & ITS-2) evaporator bottoms	11.4 (9)	60.5 (9)	3.3	x	9/75
C-103 (3)	119	02/21/94	78	SOUND	N/A	PUREX and insoluble strontium-rich sluicing solids from the operation of 244-CR Vault	-	-	-		9/90
S-102 (1)	108	02/18/94	207	SOUND	N/A	REDOX	21.0 (10)	41.0 (10)	6.1	x	2/80
SX-106 (1)	110	02/01/94	203	SOUND	N/A	Salt waste and first cycle condensate from REDOX, and 242-S Evaporator bottoms	14.6 (9)	80.9 (9)	4.3		8/79
T-111 (12)	63	02/07/94	232	1984	N/A	Data not yet available					
TX-105	101	02/07/94	228	1977	9/83	) Tributyl phosphate (TBP)	12.8 (9)	52.7 (9)	3.7	x	1/81
TX-118 (2)	77	02/27/94	134	SOUND	4/83	) process waste and 242-T	20.2 (10)	50.4 (10)	5.9	x	9/81
U-106	81	02/07/94	90	SOUND	N/A	) Evaporator bottoms	46.6 (10)	52.4 (10)	13.6		6/77
U-107 (1)	78	02/21/94	155	SOUND	N/A	)	14.7 (9)	75.4 (9)	4.3		12/74
U-111 (5)	80	02/07/94	127	SOUND	N/A	Concentrated B Plant Waste	48.2 (10)	---(10)	14.1	x	7/93
10 Tanks											

See Footnotes next page

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**TABLE A-4. SINGLE-SHELL TANKS CONTAINING CONCENTRATIONS OF ORGANIC SALTS
>3 WEIGHT % TOTAL ORGANIC CARBON (TOC) (Sheet 2 of 2)**

Footnotes:

- (1) These tanks also have the potential for hydrogen or flammable gas accumulation.
- (2) Tank TX-118 also contains ferrocyanide.
- (3) Tank C-103 was declared a USQ because of an organic layer covering the surface, reference Unusual Occurrence Report RL-WHC-TANKFARM-1992-0069, issued September 1992.
- (4) See footnote (6) in Table A-2 (Ferrocyanide Temperature Table) for Total Waste/inches calculations. Waste inches calculations are approximations only for temperature tables.
- (5) Tank U-111 was added August 31, 1993. See August 1993 Summary Highlights for information and Table A-1. "Watch List Tanks" for applicable reference.
- (6) WHC, 1990, "The Kyshtym Explosion and Explosion Hazards with Nitrate-Nitrite Bearing Wastes with Acetates and Other Organic Salts," WHC-SD-LB-033, Westinghouse Hanford Company, Richland, Washington
- (7) Dry wt.% basis. Calculated as wt.% sodium acetate equivalent X.2928.
- (8) Due to absence of supernatant liquid.
- (9) Calculated from data developed by Track Radioactive Components (TRAC) computer code, 1984.
- (10) "Removal of Radionuclides from Hanford Defense Waste Solutions," RHO-SA-51, 1980, Rockwell Hanford Operations, Richland, Washington. All or part of liquid from which composition data were derived may have been transferred to double-shell tanks.
- (11) WHC, 1993, "Action Plan for Responses to Abnormal Conditions in Hanford Site Radioactive Waste Tanks with High Organic Content," WHC-EP-0461, Rev. 1, Westinghouse Hanford, Richland, Washington.
- (12) Tank 241-T-111 was added to the Organic Salts Watch List on February 28, 1994, upon recommendation by WHC Waste Tank Safety Program.

TABLE A-5. SINGLE-SHELL TANKS WITH HIGH HEAT LOADS (>40,000 Btu/h)(Sheet 1 of 2)

High heat load tanks have temperature surveillance requirements established by SD-WM-SAR-006 REV 1, "SST Isolation Safety Analysis Report," dated January 1986, and OSD-T-151-00013 REV D-O, "Operating Specifications for Single-Shell Waste Storage Tanks," dated August 1990. While all of these tanks are considered high heat load tanks per SAR definition, only one (241-C-106) is on the High Heat Watch List.

Temperatures in these tanks did not exceed SAR or OSD requirement limits for the month of February 1994. All high heat load tanks are on active ventilation unless indicated otherwise in the footnotes. These high heat tanks are reviewed for increasing temperature trends.

Temperatures are taken in the waste unless indicated otherwise.

Tank No.	Location (6)	Temperature Reading (F.) in Waste	Date of Reading	Total Waste Inches (7)	Monitoring Frequency	Estimated Heat Load (1)		Date Declared Assumed Leaker	Interim Stabilized Date
						(Btu/h)	(kW)		
A-104 (4)	R-18	192	02/21/94	18	Weekly	50000	15	1975	9/78
A-105 (4)	R-18	142	02/21/94	14	Weekly	50000	15	1983	7/79
C-106 (2)(3)	Riser 8	149	02/21/94	91	Weekly	110000	32	SOUND	N/A
C-106 (2)(3)	Riser 14	132	02/07/94	91	Weekly	110000	32	SOUND	N/A
SX-107	Tree 2	172	02/11/94	45	Monthly	42000	12	1964	10/79
SX-107	Tree 8	172	02/11/94	45	Monthly	42000	12	1964	10/79
SX-108	Tree 2	197	02/02/94	49	Monthly	45000	13	1962	8/79
SX-108	Tree 8	202	02/02/94	49	Monthly	45000	13	1962	8/79
SX-109 (3)	Tree 2	154	02/12/94	98	Weekly	50000	15	1965	5/81
SX-109 (3)	Tree 8	153	02/26/94	98	Weekly	50000	15	1965	5/81
SX-110	Tree 2	176	02/02/94	30	Monthly	42000	12	1976	8/79
SX-110	Tree 8	171	02/02/94	30	Monthly	42000	12	1976	8/79
SX-111	Tree 2	194	02/11/94	53	Monthly	44000	13	1974	7/79
SX-111	Tree 8	167	02/11/94	53	Monthly	44000	13	1974	7/79
SX-112	Tree 2	154	02/02/94	41	Monthly	43000	13	1969	7/79
SX-112	Tree 8	161	02/02/94	41	Monthly	43000	13	1969	7/79
SX-114	Tree 2	193	02/02/94	73	Monthly	58000	17	1972	7/79
SX-114	Tree 8	190	02/02/94	73	Monthly	58000	17	1972	7/79
10 Tanks						Legend: Tree = Thermocouple Tree			
A-105 Laterals (5)						248	02/21/94	Weekly	
Temperatures are taken in 34 thermocouples located in the laterals beneath A-105. SAR requirements (see top of table) do not apply to these temperatures; however, Westinghouse Hanford has voluntarily chosen to apply the waste temperature limits to the soil temperature for surveillance reporting.									

Footnotes - see next page

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TABLE A-5. SINGLE-SHELL TANKS WITH HIGH HEAT LOADS (>40,000 Btu/h)(Sheet 2 of 2)

Footnotes:

- (1) High heat loads as of 1988, evaluation completed April 20, 1989 (kW = 3412 Btu/h). The predominant heat load for these tanks is from CS 137 (half life of 30 years) and SR 90 (half life of 28.1 years). Tank C-105 was re-evaluated in WHC-SD-WM-ER-189, "Thermal Analysis of Tank 241-C-105 in Support of Process Test," January 1993. Engineering Change Notice #196834, June 24, 1993, changed the status of C-105 from High Heat Load to Normal, effective July 1, 1993. Tank C-106 was re-evaluated using a revised thermal history based on the thermal transient behavior during the ventilation outage in 1992. WHC-SD-WM-ER-200 "Revised Thermal History of Tank 241-C-106," Issued December 20, 1993, documents the new heat load estimate of 110,000 Btu/hr (+/-20,000 Btu/h) for this tank.
- (2) Periodic water additions are required in C-106 to maintain evaporative cooling and thus prevent overheating. This tank is scheduled for partial retrieval starting in 1997, at which time cooling water additions will be discontinued. Temperatures in Riser 8 are consistent at mid-150 degrees, however, temperatures in riser 14 vary between approximately 120 and 135, also consistently. Tank Monitor & Control System installation in C farms has interrupted some temperature frequencies in late February; also, the integrity of these temperatures is considered suspect.
- (3) Watch List Tanks: C-106 is on the Watch List because "without water additions (in the event of a leak) the tank could exceed structural temperature limits resulting in unacceptable structural damage." SX-109 is on the hydrogen Watch List because it has the potential for flammable gas accumulation due to other SX tanks venting through it.
- (4) A-104/105/106 exhaustor has been out of service from October 1, 1991, until August 20, 1992, when it was briefly restarted. Problems exist which must be resolved before the exhaustor is operational. Temperatures in A-104 and A-105 are monitored weekly.
- (5) Maximum lateral temperatures under A-105 increased 20 degrees F. by January 1992, but then dropped a few degrees and have remained fairly stable at current temperature. These temperatures are monitored weekly.
- (6) Tanks A-104 and A-105
Two temperature probes are installed in risers in A-104, and six are installed in risers in A-105. These are individual probes. In A-104, the probes are in contact with the sludge; in A-105, they are in contact with the bottom of the tank (A-105 has a bulged bottom).

Tank C-106

Tank C-106 has six functioning thermocouples (#1 through 6) on riser 8, and 12 functioning thermocouples on riser 14.

Tanks SX-107, 108, 109, 110, 111, 112, and 114

Each of these tanks has eight thermocouple trees, with eight thermocouples on each tree, with the exception of SX-108, which has four operational thermocouples on each of two trees. Tree #2 and Tree #8 are monitored in each of these SX tanks..

- (7) Calculations for Total Waste Inches: see footnote (6), Table A-2 (Ferrocyanide Tanks). Waste in inches is an approximation only for temperature tables.
- (8) There are 19 single-shell tanks with active ventilation (eight are on the Watch List as indicated by an asterisk):

A-104	SX-101 *	SX-107
A-105	SX-102 *	SX-108
A-106	SX-103 *	SX-109 *
C-104	SX-104 *	SX-110
C-105	SX-105 *	SX-111
C-106 *	SX-106 *	SX-112
		SX-114

TABLE A-6. NON-WATCH LIST LOW HEAT LOAD TANKS (<40,000 Btu/h)

(Page 1 of 3)

Temperatures are taken semiannually in January and July, unless otherwise indicated, in the following 95 single-shell tanks. Legend follows table.

	Tank No.	Highest Temperatures taken in waste		Total Waste (1)		Comments
		Jul. 93	Jan. 94	Kgal	Inches	
1	A-102	92	87	41	15	
2	A-103	117	114	370	135	
3	A-106	137	135	125	50	
4	AX-102	76	71	39	10	Only TC#5 working, reading in vapor space Control box contaminated inside
5	AX-104	98	92	7	3	
6	B-101	108	109	113	48	
7	B-102	63	63	32	19	TC#1 O/S, reading in vapor space
8	B-104	66	65	371	142	
9	B-105	66	65	306	50	
10	B-106	62	63	117	67	TC#1 & 2 O/S
11	B-107	62	60	165	41	TC#1 thru 3 O/S, reading in vapor space
12	B-108	62	64	94	54	
13	B-109	61	63	127	97	
14	B-110	68	63	246	94	TC#1 thru 4 O/S. Reading in vapor space
15	B-111	86	86	237	19	TC#1 & 2 O/S, work order issued, historical readings erratic
16	B-112	63	64	33	7	
17	B-201	60	60	29	151	
18	B-202	61	60	27	141	
19	B-203	62	61	51	263	
20	B-204	62	61	50	258	
21	BX-101	O/S	O/S	43	27	All TCs O/S, work order issued, last reading 74 F. in 11/92
22	BX-103	O/S	O/S	66	31	All TCs O/S, last reading 77 F. in 10/92
23	BX-104	O/S	O/S	99	43	(2) No TC tree per Riser Configuration document Last reading 87 F. in 10/80
24	BX-105	63	66	51	26	
25	BX-107	O/S	O/S	345	133	All TCs O/S, work order issued, last reading 69 F. in 10/82
26	BX-108	63	65	26	17	
27	BX-109	77	O/S	193	78	Temp reading obtained 7/93 only, 2 attempts made 1/94 No historical readings available
28	BX-110	68	74	199	80	Readings taken weekly, pumping began, now on hold
29	BX-111	65	69	211	84	Readings taken weekly, tank being pumped
30	BX-112	62	65	165	67	
31	BY-101	75	75	387	148	Continuous readings taken on TMACS
32	BY-102	O/S	O/S	341	131	(2) No TC tree per Riser Configuration document. Last reading 72 F. in 4/79
33	BY-109	O/S	O/S	423	161	(2) No TC tree per Riser Configuration document.

TABLE A-6. NON-WATCH LIST LOW HEAT LOAD TANKS (<40,000 Btu/h)
(Page 2 of 3)

Temperatures are taken semiannually in January and July, unless otherwise indicated, in the following 95 single-shell tanks. Legend follows table.

	Tank No.	Highest Temperatures taken in waste		Total Waste (1)		Comments
		Jul. 93	Jan. 94	Kgal	Inches	
34	C-101	88	86	88	39	
35	C-102	O/S	O/S	423	161	Broken coupling, work order issued, last reading 96 F. in 11/92
36	C-104	87	85	295	115	TC#1 thru 5 O/S, reading in vapor space
37	C-105	92	80	150	63	Monitored weekly, formerly on High Heat Load list
38	C-107	125	124	275	107	Monthly reading requirement per procedure, monitored weekly
39	C-110	65	66	187	75	TC#1 thru 4 O/S, reading in vapor space
40	C-201	61	56	2	13	
41	C-202	61	60	1	8	
42	C-203	60	59	5	29	
43	C-204	O/S	O/S	3	18	No hookup to tree, last reading prior to '91.
44	S-101	115	118	427	162	TC#1, 3, 5, & 6 O/S, work order issued
45	S-103	85	87	248	98	
46	S-104	104	108	294	114	
47	S-105	73	78	456	173	
48	S-106	78	81	543	205	
49	S-107	107	110	368	129	
50	S-108	85	89	604	227	
51	S-109	O/S	68	568	214	Readings available on TC#7 only
52	S-110	116	117	390	149	
53	SX-113	73	77	26	15	
54	SX-115	O/S	O/S	12	10	(2) No TC tree, pre Riser Configuration document, last reading prior to 12/91
55	T-101	66	72	102	45	Formerly on ferrocyanide Watch List
56	T-102	O/S	O/S	32	19	(2) No TC tree per Riser Configuration document, last reading 68 F. in 2/81
57	T-103	59	62	27	17	
58	T-104	O/S	62	445	169	All TCs O/S, work order issued
59	T-105	O/S	O/S	98	43	(2) No TC tree per Riser Configuration document
60	T-106	59	60	21	15	
61	T-108	O/S	57	180	73	
62	T-109	O/S	O/S	58	29	All TCs O/S, work order issued, last reading 75 F. in 2/91
63	T-112	58	60	67	32	
64	T-201	59	60	29	150	
65	T-202	58	62	21	110	
66	T-203	75	64	35	182	
67	T-204	60	63	38	197	

TABLE A-6. NON-WATCH LIST LOW HEAT LOAD TANKS (<40,000 Btu/h)

(Page 3 of 3)

Temperatures are taken semiannually in January and July, unless otherwise indicated, in the following 95 single-shell tanks. Legend follows table.

	Tank No.	Highest Temperatures taken in waste		Total Waste (1)		Comments
		Jul. 93	Jan. 94	Kgal	Inches	
68	TX-101	O/S	O/S	87	39	(2) No TC tree per Riser Configuration document
69	TX-102	O/S	O/S	113	49	Cable cut from tree
70	TX-103	55	71	157	54	Cable cut from tree, readings taken by Instrument Technician High reading taken 1/93 was 71 F.
71	TX-104	60	65	65	31	Cable cut from tree, readings taken by Instrument Technician
72	TX-106	59	78	453	172	Cable cut from tree, readings taken by Instrument Technician
73	TX-107	60	66	36	21	Cable cut from tree, readings taken by Instrument Technician
74	TX-108	61	68	134	56	Cable cut from tree, readings taken by Instrument Technician
75	TX-109	64	94	384	147	Cable cut from tree, readings taken by Instrument Technician High reading taken 1/93 was 97 F.
76	TX-110	O/S	O/S	462	175	Cable cut from tree, readings taken by Instrument Technician
77	TX-111	61	79	370	142	Cable cut from tree, readings taken by Instrument Technician High reading taken 1/93 was 73 F.
78	TX-112	72	67	649	243	Cable cut from tree, readings taken by Instrument Technician
79	TX-113	65	72	607	228	Dial pushed inside housing, readings taken by Instr. Tech.
80	TX-114	O/S	O/S	535	202	Cable cut from TC tree
81	TX-115	67	70	640	240	Dial pushed inside housing, readings taken by Instr. Tech.
82	TX-116	O/S	O/S	631	237	(2) Tree cut off in riser per Riser Configuration document
83	TX-117	O/S	O/S	626	235	All TCs O/S, cable cut from tree
84	TY-102	O/S	60	64	31	
85	TY-105	77	79	231	91	
86	TY-106	60	59	17	14	
87	U-101	61	67	25	17	
88	U-102	81	85	374	143	
89	U-104	O/S	O/S	122	52	(2) No TC tree per Riser Configuration document
90	U-110	72	76	186	75	
91	U-112	61	63	49	25	
92	U-201	O/S	61	5	29	
93	U-202	59	61	5	29	
94	U-203	O/S	60	3	18	
95	U-204	80	65	3	18	Selector knob not working 1/93, 7/93 readings suspect

(1) See Table A-2 (footnote 6) for waste gallons/inches calculations.

(2) Thermocouples in nine tanks (BX-104, BY-102, BY-109, SX-115, T-102, T-105, TX-101, TX-116, and U-104) are out of service due to no TC trees in these tanks, or the thermocouples have been cut off, covered over, or are otherwise unable to function, per the Riser Configuration document. (Also see comment section above)

LEGEND:			
TC - Thermocouple			
TMACS - Tank Monitor & Control System			
O/S - Out of service			
Riser Configuration document - WHC-SD-RE-TI-053, REV 8, "Riser Configuration Document for Single-Shell Tanks," dated September 1991			
SUMMARY:			
Readings obtained in SSTs	Jul. 93	Jan. 94	Feb. 94
No readings (TC trees O/S - includes nine tanks with no trees - see footnote above)	71	76	75
Total low heat load tanks	25	20	20
	96	96	95

T-111 was deleted from this list and added to the Organics Watch List on February 28, 1994

TABLE A-7. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS

149 TANKS (Sheet 1 of 5)

The following table indicates whether Single-Shell tank monitoring was in compliance with the requirements as specified in the applicable documents as of the last day of the applicable month:

NOTE:

All Watch List and High Heat tank temperature monitoring is in compliance. (5)

All Dome Elevation Survey monitoring is in compliance.

All Drywell monitoring is in compliance.

Psychrometrics (2)

In-tank Photographs (3)

Pressure Monitoring (6)

CAM/RAMP Monitoring (7)

Vapor Monitoring (8)

LEGEND:

Legend	= in compliance with all applicable documentation
O/C	= out of compliance with documentation
-357	= WHC-SD-WM-TI-357, "Waste Storage Tank Status and Leak Detection Criteria"
POP	= Plant Operation Procedure TO-040-050, "Obtain/Record SST Temperatures"
M.T.	= Manual Tape
FIC	= Food Instrument Corporation
OSR/SAR	= Operations Safety Requirements/Safety Analysis Report, SD-WM-SAR-006, Rev 2, 2/86; -SAR-034, Rev 0, 6/81
OSD	= Operating Specifications Doc., OSD-T-151-00013, Rev D-0, 6/80
N/A	= Not applicable (i.e., no LOW, M.T., FIC installed)
O/S	= Out of Service
Neutron	= LOW readings taken by Neutron probe

Information as of February 28, 1994

Tank Number	Category		Temperature Readings (5)(6)	Surface Level Readings (1) (-357)		LOW Readings (-357) (9) Neutron	Radiation Readings		Dome Elevation Surveys (OSR/SAR)
	Watch List(6)	High Heat		M.T.	FIC		Lateral Readings (-357)	Drywell Readings (OSR/SAR)	
A-101	X			N/A	N/A	N/A	O/C		
A-102				N/A		N/A			
A-103				N/A			O/C		
A-104		X		O/C	N/A	N/A			
A-105		X			N/A	N/A			
A-106				N/A		N/A			
AX-101	X			N/A					
AX-102					N/A	N/A			
AX-103	X			N/A		N/A			
AX-104					N/A	N/A			
B-101				N/A		N/A			
B-102				N/A		N/A			
B-103	X			N/A		N/A			
B-104					N/A				
B-105					N/A				
B-106				N/A		N/A			
B-107					N/A	N/A			
B-108				N/A		N/A			
B-109					N/A	N/A			
B-110					N/A	N/A			
B-111				N/A		N/A			
B-112				N/A		N/A			
B-201					N/A	N/A			
B-202					N/A	N/A			
B-203					N/A	N/A			
B-204					N/A	N/A			
BX-101			O/C		N/A	N/A			
BX-102	X				N/A	N/A			
BX-103			O/C	N/A		N/A			
BX-104			O/S-O/C	N/A		N/A			
BX-105				N/A		N/A			
BX-106	X			N/A		N/A			
BX-107			O/C	N/A	O/C	N/A			

TABLE A-7. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS
149 TANKS (Sheet 2 of 5)

Information as of February 28, 1994

Tank Number	Category		Temperature Readings (5)(6)	Surface Level Readings (1) (-357)		LOW Readings (-357) (9) Neutron	Radiation Readings		Dome Elevation Surveys (OSR/SAR)
	Watch List(6)	High Heat		M.T.	FIC		Lateral Readings (-357)	Drywell Readings (OSR/SAR)	
BX-108					N/A	N/A	N/A		
BX-109			O/C	N/A		N/A	N/A		
BX-110 (4)					N/A	N/A	N/A		
BX-111 (4)					N/A		N/A		
BX-112				N/A		N/A	N/A		
BY-101 (4)				O/C	N/A		N/A		
BY-102			O/S-O/C		N/A		N/A		
BY-103	X				N/A		N/A		
BY-104	X				N/A		N/A		
BY-105	X				N/A		N/A		
BY-106	X				N/A		N/A		
BY-107	X				N/A		N/A		
BY-108	X				N/A	N/A	N/A		
BY-109			O/S-O/C	N/A	O/C		N/A		
BY-110	X				N/A		N/A		
BY-111	X				N/A		N/A		
BY-112	X				N/A	O/C	N/A		
C-101					N/A	N/A	N/A		
C-102			O/C	N/A		N/A	N/A	N/A	
C-103	X			N/A		N/A	N/A		
C-104				N/A		N/A	N/A		
C-105				N/A		N/A	N/A		
C-106 (4)	X	X		N/A		N/A	N/A		
C-107				N/A		N/A	N/A		
C-108	X			O/C (10)	N/A	N/A	N/A		
C-109	X				N/A	N/A	N/A		
C-110					N/A	N/A	N/A		
C-111	X				N/A	N/A	N/A		
C-112	X				N/A	N/A	N/A		
C-201					N/A	N/A	N/A		
C-202					N/A	N/A	N/A		
C-203					N/A	N/A	N/A		
C-204			O/C		N/A	N/A	N/A		
S-101				N/A			N/A		
S-102	X			N/A			N/A		
S-103				N/A			N/A		
S-104					N/A	N/A	N/A		
S-105				N/A			N/A		
S-106				N/A			N/A		
S-107				N/A		N/A	N/A		
S-108							N/A		
S-109				N/A			N/A		
S-110				N/A			N/A		
S-111	X			N/A			N/A		
S-112	X			N/A			N/A		
SX-101	X			N/A			N/A		
SX-102	X			N/A			N/A		
SX-103	X			N/A			N/A		
SX-104	X			N/A		O/S-O/C	N/A		
SX-105	X			N/A			O/C		
SX-106	X			N/A			N/A		
SX-107		X		O/C	N/A	N/A	O/C		
SX-108		X			N/A	N/A	O/C		

