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Tank Farm Surveillance and Waste Status Summary Report for January 1994

B. M. Hanlon

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Richland, Washington 99352

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Prepared by: B. M. Hanlon 2/28/94
B. M. Hanlon Date

Approved by: R E Raymond 3/15/94
R. E. Raymond Date
Manager, Waste Tank
Plant Engineering

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B. M. Hanlon B. M. Hanlon 2/28/94

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Part 1

TANK FARM SURVEILLANCE AND WASTE STATUS SUMMARY REPORT FOR JANUARY 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
$°F = \left(\frac{9}{5}\ °C\right) + 32$		
1 Btu/h = 2.930711 E-01 watts (International Table)		

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TANK FARM SURVEILLANCE AND WASTE STATUS SUMMARY REPORT FOR JANUARY 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] Total	45 single-shell 6 double-shell 51 tanks	12/93[h] 6/93

[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 45 single-shell tanks on Watch Lists, 19 have been Interim Stabilized.

[e] Of the 45 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.

Tank 241-T-111. Although the surface level and ILL measurements do not exceed the criteria, the data indicates unusual behavior trends that merit continued observation. The automatic FIC was out of service from March 29, 1993, to August 3, 1993. The surface level reading after repair was 161.65 inches. The level has shown a steady decrease since the FIC was repaired and is 161.10 inches as of January 31, 1994.

Resolution Status: Evaluation of the surface level data indicates the level began decreasing in January 1993, prior to the FIC out-of-service dates. ILL data, although still within tolerance, is showing a slight decrease. Drywell data is stable and below established background values. Investigation has been initiated to evaluate the tank integrity status. The waste levels in this tank will be watch closely. An update on the alert condition in this tank will be provided by March 15, 1994.

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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. The surface level measurement was 65.50 inches on January 31, 1994. A total of 72,100 gallons was pumped by the end of January.

Resolution status: Upon completion of pumping, the surface level baseline for the tank will be adjusted. Tanks 241-BX-110 and 111 were removed from the ferrocyanide Watch List on July 9, 1993, on the basis that the tanks contain <1000 gm moles of ferrocyanide.

Saltwell pumping from BX-111 is halted upon reaching maximum allowable level in 244-BX Double Contained Receiver Tank (DCRT). The contents of the DCRT are then transferred to AN-101, and pumping is resumed in BX-111. This will be ongoing until pumping is completed for BX-111.

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 January 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 January 31, 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 20.50 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 13.36 feet. The baseline is 13.40 feet. Although the surface level and ILL are within the criteria of ±.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.

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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. The LOW ILL was within the 0.10-foot tolerance when last scanned on January 31, 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, 1994, 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 level on January 31, 1994, was 140.10 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 is currently at 31.70 inches.** 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.

Tank 241-TY-106. Surface level readings were stable during 1990 through 1992, ranging between 13.25 to 13.50 inches. The surface level readings fluctuated between 13.50 to 15.00 inches during 1993. In-tank photographs taken August 22, 1989, show the manual tape pencil plummet contacting a dry cracked surface with discarded tapes near the plummet. **The current surface level reading on January 31, 1994, was 13.00 inches. The quarterly reading obtained on January 2, 1994, was recorded as 3.00 inches. The level continues to show wide fluctuations.** This tank is an Assumed Leaker, Interim Stabilized, and Intrusion Prevention completed.

Resolution status: Two readings reached 15.00 inches on October 2 and October 4, 1993, which constitute a sudden increase from 13.50 inches on July 1, 1993. On October 6, 1993, the readings returned to 14.25 inches. **On January 3, 1994, the surface level was 13.50 inches. Currently, the level is 13.00.** Similar behavior occurred on October 8, 1987, when the surface level jumped to the same level then returned to allowable limits. Photos taken August 22, 1989, show a number of discarded tapes beneath the plummet. Occasional anomalous readings would be expected because of the plummet

touching the discarded tapes rather than the dry waste. **This tank will not appear in the report unless further developments warrant inclusion.**

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 53.01 inches by January 31, 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.

An evaporation study will be done. Until the evaporation possibilities are fully analyzed, the baseline has been left at the peak recorded value (immediately after the July intrusion), and further level changes will be monitored by the use of "temporary" baselines. If evaporation can be confirmed, the tank will be rebaselined accordingly. The FIC has been recalibrated and found accurate, i.e., no adjustments needed.

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 January 31, 1994, was 62.25 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 66.60 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 Saltwell Jet Pumping

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 17,400 gallons was pumped this month, and 72,100 gallons has been pumped since pumping began. See Table E-5, Inventory and Status by Tank, for further information.

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2. 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. In FY 1993 four milestones were completed on or ahead of schedule. One milestone was completed behind schedule. In January 1994, one milestone, 2i "Resolve the flammability issue (head space) on Tank 103-C by January 1994," was completed on schedule, bringing the total for FY 1994 to four milestones completed on schedule. Three milestone completions are overdue.

3. 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 is being saltwell pumped from BX-111, with completion of the pumping scheduled for the end of January 1994. Many other tank farm work activities have now been fully resumed. In addition,

reorganization is taking place to reduce management layers, and a new action plan for total upgrade is expected by February 1994.

4. Tank 241-SY-101 Mixer Pump

Post-Phase B mitigation mixer pumping has commenced. Pump bumping continues as planned.

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

Tank C-102 is currently being treated as an Organic 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 (intersitially 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 30,1 994. 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 Unreviwed 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.

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. Single-Shell Tank Non-Watch List Low Heat Load Temperatures

Attempts were made to take semiannual temperatures in 96 Low Heat Load Single-Shell Tanks in January 1994. Readings were successfully obtained in 76 tanks, as compared to 71 temperatures obtained in July 1993. Temperatures could not be taken in 20 tanks, which includes nine tanks having no temperature tree, the connection to the tree is severed, or the tree is otherwise unavailable. See Appendix A, Table A-6, for further information.

8. Groundwater Monitoring Compliance

The Single-Shell Tanks are one of 20 Resource Conservation and Recovery Act (RCRA) facilities on the Hanford Site. Interim-status groundwater monitoring in accordance with the Washington State Department of Ecology-approved groundwater monitoring plan is conducted at these facilities to

comply with Federal and Washington State Regulations and the 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 [TPA]).

Thirty-five wells that comply with applicable construction specifications in the Washington Administrative Code have been constructed around individual or aggregates of Single-Shell Tank Farms waste management areas (WMA) to satisfy TPA Milestone M-24. These wells were constructed between 1989 and 1992 and are located outside the perimeter fences of the tank farms and at least 100 feet from the nearest tank by agreement with Ecology. The wells are constructed of stainless steel casing, have surface and annular seals and filter packs surrounding stainless steel screens. All wells are screened in the top 20 feet of the uppermost aquifer beneath each site, unless special permission is received from Ecology to install longer screens or sample other parts of the aquifer system. Each well contains a dedicated piston displacement pump.

Samples were collected quarterly for at least a year in these 35 wells and analyzed for Drinking Water Standards, Ground Water Quality Parameters and Contamination Indicator Parameters as well as some site specific constituents discharged to the SSTs. At least four quarters of data were statistically analyzed to calculate background levels. Wells in most SST WMAs are now sampled semi-annually. Indicator parameter results from downgradient wells are compared with background levels for each sampling event. If an indicator parameter exceeds the background level for that constituent, verification sampling is conducted. If the elevated value is verified, then the site is triggered into groundwater quality assessment monitoring and Ecology must be notified. A groundwater quality assessment monitoring plan is then prepared and submitted to Ecology, with the intent to determine whether the elevation of a particular constituent in groundwater is related to the facility being monitored. Three SST farms (241-T, 241-TX, 241-TY) are in groundwater quality assessment monitoring because of elevated field specific conductance. Quarterly sampling continues at these sites in assessment monitoring; semi-annual sampling continues at other SST Farms.

Water levels are measured monthly in all of these wells as well as in some older wells constructed of carbon steel in and around the SSTs. Water levels are also measured in each well at the time a sample is collected.

Data from groundwater monitoring at all RCRA facilities on the Hanford Site are reported quarterly to Ecology. Reports analyzing groundwater monitoring data for a calendar year and evaluating the monitoring network for continued compliance with regulations are prepared annually.

9. New Tri-Party Agreement Signed

On January 25, 1994, the renegotiated Tri-Party Agreement was signed by DOE-RL, Wastington State Department of Ecology, and the Environmental Protection Agency. Significant changes included: (a) a technically sound process for dealing with the hazardous and radioactive wastes in tanks, (b) the elimination of grout in favor of glassifying low-level waste, (c) the inclusion of tank safety, (d) cleanup of almost half the Hanford Site by October, (e) greater emphasis on protection of the Columbia River and acceleration of the cleanup of contaminated groundwater, and (f) strengthened

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enforcement provisions and reduced dispute resolution time. A separate cost-cutting agreement was signed which calls for DOE to reduce expected costs of Hanford cleanup by $1 billion over the next five years.

10. Occurrence Reports

RL-WHC-TANKFARM-1993-0105 (OFF-NORMAL) - 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, 1/10/94)

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.

RL-WHC-TANKFARM-1993-0107 (UNUSUAL OCCURRENCE) - OPERATORS ENTER 241-SY TANK FARM DURING MIXER PUMP OPERATION RESULTING IN A VIOLATION OF THE SAFETY ANALYSIS REPORT (SAR), (Final Report, 1/05/94)

On December 4, 1993, during Phase B, Test 18 of the SY-101 mixer pump, the Operations Test Coordinator (OTC) observed operators in a restricted

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area (exclusion area). The OTC immediately aborted the test and made appropriate notifications.

Investigation revealed that all safety requirements were met until shift turnover. The test lasted longer than predicted and the shift manager was notified. He attempted to reach the operators but could not. The operators removed the exclusion area signs and entered the tank farm without informing the shift manager that they were planning to do so.

Root cause: The operators should not have assumed they had authority to enter the farm should have informed the shift manager that they were doing so prior to entering the SY farm. Had the operators called the shift manager and informed him they were removing the exclusion area signs, the shift manager would have been able to prevent them from doing so, and prevented the event from occurring.

Contributing cause: Communications were less than adequate. A formal pre-job brief was not held by the Test Director, Operations Test Coordinator and Shift Manager. Separate turnovers and pre-job briefs were held, and, as a result, information regarding the length of the test was not accurately related to the shift manager.

Corrective actions included: Revising the standing orders to strengthen the communication, information, and authority for shift-to-shift turnovers; and a work package to install two pump strobe lights to signal when the mixer pump is in operation.

<u>RL-WHC-TANKFARM-1993-0110 (OFF-NORMAL) - POTENTIAL REACTIVE COMPONENT DISCOVERED IN SINGLE-SHELL WASTE TANK 241-T-111 (10-Day Report, 12/17/93)</u>

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.

WHC Operations is treating T-111 like an organic Watch List tank, but will not declare it as a Watch List tank pending further investigation. Daily surface level measurements and weekly temperature data will be taken. Plant Engineering will review the data reports from other tanks to determine if a similar condition exists. Additional analyses on existing samples has been conducted by the Analytical Laboratories and Pacific Northwest Laboratories (PNL). Partial preliminary data were received December 17, 1993. Plant Engineering will re-verify all data to determine if there were exotherm releases from core samples.

There has been no significant impact to the facility or operations.

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RL-WHC-TANKFARM-1993-0111 (OFF-NORMAL) - LIQUID LEVEL IN THE EAST/WEST VENT STATION ANNULUS SPACE EXCEEDED 80% CAPACITY, RESULTING IN AN OSD NONCONFORMANCE TO OSD-T-151-00015 (10-Day Report, 12/22/93)

On December 10, 1993, during a review of operations logs by the Shift Operations Manager, it was discovered that the East/West Vent Station catch tank liquid level was reading approximately 70 inches (700 gallons), 80% of the 800-gallon capacity of the tank, resulting in and Operations Specifications Document (OSD) nonconformance to OSD-T-151-00015.

The annulus was checked and verified to have no liquid level. Daily meetings have been scheduled to resolve the proper actions necessary to pump the tank. A work package was initiated to install a manual reel tape in the tank's enclosed housing by December 23, 1993, to determine the exact level in the tank. The manual tape reading will be compared with the previous liquid level measurements to determine the rate of level increase. A liquid sample of the tank's contents will be taken and analyzed.

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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, 1/25/94)

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.

RL-WHC-TANKFARM-1994-0004 (OFF-NORMAL) - FAILURE TO INITIATE 4 HOURS OPERATOR SURVEILLANCE OF LOCAL ANNULUS LEAK DETECTION SYSTEM RESULTS IN OSR NON-CONFORMANCE (Notification Report, 1/27/94)

On January 26, 1994, an annulus Continuous Air Monitor (CAM) was removed from service during maintenance activities at double-shell tank AN-105 without invoking the surveillance requirement for primary leak detection in accordance with the Operational Safety Requirements of OSR-T-151-00001.

This OSR document requires that the annuli of each tank in 241-SY, AN, AW, and AP Tank Farms be equipped with at least one operable leak detection device. When continuous monitoring of leak detection systems

is interrupted, a 4-hour surveillance of the local leak detection alarm is required.

The OSR surveillance requirement was discovered by Shift Management when a review of 242-A Evaporator alarm data sheet at 2100 hours revealed that both the AN-105 "Annulus Leak Detector" and AN-105 "Rad Monitor Hi/Fail" alarms were active.

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 (Notification Report, 1/28/94)

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.

11. Defense Nuclear Facilities Safety Board

The following excerpts were presented by Tank Waste Remediation System Operations at the Defense Nuclear Facilities Safety Board (DNFSB) meeting held January 11, 1994.

See next page

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Pre-August Tank Farm Conduct of Operations Problems

- 73 off-normal and unusual occurrences in 1993
- 17 lost-time injuries versus 8 at that point the previous year
- Inadvertent tank SY-101 pump start
- Crane hook fall
- Tank C-106 rock-on-a-rope incident
- Slow rate of progress toward operational excellence

Lack of ownership and accountability led us to call a time out – to "stand-down" work

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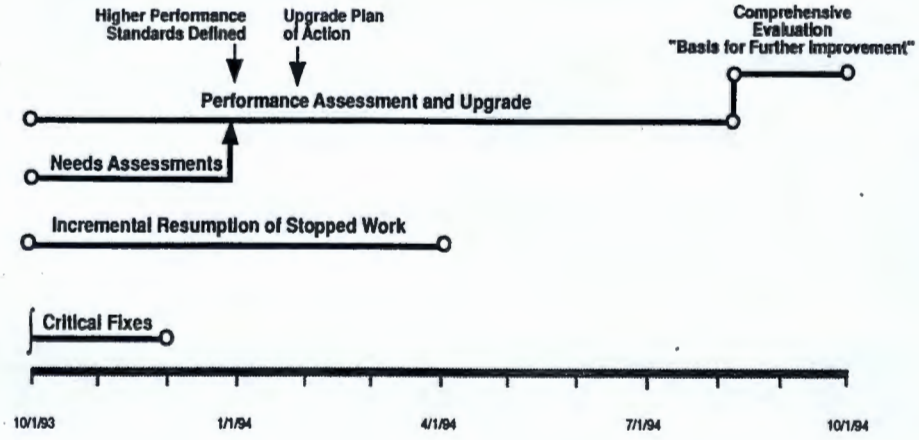
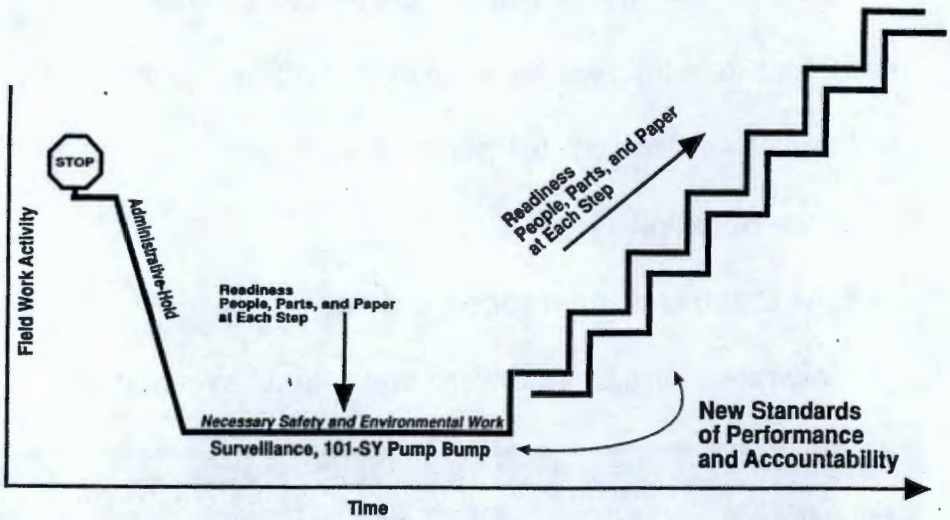
Administrative Hold and Near-Term Strategy

Waste Tank Operations "Get Well" Plan Concept



Incremental Resumption of Tank Farm Work Strategy



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Field Activities That Have Been Resumed

- Tank SY-101 testing
- Receipt of liquid radioactive waste
- Single-shell tank stabilization
- Tank C-103 sampling (20 of the 3 sampling series)
- 242-A Evaporator (readiness declared)
- Normal corrective and preventative maintenance
- Kaiser Engineers Hanford and other subcontractor work

"Acceptable conduct of operations or sufficient compensatory measures implemented"

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III. CHANGES TO THE MONTHLY REPORT

1. Appendix C. "Tank and Equipment Code/Status Definitions" - Section 4. "Inventory and Status by Tank - Volume Calculations (SSTs) Definitions" has been revised to further explain the definitions used in these tank inventory status columns. The changes are in bold print.

2. Table J-2. "TPA SST Stabilization Schedule" has been added to Appendix J. "Interim Stabilization Status." This table shows the start of pumping and completion of pumping as required by the Tri-Party Agreement milestones.

3. A new section, Appendix K. "Tank Farm Operations Sampling Schedule Status," has been added to this report. This table shows the Tank Farm Operations FY 1994 Sampling Schedule and status of this sampling. It will be updated periodically.

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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."

January 31, 1994

Single-Shell Tanks Tank No.		Category	Officially Added to Watch List
A-101	(2)	Hydrogen	1/91
AX-101	(2)	Hydrogen	1/91
AX-103	(2)	Hydrogen	1/91
B-103	(2)	Organic Salts	1/91
BX-102	(2)	Ferrocyanide	1/91
BX-106	(2)	Ferrocyanide	1/91
BY-103	(2)	Ferrocyanide	1/91
BY-104	(2)	Ferrocyanide	1/91
BY-105	(2)	Ferrocyanide	1/91
BY-106	(2)	Ferrocyanide	1/91
BY-107	(2)	Ferrocyanide	1/91
BY-108	(2)	Ferrocyanide	1/91
BY-110	(2)	Ferrocyanide	1/91
BY-111	(2)	Ferrocyanide	1/91
BY-112	(2)	Ferrocyanide	1/91
C-103	(2)(4)	Organic Salts	1/91
C-106	(2)	High Heat Load	1/91
C-108	(2)	Ferrocyanide	1/91
C-109	(2)	Ferrocyanide	1/91
C-111	(2)	Ferrocyanide	1/91
C-112	(2)	Ferrocyanide	1/91

Single-Shell Tanks Tank No.		Category	Officially Added to Watch List
S-102	(2)	Hydrogen,	1/91
	(2)	Organic Salts	1/91
S-111	(2)	Hydrogen	1/91
S-112	(2)	Hydrogen	1/91
SX-101	(1)(2)	Hydrogen	1/91
SX-102	(1)(2)	Hydrogen	1/91
SX-103	(1)(2)	Hydrogen	1/91
SX-104	(1)(2)	Hydrogen	1/91
SX-105	(1)(2)	Hydrogen	1/91
SX-106	(1)(2)	Hydrogen,	1/91
	(1)(2)	Organic Salts	1/91
SX-109	(1)(2)	Hydrogen because other tanks vent thru it	1/91
T-107	(3)	Ferrocyanide	2/91
T-110	(2)	Hydrogen	1/91
TX-105	(2)	Organic Salts	1/91
TX-118	(2)	Ferrocyanide,	1/91
	(2)	Organic Salts	1/91

Single-Shell Tanks Tank No.		Category	Officially Added to Watch List
TY-101	(2)	Ferrocyanide	1/91
TY-103	(2)	Ferrocyanide	1/91
TY-104	(2)	Ferrocyanide	1/91
U-103	(2)	Hydrogen	1/91
U-105	(2)	Hydrogen	1/91
U-106	(2)	Organic Salts	1/91
U-107	(2)	Organic Salts	1/91
	(6)	Hydrogen	12/93
U-108	(2)	Hydrogen	1/91
U-109	(2)	Hydrogen	1/91
U-111	(7)	Organic Salts	8/93
45 Tanks			

Double-Shell Tanks Tank No.		Category	Officially Added to Watch List
AN-103	(1)(2)	Hydrogen	1/91
AN-104	(1)(2)	Hydrogen	1/91
AN-105	(1)(2)	Hydrogen	1/91
AW-101	(1)(5)	Hydrogen	6/93
SY-101	(1)(2)	Hydrogen	1/91
SY-103	(1)(2)	Hydrogen	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

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.

