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Waste Tank Summary for Month Ending August 31, 1994

B. M. Hanlon

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WASTE TANK SUMMARY REPORT FOR MONTH ENDING AUGUST 31, 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)		

WASTE TANK SUMMARY REPORT FOR MONTH ENDING AUGUST 31, 1994

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	50 single-shell 6 double-shell 56 tanks	5/94[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 50 single-shell tanks on Watch Lists, 19 have been Interim Stabilized.

[e] Of the 50 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. Ten tanks (A-101, S-102, S-111, SX-103, SX-106, TX-118, TY-104, U-103, U-105, and U-107) are currently on more than one Watch List.

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

II. WASTE TANK INVESTIGATIONS

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

There were no tanks under investigation for ILL decreases or drywell/lateral radiation level increases which exceeded the criteria in August 1994.

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

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

Tank 241-BX-111. This tank was declared an assumed re-leaker on April 30, 1993. Pumping of the tank commenced on October 22, 1993. Pumping was completed as of April 30, 1994. Pumping was restarted May 25 to remove additional pumpable liquid after review of in-tank photos taken May 19. No pumping was done in August 1994. A total of 111.6 Kgal has been pumped. (See Table E-5 footnotes for further information).

Tank 241-T-111. The surface level showed a steady decrease after the automatic FIC was repaired in August 1993. The surface level measurement after the FIC repair was 161.70 inches and continued to decrease to 161.10 inches by January 31, 1994. This was a 1.00-in decrease from the reference baseline of 162.10 inches. Off-Normal Occurrence Report RL-WHC-TANKFARM-1994-0009 was issued on February 24, 1994. This tank was declared an assumed re-leaker on February 25, 1994.

This tank had previously been Partial Interim Stabilized. Tank T-111 was added to the Organics Watch List on February 28, 1994. In-tank photos were taken April 13, 1994. Review of these photos, pumping data, and laboratory centrifuge test data resulted in some changes in the tank's inventory. (See Table E-5 footnotes for further information).

Pumping began May 17, 1994, completing a TPA milestone for the start of emergency pumping. No pumping was done in August 1994. A total of 5.2 Kgal has been pumped. (See Table E-5 footnotes for further information).

B. Tanks with increases indicating possible intrusions:

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

244-AR Tanks and Sumps: Currently, all ventilation systems at 244-AR are shut down. Based on the weight factors for the sumps and tanks, Tank 001 contains 2300 gallons, Tank 002 contains 8100 gallons (some unknown amount of sludge), Tank 003 contains 2100 gallons, and Tank 004 contains 500 gallons. Sump 003 increased to approximately 250 gallons of intrusion water (rain) over the past

three months because of rainfall. Sump 003 currently contains approximately 450 gallons of water.

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), verifying the increase and that the criteria had been exceeded. Occurrence Report RL-WHC-TANKFARM-1993-0024 was issued February 13, 1993. **The surface level measurement on August 31, 1994, was 145.75 inches.** The monitoring frequency has been increased from quarterly to daily. 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, thus reaching the 1.00-Inch increase criteria from the reference baseline of 11.00 Inches. **Readings fluctuated between 11.00 and 12.00 inches during August; the surface level was 12.00 inches on August 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. At current manpower levels, photos in this tank should be available by October 1994.

Tank 241-BX-103. This tank has shown an erratic increase in surface level measurements since January 6, 1986. The FIC plummet is contacting liquid as indicated by in-tank photographs taken October 31, 1986. On January 18, 1993, the surface level measurement in this tank 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 baseline was adjusted to 20.50 inches on July 11, 1994, but the intrusion investigation is not yet complete. The surface level measurement on August 31, 1994, was 20.40 inches.** 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 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. Design/isolation drawing review revealed that nozzles, floor drains and some transfer lines entering the heel pit have been left open. Neighboring tank BX-101 was investigated in 1987 and recommendations were provided to halt an ongoing intrusion. Similar measures may halt the BX-103 intrusion. In-tank photos will provide verification of the intrusion. Determination of the need to provide additional isolation measures will follow. At current manpower levels, photos in this tank should be available by November 1994.

Tank 241-BY-105. Although the surface level and ILL are within the criteria limits, the data indicates unusual behavior trends that merit continued observation. The LOW is scanned on a weekly frequency. 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. Due to budget limitations, photos in this tank have been postponed until FY 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. The LOW is scanned on a weekly frequency. 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. Due to budget limitations, photos in this tank have been postponed until FY 1996.

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. The LOW is scanned on a weekly frequency. 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. Due to budget limitations, photos in this tank have been postponed until FY 1996.

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. The LOW is scanned on a weekly frequency. 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. A photo package has been written. Due to budget limitations, photos in this tank have been postponed until FY 1996.

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 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 on April 1, 1993, was 31.90 inches and at the increase criteria. 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 surface level measurement was 31.80 inches on August 31, 1994. This tank is Sound, Interim Stabilized, and Intrusion Prevention completed.

Resolution status: This tank is experiencing an ongoing intrusion as is evident by comparison of November 1984 photos with July 1987 photos and an increasing trend in surface level data. A visual survey was conducted to determine possible paths for precipitation to enter the tank. The grade around the tank is level and weather covering is on the pits and intact. The photo package, initiated May 17, 1993, will be required to assess the current stabilization status of the tank, and to assist in determining the possible paths of intrusion. Ongoing design/isolation drawing review revealed that nozzles, floor drains and some transfer lines entering the pump pit have been left open. Photo verification of the intrusion will determine the need to provide additional isolation measures. Due to budget limitations, photos in this tank have been postponed until FY 1996.

Catch Tanks:

241-ER-311 Catch Tank. This catch tank shows increases from precipitation and runoff. The tank currently exceeds the active tank limit of 45% volume (8000 gallons). This tank may contain up to 80% of volume capacity, (14,100 gallons, 80.00 inches) during inactive periods. The surface level measurement was 53.00 inches on August 31, 1994.

Resolution Status: A procedure is being drafted to pump this tank. The procedure is expected to be completed in September 1994.

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 was out of service from July 7, 1992, to December 16, 1992, when a temporary zip cord was installed. A surface level reading of 68.00 inches was obtained, exceeding the active tank limit of 50% of volume (400 gallons), or 40 inches. 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 with a new manual tape on December 23, 1993. The level reading was 60.50 inches. The OSD limit of 80% of volume (640 gallons) or 64.00 inches was exceeded and an Off Normal report was issued on May 16, 1994. The surface level reading was 65.75 inches on August 31, 1994.

Resolution status: The catch tank was sampled on December 23, 1993. The waste is to be transferred using existing cross-site lines. The required procedure is in approval stages; other documentation has been completed.

241-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 69.10 inches, which exceeds the 50% of volume (8840 gallons), or 54 inches. 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. The procedure will be ready by end of September 1994. The transfer is planned for mid-November 1994.

III. SURVEILLANCE AND WASTE TANK STATUS HIGHLIGHTS

1. Single-Shell Tanks 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). Several repairs have been made to the pumping system but continuous problems have hindered pumping. In-tank photos were taken in July 1994, but it was not possible to determine the amount of liquids remaining in the tank. Additional photos are scheduled for October 1994. Following review of these photos, an estimate of the liquid remaining will be developed, and a decision on stabilization status will be made. A total of 4.0 Kgal has been pumped from this tank.