TABLE A-7. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS
149 TANKS (Sheet 3 of 5)

Information as of February 28, 1994

Tank Number	Category		Temperature Readings (5)(6)	Surface Level Readings (1) (-357)		LOW Readings (-357) (9) Neutron	Radiation Readings		Dome Elevation Surveys (OSR/SAR)
	Watch List(6)	High Heat		M.T.	FIC		Lateral Readings (-357)	Drywell Readings (OSR/SAR)	
SX-109 (4)	X	X			N/A	N/A	O/C		
SX-110		X			N/A	N/A	O/C		
SX-111		X			N/A	N/A	O/C		
SX-112		X			N/A	N/A	O/C		
SX-113					N/A	N/A	N/A		
SX-114		X			N/A	N/A	O/C		
SX-115			O/S - O/C		N/A	N/A	O/C		
T-101 (4)						N/A	N/A		
T-102				N/A	O/C	N/A	N/A		
T-103				N/A		N/A	N/A		
T-104			O/C		N/A		N/A		
T-105			O/S - O/C	N/A		N/A	N/A		
T-106				N/A		N/A	N/A		
T-107	X			N/A		N/A	N/A		
T-108					N/A	N/A	N/A		
T-109			O/C	N/A		N/A	N/A		
T-110	X			N/A			N/A		
T-111	X			N/A			N/A		
T-112				N/A		N/A	N/A		
T-201					N/A	N/A	N/A		
T-202					N/A	N/A	N/A		
T-203					N/A	N/A	N/A		
T-204					N/A	N/A	N/A		
TX-101			O/S - O/C	N/A		N/A	N/A		
TX-102			O/C		N/A		N/A		
TX-103				N/A		N/A	N/A		
TX-104				N/A		N/A	N/A		
TX-105	X				N/A	O/S-O/C	N/A		
TX-106					N/A		N/A		
TX-107				N/A		N/A	N/A		
TX-108				N/A			N/A		
TX-109				N/A			N/A		
TX-110			O/C		N/A		N/A		
TX-111					N/A		N/A		
TX-112					N/A		N/A		
TX-113					N/A		N/A		
TX-114			O/C		N/A		N/A		
TX-115					N/A		N/A		
TX-116			O/S O/C		N/A	N/A	N/A		
TX-117			O/C		N/A		N/A		
TX-118	X			N/A			N/A		
TY-101	X			N/A		N/A	N/A		
TY-102				N/A		N/A	N/A		
TY-103	X			N/A			N/A		
TY-104	X			N/A		N/A	N/A		
TY-105					N/A	N/A	N/A		
TY-106					N/A	N/A	N/A		
U-101					N/A	N/A	N/A		
U-102				N/A			N/A		
U-103	X			N/A			N/A		
U-104			O/S - O/C		N/A	N/A	N/A		
U-105	X			N/A			N/A		
U-106	X			N/A			N/A		

TABLE A-7. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS
149 TANKS (Sheet 4 of 5)

Information as of February 28, 1994

Tank Number	Category		Temperature Readings (5)(6)	Surface Level Readings (1) (-357)		LOW Readings (-357) (9) Neutron	Radiation Readings		Dome Elevation Surveys (OSR/SAR)
	Watch List(6)	High Heat		M.T.	FIC		Lateral Readings (-357)	Drywell Readings (OSR/SAR)	
U-107	X			N/A			N/A		
U-108	X			N/A			N/A		
U-109	X			N/A			N/A		
U-110				N/A		N/A	N/A		
U-111	X			N/A			N/A		
U-112					N/A	N/A	N/A		
U-201					N/A	N/A	N/A		
U-202					N/A	N/A	N/A		
U-203					N/A	N/A	N/A		
U-204					N/A	N/A	N/A		
Catch Tanks and Special Surveillance Facilities									
A-302-A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
A-302-B	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A
311-ER	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
162-AX	N/A	N/A	N/A		N/A				
151-AZ	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
154-AZ	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A
BX-TK/SMP	N/A	N/A	N/A		N/A				
A-TK/SMP	N/A	N/A	N/A		N/A				
204-AR	N/A	N/A	N/A						
417-A	N/A	N/A	N/A						
Vent Sta.	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A
S-302	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
S-302-A	N/A	N/A	N/A	N/A	O/C	N/A	N/A	N/A	N/A
S-304	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A
TX-302-B	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A
TX-302-C	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
U-301-B	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
UX-302-A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
141-S	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A
142-S	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A
Totals: 149 tanks	46 Watch List Tanks (4)	10 High Heat Tanks (4)	O/C: 20 tanks – (semiannual monitoring frequency) (5)	O/C: 4 tanks 0 catch tank	O/C: 3 tanks 1 catch tank	O/C: 3 tanks 58 tanks have LOWs (2 are O/S)	O/C: 11 tanks	0	0

See Footnotes on next page

TABLE A-7. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS
149 TANKS (Sheet 5 of 5)

Footnotes:

1. All SSTs have either manual tape or FIC, with the exception of S-108 and T-101, which have both. Tank 101-T also has a zip cord. All SST FICs are connected to CASS, with the exception of BX-106; however, the connection for many tanks is broken. For such cases, manual readings are taken. Manual surface level readings include readings taken by manual tape, manual FIC (not connected to CASS; BX-106), manual readings of automatic FIC (if CASS is printing "0"), or automatic FIC. In some cases, the surface level readings are taken using a zip cord. While less accurate, such readings are acceptable for meeting the surface level reading requirements.
2. High heat tanks have active exhausters; psychrometrics are taken in these tanks (A-104/105, C-105/106 [effective July 1, 1993, C-105 is no longer a high heat load tank], SX-107, 108, 109, 110, 111, 112, and 114). The exhausters on A-104/105 have been down since October 1991; no readings are being taken. Psychrometric readings have not been taken in the SX high heat load tanks since July 1993. The frequency of psychrometric readings in SSTs is determined by the Cognizant Engineers for the applicable tank farms on an "as needed" basis, with the exception of tanks C-105/106. Hanford Federal Facility Agreement and Consent Order, "Washington State Department of Ecology, U. S. Environmental Protection Agency, and U. S. Department of Energy," 1992 (Tri-Party Agreement) requires psychrometric readings to be taken in C-105/106 on a monthly frequency. Psychrometric readings were taken in February 1994.
3. In-tank photographs are requested on an "as needed" basis. No in-tank photographs were taken between September 1990 and March 1993.
4. Two tanks are on both category lists (C-106 and SX-109). In July 1993, C-105 was removed from the High Heat Load list and BX-110, BX-111, BY-101 and T-101 were removed from the ferrocyanide Watch List. Only C-105 continues to be taken weekly; the other tanks are now taken semiannually. U-111 was added to the Organic list August 1993. T-107 was added to the Hydrogen list December 1993 (this tank was already on the Organics list). T-111 was added to the Organics list February 1994.
5. Temperature readings may be regulated by OSD, -357, or POP. Additionally, high heat load tanks are regulated by OSR/SAR. Thermocouples in the nine tanks designated O/S-O/C are out of service; there are either no thermocouple trees in these tanks, or trees have been cut off, covered over, or are otherwise unable to function. The OSD does not require readings or repair of out-of service thermocouples for the 95 low heat load (<40,000 Btu/h) tanks. However, the POP requires that attempts are to be made semiannually in January and July to obtain readings for these tanks. Temperatures were taken in January 1994; a total of 20 tanks are O/C because readings could not be obtained.
6. "Safety Measures for Waste Tanks at Hanford Nuclear Reservation, Section 3137 of the National Defense Authorization Act for Fiscal Year 1991," November 5, 1990, Public Law 101-510, (the "Wyden Amendment") requires continuous pressure monitoring and temperature monitoring in Watch List tanks. WMC-EP-0422 REV 1, "A Plan to Implement Remediation of Waste Tank Safety Issues at the Hanford Site," December 1991, addresses these monitoring issues. WMC-EP-0600, "Status Report on Resolution of Waste Tank Safety Issues at the Hanford Site," issued August 1993, describes the resolution strategy for these safety issues.
7. Continuous Air Monitoring (CAM) compliance and Radiation Area Monitoring Panel (RAMP) compliance are not addressed in this table.
8. Double-shell tank farm SY has the only tanks with continuous vapor/flammable gas monitoring; not addressed in this table.
9. An Engineering Change Notice was issued November 1993, changing the monitoring frequency of LOW readings by Gamma probe to be taken "by request only." The Gamma probe column has therefore been deleted.
10. Surface level measurement monitoring is out of compliance in C-108 because the manual tape was removed to install a thermocouple tree. This tank does not have an FIC. A work package is pending to re-install the manual tape.

TABLE A-8. DOUBLE-SHELL TANKS MONITORING COMPLIANCE STATUS
 28 TANKS (Sheet 1 of 2)

The following table indicates whether Double-Shell tank monitoring was in compliance with the requirements as specified in the applicable documents as of the last day of the applicable month:

NOTE:

Dome Elevation Surveys are not required for DSTs.
 Psychrometrics (2)
 In-tank Photographs (3)
 Pressure Monitoring (6)
 CAM/RAMP Monitoring (7)
 Vapor Monitoring (8)

LEGEND:

(Shaded)	= In compliance with all applicable documentation
O/C	= Out of compliance with documentation
-357	= WHC-SD-WM-TI-357, "Waste Storage Tank Status and Leak Detection Criteria"
M.T.	= Manual Tape
FIC	= Food Instrument Company
OSR/SAR	= Operations Safety Requirements/Safety Analysis Report WHC-SD-WM-SAR-016, Rev 1, 5/86 WHC-SD-HS-SAR-010, Rev 1, 8/83 (Aging Waste)
OSD	= Operations Safety Doc., OSD-T-151-0007, Rev H-5, 1/82
N/A	= Not Applicable (i.e., no M.T., FIC installed)
O/S	= Out of Service
W.F.	= Weight Factor
Rad.	= Radiation

Information as of February 28, 1994

Tank Number	Watch List	Temperature Readings (4) (OSD)	Surface Level Readings (1) (-357, OSR/SAR)		Radiation Readings		
					Leak Detection Pits (5) (-357, OSR/SAR)		Annulus (-357)
			M.T.	FIC	W.F.	Rad.	
AN-101			N/A			O/C	
AN-102			N/A			O/C	
AN-103	X		N/A				
AN-104	X		N/A			O/C	
AN-105	X		N/A			O/C	
AN-106			N/A			O/C	
AN-107			N/A				O/C
AP-101						O/C	O/C (9)
AP-102				O/S		O/C	
AP-103						O/C	
AP-104			O/S			O/C	
AP-105						O/C	
AP-106						O/C	
AP-107						O/C	
AP-108						O/C	
AW-101	X			O/S			
AW-102							
AW-103							
AW-104							
AW-105							
AW-106							
AY-101				O/S			O/C
AY-102						O/C	O/C
AZ-101				O/S			
AZ-102				O/S			
SY-101	X						
SY-102							
SY-103	X						
Totals: 28 tanks	6 Watch List Tanks	O/C: 0	O/C: 0	O/C: 0	O/C: 0	O/C: 14 tanks	O/C: 4 tanks

See footnotes next page:

TABLE A-8. DOUBLE-SHELL TANKS MONITORING COMPLIANCE STATUS
28 TANKS (Sheet 2 of 2)

Footnotes:

1. All DSTs have both manual tape and FIC, with the exception of the AN Tank Farm which has only FICs. The manual tape is used when the FIC is out of service. O/C will be shown when no readings are obtained.
2. Psychrometric readings are only taken on tanks with active exhausters; all DSTs have active exhausters. The frequency of psychrometric readings in DSTs is determined by the Cognizant Engineers for the applicable tank farms on an "as needed" basis. Currently, monthly readings are being taken on the SY-101 annulus exhaust, SY-102 tank and annulus exhaust, and SY-103 tank and annulus exhaust. SY-101 tank exhaust readings are not being taken until a port on the tank exhaust header becomes available for exhauster readings. No other psychrometric readings are currently being taken monthly.
3. In-tank photographs are requested on an "as needed" basis. Last in-tank photographs in DSTs were taken in April 1989.
4. OSD specifies DST temperature limits, gradients, etc. Tank SY-101 temperatures are obtained shiftwise with increased readings taken prior to and following gas venting.
5. Failure of both leak detection systems requires repair of at least one system within 5 working days. Failure of one system only, repair must be within 10 workdays per -357 document. If the pair of out-of-service system exceeds these timeframes, all systems are O/C. Out-of-service systems which have not exceeded these timeframes will be shown as O/S.
6. "Safety Measures for Waste Tanks at Hanford Nuclear Reservation, Section 3137 of the National Defense Authorization Act for Fiscal Year 1991," November 5, 1990, Public Law 101-510, (the "Wyden Amendment") requires continuous pressure monitoring and temperature monitoring in Watch List tanks. WHC-EP-0422 REV 1, "A Plan to Implement Remediation of Waste Tank Safety Issues at the Hanford Site," December 1991, addresses these monitoring issues. A status report on resolution of Waste Tank Safety Issues at the Hanford Site has been prepared but has not yet been cleared for public release.
7. Continuous Air Monitoring (CAM) compliance and Radiation Area Monitoring Panel (RAMP) compliance are not addressed in this table.
8. Double-shell tank farm SY has the only tanks with continuous vapor/flamable gas monitoring; not addressed in this table.
9. Tank AP-101: the exhauster has been down since February 10, 1994. Annulus radiation readings being taken are erratic and considered suspect.

TABLE A-9. AUTOMATIC FOOD INSTRUMENT CORPORATION (FIC) GAUGES OUT OF SERVICE

February 28, 1994

Tank No.	SST/DST	Date of Last Automatic FIC Reading	Reading Status	Comments	Required Monitoring Frequency(-357)
BX-107	SST	02/09/94	No reading taken since 02/10/94	Out of compliance as of 02/10/94	Daily
BY-109	SST	02/18/94	No reading taken since 02/18/94	Out of compliance as of 02/18/94	Daily
T-102	SST	09/06/93	No reading taken since 09/07/93	Out of compliance as of 09/07/93	Daily
AN-104	DST	02/12/94	Taking manual FIC readings	In compliance	Daily
AN-107	DST	01/17/94	Taking manual FIC readings	In compliance	Daily
AP-108	DST	02/23/94	Taking manual FIC readings	In compliance	Daily
AW-103	DST	12/15/93	Taking manual FIC readings	In compliance	Daily
AY-102	DST	01/16/94	Taking manual FIC readings	In compliance	Daily
B-Substation	SST	02/18/94	Taking manual FIC readings	In compliance	Daily/Quarterly
C-107	SST	08/10/93	Taking manual FIC readings	In compliance	Quarterly
S-Substation	SST	02/28/94	Taking manual FIC readings	In compliance	Daily/Quarterly
SY-101	DST	08/23/91	Taking manual FIC readings	In compliance	Daily
TX-101	SST	10/28/93	Taking manual FIC readings	In compliance	Daily
TX-107	SST	10/22/93	Taking manual FIC readings	In compliance	Quarterly
U-105	SST	11/17/92	Taking manual FIC readings	In compliance	Daily
U-107	SST	02/28/94	Taking manual FIC readings	In compliance	Daily
AP-102	DST	01/27/93	Taking manual tape readings	In compliance	Daily
AW-101	DST	10/23/92	Taking manual tape readings	In compliance	Daily
AY-101	DST	08/31/90	Taking manual tape readings	In compliance	Daily
AZ-101	DST	02/02/90	Taking manual tape readings	In compliance	Daily
AZ-102	DST	02/15/90	Taking manual tape readings	In compliance	Daily
Catch Tanks					
A-302-A		04/16/91	Taking manual reading	In compliance	Daily
AZ-151		07/29/93	Taking Manual FIC reading	In compliance	Daily
S-302-A		10/04/93	No reading taken since 10/04/93	Out of compliance as of 10/11/93	Weekly
TX-302-C		10/22/93	Taking Manual FIC reading	In compliance	Daily
Frequency reading requirements: Daily - Must be taken by 2 pm each day Weekly - Must be taken by 2 pm each Monday Quarterly - Must be taken by 2 pm on the seventh day of each quarter				LEGEND SST = Single-Shell Tank DST = Double-Shell Tank -357 = WHC-SD-WM-TI-357, Waste Storage Tank Status and Leak Detection Criteria

Figure 1. Discrepancy Report Status

Figure 2. Open Discrepancy Reports

S&DA 02/28/1994

Figure 3. Discrepancy Report Status by Age

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APPENDIX B

**DOUBLE SHELL TANK WASTE TYPE
AND SPACE ALLOCATION**

WHC-EP-0182-71

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**TABLE B-1. DOUBLE-SHELL TANK WASTE TYPE AND SPACE ALLOCATION
FEBRUARY 1994**

DOUBLE-SHELL TANK INVENTORY BY WASTE TYPE		SPACE DESIGNATED FOR SPECIFIC USE	
Complexant Concentrate (102-AN, 107-AN, 101-AY, 101-SY, 103-SY)	133 Kgal	Spare Tanks (3) (1 Aging & 1 Non-Aging Waste Tank)	133 Kgal
Concentrate Phosphate (102-AP, 106-AN)	113 Kgal	Segregated Tank Space (105-AP, 101-AY, 102-AN, 107-AN, 103-AW)	113 Kgal
Double-Shell Slurry and Slurry Feed (103-AN, 104-AN, 105-AN, 105-AP, 101-AW)	513 Kgal	Watch List Tank Space (103-AN, 104-AN, 105-AN, 101-SY, 103-SY, 101-AW)	513 Kgal
Neutralized Current Acid Waste (101-AZ, 102-AZ)	122 Kgal	Priority Tank Space (2) (101-AN, 102-AW, 106-AW, 102-SY)	122 Kgal
Dilute Waste (1) (101-AN, 101-AP, 103-AP, 106-AP, 107-AP, 108-AP, 102-AW, 103-AW, 104-AW, 105-AW, 106-AW, 101-AY, 102-AY, 101-AZ, 102-AZ, 102-SY, 102-AP, 104-AP)	123 Kgal	Miscellaneous Head Space	123 Kgal
NCR and PFP Settled Solids (103-AW, 105-AW, 102-SY)	131 Kgal	TOTAL DOUBLE-SHELL TANK SPACE	
		24 Tanks at 1140 Kgal	
		4 Tanks at 980 Kgal	
	Total Inventory = 843 Kgal		
		TOTAL AVAILABLE SPACE	
		Double-Shell Tank Inventory	
		Space Designated for Double-Shell Tanks	
		Available Space	

- (1) Easily reduced in volume by Evaporator/LERF
 (2) Reduced by Saltwell Liquid pumping, Mini Run and PFP Operations
 (3) 241-101-AY: A minimum liquid level is set to provide extra protection against any bottom uplifting of the tank's steel liner. WHC-SD-WM-TI-357, "Waste Storage Tank Status and Leak Detection Criteria," specifies 64 in. as the minimum surface level measurement when the annulus system is in operation, and 18 in. if the annulus ventilation system is shut down. See also OSD-T-151-0007, "Unclassified Operation Specifications for the 241 AN, 241AP, 241AW, 241AY and 241SY Tank Farms." Because of space availability, waste is stored in 102-AY, the aging waste spare tank. In case of a leak, the contents of 102-AY will be distributed to any other DST(s) having available space.

Note: Net change in DSTs since last month: -18 Kgal.

 

FIGURE B-1. CURRENT STATUS AND CONTINGENCY SPACE FOR THE 242-A EVAPORATOR RESTART

B-5

NOTE: THIS GRAPHIC DEPICTS "USABLE SPACE" DEPLETION AND NOT THE TOTAL RECEIPTS TO DSTs.