Notes: 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 January 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.		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) (Btu/h)	Estimated Heat Load (3) (kW)	Date Declared Assumed Leaker	Interim Stabilized Date
BX-102		66	01/17/94	No	42	<1	<10000	<2.93	1971	11/78
BX-106		67	01/30/94	No	24	<1	<10000	<2.93	Sound	N/A
BY-103		82	01/16/94	Yes	153	66	8600	2.52	1973	N/A
BY-104	Riser 1	128	01/30/94	Yes	155	83	8000	1.61	Sound	1/85
BY-104	Riser 10B	114	01/30/94	Yes	155	83	8000	1.61	Sound	1/85
BY-105	Riser 10C	113	01/16/94	Yes	190	36	4000	0.97	1984	N/A
BY-105	Riser 1	120	01/23/94	Yes	190	36	4000	0.97	1984	N/A
BY-106		129	01/30/94	Yes	241	70	5500	0.97	1984	N/A
BY-107		94	01/23/94	Yes	104	42	14500	4.25	1984	7/79
BY-108		110	01/16/94	Yes	90	58	4400	6.74	1972	2/85
BY-110	Riser 1	118	01/23/94	Yes	152	71	4000	7.39	Sound	1/85
BY-110	Riser 10A	109	01/02/94	Yes	152	71	4000	7.39	Sound	1/85
BY-111	LOW	88	01/23/94	Yes	174	6	2400	10.02	Sound	1/85
BY-111	Riser 14	86	01/17/94	No	174	6	2400	10.02	Sound	1/85
BY-112	LOW	84	01/02/94	Yes	113	2	<10000	<2.93	Sound	5/85
BY-112	Riser 5	90	01/30/94	Yes	113	2	<10000	<2.93	Sound	5/85
C-108	Riser 5	73	01/10/94	No	31	25	10000	<2.93	Sound	3/84
C-108	Riser 1	85	01/31/94	No	31	25	10000	<2.93	Sound	3/84
C-109	Riser 8	78	01/17/94	No	31	30	3500	1.11	Sound	11/83
C-109	Riser 3	75	01/30/94	No	31	30	3500	1.11	Sound	11/83
C-111		72	01/10/94	No	28	33	<10000	<2.93	1968	3/84
C-112	Riser 1	81	01/10/94	No	45	31	<10000	<2.93	Sound	9/90
C-112	Riser 8	80	01/30/94	No	45	31	<10000	<2.93	Sound	9/90
T-107		69	01/10/94	No	73	5	<10000	<2.93	1984	N/A
TX-118 (4)		77	01/27/94	No	134	<1	4900	1.44	Sound	4/83
TY-101		66	01/27/94	No	50	23	<10000	<2.93	1973	8/83
TY-103		69	01/27/94	No	66	28	<10000	<2.93	1973	2/83
TY-104		66	01/27/94	No	24	12	<10000	<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 the following: WHC-EP-0474-4, "Quarterly Report on Defense Nuclear Facilities Safety Board Recommendation 90-7 for the Period Ending March 31, 1992," Table 1-A, dated January 1992. Tank 104-BY only estimated per WHC-EP-0669, "Ferrocyanide Safety Program: Updated Thermal Analysis Model for Ferrocyanide Tanks with Application to to Tank 241-BY-104," December 1993. WHC-EP-0638, "Ferrocyanide Safety Program: Heat Load and Thermal Characteristics Determination for Selected Tanks," November 1993, analyzed six tanks, BY-105, 106, 108, 110, and 111, and C-109.

(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 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 January 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			153	01/17/94	354	Weekly	SOUND	N/A
AX-101			136	01/17/94	279	Weekly	SOUND	N/A
AX-103			117	01/24/94	48	Weekly	SOUND	8/87
S-102 (2)			108	01/17/94	207	Weekly	SOUND	N/A
S-111			93	01/17/94	224	Weekly	SOUND	N/A
S-112			88	01/31/94	239	Weekly	SOUND	N/A
SX-101 (5)			139	01/17/94	173	Weekly	SOUND	N/A
SX-102			153	01/17/94	206	Weekly	1993	N/A
SX-103			177	01/02/94	245	Weekly	SOUND	N/A
SX-104			170	01/17/94	231	Weekly	1988	N/A
SX-105			176	01/17/94	256	Weekly	SOUND	N/A
SX-106 (2)			112	01/17/94	203	Weekly	SOUND	N/A
SX-109 (1)	Riser 2		153	01/17/94	98	Weekly	1965	5/81
SX-109 (1)	Riser 8		153	01/17/94	98	Weekly	1965	5/81
T-110			63	01/31/94	145	Weekly	SOUND	N/A
U-103			87	01/31/94	178	Weekly	SOUND	N/A
U-105			90	01/31/94	159	Weekly	SOUND	N/A
U-107 (2)(5)			78	01/31/94	155	Weekly	SOUND	N/A
U-108			87	01/31/94	178	Weekly	SOUND	N/A
U-109			85	01/10/94	176	Weekly	SOUND	N/A
AN-103		Double-shell tank	119	01/24/94		Weekly	SOUND	N/A
AN-104		Double-shell tank	121	01/17/94		Weekly	SOUND	N/A
AN-105		Double-shell tank	116	01/10/94		Weekly	SOUND	N/A
AW-101 (4)		Double-shell tank	104	01/19/94		Weekly	SOUND	N/A
SY-101	Riser 17b	Double-shell tank	118	01/31/94		Daily	SOUND	N/A
SY-101	Riser 17c	Double-shell tank	124	01/13/94		Daily	SOUND	N/A
SY-103		Double-shell tank	99	01/24/94		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 January 1994. These tanks are monitor 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	61	01/10/94	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)	120	01/17/94	78	SOUND	N/A	PUREX and insoluble strontium-rich sluicing solids from the operation of 244-CR Vault	-	-	-		9/90
S-102 (1)	108	01/17/94	207	SOUND	N/A	REDOX	21.0 (10)	41.0 (10)	6.1	x	2/80
SX-106 (1)	112	01/17/94	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
TX-105	104	01/31/94	228	1977	9/83	) Tributyl phosphate (TBP)	12.8 (9)	52.7 (9)	3.7	x	1/81
TX-118 (2)	77	01/27/94	134	SOUND	4/83	) process waste and 242-T	20.2 (10)	50.4 (10)	5.9	x	9/81
U-106	81	01/10/94	90	SOUND	N/A	) Evaporator bottoms	46.6 (10)	52.4 (10)	13.6		6/77
U-107 (1)	78	01/31/94	155	SOUND	N/A	)	14.7 (9)	75.4 (9)	4.3		12/74
U-111 (5)	80	01/31/94	127	SOUND	N/A	Concentrated B Plant Waste	48.2 (10)	---(10)	14.1	x	7/93
9 Tanks											

See Footnotes next page

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.

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 January 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) (Btu/h)	(kW)	Date Declared Assumed Leaker	Interim Stabilized Date
A-104 (4)	R-18	191	01/17/94	18	Weekly	50000	15	1975	9/78
A-105 (4)	R-16	140	01/17/94	14	Weekly	50000	15	1963	7/79
C-106 (2)(3)	Riser 8	159	01/06/94	91	Weekly	110000	32	SOUND	N/A
C-106 (2)(3)	Riser 14	122	01/30/94	91	Weekly	110000	32	SOUND	N/A
SX-107	Tree 2	174	01/01/94	45	Monthly	42000	12	1964	10/79
SX-107	Tree 8	174	01/01/94	45	Monthly	42000	12	1964	10/79
SX-108 (9)	Tree 2	197	01/10/94	49	Monthly	45000	13	1962	8/79
SX-108	Tree 8	201	01/10/94	49	Monthly	45000	13	1962	8/79
SX-109 (3)	Tree 2	153	01/17/94	98	Weekly	50000	15	1965	5/81
SX-109 (3)	Tree 8	153	01/17/94	98	Weekly	50000	15	1965	5/81
SX-110	Tree 2	177	01/01/94	30	Monthly	42000	12	1976	8/79
SX-110	Tree 8	173	01/01/94	30	Monthly	42000	12	1976	8/79
SX-111	Tree 2	195	01/01/94	53	Monthly	44000	13	1974	7/79
SX-111	Tree 8	167	01/01/94	53	Monthly	44000	13	1974	7/79
SX-112	Tree 2	155	01/06/94	41	Monthly	43000	13	1969	7/79
SX-112	Tree 8	162	01/06/94	41	Monthly	43000	13	1969	7/79
SX-114	Tree 2	191	01/10/94	73	Monthly	58000	17	1972	7/79
SX-114	Tree 8	190	01/01/94	73	Monthly	58000	17	1972	7/79
10 Tanks								Legend: Tree = Thermocouple Tree	
A-105 Laterals (5)		245	01/17/94		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

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-178, "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 ventilaliation 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/h(+/_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.

(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 exhauster 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 exhauster 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 thermo-mocouples 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

(9) Thermocouple #1 is usually reported on at approximately 195 F., however, this thermocouple was erratic during December 1993, therefore thermocouple #2 reading of 176 F. was used in the December report. Thermocouple #1 is again reading correctly, at 197 F. in January 1994.

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 96 single-shell tanks. Legend follows table.

	Tank No.	Highest Temperatures taken in waste Jul. 93	Jan. 94	Total Waste (1) Kgal	Inches	Comments
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.

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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 96 single-shell tanks. Legend follows table.

	Tank No.	Highest Temperatures taken in waste Jul. 93	Jan. 94	Total Waste (1) Kgal	Inches	Comments
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 Configureation 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-111	59	63	458	174	TCs #1, 2, 5, 6 O/S
64	T-112	58	60	67	32	
65	T-201	59	60	29	150	
66	T-202	58	62	21	110	
67	T-203	75	64	35	182	
68	T-204	60	63	38	197	

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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 96 single-shell tanks. Legend follows table.

	Tank No.	Highest Temperatures taken in waste Jul. 93	Jan. 94	Total Waste (1) Kgal	Inches	Comments
69	TX-101	O/S	O/S	87	39	(2) No TC tree per Riser Configuration document
70	TX-102	O/S	O/S	113	49	Cable cut from tree
71	TX-103	55	71	157	54	Cable cut from tree, readings taken by Instrument Technician
						High reading taken 1/93 was 71 F.
72	TX-104	60	65	65	31	Cable cut from tree, readings taken by Instrument Technician
73	TX-106	59	78	453	172	Cable cut from tree, readings taken by Instrument Technician
74	TX-107	60	66	36	21	Cable cut from tree, readings taken by Instrument Technician
75	TX-108	61	68	134	56	Cable cut from tree, readings taken by Instrument Technician
76	TX-109	64	94	384	147	Cable cut from tree, readings taken by Instrument Technician
						High reading taken 1/93 was 97 F.
77	TX-110	O/S	O/S	462	175	Cable cut from tree, readings taken by Instrument Technician
78	TX-111	61	79	370	142	Cable cut from tree, readings taken by Instrument Technician
						High reading taken 1/93 was 73 F.
79	TX-112	72	67	649	243	Cable cut from tree, readings taken by Instrument Technician
80	TX-113	65	72	607	228	Dial pushed inside housing, readings taken by Instr. Tech.
81	TX-114	O/S	O/S	535	202	Cable cut from TC tree
82	TX-115	67	70	640	240	Dial pushed inside housing, readings taken by Instr. Tech.
83	TX-116	O/S	O/S	631	237	(2) Tree cut off in riser per Riser Configuration document
84	TX-117	O/S	O/S	626	235	All TCs O/S, cable cut from tree
85	TY-102	O/S	60	64	31	
86	TY-105	77	79	231	91	
87	TY-106	60	59	17	14	
88	U-101	61	67	25	17	
89	U-102	81	85	374	143	
90	U-104	O/S	O/S	122	52	(2) No TC tree per Riser Configuration document
91	U-110	72	76	186	75	
92	U-112	61	63	49	25	
93	U-201	O/S	61	5	29	
94	U-202	59	61	5	29	
95	U-203	O/S	60	3	18	
96	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," September 1991

SUMMARY:

	Jul. 93	Jan. 94
Readings obtained in SSTs	71	76
No readings (TC trees O/S - includes nine tanks with no trees - see footnote above)	25	20
Total low heat load tanks	96	96

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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:

(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"
POP	= Plant Operation Procedure TO-040-650, "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, 8/90
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 January 31, 1994

Tank Number	Category		Temperature Readings (5)(6)	Surface Level Readings (1) (-357)		LOW Readings (-357) (9)	Radiation Readings		Dome Elevation Surveys (OSR/SAR)
	Watch List(6)	High Heat		M.T.	FIC	Neutron	Lateral Readings (-357)	Drywell Readings (OSR/SAR)	
A-101	X				N/A		O/C		
A-102				N/A		N/A	O/C		
A-103				N/A			O/C		
A-104		X		O/C	N/A	N/A	O/C		
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		N/A			

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

149 TANKS (Sheet 2 of 5)

Information as of January 31, 1994

Tank Number	Category		Temperature Readings (5)(6)	Surface Level Readings (1) (-357)		LOW Readings (-357) (9)	Radiation Readings		Dome Elevation Surveys (OSR/SAR)
	Watch List(6)	High Heat		M.T.	FIC	Neutron	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			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		

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

149 TANKS (Sheet 3 of 5)

Information as of January 31, 1994

Tank Number	Category: Watch List(6)	Category: High Heat	Temperature Readings (5)(6)	Surface Level Readings (1) (-357): M.T.	Surface Level Readings (1) (-357): FIC	LOW Readings (-357) (9): Neutron	Radiation Readings: Lateral Readings (-357)	Radiation Readings: Drywell Readings (OSR/SAR)	Dome Elevation Surveys (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				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				O/C	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		

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

149 TANKS (Sheet 4 of 5)

Information as of January 31, 1994

Tank Number	Category		Temperature Readings (5)(6)	Surface Level Readings (1) (-357)		LOW Readings (-357) (9)	Radiation Readings		Dome Elevation Surveys (OSR/SAR)
	Watch List(6)	High Heat		M.T.	FIC	Neutron	Lateral Readings (-357)	Drywell Readings (OSR/SAR)	
U-107	X			N/A	O/C		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
152-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	45 Watch List Tanks (4)	10 High Heat Tanks (4)	O/C: 20 tanks – (semiannual monitoring frequency) (5)	O/C: 5 tanks 0 catch tank	O/C: 2 tanks 1 catch tank	O/C: 3 tanks 58 tanks have LOWs (2 are O/S)	O/C: 13 tanks	0	0

See Footnotes on next page

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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. Last readings were taken October 27, 1993; readings were not taken in November. A Discrepancy Report was issued. Readings were not taken in December. Psychrometric readings were taken in January 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 Salts list August 31, 1993.

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 96 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. 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. WHC-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.

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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, 6/83 (Aging Waste)
OSD	= Operations Safety Doc., OSD-T-151-0007, Rev H-5, 1/92
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 January 31, 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)		Radiation Readings: 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	
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: 3 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/flammable gas monitoring; not addressed in this table.

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

January 31, 1994

Tank No.	SST/DST	Date of Last Automatic FIC Reading	Reading Status	Comments	Required Monitoring Frequency(-357)
T-102	SST	09/06/93	No reading taken since 09/07/93	Out of compliance as of 09/07/93	Daily
U-107	SST	11/27/93	No reading since 11/27/93	Out of compliance as of 11/28/93	Daily
AN-107	DST	01/17/94	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
C-Farm	-	08/10/93	Taking manual FIC readings	In compliance	Daily/Quarterly
C-105	SST	06/09/93	Taking manual FIC readings	In compliance	Daily
SY-101	DST	08/23/91	Taking manual FIC readings	In compliance	Daily
T-112	SST	01/12/93	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
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

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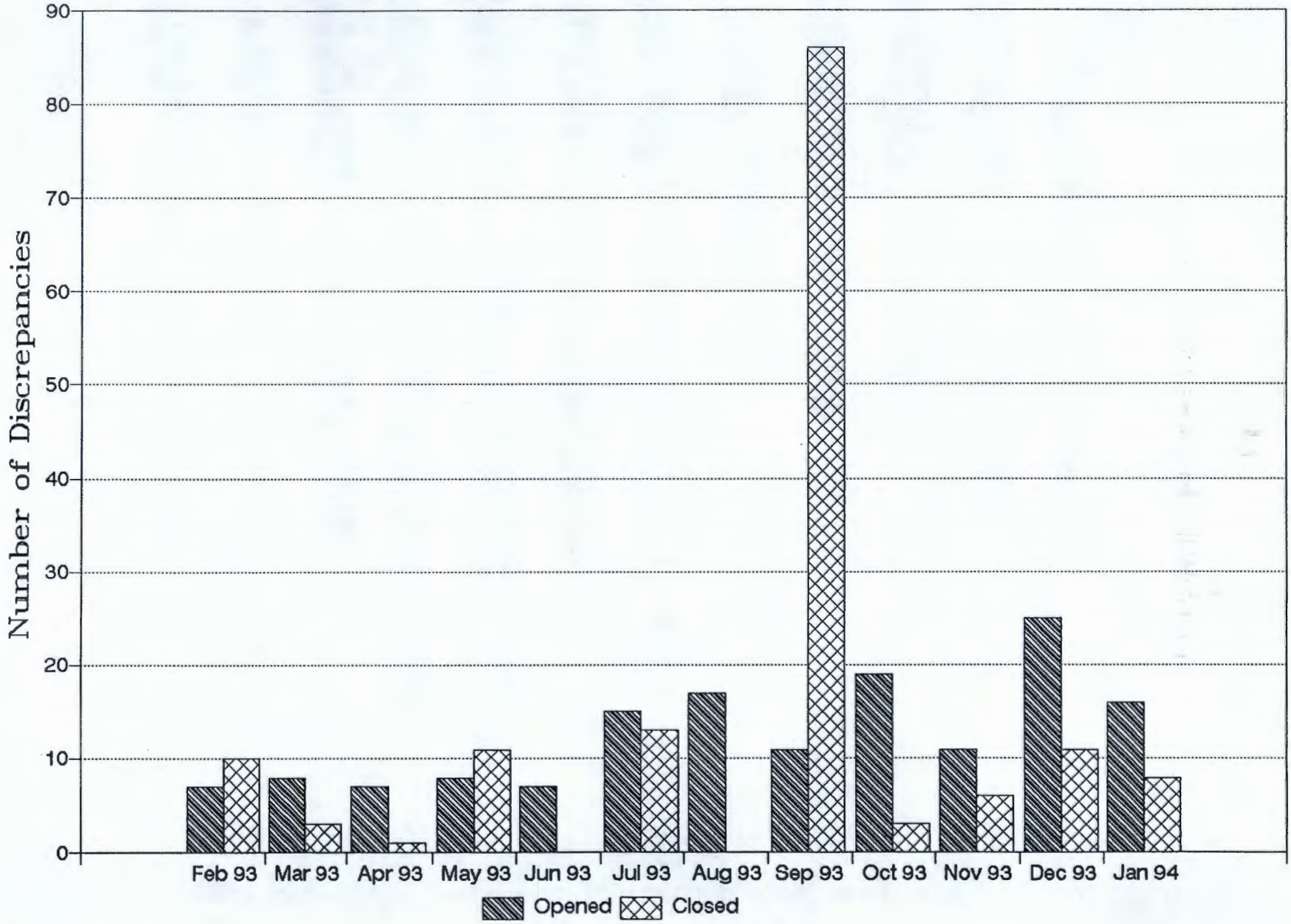