Tank 241-BX-111 - Saltwell jet pumping began on October 22, 1993, to pump tank BX-111 into 244-BX Double Container Receiver Tank. Pumping was considered complete as of April 29. In-tank photos were taken on May 19, 1994. After review of photos, the pumping was restarted on May 25, to remove additional pumpable liquid. No pumping was done in August 1994. A total of 111.6 Kgal has been pumped from this tank. (See Table E-5 footnotes for further information). Additional in-tank photos are scheduled for September 1994.

Tank 241-BY-102 - Saltwell jet pumping resumed May 30, 1994, after being suspended because of the Unreviewed Safety Question (USQ) effective April 30, 1992. Restart of the pumping completed a TPA milestone. 2.0 Kgal

were pumped from this tank in August, making a total of 140.9 Kgal pumped by August 31, 1994. (See Table E-5 footnotes for further information).

Tank 241-BY-109 - Saltwell jet pumping resumed May 31, 1994, after being suspended because of the Unreviewed Safety Question (USQ) effective April 30, 1992. Restart of the pumping completed a TPA milestone. 2.9 Kgal were pumped in August, making a total of 111.3 Kgal pumped by August 31, 1994.

The laboratory analysis of vapor samples from tanks 241-BY-107 and 241-BY-108 showed higher than expected levels of hydrogen and organic vapors. (See Occurrence Reports below). Chromatograms indicate that the organic vapors seen in these tanks were primarily from a mixture of Tri-Butyl Phosphate (TBP) and Normal Paraffin Hydrocarbon (NPH) similar to that seen in Organic Watch List tank C-103, but at an order of magnitude less.

Tank BY-109 is in the cascade string which includes 107, 108, and 109 (BY-107-->BY-108-->BY-109). A concern was raised that BY-109 may also have higher than expected quantities of organics and hydrogen, due to this cascade. As a precautionary measure, saltwell pumping of BY-109 was halted until this potential issued could be resolved.

Tank-241-T-111 - Saltwell jet pumping began on May 17, 1994, completing a TPA milestone for emergency pumping. No pumping was done in August 1994. A total of 5.2 Kgal has been pumped from this tank. In-tank photos were taken May 19, 1994. (See Table E-5 footnotes for further information).

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.

There were no safety initiatives completed during August 1994.

3. Temperature Reading Anomalies in Tank 241-C-106

A Process Test reducing liquid inventory in C-106 was performed as part of a TPA milestone. In March 1994, the process test was started and was completed in June when water additions were resumed. After the water addition thermocouple (TC) readings in Riser 14 immediately started to rise with several oscillations, while TC readings in Riser 8 remained approximately the same as previous readings. The local temperature anomalies have been investigated as an Unusual Occurrence. Westinghouse Hanford response teams, together with independent reviewers from Los Alamos National Laboratory, Pacific Northwest Laboratory, and other national consultants, are working together to better understand the phenomenon. The preliminary conclusion was that after the water addition, the heatup at Riser 14 was caused by a local sludge relocation which filled the well surrounding the riser directly on top of the waste. Because the waste was redistributed, it is now coming in direct contact with the thermocouple sensors. Subsequent mechanistic analyses suggest that a saturation or two-phase region developed near the end of the process test and the growth in the region closed any gaps surrounding Riser 14. Riser 14 previously showed abnormally low temperatures (140°F) before

June 17, because of a "chimney effect" (water channel around the riser). Although there has been a local temperature change around Riser 14, there is believed to be no change in the safety status of this tank or the bulk thermal conditions in the tank. While a saturation region probably developed, the amount of additional energy storage was small and the bulk thermal conduction was not significantly changed.

During the month of August, the maximum temperature readings for Riser 14 were between 160 and 200° F. The maximum temperature reading on August 31, 1994, was 175° F. For Riser 8, the maximum temperature readings remained steady at approximately 163° F. No water was added in August 1994. Temperature graphs for the period May to September 1994, follow this summary section (Figures 1, and 2).

4. Unreviewed Safety Question (USQ) on Dome Loadings

On June 14, 1994, an Unreviewed Safety Question (USQ) screening was initiated to determine if a dome loading situation at 241-AP is a USQ. Soil Density testing was performed for SY, AY and AZ tank farms during the month of July. The preliminary soil density data were used for further dome loading analyses. No dome loading analysis work was done in August due to budgetary restrictions.

Interim analyses for dome loading USQ resolution were performed for AN, AP, and AW tank farms. The analyses are being reviewed by an offsite consultant to validate the results. See also Occurrence Report RL-WHC-TANKFARM-1994-0035 for further information.

5. Tank SY-101 Hydrogen Mitigation

The mixer pump installed in Tank 241-SY-101 in July 1993, was operated 10 times during the month of August 1994. During August, the pump was operated aggressively at speeds of 1000 RPM's for 25 minutes, to excavate the bottom regions of the tank. Thermocouple data on in-tank probes have indicated the mixer pump is mobilizing the sludge layer at the bottom of the tank. Pump operation maintained tank liquid level between 400.0 inches and 400.3 inches.

6. TPA Milestone Changes to Single-Shell Tank Interim Stabilization Pumping Schedule

No Change Requests were approved during the month of August.

7. Safe/Conditionally Safe/Unsafe Definitions for Ferrocyanide Watch List Tanks

Operating Specifications Document OSD-T-151-00030 provides the following definitions for tanks containing ferrocyanide:

Level 1 SAFE TANKS - A tank is classified as SAFE for interim storage if the fuel concentration of the solids, calculated on a zero-free water basis, in all homogenized core sample quarter segments is $\leq$8 wt% sodium nickel ferrocyanide on an energy equivalent basis. Tanks not meeting this criteria are classified either CONDITIONALLY SAFE or UNSAFE.

Level 2 CONDITIONALLY SAFE TANKS - A tank is classified as CONDITIONALLY SAFE for interim storage if the fuel concentration of the solids, calculated on a zero-free water basis, in all homogenized core sample quarter segments, is 8 wt% sodium nickel ferrocyanide on an energy equivalent basis AND the free water content is $\geq$[4/3][fuel wt% - 8]. Free water content is based on drying of samples at 120 °C for 18 hours. Tanks not meeting this criteria are classified UNSAFE.

Wastes which do not meet SAFE or CONDITIONALLY SAFE categories are defined as UNSAFE. No tanks are currently classified UNSAFE.

Twenty single-shell tanks are on the ferrocyanide watch list; four are classified as SAFE, and 16 are classified as CONDITIONALLY SAFE. See footnotes in Table A.2, Tanks Containing Ferrocyanide, for identification of these tanks.

8. Occurrence Reports

RL-WHC-TANKFARM-1994-0047 (Off-Normal) - TANK 241-S-106 LIQUID LEVEL GAUGE (ENRAF) SUPPORTING CABLE DISCOVERED TO BE BROKEN (10-Day Report, 8/31/94)

An ENRAF Series 854 ATG Level Gauge manufactured by Enraf Nonius was installed in Tank 241-S-106 on June 8, 1994. On August 11, during a routine data collection task, operations noticed an error message on the ENRAF level gauge display which indicated that there was no weight suspended from the wire. The wire was retrieved and it was discovered that the displacer (liquid level float) was missing. Visual inspection of the wire spool on August 16 indicated that the bitter-end of the wire was discolored (black) and appeared to be corroded and extremely brittle. A team of experts has been assembled to investigate this occurrence. This team consists of metallurgists and other investigators from Pacific Northwest Laboratory and Westinghouse. Analysis of the remaining wire from the length that failed has begun. Initial findings have confirmed that the wire material was 316 stainless steel, and that the wire's bitter-end corrosion products contained very high levels of chloride compounds suggesting chloride stress-induced corrosion. The source of the chloride and failure mechanisms are being analyzed.