FIGURE B-2. TOTAL AVAILABLE USABLE TANK SPACE

MHC-EP-0182-71

100 K GALLONS

FIGURE B-3. PRIORITY SPACE AVAILABILITY AND USAGE

FIGURE B-5. PUREX MONTHLY WASTE GENERATIONS

FIGURE B-6. TANK FARMS MONTHLY WASTE GENERATIONS

FIGURE B-7. B PLANT MONTHLY WASTE GENERATIONS

FIGURE B-8. T PLANT MONTHLY WASTE GENERATIONS

FIGURE B-9. S PLANT MONTHLY WASTE GENERATIONS

FIGURE B-10. 300 AREA MONTHLY WASTE GENERATIONS

Table B-2. Double Shell Tank Waste Inventory for February 28, 1994

(page 1 of 2)

TANKS	INVENTORY	SOLIDS	TYPE	LEFT
101AW=	1137	84	DSSF	3
102AW=	979	3	DN	161
103AW=	647	487	PD/DN	493
104AW=	1123	267	DN	17
105AW=	1044	388	PD/DN	96
106AW=	1109	211	DN	31
101AY=	885	83	DC	95
102AY=	706	32	DN	274
101AZ=	942	35	NCAW	38
102AZ=	967	95	NCAW	13
101AN=	718	0	DN	422
102AN=	1091	89	CC	49
103AN=	953	373	DSS	187
104AN=	1057	264	DSSF	83
105AN=	1132	0	DSSF	8
106AN=	21	17	CP	1119
107AN=	1064	134	CC	76
101SY=	1102	560	CC	38
102SY=	724	133	PT/DN	416
103SY=	743	4	CC	397
101AP=	1060	0	DN	80
102AP=	1103	0	CP	37
103AP=	1131	0	DN	9
104AP=	18	0	DN	1122
105AP=	820	0	DSSF	320
106AP=	1128	0	DN	12
107AP=	1110	0	DN	30
108AP=	1131	0	DN	9
TOTAL=	20000		TOTAL	20000

SEGREGATED SPACE	
* 101AW=	3
103AW=	493
102AP=	37
105AP=	320
* 101SY=	38
* 103SY=	397
101AY=	95
102AN=	49
* 103AN=	187
* 104AN=	83
* 105AN=	8
107AN=	76

* WATCHLIST TANKS

PRIORITY SPACE	
102SY=	416
101AN=	422
102AW=	161
106AW=	31
TOTAL=	

MISC. HEADSPACE	
101AP=	80
103AP=	9
106AP=	12
107AP=	30
104AW=	17
101AZ=	38
102AZ=	13
TOTAL = 199	

USABLE SPACE	
104AP=	1122
108AP=	9
105AW=	96
102AY=	274
106AN=	1119
<hr/>	
TOTAL=	2620
SPARES	-2280
<hr/>	
TOTAL=	390

TOTAL SPACE AVAILABLE	
NON-AGING	27360
AGING =	3920
TOTAL = 23440	

TOTAL INVENTORY	
01/94 TOTAL	25663
02/94 TOTAL	25645
DECREASE	18

USEABLE SPACE	
01/94 TOTAL	338
02/94 TOTAL	340
INCREASE	2

PRIORITY SPACE	
01/94 TOTAL	1028
02/94 TOTAL	1030
INCREASE	2

Inventory Calculation by Waste Type:

COMPLEXED CONCENTRATE (CC)		
102AN=	1091	(CC)
107AN=	1064	(CC)
101SY=	1102	(CC & DSS)
103SY=	743	(CC, DSS & SWL)
101AY=	885	(DC)
TOTAL=		4885

NCRW			
103AW=	160	SOLIDS=	487
105AW=	656	SOLIDS=	388
TOTAL=	816	TOTAL=	875

WEST AREA WASTE (DN/PD)			
102SY=	591	SOLIDS=	133
TOTAL=	591	TOTAL=	133

CONC. PHOSPHATE (CP)	
106AN=	21
102AP=	1103
TOTAL=	1124

DILUTE WASTE (DN)	
101AP=	1060
103AP=	1131
106AP=	1128
107AP=	1110
108AP=	1131
101AN=	718
102AW=	979
104AW=	1123
106AW=	1109
102AY=	706
104AP=	18
TOTAL= 12304	

NCAW (AGING WASTE (@ 5M Na)	
101AZ=	791
102AZ=	434
TOTAL=	1225
DN=	684

DSS/DSSF	
105AP=	820
103AN=	953
104AN=	1057
105AN=	1132
101AW=	1137
TOTAL= 5099	

GRAND TOTALS	
CC=	4000
DC=	885
NCRW=	875
CP=	1124
NCAW=	1225
DSS/DSS	5099
PFP=	133
DILUTE=	12304
TOTAL= 25645	

NOTE: All Values are in Kilogallons.

Table B-2. Double Shell Tank Waste Inventory for February 28, 1994 (page 2 of 2)

TOTAL AVAILABLE SPACE AS OF FEBRUARY 28, 1994:			
SEGREGATED TANK SPACE:			
(*) Watch List Tanks	TANK	WASTE TYPE	AVAILABLE SPACE
	* 101-AW	DSSF	3 KGALS
	103-AW	NCRW	493 KGALS
	102-AP	CP	37 KGALS
	105-AP	DSSF	320 KGALS
	* 101-SY	CC/DSS	38 KGALS
	* 103-SY	CC/DSS	397 KGALS
	101-AY	DC	95 KGALS
	102-AN	CC	49 KGALS
	* 103-AN	DSS	187 KGALS
	* 104-AN	DSSF	83 KGALS
	* 105-AN	DSSF	8 KGALS
	107-AN	CC	76 KGALS
TOTAL=			1786 KGALS
AVAILABLE TANK SPACE=			5635 KGALS
MINUS SEGREGATED SPACE=			-1786 KGALS
TOTAL AVAILABLE SPACE AFTER SEGREGATION=			3849 KGALS
PRIORITY TANK SPACE:			
SWL/PPF NON-COMPLEXED SWL RECEIVER EVAPORATOR START-UP EVAPORATOR START-UP	TANK	WASTE TYPE	AVAILABLE SPACE
	102-SY	DN	416 KGALS
	101-AN	DN	422 KGALS
	102-AW	DN	161 KGALS
	106-AW	DN	31 KGALS
TOTAL=			1030 KGALS
AVAILABLE SPACE AFTER SEGREGATION=			3849 KGALS
MINUS PRIORITY SPACE=			-1030 KGALS
TOTAL AVAILABLE SPACE AFTER PRIORITY=			2819 KGALS
MISCELLANEOUS HEADSPACE:			
	TANK	WASTE TYPE	AVAILABLE SPACE
	101-AP	DN	80 KGALS
	103-AP	DN	9 KGALS
	106-AP	DN	12 KGALS
	107-AP	DN	30 KGALS
	104-AW	DN	17 KGALS
	101-AZ	AW	38 KGALS
	102-AZ	AW	13 KGALS
TOTAL=			199 KGALS
AVAILABLE SPACE AFTER PRIORITY=			2819 KGALS
MINUS MISCELLANEOUS HEADSPACE=			-199 KGALS
TOTAL AVAILABLE SPACE AFTER HEADSPACE=			2620 KGALS
REALISTIC USABLE TANK SPACE:			
	TANK	WASTE TYPE	AVAILABLE SPACE
	104-AP	DN	1122 KGALS
	108-AP	DN	9 KGALS
	105-AW	DN	96 KGALS
	102-AY	NCRW	274 KGALS
	106-AN	CP	1119 KGALS
TOTAL=			2620 KGALS
TOTAL AVAILABLE SPACE AFTER UNUSABLE DEPLETION=			2620 KGALS
MINUS SPARE TANK SPACE=			-2280 KGALS
TOTAL TANK SPACE AVAILABLE AFTER SPARE SPACE=			340 KGALS

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APPENDIX C

**TANK AND EQUIPMENT CODE
AND STATUS DEFINITIONS**

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C. TANK AND EQUIPMENT CODE/STATUS DEFINITIONS
February 28, 1994

1. TANK STATUS CODES

WASTE TYPE

AGING	Aging Waste (Neutralized Current Acid Waste [NCAW])
CC	Complexant Concentrate Waste
CP	Concentrated Phosphate Waste
DC	Dilute Complexed Waste
DN	Dilute Non-Complexed Waste
DSS	Double-Shell Slurry
DSSF	Double-Shell Slurry Feed
NCPLX	Non-Complexed Waste
PD/PN	Plutonium-Uranium Extraction (PUREX) Neutralized Cladding Removal Waste (NCRW), transuranic waste (TRU)
PT	Plutonium Finishing Plant (PFP) TRU Solids

TANK USE (DOUBLE-SHELL TANKS ONLY)

CWHT	Concentrated Waste Holding Tank
DRCVR	Dilute Receiver Tank
EVFD	Evaporate Feed Tank
GRTFD	Grout Feed Tank
SRCVR	Slurry Receiver Tank

2. SOLID AND LIQUID VOLUME DETERMINATION METHODS

F	Food Instrument Company (FIC) Automatic Surface Level Gauge
M	Manual Tape Surface Level Gauge
P	Photo Evaluation
S	Sludge Level Measurement Device

3. DEFINITIONS

WASTE TANKS - GENERAL

Waste Tank Safety Issue	A potentially unsafe condition in the handling of waste material in underground storage tanks that requires corrective action to reduce or eliminate the unsafe condition.
Watch List Tank	An underground storage tank containing waste that requires special safety precautions because it may have a serious potential for release of high level radioactive waste because of uncontrolled increases in temperature or pressure. Special restrictions have been placed on these tanks by "Safety Measures for Waste Tanks at Hanford Nuclear Reservation," Section 3137 of the <i>National Defense Authorization Act for Fiscal Year 1991</i> , November 5, 1990, Public Law 101-510, (also known as the Wyden Amendment).

WASTE TYPES

Aging Waste (AGING)	High level, first cycle solvent extraction waste from the PUREX plant (NCAW)
Concentrated Complexant (CC)	Concentrated product from the evaporation of dilute complexed waste.
Concentrated Phosphate Waste (CP)	Waste originating from the decontamination of the N Reactor in the 100 N Area. Concentration of this waste produces concentrated phosphate waste.
Dilute Complexed Waste (DC)	Characterized by a high content of organic carbon including organic complexants: ethylenediaminetetra-acetic acid (EDTA), citric acid, and hydroxyethyl-ethylenediaminetriacetic acid (HEDTA), being the major complexants used. Main sources of DC waste in the DST system are saltwell liquid inventory (from SSTs).
Dilute Non-Complexed Waste (DN)	Low activity liquid waste originating from T and S Plants, the 300 and 400 Areas, PUREX facility (decladding supernatant and miscellaneous wastes), 100 N Area (sulfate waste), B Plant, saltwells, and PFP (supernate).
Double-Shell Slurry (DSS)	Waste that exceeds the sodium aluminate saturation boundary in the evaporator without exceeding receiver tank composition limits. For reporting purposes, DSS is considered a solid.
Double-Shell Slurry Feed (DSSF)	Waste concentrated just before reaching the sodium aluminate saturation boundary (of 6.5 molar hydroxide) in the evaporator without exceeding receiver tank composition limits. This form is not as concentrated as DSS.
Non-complexed (NCPLX)	General waste term applied to all Hanford Site liquors not identified as complexed.
PUREX Decladding (PD/PN)	PUREX Neutralized Cladding Removal Waste (NCRW) is the solids portion of the PUREX plant neutralized cladding removal waste stream; received in Tank Farms as a slurry. NCRW solids are classified as transuranic (TRU) waste.
PFP TRU Solids (PT)	TRU solids fraction from PFP Plant operations.
Drainable Interstitial Liquid (DIL)	Interstitial liquid that is not held in place by capillary forces, and will therefore migrate or move by gravity. (See also Section 4)

Supernate	The liquid above the solids in waste storage tanks. (See also Section 4)
Ferrocyanide	A compound of iron and cyanide commonly expressed as FeCN. The actual formula for the ferrocyanide anion is $[\text{Fe}(\text{CN})_6]^{-4}$.

WASTE STATUS

In-Service Tank	The waste classification of a tank being used, or planned for use, for the storage of liquid (in excess of a minimum supernatant liquid heel) in conjunction with production and/or waste processing.
Out-of-Service Tank	A tank which does not meet the definition of an in-service tank. Before September 1988, these tanks were defined as inactive in this report. [Note: All single-shell tanks (SST) are out of service.]

STABILIZATION (Single-Shell Tanks only)

Interim Stabilized (IS)	A tank which contains less than 50,000 gal of drainable interstitial liquid and less than 5,000 gal of supernatant liquid. If the tank was jet pumped to achieve interim stabilization, then the jet pump flow must also have been at or below 0.05 gpm before interim stabilization criteria is met.
-------------------------	---

INTRUSION PREVENTION (ISOLATION) Single-Shell Tanks only

Partially Interim Isolated (PI)	The administrative designation reflecting the completion of the physical effort required for Interim Isolation except for isolation of risers and piping that is required for jet pumping or for other methods of stabilization.
Interim Isolated (II)	The administrative designation reflecting the completion of the physical effort required to minimize the addition of liquids into an inactive storage tank, process vault, sump, catch tank, or diversion box. In June 1993, Interim Isolation was replaced by Intrusion Prevention.
Intrusion Prevention (IP)	Intrusion Prevention is the administrative designation reflecting the completion of the physical effort required to minimize the addition of liquids into an inactive storage tank, process vault, sump, catch tank, or diversion box. Under no circumstances are electrical or instrumentation devices disconnected or disabled during the intrusion prevention process (with the exception of the electrical pump), in accordance with WHC-SD-WM-SAR-006 REV 2, <i>Single-Shell Tank Isolation Safety Analysis Report</i> , March 1986.

TANK INTEGRITY

Sound	The integrity classification of a waste storage tank for which surveillance data indicate no loss of liquid attributed to a breach of integrity.
Assumed Leaker	The integrity classification of a waste storage tank for which surveillance data indicate a loss of liquid attributed to a breach of integrity.
Assumed Re-Leaker	A condition that exists after a tank has been declared as an "assumed leaker" and then the surveillance data indicates a <u>new</u> loss of liquid attributed to a breach of integrity.

TANK INVESTIGATION

Intrusion	A term used to describe the infiltration of liquid into a waste tank.
-----------	---

SURVEILLANCE INSTRUMENTATION

Drywells	Drywells are vertical boreholes with 6-in. (internal diameter) carbon steel casings positioned radially around SSTs. Periodic monitoring is done by gamma radiation or neutron sensors to obtain scan profiles of radiation or moisture in the soil as a function of well depth, which could be indicative of tank leakage. These wells range between 50 and 250 ft in depth, and are monitored between the range of 50 to 150 ft. The wells are sealed when not in use. They are called drywells because they do <u>not</u> penetrate to the water table and are therefore usually "dry." There are 759 drywells which are monitored on various frequencies.
Laterals	Laterals are horizontal drywells positioned under single-shell waste storage tanks to detect radionuclides in the soil which could be indicative of tank leakage. These drywells are monitored by radiation detection probes. Laterals are 4-in. inside diameter steel pipes located 8 to 10 ft below the tank's concrete base. There are three laterals per tank. Laterals are located only in A and SX farms.
Surface Levels	The surface level measurements in all waste storage tanks are monitored by manual or automatic conductivity probes, and recorded and transmitted or inputted to the Computer Automated Surveillance System (CASS).

Automatic FIC	An automatic waste surface level measurement device is manufactured by the Food Instrument Company (FIC). The instrument consists of a conductivity electrode (plummet) connected to a calibrated steel tape, a steel tape reel housing and a controller that automatically raises and lowers the plummet to obtain a waste surface level reading. The controller can provide a digital display of the data and also transmit the reading to the CASS. Some tanks have gauges connected to CASS and others are read manually.
Annulus	The annulus is the space between the inner and outer shells on DSTs. Drain channels in the insulating and/or supporting concrete carry any leakage to the annulus space where conductivity probes are installed. Alarms from the annunciators are received by CASS. Continuous Air Monitoring (CAM) alarms are also located in the annulus. The annulus conductivity probes and radiation detectors are the primary means of leak detection for all DSTs.
Liquid Observation Well (LOW)	In-tank liquid observation wells are used for monitoring the interstitial liquid level (ILL) in single-shell waste storage tanks. The wells are constructed of fiberglass or TEFZEL*-reinforced epoxy-polyester resin, sized to extend to within 1 in. of the bottom of the tank steel liner. They are sealed at their bottom ends and have a nominal outside diameter of 3.5 in. Two probes are used to monitor changes in the ILL: gamma and neutron, which can indicate intrusions or leakage by increases or decreases in the ILL. There are 58 LOWs (56 are in operation) installed in SSTs that contain or are capable of containing greater than 50,000 gal of drainable interstitial liquid, and in two DSTs only. The LOWs installed in two DSTs, (102-SY and 103-AW Tanks), are constructed of steel and are used for special surveillance purposes only.
Thermocouple (TC)	A thermocouple is a thermoelectric device used to measure temperature. More than one thermocouple on a device (probe) is called a thermocouple tree. In DSTs there may be one or more thermocouple trees in risers in the primary tank. In addition, in DSTs only, there are thermocouple elements installed in the insulating concrete, the lower primary tank knuckle, the secondary tank concrete foundation, and in the outer structural concrete. These monitor temperature gradients within the concrete walls,

*TEFZEL, a trademark of E. I. du Pont de Nemours & Company

bottom of the tank, and the domes. In SSTs, one or more thermocouples may be installed directly in a tank, although some SSTs do not have any trees installed. A single thermocouple (probe) may be installed in a riser, or lowered down an existing riser or LOW. There are also four thermocouple laterals beneath Tank 105-A in which temperature readings are taken in 34 thermocouples.

In-tank Photography In-tank photographs may be taken to aid in resolving in-tank measurement anomalies and determine tank integrity. Photographs help determine sludge and liquid levels by visual examination.

TERMS/ACRONYMS

OSD	Operating Specifications Document
OSR	Operational Safety Requirements (OSRs are sections in SARs - see below)
SAR	Safety Analysis Reports
TPA	Hanford Federal Facility Consent and Compliance Order, "Washington State Department of Ecology, U. S. Environmental Protection Agency, and U. S. Department of Energy," 1992 (Tri-Party Agreement)
USQ	Unresolved Safety Question
Wyden Amendment	"Safety Measures for Waste Tanks at Hanford Nuclear Reservation," Section 3137 of the <u>National Defense Authorization Act for Fiscal Year 1991</u> , November 5, 1990, Public Law 101-510.

4. **INVENTORY AND STATUS BY TANK - VOLUME CALCULATIONS (SINGLE-SHELL TANKS)**

<u>COLUMN HEADING</u>	<u>VOLUME CALCULATIONS/DEFINITIONS</u>
Total Waste	Solids volume plus Supernatant liquid. Solids include sludge and saltcake. (See definitions below)
Supernatant Liquid	Drainable Liquid Remaining minus Drainable Interstitial. Supernate is the clear liquid floating on the surface of the waste. Supernate is usually derived by subtracting the solids level measurement from the liquid level measurement. In some cases, the supernatant volume includes floating solid crusts because their volume cannot be measured. Photographs are useful in estimating

the liquid volumes; the area of solids covered and the average depth can be estimated.

Drainable Interstitial Liquid	<p>Drainable Liquid Remaining minus Supernate.</p> <p>Drainable interstitial liquid is calculated based on the saltcake and sludge volumes, using average porosity values or actual data for each tank, when available. Interstitial liquid is liquid that fills the interstitial spaces of the solids waste. Drainable interstitial liquid is calculated based on the saltcake and sludge volumes in the tank. The sum of the interstitial liquid contained in saltcake and sludge is the initial volume of drainable interstitial liquid. The volume reported as Drainable Interstitial Liquid is the initial volume of drainable interstitial liquid minus interstitial liquid removed by pumping.</p>
Pumped This Month	<p>Net total gallons of liquid pumped from the tank during the month.</p> <p>If supernate is present, pump production is first subtracted from the supernatant volume. The remainder is then subtracted from the drainable interstitial liquid volume. The total pumped volume is subtracted from drainable liquid remaining and pumpable liquid remaining. Pump production takes into account the amount of water added to the tank during the month (if any).</p>
Total Pumped	Cumulative net total gallons of liquid pumped 1979 to date.
Drainable Liquid Remaining	<p>Supernate plus Drainable Interstitial. (See Supernate and Drainable Interstitial Liquid above for definitions)</p> <p>The total Drainable Liquid Remaining is the sum of drainable interstitial liquid and supernate minus total gallons pumped.</p>
Pumpable Liquid Remaining	<p>Drainable Liquid Remaining minus undrainable heel volume. (Dish bottom tanks have a "heel" where liquids can collect; flat bottom tanks do not). (See Drainable Liquid Remaining and Pumped This Month for definitions)</p> <p>Not all drainable interstitial liquid is pumpable. It is assumed that drainable interstitial liquid on top of the undrainable heel in sludge or saltcake, is not jet pumpable. Therefore, pumpable interstitial liquid is the initial volume of drainable interstitial liquid minus the amount of interstitial liquid on top of the heel. The volume as Pumpable Liquid Remaining is the sum of pumpable interstitial liquid and supernate minus total gallons pumped.</p>

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Sludge	Solids formed during sodium hydroxide additions to waste. Sludge usually was in the form of suspended solids when the waste was originally received in the tank from the waste generator. In-tank photographs may be used to estimate the volume.
Saltcake	Results from crystalization and precipitation after concentration of liquid waste, usually in an evaporator. If saltcake is layered over sludge, it is only possible to measure total solids volume. In-tank photographs may be used to estimate the saltcake volume.
Solids Volume Update	Indicates the latest update of any change in the solids volume.
Solids Update Source - See Footnote	Indicates the source or basis of the latest solids volume update.
Last Photo Date	Date of latest in-tank photographs taken.
See Footnotes for These Changes	Indicates any change made since the previous month. Explanation for the change follows the Inventory and Status by Tank section.

APPENDIX D

**TANK FARM CONFIGURATION, STATUS, AND
FACILITY CHARTS**

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D-3

75 ft Diameter Double-Shell Tank
Tank Farms: AN, AP, AW, AY, AZ, SY

* AY and AZ have a Tank Capacity
of 1,000,000 gal

75 ft Diameter Single-Shell Tank
Tank Farms: A*, AX*, SX

* A and AX have flat bottoms

75 ft Diameter Single-Shell Tank
Tank Farms: BY, S, TX, TY

75 ft Diameter Single-Shell Tank
Tank Farms: B, BX, C, T, U

20 ft Diameter Single-Shell Tank
Tank Farms: B, C, T, U

Figure D-1. High-Level Waste Tank Configuration

29103062.1a

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Figure D-2. Double-Shell Tank Instrumentation Configuration

Figure D-3. Single-Shell Tank Instrumentation Configuration

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Op's limit 1,140,000 gal. Constructed 1974-76

200 West Tank Farms

Double-Shell Tank Status

Op's limit 1,140,000 gal. Constructed 1960-61

Op's Limit 1,140,000 gal. Constructed 1963-66

Op's limit 1,140,000 gal. Constructed 1978-80

Op's limit 880,000 gal. Constructed 1968-70

Op's limit 880,000 gal. Constructed 1971 & 1977

200 East Tank Farms

Double-Shell Tank Status

Complex
Concentrate

Dilute

Dilute
Complex
Waste Concentrated
Phosphate
Waste Neutralized
Current
Acid
Waste (NCAW)

PFP

Sludge

Double-Shell
Slurry/Feed NCRW
Neutralized Cladding
Removal Waste

H = Potential Flammable Gases

(Hydrogen) (WHC-WP-0416)

GF = Grout Feed Tanks

TT = Transfer Tank

XXX = Sludge (in K gal.)