Figure 1. Discrepancy Report Status

S&DA 01/31/1994

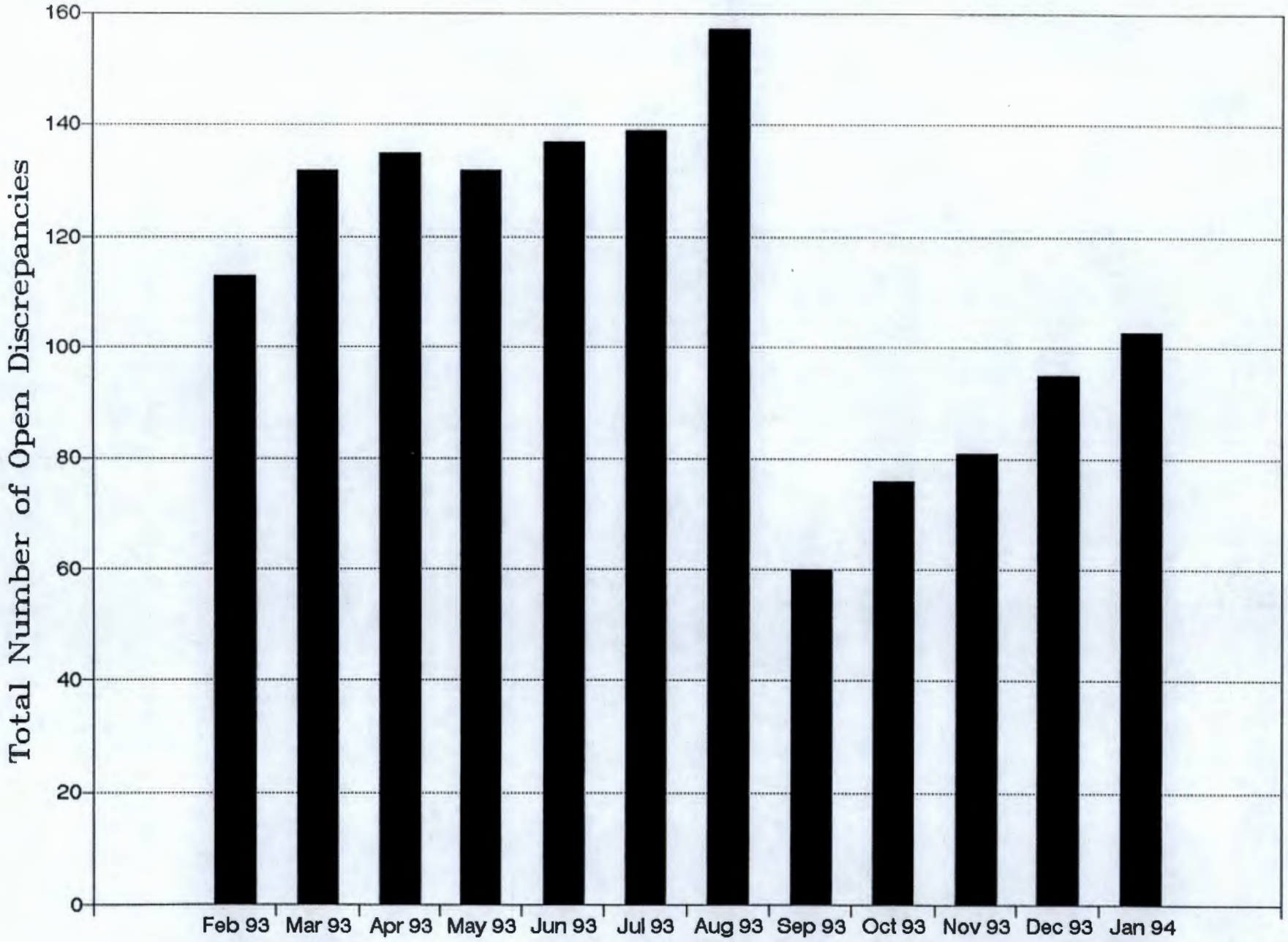

Figure 2. Open Discrepancy Reports

S&DA 01/31/1994

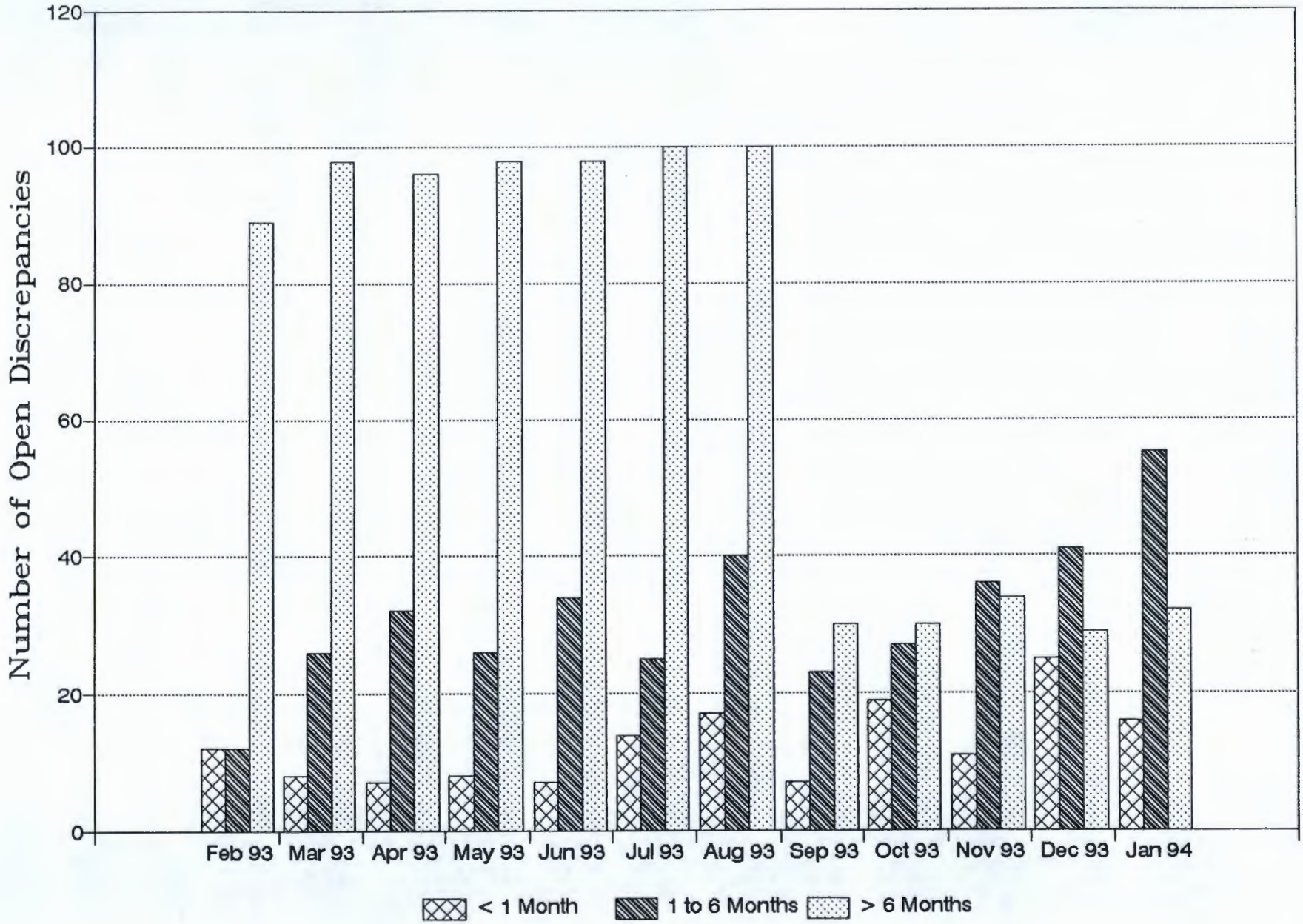

Figure 3. Discrepancy Report Status by Age

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APPENDIX B

DOUBLE SHELL TANK WASTE TYPE AND SPACE ALLOCATION

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TABLE B-1. DOUBLE-SHELL TANK WASTE TYPE AND SPACE ALLOCATION
JANUARY 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)	4.9 Mgal	Spare Tanks (3) (1 Aging & 1 Non-Aging Waste Tank)	2.28 Mgal
Concentrate Phosphate (102-AP,106-AN)	1.12 Mgal	Segregated Tank Space (105-AP, 101-AY, 102-AN, 107-AN, 103-AW)	1.07 Mgal
Double-Shell Slurry and Slurry Feed (103-AN, 104-AN, 105-AN, 105-AP, 101-AW)	5.1 Mgal	Watch List Tank Space (103-AN, 104-AN, 105-AN, 101-SY, 103-SY, 101-AW)	0.72 Mgal
Neutralized Current Acid Waste (101-AZ, 102-AZ)	1.22 Mgal	Priority Tank Space (2) (101-AN, 102-AW, 106-AW, 102-SY)	1.03 Mgal
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)	12.31 Mgal	Miscellaneous Head Space	0.19 Mgal
			5.29 Mgal
NCR and PFP Settled Solids (103-AW, 105-AW, 102-SY)	1.01 Mgal	TOTAL DOUBLE-SHELL TANK SPACE 24 Tanks at 1140 Kgal 4 Tanks at 980 Kgal	27.36 Mgal 3.92 Mgal 31.28 Mgal
Total Inventory=	25.66 Mgal		
		Total Available Space	31.28 Mgal
		Double-Shell Tank Inventory	25.66 Mgal
		Space Designated for Specific Use	5.29 Mgal
		Remaining Unallocated Space	0.33 Mgal

(1) Easily reduced in volume by Evaporator/LERF
(2) Reduced by Saltwell Liquid pumping, Mini Run and PFP Operations
(3) 241-101-AY: A minumum 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 availablility, 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: 47 Kgal.

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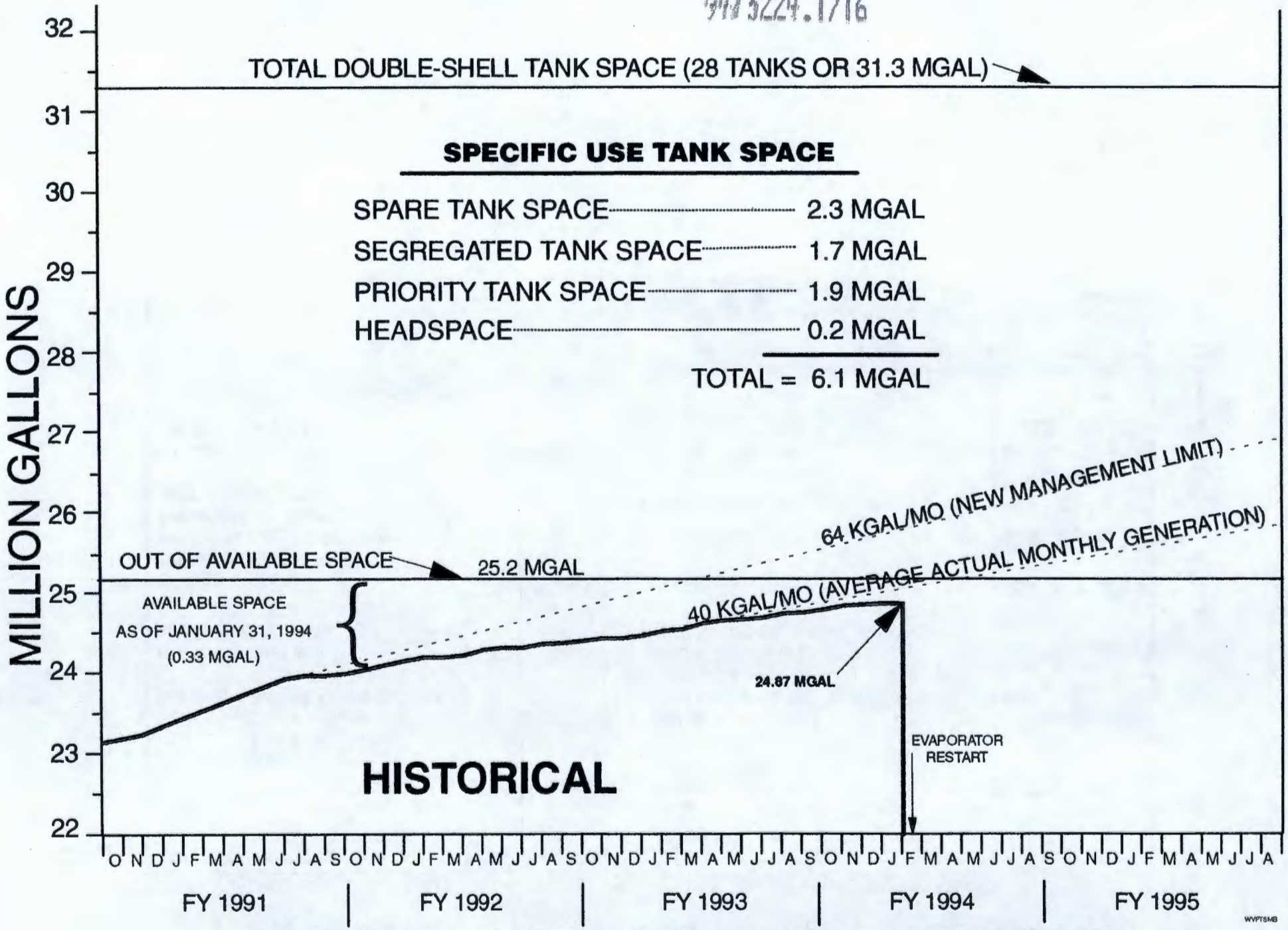
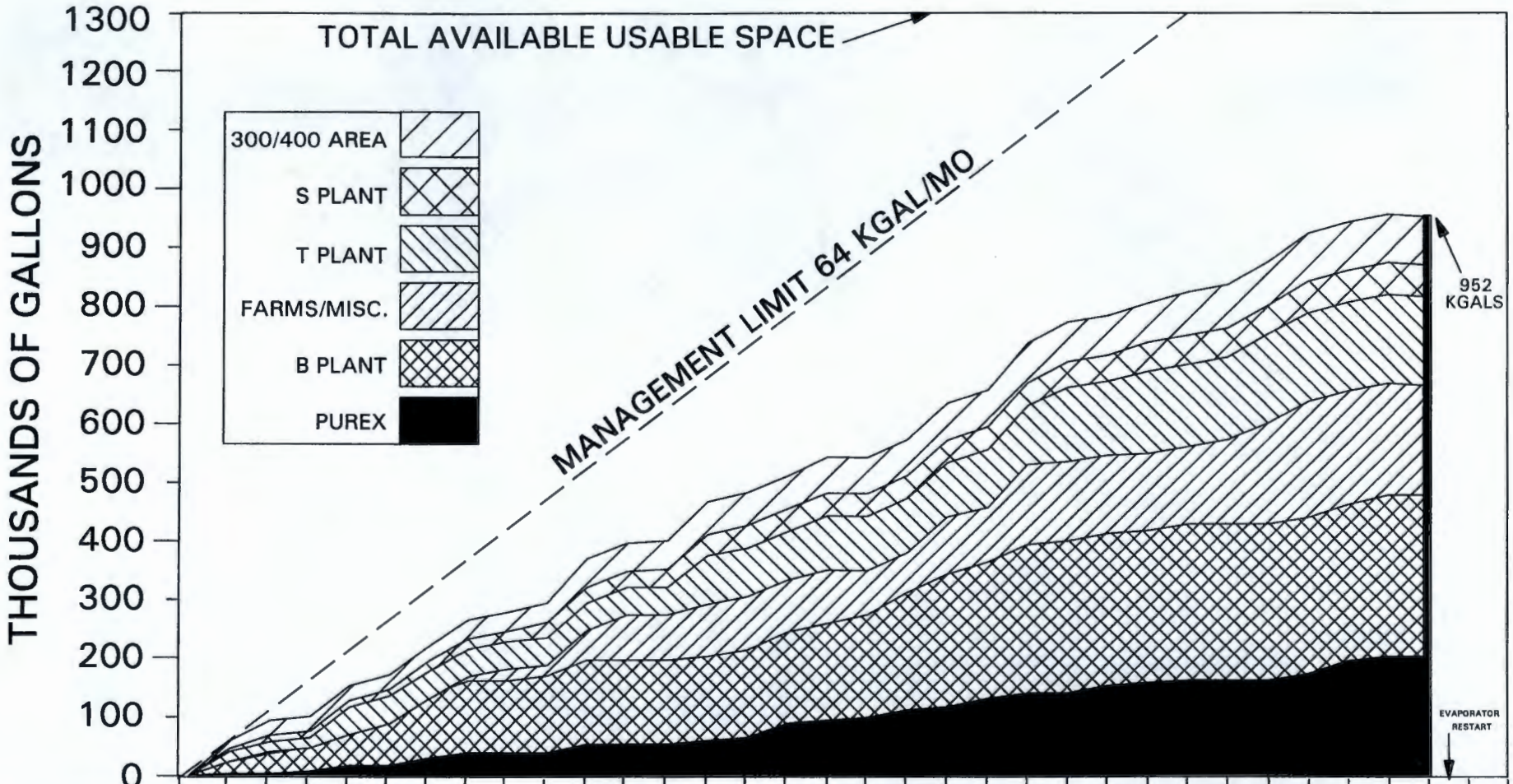


Note: Graphic does not Depict Waste Receipts or Depletions to Specific Use Tank Space

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



MONTHLY LIMIT		JUL 91	AUG 91	SEP 91	OCT 91	NOV 91	DEC 91	JAN 92	FEB 92	MAR 92	APR 92	MAY 92	JUN 92	JUL 92	AUG 92	SEP 92	OCT 92	NOV 92	DEC 92	JAN 93	FEB 93	MAR 93	APR 93	MAY 93	JUN 93	JUL 93	AUG 93	SEP 93	OCT 93	NOV 93	DEC 93	JAN 94	FEB 94	MAR 94
300/400 AREA	5	13	12	0	0	0	0	8	0	0	16	0	0	7	0	0	6	0	0	0	0	5	0	0	0	7	12	0	8	0	0	0		
S PLANT	5	5	6	0	0	0	0	0	0	9	0	0	4	5	3	0	0	0	0	0	0	0	5	0	5	0	0	0	5	0	0	0		
T PLANT	6	17	0	0	30	0	0	0	0	0	0	0	0	36	0	0	10	0	0	0	7	0	26	0	14	0	0	11	0	0	0	0		
MISC\TANK FARM	NA	0	2	-4	-10	-2	6	14	13	4	33	27	0	12	2	-3	2	-16	-7	30	-5	44	1	-2	-2	1	0	28	24	-4	-3	-4		
B PLANT	23	20	14	7	22	21	23	15	0	9	12	0	0	0	6	7	10	10	25	26	7	21	6	0	0	7	0	0	0	0	9	0		
PUREX	15	3	0	4	10	0	12	9	0	0	15	0	0	6	5	24	5	5	13	5	14	9	0	13	5	4	0	0	12	22	7	0		

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

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FIGURE B-2. TOTAL AVAILABLE USABLE TANK SPACE

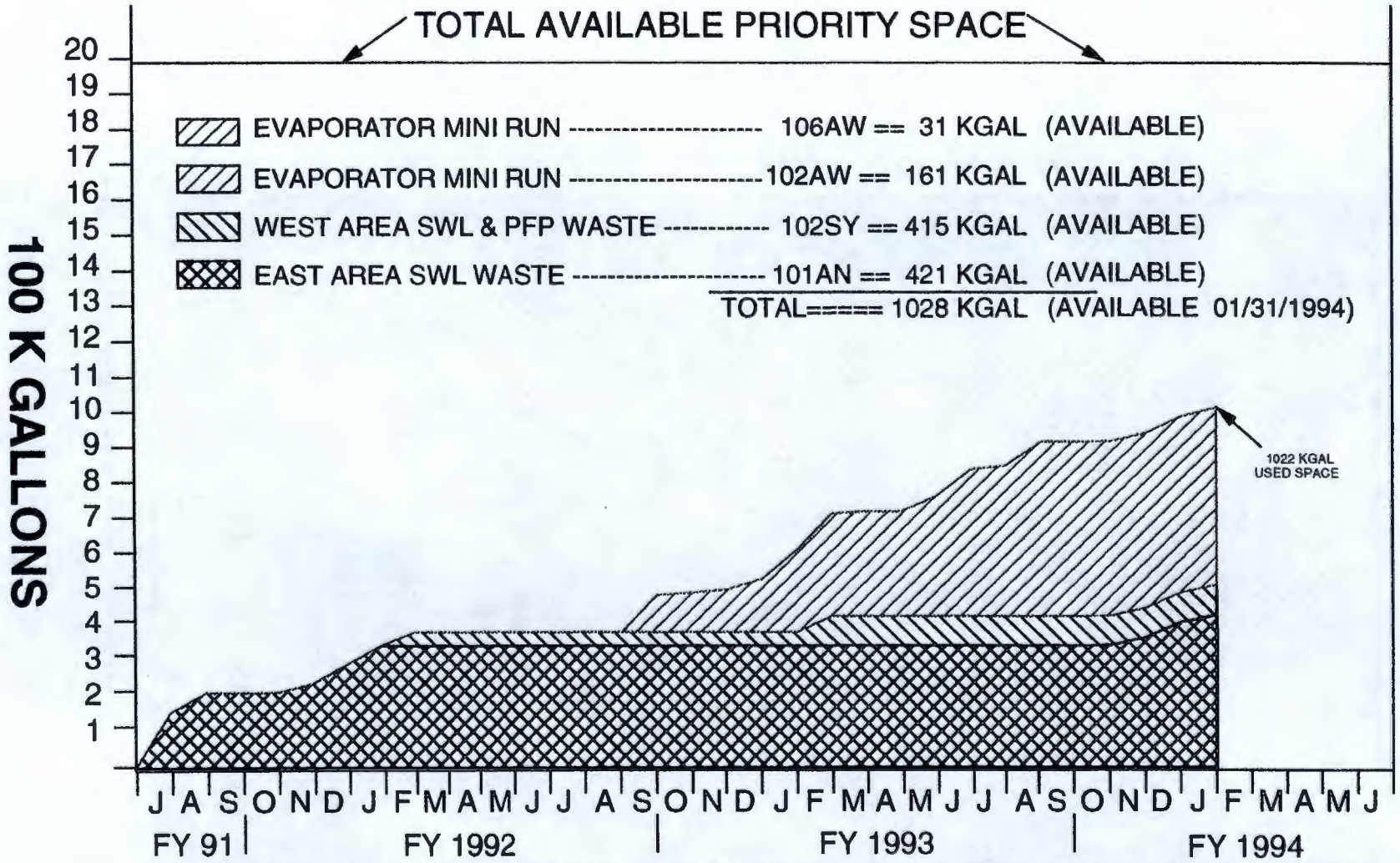

FIGURE B-3. PRIORITY SPACE AVAILABILITY AND USAGE

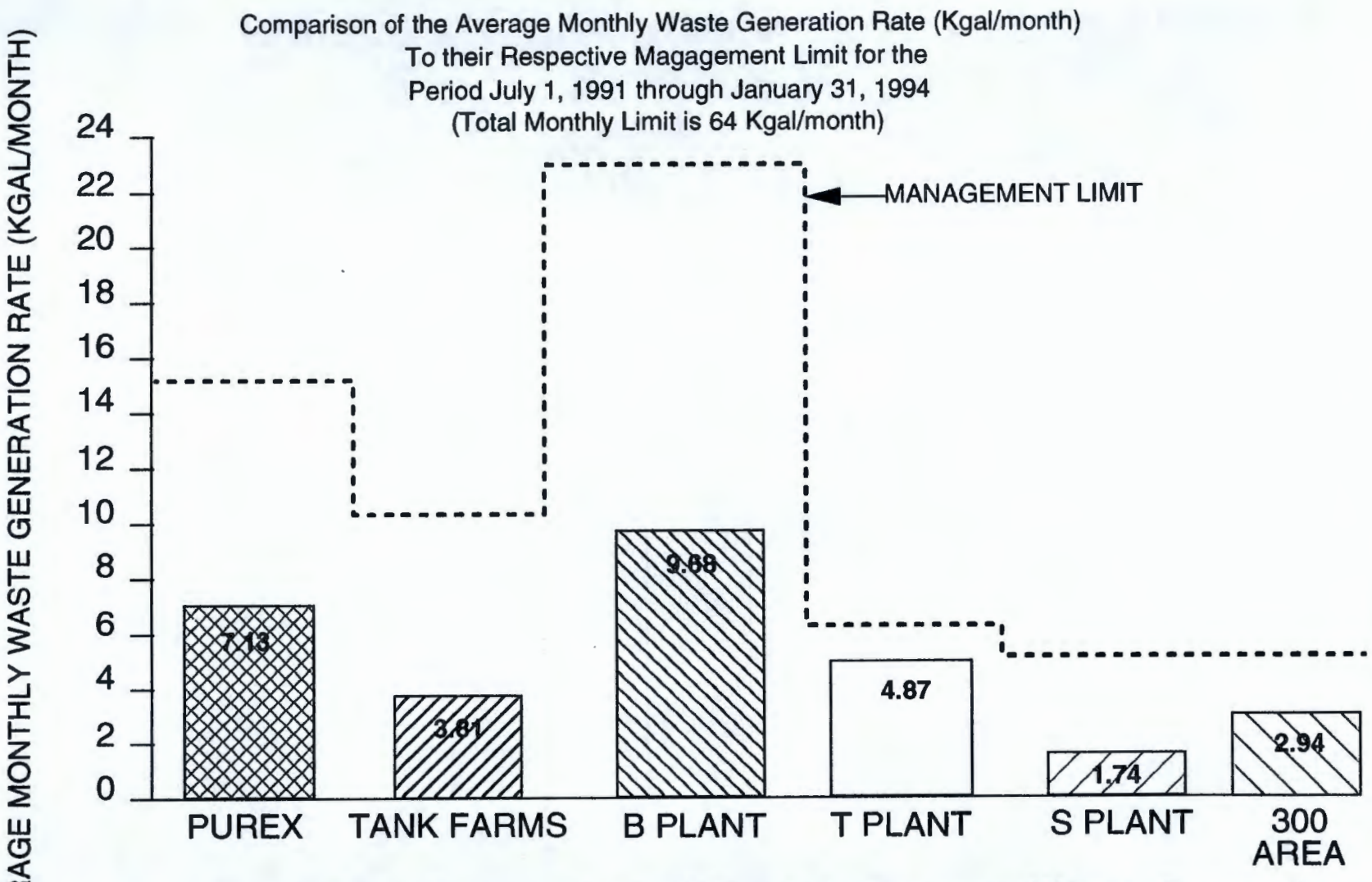

Figure B-4. Comparison of Monthly Average Waste Generation to Management Limit by Facility