On August 18, all ENRAF's in 241-T and 241-U Tank Farms were visually inspected for signs of corrosion. No corrosion on any of the 15 ENRAF cables installed was detected. The ENRAF has been returned to service in Tank S-106 with a new 316 stainless steel wire. The wire will remain in service for two weeks and will then be removed for analysis.

All further installations of the new ENRAF gauges have been suspended pending the resolution of this occurrence.

RL-WHC-TANKFARM-1994-0043 (Off-Normal) - VAPOR SPACE ANALYSES OF TANKS 241-BY-107/108 INDICATE HIGHER THAN EXPECTED ORGANIC CONCENTRATIONS (10-Day Report, 8/11/94)

The vapor spaces in two Ferrocyanide Watch List tanks, 241-BY-107 and -108 were recently analyzed using SUMMA canisters. Analyses indicated higher than expected organic concentrations in the vapor space. The

quantities and physical form of the organics could fall outside of the safety basis for the tanks.

On August 10, the Plant Review Committee met to review the Unreviewed Safety Question (USQ) screening for organic vapor concentrations in these tanks, and initiated a USQ evaluation.

On August 11, interim controls were established for these tanks, requiring intrusive activities to be in compliance with Operating Specifications Document T-151-00030, "Operating Specifications for Watch List Tanks."

Pumping in BY-109 was also halted until vapor samples were taken and analyzed for organic vapors.

RL-WHC-TANKFARM-1994-0036 (Unusual) - WASTE TANK SURVEILLANCE ANOMALY IN UNDERGROUND WASTE STORAGE TANK C-106 (10-Day Update [latest], 8/15/94)

Since June 25, 1994, cyclic temperature variations in tank 241-C-106 have been observed on one of two thermocouple trees. The observed temperature data is not consistent with historical data trends.

Observation of continuously monitored Tank Monitor and Control System (TMACS) data for this tank shows cyclic temperature variation on the thermocouple tree in riser #14.

Tank C-106 is a single-shell tank (SST) containing approximately 229 Kgal of high level radioactive waste, and is on the "High Heat Load" Watch List. This tank requires regular additions of water to maintain cooling through evaporation. In an effort to meet Washington Department of Ecology requests to reduce possible sources of leakage from SSTs, a process test on this tank was begun in March 1994. The goal was to establish a lower liquid level for the tank. Lowering the liquid level would: 1) help mitigate potential corrosion effects at the waste/vapor space interface, and 2) reduce the total amount of liquid that could be released to the environment should a leak occur. Subsequently, liquid levels in the tank were being lowered via evaporation when the temperature fluctuations were encountered.

Immediate actions taken included several water additions to raise the waste level to a high operating band, verification of manual thermocouple readings with the TMACS, investigation into the heating effects on the temperature instrumentation, and increased in-field monitoring frequency of tank temperatures to twice per shift.

An enhanced technical group has been formed and a Response Plan developed. This group is made up of senior personnel from WHC and Pacific Northwest Laboratory, with support from outside experts. Approximately 100 technical and support staff are actively working this issue.

The method being used to ensure a rigid analytical approach is to establish two teams doing critical review of each other's work. The green team's mission is to develop our best understanding of the tank and how it matches tank observations. The red team will take an

opposite approach of why/how the models may not match tank observations and what may be alternative credible explanations of the data.

The current model indicates that centerline temperature is very close to the nominal boiling point. The safety analysis evaluated the effects of localized boiling and determined that there is no safety or structural impact. If boiling is taking place, it is a steady state condition and the bubbles are being quenched by the cooler water above.

On July 30, 1994, this event was upgraded to an Unusual Occurrence, to give increased visibility to the ongoing investigation.

On August 3, 1994, a continuous video camera was installed in C-106.

On August 6, 1994, another temperature cycle, as measured at riser #14, exceeded operating specification document (OSD) limits of 20° F change per day. There was a 35° F measured decrease over a ten-hour period on the riser #14 bottom thermocouple. The temperature reading increased again to over 200° F during the next 12 hours. The other two sludge thermocouples on riser #14 also showed a similar pattern. A similar cycle of 20° F was also observed on August 8. These temperature changes are being evaluated by the multicontractor evaluation team.

RL-WHC-TANKFARM-1994-0035 (Unusual) - REVIEW OF RECORDS RESULTS IN DISCOVERY OF POTENTIAL VIOLATION OF 241-AP TANK FARM DOME LOADING REQUIREMENTS (10-Day Report, [latest], 9/01/94)

On June 14, 1994, during an engineering review of construction documentation for 241-AP Tank Farm, it was discovered that the dome loading for the farm was potentially not in compliance with Operating Specification Document (OSD) OSD-T-151-00007, section 7.2.4, "Dome Loading."

Calculations for 241-AP dome loading were based on soil density of 110 lbs. per cubic foot. Old records showed the wetted soil density was approximately 121 lbs. per cubic foot, resulting in the potential OSD nonconformance.

On June 14, 1994, an Unreviewed Safety Question (USQ) screening was initiated to determine if the dome loading situation at 241-AP is a USQ. On June 17, 1994, a USQ concerning dome loading of all double shell tanks (including Aging Waste tanks) was determined to exist. Affected are tank farms AN, AP, AW, AY, AZ, AND SY.

Based on preliminary analysis, this does not appear to be an imminent hazard and interim operational restrictions are in place. A Justification for Continued Operation (JCO) is being prepared.

A related event has been documented on occurrence report RL-WHC-TANKFARM-1994-0002 (shown below). The subject of that report is soil cover depth and dome loading in East and West tank farms. The investigation initiated because of the "0002" report is still in progress. Due to the similarities of these two events, a final report will be submitted upon completion of the investigation, expected to be mid-September 1994.

RL-WHC-TANKFARM-1994-0005 (Off-Normal) - ALARMS FOR DOUBLE-CONTAINED RECEIVER TANKS DISCOVERED NOT INSTALLED RESULTS IN OSD NON-CONFORMANCE: OSD LIMITS FOR LEVEL/PRESSURE NOT EXCEEDED (10-Day Report [latest], 8/31/94)

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 CR Vault are in a static condition, neither receiving or transferring waste. DCRT 244-BX is being used to receive saltwell liquid. On January 28, the transfer of waste from 241-BX-111 to 244-BX DCRT was secured following verification of the non-conformance. At that time, tank pressure and liquid levels were within OSD limits.

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

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

To allow for East and West Tank Farms to complete their review of all OSDs and to ensure that adequate implementation can be demonstrated, the final report due March 11, 1994, and postponed several times, has now been extended to September, due to the vast scope increase in review of all OSD/OSR requirements.

RL-WHC-TANKFARM-1994-0002 (OFF-NORMAL) - SOIL LOADING OF WASTE TANK 241-SY-101 EXCEEDS OPERATIONS SPECIFICATION DOCUMENT (OSD) OSD-T-151-00007 LIMIT (10-Day Report, [latest], 8/12/94)

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.