Updated Quarterly 12/31/93

DST-LVL/S.G.SPENCER/01-04

Figure D-4. Double-Shell Tank Status

1,000,000 gal. tanks Constructed 1954-55

1,000,000 gal. tanks Constructed 1963-84

500,000 gal. tanks Constructed 1943-44

55,000 gal. tanks

500,000 gal. tanks Constructed 1946-47

750,000 gal. tanks Constructed 1946-49

500,000 gal. tanks Constructed 1943-44

55,000 gal. tanks

XXX = Total Waste Volume (Solids + Supernatant) (in K gal.)
 XXX = Total Sludge (in K gal.)
 [Drainable Interstitial + Supernatant]
 XXX = Sludge (in K gal.)
 (Solids + TSS Not Shown)

AL = Assumed Leaker
 HH = High Heat Tanks
 F = Ferrocyanide
 (WHC-EP-0004)
 O = Organics
 H = Potential Flammable Gases
 (WHC-EP-0004)

IP = Intrusion Prevention
 IS = Interim Stabilized
 PI = Partially Interim Isolated

Updated Quarterly 12/31/93

SST-ALLS.G. SPENCER/01-94

Figure D-5. 200E Single-Shell Tank Status

750,000 gal. tanks Constructed 1950-51

1,000,000 gal. tanks Constructed 1953-54

500,000 gal. tanks Constructed 1943-44

55,000 gal. tanks

750,000 gal. tanks Constructed 1947-48

750,000 gal. tanks Constructed 1951-52

500,000 gal. tanks Constructed 1943-44

55,000 gal. tanks

Sludge **Saltcake**

XXX = Total Waste Volume (Solids + Supernatant) (in K gal.)
XXX = Total liquids (in K gal.)
(Drainable Interstitial + Supernatant)
XXX = Sludge (in K gal.)
(Saltcake Totals Not Shown)

AL = Assumed Leaker
MH = High Heat Treats
F = Ferrocyanide
(WHC-EP-0389)
O = Organic
H = Potential Flammable Gases
(44procops)(WHC-EP-0410)

IP = Intrusion Prevention
IS = Interim Stabilized
PI = Partially Interim Isolated

Updated Quarterly 12/31/93

85T-ALL-6. SPENCER 01-84

Fig. D-6. 200W Single-Shell Tank Status

Hanford Tank Farm Facilities

200 East

Note: All single-shell tanks were removed from service (not allowed to receive waste) on or before November 21, 1980

Single Walled Pipe Direct Buried

All Tanks 75 Foot Diameter
(Except 55,000 gal 20 foot dia.)

Tank Number

Radiation Monitoring
Dry Well - Approx Location
(● = Active ○ = Inactive)

BY-Tank Farm
1948-49
12 @ 758,000 gal

BX-Tank Farm
1946-47
12 @ 530,000 gal

244-BX
DCRT

ER-152

ER-151

ER-153

WESF B-Plant

244-A
DCRT

AX-155

Valve Pits

B-Tank Farm
1943-44
12 @ 530,000 gal
4 @ 55,000 gal

C-Tank Farm
1943-44
12 @ 530,000 gal
4 @ 55,000 gal

AN-Tank Farm
1980-81
7 @ 1,160,000 gal

Watch List Tanks

- ☐ **Ferrocyanide**
 - ☐ **H2/Flammable gases (109-SX has potential only-other tanks vent thru it)**
 - ☒ **Organics**
-
- ☒ **High Heat - 106-C only on Watch List (cooling water added)**

**Status as of February 28, 1994 - Updated Monthly
Issued by WHC/WTPE**

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Hanford Tank Farm Facilities

200 West

Note: All single-shell tanks were removed from service (not allowed to receive waste) on or before November 21, 1980

Double Walled Pipe
Single Walled Pipe Direct Buried

All Tanks 75 Foot Diameter
(Except 55,000 gal 20 foot dia.)

Radiation Monitoring
Laterals Under Tank
(X = not used)

Drainable Liquid
Remaining (1000 gal)
(Inactive Tanks)

Liquid Level Gauges
▼ = FIC Read Manually
Y = Tape Read Manually
▽ = Auto FIC on CASS
▽ = Intrusion Mode FIC

Airlift Circulators

Liquid Observation
Well (Low)

Screen - Jet Pump

Assumed
Leaker

Total Solids
(1000 gal)
Salt Cake/
Sludge/DSS
(Inactive Tanks)

Operating
Exhauster

Watch List and
High Heat Load
Tanks

Temperature Reading
Automatic Readings:
By CASS for DSTs
By TMACS for SSTs
(Manual Readings)

Assumed
Leaked Date

Watch List Tanks

- Ferrocyanide
- H₂/Flammable gases (109-SX has potential only-other tanks vent thru it)
- Organics
- High Heat - 106-C only on Watch List (cooling water added)

Status as of February 28, 1994 - Updated Monthly
Issued by WHC/WTPE

APPENDIX E

**MONTHLY SUMMARY
TANK USE SUMMARY
INVENTORY SUMMARY BY TANK FARM
INVENTORY AND STATUS BY TANK**

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TABLE E-1. MONTHLY SUMMARY

TANK STATUS						
February 28, 1994						
	200	200				
	EAST AREA	WEST AREA	TOTAL			
IN SERVICE	25	3	28	(2)		
OUT OF SERVICE	66	83	149			
SOUND	59	51	110			
ASSUMED LEAKER	32	35	67			
INTERIM STABILIZED	51	55	106	(1)		
ISOLATED						
PARTIAL INTERIM	21	30	51			
INTRUSION PREVENTION COMPLETED	45	53	98			
WASTE VOLUMES (Kgallons)						
	200	200				
	EAST AREA	WEST AREA	TOTAL	SST TANKS	DST TANKS	TOTAL
SUPERNATANT						
AGING	Aging waste	1779	0	1779	0	1779
CC	Complexant concentrate waste	1935	178	2113	3	2110
CP	Concentrated phosphate waste	1107	0	1107	0	1107
DC	Dilute complexed waste	802	1	803	1	802
DN	Dilute non-complexed waste	9594	0	9594	0	9594
DN/PD	Dilute non-complex/PUREX TRU solids	1031	0	1031	0	1031
DN/PT	Dilute non-complex/PFP TRU solids	0	653	653	0	653
DSSF	Double-shell slurry feed	3823	48	3871	57	3814
NCPLX	Non-complexed waste	214	293	507	507	0
TOTAL SUPERNATANT		20285	1173	21458	568	20890
SOLIDS						
	Double-shell slurry	937	1103	2040	0	2040
	Sludge	8206	5930	14136	12181	1955
	Saltcake	6577	17529	24106	23346	760
TOTAL SOLIDS		15720	24562	40282	35527	4755
TOTAL WASTE		36005	25735	61740	36095	25645
AVAILABLE SPACE IN TANKS		4784	851	5635	0	5635 (2)
DRAINABLE INTERSTITIAL		2220	4492	6712	6273	439
DRAINABLE LIQUID REMAINING		22506	5665	28171	6842	21329

(1) Includes six tanks that do not meet current established supernatant and interstitial liquid stabilization criteria, B-104, 110, 111, T-102, T-112, and U-110.

(2) Includes six double-shell tanks on Hydrogen Watch List not currently allowed to receive waste, 103-AN, 104-AN, 105-AN, 101-AW, 101-SY, and 103-SY.

Note: +/- 1 Kgal differences are the result of computer rounding

TABLE E-2. TANK USE SUMMARY

February 28, 1994

TANK FARMS	IN SERVICE	OUT OF SERVICE	SOUND	ASSUMED LEAKER	ISOLATED TANKS PARTIAL INTERIM	INTRUSION PREVENTION	INTERIM STABILIZED TANKS
EAST							
A	0	6	3	3	2	4	5
AN	7 (2)	0	7	0	0	0	0
AP	8	0	8	0	0	0	0
AW	6 (2)	0	6	0	0	0	0
AX	0	4	2	2	1	3	3
AY	2	0	2	0	0	0	0
AZ	2	0	2	0	0	0	0
B	0	16	6	10	0	16	16 (1)
BX	0	12	7	5	6	6	10 (1)
BY	0	12	7	5	5	7	7
C	0	16	9	7	7	9	10
Total	25	66	59	32	21	45	51
WEST							
S	0	12	11	1	10	2	2
SX	0	15	5	10	6	9	9
SY	3 (2)	0	3	0	0	0	0
T	0	16	9	7	5	11	12 (1)
TX	0	18	10	8	0	18	18
TY	0	6	1	5	0	6	6
U	0	16	12	4	9	7	8 (1)
Total	3	89	51	35	30	53	55
TOTAL	28	149	110	67	51	98	106

(1) Includes six tanks that do not meet current established supernatant and interstitial liquid stabilization criteria (B-104, 110, 111, T-102, 112, and U-110).

(2) Six Double-Shell Tanks on the Hydrogen Tank Watch List are not currently in service (AN-103, 104, 105, AW-101, SY-101 and 103).

TABLE E-3. INVENTORY SUMMARY BY TANK FARM

February 28, 1994

TANK FARM	TOTAL WASTE	AVAIL SPACE	SUPERNATANT LIQUID VOLUMES (K gallons)										SOLIDS VOLUME			
			AGING	CC	CP	DC	DN	DN/PD	DN/PT	DSSF	NCPLX	TOTAL	DSS	SLUDGE	CAKE	TOTAL
EAST																
A	1537	0	0	0	0	0	0	0	0	9	0	9	0	556	972	1528
AN	6036	1944	0	1932	4	0	718	0	0	1941	0	4595	937	504	0	1441
AP	7501	1619	0	0	1103	0	5578	0	0	820	0	7501	0	0	0	0
AW	6039	801	0	0	0	0	2624	1031	0	1053	0	4708	0	1135	196	1331
AX	906	0	0	3	0	0	0	0	0	0	0	3	0	19	884	903
AY	1591	369	0	0	0	802	674	0	0	0	0	1476	0	115	0	115
AZ	1909	51	1779	0	0	0	0	0	0	0	0	1779	0	130	0	130
B	2057	0	0	0	0	0	0	0	0	0	15	15	0	1697	345	2042
BX	1539	0	0	0	0	0	0	0	0	0	30	30	0	1354	155	1509
BY	4744	0	0	0	0	0	0	0	0	0	0	0	0	719	4025	4744
C	2146	0	0	0	0	0	0	0	0	0	169	169	0	1977	0	1977
Total	35006	4784	1779	1936	1107	802	9694	1031	0	3823	214	20236	937	8200	5577	15720
WEST																
S	5510	0	0	0	0	0	0	0	0	17	41	58	0	1166	4286	5452
SX	4425	0	0	0	0	1	0	0	0	0	62	63	0	1254	3108	4362
SY	2569	851	0	178	0	0	0	0	653	0	0	831	1103	71	564	1738
T	2034	0	0	0	0	0	0	0	0	0	45	45	0	1989	0	1989
TX	7009	0	0	0	0	0	0	0	0	0	5	5	0	241	6763	7004
TY	638	0	0	0	0	0	0	0	0	0	3	3	0	571	64	635
U	3550	0	0	0	0	0	0	0	0	31	137	168	0	638	2744	3382
Total	25736	851	0	178	0	1	0	0	653	48	293	1173	1103	5830	17529	24562
TOTAL	61740	5635	1779	2113	1107	803	9694	1031	653	3871	507	21458	2040	14130	24106	40262

Note: +/- 1 Kgal differences are the result of computer rounding

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TABLE E-4. INVENTORY AND STATUS BY TANK
DOUBLE-SHELL TANKS
February 28, 1994

TANK STATUS				LIQUID VOLUME							SOLIDS VOLUME			VOLUME DETERMINATION				SEE FOOTNOTES FOR THESE CHANGES
TANK	WASTE MATL	TANK INTEGRTY	TANK USE	EQUIVA-	TOTAL	AVAIL	NATANT	DRAIN- ABLE	DRAIN- ABLE	PUMP- ABLE	DSS	SLUDGE	SALT	LIQUID VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST PHOTO DATE	
				LENT WASTE INCHES	WASTE (Kgal)	SPACE (Kgal)	LIQUID (Kgal)	INTER- STIT. (Kgal)	LIQUID REMAIN (Kgal)	LIQUID REMAIN (Kgal)								
AN TANK FARM STATUS																		
AN-101	DN	SOUND	DRCVR	261.1	718	422	718	0	718	718	0	0	0	FM	S	08/22/89	0/ 0/ 0	
AN-102	CC	SOUND	CWHT	396.7	1091	49	1002	3	1005	1002	0	89	0	FM	S	08/22/89	0/ 0/ 0	
AN-103	DSS	SOUND	CWHT	346.5	953	187	16	0	16	16	937	0	0	FM	S	08/22/89	10/29/87	
AN-104	DSSF	SOUND	CWHT	384.4	1057	83	793	25	818	796	0	264	0	FM	S	08/22/89	08/19/88	
AN-105	DSSF	SOUND	CWHT	411.6	1132	8	1132	0	1132	1132	0	0	0	FM	S	10/22/84	01/26/88	
AN-106	CP	SOUND	CWHT	7.6	21	1119	4	0	4	4	0	17	0	FM	S	08/22/89	0/ 0/ 0	
AN-107	CC	SOUND	CWHT	386.9	1064	76	930	9	939	930	0	134	0	FM	S	08/22/89	09/01/88	
7 DOUBLE-SHELL TANKS				TOTALS:	6036	1944	4595	37	4632	4598	937	504	0					
AP TANK FARM STATUS																		
AP-101	DN	SOUND	DRCVR	385.5	1060	80	1060	0	1060	1060	0	0	0	FM	S	05/01/89	0/ 0/ 0	
AP-102	CP	SOUND	GRTFD	401.1	1103	37	1103	0	1103	1103	0	0	0	FM	S	07/11/89	0/ 0/ 0	
AP-103	DN	SOUND	DRCVR	411.3	1131	9	1131	0	1131	1131	0	0	0	FM	S	10/13/88	0/ 0/ 0	
AP-104	DN	SOUND	GRTFD	6.5	18	1122	18	0	18	18	0	0	0	FM	S	10/13/88	0/ 0/ 0	
AP-105	DSSF	SOUND	CWHT	298.2	820	320	820	0	820	820	0	0	0	FM	S	02/02/89	0/ 0/ 0	
AP-106	DN	SOUND	DRCVR	410.2	1128	12	1128	0	1128	1128	0	0	0	FM	S	10/13/88	0/ 0/ 0	
AP-107	DN	SOUND	DRCVR	403.6	1110	30	1110	0	1110	1110	0	0	0	FM	S	10/13/88	0/ 0/ 0	
AP-108	DN	SOUND	DRCVR	411.3	1131	9	1131	0	1131	1131	0	0	0	FM	S	10/13/88	0/ 0/ 0	
8 DOUBLE-SHELL TANKS				TOTALS:	7501	1619	7501	0	7501	7501	0	0	0					

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TABLE E-4. INVENTORY AND STATUS BY TANK
DOUBLE-SHELL TANKS
February 28, 1994

TANK STATUS				LIQUID VOLUME							SOLIDS VOLUME			VOLUME DETERMINATION				SEE FOOTNOTES FOR THESE CHANGES
TANK	WASTE MATL	TANK INTEGRITY	TANK USE	EQUIVA-	TOTAL WASTE (Kgal)	AVAIL SPACE (Kgal)	SUPER-	DRAIN-	DRAIN-	PUMP-	DSS (Kgallons)	SLUDGE CAKE	SALT	LIQUID VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST PHOTO DATE	
				LENT INCHES			NATANT LIQUID (Kgal)	INTER- STIT. (Kgal)	ABLE LIQUID REMAIN (Kgal)	ABLE LIQUID REMAIN (Kgal)								
AW TANK FARM STATUS																		
AW-101	DSSF	SOUND	CWHT	413.5	1137	3	1053	2	1055	1053	0	84	0	FM	S	10/22/84	03/17/88	
AW-102	DN	SOUND	EVFD	356.0	979	161	978	0	978	978	0	1	0	FM	S	02/29/84	02/02/83	
AW-103	DN/PD	SOUND	DRCVR	235.3	647	493	284	37	321	299	0	363	0	FM	S	02/01/89	0/ 0/ 0	
AW-104	DN	SOUND	DRCVR	408.4	1123	17	833	49	882	860	0	179	111	FM	S	03/05/87	02/02/83	
AW-105	DN/PD	SOUND	DRCVR	379.6	1044	96	747	29	776	754	0	297	0	FM	S	03/05/87	0/ 0/ 0	
AW-106	DN	SOUND	SRCVR	403.3	1109	31	813	42	855	833	0	211	85	FM	S	01/31/92	02/02/83	
6 DOUBLE-SHELL TANKS				TOTALS:	6039	801	4708	159	4867	4777	0	1135	196					
AY TANK FARM STATUS																		
AY-101	DC	SOUND	DRCVR	321.8	885	95	802	2	804	802	0	83	0	FM	S	02/02/87	12/28/82	
AY-102	DN	SOUND	DRCVR	256.7	706	274	674	0	674	674	0	32	0	FM	S	02/10/88	04/28/81	
2 DOUBLE-SHELL TANKS				TOTALS:	1591	369	1476	2	1478	1476	0	115	0					
AZ TANK FARM STATUS																		
AZ-101	AGING	SOUND	CWHT	342.5	942	38	907	0	907	907	0	35	0	FM	S	09/30/90	08/18/83	
AZ-102	AGING	SOUND	DRCVR	351.6	967	13	872	4	876	872	0	95	0	FM	S	06/04/92	12/24/84	
2 DOUBLE-SHELL TANKS				TOTALS:	1909	51	1779	4	1783	1779	0	130	0					

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TABLE E-4. INVENTORY AND STATUS BY TANK
DOUBLE-SHELL TANKS
February 28, 1994

TANK STATUS				LIQUID VOLUME							SOLIDS VOLUME		VOLUME DETERMINATION				SEE FOOTNOTES FOR THESE CHANGES	
TANK	WASTE MATL	TANK INTEGRTY	TANK USE	EQUIVA- LENT WASTE INCHES	TOTAL WASTE (Kgal)	AVAIL SPACE (Kgal)	NATANT LIQUID (Kgal)	DRAIN- ABLE INTER- STIT. (Kgal)	DRAIN- ABLE LIQUID REMAIN (Kgal)	PUMP- ABLE LIQUID REMAIN (Kgal)	DSS (Kgallons)	SLUDGE CAKE	SALT	LIQUID VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE		LAST PHOTO DATE
SY TANK FARM STATUS																		
SY-101	CC	SOUND	CWHT	400.7	1102	38	12	237	249	243	530	0	560	FM	S	01/31/92	04/12/89	
SY-102	DN/PT	SOUND	DRCVR	263.3	724	416	653	0	653	653	0	71	0	FM	S	05/12/87	04/29/81	
SY-103	CC	SOUND	CWHT	270.2	743	397	166	0	166	166	573	0	4	FM	S	10/22/84	10/01/85	
3 DOUBLE-SHELL TANKS				TOTALS:	2569	851	831	237	1068	1062	1103	71	564					
GRAND TOTAL					25645	5635	20890	439	21329	21193	2040	1955	760					

Note: +/- 1 Kgal differences are the result of computer rounding

Tank Farms	Available Space Calculations Used In This Document (Most Conservative)	Document SD-WM-TI-357*		OSD-T-151-00007** Specification Limit
		Operating Limit	Tank Capacity	
AN, AP, AM, SY	1,140,000 gal (414.5 in.)	1,144,000 gal (416 in.)	1,160,000 gal (421.8 in.)	1,160,500 gal (422 in.)
AY, AZ (Aging Waste)	980,000 gal (356.4 in.)	990,000 gal (360 in.)	1,000,000 gal (363.6 in.)	1,001,000 gal (364 in.)

* WHC-SD-WM-TI-357, "Waste Storage Tank Status and Leak Detection Criteria."

**WHC-OSD-T-151-00007, "Operating Specifications for 241-AN, AP, AM, AY, AZ, & SY Tank Farms."

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TABLE E-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
February 28, 1994

TANK STATUS				LIQUID VOLUME						SOLIDS VOLUME		VOLUME DETERMINATION						
TANK	WASTE MATERIAL	TANK INTEGRITY	STABIL./ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER- NATANT LIQUID (Kgal)	DRAIN- ABLE INTER- STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN- ABLE LIQUID REMAIN (Kgal)	PUMP- ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALTCAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	SOLIDS SOURCE SEE FOOTNOTE	LAST PHOTO DATE	SEE FOOTNOTES FOR THESE CHANGES
E-9																		
+++++ A FARM STATUS +++++																		
A-101	DSSF	SOUND	/PI	953	0	413	0.0	0.0	413	390	3	950	P	F	11/21/80		08/21/85	
A-102	DSSF	SOUND	IS/PI	41	4	2	0.0	39.5	6	0	15	22	P	FP	07/27/89	(1)	07/20/89	
A-103	DSSF	ASMD LKR	IS/IP	371	5	15	0.0	111.0	20	0	366	0	-	FP	06/03/88	(1)	12/28/88	
A-104	NCPLX	ASMD LKR	IS/IP	28	0	0	0.0	0.0	0	0	28	0	M	PS	01/27/78		06/25/86	
A-105	NCPLX	ASMD LKR	IS/IP	19	0	4	0.0	0.0	4	0	19	0	P	MP	08/23/79	(1)	08/20/86	
A-106	CP	SOUND	IS/IP	125	0	7	0.0	0.0	7	0	125	0	P	M	09/07/82		08/17/86	
6 SINGLE-SHELL TANKS TOTALS				1537	9	441	0.0	150.5	450	390	556	972						
+++++ AX FARM STATUS +++++																		
AX-101	DSSF	SOUND	/PI	748	0	320	0.0	0.0	320	298	3	745	P	F	05/06/82		08/18/87	
AX-102	CC	ASMD LKR	IS/IP	39	3	14	0.0	13.0	17	3	7	29	F	S	09/06/88		06/05/89	
AX-103	CC	SOUND	IS/IP	112	0	36	0.0	0.0	36	3	2	110	F	S	08/19/87		08/13/87	
AX-104	NCPLX	ASMD LKR	IS/IP	7	0	0	0.0	0.0	0	0	7	0	P	M	04/28/82		08/18/87	
4 SINGLE-SHELL TANKS TOTALS:				906	3	370	0.0	13.0	373	304	19	884						

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TABLE E-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
February 28, 1994