WVPAVE

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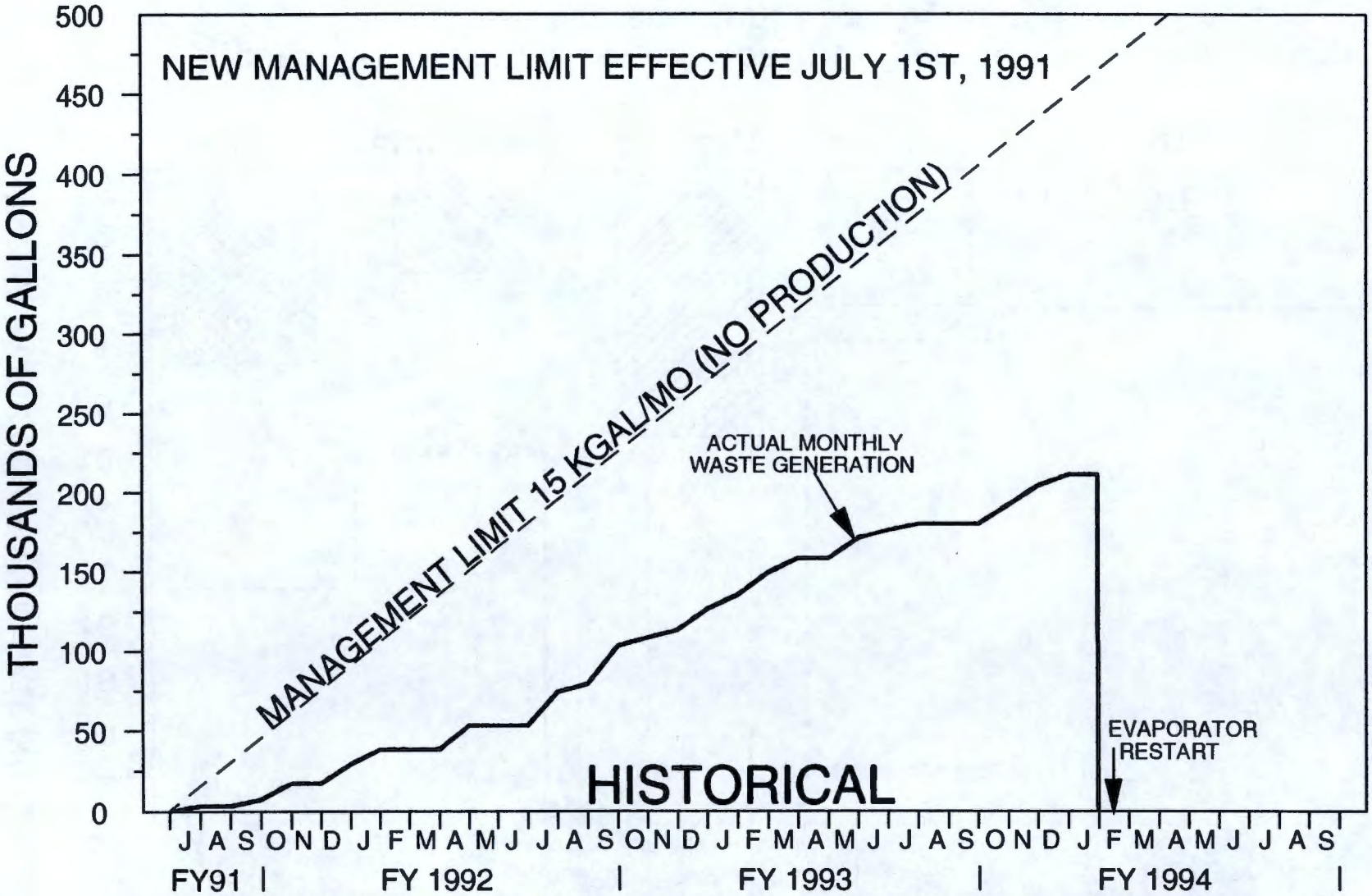

FIGURE B-5. PUREX MONTHLY WASTE GENERATIONS

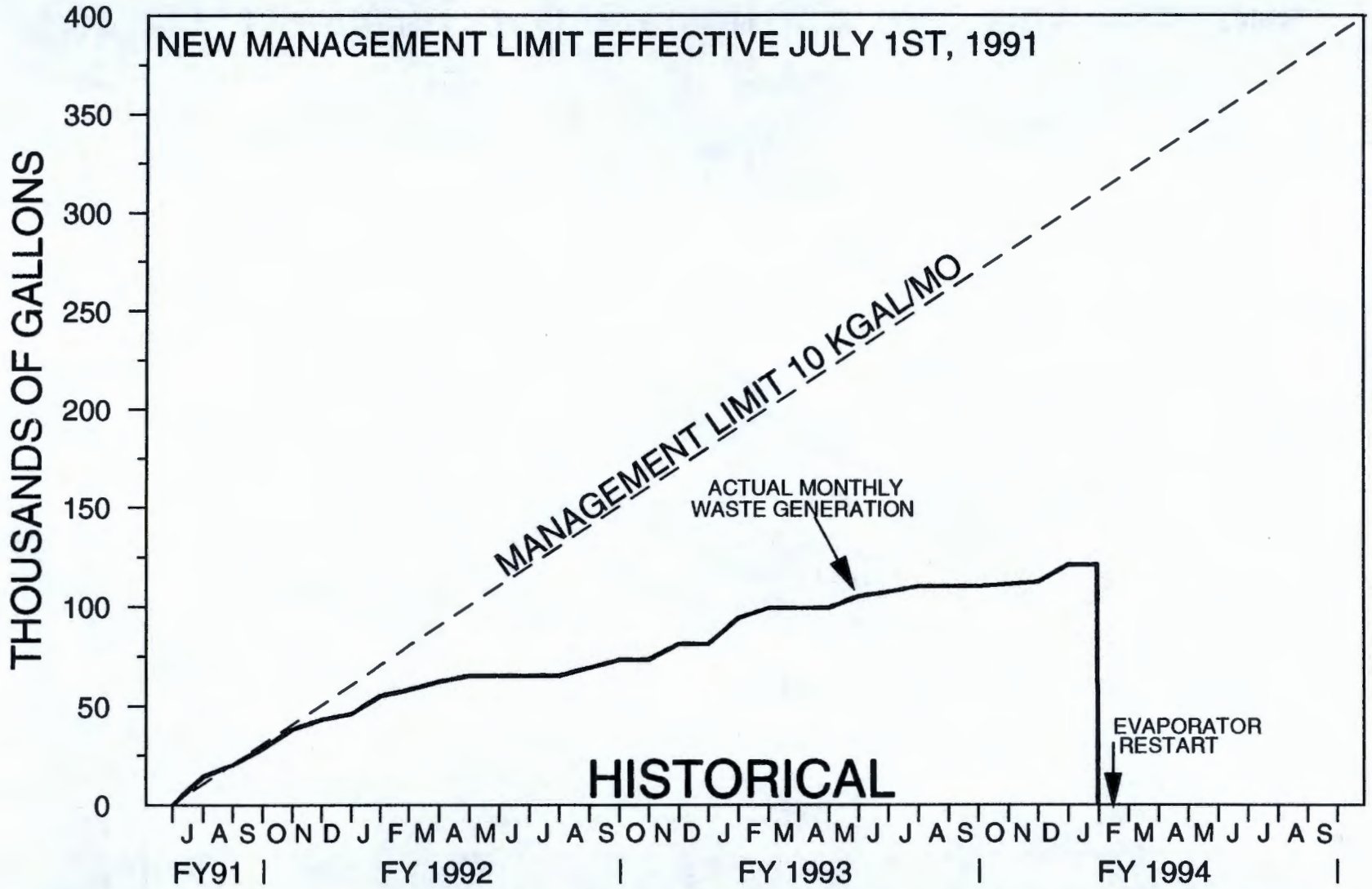

FIGURE B-6. TANK FARMS MONTHLY WASTE GENERATIONS

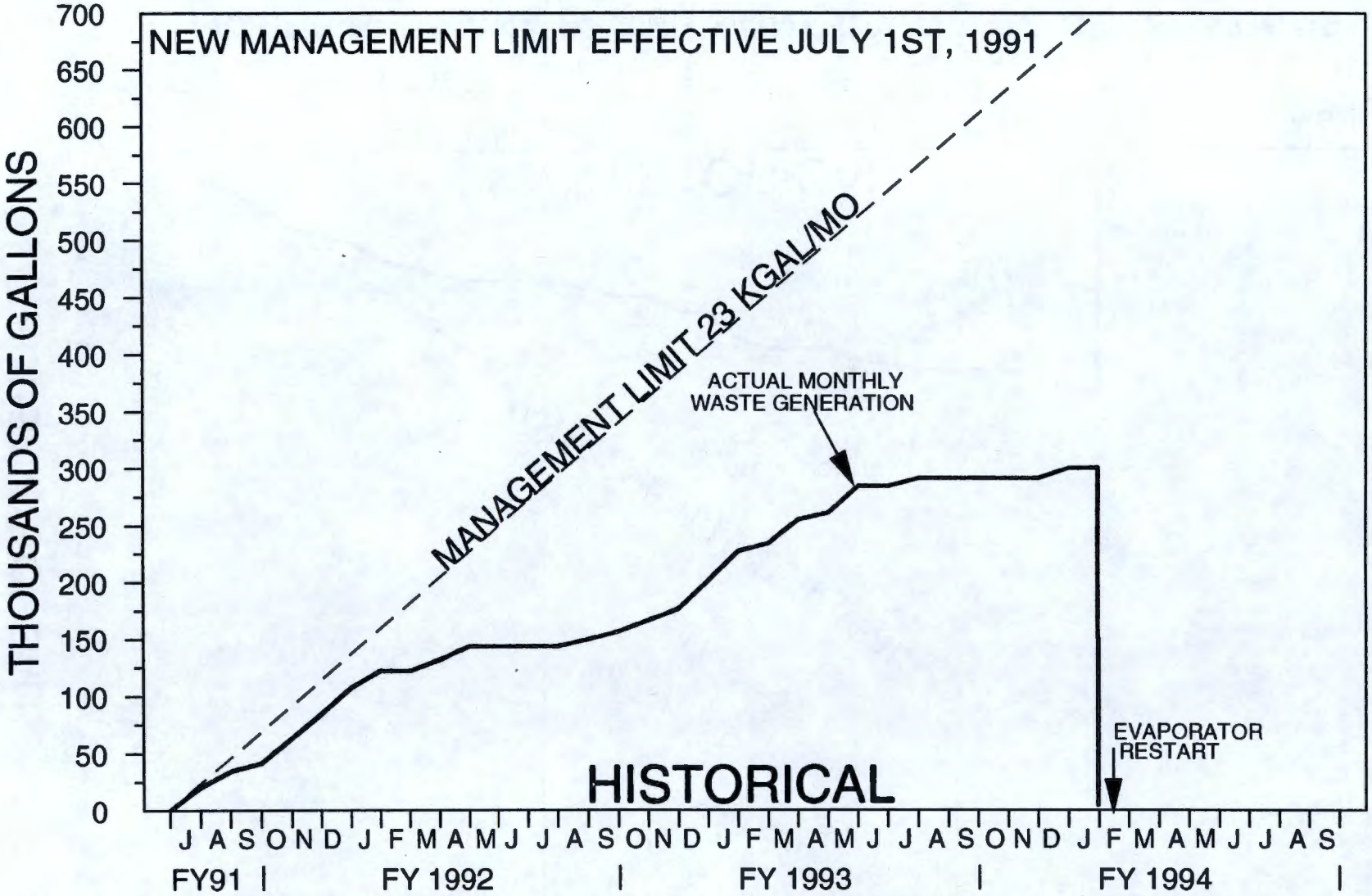

FIGURE B-7. B PLANT MONTHLY WASTE GENERATIONS

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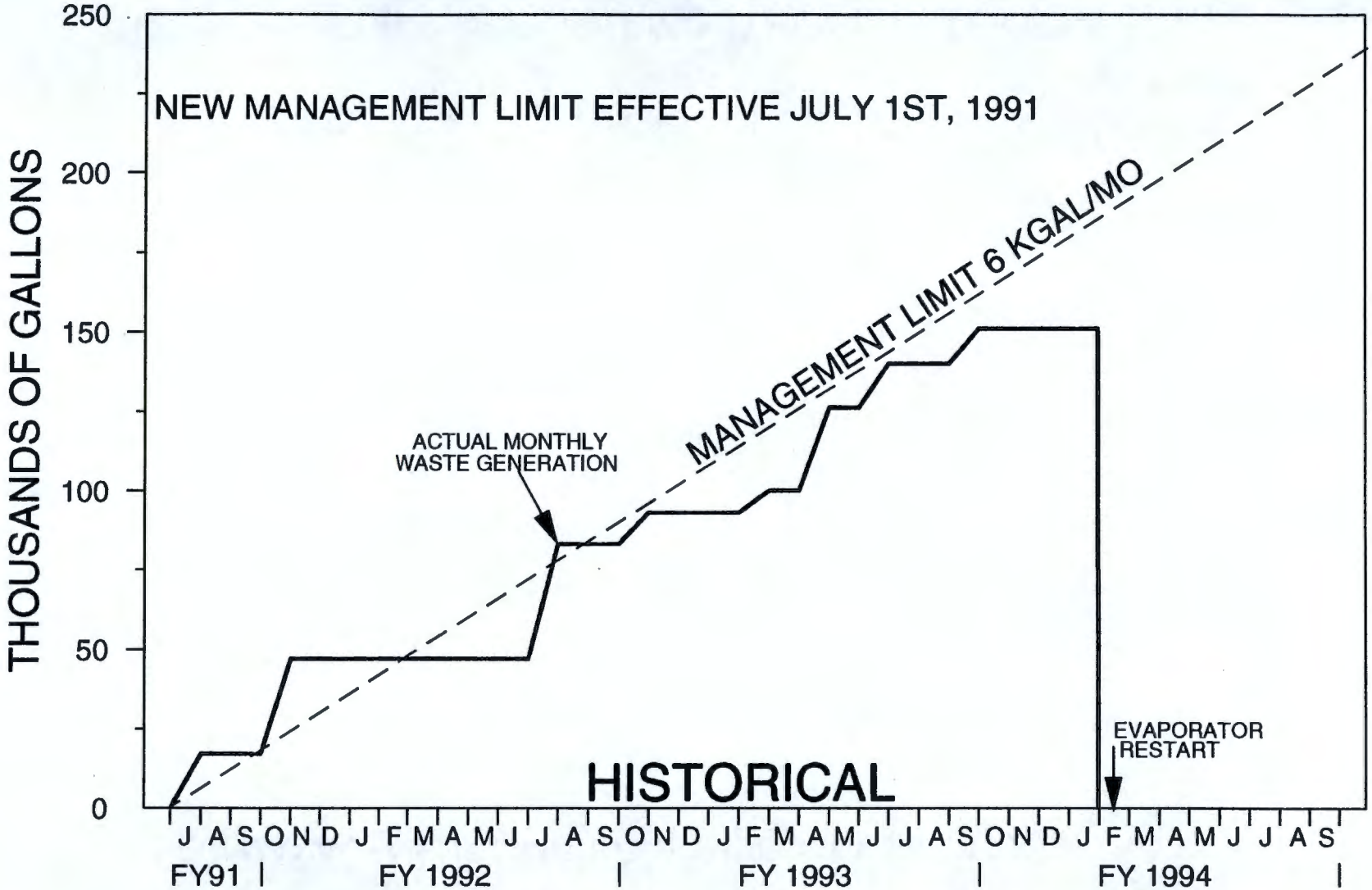