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

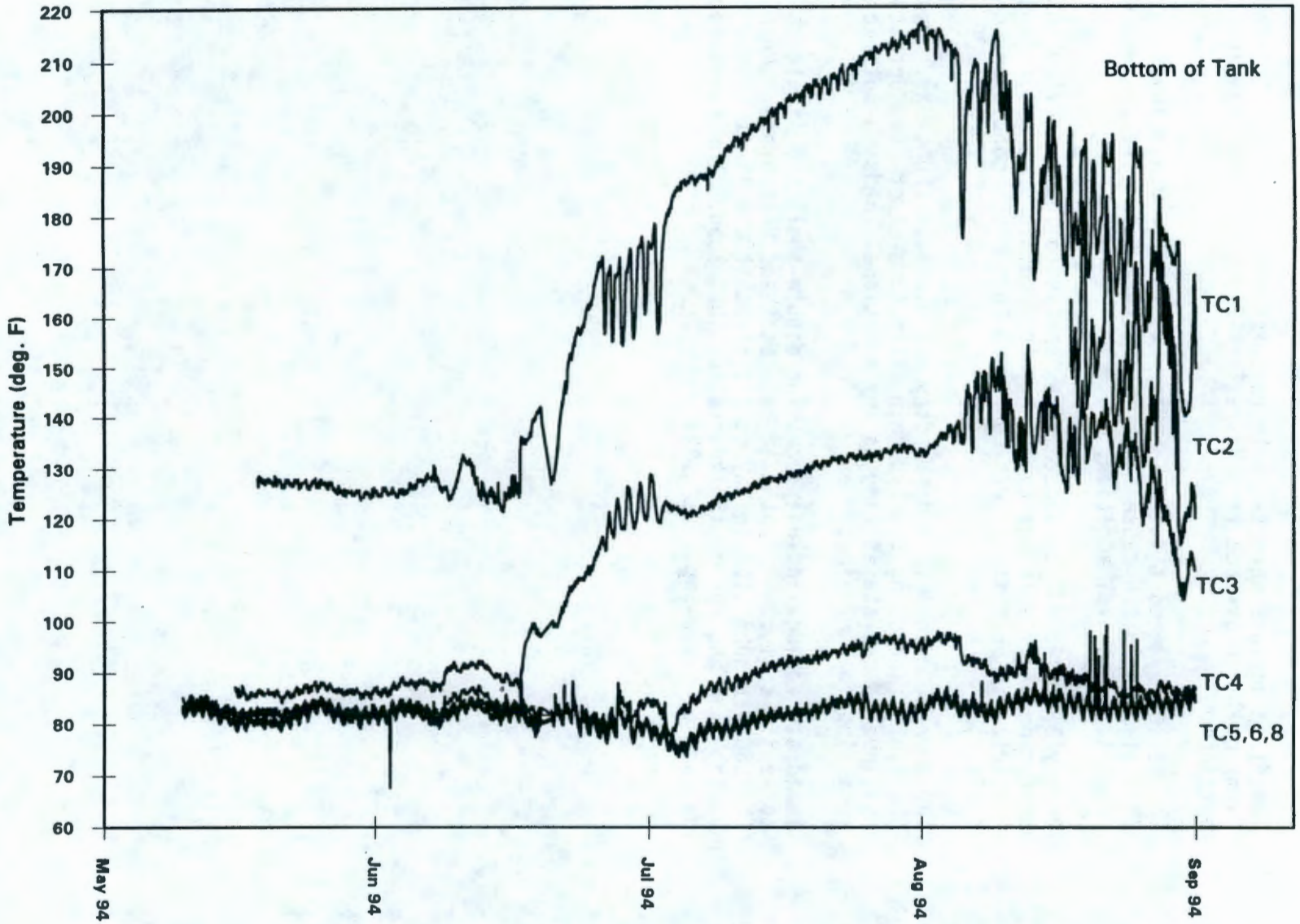
On May 5, 1994, WHC conducted an extensive follow-on review to resolve differing staff opinions as to whether conditions were within the Authorization Basis. It was concluded that these conditions do involve a USQ.

The current excess soil depth does not overload the tanks. Operation of the tanks, including the hydrogen mitigation mixer pump operation, can continue to operate as long as any additional loads do not exceed the remaining load margins.

Immediate actions include surveying double-shell and single-shell tanks to verify soil cover depths in both East and West areas. Resolution of the USQ was submitted in May to clarify that the limit is the total load on the tank and not on the sources of that load. The final report will be issued by mid-September 1994.

C-106, Riser 14

All readings are from the Surveillance Analysis Computer System (SACS) and are accurate to within ±5°F.



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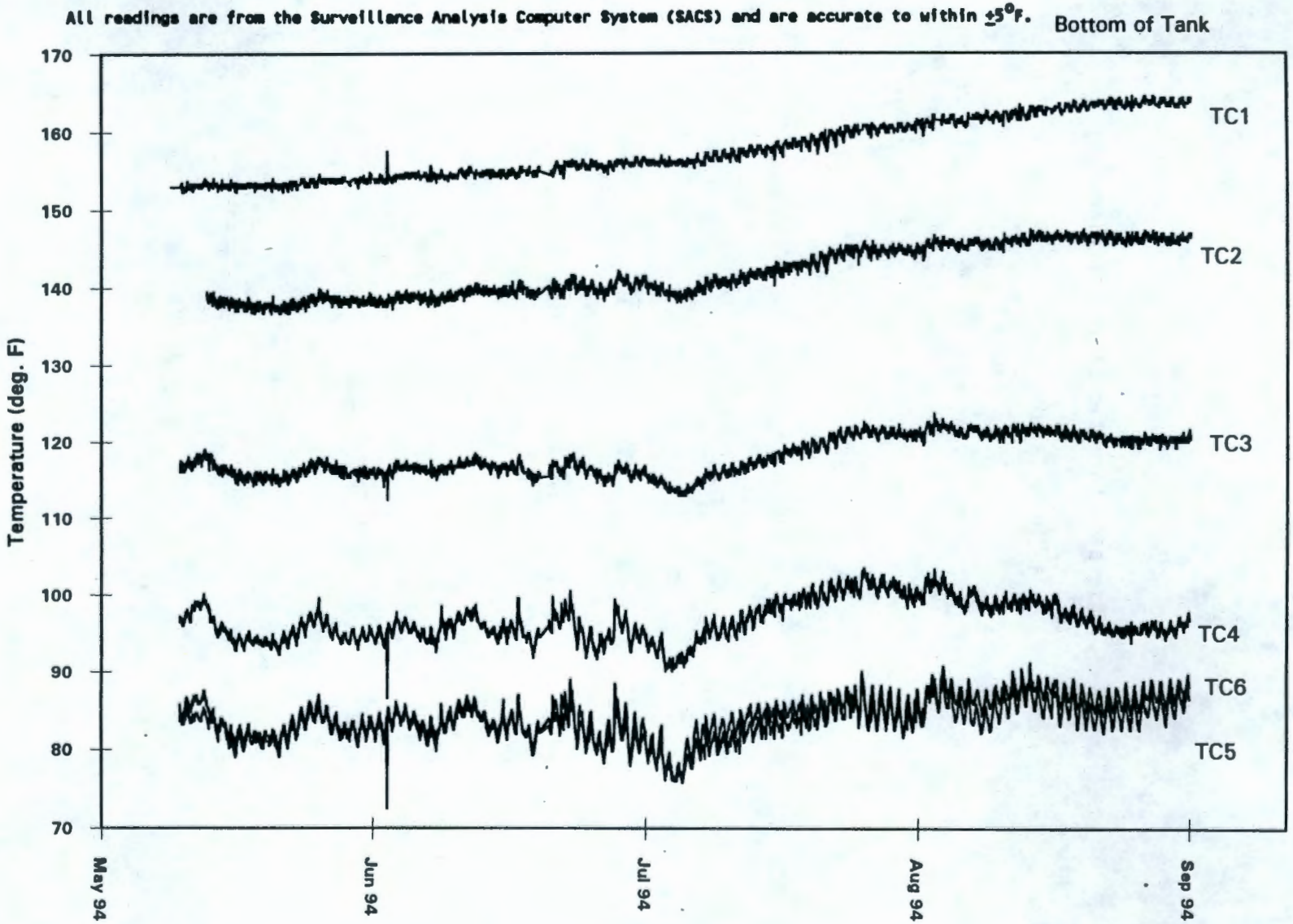
C-106, Riser 8

All readings are from the Surveillance Analysis Computer System (SACS) and are accurate to within ±5°F.