TANK STATUS				LIQUID VOLUME							SOLIDS VOLUME		VOLUME DETERMINATION					
TANK	WASTE MATERIAL	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER- NATANT LIQUID (Kgal)	DRAIN- ABLE INTER- STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN- ABLE LIQUID REMAIN (Kgal)	PUMP- ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALTCAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	SOLIDS UPDATE	SEE	FOR THESE CHANGES
																SOURCE SEE FOOTNOTE	LAST PHOTO DATE	
+++++ B FARM STATUS +++++																		
B-101	NCPLX	ASMD LKR	IS/IP	113	0	6	0.0	0.0	6	0	113	0	P	F	04/28/82			05/19/83
B-102	NCPLX	SOUND	IS/IP	32	4	0	0.0	0.0	4	0	18	10	P	F	08/22/85	(1)		08/22/85
B-103	NCPLX	ASMD LKR	IS/IP	59	0	0	0.0	0.0	0	0	59	0	F	F	02/28/85	(1)		10/13/88
B-104	NCPLX	SOUND	IS/IP	371	1	46	0.0	0.0	47	40	301	69	M	M	06/30/85	(1)		10/13/88
B-105	NCPLX	ASMD LKR	IS/IP	306	0	23	0.0	0.0	23	0	40	266	P	MP	12/27/84	(1)		05/19/88
B-106	NCPLX	SOUND	IS/IP	117	1	6	0.0	0.0	7	0	116	0	F	F	03/31/85	(1)		02/28/85
B-107	NCPLX	ASMD LKR	IS/IP	165	1	12	0.0	0.0	13	7	164	0	M	M	03/31/85	(1)		02/28/85
B-108	NCPLX	SOUND	IS/IP	94	0	4	0.0	0.0	4	0	94	0	F	F	05/31/85	(1)		05/10/85
B-109	NCPLX	SOUND	IS/IP	127	0	8	0.0	0.0	8	0	127	0	M	M	04/08/85	(1)		04/02/85
B-110	NCPLX	ASMD LKR	IS/IP	246	1	22	0.0	0.0	23	17	245	0	MP	MP	02/28/85	(1)		03/17/88
B-111	NCPLX	ASMD LKR	IS/IP	237	1	21	0.0	0.0	22	16	236	0	F	F	06/28/85	(1)		06/26/85
B-112	NCPLX	ASMD LKR	IS/IP	33	3	0	0.0	0.0	3	0	30	0	F	F	05/31/85	(1)		05/29/85
B-201	NCPLX	ASMD LKR	IS/IP	29	1	3	0.0	0.0	4	0	28	0	M	M	04/28/82			11/12/86
B-202	NCPLX	SOUND	IS/IP	27	0	3	0.0	0.0	3	0	27	0	P	M	05/31/85	(1)		05/29/85
B-203	NCPLX	ASMD LKR	IS/IP	51	1	5	0.0	0.0	6	0	50	0	PM	PM	05/31/84	(1)		11/13/86
B-204	NCPLX	ASMD LKR	IS/IP	50	1	5	0.0	0.0	6	0	49	0	P	M	05/31/84	(1)		10/21/87
16 SINGLE-SHELL TANKS				TOTALS	2057	15	164	0.0	0.0	179	80	1697	345					

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TABLE E-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
February 28, 1994

TANK STATUS				LIQUID VOLUME						SOLIDS VOLUME		VOLUME DETERMINATION						
TANK	WASTE MATERIAL	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	DRAIN-ABLE			PUMP-ABLE	DRAIN-ABLE	PUMP-ABLE	SLUDGE (Kgal)	SALTCAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	SOLIDS	SEE	
					SUPER-NATANT	INTER-STIT.	PUMPED THIS MONTH									SOURCE	LAST	FOR
																	FOOTNOTES	
																	CHANGES	
++++++ BX FARM STATUS ++++++																		
BX-101 NCPLX	ASMD LKR	IS/IP		43	1	0	0.0	0.0	1	0	42	0	P	M	04/28/82		11/24/88	
BX-102 NCPLX	ASMD LKR	IS/IP		96	0	4	0.0	0.0	4	0	96	0	P	M	04/28/82		09/18/85	
BX-103 NCPLX	SOUND	IS/IP		66	4	0	0.0	0.0	4	0	62	0	P	F	11/29/83		10/31/86	
BX-104 NCPLX	SOUND	IS/IP		99	3	30	0.0	17.4	33	27	96	0	F	F	09/22/89	(1)	09/21/89	
BX-105 NCPLX	SOUND	IS/IP		51	5	6	0.0	15.0	11	4	43	3	F	S	09/03/86	(1)	10/23/86	
BX-106 NCPLX	SOUND	/PI		46	15	0	0.0	0.0	15	15	31	0	MP	PS	04/28/82		05/19/88	
BX-107 NCPLX	SOUND	IS/PI		345	1	29	0.0	23.1	30	23	344	0	MP	P	09/18/90	(2)	09/11/90	
BX-108 NCPLX	ASMD LKR	IS/IP		26	0	1	0.0	0.0	1	0	26	0	M	PS	07/31/79	(1)	10/23/86	
BX-109 NCPLX	SOUND	IS/PI		193	0	13	0.0	8.2	13	8	193	0	FP	P	09/17/90	(2)	09/11/90	
BX-110 NCPLX	ASMD LKR	IS/PI		198	0	15	4.0	4.0	17	6	189	9	MP	M	08/22/85	(1)	07/31/85	
BX-111 NCPLX	ASMD LKR	/PI		211	0	0	17.4	72.1	0	0	68	143	M	M	07/26/77		07/16/93 (a)	
BX-112 NCPLX	SOUND	IS/PI		165	1	7	0.0	4.1	8	2	164	0	FP	P	09/17/90	(2)	09/11/90	
12 SINGLE-SHELL TANKS TOTALS:				1539	30	105	21.4	143.9	137	85	1354	155						
++++++ BY FARM STATUS ++++++																		
BY-101 NCPLX	SOUND	IS/IP		387	0	5	0.0	35.8	5	0	109	278	P	M	05/30/84		09/19/89	
BY-102 NCPLX	SOUND	/PI		341	0	41	0.0	123.3	41	22	0	341	MP	M	08/30/91	(2)	09/11/87	
BY-103 NCPLX	ASMD LKR	/PI		400	0	160	0.0	78.5	160	137	5	395	MP	M	04/03/90	(2)	09/07/89	
BY-104 NCPLX	SOUND	IS/IP		406	0	18	0.0	329.5	18	0	40	366	P	M	04/28/82		04/27/83	
BY-105 NCPLX	ASMD LKR	/PI		503	0	192	0.0	0.0	192	169	44	459	P	MP	04/28/82		07/11/86	
BY-106 NCPLX	ASMD LKR	/PI		642	0	235	0.0	0.0	235	213	95	547	P	MP	04/28/82		11/04/82	
BY-107 NCPLX	ASMD LKR	IS/IP		266	0	25	0.0	56.4	25	0	60	206	P	MP	04/28/82		10/15/86	

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TABLE E-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
February 28, 1994

TANK STATUS				LIQUID VOLUME							SOLIDS VOLUME		VOLUME DETERMINATION					
TANK	WASTE MATERIAL	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER- NATANT LIQUID (Kgal)	DRAIN- ABLE INTER- STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN- ABLE LIQUID REMAIN (Kgal)	PUMP- ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALTCAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	SOLIDS UPDATE	SEE	FOR THESE CHANGES
																SOURCE	LAST	
																FOOTNOTE	PHOTO DATE	
BY-108	NCPLX	ASMD LKR	IS/IP	228	0	9	0.0	27.5	9	0	154	74	MP	M	04/28/82		10/15/86	
BY-109	NCPLX	SOUND	/PI	423	0	78	0.0	93.5	78	57	83	340	F	PS	08/30/91	(2)	10/15/86	
BY-110	NCPLX	SOUND	IS/IP	398	0	9	0.0	213.3	9	0	103	295	M	S	09/10/79		07/26/84	
BY-111	NCPLX	SOUND	IS/IP	459	0	0	0.0	313.2	0	0	21	438	P	M	04/28/82		10/31/86	
BY-112	NCPLX	SOUND	IS/IP	291	0	8	0.0	116.4	8	0	5	286	P	M	04/23/82		04/14/88	
12 SINGLE-SHELL TANKS TOTALS:				4744	0	780	0.0	1387.4	780	598	719	4025						
+++++ C FARM STATUS +++++																		
C-101	NCPLX	ASMD LKR	IS/IP	88	0	3	0.0	0.0	3	0	88	0	M	M	11/29/83		11/17/87	
C-102	DC	SOUND	/PI	423	0	37	0.0	11.6	37	19	423	0	F	FP	04/28/82		05/18/76	
C-103	NCPLX	SOUND	/PI	195	133	0	0.0	0.0	133	133	62	0	F	S	10/22/90	(2)	07/28/87	
C-104	CC	SOUND	IS/IP	295	0	11	0.0	0.0	11	5	295	0	FP	P	09/22/89	(1)	07/25/90	
C-105	NCPLX	SOUND	/PI	150	0	11	0.0	0.0	11	4	150	0	F	S	05/31/85		04/01/88	
C-106	NCPLX	SOUND	/PI	229	32	16	0.0	0.0	48	42	197	0	F	PS	04/28/82		04/05/79	
C-107	DC	SOUND	/PI	275	0	26	0.0	16.3	26	20	275	0	F	S	01/30/92	(2)	00/00/00	
C-108	NCPLX	SOUND	IS/IP	66	0	0	0.0	0.0	0	0	66	0	M	S	02/24/84	(1)	12/05/74	
C-109	NCPLX	SOUND	IS/IP	66	4	0	0.0	0.0	4	0	62	0	M	PS	11/29/83		01/30/76	
C-110	DC	ASMD LKR	/PI	187	0	7	0.0	8.9	7	5	187	0	F	FMP	03/01/92	(2)	08/12/86	
C-111	NCPLX	ASMD LKR	IS/IP	57	0	0	0.0	0.0	0	0	57	0	M	S	04/28/82		02/25/70	
C-112	NCPLX	SOUND	IS/PI	104	0	32	0.0	0.0	32	26	104	0	M	PS	09/18/90	(2)	09/18/90	

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TABLE E-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
February 28, 1994

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TANK STATUS				LIQUID VOLUME							SOLIDS VOLUME		VOLUME DETERMINATION					
TANK	WASTE MATERIAL	TANK INTEGRITY	STABIL/ ISOLATION STATUS	DRAIN-ABLE			PUMPED THIS MONTH	TOTAL PUMPED	DRAIN-ABLE		SLUDGE	SALTCAKE	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	SOLIDS UPDATE	LAST PHOTO DATE	SEE FOOTNOTES FOR THESE CHANGES
				TOTAL WASTE (Kgal)	NATANT LIQUID (Kgal)	INTER-STIT. (Kgal)			LIQUID REMAIN (Kgal)	LIQUID REMAIN (Kgal)						SOURCE SEE FOOTNOTE		
C-201	NCPLX	ASMD LKR	IS/IP	2	0	0	0.0	0.0	0	0	2	0	P	MP	03/31/82		12/02/86	
C-202	EMPTY	ASMD LKR	IS/IP	1	0	0	0.0	0.0	0	0	1	0	P	M	01/19/79		12/09/86	
C-203	NCPLX	ASMD LKR	IS/IP	5	0	0	0.0	0.0	0	0	5	0	P	MP	04/28/82		12/09/86	
C-204	NCPLX	ASMD LKR	IS/IP	3	0	0	0.0	0.0	0	0	3	0	P	MP	04/28/82		12/09/86	
16 SINGLE-SHELL TANKS TOTALS:				2146	169	143	0.0	36.8	312	254	1977	0						
+++++ S FARM STATUS +++++																		
S-101	NCPLX	SOUND	/PI	427	12	84	0.0	0.0	96	90	244	171	F	PS	09/16/80		03/18/88	
S-102	DSSF	SOUND	/PI	549	0	230	0.0	0.0	230	208	4	545	P	FP	04/28/82		03/18/88	
S-103	DSSF	SOUND	/PI	248	17	85	0.0	0.0	102	79	10	221	M	S	11/20/80		06/01/89	
S-104	NCPLX	ASMD LKR	IS/IP	294	1	28	0.0	0.0	29	23	293	0	M	M	12/20/84	(1)	12/12/84	
S-105	NCPLX	SOUND	IS/IP	456	0	35	0.0	114.3	35	13	2	454	MP	S	09/26/88		04/12/89	
S-106	NCPLX	SOUND	/PI	479	4	186	0.0	97.0	190	168	28	447	P	FP	12/31/93		03/17/89	
S-107	NCPLX	SOUND	/PI	376	14	45	0.0	0.0	59	52	293	69	F	PS	09/25/80		03/12/87	
S-108	NCPLX	SOUND	/PI	604	0	127	0.0	151.6	127	105	4	600	P	MP	04/28/82		03/12/87	
S-109	NCPLX	SOUND	/PI	568	0	141	0.0	111.0	141	119	13	555	F	PS	09/30/75		08/24/84	
S-110	NCPLX	SOUND	/PI	390	0	110	0.0	185.9	110	103	131	259	F	PS	05/14/92		03/12/87	
S-111	NCPLX	SOUND	/PI	596	10	195	0.0	3.3	205	134	139	447	P	FP	04/28/82		08/10/89	
S-112	NCPLX	SOUND	/PI	523	0	110	0.0	125.1	110	107	5	518	P	FP	12/31/93		03/24/87	
12 SINGLE-SHELL TANKS TOTALS:				5510	58	1376	0.0	788.2	1434	1201	1166	4286						

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TABLE E-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
February 28, 1994

TANK STATUS				LIQUID VOLUME							SOLIDS VOLUME		VOLUME DETERMINATION					
TANK	WASTE MATERIAL	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER- NATANT LIQUID (Kgal)	DRAIN- ABLE INTER- STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN- ABLE LIQUID REMAIN (Kgal)	PUMP- ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALTCAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	SOLIDS UPDATE	SEE FOOTNOTES	
																SOURCE SEE FOOTNOTE	LAST PHOTO DATE	FOR THESE CHANGES
+++++ SX FARM STATUS +++++																		
SX-101 DC	SOUND	/PI		456	1	145	0.0	0.0	146	124	112	343	P	FP	04/28/82		03/10/89	
SX-102 DSSF	SOUND	/PI		543	0	183	0.0	0.0	183	177	117	426	P	M	04/28/82		01/07/88	
SX-103 NCPLX	SOUND	/PI		652	1	232	0.0	0.0	233	211	115	536	F	S	07/15/91		12/17/87	
SX-104 DSSF	ASMD LKR	/PI		614	0	201	0.0	113.2	201	195	136	478	F	S	07/07/89		09/08/88	
SX-105 DSSF	SOUND	/PI		683	0	261	0.0	0.0	261	238	73	610	P	F	04/28/82		06/15/88	
SX-106 NCPLX	SOUND	/PI		538	61	194	0.0	0.0	255	233	12	465	F	PS	10/28/80		06/01/89	
SX-107 NCPLX	ASMD LKR	IS/IP		104	0	5	0.0	0.0	5	0	104	0	P	M	04/28/82		03/06/87	
SX-108 NCPLX	ASMD LKR	IS/IP		87	0	5	0.0	0.0	5	0	87	0	P	M	12/31/93		03/06/87	
SX-109 NCPLX	ASMD LKR	IS/IP		250	0	10	0.0	0.0	10	0	0	250	P	M	10/05/93		05/21/86	
SX-110 NCPLX	ASMD LKR	IS/IP		62	0	0	0.0	0.0	0	0	62	0	M	PS	10/06/76		02/20/87	
SX-111 NCPLX	ASMD LKR	IS/IP		125	0	7	0.0	0.0	7	0	125	0	M	PS	05/31/74		03/10/87	
SX-112 NCPLX	ASMD LKR	IS/IP		92	0	3	0.0	0.0	3	0	92	0	P	M	04/28/82		03/10/87	
SX-113 NCPLX	ASMD LKR	IS/IP		26	0	0	0.0	0.0	0	0	26	0	P	M	04/28/82		03/18/88	
SX-114 NCPLX	ASMD LKR	IS/IP		181	0	14	0.0	0.0	14	0	181	0	P	M	04/28/82		02/26/87	
SX-115 NCPLX	ASMD LKR	IS/IP		12	0	0	0.0	0.0	0	0	12	0	P	M	04/28/82		03/31/88	
15 SINGLE-SHELL TANKS				TOTALS:	4425	63	1260	0.0	113.2	1323	1178	1254	3108					

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TABLE E-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
February 28, 1994

TANK STATUS				LIQUID VOLUME						SOLIDS VOLUME		VOLUME DETERMINATION							
TANK	WASTE MATERIAL	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER- NATANT LIQUID (Kgal)	DRAIN- ABLE INTER- STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN- ABLE LIQUID REMAIN (Kgal)	PUMP- ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALTCAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	SOLIDS UPDATE	SEE	FOR THESE CHANGES	
																SOURCE SEE FOOTNOTE	LAST PHOTO DATE		
+++++ T FARM STATUS +++++																			
E-15	T-101	NCPLX	ASMD LKR	IS/PI	102	1	16	0.0	25.3	17	0	101	0	F	S	04/14/93		04/07/93	
	T-102	NCPLX	SOUND	IS/IP	32	13	0	0.0	0.0	13	13	19	0	P	FP	08/31/84		06/28/89	
	T-103	NCPLX	ASMD LKR	IS/IP	27	4	0	0.0	0.0	4	0	23	0	F	FP	11/29/83	(1)	07/02/84	
	T-104	NCPLX	SOUND	/PI	445	3	47	0.0	0.0	50	44	442	0	P	MP	04/28/82		06/29/89	
	T-105	NCPLX	SOUND	IS/IP	98	0	23	0.0	0.0	23	17	98	0	P	F	05/29/87		05/14/87	
	T-106	NCPLX	ASMD LKR	IS/IP	21	2	0	0.0	0.0	2	0	19	0	P	FP	04/28/82		06/29/89	
	T-107	NCPLX	ASMD LKR	/PI	180	9	13	0.0	0.0	22	16	171	0	P	FP	08/31/84		07/12/84	
	T-108	NCPLX	ASMD LKR	IS/IP	44	0	0	0.0	0.0	0	0	44	0	P	M	04/28/82		07/17/84	
	T-109	NCPLX	ASMD LKR	IS/IP	58	0	0	0.0	0.0	0	0	58	0	M	M	12/30/84	(1)	02/25/93	
	T-110	NCPLX	SOUND	/PI	379	3	39	0.0	0.0	42	36	376	0	P	FP	04/28/82		07/12/84	
	T-111	NCPLX	ASMD LKR	/PI	458	2	49	0.0	0.0	51	45	456	0	P	FP	04/28/82		08/02/84	(b)
	T-112	NCPLX	SOUND	IS/IP	67	7	0	0.0	0.0	7	7	60	0	P	FP	04/28/82		08/01/84	
	T-201	NCPLX	SOUND	IS/IP	29	1	3	0.0	0.0	4	0	28	0	M	PS	05/31/78		04/15/86	
	T-202	NCPLX	SOUND	IS/IP	21	0	2	0.0	0.0	2	0	21	0	FP	P	07/12/81		07/06/89	
	T-203	NCPLX	SOUND	IS/IP	35	0	4	0.0	0.0	4	0	35	0	M	PS	01/31/78		08/03/89	
	T-204	NCPLX	SOUND	IS/IP	38	0	4	0.0	0.0	4	0	38	0	FP	P	07/22/81		08/03/89	
16 SINGLE-SHELL TANKS				TOTALS:	2034	45	200	0.0	25.3	245	178	1989	0						

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TABLE E-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
February 28, 1994

TANK STATUS				LIQUID VOLUME							SOLIDS VOLUME		VOLUME DETERMINATION					
TANK	WASTE MATERIAL	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER- NATANT LIQUID (Kgal)	DRAIN- ABLE INTER- STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN- ABLE LIQUID REMAIN (Kgal)	PUMP- ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALTCAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	SOLIDS UPDATE	SEE	FOR THESE CHANGES
																SOURCE SEE FOOTNOTE	LAST PHOTO DATE	
+++++ TX FARM STATUS +++++																		
E-16	TX-101 NCPLX	SOUND	IS/IP	87	3	2	0.0	0.0	5	0	84	0	F	P	02/02/84	(1)	10/24/85	
	TX-102 NCPLX	SOUND	IS/IP	217	0	22	0.0	94.4	22	0	0	217	M	S	08/31/84		10/31/85	
	TX-103 NCPLX	SOUND	IS/IP	157	0	15	0.0	68.3	15	0	157	0	F	S	08/14/80		10/31/85	
	TX-104 NCPLX	SOUND	IS/IP	65	1	14	0.0	3.6	15	0	0	64	F	FP	04/06/84		10/16/84	
	TX-105 NCPLX	ASMD LKR	IS/IP	609	0	20	0.0	121.5	20	0	0	609	M	PS	08/22/77		10/24/89	
	TX-106 NCPLX	SOUND	IS/IP	453	0	10	0.0	134.6	10	0	0	453	M	S	08/29/77		10/31/85	
	TX-107 NCPLX	ASMD LKR	IS/IP	36	1	1	0.0	0.0	2	0	0	35	FP	FP	01/20/84	(1)	10/31/85	
	TX-108 NCPLX	SOUND	IS/IP	134	0	0	0.0	13.7	0	0	0	134	P	FP	05/30/83		09/12/89	
	TX-109 NCPLX	SOUND	IS/IP	384	0	10	0.0	72.3	10	0	0	384	F	PS	05/30/83		10/24/89	
	TX-110 NCPLX	ASMD LKR	IS/IP	462	0	15	0.0	115.1	15	0	0	462	M	PS	05/30/83		10/24/89	
	TX-111 NCPLX	SOUND	IS/IP	370	0	9	0.0	98.4	9	0	0	370	M	PS	07/26/77		09/12/89	
	TX-112 NCPLX	SOUND	IS/IP	649	0	24	0.0	94.0	24	0	0	649	P	PS	05/30/83		11/19/87	
	TX-113 NCPLX	ASMD LKR	IS/IP	607	0	16	0.0	19.2	16	0	0	607	M	PS	05/30/83		04/11/83	
	TX-114 NCPLX	ASMD LKR	IS/IP	535	0	15	0.0	104.3	15	0	0	535	M	PS	05/30/83		04/11/83	
	TX-115 NCPLX	ASMD LKR	IS/IP	640	0	19	0.0	99.1	19	0	0	640	M	S	03/25/83		06/15/88	
	TX-116 NCPLX	ASMD LKR	IS/IP	631	0	23	0.0	23.8	23	0	0	631	M	PS	03/31/72		10/17/89	
	TX-117 NCPLX	ASMD LKR	IS/IP	626	0	8	0.0	54.3	8	0	0	626	M	PS	12/31/71		04/11/83	
	TX-118 NCPLX	SOUND	IS/IP	347	0	27	0.0	89.1	27	0	0	347	F	S	11/17/80		12/19/79	
18 SINGLE-SHELL TANKS				TOTALS:	7009	5	250	0.0	1205.7	255	0	241	6763					

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TABLE E-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
February 28, 1994