FIGURE B-8. T PLANT MONTHLY WASTE GENERATIONS

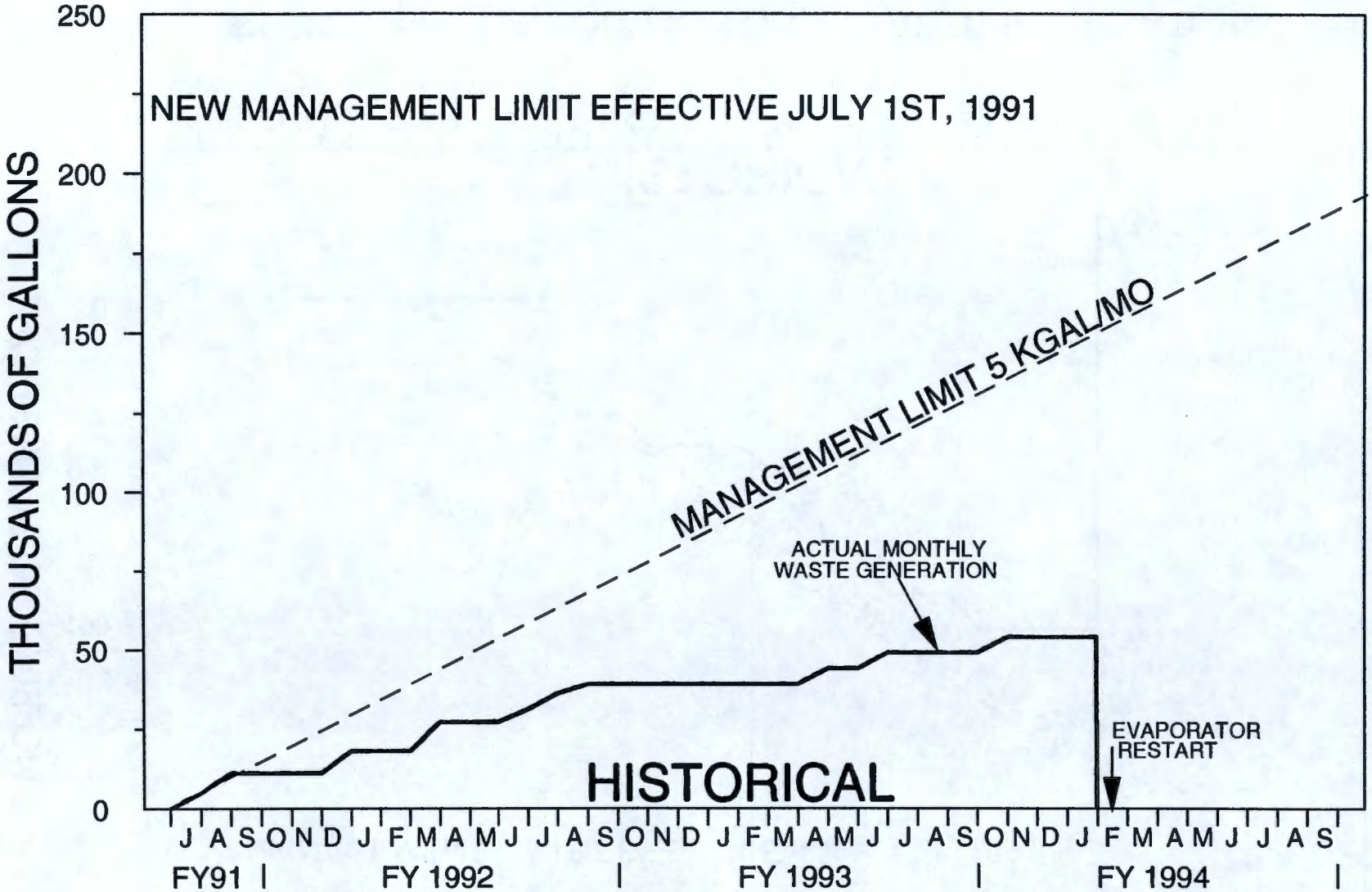

FIGURE B-9. S PLANT MONTHLY WASTE GENERATIONS

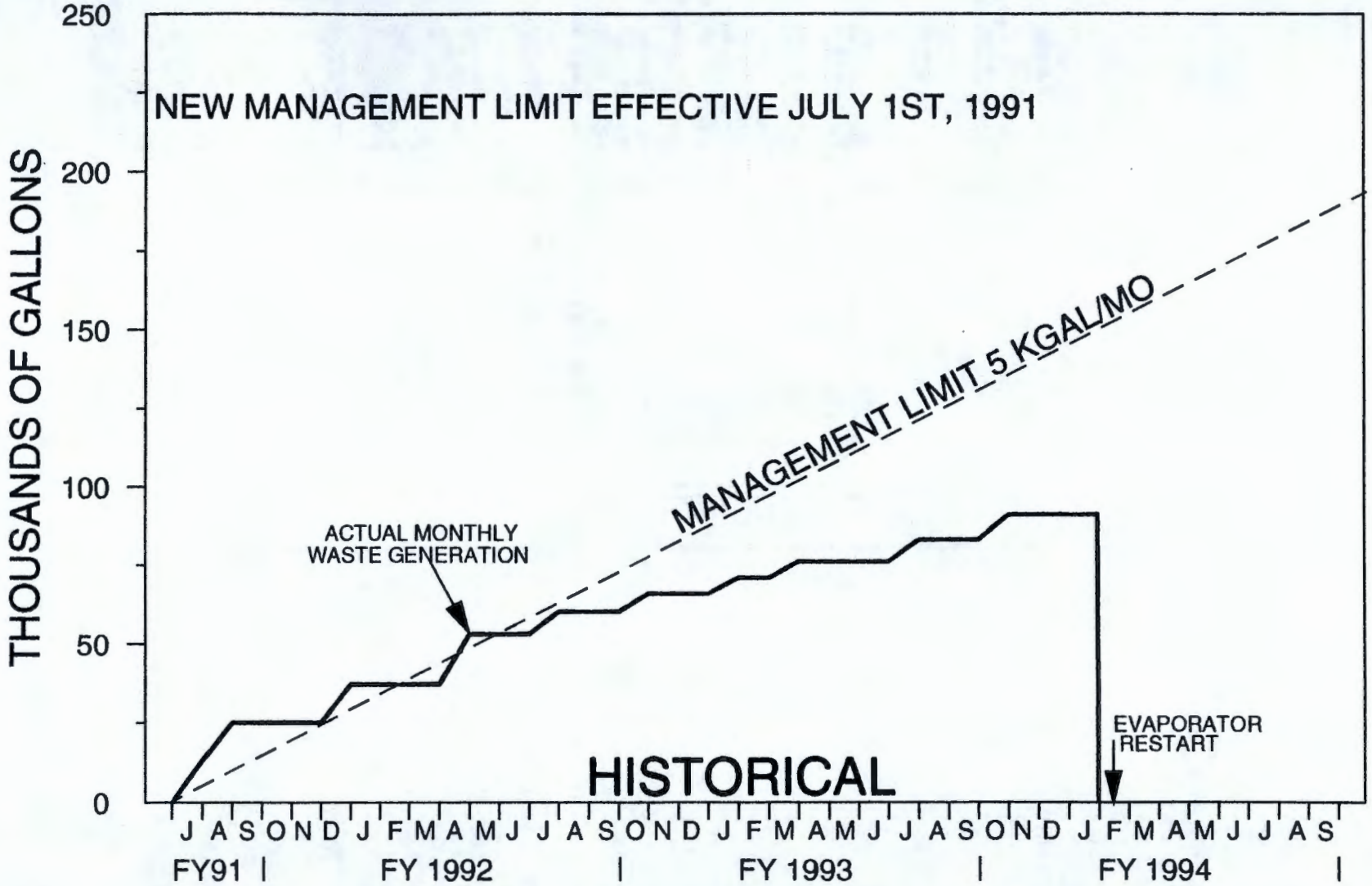

FIGURE B-10. 300 AREA MONTHLY WASTE GENERATIONS

Table B-2. Double Shell Tank Waste Inventory for January 31, 1994 (page 1 of 2)

TANKS	INVENTORY	SOLIDS	TYPE	LEFT
101AW=	1138	84	DSSF	2
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=	888	83	DC	92
102AY=	941	32	DN	39
101AZ=	949	35	NCAW	31
102AZ=	967	95	NCAW	13
101AN=	719	0	DN	421
102AN=	1092	89	CC	48
103AN=	952	373	DSS	188
104AN=	1058	264	DSSF	82
105AN=	1131	0	DSSF	9
106AN=	21	17	CP	1119
107AN=	1065	134	CC	75
101SY=	1105	560	CC	35
102SY=	725	133	PT/DN	415
103SY=	741	4	CC	399
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=	1111	0	DN	29
108AP=	898	0	DN	242
TOTAL=	25663		TOTAL	5617

SEGREGATED SPACE	
* 101AW=	2
103AW=	493
102AP=	37
105AP=	320
* 101SY=	35
* 103SY=	399
101AY=	92
102AN=	48
* 103AN=	188
* 104AN=	82
* 105AN=	9
107AN=	75
TOTAL=	1780

* WATCHLIST TANKS

PRIORITY SPACE	
102SY=	415
101AN=	421
102AW=	161
106AW=	31
TOTAL=	1028

MISC. HEADSPACE	
101AP=	80
103AP=	9
106AP=	12
107AP=	29
104AW=	17
101AZ=	31
102AZ=	13
TOTAL=	191

USABLE SPACE	
104AP=	1122
108AP=	242
105AW=	96
102AY=	39
106AN=	1119
TOTAL=	2618
SPARES	-2280
USABLE	338

TOTAL SPACE AVAILABLE	
NON-AGING	27360
AGING =	3920
TOTAL=	31280

TOTAL INVENTORY	
12/93 TOTAL	25616
01/94 TOTAL	25663
INCREASE	47

USEABLE SPACE	
12/93 TOTAL	334
01/94 TOTAL	338
INCREASE	4

PRIORITY SPACE	
12/93 TOTAL	1089
01/94 TOTAL	1028
DEPLETION	-61

Inventory Calculation by Waste Type:

COMPLEXED CONCENTRATE (CC)		
102AN=	1092	(CC)
107AN=	1065	(CC)
101SY=	1105	(CC & DSS)
103SY=	741	(CC, DSS & SWL)
101AY=	888	(DC)
TOTAL=	4891	

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

WEST AREA WASTE (DN/PD)			
102SY=	592	SOLIDS=	133
TOTAL=	592	TOTAL=	133

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

DILUTE WASTE (DN)	
101AP=	1060
103AP=	1131
106AP=	1128
107AP=	1111
108AP=	898
101AN=	719
102AW=	979
104AW=	1123
106AW=	1109
102AY=	941
104AP=	18
TOTAL=	12316

NCAW (AGING WASTE (@ 5M Na)	
101AZ=	791
102AZ=	434
TOTAL=	1225
DN=	691

DSS/DSSF	
105AP=	820
103AN=	952
104AN=	1058
105AN=	1131
101AW=	1138
TOTAL=	5099

GRAND TOTALS	
CC=	4003
DC=	888
NCRW=	875
CP=	1124
NCAW=	1225
DSS/DSS	5099
PFP=	133
DILUTE=	12316
TOTAL=	25663

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NOTE: All values are in Kilogallons.

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Table B-2. Double Shell Tank Waste Inventory for January 31, 1994 (page 2 of 2)

TOTAL AVAILABLE SPACE AS OF JANUARY 31, 1994:			**5617**	**KGALS**
SEGREGATED TANK SPACE:	TANK	WASTE TYPE	AVAILABLE SPACE	
	* 101-AW	DSSF	2	KGALS
(*)Watch List Tanks	103-AW	NCRW	493	KGALS
	102-AP	CP	37	KGALS
	105-AP	DSSF	320	KGALS
	* 101-SY	CC/DSS	35	KGALS
	* 103-SY	CC/DSS	399	KGALS
	101-AY	DC	92	KGALS
	102-AN	CC	48	KGALS
	* 103-AN	DSS	188	KGALS
	* 104-AN	DSSF	82	KGALS
	* 105-AN	DSSF	9	KGALS
	107-AN	CC	75	KGALS
		TOTAL=	**1780**	**KGALS**
		AVAILABLE TANK SPACE=	5617	KGALS
		MINUS SEGREGATED SPACE=	-1780	KGALS
TOTAL AVAILABLE SPACE AFTER SEGREGATION=			**3837**	**KGALS**
PRIORITY TANK SPACE:	TANK	WASTE TYPE	AVAILABLE SPACE	
SWL/PFP	102-SY	DN	415	KGALS
NON-COMPLEXED SWL RECEIVER	101-AN	DN	421	KGALS
EVAPORATOR START-UP	102-AW	DN	161	KGALS
EVAPORATOR START-UP	106-AW	DN	31	KGALS
		TOTAL=	**1028**	**KGALS**
		AVAILABLE SPACE AFTER SEGREGATION=	3837	KGALS
		MINUS PRIORITY SPACE=	-1028	KGALS
TOTAL AVAILABLE SPACE AFTER PRIORITY=			**2809**	**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	29	KGALS
	104-AW	DN	17	KGALS
	101-AZ	AW	31	KGALS
	102-AZ	AW	13	KGALS
		TOTAL=	**191**	**KGALS**
		AVAILABLE SPACE AFTER PRIORITY=	2809	KGALS
		MINUS MISCELLANEOUS HEADSPACE=	-191	KGALS
TOTAL AVAILABLE SPACE AFTER HEADSPACE=			**2618**	**KGALS**
REALISTIC USABLE TANK SPACE:	TANK	WASTE TYPE	AVAILABLE SPACE	
	104-AP	DN	1122	KGALS
	108-AP	DN	242	KGALS
	105-AW	DN	96	KGALS
	102-AY	NCRW	39	KGALS
	106-AN	CP	1119	KGALS
		TOTAL=	**2618**	**KGALS**
		TOTAL AVAILABLE SPACE AFTER UNUSABLE DEPLETION=	2618	KGALS
		MINUS SPARE TANK SPACE=	-2280	KGALS
TOTAL TANK SPACE AVAILABLE AFTER SPARE SPACE=			**338**	**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
January 31, 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 *National Defense Authorization Act for Fiscal Year 1991*, November 5, 1990, Public Law 101-510, (also known as the Wyden Amendment).

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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 $[Fe(CN)_6]^{-4}$.

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, *Single-Shell Tank Isolation Safety Analysis Report*, March 1986.

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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 new 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 not 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).

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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,

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*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.

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

COLUMN HEADING	VOLUME CALCULATIONS/DEFINITIONS
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	Drainable Liquid Remaining minus Supernate. 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.
Pumped This Month	Net total gallons of liquid pumped from the tank during the month. If supernate is present, pump production is first subtracted from the supernatant volume. The remainder is

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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).

Total Pumped	Cumulative net total gallons of liquid pumped 1979 to date.
Drainable Liquid Remaining	Supernate plus Drainable Interstitial. (See Supernate and Drainable Interstitial Liquid above for definitions) The total Drainable Liquid Remaining is the sum of drainable interstitial liquid and supernate minus total gallons pumped.
Pumpable Liquid Remaining	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) 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.
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.

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APPENDIX D

TANK FARM CONFIGURATION, STATUS, AND FACILITY CHARTS

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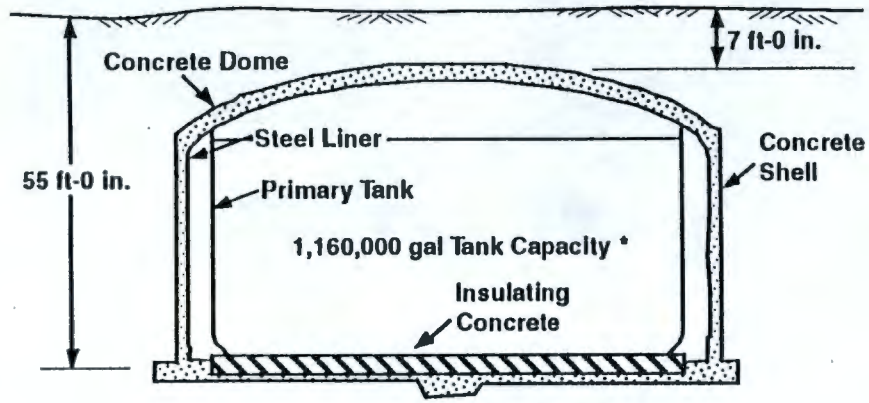
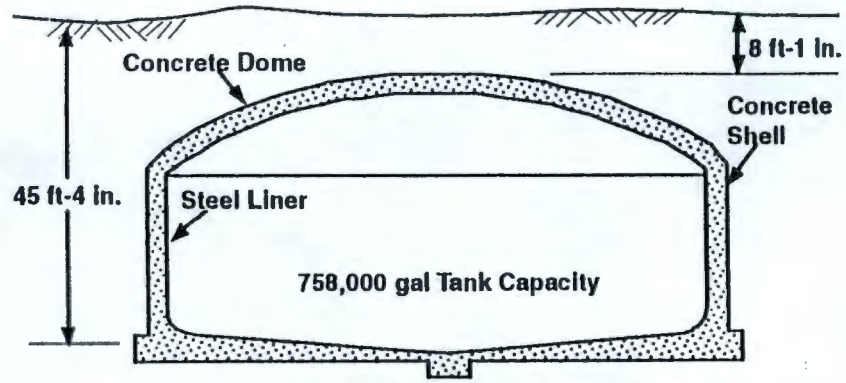
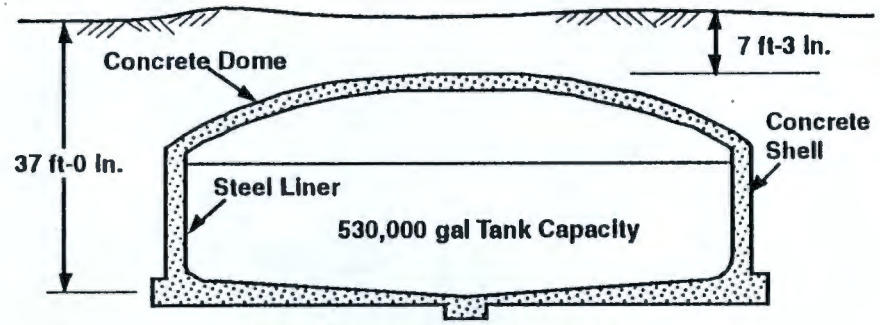


75 ft Diameter Double-Shell Tank
Tank Farms: AN, AP, AW, AY, AZ, SY

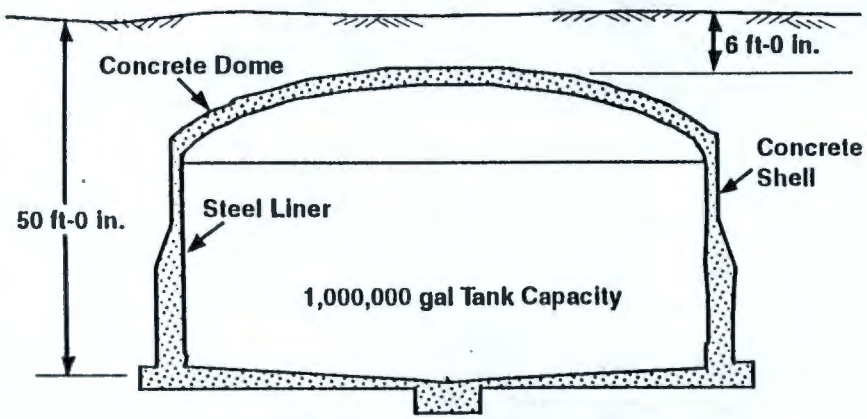
* AY and AZ Have a Tank Capacity of 1,000,000 gal



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

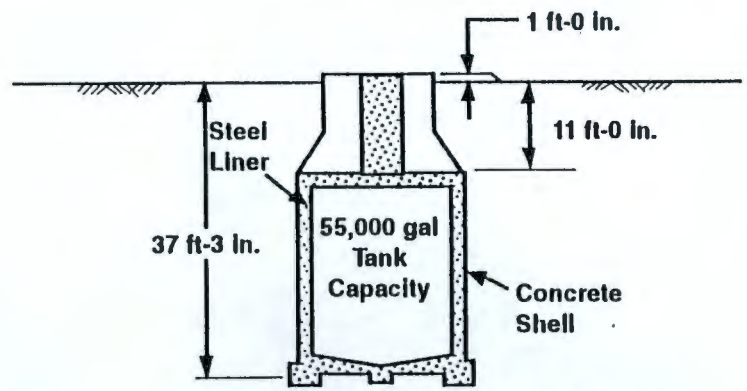


75 ft Diameter Single-Shell Tank
Tank Farms: B, BX, C, T, U



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

* A and AX have flat bottoms



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

Figure D-1. High-Level Waste Tank Configuration

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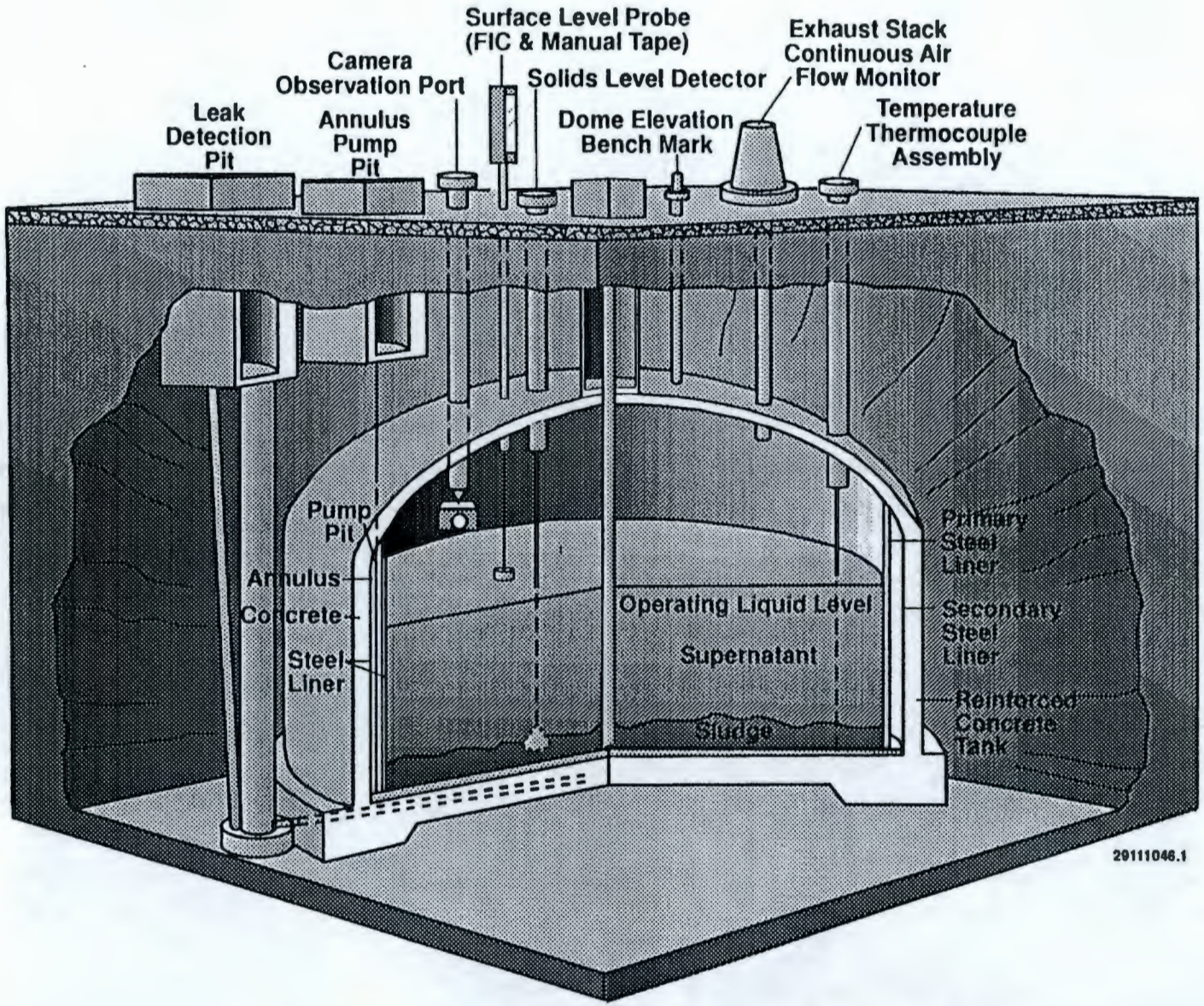