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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."

August 31, 1994

Single-Shell Tanks Tank No.		Category	Officially Added to Watch List
A-101	(2)	Hydrogen	1/91
	(9)	Organics	5/94
AX-101	(2)	Hydrogen	1/91
AX-102	(9)	Organics	5/94
AX-103	(2)	Hydrogen	1/91
B-103	(2)	Organics	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-102	(9)	Organics	5/94
C-103	(2)(4)	Organics	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)	Organics	1/91
S-111	(2)	Hydrogen	1/91
	(9)	Organics	5/94
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
	(9)	Organics	5/94
SX-104	(1)(2)	Hydrogen	1/91
SX-105	(1)(2)	Hydrogen	1/91
SX-106	(1)(2)	Hydrogen,	1/91
	(1)(2)	Organics	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
T-111	(8)	Organics	2/94
TX-105	(2)	Organics	1/91
TX-118	(2)	Ferrocyanide,	1/91
	(2)	Organics	1/91
TY-101	(2)	Ferrocyanide	1/91
TY-103	(2)	Ferrocyanide	1/91
TY-104	(2)	Ferrocyanide	1/91
	(9)	Organics	5/94

Single-Shell Tanks Tank No.		Category	Officially Added to Watch List
U-103	(2)	Hydrogen	1/91
	(9)	Organics	5/94
U-105	(2)	Hydrogen	1/91
	(9)	Organics	5/94
U-106	(2)	Organics	1/91
U-107	(2)	Organics	1/91
	(6)	Hydrogen	12/93
U-108	(2)	Hydrogen	1/91
U-109	(2)	Hydrogen	1/91
U-111	(7)	Organics	8/93
U-203	(9)	Organics	5/94
U-204	(9)	Organics	5/94
50 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			

Ten tanks (A-101, S-102, S-111, SX-103, SX-106, TX-118, TY-104, U-103, U-105, and 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. On March 1, 1994, the ferrocyanide USQ was closed. See Table A-2 footnote (1) for further information.

(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 USQ was closed May 19, 1994.

(5) Letter 9354700, J. C. Fulton, WHC, to R. E. Gerton, DOE-RL, "Addition of Tank 241-AW-101 to Flammable Gas Watch List," dated June 3, 1993, added this double-shell tank to the Watch List. (54 tanks)

(6) Letter 9353957, J. C. Fulton, WHC, to R. E. Gerton, DOE-RL, "Single-Shell Waste Tank 241-U-111," dated May 24, 1993, recommended this tank be included on the Organic Tanks Watch List. This tank was added to the Watch List on August 31, 1993.

(7) Tank U-107 was declared a USQ per Occurrence Report RL-WHC-TANKFARM-1993-0115, issued December 1993, because of an increase in slurry growth. This tank is also on the Organics Watch List.

(8) Tank T-111 was added to the Organic Salts Watch List on February 28, 1994, upon recommendation by WHC Waste Tank Safety Program.

(9) Ten tanks (A-101, AX-102, C-102, S-111, SX-103, TY-104, U-103, U-105, U-203, and U-204) were added to the Organic Salts Watch List, upon recommendation by WHC to DOE-RL, (Letter 9453328, M. A. Payne, WHC, to R. E. Gerton, DOE-RL, "Revision of the Organic Tanks Watch List," dated May 15, 1994,) and DOE-RL concurrence (Letter 94-SST-116, R. E. Gerton, DOE-RL, to President, WHC, Same Subject, dated May 25, 1994). Six of these tanks were already on the Watch List.

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

The Unreviewed Safety Question (USQ) associated with these tanks was closed March 1, 1994. (1)

Temperatures in these tanks did not exceed the maximum temperature criteria for August 1994.
All Watch List tanks are reviewed for increasing temperature trends. †Temperatures in these tanks are monitored continuously by TMACS. Temperatures are taken in the waste unless indicated otherwise.

Tank No.	Riser No.	Highest Temperature Reading in Waste (F.)	Date of Reading	Total Waste (inches) (5)	FeCN (2) (x1000 g mol)	Estimated Heat Load (3) (Btu/h)	(kW)	Date Declared Assumed Leaker	Interim Stabilized Date
BX-102	8	71	08/31/94	42	<1	2800	<2.93	1971	11/78
BX-106	1	70	08/31/94	24	<1	2500	<2.93	Sound	N/A
BX-106	7	70	08/31/94	24	<1	2500	<2.93	Sound	N/A
BY-103	1	80	08/31/94	153	66	5500	2.52	1973	N/A
BY-104	1	126	08/27/94	155	83	8700	1.61	Sound	1/85
BY-104	10B	113	08/31/94	155	83	8700	1.61	Sound	1/85
BY-105	10C	113	08/31/94	190	36	8700	0.97	1984	N/A
BY-105	1	119	08/31/94	190	36	8700	0.97	1984	N/A
BY-106	1	127	08/31/94	241	70	10100	0.97	1984	N/A
BY-107	1	98	06/03/94	104	42	8900	4.25	1984	7/79
BY-108	8	108	08/31/94	90	58	9200	6.74	1972	2/85
BY-110	1	118	08/28/94	152	71	6900	7.39	Sound	1/85
BY-110	10A	107	08/31/94	152	71	6900	7.39	Sound	1/85
BY-111	LOW-1	87	08/30/94	174	6	5500	10.02	Sound	1/85
BY-111	14	83	08/31/94	174	6	5500	10.02	Sound	1/85
BY-112	LOW-15	83	08/29/94	113	2	6100	<2.93	Sound	5/85
BY-112	2	89	08/30/94	113	2	6100	<2.93	Sound	5/85
C-108	5	77	08/31/94	31	25	6000	<2.93	Sound	3/84
C-108	1	80	08/31/94	31	25	6000	<2.93	Sound	3/84
C-109	8	85	08/29/94	31	30	7000	1.11	Sound	11/83
C-109	3	83	08/31/94	31	30	7000	1.11	Sound	11/83
C-111	5	79	08/31/94	28	33	6400	<2.93	1968	3/84
C-112	1	84	08/31/94	45	31	7500	<2.93	Sound	9/90
C-112	8	86	08/31/94	45	31	7500	<2.93	Sound	9/90
T-107	4	72	08/30/94	73	5	3000	<2.93	1984	N/A
TX-118 (4)	3	75	08/31/94	134	<1	4600	1.44	Sound	4/83
TY-101	4	71	08/27/94	50	23	3100	<2.93	1973	8/83
TY-103	4	73	08/30/94	66	28	4000	<2.93	1973	2/83
TY-104	4	70	08/31/94	24	12	3000	<2.93	1981	1/83
20 Tanks		Legend: TMACS = Tank Monitor & Control System							

FOOTNOTES: See next page

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

August 31, 1994

FOOTNOTES:

(1) Closure of the Ferrocyanide Unreviewed Safety Question (USQ) was approved in U.S. DOE Memorandum EM-36, Thomas P. Grumbly, to Manager, DOE Richland Operations Office, "Approval of the Request to Close the Ferrocyanide Unreviewed Safety Question at the Hanford High-Level Waste Tank Farms," dated March 1, 1994; and DOE-RL letter 94-SST-052, T. R. Sheridan, to President, WHC, "Closure of the Ferrocyanide Unreviewed Safety Question," dated March 4, 1994.