TANK STATUS				LIQUID VOLUME						SOLIDS VOLUME		VOLUME DETERMINATION						
TANK	WASTE MATERIAL	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER- NATANT LIQUID (Kgal)	DRAIN- ABLE INTER- STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN- ABLE LIQUID REMAIN (Kgal)	PUMP- ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALTCAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	SOLIDS UPDATE	SEE	
																SOURCE SEE FOOTNOTE	LAST PHOTO DATE	FOR THESE CHANGES
+++++ TY FARM STATUS +++++																		
TY-101	NCPLX	ASMD LKR	IS/IP	118	0	0	0.0	8.2	0	0	118	0	P	F	04/28/82		08/22/89	
TY-102	NCPLX	SOUND	IS/IP	64	0	14	0.0	6.6	14	0	0	64	P	FP	06/28/82		07/07/87	
TY-103	NCPLX	ASMD LKR	IS/IP	162	0	5	0.0	11.5	5	0	162	0	P	FP	07/09/82		08/22/89	
TY-104	NCPLX	ASMD LKR	IS/IP	46	3	12	0.0	0.0	15	0	43	0	P	FP	06/27/90	(1)	11/03/87	
TY-105	NCPLX	ASMD LKR	IS/IP	231	0	0	0.0	3.6	0	0	231	0	P	M	04/28/82		09/07/89	
TY-106	NCPLX	ASMD LKR	IS/IP	17	0	0	0.0	0.0	0	0	17	0	P	M	04/28/82		08/22/89	
6 SINGLE-SHELL TANKS TOTALS:				638	3	31	0.0	29.9	34	0	571	64						
+++++ U FARM STATUS +++++																		
U-101	NCPLX	ASMD LKR	IS/IP	25	3	0	0.0	0.0	3	0	22	0	P	MP	04/28/82		06/19/79	
U-102	NCPLX	SOUND	/PI	374	18	126	0.0	0.0	144	122	43	313	P	MP	04/28/82		06/08/89	
U-103	NCPLX	SOUND	/PI	468	13	176	0.0	0.0	189	166	32	423	P	FP	04/28/82		09/13/88	
U-104	NCPLX	ASMD LKR	IS/IP	122	0	7	0.0	0.0	7	0	122	0	P	MP	04/28/82		08/10/89	
U-105	NCPLX	SOUND	/PI	418	37	142	0.0	0.0	179	157	32	349	FM	PS	09/30/78		07/07/88	
U-106	NCPLX	SOUND	/PI	226	15	68	0.0	0.0	83	61	26	185	F	PS	12/30/83		07/07/88	
U-107	DSSF	SOUND	/PI	406	31	147	0.0	0.0	178	156	15	360	F	S	12/30/83		10/27/88	
U-108	NCPLX	SOUND	/PI	468	24	172	0.0	0.0	196	174	29	415	F	S	12/30/83		09/12/84	
U-109	NCPLX	SOUND	/PI	463	19	163	0.0	0.0	182	160	48	396	F	F	11/13/77		07/07/88	
U-110	NCPLX	ASMD LKR	IS/PI	186	0	15	0.0	0.0	15	9	186	0	M	M	12/30/84	(1)	12/11/84	
U-111	DSSF	SOUND	/PI	329	0	122	0.0	0.0	122	99	26	303	PS	FPS	04/28/82		06/23/88	
U-112	NCPLX	ASMD LKR	IS/IP	49	4	0	0.0	0.0	4	0	45	0	P	MP	02/10/84	(1)	08/03/89	

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TABLE E-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
February 28, 1994

TANK STATUS				LIQUID VOLUME							SOLIDS VOLUME		VOLUME DETERMINATION					
TANK	WASTE MATERIAL	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER-NATANT LIQUID (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN-ABLE LIQUID REMAIN (Kgal)	PUMP-ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALTCAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	SOLIDS SOURCE SEE FOOTNOTE	LAST PHOTO DATE	SEE FOOTNOTES FOR THESE CHANGES
U-201	NCPLX	SOUND	IS/IP	5	1	0	0.0	0.0	1	0	4	0	M	S	08/15/79		08/03/89	
U-202	NCPLX	SOUND	IS/IP	5	1	0	0.0	0.0	1	0	4	0	M	S	08/15/79		08/08/89	
U-203	NCPLX	SOUND	IS/IP	3	1	0	0.0	0.0	1	0	2	0	M	S	08/15/79		06/13/89	
U-204	NCPLX	SOUND	IS/IP	3	1	0	0.0	0.0	1	0	2	0	M	S	08/15/79		06/13/89	
16 SINGLE-SHELL TANKS TOTAL:				3550	168	1138	0.0	0.0	1306	1104	638	2744						
GRAND TOTAL				36095	568	6258	21	3894	6828	5372	12181	23345						

NOTES: +/- 1K gal differences are the result of rounding

Total Waste is calculated as the sum of Sludge and Saltcake plus Supernate.

The category "Interim Isolated" (II) was changed to "Intrusion Prevention" (IP) in June 1993. See section C. "Tank and Equipment Code and Status Definitions"

(1) WHC-SD-RE-TI-178 SST STABILIZATION RECORD, latest revision

(2) TANK FARMS SST ENGINEER MONTHLY INPUT (Retained 10 yr in Monthly Summary Report author's office)

See next page for footnotes

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TABLE E-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
February 28, 1994

TANK STATUS				LIQUID VOLUME					SOLIDS VOLUME		VOLUME DETERMINATION						
TANK	WASTE MATERIAL	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER- NATANT LIQUID (Kgal)	DRAIN- ABLE INTER- STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN- ABLE LIQUID REMAIN (Kgal)	PUMP- ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALTCAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	SOLIDS UPDATE	SEE FOOTNOTES
																SOURCE SEE FOOTNOTE	LAST PHOTO DATE

Footnote:

(a) BX-111 - Following information from Shift/Surveillance Engineer:

Pumping began October 22, 1993

Pumping is now on hold pending a compliance investigation (see Highlights section)

(DLR and PLR are being reflected as "0" because the gallons pumped have exceeded the estimate of the gallons remaining when pumping began. DLR and PLR will be re-estimated when pumping is completed).

(b) T-111 - Although this summary report shows 0 Kgal pumped, Primary Stabilization Evaluation dated September 24, 1979, indicates that 5 Kgal of interstitial liquid have been pumped from this tank. This information was originally in this summary document and was then omitted. This tank was declared an assumed re-leaker on February 28, 1994. Plans are underway for pumping and Interim Stabilization, after which the revised pumping information will be re-entered in this summary report.

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APPENDIX F
PERFORMANCE SUMMARY

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TABLE F-1. PERFORMANCE SUMMARY (Sheet 1 of 2)

WASTE VOLUMES (Kgallons)

February 28, 1994

INCREASES/DECREASES IN WASTE VOLUMES STORED IN DOUBLE-SHELL TANKS

SOURCE	THIS MONTH	FY1994 TO DATE
B PLANT	0	9
PUREX TOTAL (1)	0	41
PFP (1)	0	0
T PLANT (1)	0	0
S PLANT (1)	0	5
300/400 AREAS (1)	0	8
SULFATE WASTE - 100 N (2)	0	0
MINI-RUN (14)	0	67
TANK FARMS & SALTWELL LIQUID (6)	0	91
OTHER GAINS	4	120
Slurry increase (3)	4	
Condensate	0	
Instrument change (7)	0	
Unknown (5)	0	
OTHER LOSSES	-22	-203
Slurry decrease (3)	-2	
Evaporation (4)	-10	
Instrument change (7)	0	
Unknown (5)	-10	
EVAPORATED	0	0
GROUTED	0	0
Total	-18	138

Note: +/-1 Kgal differences are the result of rounding

* No water was added to C-106 during February 1994

INCREASES/DECREASES IN WASTE VOLUMES STORED IN SINGLE-SHELL TANKS

SOURCE	THIS MONTH	FY1994 TO DATE
106-C (8)	0	21
Gains		
Losses	-5	-27
Total	-5	-6

CUMULATIVE EVAPORATION - 1950 TO PRESENT WASTE VOLUME REDUCTION

FACILITY	
242-B EVAPORATOR (9)	7172
242-T EVAPORATOR (1950's) (9)	9181
IN-TANK SOLIDIFICATION UNIT 1 (10)	11876
IN-TANK SOLIDIFICATION UNIT 2 (10)	15295
IN-TANK SOLID. UNIT 1 & 2 (10)	7965
(after conversion of Unit 1 to a cooler for Unit 2)	
242-T (Modified) (9)	24471
242-S EVAPORATOR (11)	41983
242-A EVAPORATOR (12)	65227
B PLANT (Cell 23) (13)	1185
REDOX (12)	12393
Total	196748

TOTAL THROUGHPUT

FACILITY	
242-A EVAPORATOR (12)	182437
242-S EVAPORATOR (11)	134587
Total	317024

Footnotes: See Next Page

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TABLE F-1. PERFORMANCE SUMMARY
(Sheet 2 of 2)

Footnotes:

INCREASES/DECREASES IN WASTE VOLUMES

- (1) Including Flush
- (2) Sulfate waste is generated from ion exchange backflushing and sand filter clean out, resulting in sulfate waste (Na_2SO_4).
- (3) Slurry increase/growth is caused by gas generation within the waste. The gas which is trapped in the waste expands in the tank causing the surface level and volume to increase. Slurry decrease results from the periodic release of gas in the waste.
- (4) Aging waste tanks
- (5) Unknown waste gains or losses may be the result of rounding calculations, clean water slowly leaking through a valve, changes in levels (expansion/contraction) because of ambient temperature changes, different measuring devices being used by Tank Farm operators, transfers taking place during the end of the month, Tank Farm activities such as miscellaneous water additions not associated with facility waste generation, or the addition of water which is added to aging waste tanks and then evaporated off.
- (6) Includes Tank Farms miscellaneous flushes (flushes are used to "clean out" pipelines and reduce personnel exposure, reduce potential for waste incompatibility, prevent line plugging, and reduce waste content of potential spills or leaks), and saltwell liquid, which results from pumping of single-shell tanks to double-shell tanks.
- (7) Liquid level measurement instrument changes from the automatic FIC to manual tape (and vice versa) result in unusual gains or losses because the manual tape may rest on an uneven crust surface giving a different reading from that of the automatic FIC. These instrument changes are made when the automatic FIC is out of service and the reading from the manual tape is used for reporting purposes. The reported reading reverts back to the automatic FIC when it is repaired.
- (8) Water is periodically added 106-C to provide evaporative cooling. Losses due to evaporation are calculated assuming all losses are evaporative losses. Some drywells are monitored weekly and some are monitored every two weeks on tank 106-C. If there are any indications of a leak from this tank, the assumption that all losses are due to evaporation will be reevaluated.

WASTE VOLUME REDUCTION

- (9) Currently inoperative. These evaporator systems (242-B and 242-T) were installed in 1952 in each of the two operating areas to remove water from the waste, and ran for approximately 4 yr after which both units were shut down. The 242-T Evaporator was reactivated in December 1965, and shut down again in April 1976.
- (10) Currently inoperative. These two in-tank solidification (ITS) units provided in-tank heating to promote in-tank boiling or evaporation. The ITS Unit 1 started up March 1965, and ITS Unit 2 started up February 1968. In August 1971, ITS Unit 1 was converted from an evaporator to a cooler for ITS Unit 2. Both units were shut down June 1974.
- (11) Currently inoperative. The 242-S Evaporator-Crystallizer was started up November 1973, and shut down March 1980, when its processing campaign was completed. It is in standby mode with no future mission. This evaporator operates under a vacuum, employing evaporative concentration with subsequent crystallization and precipitation of salt crystals.
- (12) Currently inoperative. The 242-A Evaporator-Crystallizer was started up March 1977, and shut down April 1989 because of regulatory issues, and has remained shut down for subsequent upgrading. This evaporator operates under a vacuum, employing evaporative concentration with subsequent crystallization and precipitation of salt crystals (forming saltcake).
- (13) Currently inoperative. Additional concentration of wastes was completed by using the concentrators at REDOX and B Plant. The REDOX concentrator was used from July 1967 to June 1972, while the B Plant concentrator was used from July 1967 to February 1968.
- (14) Waste generated for training and testing purposes prior to Evaporator restart.

APPENDIX G

**PUMPING RECORD
LIQUID STATUS AND PUMPABLE LIQUID
REMAINING IN TANKS**

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TABLE G-1. PUMPING RECORD

February 28, 1994

(Kgallons)

TANK FARMS	PUMPED THIS MONTH	PUMPED FY TO DATE	CUMULATIVE TOTAL PUMPED 1979 TO DATE
EAST			
A	0.0	0.0	150.5
AN	N/A	N/A	N/A
AP	N/A	N/A	N/A
AW	N/A	N/A	N/A
AX	0.0	0.0	13.0
AY	N/A	N/A	N/A
AZ	N/A	N/A	N/A
B	0.0	0.0	0.0
BX	0.0	72.1	143.9
BY	0.0	0.0	1387.4 (a)
C	0.0	0.0	36.8 (b)
Total	0.0	72.1	1751.6
WEST			
S	0.0	0.0	791.0
SX	0.0	0.0	113.2
SY	N/A	N/A	N/A
T	0.0	0.0	25.3
TX	0.0	0.0	1205.7
TY	0.0	0.0	29.9
U	0.0	0.0	0.0
Total	0.0	0.0	2165.1
TOTAL	0.0	72.1	9856.7

NA = Not Applicable

- (a) The total volume pumped was adjusted by the Single-Shell Tanks Engineer to account for the 14% miscalibration of the constant velocity transmitter and the amount of flush water used. DIL, DLR and PLR volumes were recalculated, based on the observed porosity in 102 and 109-BY.
- (b) The total volume pumped was recalculated by the Single-Shell Tanks Engineer based on the surface level readings taken after shutdown of the saltwell pumps on January 28, 1992, in 102-C, 107-C and 110-C, and revised again based on recalculation of flush water additions on January 26, 1993. (The total for the tank farm remains the same, the amount pumped varied among the three tanks).

**TABLE G-2. LIQUID STATUS AND PUMPABLE LIQUID
REMAINING IN TANKS**

February 28, 1994

Waste Volumes (Kgallons)

TANK FARMS	SUPERNATANT LIQUID	DRAINABLE INTERSTITIAL LIQUID	DRAINABLE LIQUID REMAINING	PUMPABLE LIQUID REMAINING
EAST				
A	9	441	450	390
AN	4595	37	4632	N/A
AP	7501	0	7501	N/A
AW	4708	159	4867	N/A
AX	3	370	373	304
AY	1476	2	1478	N/A
AZ	1779	4	1783	N/A
B	15	164	179	80
BX	30	120	151	85
BY	0	780	780	598
C	169	143	312	254
Total	20285	2220	22506	1711
WEST				
S	58	1376	1434	1201
SX	63	1260	1323	1178
SY	831	237	1068	N/A
T	45	200	245	178
TX	5	250	255	0
TY	3	31	34	0
U	168	1138	1306	1104
Total	1173	4492	5665	3661
TOTAL	21458	6712	28171	5372 (1)

(1) Volume based on 12.5% (sludge waste) and 45% (saltcake waste) liquid in solid (porosity) value. This is a conservative (high) estimate.

Note: +/- 1 Kgal differences are the result of computer rounding

N/A = Not applicable

APPENDIX H
CATCH TANKS AND SPECIAL
SURVEILLANCE FACILITIES

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TABLE H-1. EAST AND WEST AREA CATCH TANKS AND SPECIAL SURVEILLANCE FACILITIES

ACTIVE - still running transfers through the associated diversion boxes or pipeline encasements

February 28, 1994

FACILITY	LOCATION	PURPOSE (receives waste from:)	VOLUME OF CONTENTS MONITORED		REMARKS
			(Gallons)	BY	
EAST AREA					
241-A-302-A	A FARM	A-151 DB	1583	CASS/FIC	PUMPED 08/11/92
241-ER-311	B PLANT	ER-151, ER-152 DB	7937	CASS/FIC	PUMPED 05/29/91
241-AX-152	AX FARM	AX-152 DB	4745	MANUALLY	DIAL O/S, USING ZIP CORD, PUMPED 08/29/92
241-AZ-151	AZ FARM	AZ-152 DB, AZ LOOP SEAL	3830	CASS/FIC	VOLUME CHANGES DAILY
241-AZ-154	AZ FARM	AZ-102 HTG COIL STEAM CONDENSATE	0	CASS/MT	AUTOMATIC PUMP
244-BX-TK/SMP	BX COMPLEX	DCRT - RECEIVES FROM SEVERAL FARMS	25405	MANUALLY	USING MANUAL TAPE FOR TANK
244-A-TK/SMP	A COMPLEX	DCRT - RECEIVES FROM SEVERAL FARMS	6069	MCS	
AR-204	AY FARM	RR CARS DURING TRANSFER TO REC. TKS	660	DIP TUBE	ALARMS ON CASS
A-417	A FARM	A-702 PROCESS CONDENSATE	17110	DIP TUBE	
Vent Station Catch Tank		CROSS COUNTRY TRANSFER LINE	621	MT	
WEST AREA					
241-TX-302-C	TX FARM	TX-154 DB	3916	CASS/FIC	FIC REPAIRED
241-U-301-B	U FARM	U-151, U-152, U-153, U-252 DB	6782	CASS/FIC	RETURNED TO SERVICE 12/30/93
241-UX-302-A	U PLANT	UX-154 DB	11831	CASS/MFIC	
241-S-304	S FARM	S-151 DB	2091	RS	OPERATIONAL 10/91, REPLACED S-302-A
244-S-TK/SMP	S FARM	DCRT - RECEIVES FROM SEVERAL FARMS	11082	MANUALLY	CWF
244-TX-TK/SMP	TX FARM	DCRT - RECEIVES FROM SEVERAL FARMS	22386	MANUALLY	MT

Total active facilities 16

LEGEND: DB - Diversion Box
 DCRT - Double-Contained Receiver Tank
 TK - Tank
 SMP - Sump
 R - Usually denotes replacement
 FIC - Food Instrument Corporation measurement device
 RS - Robert Shaw Instrument measurement device
 MFIC - Manual FIC
 MT - Manual Tape
 CWF - Weight Factor/SpG = Corrected Weight Factor
 CASS - Computer Automated Surveillance System
 MCS - Monitor and Control System
 O/S - Out of Service

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TABLE H-2. EAST AREA CATCH TANKS AND SPECIAL SURVEILLANCE FACILITIES

INACTIVE - no longer receiving waste transfers

February 28, 1994

FACILITY	LOCATION	RECEIVED WASTE FROM:	VOLUME OF CONTENTS	MONITORED BY	REMARKS
			(Gallons)		
241-A-302-B	A FARM	A-152 DB	4101	CASS/MT	ISOLATED 1985, PROJECT B-138 INTERIM STABILIZED 1990
241-B-301-B	B FARM	B-151, B-152, B-153, B-252 DB	UNKNOWN	NM	ISOLATED 1985(1)
241-B-302-B	B FARM	B-154 DB	UNKNOWN	NM	ISOLATED 1985(1)
241-BX-302-A	BX FARM	BR-152, BX-153, BXR-152, BYR-152 DB	UNKNOWN	NM	ISOLATED 1985(1)
241-BX-302-B	BX FARM	BX-154 DB	UNKNOWN	NM	ISOLATED 1985(1)
241-BX-302-C	BX FARM	BX-155 DB	UNKNOWN	NM	ISOLATED 1985(1)
241-C-301-C	C FARM	C-151, C-152, C-153, C-252 DB	UNKNOWN	NM	ISOLATED 1985(1)
241-CX-70	HOT SEMI-	TRANSFER LINES	UNKNOWN	NM	ISOLATED, DECOMMISSION PROJ.
241-CX-72	WORKS	TRANSFER LINES	UNKNOWN	NM	SEE DWG H-2-95-501, 2/5/87
244-AR	A COMPLEX	DCRT - RECEIVES FROM SEVERAL FARMS	UNKNOWN	NM	BEING UPGRADED
244-BXR-TK/SMP-001	BX FARM	TRANSFER LINES	UNKNOWN	NM	INTERIM STABILIZED 1985(1)
244-BXR-TK/SMP-002	BX FARM	TRANSFER LINES	UNKNOWN	NM	INTERIM STABILIZED 1985(1)
244-BXR-TK/SMP-003	BX FARM	TRANSFER LINES	UNKNOWN	NM	INTERIM STABILIZED 1985(1)
244-BXR-TK/SMP-011	BX FARM	TRANSFER LINES	UNKNOWN	NM	INTERIM STABILIZED 1985(1)
361-B-TANK	B PLANT	DRAINAGE FROM B-PLANT	UNKNOWN	NM	INTERIM STABILIZED 1985(1)

Total East Area inactive facilities 15

LEGEND: DB - Diversion Box
 DCRT - Double-Contained Receiver Tank
 MT - Manual Tape
 CASS - Computer Automated Surveillance System
 TK - Tank
 SMP - Sump
 R - Usually denotes replacement
 NM - Not Monitored

(1) SOURCE: WASTE STORAGE TANK STATUS & LEAK DETECTION CRITERIA document

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TABLE H-3. WEST AREA CATCH TANKS AND SPECIAL SURVEILLANCE FACILITIES

INACTIVE - no longer receiving waste transfers

February 28, 1994

VOLUME
OF
CONTENTS
(Gallons)

BY

REMARKS

FACILITY	LOCATION	RECEIVED WASTE FROM:	VOLUME OF CONTENTS (Gallons)	BY	REMARKS
241-S-302	S FARM	240-S-151 DB	2276	CASS/FIC	ASSUMED LEAKER EPDA 85-04
241-S-302-A	S FARM	241-S-151 DB		CASS/FIC	ASSUMED LEAKER TF-EFS-90-042
				* FIC in Intrusion mode	Partially filled with grout 2/91, determined still assumed leaker after leak test
241-S-302-B	S FARM	S ENCASEMENTS	UNKNOWN	NM	ISOLATED 1985(1)
241-SX-304(302)	SX FARM	SX-152 TRANSFER BOX, SX-151 DB	UNKNOWN	NM	ISOLATED 1985(1)
241-TX-302	TX FARM	TX-153 DB	UNKNOWN	NM	ISOLATED 1985(1)
241-TX-302-X-B	TX FARM	TX ENCASEMENTS	UNKNOWN	NM	ISOLATED 1985(1)
241-TX-302-B	TX FARM	TX-155 DB	1495	CASS/MT	NEW MT INSTALLED 7/16/93
241-TY-302-A	TY FARM	TX-153 DB	UNKNOWN	NM	ISOLATED 1985(1)
241-TY-302-B	TY FARM	TY ENCASEMENTS	UNKNOWN	NM	ISOLATED 1985(1)
244-U-TK/SMP	U FARM	DCRT - RECEIVES FROM SEVERAL FARMS	UNKNOWN	NM	NOT YET IN USE
244-UR VAULT	U FARM	TRANSFER LINES	UNKNOWN	NM	INTERIM STABILIZED, MT REMOVED 1985(1)
244-UR-TK/SMP-001	U FARM	TRANSFER LINES	UNKNOWN	NM	INTERIM STABILIZED, MT REMOVED 1985(1)
244-UR-TK/SMP-002	U FARM	TRANSFER LINES	UNKNOWN	NM	INTERIM STABILIZED, MT REMOVED 1985(1)
244-UR-TK/SMP-003	U FARM	TRANSFER LINES	UNKNOWN	NM	INTERIM STABILIZED, MT REMOVED 1985(1)
244-TXR VAULT	TX FARM	TRANSFER LINES	UNKNOWN	NM	INTERIM STABILIZED, MT REMOVED 1984(1)
244-TXR-TK/SMP-001	TX FARM	TRANSFER LINES	UNKNOWN	NM	INTERIM STABILIZED, MT REMOVED 1984(1)
244-TXR-TK/SMP-002	TX FARM	TRANSFER LINES	UNKNOWN	NM	INTERIM STABILIZED, MT REMOVED 1984(1)
244-TXR-TK/SMP-003	TX FARM	TRANSFER LINES	UNKNOWN	NM	INTERIM STABILIZED, MT REMOVED 1984(1)
361-T-TANK	T PLANT	DRAINAGE FROM T-PLANT	UNKNOWN	NM	ISOLATED 1985(1)
361-U-TANK	U PLANT	DRAINAGE FROM U-PLANT	UNKNOWN	NM	INTERIM STABILIZED, MT REMOVED 1985(1)