Figure D-2. Double-Shell Tank Instrumentation Configuration

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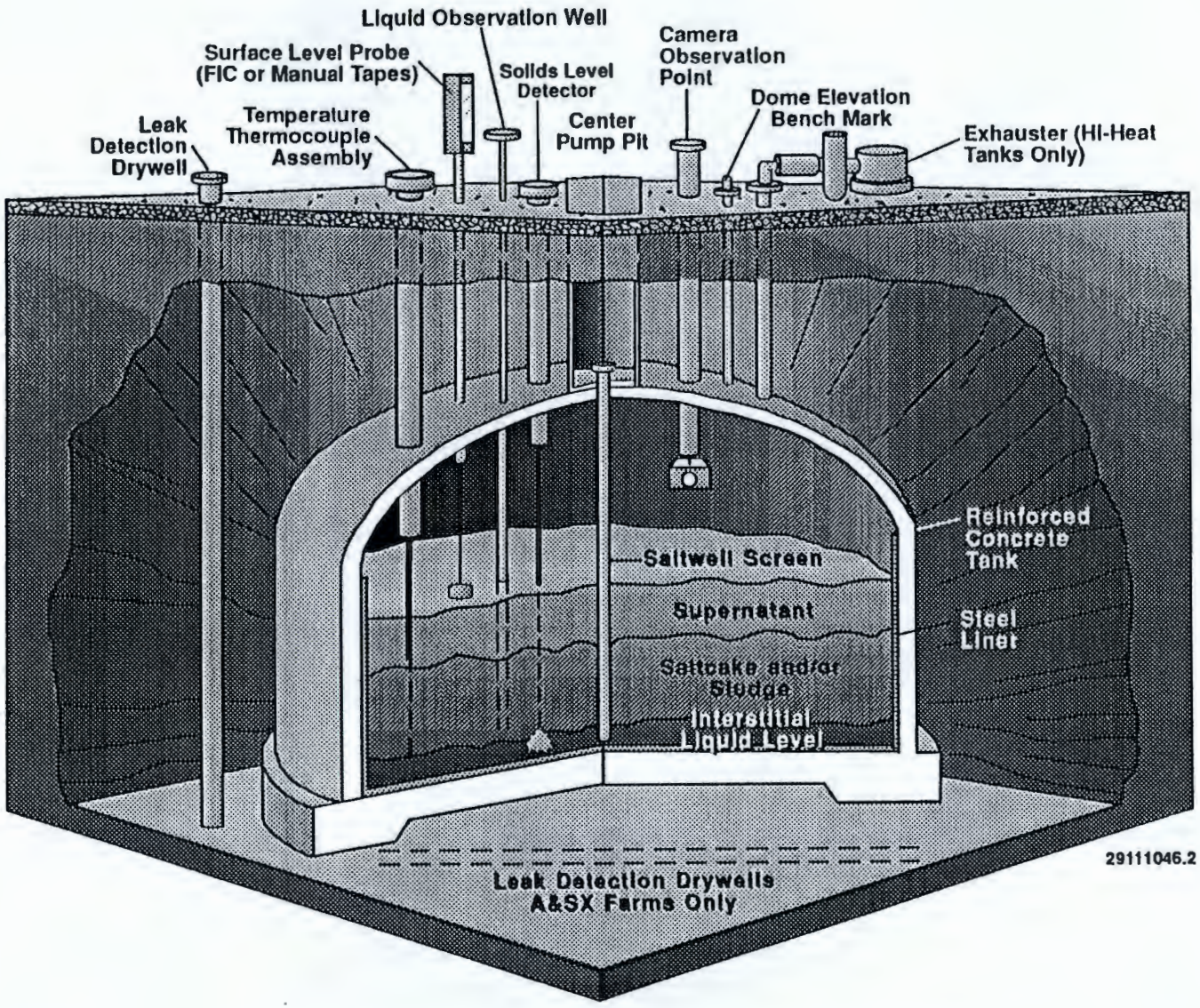

Figure D-3. Single-Shell Tank Instrumentation Configuration

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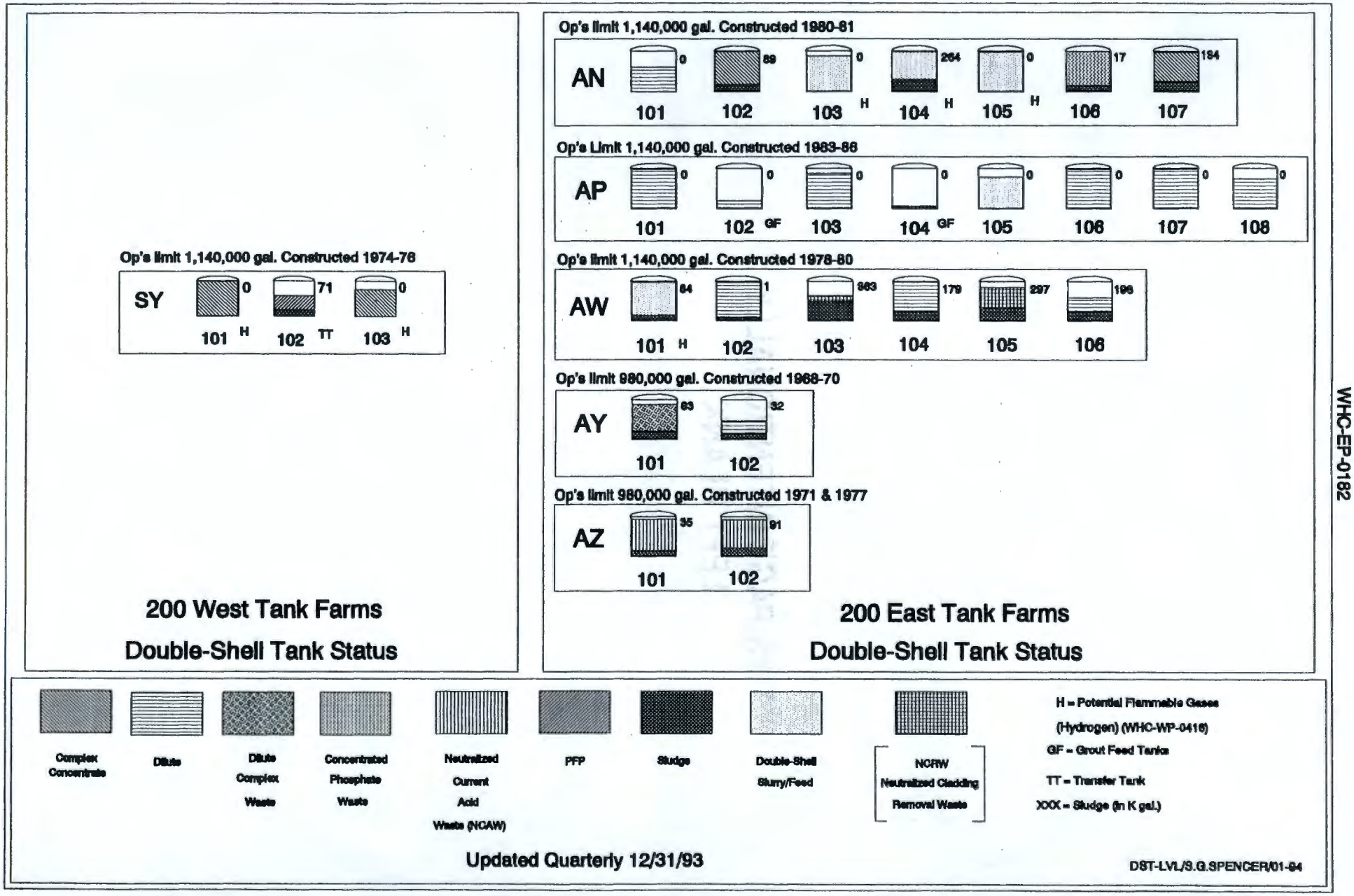

Figure D-4. Double-Shell Tank Status

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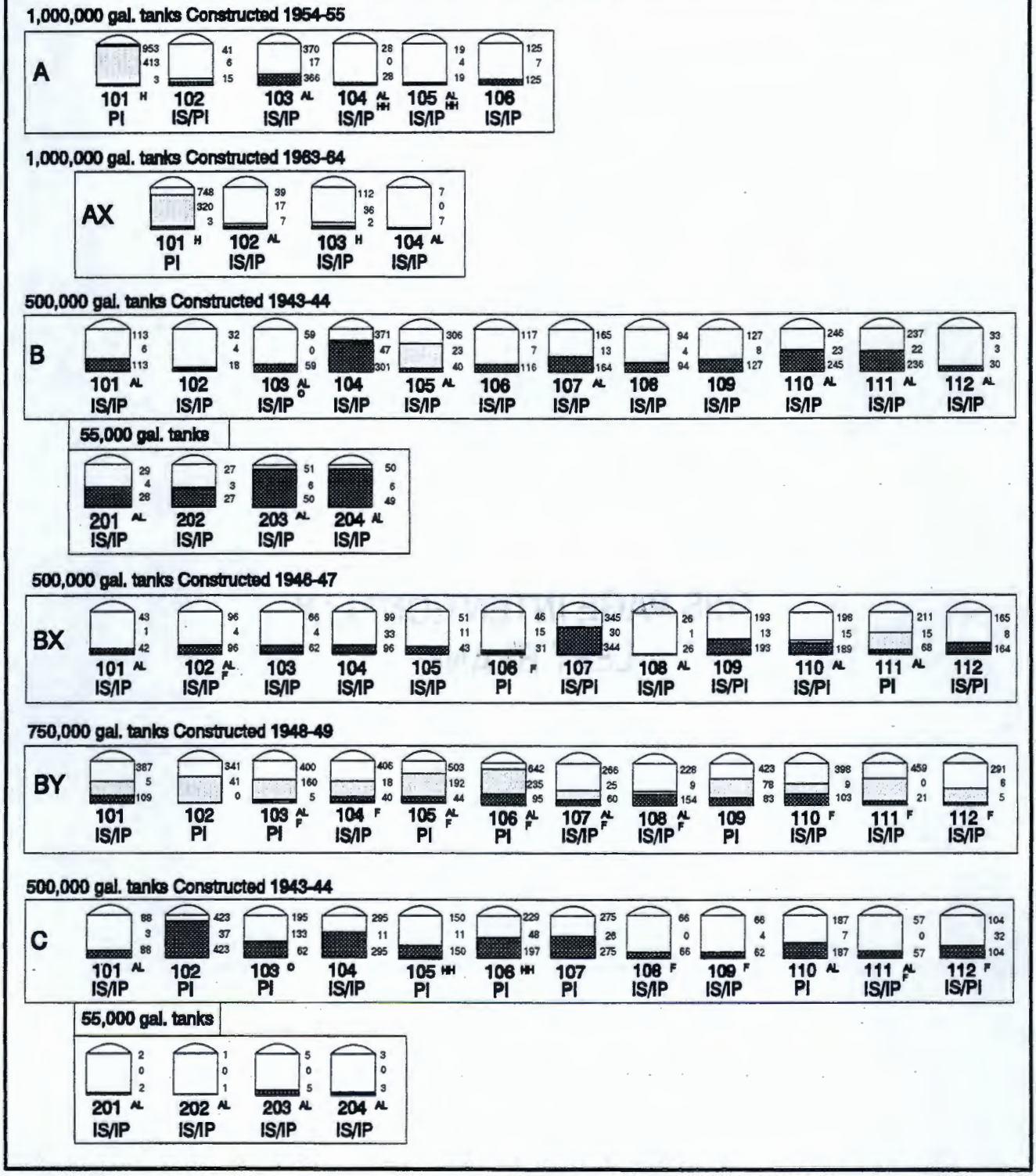

Figure D-5. 200E Single-Shell Tank Status

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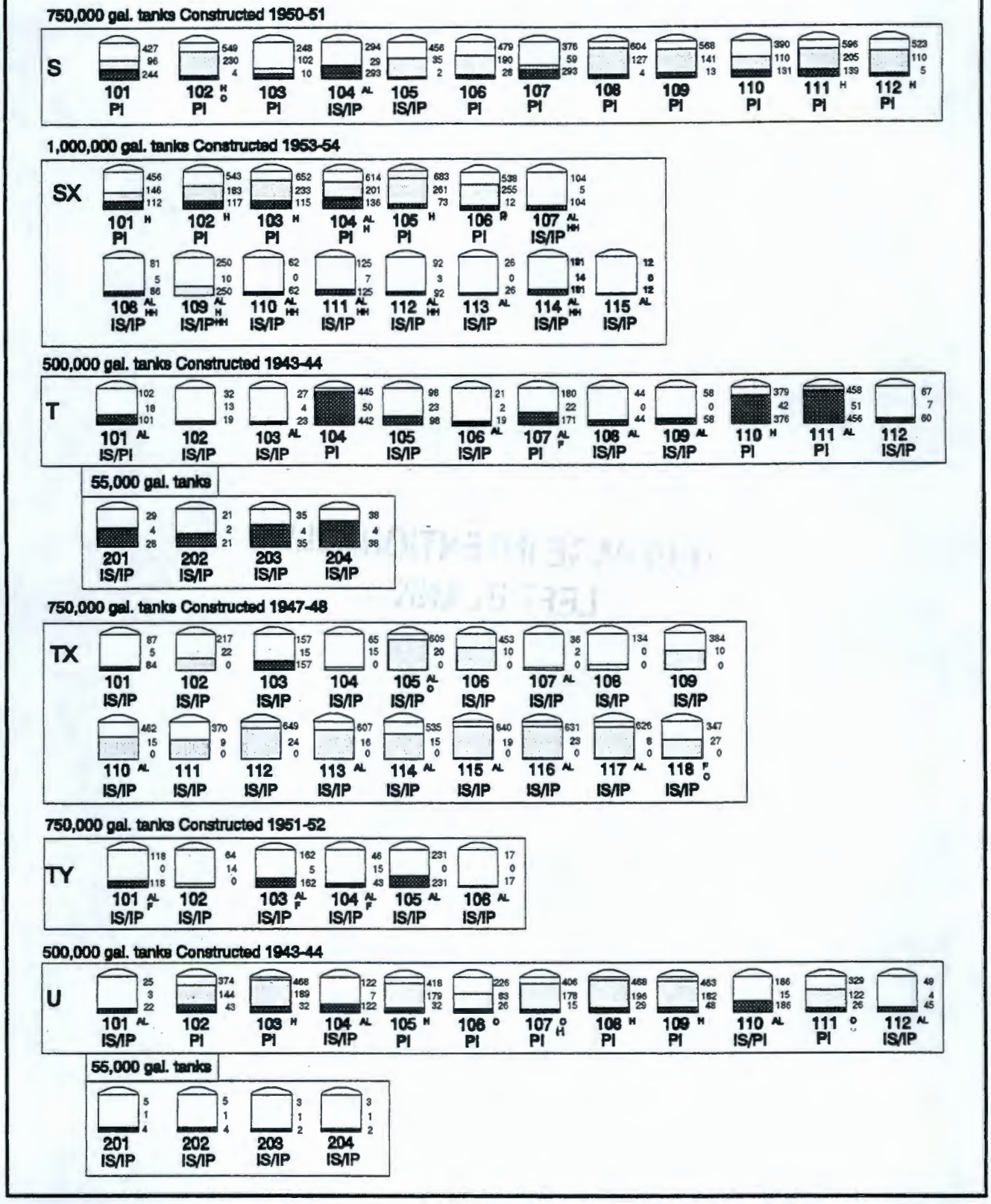

Fig. D-6. 200W Single-Shell Tank Status

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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.)

Single-Shell

Double-Shell

IS — Interim Stabilized

IP — Isolated

Sound

DCRT = Double Contained Receiver Tank
NHW = Neutralized High Level Waste
PAW = PUREX Acid Waste

PI= Partial Interim
IP= Intrusion Prevention Completed

Tank Number

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

Radiation Monitoring Laterals Under Tank (X = not used)

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

Drainable Liquid Remaining (1000 gal) (Inactive Tanks)

Operating Exhauster

Watch List and High Heat Load Tanks

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

Airlift Circulators (107-AN and 102-AW are inoperative)

Liquid Observation Well (Low)

Screen – Jet Pump

Assumed Leaker

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)

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

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

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

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

244-BX DCRT
ER-152
ER-151
ER-153
CR Vault
244-A DCRT
WESF
B-Plant
AX-155
Valve Pits
AR-151
204 AR
AR Vault

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

AZ-Tank Farm
1971-77
(Aging Waste Tanks)
2 @ 1,000,000 gal

AY-Tank Farm
1968-70
(Aging Waste Tanks) 2 @ 1,000,000 gal

AX-Tank Farm
1963-64
4 @ 1,000,000 gal

AX-152
Valve Pits

A-Tank Farm
1954-55
6 @ 1,000,000 gal

Valve Pits
242-A Evaporator
Valve Pits
PUREX
A-151

Grout Equip
Vault Field

AW-Tank Farm
1978-80
6 @ 1,160,000 gal

AP-Tank Farm
1983-86
8 @ 1,160,000 gal

Status as of January 31, 1994 - Updated Monthly
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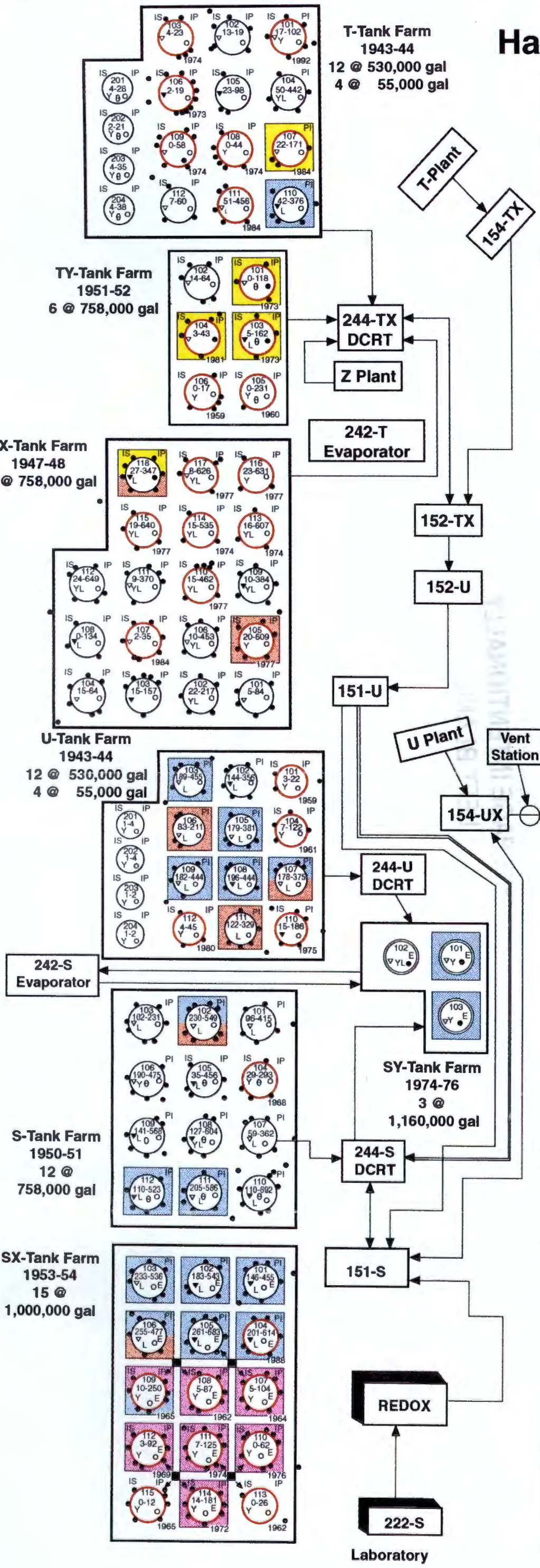
Hanford Tank Farm Facilities

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.)