(2) The amount of FeCN reported in the tanks is based on WHC-SD-WM-ER-133-REV 0, "An Assessment of the Inventories of the FeCN Watch List Tanks," (Table 3-7), October 1991.

(3) The estimated heat generation rates are from WHC-EP-0709, "Estimatation of Heat Load in Waste Tanks Using Average Vapor Space Temperatures," dated December 1993. This document analyzed all ferrocyanide tanks.

(4) This tank also contains a high concentration (>3% wt TOC) of organic salts.

(5) 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.

(6) 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.

(7) Operating Specifications Document OSD-T-151-00030 provides the following definitions for tanks containing ferrocyanide:

Level 1 SAFE TANKS - A tank is classified as SAFE for interim storage if the fuel concentration of the solids, calculated on a zero-free water basis, in all hemogenized core sample quarter segments is +/- 8 wt% sodium nickel ferrocyanide on an energy equivalent basis. Tanks not meeting this criteria are classified either CONDITIONALLY SAFE or UNSAFE.

Level 2 CONDITIONALLY SAFE TANKS - A tank is classified as CONDITIONALLY SAFE for interim storage if the fuel concentration of the solids, calculated on a zero-free water basis, in all homogenized core sample quarter segments, is 8 wt% sodium nickel ferrocyanide on an engery equivalent basis AND the free water content is equal to or greater than [4/3][fuel wt% - 8]. Free water content is based on drying of samples at 120 degrees Centigrade for 18 hours. Tanks not meeting this criteria are classified UNSAFE.

Wastes which do not meeting SAFE or CONDITIONALLY SAFE categories are defined as UNSAFE. No tanks are currently classified UNSAFE.

Four tanks (BX-102, BX-106, C-109, C-112) are classified SAFE, the other 16 Ferrocyanide Watch List tanks are classified CONDITIONALLY SAFE.

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

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

Temperatures in these tanks did not exceed the applicable maximum temperature criteria for the month of August 1994.
All Watch List tanks are reviewed for increasing temperature trends. Temperatures are taken in the waste unless indicated otherwise.

Tank No.	Riser No.		Highest Temperature Reading (F.) in Waste	Date of Reading	Total Waste (3) (inches)	Monitoring Frequency	Assumed Leaked Date	Interim Stabilized Date
A-101 (2)	R-12		155	08/24/94	354	Weekly	SOUND	N/A
AX-101	R-9b		138	08/24/94	279	Weekly	SOUND	N/A
AX-103	R-13c		117	08/24/94	48	Weekly	SOUND	8/87
S-102 (2)	R-3		107	08/29/94	207	Weekly	SOUND	N/A
S-111(2)	R-4		91	08/29/94	224	Weekly	SOUND	N/A
S-112	R-4		83	08/29/94	239	Weekly	SOUND	N/A
SX-101 (5)	R-15		137	08/29/94	173	Weekly	SOUND	N/A
SX-102	R-16		151	08/29/94	205	Weekly	1993	N/A
SX-103(2)	R-2		175	08/08/94	245	Weekly	SOUND	N/A
SX-104	R-2		168	08/08/94	231	Weekly	1988	N/A
SX-105	R-2		180	08/08/94	256	Weekly	SOUND	N/A
SX-106 (2)	R-16		112	08/22/94	203	Weekly	SOUND	N/A
SX-109 (1)	R-10		147	08/29/94	98	Weekly	1965	5/81
SX-109 (1)	R-19		152	08/22/94	98	Weekly	1965	5/81
T-110	R-8		71	08/22/94	145	Weekly	SOUND	N/A
U-103(2)	R-1		86	08/22/94	178	Weekly	SOUND	N/A
U-105(2)	R-1		89	08/22/94	159	Weekly	SOUND	N/A
U-107 (2)(5)	R-1		77	08/22/94	155	Weekly	SOUND	N/A
U-108	R-1		87	08/22/94	178	Weekly	SOUND	N/A
U-109	R-1		84	08/22/94	176	Weekly	SOUND	N/A
AN-103		Double-shell tank	116	08/31/94		Weekly	SOUND	N/A
AN-104		Double-shell tank	121	08/31/94		Weekly	SOUND	N/A
AN-105		Double-shell tank	113	08/31/94		Weekly	SOUND	N/A
AW-101 (4)		Double-shell tank	103	07/25/94		Weekly	SOUND	N/A
SY-101	Riser 17b	Double-shell tank	117	08/08/94		Daily	SOUND	N/A
SY-101	Riser 17c	Double-shell tank	118	08/17/94		Daily	SOUND	N/A
SY-103		Double-shell tank	100	08/22/94		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 A-101, S-102, S-111, SX-103, SX-106, U-103, U-105 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 August 1994. These tanks are monitored weekly. All Watch List tanks are reviewed for increasing temperature trends.

Temperatures are taken in the waste unless indicated otherwise.

Tank No.	Temperature Reading (F.) in waste	Date of Reading	Total Waste Inches (4)	Assumed Leaked Date	Interim Stabilized Date	Source of Waste	Organic Content (wt.%) (6)	TOC (WT.%) (7)	Waste Moisture Content (wt.% H2O)	Date Last Sampled
A-101 (14)	155	08/24/94	354	SOUND	N/A			10.0	34.00	
AX-102 (14)	79	08/24/94	21	9/88	N/A			10.0	50.00	
B-103	68	08/17/94	29	1978	2/85	First and second cycle waste from B Plant and in-tank solidification (ITS-1 & ITS-2) evaporator bottoms (10)	11.4 (8)	3.3	85.34	9/75
C-102 (14)	85	08/31/94	161	SOUND	N/A			3.0	83.00	
C-103 (3)	121	08/31/94	78	SOUND	N/A	PUREX and insoluble strontium-rich sluicing solids from the operation of 244-CR Vault (10)	-	-	91.00	9/90
S-102 (1)	107	08/29/94	207	SOUND	N/A	REDOX (10)	21.0 (9)	6.1	48.25	2/80
S-111 (14)	91	08/29/94	224	SOUND	N/A			3.0	18.00	
SX-103 (14)	175	08/08/94	244	SOUND	N/A			5.0	15.00	
SX-106 (1)	122	08/22/94	203	SOUND	N/A	Salt waste and first cycle condensate from REDOX, and 242-S Evaporator bottoms (10)	14.6 (8)	4.3	84.73	8/79
T-111 (11)	72	08/22/94	232	1984 Assumed Re-leaker 1994	N/A	Second cycle waste, 224 waste, Decontamination & Decommissioning operatings at T-Plant (12)	14.0 (13)	4.1	80.00	3/94 (15)
TX-105	95	08/29/94	228	1977	9/83	) Tributyl phosphate (TBP)	12.8 (8)	3.7	35.33	1/81
TX-118 (2)	75	08/31/94	134	SOUND	4/83	) process waste and 242-T	20.2 (9)	5.9	43.00	9/81
TY-104 (14)	70	08/31/94	24	1981	11/83			1.0	50.00	
U-103 (14)	86	08/22/94	178	SOUND	N/A			4.0	18.00	
U-105 (14)	89	08/22/94	159	SOUND	N/A			3.0	21.00	
U-106	81	08/22/94	90	SOUND	N/A	) Evaporator bottoms (10)	46.6 (9)	13.6	N/A	6/77
U-107 (1)	77	08/22/94	155	SOUND	N/A	)	14.7 (8)	4.3	99.77	12/74
U-111 (5)	80	08/22/94	127	SOUND	N/A	Concentrated B Plant Waste (10)	48.2 (9)	14.1	40.04	7/93
U-203 (14)	66	08/29/94	9	SOUND	N/A			3.0	68.70	
U-204 (14)	66	08/22/94	9	SOUND	N/A			3.0	88.70	
20 Tanks										

See Footnotes next page

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

August 31, 1994

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) Calculated from data developed by Track Radioactive Components (TRAC) computer code, 1984.