Total West Area Inactive facilities 20

LEGEND: DB - Diversion Box
DCRT - Double-Contained Receiver Tank
TK - Tank
SMP - Sump
R - Usually denotes replacement
FIC - Food Instrument Corporation
MT - Manual Tape
O/S - Out of Service
CASS - Computer Automated Surveillance System
NM - Not Monitored

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(1) SOURCE: WASTE STORAGE TANK STATUS & LEAK DETECTION CRITERIA document

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APPENDIX I
LEAK VOLUME ESTIMATES

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TABLE I-1. SINGLE-SHELL TANK LEAK VOLUME ESTIMATES (4) (Sheet 1 of 6)

Tank No.	Date Declared Confirmed or Assumed Leaker (3)	Volume (2)(4) (Gallons)	Associated KiloCuries 137 cs (10)	Interim Stabilized Date (12)	Leak Estimate Updated	Reference
241-A-103	1987	5500 (9)		6/88	1987	(l)
241-A-104	1975	500 to 2500	0.8 to 1.8 (q)	9/78	1983	(a)(q)
241-A-105 (1)	1963	10000 to 277000	85 to 760 (b)	7/79	1991	(b),(c)
241-AX-102	1988	3000 (9)		9/88	1989	(h)
241-AX-104	1977	-- (7)		8/81	1989	(q)
241-B-101	1974	-- (7)		3/81	1989	(q)
241-B-103	1978	-- (7)		2/85	1989	(q)
241-B-105	1978	-- (7)		12/84	1989	(q)
241-B-107	1980	8000 (9)		3/85	1986	(d)(f)
241-B-110	1981	10000 (9)		3/85	1986	(d)(f)
241-B-111	1978	-- (7)		6/85	1989	(q)
241-B-112	1978	2000		5/85	1989	(q)
241-B-201	1980	1200 (9)		8/81	1984	(a)(f)
241-B-203	1983	300 (9)		6/84	1986	(q)
241-B-204	1984	400 (9)		6/84	1989	(q)
241-BX-101	1972	-- (7)		9/78	1989	(q)
241-BX-102	1971	70000	50 (l)	11/78	1986	(q)
241-BX-108	1974	2500	0.5 (l)	7/79	1986	(q)
241-BX-110	1976	-- (7)		8/85	1989	(q)
241-BX-111	1984	-- (7)		N/A	1993	(g),(f)
241-BY-103	1973	<5000		N/A	1983	(a)
241-BY-105	1984	-- (7)		N/A	1989	(q)
241-BY-106	1984	-- (7)		N/A	1989	(q)
241-BY-107	1984	15100 (9)		7/79	1989	(a)
241-BY-108	1972	<5000		2/85	1983	(a)
241-C-101	1980	20000 (9,11)		11/83	1986	(q)
241-C-110	1984	2000		N/A	1989	(q)
241-C-111	1968	5500 (9)		3/84	1989	(q)
241-C-201 (5)	1988	550		3/82	1987	(q)
241-C-202 (5)	1988	450		8/81	1987	(q)
241-C-203	1984	400 (9)		3/82	1986	(q)
241-C-204 (5)	1988	350		9/82	1987	(q)
241-S-104	1968	24000 (9)		12/84	1989	(q)
241-SX-104	1988	6000 (9)		N/A	1988	(a)(k)
241-SX-107	1964	<5000		10/79	1983	(a)
241-SX-108 (6)	1962	2400 to 35000	17 to 140 (m) (q)	8/79	1991	(m) (q)
241-SX-109 (6)	1965	<10000	<40 (n)	5/81	1992	(q)
241-SX-110	1976	5500 (9)		8/79	1989	(q)
241-SX-111	1974	500 to 2000	0.6 to 2.4 (l) (q)	7/79	1986	(d) (q)
241-SX-112	1969	30000	40 (l)	7/79	1986	(q)
241-SX-113	1962	15000	8 (l)	11/78	1986	(q)
241-SX-114	1972	-- (7)		7/79	1989	(q)
241-SX-115	1965	50000	21 (o)	9/78	1992	(q)
241-T-101	1992	7500 (9)		4/93	1992	(q)
241-T-103	1974	<1000 (9)		11/83	1989	(q)
241-T-106	1973	115000 (9)	40 (l)	8/81	1986	(q)
241-T-107	1984	-- (7)		N/A	1989	(q)
241-T-108	1974	<1000 (9)		11/78	1980	(q)
241-T-109	1974	<1000 (9)		12/84	1989	(q)
241-T-111 (5)(13)	1984	<1000 (9)		N/A	1980	(q)
241-TX-105	1977	-- (7)		4/83	1989	(q)
241-TX-107	1984	2500		10/79	1986	(q)
241-TX-110	1977	-- (7)		4/83	1989	(q)
241-TX-113	1974	-- (7)		4/83	1989	(q)
241-TX-114	1974	-- (7)		4/83	1989	(q)
241-TX-115	1977	-- (7)		9/83	1989	(q)
241-TX-116	1977	-- (7)		4/83	1989	(q)
241-TX-117	1977	-- (7)		3/83	1989	(q)
241-TY-101	1973	<1000 (9)		4/83	1980	(q)
241-TY-103	1973	3000	0.7 (l)	2/83	1986	(q)
241-TY-104	1981	1400 (9)		11/83	1986	(q)
241-TY-105	1960	35000	4 (l)	2/83	1986	(q)
241-TY-106	1959	20000	2 (l)	11/78	1986	(q)
241-U-101	1959	30000	20 (l)	9/79	1986	(q)
241-U-104	1961	55000	0.09 (l)	10/78	1986	(q)
241-U-110	1975	5000 to 8100 (9)	0.05 (q)	12/84	1986	(d) (q)
241-U-112	1980	8500 (9)		9/79	1986	(d)
67 Tanks		<600,000 - 900,000 (8)				

N/A = not applicable (not yet interim stabilized)

FOOTNOTES: SEE NEXT PAGE

TABLE I-1. SINGLE-SHELL TANK LEAK VOLUME ESTIMATES
(Sheet 2 of 4)

Footnotes:

- (1) Current estimates (see reference b) are that 610 Kgal of cooling water was added to Tank 241-A-105 from November 1970 to December 1978 to aid in evaporative cooling. In accordance with Dangerous Waste Regulations (Washington Administrative Code 173-303-070 (2)(a)(ii), as amended, Washington State Department of Ecology, 1990, Olympia, Washington), any of this cooling water that has been added and subsequently leaked from the tank must be classified as a waste and should be included in the total leak volume. In August 1991, the leak volume estimate for this tank was updated in accordance with the WAC regulations. Previous estimates excluded the cooling water leaks from the total leak volume estimates because the waste content (concentration) in the cooling water which leaked should be much less than the original liquid waste in the tank (the sludge is relatively insoluble). The total leak volume estimate in this report (10 Kgal to 277 Kgal) is based on the following (see References).
1. Reference (b) contains an estimate of 5 Kgal to 15 Kgal for the initial leak prior to August 1968.
 2. Reference (b) contains an estimate of 5 Kgal to 30 Kgal for the leak while the tank was being sluiced from August 1968 to November 1970.
 3. Reference (b) contains an estimate of 610 Kgal of cooling water added to the tank from November 1970 to December 1978 but it was estimated that the leakage was small during this period. This reference contains the statement "Sufficient heat was generated in the tank to evaporate most, and perhaps nearly all, of this water." This results in a low estimate of zero gallons leakage from November 1970 to December 1978.
 4. Reference (c) contains an estimate that 378 to 410 Kgal evaporated out of the tank from November 1970 to December 1978. Subtracting the minimum evaporation estimate from the cooling water added estimate provides a range from 0 to 232 Kgal of cooling water leakage from November 1970 to December 1978.

	<u>Low Estimate</u>	<u>High Estimate</u>
Prior to August 1968	5,000	15,000
August 1968 to November 1970	5,000	30,000
November 1970 to December 1978	0	232,000
Totals	10,000	277,000

- (2) These leak volume estimates do not include (with some exceptions), such things as: (a) cooling/raw water leaks, (b) intrusions (rain infiltration) and subsequent leaks, (c) leaks inside the tank farm but not through the tank liner (surface leaks, pipeline leaks, leaks at the joint for the overflow or fill lines, etc.), and (d) leaks from catch tanks, diversion boxes, encasements, etc.
- (3) In many cases, a leak was suspected long before it was identified or confirmed. For example, reference (d) shows that Tank 241-U-104 was suspected of leaking in 1956. The leak was "confirmed" in 1961. This report lists the "assumed leaker" date as 1961. Using present standards, Tank 241-U-104 would have been declared as assumed leaker in 1956. In 1984, the criteria designations of "suspected leaker," "questionable integrity," "confirmed leaker," "declared leaker," "borderline," and "dormant," were merged into one category now reported as "assumed leaker." See reference (f) for explanation of when, how long, and how fast some of the tanks leaked. It is highly likely that there have been undetected leaks from single-shell tanks because of the nature of their design and instrumentation.
- (4) There has been an effort in the past two years to reevaluate these leak volume estimates. During the FY 1993 funding reviews, this reevaluation of leak volumes was given a priority which resulted in this activity no longer being funded. The priority versus funding will be reevaluated as part of the prior to FY 1994 budget planning.
- (5) The leak volume estimate date for these tanks is before the "declared leaker" date because the tank was in a "suspected leaker" or "questionable integrity" status; however, a leak volume had been estimated prior to the tank being reclassified.
- (6) The increasing radiation levels in drywells and laterals associated with these three tanks could be indicative of a continuing leak or movement of existing radionuclides in the soil. There is no conclusive way to confirm these observations.
- (7) Methods were used to estimate the leak volumes from these 19 tanks based on the assumption that their cumulative leakage is approximately the same as for 18 of the 24 tanks identified in footnote (10). For more details see reference (g). The total leak volume estimate for these tanks is 150 Kgal (rounded to the nearest 10 Kgal), for an average of approximately 8 Kgal for each of the 19 tanks.

TABLE I-1. SINGLE-SHELL TANK LEAK VOLUME ESTIMATES
(Sheet 3 of 4)

- (8) The total has been rounded to the nearest 50 Kgal. Upperbound values were used in many cases in developing these estimates. It is likely that some of these tanks have not actually leaked.
- (9) Leak volume estimate is based solely on observed liquid level decreases in these tanks. This is considered to be the most accurate method for estimating leak volumes.
- (10) The curie content listed is as listed in the reference document and is not decayed to a consistent date; therefore, a cumulative total is inappropriate.
- (11) Tank 241-C-101 experienced a liquid level decrease in the late 1960s and was taken out of service and pumped to a "minimum heel" in December 1969. In 1970, the tank was classified as a "questionable integrity" tank. Liquid level data show decreases in level throughout the 1970s and the tank was saltwell pumped during the 1970s, ending in April 1979. The tank was reclassified as a "confirmed leaker" in January 1980. See reference (q) and (s): refer to reference (s) for information on the potential for there to have been leaks from other C-farm tanks (specifically, C-102, C-103, and C-109).
- (12) These dates indicate when the tanks were declared to be interim stabilized. In some cases, the official interim stabilization documents were issued at a later date. Also, in some cases, the field work associated with interim stabilization was completed at an earlier date.
- (13) Tank 241-T-111 was built in 1944 and placed into service in 1945. The tank was in service, receiving waste from T-Plant, when an unexplained 0.30 inch level decrease was observed in 1974. The tank was then declared "Questionable Integrity" and removed from service. In 1976, 13,000 gallons were transferred to T-101. Inactive saltwell pumping continued to 12/78. It is estimated that 5,000 gallons were removed from the tank. The tank was reclassified as an Assumed Leaker in 1979. The level is known to have increased from at least 160.9 inches in 1979 to 162.6 inches in January 1993. That same month the level decreased sharply to 161.9 inches by the end of the month. From February to July 1993, the rate of decrease slowed until the level reached 161.5 inches. The rate of decrease then accelerated, reaching 161.1 inch by January 1994. Off Normal Occurrence Report RL-WHC-TANKFARM-1994-0009, was issued February 24, 1994. Tank T-111 was declared an assumed re-leaker on February 28, 1994.

TABLE I-1. SINGLE-SHELL TANK LEAK VOLUME ESTIMATES
(Sheet 4 of 4)

References:

- (a) Murthy, K.S., et al, June 1983, Assessment of Single-Shell Tank Residual Liquid Issues at Hanford Site, Washington, PNL-4688, Pacific Northwest Laboratory, Richland, Washington.
- (b) WHC, 1991a, Tank 241-A-105 Leak Assessment, WHC-MR-0264, Westinghouse Hanford Company, Richland, Washington.
- (c) WHC, 1991b, Tank 241-A-105 Evaporation Estimate 1970 Through 1978, WHC-EP-0410, Westinghouse Hanford Company, Richland, Washington.
- (d) Smith, D. A., January 1986, Single-Shell Tank Isolation Safety Analysis Report, SD-WM-SAR-006, Rev. 1, Westinghouse Hanford Company, Richland, Washington.
- (e) McCann, D. C., and T. S. Vail, September 1984, Waste Status Summary, RHO-RE-SR-14, Rockwell Hanford Operations, Richland, Washington.
- (f) Catlin, R. J., March 1980, Assessment of the Surveillance Program of the High-Level Waste Storage Tanks at Hanford, Hanford Engineering Development Laboratory, Richland, Washington.
- (g) Baumhardt, R. J., May 15, 1989, Letter to R. E. Gerton, U.S. Department of Energy-Richland Operations Office, Single-Shell Tank Leak Volumes, Westinghouse Hanford Company, Richland, Washington.
- (h) WHC, 1990a, Occurrence Report, Surface Level Measurement Decrease in Single-Shell Tank 241-AX-102, WHC-UO-89-023-TF-05, Westinghouse Hanford Company, Richland, Washington.
- (i) Groth, D. R., July 1, 1987, Internal Memorandum to R. J. Baumhardt, Liquid Level Losses in Tanks 241-C-201, -202 and -204, 65950-87-517, Westinghouse Hanford Company, Richland, Washington.
- (j) Groth, D. R. and G. C. Owens, May 15, 1987, Internal Memorandum to J. H. Roecker, Tank 103-A Integrity Evaluation, Westinghouse Hanford Company, Richland, Washington.
- (k) Campbell, G. D., July 8, 1988, Internal Memorandum to R. K. Welty, Engineering Investigation: Interstitial Liquid Level Decrease in Tank 241-SX-104, 13331-88-416, Westinghouse Hanford Company, Richland, Washington.
- (l) ERDA, 1975, Final Environmental Statement Waste Management Operations, Hanford Reservation, Richland, Washington, ERDA-1538, 2 vols., U.S. Energy Research and Development Administration, Washington, D.C.
- (m) WHC, 1992a, Tank 241-SX-108 Leak Assessment, WHC-MR-0300, Westinghouse Hanford Company, Richland, Washington.
- (n) WHC, 1992b, Tank 241-SX-109 Leak Assessment, WHC-MR-0301, Westinghouse Hanford Company, Richland, Washington.
- (o) WHC, 1992c, Tank 241-SX-115 Leak Assessment, WHC-MR-0302, Westinghouse Hanford Company, Richland, Washington.
- (p) WHC, 1992d, Occurrence Report, "Apparent Decrease in Liquid Level in Single Shell Underground Storage Tank 241-T-101, Leak Suspected; Investigation Continuing," RL-WHC-TANKFARM-1992-0073, Westinghouse Hanford Company, Richland, Washington.
- (q) WHC-1990b, A History of the 200 Area Tank Farms, WHC-MR-0132, Westinghouse Hanford Company, Richland, Washington.
- (r) WHC, 1993, Occurrence Report, Single-Shell Underground Waste Storage Tank 241-BX-111 Surface Level Decrease and Change From Steady State Condition, RL-WHC-TANKFARM-1993-0035, Westinghouse Hanford Company, Richland, Washington.
- (s) WHC, 1993a, Assessment of Unsaturated Zone Radionuclide Contamination Around Single-Shell Tanks 241-C-105 and 241-C-106, WHC-SD-EN-TI-185, REV 0A, Westinghouse Hanford Company, Richland, Washington.

APPENDIX J
INTERIM STABILIZATION STATUS

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TABLE J-1. SINGLE-SHELL TANKS INTERIM STABILIZATION STATUS (Sheet 1 of 2)

February 28, 1994

Tank Number	Tank Integrity	Interim Stabilized Date (1)	Stabilized Method (2)(3)	Tank Number	Tank Integrity	Interim Stabilized Date (1)	Stabilized Method (2)(3)	Tank Number	Tank Integrity	Interim Stabilized Date (1)	Stabilized Method (2)(3)
A-101	BOUND	N/A		C-101	ASMD LKR	11/85	AR	T-108	ASMD LKR	11/78	AR
A-102	ASMD LKR	02/85	SN	C-102	BOUND	N/A		T-109	ASMD LKR	12/84	AR
A-103	ASMD LKR	02/85	AR	C-103	BOUND	N/A		T-110	BOUND	N/A	
A-104	ASMD LKR	02/78	AR	C-104	BOUND	02/89	SN	T-111	ASMD LKR	02/81	AR
A-105	ASMD LKR	07/78	AR	C-105	BOUND	N/A		T-112	BOUND	02/81	AR
A-106	BOUND	02/85	AR	C-106	BOUND	N/A		T-113	BOUND	02/81	AR
AX-101	BOUND	N/A		C-107	BOUND	N/A		T-202	BOUND	02/81	AR
AX-102	ASMD LKR	02/85	SN	C-108	BOUND	03/84	AR	T-203	BOUND	02/81	AR
AX-103	BOUND	02/87	AR	C-109	BOUND	11/85	AR	T-204	BOUND	02/81	AR
AX-104	ASMD LKR	02/81	AR	C-110	ASMD LKR	N/A		T-205	BOUND	02/81	AR
A-101	ASMD LKR	03/81	SN	C-111	ASMD LKR	02/81	AR	TX-102	BOUND	04/83	JET
B-101	ASMD LKR	02/85	SN	C-112	BOUND	02/80	AR	TX-103	BOUND	02/83	JET
B-102	BOUND	02/85	SN	C-201	ASMD LKR	02/81	AR	TX-104	BOUND	02/78	SN
B-103	ASMD LKR	02/85	SN	C-202	ASMD LKR	02/81	AR	TX-105	ASMD LKR	02/83	JET
B-104	ASMD LKR	12/84	AR	C-203	ASMD LKR	02/81	AR	TX-106	BOUND	02/83	JET
B-105	BOUND	02/85	SN	C-204	ASMD LKR	02/82	AR	TX-107	ASMD LKR	02/78	AR
B-106	ASMD LKR	02/85	SN	C-205	BOUND	N/A		TX-108	BOUND	02/83	JET
B-107	ASMD LKR	03/85	SN	C-206	BOUND	N/A		TX-109	BOUND	02/83	JET
B-108	BOUND	02/85	SN	C-207	BOUND	N/A		TX-110	ASMD LKR	04/83	JET
B-109	ASMD LKR	02/85	SN	C-208	BOUND	N/A		TX-111	BOUND	02/83	JET
B-110	ASMD LKR	02/85	SN	C-209	BOUND	N/A		TX-112	BOUND	04/83	JET
B-111	ASMD LKR	02/85	SN	C-210	BOUND	N/A		TX-113	ASMD LKR	02/83	JET
B-112	ASMD LKR	02/85	SN	C-211	BOUND	N/A		TX-114	ASMD LKR	02/83	JET
B-201	ASMD LKR	02/81	AR	C-212	BOUND	N/A		TX-115	ASMD LKR	02/83	JET
B-202	ASMD LKR	02/81	AR	C-213	BOUND	N/A		TX-116	ASMD LKR	02/83	JET
B-203	ASMD LKR	02/84	AR	C-214	BOUND	N/A		TX-117	ASMD LKR	02/83	JET
B-204	ASMD LKR	02/81	AR	C-215	BOUND	N/A		TX-118	BOUND	04/83	JET
EX-101	ASMD LKR	02/78	AR	C-216	BOUND	N/A		TX-119	ASMD LKR	02/83	JET
EX-102	ASMD LKR	11/78	AR	C-217	BOUND	N/A		TX-120	ASMD LKR	02/83	JET
EX-103	BOUND	11/83	AR	C-218	BOUND	N/A		TX-121	ASMD LKR	02/83	JET
EX-104	ASMD LKR	02/85	SN	C-219	BOUND	N/A		TX-122	ASMD LKR	02/83	JET
EX-105	BOUND	N/A		C-220	BOUND	N/A		TX-123	ASMD LKR	02/83	JET
EX-106	BOUND	02/81	SN	C-221	BOUND	N/A		TX-124	ASMD LKR	02/83	JET
EX-107	BOUND	02/80	JET	C-222	BOUND	N/A		TX-125	ASMD LKR	02/83	JET
EX-108	ASMD LKR	07/78	SN	C-223	BOUND	N/A		TX-126	ASMD LKR	02/83	JET
EX-109	BOUND	02/80	JET	C-224	BOUND	N/A		TX-127	ASMD LKR	02/83	JET
EX-110	ASMD LKR	N/A		C-225	BOUND	N/A		TX-128	ASMD LKR	02/83	JET
EX-111	ASMD LKR	02/85	SN	C-226	BOUND	N/A		TX-129	ASMD LKR	02/83	JET
EX-112	ASMD LKR	02/85	SN	C-227	BOUND	N/A		TX-130	ASMD LKR	02/83	JET
EX-113	ASMD LKR	02/85	SN	C-228	BOUND	N/A		TX-131	ASMD LKR	02/83	JET
EX-114	ASMD LKR	N/A		C-229	BOUND	N/A		TX-132	ASMD LKR	02/83	JET
EX-115	ASMD LKR	N/A		C-230	BOUND	N/A		TX-133	ASMD LKR	02/83	JET
EX-116	ASMD LKR	N/A		C-231	BOUND	N/A		TX-134	ASMD LKR	02/83	JET
EX-117	ASMD LKR	N/A		C-232	BOUND	N/A		TX-135	ASMD LKR	02/83	JET
EX-118	ASMD LKR	N/A		C-233	BOUND	N/A		TX-136	ASMD LKR	02/83	JET
EX-119	ASMD LKR	N/A		C-234	BOUND	N/A		TX-137	ASMD LKR	02/83	JET
EX-120	ASMD LKR	N/A		C-235	BOUND	N/A		TX-138	ASMD LKR	02/83	JET
EX-121	ASMD LKR	N/A		C-236	BOUND	N/A		TX-139	ASMD LKR	02/83	JET
EX-122	ASMD LKR	N/A		C-237	BOUND	N/A		TX-140	ASMD LKR	02/83	JET
EX-123	ASMD LKR	N/A		C-238	BOUND	N/A		TX-141	ASMD LKR	02/83	JET
EX-124	ASMD LKR	N/A		C-239	BOUND	N/A		TX-142	ASMD LKR	02/83	JET
EX-125	ASMD LKR	N/A		C-240	BOUND	N/A		TX-143	ASMD LKR	02/83	JET
EX-126	ASMD LKR	N/A		C-241	BOUND	N/A		TX-144	ASMD LKR	02/83	JET
EX-127	ASMD LKR	N/A		C-242	BOUND	N/A		TX-145	ASMD LKR	02/83	JET
EX-128	ASMD LKR	N/A		C-243	BOUND	N/A		TX-146	ASMD LKR	02/83	JET
EX-129	ASMD LKR	N/A		C-244	BOUND	N/A		TX-147	ASMD LKR	02/83	JET
EX-130	ASMD LKR	N/A		C-245	BOUND	N/A		TX-148	ASMD LKR	02/83	JET
EX-131	ASMD LKR	N/A		C-246	BOUND	N/A		TX-149	ASMD LKR	02/83	JET
EX-132	ASMD LKR	N/A		C-247	BOUND	N/A		TX-150	ASMD LKR	02/83	JET
EX-133	ASMD LKR	N/A		C-248	BOUND	N/A		TX-151	ASMD LKR	02/83	JET
EX-134	ASMD LKR	N/A		C-249	BOUND	N/A		TX-152	ASMD LKR	02/83	JET
 									

TABLE J-1. SINGLE-SHELL TANKS INTERIM STABILIZATION STATUS
(sheet 2 of 2)

Footnotes:

Note: Further information on the data below can be found in WHC-SD-RE-TI-178, "Single-Shell Tank Stabilization Record," dated 1991. This document is currently being revised.