Single-Shell

Double-Shell

IS

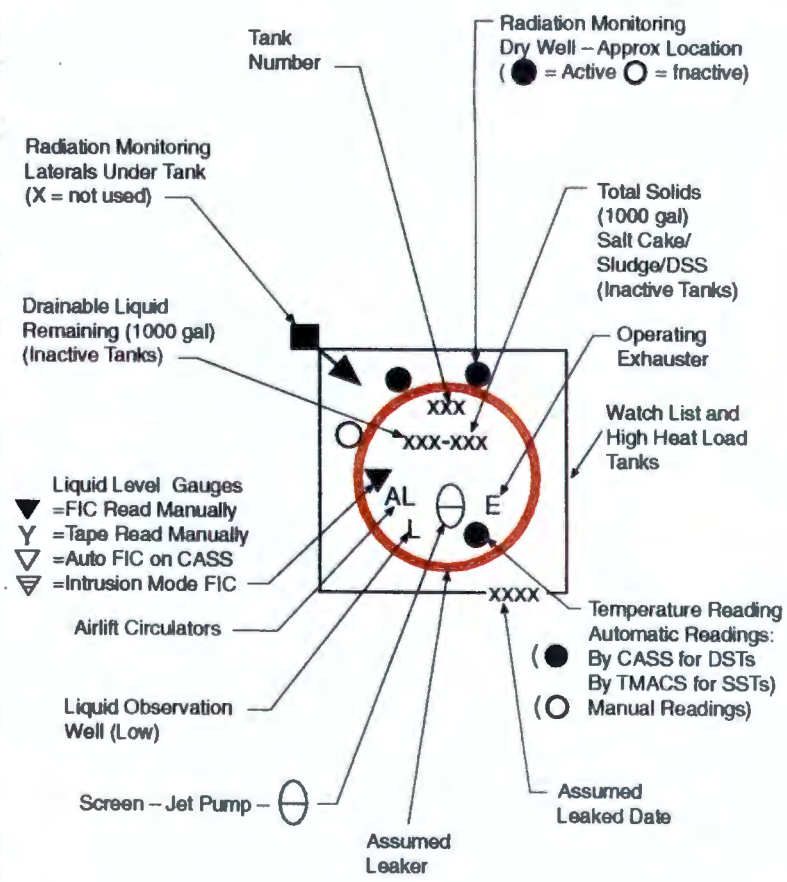
IP

Interim Stabilized

Isolated
PI= Partial Interim
IP= Intrusion Prevention Completed

Sound

DCRT = Double Contained Receiver Tank
NHW = Neutralized High Level Waste
PAW = PUREX Acid Waste



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 January 31, 1994 - Updated Monthly
Issued by WHC/WTPE

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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

January, 1994

	200 EAST AREA	200 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 EAST AREA	200 WEST AREA	TOTAL	SST TANKS	DST TANKS	TOTAL
SUPERNATANT							
AGING	Aging waste	1786	0	1786	0	1786	1786
CC	Complexant concentrate waste	1937	179	2116	3	2113	2116
CP	Concentrated phosphate waste	4	0	4	0	4	4
DC	Dilute complexed waste	805	1	806	1	805	806
DN	Dilute non-complexed waste	10701	0	10701	0	10701	10701
DN/PD	Dilute non-complex/PUREX TRU solids	1031	0	1031	0	1031	1031
DN/PT	Dilute non-complex/PFP TRU solids	0	654	654	0	654	654
DSSF	Double-shell slurry feed	3823	48	3871	57	3814	3871
NCPLX	Non-complexed waste	214	293	507	507	0	507
TOTAL SUPERNATANT		20301	1175	21476	568	20908	21476
SOLIDS							
Double-shell slurry		937	1103	2040	0	2040	2040
Sludge		8206	5930	14136	12181	1955	14136
Saltcake		6577	17529	24106	23346	760	24106
TOTAL SOLIDS		15720	24562	40282	35527	4755	40282
TOTAL WASTE		36021	25737	61758	36095	25663	61758
AVAILABLE SPACE IN TANKS		4827	837	5664	0	5664 (2)	5664
DRAINABLE INTERSTITIAL		2220	4492	6712	6273	439	6712
DRAINABLE LIQUID REMAINING		22522	5667	28189	6842	21347	28189

(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

January 31, 1994

TANK FARMS	IN SERVICE	OUT OF SERVICE	SOUND	ASSUMED LEAKER	ISOLATED TANKS PARTIAL INTERIM	ISOLATED TANKS 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	83	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

WASTE VOLUMES (Kgallons)

January 31, 1994

TANK FARM	TOTAL WASTE	AVAIL SPACE	SUPERNATANT LIQUID VOLUMES AGING	CC	CP	DC	DN	DN/PD	DN/PT	DSSF	NCPLX	TOTAL	SOLIDS VOLUME DSS	SLUDGE	SALT CAKE	TOTAL
EAST																
A	1537	0	0	0	0	0	0	0	0	9	0	9	0	556	972	1528
AN	6038	1942	0	1934	4	0	719	0	0	1940	0	4597	937	504	0	1441
AP	7269	1851	0	0	0	0	6449	0	0	820	0	7269	0	0	0	0
AW	6040	800	0	0	0	0	2624	1031	0	1054	0	4709	0	1135	196	1331
AX	906	0	0	3	0	0	0	0	0	0	0	3	0	19	884	903
AY	1829	131	0	0	0	805	909	0	0	0	0	1714	0	115	0	115
AZ	1916	44	1786	0	0	0	0	0	0	0	0	1786	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	36021	4768	1786	1937	4	805	10701	1031	0	3823	214	20301	937	8206	6577	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	2571	849	0	179	0	0	0	0	654	0	0	833	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	25737	849	0	179	0	1	0	0	654	48	293	1175	1103	5930	17529	24562
TOTAL	61758	5617	1786	2116	4	806	10701	1031	654	3871	507	21476	2040	14136	24106	40282

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

TABLE E-4. INVENTORY AND STATUS BY TANK
DOUBLE-SHELL TANKS
January 31, 1994

TANK STATUS				LIQUID VOLUME							SOLIDS VOLUME			VOLUME DETERMINATION				
TANK	WASTE MATL	TANK INTEGRTY	TANK USE	EQUIVA-LENT WASTE INCHES	TOTAL WASTE (Kgal)	AVAIL SPACE (Kgal)	SUPER-NATANT LIQUID (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	DRAIN-ABLE LIQUID REMAIN (Kgal)	PUMP-ABLE LIQUID REMAIN (Kgal)	DSS SLUDGE (Kgallons)	SALT CAKE	LIQUID VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST PHOTO DATE	SEE FOOTNOTES FOR THESE CHANGES
								AN TANK FARM STATUS									
AN-101	DN	SOUND	DRCVR	261.5	719	421	719	0	719	719	0	0	0	FM	S	08/22/89	0/ 0/ 0	
AN-102	CC	SOUND	CWHT	397.1	1092	48	1003	3	1006	1003	0	89	0	FM	S	08/22/89	0/ 0/ 0	
AN-103	DSS	SOUND	CWHT	346.2	952	188	15	0	15	15	937	0	0	FM	S	08/22/89	10/29/87	
AN-104	DSSF	SOUND	CWHT	384.7	1058	82	794	25	819	797	0	264	0	FM	S	08/22/89	08/19/88	
AN-105	DSSF	SOUND	CWHT	411.3	1131	9	1131	0	1131	1131	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	387.3	1065	75	931	9	940	931	0	134	0	FM	S	08/22/89	09/01/88	
7 DOUBLE-SHELL TANKS				TOTALS:	6038	1942	4597	37	4634	4600	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	DN	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	404.0	1111	29	1111	0	1111	1111	0	0	0	FM	S	10/13/88	0/ 0/ 0	
AP-108	DN	SOUND	DRCVR	326.5	898	242	898	0	898	898	0	0	0	FM	S	10/13/88	0/ 0/ 0	
8 DOUBLE-SHELL TANKS				TOTALS:	7269	1851	7269	0	7269	7269	0	0	0					

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TABLE E-4. INVENTORY AND STATUS BY TANK
DOUBLE-SHELL TANKS
January 31, 1994

TANK STATUS				LIQUID VOLUME							SOLIDS VOLUME			VOLUME DETERMINATION				
TANK	WASTE MATL	TANK INTEGRTY	TANK USE	EQUIVA-LENT WASTE INCHES	TOTAL WASTE (Kgal)	AVAIL SPACE (Kgal)	SUPER-NATANT LIQUID (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	DRAIN-ABLE LIQUID REMAIN (Kgal)	PUMP-ABLE LIQUID REMAIN (Kgal)	DSS SLUDGE (Kgallons)	SALT CAKE	LIQUID VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST PHOTO DATE	SEE FOOTNOTES FOR THESE CHANGES
								AW TANK FARM STATUS									
AW-101	DSSF	SOUND	CWHT	413.8	1138	2	1054	2	1056	1054	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:	6040	800	4709	159	4868	4778	0	1135	196					
								AY TANK FARM STATUS									
AY-101	DC	SOUND	DRCVR	322.9	888	92	805	2	807	805	0	83	0	FM	S	02/02/87	12/28/82	
AY-102	DN	SOUND	DRCVR	342.2	941	39	909	0	909	909	0	32	0	FM	S	02/10/88	04/28/81	
2 DOUBLE-SHELL TANKS				TOTALS:	1829	131	1714	2	1716	1714	0	115	0					
								AZ TANK FARM STATUS									
AZ-101	AGING	SOUND	CWHT	345.1	949	31	914	0	914	914	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:	1916	44	1786	4	1790	1786	0	130	0					

TABLE E-4. INVENTORY AND STATUS BY TANK
DOUBLE-SHELL TANKS
January 31, 1994

TANK STATUS				LIQUID VOLUME							SOLIDS VOLUME			VOLUME DETERMINATION				
TANK	WASTE MATL	TANK INTEGRTY	TANK USE	EQUIVALENT WASTE INCHES	TOTAL WASTE (Kgal)	AVAIL SPACE (Kgal)	SUPERNATANT LIQUID (Kgal)	DRAINABLE INTERSTIT. (Kgal)	DRAINABLE LIQUID REMAIN (Kgal)	PUMPABLE LIQUID REMAIN (Kgal)	DSS SLUDGE (Kgallons)	SALT CAKE	LIQUID VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST PHOTO DATE	SEE FOOTNOTES FOR THESE CHANGES
							SY TANK FARM STATUS										
SY-101	CC	SOUND	CWHT	401.8	1105	35	15	237	252	246	530	0	560	FM	S	01/31/92	04/12/89	
SY-102	DN/PT	SOUND	DRCVR	263.6	725	415	654	0	654	654	0	71	0	FM	S	05/12/87	04/29/81	
SY-103	CC	SOUND	CWHT	269.5	741	399	164	0	164	164	573	0	4	FM	S	10/22/84	10/01/85	
3 DOUBLE-SHELL TANKS				TOTALS:	2571	849	833	237	1070	1064	1103	71	564					
GRAND TOTAL					25663	5617	20908	439	21347	21211	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* Operating Limit	Document SD-WM-TI-357* Tank Capacity	OSD-T-151-00007** Specification Limit
AN, AP, AW, 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, AW, AY, AZ, & SY Tank Farms."

TABLE E-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
January 31, 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 SOURCE SEE FOOTNOTE	LAST PHOTO DATE	SEE FOOTNOTES FOR THESE CHANGES
						++++++ 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
January 31, 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 SOURCE SEE FOOTNOTE	LAST PHOTO DATE	SEE FOOTNOTES FOR THESE CHANGES
						++++++ 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						

TABLE E-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
January 31, 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 SOURCE SEE FOOTNOTE	LAST PHOTO DATE	SEE FOOTNOTES FOR THESE 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	

TABLE E-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
January 31, 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 SOURCE SEE FOOTNOTE	LAST PHOTO DATE	SEE FOOTNOTES FOR THESE CHANGES
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	04/28/82		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	

TABLE E-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
January 31, 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 SOURCE SEE FOOTNOTE	LAST PHOTO DATE	SEE FOOTNOTES FOR THESE CHANGES
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						

TABLE E-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
January 31, 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 SOURCE SEE FOOTNOTE	LAST PHOTO DATE	SEE FOOTNOTES 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						

TABLE E-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
January 31, 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 SOURCE SEE FOOTNOTE	LAST PHOTO DATE	SEE FOOTNOTES FOR THESE CHANGES
						++++++ T FARM STATUS ++++++												
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	
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						

TABLE E-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
January 31, 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 SOURCE SEE FOOTNOTE	LAST PHOTO DATE	SEE FOOTNOTES FOR THESE CHANGES
						++++++	TX FARM	STATUS	++++++									
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
January 31, 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 SOURCE SEE FOOTNOTE	LAST PHOTO DATE	SEE FOOTNOTES 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	

TABLE E-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
January 31, 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 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			TOTALS:	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

TABLE E-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
January 31, 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 SOURCE SEE FOOTNOTE	LAST PHOTO DATE	SEE FOOTNOTES FOR THESE CHANGES

Footnote:

(a) BX-111 - Following information from Shift/Surveillance Engineer
Pumping began October 22, 1993
Total waste (Supernatant + Solids) - 211.0 Kgal
Supernatant - 0 Kgal
Drainable Interstitial - 0 Kgal
Pumped this Month - 17.4 Kgal
Total Pumped - 72.1 Kgal
Drainable Liquid Remaining - 0 Kgal (DLR and PLR are being reflected as "0" because the gallons pumped have exceeded the estimate of the gallons remaining
Pumpable Liquid Remaining - 0 Kgal (when pumping began. DLR and PLR will be re-estimated when pumping is completed.
Sludge - 68.0 Kgal
Saltcake - 143.0 Kgal

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APPENDIX F

PERFORMANCE SUMMARY

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TABLE F-1. PERFORMANCE SUMMARY (Sheet 1 of 3)

WASTE VOLUMES (Kgallons)

January 31, 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)		40	67
TANK FARMS & SALTWELL LIQUID (6)		19	91
OTHER GAINS		31	116
Slurry increase (3)	0		
Condensate	23		
Instrument change (7)	3		
Unknown (5)	5		
OTHER LOSSES		-43	-181
Slurry decrease (3)	-2		
Evaporation (4)	-15		
Instrument change (7)	-17		
Unknown (5)	-9		
EVAPORATED		0	0
GROUTED		0	0
Total		47	156

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

* Water was added to C-106 during January 1994

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

SOURCE			THIS MONTH	FY1994 TO DATE
106-C	(8)	Gains	6	21
		Losses	-5	-22
Total			1 *	-1

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

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.

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APPENDIX G

PUMPING RECORD
LIQUID STATUS AND PUMPABLE LIQUID
REMAINING IN TANKS

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TABLE G-1. PUMPING RECORD

(Kgallons)

January 31, 1994

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	17.4	72.1	143.9	
BY	0.0	0.0	1387.4	(a)
C	0.0	0.0	36.8	(b)
Total	17.4	72.1	1731.6	
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	17.4	72.1	3896.7	

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

WASTE VOLUMES (Kgallons)

January 31, 1994

TANK FARMS	SUPERNATANT LIQUID	DRAINABLE INTERSTITIAL LIQUID	DRAINABLE LIQUID REMAINING	PUMPABLE LIQUID REMAINING
EAST				
A	9	441	450	390
AN	4597	37	4634	N/A
AP	7269	0	7269	N/A
AW	4709	159	4868	N/A
AX	3	370	373	304
AY	1714	2	1716	N/A
AZ	1786	4	1790	N/A
B	15	164	179	80
BX	30	120	151	85
BY	0	780	780	598
C	169	143	312	254
Total	20301	2220	22522	1711
WEST				
S	58	1376	1434	1201
SX	63	1260	1323	1178
SY	833	237	1070	N/A
T	45	200	245	178
TX	5	250	255	0
TY	3	31	34	0
U	168	1138	1306	1104
Total	1175	4492	5667	3661
TOTAL	21476	6712	28189	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

January 31, 1994

FACILITY	LOCATION	PURPOSE (receives waste from:)	VOLUME OF CONTENTS (Gallons)	MONITORED BY	REMARKS
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	3487	MANUALLY	DIAL O/S, USING ZIP CORD, PUMPED 08/29/92
241-AZ-151	AZ FARM	AZ-152 DB, AZ LOOP SEAL	4170	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	22771	MANUALLY	USING MANUAL TAPE FOR TANK
244-A-TK/SMP	A COMPLEX	DCRT - RECEIVES FROM SEVERAL FARMS	6610	MCS	
AR-204	AY FARM	RR CARS DURING TRANSFER TO REC. TKS	650	DIP TUBE	ALARMS ON CASS
A-417	A FARM	A-702 PROCESS CONDENSATE	23600	DIP TUBE	
Vent Station Catch Tank		CROSS COUNTRY TRANSFER LINE	616	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	6801	CASS/FIC	RETURNED TO SERVICE 12/30/93
241-UX-302-A	U PLANT	UX-154 DB	11778	CASS/MFIC	
241-S-304	S FARM	S-151 DB	2119	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	18798	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

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

INACTIVE – no longer receiving waste transfers

January 31, 1994

FACILITY	LOCATION	RECEIVED WASTE FROM:	VOLUME OF CONTENTS (Gallons)	MONITORED BY	REMARKS
241-A-302-B	A FARM	A-152 DB	4150	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

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

INACTIVE – no longer receiving waste transfers

January 31, 1994

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

(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	Leak Estimate Reference
241-A-103	1987	5500 (9)		6/88	1987	(j)
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	(g)
241-B-101	1974	-- (7)		3/81	1989	(g)
241-B-103	1978	-- (7)		2/85	1989	(g)
241-B-105	1978	-- (7)		12/84	1989	(g)
241-B-107	1980	8000 (9)		3/85	1986	(d),(f)
241-B-110	1981	10000 (9)		3/85	1986	(d)
241-B-111	1978	-- (7)		6/85	1989	(g)
241-B-112	1978	2000		5/85	1989	(g)
241-B-201	1980	1200 (9)		8/81	1984	(e),(f)
241-B-203	1983	300 (9)		6/84	1986	(d)
241-B-204	1984	400 (9)		6/84	1989	(g)
241-BX-101	1972	-- (7)		9/78	1989	(g)
241-BX-102	1971	70000	50 (l)	11/78	1986	(d)
241-BX-108	1974	2500	0.5 (l)	7/79	1986	(d)
241-BX-110	1976	-- (7)		8/85	1989	(g)
241-BX-111	1984	-- (7)		N/A	1993	(g),(r)
241-BY-103	1973	<5000		N/A	1983	(a)
241-BY-105	1984	-- (7)		N/A	1989	(g)
241-BY-106	1984	-- (7)		N/A	1989	(g)
241-BY-107	1984	15100 (9)		7/79	1989	(g)
241-BY-108	1972	<5000		2/85	1983	(a)
241-C-101	1980	20000 (9,11)		11/83	1986	(d)
241-C-110	1984	2000		N/A	1989	(g)
241-C-111	1968	5500 (9)		3/84	1989	(g)
241-C-201 (5)	1988	550		3/82	1987	(i)
241-C-202 (5)	1988	450		8/81	1987	(i)
241-C-203	1984	400 (9)		3/82	1986	(d)
241-C-204 (5)	1988	350		9/82	1987	(i)
241-S-104	1968	24000 (9)		12/84	1989	(g)
241-SX-104	1988	6000 (9)		N/A	1988	(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	(n)
241-SX-110	1976	5500 (9)		8/79	1989	(g)
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	(d)
241-SX-113	1962	15000	8 (l)	11/78	1986	(d)
241-SX-114	1972	-- (7)		7/79	1989	(g)
241-SX-115	1965	50000	21 (o)	9/78	1992	(o)
241-T-101	1992	7500 (9)		4/93	1992	(p)
241-T-103	1974	<1000 (9)		11/83	1989	(g)
241-T-106	1973	115000 (9)	40 (l)	8/81	1986	(d)
241-T-107	1984	-- (7)		N/A	1989	(g)
241-T-108	1974	<1000 (9)		11/78	1980	(f)
241-T-109	1974	<1000 (9)		12/84	1989	(g)
241-T-111 (5)(13)	1984	<1000 (9)		N/A	1980	(f)
241-TX-105	1977	-- (7)		4/83	1989	(g)
241-TX-107	1984	2500		10/79	1986	(d)
241-TX-110	1977	-- (7)		4/83	1989	(g)
241-TX-113	1974	-- (7)		4/83	1989	(g)
241-TX-114	1974	-- (7)		4/83	1989	(g)
241-TX-115	1977	-- (7)		9/83	1989	(g)
241-TX-116	1977	-- (7)		4/83	1989	(g)
241-TX-117	1977	-- (7)		3/83	1989	(g)
241-TY-101	1973	<1000 (9)		4/83	1980	(f)
241-TY-103	1973	3000	0.7 (l)	2/83	1986	(d)
241-TY-104	1981	1400 (9)		11/83	1986	(d)
241-TY-105	1960	35000	4 (l)	2/83	1986	(d)
241-TY-106	1959	20000	2 (l)	11/78	1986	(d)
241-U-101	1959	30000	20 (l)	9/79	1986	(d)
241-U-104	1961	55000	0.09 (l)	10/78	1986	(d)
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

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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.

	Low Estimate	High Estimate
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.

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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 monthly 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.

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 OA, Westinghouse Hanford Company, Richland, Washington.