(9) "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.

(10) 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.

(11) Tank 241-T-111 was added to the Organic Salts Watch List on February 28, 1994, upon recommendation by WHC Waste Tank Safety Program.

(12) WHC, 1990, "A History of the 200 Area Tank Farms," WHC-MR-0132, Westinghouse Hanford, Richland, Washington.

(13) Pacific Northwest Laboratories analysis on Core 33, Segment 2, dated January 14, 1994.

(14) Ten tanks (A-101, AX-102, C-102, S-111, SX-103, TY-104, U-103, U-105, U-203, and U-204) were added to this Watch List upon the recommendation of WHC to DOE-RL on May 15, 1994, and concurrence by DOE on May 25, 1994. Sampling data not yet available.

(15) Data not yet available.

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 August 1994, with the exception of C-106.. See footnote (2) next page. All high heat load tanks are on active ventilation unless indicated otherwise in the footnotes. These high heat load tanks are reviewed for increasing temperature trends. Temperature are taken in the waste unless indicated otherwise.

Tank No.	Riser No. (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	195	08/24/94	18	Weekly	50000	15	1975	9/78
A-105 (4)	R-16	156	08/03/94	14	Weekly	50000	15	1963	7/79
C-106 (2)	R-8	164	08/28/94	72	Weekly	110000	32	SOUND	N/A
C-106 (2)	R-14	216	08/02/94	72	Weekly	110000	32	SOUND	N/A
SX-107	R-10	171	08/01/94	45	Monthly	42000	12	1964	10/79
SX-107	R-14	169	08/01/94	45	Monthly	42000	12	1964	10/79
SX-108	R-10	193	08/01/94	49	Monthly	45000	13	1962	8/79
SX-108	R-19	198	08/01/94	49	Monthly	45000	13	1962	8/79
SX-109 (3)	R-10	147	08/29/94	98	Weekly	50000	15	1965	5/81
SX-109 (3)	R-19	152	08/22/94	98	Weekly	50000	15	1965	5/81
SX-110	R-12	173	08/01/94	30	Monthly	42000	12	1976	8/79
SX-110	R-20	169	08/01/94	30	Monthly	42000	12	1976	8/79
SX-111	R-10	192	08/01/94	53	Monthly	44000	13	1974	7/79
SX-111	R-19	165	08/01/94	53	Monthly	44000	13	1974	7/79
SX-112	R-10	151	08/01/94	41	Monthly	43000	13	1969	7/79
SX-112	R-19	158	08/01/94	41	Monthly	43000	13	1969	7/79
SX-114	R-10	190	08/01/94	73	Monthly	58000	17	1972	7/79
SX-114	R-19	188	08/01/94	73	Monthly	58000	17	1972	7/79
10 Tanks								Legend: Tree = Thermocouple Tree	
A-105 Laterals (5)	R-1	248	08/24/94		Weekly				

Temperatures are taken in 34 thermocouples located in the laterals beneath A-105. SAR requirements (see top of table) do not apply to these temperatures; however, Westinghouse Hanford has voluntarily chosen to apply the waste temperature limits to the soil temperature for surveillance reporting.

Footnotes – see next page

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

August 31, 1994

Footnotes:

(1) High heat loads as of 1988, evaluation completed April 20, 1989 (kW = 3412 Btu/h). The predominant heat load for these tanks is from CS 137 (half life of 30 years) and SR 90 (half life of 28.1 years). Tank C-105 was re-evaluated in WHC-SD-WM-ER-189, "Thermal Analysis of Tank 241-C-105 in Support of Process Test," January 1993. Engineering Change Notice #196834, June 24, 1993, changed the status of C-105 from High Heat Load to Normal, effective July 1, 1993. Tank C-106 was re-evaluated using a revised thermal history based on the thermal transient behavior during the ventilation outage in 1992. WHC-SD-WM-ER-200 "Revised Thermal History of Tank 241-C-106," issued December 20, 1993, documents the new heat load estimate of 110,000 Btu/hr (+/-20,000 Btu/h) for this tank.

(2) Tank C-106 is on the high heat load Watch List because in the event of a leak "without water additions the tank could exceed structural temperature limits resulting in unacceptable structural damage." A process test to reduce liquid inventory was completed on June 15, 1994. Water addition resumed June 17 to maintain liquid level between 70 and 74 inches. After the water addition, thermocouple readings in Riser 14 started to rise with several oscillations, while Riser 8 remained approximately the same as previous readings. See Unusual Occurrence RL-WHC-TANKFARM-1994-0036. Preliminary conclusion was that after the water addition, the waste was redistributed, filling a well surrounding the riser. The thermocouples were in this well of water but because the waste has been redistributed, it is coming into direct contact with the thermocouple sensors, causing the temperature measurement to rise.

There is no indication of increased radiation readings in or around the tank. The evaporative water cooling of the tank waste is consistent with historical levels. Temperature and liquid levels are being monitored closely and the ventilation flow rate has been increased.

(3) 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.
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. A review study completed February 1994, concluded that based on calculated heat loads, tank temperatures will not exceed the operating limits and structural integrity will not be compromised. The study recommended that the portable exhauster be discontinued and the heat load status for A-105 be changed from high to normal.

(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).

Tanks SX-107, 108, 109, 110, 111, 112, and 114
Each of these tanks has eight thermocouple trees, with eight thermocouples on each tree, with the exception of SX-108, which has four operational thermocouples on each of two trees. Two trees 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	(Also see	SX-101 *	SX-107
A-105	item #4	SX-102 *	SX-108
A-106	above)	SX-103 *	SX-109 *
C-104		SX-104 *	SX-110
C-105		SX-105 *	SX-111
C-106 *		SX-106 *	SX-112
			SX-114

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

(Page 1 of 3)

Temperatures are taken semiannually in January and July, unless otherwise indicated, in the following 91 single-shell tanks. Legend follows table.

		Highest Temperatures taken in waste		Total Waste (1)		
	Tank No.	Jan. 94	Jul. 94	Kgal	Inches	Comments
1	A-102	87	94	41	15	
2	A-103	114	119	370	135	
3	A-106	135	136	125	50	
4	AX-104	92	97	7	3	
5	B-101	109	107	113	48	
6	B-102	63	80	32	19	TC#1 O/S, reading in vapor space
7	B-104	65	65	371	142	
8	B-105	65	66	306	50	
9	B-106	63	64	117	67	TC#1 & 2 O/S
10	B-107	60	63	165	41	TC#1 thru 3 O/S, reading in vapor space
11	B-108	64	63	94	54	
12	B-109	63	62	127	97	
13	B-110	63	69	246	94	TC#1 thru 4 O/S. Reading in vapor space
14	B-111	86	73	237	19	TC#1 & 2 O/S, work order issued, historical readings erratic
15	B-112	64	65	33	7	
16	B-201	60	61	29	151	
17	B-202	60	61	27	141	
18	B-203	61	61	51	263	
19	B-204	61	61	50	258	
20	BX-101	O/S	71	43	27	TMACS reading
21	BX-103	O/S	71	66	31	TMACS reading
22	BX-104	O/S	O/S	99	43	(2) No TC tree per Riser Configuration document
						Last reading 87 F. in 10/80
23	BX-105	66	70	51	26	TMACS reading
24	BX-107	O/S	69	345	133	TMACS reading
25	BX-108	65	69	26	17	TMACS reading
26	BX-109	O/S Riser 3	72	193	78	TMACS reading
		Riser 5	74	193	78	TMACS reading
27	BX-110	74	68	199	80	TMACS reading
28	BX-111	69	70	211	84	TMACS reading
29	BX-112	65	68	165	67	TMACS reading
30	BY-101	75	74	387	148	TMACS reading
31	BY-102	O/S	O/S	341	131	(2) No TC tree per Riser Configuration document.
						Last reading 72 F. in 4/79
32	BY-109	O/S	O/S	423	161	(2) No TC tree per Riser Configuration document.