- (1) These dates indicate when the tanks were actually interim stabilized. In some cases, the official interim stabilization documents were issued at a later date.
- (2) The following six tanks do not meet current established supernatant and interstitial liquid interim stabilization criteria, but did meet the criteria in existence when they were declared interim stabilized :

B-104, 110, 111
T-102, 112
U-110

- (3) Interim Stabilization data are missing on four tanks. These tanks were Administratively Interim Stabilized.

B-201, T-102, 112, 201

TPA SST STABILIZATION SCHEDULE
(START OF PUMPING/COMPLETION OF PUMPING)

MILESTONE	1994	1995	1996	1997	1998	1999	2000
MISC (NOT TPA)	BX-111 4/94						
M-41-01-T1	8/94 11/94 C-102 -107 -110						
M-41-01-T3	5/94 11/94 BY-102 -109						
M-41-08		7/95 3/96 U-102					
M-41-09		1/96 4/97 S-101 -103 -108 -107 -108 -109 -110					
M-41-10		4/96 12/98 A-101 & AX-101					
M-41-11		4/96 5/97 U-103 -105 -108 -109					
M-41-12		4/97 9/98 BX-108 & BY-103 -105 -106					
M-41-13		7/95 12/96 U-106 -107 -111					
M-41-14				6/97 11/99 S-111 -112 & SX-101 -102 -103 -104 -105			
M-41-15				6/97 3/99 S-102 & SX-106			
M-41-16				3/98 6/98 T-104 -111			
M-41-17				4/98 5/98 T-107			
M-41-18				4/98 7/98 T-110			
M-41-19					9/98 3/99 C-103		

NOTE: C-105 & C-106 NOT INCLUDED IN THIS SCHEDULE

Table J-2. TPA SST Stabilization Schedule

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APPENDIX K
TANK FARM OPERATIONS SAMPLING SCHEDULE STATUS

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TABLE K-1. TANK FARM OPERATIONS SAMPLING SCHEDULE STATUS (Sheet 1 of 3)

ACTIVITY ID	EARLY START	EARLY FINISH	ORIG DUR	FY93	FY94												FY95																						
				SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC																				
				<div style="border: 1px solid black; padding: 5px; margin: 10px;"> <p align="center">LEGEND FOR VAPOR SAMPLING</p> <p>A = Ferrocyanide Watch List Flammability and Health Hazards Vapor Sampling. (Drager Tube)</p> <p>B = Heated-Tube Vapor Sampling FeCN & Organic Salts Watch List Tanks are to be sampled by this method</p> <p>C = Exhauster Air Permit Sampling to support exhauster use during Rotary Mode Core Drilling</p> <p>D = Special Vapor Sampling to address special Flammability check of tank 103-C. The flammability of tank 103-C headspace cannot be measured by the same means as other tanks. The chosen method of determining the headspace flammability will involve sampling the semivolatile organic vapor and aerosol. After samples have been collected there is an anticipated 3 week delay for sample analysis</p> </div>																																			
VS55-4	12NOV93A	16NOV93A	2	<p>■ TAKE SAMPLES SJ-4/SJ-5 Vapor C-103</p> <p>■ C-103 VAPOR SAMPLE INS PROBE, TAKE SAMPLES-SJ-6</p> <p>■ C-103 VAPOR SAMPLE Using VSS Truck - SJ-6b</p> <p>☐ SY-103 AUGER SAMPLE Samples 2 Segments 5</p> <p>☐ AP-108 GRAB SAMPLE/EVAPORATOR FEED</p> <p>☐ AN-107 GRAB SAMPLING</p> <p>■ C-105/C-106 VAPOR SAMPLE (B, C)</p> <p>☐ C-104 VAPOR SAMPLE (B, C)</p> <p>☐ AY-102 GRAB SAMPLE</p> <p>☐ C-111 PUSH MODE SAMPLING Samples 2-3 Segments 2</p> <p>☐ C-103 VAPOR SAMPLE (B)</p> <p>☐ BY-107 FeCN VAPOR SAMPLE & THERMOCOUPLE INS (A)</p> <p>☐ CS-110 GRAB SAMPLE</p> <p>☐ C-106 ROTARY SAMPLING Samples 2 Segments 5</p> <p>☐ BY-104 VAPOR SAMPLE (A, B, C, HCN)</p> <p>☐ SY-103 PUSH SAMPLING Samples 1 Segments 15</p> <p>☐ BX-101 AUGER SAMPLING Samples 1 Segments 1</p> <p>☐ AN-102 GRAB SAMPLING RCRA</p> <p>☐ BY-105 VAPOR SAMPLING (A, B, C, HCN)</p>																																			
VS46-4	14DEC93A	15DEC93A	2																																				
VS36-4	2FEB94	3FEB94	2																																				
AS01-4	1FEB94	14FEB94	10																																				
GS51-4	7FEB94	18FEB94	10																																				
GS55-4	14FEB94	18FEB94	5																																				
VS03-4	15FEB94A	16FEB94A	6																																				
VS99-4	17FEB94	24FEB94	5																																				
GS52-4	22FEB94	28FEB94	5																																				
PS01-4	1MAR94	14MAR94	10																																				
VS47-4	1MAR94	14MAR94	10																																				
TC05-4	2MAR94	8MAR94	5																																				
GS54-4	14MAR94	18MAR94	5																																				
RS02-4	21MAR94	22APR94	25																																				
VS06-4	28MAR94	1APR94	5																																				
PS02-4	1APR94	14APR94	10																																				
AS03-4	4APR94	15APR94	10																																				
GS21-4	5APR94	11APR94	5																																				
VS07-4	6APR94	12APR94	5																																				
Plot Date 23FEB94 Data Date 10CT93 Project Start 10CT93 Project Finish 9DEC94				Activity Bar/Early Dates Critical Activity Progress Bar Milestone/Flag Activity				STATUS DATE: 22 Feb 1994				WESTINGHOUSE HANFORD CORPORATION TANK FARM OPERATIONS FY 1994 SAMPLING SCHEDULE				D. Healey Scheduler 2-3698 for D. Hamilton 3-2059 <table border="1"> <thead> <tr> <th>Date</th> <th>Revision</th> <th>Checked</th> <th>Approved</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>				Date	Revision	Checked	Approved																
Date	Revision	Checked	Approved																																				

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TABLE K-1. TANK FARM OPERATIONS SAMPLING SCHEDULE STATUS (Sheet 2 of 3)

ACTIVITY ID	EARLY START	EARLY FINISH	ORIG DUR	FY94												FY95		
				SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV
RS03-4	2MAY94	6JUN94	25															
AS05-4	2MAY94	13MAY94	10															
PS05-4	2MAY94	13MAY94	10															
TC26-4	3MAY94	16MAY94	10															
AS08-4	6MAY94	19MAY94	10															
TC14-4	6MAY94	19MAY94	10															
AS07-4	6MAY94	19MAY94	10															
GS05-4	12MAY94	18MAY94	5															
GS06-4	16MAY94	20MAY94	5															
PS06-4	23MAY94	27MAY94	5															
TC39-4	27MAY94	13JUN94	11															
RS04-4	1JUN94	7JUL94	25															
AS04-4	1JUN94	7JUN94	5															
TC15-4	2JUN94	15JUN94	10															
TC16-4	3JUN94	16JUN94	10															
VS67-4	6JUN94	10JUN94	5															
AS09-4	6JUN94	17JUN94	10															
AS10-4	7JUN94	13JUN94	5															
VS18-4	8JUN94	14JUN94	5															
PS07-4	9JUN94	15JUN94	5															
TC34-4	10JUN94	24JUN94	11															
VS66-4	10JUN94	16JUN94	5															
VS89-4	10JUN94	16JUN94	5															
GS10-4	15JUN94	21JUN94	5															
VS04-4	22JUN94	7JUL94	10															
TC32-4	29JUN94	14JUL94	10															
GS53-4	30JUN94	8JUL94	5															
VS76-4	1JUL94	11JUL94	5															
GS07-4	1JUL94	11JUL94	5															
TC21-4	1JUL94	18JUL94	10															
VS52-4	1JUL94	11JUL94	5															
TC22-4	6JUL94	19JUL94	10															
AS06-4	6JUL94	19JUL94	10															
VS12-4	15JUL94	21JUL94	5															
RS01-4	18JUL94	19AUG94	25															
GS11-4	15JUL94	21JUL94	5															
VS35-4	1AUG94	5AUG94	5															
GS44-4	1AUG94	5AUG94	5															
GS33-4	10AUG94	16AUG94	5															
				<div style="display: flex; justify-content: space-between;"> <div> <p>TY-104 FeCN VAPOR SAMPLE (A, HCN) THERMOCOUPLE INS ☐</p> <p>AY-102 PUSH MODE CORE SAMPLING Sample 1 Segm 1 ☐</p> <p>U-111 VAPOR (A) THERMOCOUPLE/VAPOR TUBE INSTALL ☐</p> <p>BY-106 ROTARY MODE Samples 2 Segments 12 ☐</p> <p>TX-101 FeCN VAPOR SAMPLE (A) THERMOCOUPLE INS ☐</p> <p>TY-103 FeCN VAPOR SAMPLE (A, HCN) THERMOCOUPLE INS ☐</p> <p>TX-118 VAPOR SAMPLE (A, HCN) ☐</p> <p>TX-118 AUGER SAMPLE ☐</p> <p>AX-102 AUGER SAMPLING Sample 1 Segment 1 ☐</p> <p>T-102 GRAB SAMPLING ☐</p> <p>C-108 PUSH SAMPLING ☐</p> <p>U-106 VAPOR (A) THERMOCOUPLE/VAPOR TUBE INSTALL ☐</p> <p>U-111 VAPOR SAMPLE (B) (FOLLOWS VAPOR TUBE INS) ☐</p> <p>U-106 VAPOR SAMPLE (B) (FOLLOWS VAPOR TUBE INS) ☐</p> <p>T-104 GRAB SAMPLE ☐</p> <p>C-108 VAPOR SAMPLE (B) ☐</p> <p>TX-111 THERMOCOUPLE INSTALLATION ☐</p> <p>T-112 GRAB SAMPLE ☐</p> <p>C-109 VAPOR SAMPLING (A, B) ☐</p> <p>T-107 GRAB SAMPLING ☐</p> <p>T-107 FeCN VAPOR SAMPLE & THERMOCOUPLE INS (A) ☐</p> <p>BY-111 VAPOR SAMPLE (HCN) ☐</p> <p>T-101 THERMOCOUPLE INSTALLATION ☐</p> <p>AX-104 AUGER SAMPLING Sample 1 Segments 1 ☐</p> <p>C-111 VAPOR SAMPLING (B) ☐</p> <p>BY-105 ROTARY MODE Samples 2 Segments 1 ☐</p> <p>T-111 GRAB SAMPLE ☐</p> <p>C-112 VAPOR SAMPLE (A, B) ☐</p> <p>AY-101 VAPOR SAMPLE (A) AND GRAB SAMPLE RCRA ☐</p> <p>TX-106 GRAB SAMPLE ☐</p> </div> <div> <p>BY-104 ROTARY MODE Samples 2 Segments 8 ☐</p> <p>B-102 AUGER SAMPLING Sample 1 Segments 1 ☐</p> <p>C-103 PUSH MODE SAMPLING Samples 2 Segments 4 ☐</p> <p>C-111 THERMOCOUPLE INSTALLATION ☐</p> <p>BX-105 AUGER SAMPLING Sample 1 Segments 4 ☐</p> <p>BX-108 AUGER SAMPLING Sample 1 Segments 1 ☐</p> <p>AW-104 RCRA GRAB SAMPLING ☐</p> <p>AZ-102 RCRA GRAB SAMPLING ☐</p> </div> </div>														

Plot Date 23FEB94
Data Date 10CT93
Project Start 10CT93
Project Finish 9DEC94

Activity Bar/Early Dates
Critical Activity
Progress Bar
Milestone/Flag Activity

STATUS DATE: 22 Feb 1994

WESTINGHOUSE HANFORD CORPORATION
TANK FARM OPERATIONS
FY 1994 SAMPLING SCHEDULE

Sheet 2 of 3

D. Healey Scheduler 2-3698 for D. Hamilton 3-2059

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V. C. Boyles	R1-49
D. A. Bragg	R1-49
D. R. Bratzel	L5-31
W. R. Brooksher	L4-01
T. M. Brown	R2-12
R. G. Brown	R2-14
J. H. Bussell	L7-06
J. A. Caggiano Jr	H6-06
J. W. Carey	S5-07
K. G. Carothers	R1-51
B. C. Carpenter	R1-12
R. J. Cash	R2-78
T. Chiao	L0-06
G. Christensen	H4-21
K. L. Chubb	L6-86
G. J. Coleman	T4-07
J. C. Conner	H4-61
R. B. Conrad	H5-09
F. M. Coony	H6-07
W. L. Cowley	H4-61
D. W. Craig	S5-07

Distribution - continued

C. Crawford	R3-01
N. R. Croskrey	R1-30
G. M. Crummel	R1-51
J. M. Cruse	L5-63
D. S. Cunningham	S0-02
J. E. Daniels	S4-65
S. A. Davidson	K6-26
J. S. Davis	H4-64
S. J. Dechter	R2-54
C. DeFigh-Price	R2-31
J. L. Deichman	H4-19
T. A. Demitruk	H5-36
C. J. Denson	L4-95
D. R. Dickinson	L5-31
S. E. Dieterle	S2-20
L. F. Dougherty	H4-62
J. G. Douglas	L5-55
G. L. Dunford	R1-51
R. F. Eggers	S4-58
D. R. Ellingson	H5-37
F. W. Ellis	B4-52
D. B. Engelman	R2-18
R. W. Ewert	R1-19
S. D. Estey	R2-11
W. G. Farley	H4-62
J. E. Fasso Jr.	S3-10
G. W. Faulk	T3-28
K. O. Fein	H4-63
L. A. Fort	S4-57
K. D. Fowler	R2-11
S. B. Fowler	L0-24
C. R. Fox	S4-60
G. L. Fox, Jr.	L5-01
H. P. Fox	R2-88
G. T. Frater	R1-51
E. A. Fredenburg	S4-55
J. R. Freeman-Pollard	H6-03
R. T. French	E6-61
J. C. Fulton	R2-31
K. A. Gasper	G3-20
G. J. Gauck	R1-51
C. J. Geier	R2-50
P. W. Gibbons	S4-58
R. L. Gilchrist	L5-63
D. A. Gilles	S2-14
S. D. Godfrey	R1-51
D. E. Good	S3-97
A. Greenberg	S2-66
P. R. Golberg	B4-08
P. Greenbaum	S5-20
J. M. Grigsby	H4-62
R. D. Gustavson	R1-51
J. H. Haberman	R1-30

Distribution - continued

K. D. Haggerty	T4-09
L. E. Hall	E6-25
V. W. Hall	R2-85
C. S. Haller	G6-04
D. W. Hamilton	T6-02
K. L. Hampsten	S4-53
B. M. Hanlon (40)	R1-80
J. M. Hanson	R2-85
H. D. Harmon	R2-52
M. S. Harrington	B4-53
J. P. Harris III	S4-55
G. A. Harvey	B4-52
F. J. Heard	H0-34
D. A. Healey	T4-07
J. M. Henderson	S4-55
D. W. Hendrickson	L5-55
E. G. Hess	R3-09
M. C. Higginson	A4-25
M. J. Holm	R1-80
C. S. Homi	R2-12
J. D. Hopkins	R2-11
B. K. Horsager	B5-24
J. H. Huber	R1-49
J. L. Huckaby	R2-78
A. L. Huegel	E6-31
J. V. Hurley	R4-02
J. J. Huston	S1-54
J. E. Irvin	R2-85
M. N. Islam	R3-08
M. T. Jansky	H6-26
G. D. Johnson	R2-78
J. L. Juette	G6-56
R. A. Karnesky	H0-39
D. L. Kelly	S5-20
R. A. Kirkbride	S4-58
P. F. Kison	S2-45
C. A. Kuhlman	B3-30
N. W. Kirch	R2-11
D. B. Klos	S0-14
A. G. Krasopoulos	A5-55
M. Kummerer	H4-62
M. J. Kupfer	H5-49
E. C. Ladd	R1-19
D. R. Lance	S0-09
J. L. Lee	R2-36
J. M. Light	B4-08
D. C. Lini	H3-56
B. H. Lueck Jr.	R3-12
P. J. Mackey	B3-15
G. T. MacLean	S4-58
M. K. Mahaffey	L4-73
R. M. Marusich	H4-60
V. D. Maupin	N1-73

Distribution - continued

T. B. McCall	H0-33
J. D. McCormack	L5-31
K. S. McCullough	H4-70
M. H. McGrath	S4-58
M. A. McLaughlin	H5-09
J. P. Menard	R2-40
W. C. Miller	S4-55
N. J. Milliken	H4-63
W. J. Millsap	H5-68
G. J. Miskho	R2-50
J. R. Mobley	H5-49
T. Moleff	R1-30
S. R. Morgan	R2-50
P. M. Morant	H4-19
K. L. Morris	H5-09
J. P. Mullally	B5-24
L. D. Muhlestein	H4-64
R. L. Nelson (4)	R2-36
R. L. Newell	E6-31
D. J. Newland	R2-36
R. Ni	S5-07
T. W. Oden	R2-18
P. C. Ohl	H1-30
P. A. Olsen	R3-12
D. L. Osowski	L6-10
A. L. Pajunen	H5-49
R. B. Pan	H5-53
L. D. Parchen	B3-63
G. L. Parsons	S4-57
M. A. Payne	R2-50
L. T. Pedersen	X5-52
L. D. Pennington	T4-07
C. E. Petersen	R1-30
S. R. Pierce	R1-51
R. S. Popielarczyk	R1-30
E. A. Porter	R2-88
R. L. Powers	R1-49
T. B. Powers	H4-65
R. K. P'Pool	T1-30
G. R. Priddy Jr.	R3-12
T. E. Rainey	R4-02
G. F. Raphael	R2-12
R. E. Raymond (3)	R2-54
R. W. Reed	R1-51
I. E. Reep	R2-08
M. A. Rezvani	H5-55
D. Richardson	R2-31
S. K. Rifaey	S6-12
W. E. Ross	S5-07
J. A. Ryan	H5-55
P. Sathyanarayana	R2-12
C. C. Scaief	L7-06
F. A. Schmorde	B2-18

Distribution - continued

R. D. Schreiber	R2-12
C. P. Schroeder	L7-06
K. V. Scott	H5-52
N. J. Scott-Proctor	R1-80
O. Serrano	T4-01
L. K. Severud	R2-50
M. H. Shannon	H4-61
J. E. Shapley	H4-68
T. N. Shaw	S4-55
R. A. Shea	L8-16
E. M. Sheen	L7-03
E. J. Shen	S4-58
P. K. Shen	H0-39
D. J. Sherwood	R2-78
A. T. Shook	S2-01
E. R. Siciliano	H0-39
R. B. Simmons	R2-12
K. P. Slape	S0-11
C. M. Smith	H6-30
S. G. Spencer	R1-30
S. M. Stahl	H4-61
E. G. Stephan	A3-74
B. E. Stapley	R4-02
R. R. Stickney	R4-02
J. N. Strobe	R2-11
D. G. Sutherland	L4-72
J. P. Summerhays	R2-88
M. J. Sutey	T4-08
S. L. Swaney	T4-08
L. M. Swanson	H5-49
C. L. Thomas	H4-19
J. F. Thompson	H5-68
J. D. Thomson	R1-30
S. R. Tifft	H6-26
J. A. Tilden (2)	L6-12
H. Toffer	H0-38
T. T. Tran	L7-04
J. W. Tritz	B1-32
D. P. Trott	R2-86
D. A. Turner	R2-78
L. A. Tusler	R2-11
C. J. Udell	L6-12
B. D. Valenzuela	R2-12
R. E. Van der Cook	L4-75
R. J. Van Vleet	H4-63
A. O. Vance	H5-33
N. J. Vermeulen	R1-80
D. T. Vladimiroff	G7-01
J. A. Voogd	R4-03
G. R. Walker	B2-16
O. S. Wang	R2-78
D. L. Wegener	R1-62
R. K. Welty	R1-80

Distribution - continued

G. T. Wells	H6-26
K. A. White	R1-51
R. Whitman	H5-49
J. H. Wicks	T4-07
D. D. Wiggins	R1-49
L. S. Williams	S4-53
C. R. Wilson	H5-52
G. R. Wilson	R2-31
M. E. Witherspoon	E6-61
D. D. Wodrich	R2-85
K. L. Woodard	R4-02
R. D. Wojtasek	H6-27
W. R. Wrzesinski	R3-74
P. A. Young	R2-14
F. A. Zak	R3-01
B. D. Zimmerman	L0-06
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