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APPENDIX J

INTERIM STABILIZATION STATUS

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

January 31, 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	SOUND	N/A		C-101	ASMD LKR	11/83	AR	T-108	ASMD LKR	11/78	AR
A-102	SOUND	08/89	SN	C-102	SOUND	N/A		T-109	ASMD LKR	12/84	AR
A-103	ASMD LKR	06/88	AR	C-103	SOUND	N/A		T-110	SOUND	N/A	
A-104	ASMD LKR	09/78	AR	C-104	SOUND	09/89	SN	T-111	ASMD LKR	N/A	
A-105	ASMD LKR	07/79	AR	C-105	SOUND	N/A		T-112	SOUND	03/81	AR
A-106	SOUND	08/82	AR	C-106	SOUND	N/A		T-201	SOUND	04/81	AR
AX-101	SOUND	N/A		C-107	SOUND	N/A		T-202	SOUND	08/81	AR
AX-102	ASMD LKR	09/88	SN	C-108	SOUND	03/84	AR	T-203	SOUND	04/81	AR
AX-103	SOUND	08/87	AR	C-109	SOUND	11/83	AR	T-204	SOUND	08/81	AR
AX-104	ASMD LKR	08/81	AR	C-110	ASMD LKR	N/A		TX-101	SOUND	02/84	AR
B-101	ASMD IKR	03/81	SN	C-111	ASMD LKR	03/84	SN	TX-102	SOUND	04/83	JET
B-102	SOUND	06/85	SN	C-112	SOUND	09/90	AR	TX-103	SOUND	06/83	JET
B-103	ASMD IKR	02/85	SN	C-201	ASMD LKR	03/82	AR	TX-104	SOUND	09/79	SN
B-104	SOUND	06/85	SN	C-202	ASMD LKR	08/81	AR	TX-105	ASMD LKR	04/83	JET
B-105	ASMD IKR	12/84	AR	C-203	ASMD LKR	03/82	AR	TX-106	SOUND	06/83	JET
B-106	SOUND	03/85	SN	C-204	ASMD LKR	09/82	AR	TX-107	ASMD LKR	10/79	AR
B-107	ASMD LKR	03/85	SN	S-101	SOUND	N/A		TX-108	SOUND	03/83	JET
B-108	SOUND	05/85	SN	S-102	SOUND	N/A		TX-109	SOUND	04/83	JET
B-109	SOUND	04/85	SN	S-103	SOUND	N/A		TX-110	ASMD LKR	04/83	JET
B-110	ASMD LKR	12/84	AR	S-104	ASMD LKR	12/84	AR	TX-111	SOUND	04/83	JET
B-111	ASMD LKR	06/85	SN	S-105	SOUND	09/88	JET	TX-112	SOUND	04/83	JET
B-112	ASMD LKR	05/85	SN	S-106	SOUND	N/A		TX-113	ASMD LKR	04/83	JET
B-201	ASMD LKR	08/81	AR	S-107	SOUND	N/A		TX-114	ASMD LKR	04/83	JET
B-202	SOUND	05/85	AR	S-108	SOUND	N/A		TX-115	ASMD LKR	09/83	JET
B-203	ASMD LKR	06/84	AR	S-109	SOUND	N/A		TX-116	ASMD LKR	04/83	JET
B-204	ASMD LKR	06/84	AR	S-110	SOUND	N/A		TX-117	ASMD LKR	03/83	JET
BX-101	ASMD LKR	09/78	AR	S-111	SOUND	N/A		TX-118	SOUND	04/83	JET
BX-102	ASMD LKR	11/78	AR	S-112	SOUND	N/A		TY-101	ASMD LKR	04/83	JET
BX-103	SOUND	11/83	AR	SX-101	SOUND	N/A		TY-102	SOUND	09/79	AR
BX-104	SOUND	09/89	SN	SX-102	SOUND	N/A		TY-103	ASMD LKR	02/83	JET
BX-105	SOUND	03/81	SN	SX-103	SOUND	N/A		TY-104	ASMD LKR	11/83	AR
BX-106	SOUND	N/A		SX-104	ASMD LKR	N/A		TY-105	ASMD LKR	02/83	JET
BX-107	SOUND	09/90	JET	SX-105	SOUND	N/A		TY-106	ASMD LKR	11/78	AR
BX-108	ASMD LKR	07/79	SN	SX-106	SOUND	N/A		U-101	ASMD LKR	09/79	AR
BX-109	SOUND	09/90	JET	SX-107	ASMD LKR	10/79	AR	U-102	SOUND	N/A	
BX-110	ASMD LKR	06/85	SN	SX-108	ASMD LKR	08/79	AR	U-103	SOUND	N/A	
BX-111	ASMD LKR	N/A		SX-109	ASMD LKR	05/81	AR	U-104	ASMD LKR	10/78	AR
BX-112	SOUND	09/90	JET	SX-110	ASMD LKR	08/79	AR	U-105	SOUND	N/A	
BY-101	SOUND	05/84	JET	SX-111	ASMD LKR	07/79	SN	U-106	SOUND	N/A	
BY-102	SOUND	N/A		SX-112	ASMD LKR	07/79	AR	U-107	SOUND	N/A	
BY-103	ASMD LKR	N/A		SX-113	ASMD LKR	11/78	AR	U-108	SOUND	N/A	
BY-104	SOUND	01/85	JET	SX-114	ASMD LKR	07/79	AR	U-109	SOUND	N/A	
BY-105	ASMD LKR	N/A		SX-115	ASMD LKR	09/78	AR	U-110	ASMD LKR	12/84	AR
BY-106	ASMD LKR	N/A		T-101	ASMD LKR	04/93	SN	U-111	SOUND	N/A	
BY-107	ASMD LKR	07/79	JET	T-102	SOUND	03/81	AR	U-112	ASMD LKR	09/79	AR
BY-108	ASMD LKR	02/85	JET	T-103	ASMD LKR	11/83	AR	U-201	SOUND	08/79	AR
BY-109	SOUND	N/A		T-104	SOUND	N/A		U-202	SOUND	08/79	SN
BY-110	SOUND	01/85	JET	T-105	SOUND	06/87	AR	U-203	SOUND	08/79	AR
BY-111	SOUND	01/85	JET	T-106	ASMD LKR	08/81	AR	U-204	SOUND	08/79	SN
BY-112	SOUND	06/84	JET	T-107	ASMD LKR	N/A					

LEGEND:
AR = Administratively interim stabilized
JET = Saltwell jet pumped to remove drainable interstitial liquid
SN = Supernate pumped (Non-Jet pumped)
N/A = Not yet interim stabilized
ASMD LKR = Assumed Leaker

Interim Stabilized Tanks	106
Not Yet Interim Stabilized	43
Total Single-Shell Tanks	149

Footnotes: See next page

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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

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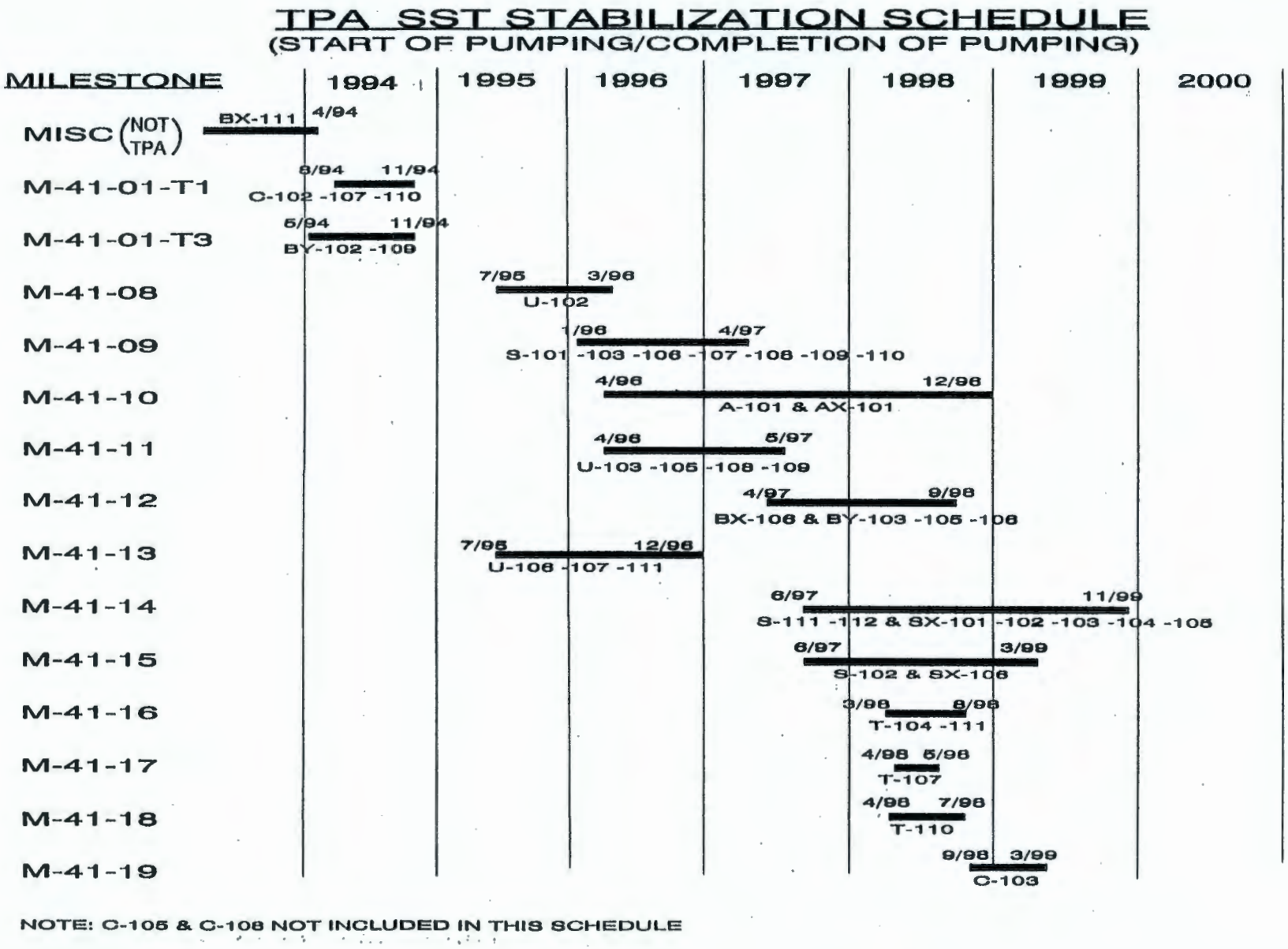

NOTE: C-105 & C-108 NOT INCLUDED IN THIS SCHEDULE

Table J-2. TPA SST Stabilization Schedule

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APPENDIX K

TANK FARM OPERATIONS SAMPLING SCHEDULE STATUS

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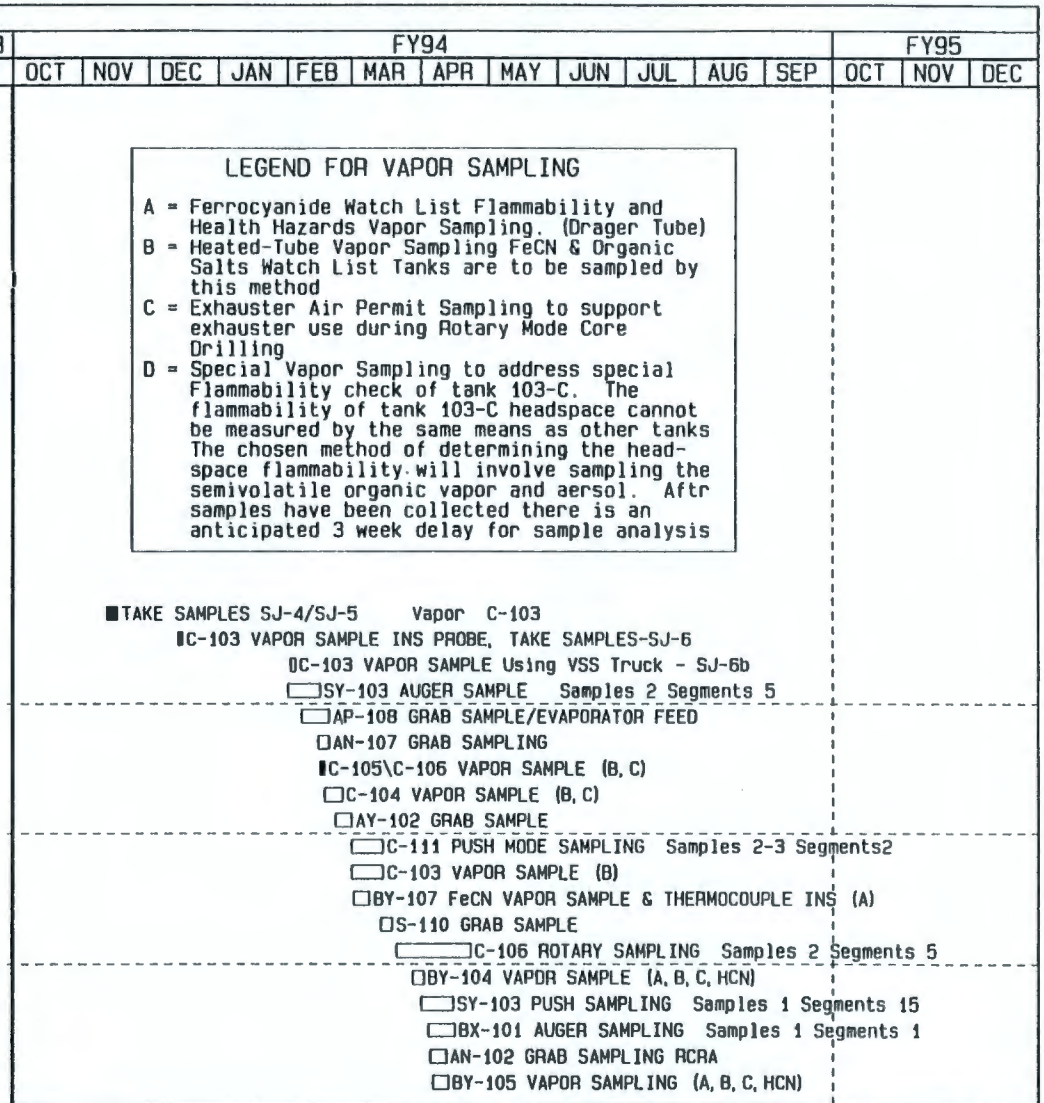
TABLE K-1. TANK FARM OPERATIONS SAMPLING SCHEDULE STATUS (Sheet 1 of 3)

ACTIVITY ID	EARLY START	EARLY FINISH	ORIG DUR
VS55-4	12NOV93A	16NOV93A	2
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

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

STATUS DATE: 22 Feb 1994

DALE Sheet 1 of 4

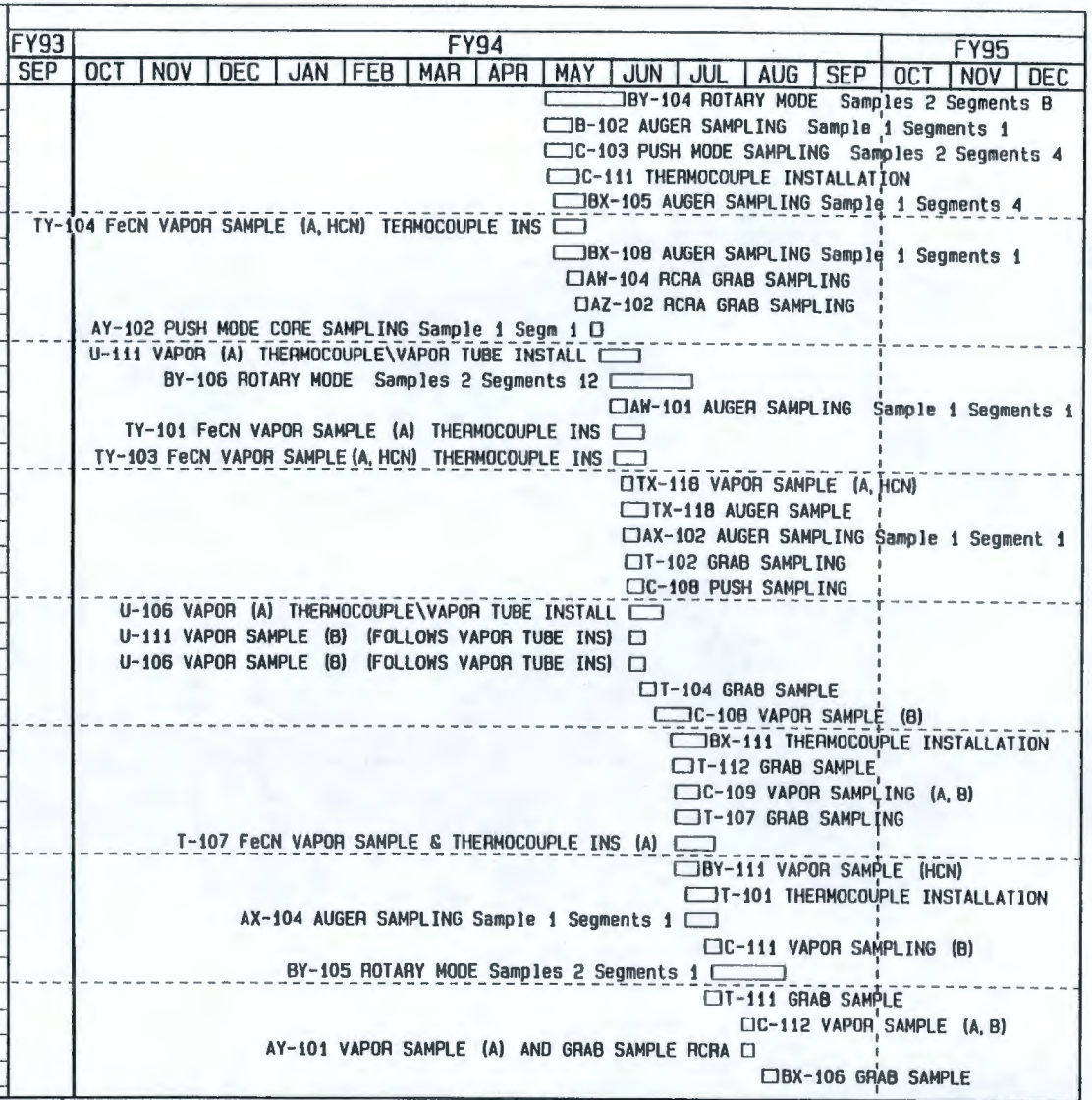
WESTINGHOUSE HANFORD CORPORATION
TANK FARM OPERATIONS
FY 1994 SAMPLING SCHEDULE

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

Date	Revision	Checked	Approved

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

ACTIVITY ID	EARLY START	EARLY FINISH	ORIG DUR
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	6JUL94	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



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

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

STATUS DATE: 22 Feb 1994

DALE Sheet 2 of 3

WESTINGHOUSE HANFORD CORPORATION
TANK FARM OPERATIONS
FY 1994 SAMPLING SCHEDULE

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

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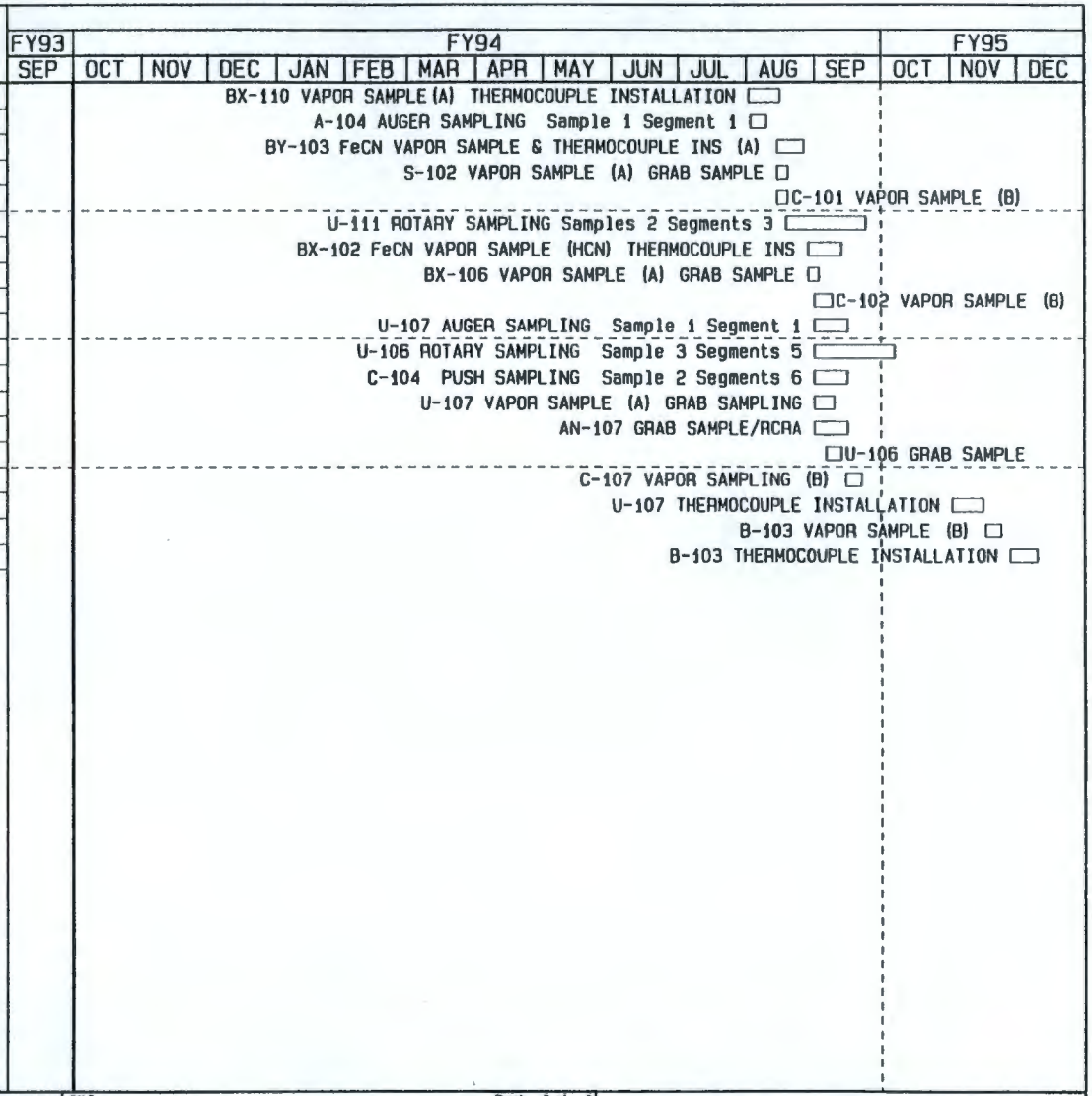
TABLE K-1. TANK FARM OPERATIONS SAMPLING SCHEDULE STATUS (Sheet 3 of 3)

ACTIVITY ID	EARLY START	EARLY FINISH	ORIG DUR
TC28-4	2AUG94	15AUG94	10
AS11-4	3AUG94	9AUG94	5
TC43-4	15AUG94	26AUG94	10
GS14-4	15AUG94	19AUG94	5
VS02-4	15AUG94	19AUG94	5
RS05-4	19AUG94	23SEP94	25
TC36-4	29AUG94	12SEP94	10
GS13-4	29AUG94	2SEP94	5
VS01-4	1SEP94	8SEP94	5
AS12-4	1SEP94	15SEP94	10
RS06-4	1SEP94	6OCT94	25
PS08-4	1SEP94	15SEP94	10
GS08-4	1SEP94	9SEP94	6
GS87-4	1SEP94	15SEP94	10
GS09-4	6SEP94	12SEP94	5
VS19-4	15SEP94	21SEP94	5
TC38-4	2NOV94	15NOV94	10
VS45-4	17NOV94	23NOV94	5
TC31-4	28NOV94	9DEC94	10



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

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Progress Bar
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STATUS DATE: 22 Feb 1994

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DATE Sheet 3 of 3

WESTINGHOUSE HANFORD CORPORATION
TANK FARM OPERATIONS
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