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

(Page 2 of 3)

Temperatures are taken semiannually in January and July, unless otherwise indicated, in the following 91 single-shell tanks. Legend follows table.

		Highest Temperatures taken in waste		Total Waste (1)		
	Tank No.	Jan. 94	Jul. 94	Kgal	Inches	Comments
33	C-101	86	92	88	39	TMACS reading
34	C-104	85	97	295	115	TMACS reading
35	C-105	80	92	150	63	TMACS reading
36	C-107	124	123	275	107	TMACS reading
37	C-110	66	71	187	75	TMACS reading
38	C-201	56	64	2	13	TMACS reading
39	C-202	60	65	1	8	TMACS reading
40	C-203	59	61	5	29	TMACS reading
41	C-204	O/S	O/S	3	18	(2) In-tank photos revealed no tree, no readings since prior '91.
42	S-101	118	117	427	162	TC#1, 3, 5, & 6 O/S, work order issued
43	S-103	87	88	248	98	
44	S-104	108	107	294	114	
45	S-105	78	76	456	173	
46	S-106	81	80	543	205	
47	S-107	110	108	368	129	
48	S-108	89	90	604	227	
49	S-109	68	85	568	214	
50	S-110	117	117	390	149	
51	SX-113	77	79	26	15	
52	SX-115	O/S	O/S	12	10	(2) No TC tree, per Riser Configuration document, last reading prior to 12/91
53	T-101	72	69	102	45	TMACS reading
54	T-102	O/S	O/S	32	19	(2) No TC tree per Riser Configureation document. last reading 68 F. in 2/81
55	T-103	62	68	27	17	TMACS reading
56	T-104	62	68	445	169	TMACS reading
57	T-105	O/S	O/S	98	43	(2) No TC tree per Riser Configuration document
58	T-106	60	66	21	15	TMACS reading
59	T-108	57	67	180	73	TMACS reading
60	T-109	O/S	68	58	29	TMACS reading
61	T-112	60	66	67	32	TMACS reading
62	T-201	60	66	29	150	TMACS reading
63	T-202	62	68	21	110	TMACS reading
64	T-203	64	65	35	182	TMACS reading
65	T-204	63	64	38	197	TMACS reading
66	TX-101	O/S	O/S	87	39	(2) No TC tree per Riser Configuration document
67	TX-102	O/S	O/S	113	49	Cable cut from tree

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 91 single-shell tanks. Legend follows table.

	Tank No.	Highest Temperatures taken in waste Jan. 94	Jul. 94	Total Waste (1) Kgal	Inches	Comments
68	TX-103	71	91	157	54	Cable cut from tree, readings taken by Instrument Technician
						High reading taken 1/93 was 71 F.
69	TX-104	65	64	65	31	Cable cut from tree, readings taken by Instrument Technician
70	TX-106	78	78	453	172	Cable cut from tree, readings taken by Instrument Technician
71	TX-107	66	68	36	21	Cable cut from tree, readings taken by Instrument Technician
72	TX-108	68	81	134	56	Cable cut from tree, readings taken by Instrument Technician
73	TX-109	94	O/S	384	147	Cable cut from tree, readings taken by Instrument Technician
						Readings erratic. 1/93 at 97F., 7/93 at 64F, 1/94 at 94F,
						7/94 at 192F.
74	TX-110	O/S	O/S	462	175	Cable cut from TC tree
75	TX-111	79	78	370	142	Cable cut from tree, readings taken by Instrument Technician
						High reading taken 1/93 was 73 F.
76	TX-112	67	71	649	243	Cable cut from tree, readings taken by Instrument Technician
77	TX-113	72	74	607	228	Dial pushed inside housing, readings taken by Instr. Tech.
78	TX-114	O/S	O/S	535	202	Cable cut from TC tree
79	TX-115	70	72	640	240	Dial pushed inside housing, readings taken by Instr. Tech.
80	TX-116	O/S	O/S	631	237	(2) Tree cut off in riser per Riser Configuration document
81	TX-117	O/S	O/S	626	235	Cable cut from TC tree
82	TY-102	60	61	64	31	
83	TY-105	79	79	231	91	
84	TY-106	59	62	17	14	
85	U-101	67	64	25	17	
86	U-102	85	84	374	143	
87	U-104	O/S	O/S	122	52	(2) No TC tree per Riser Configuration document
88	U-110	76	75	186	75	
89	U-112	63	65	49	25	
90	U-201	61	64	5	29	
91	U-202	61	62	5	29	

(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. In-tank photos revealed C-204 also has no tree. See individual tank comments above.

(3) T-111 was deleted from this list and added to the Organics Watch List in February 1994

(4) AX-102, C-102, U-203 and U-204 were deleted from this list and added to the Organics Watch List in May 1994.

LEGEND:

TC - Thermocouple
TMACS - Tank Monitor & Control System
O/S - Out of service
Riser Configuration document - WHC-SD-RE-TI-053, REV 8, "Riser Configuration Document for Single-Shell Tanks," dated September 1991

SUMMARY:

	Jul. 94
Readings obtained in SSTs	77
No readings (TC trees O/S - includes 10 tanks with no trees - see footnote above)	14
Total low heat load tanks	91

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"
MT/FIC/ ENRAF	= Surface level measurement devices
OSR/SAR	= Operations Safety Requirements/Safety Analysis Report, SD-WM-SAR-006, Rev 2, 2/86; -SAR-034, Rev 0, 6/91
OSD	= Operating Specifications Doc., OSD-T-151-00013, Rev D-0, 8/90
N/A	= Not applicable
O/S	= Out of Service
Neutron	= LOW readings taken by Neutron probe

Information as of August 31, 1994

Tank Number	Category		Temperature Readings (5)(6)	Primary Leak Detection Source (9)	Surface Level Readings (1) (-357)			LOW Readings (-357)	Radiation Readings	
	Watch List(6)	High Heat			MT	FIC	ENRAF	Neutron	Lateral Readings (-357)	Drywell Readings (OSR/SAR)
A-101	X			LOW		None	None			
A-102				None	None		None	None		
A-103				LOW	None		None			
A-104		X		None		None	None	None		
A-105		X		None		None	None	None		
A-106				None	None		None	None		
AX-101	X			LOW	None		None			
AX-102				None		None	None	None		
AX-103	X			None	None		None	None		
AX-104				None		None	None	None		
B-101				None	None		None	None		
B-102				FIC	None		None	None		
B-103	X			None	None		None	None		
B-104				LOW		None	None			
B-105				LOW		None	None			
B-106				FIC	None		None	None		
B-107				None		None	None	None		
B-108				None	None		None	None		
B-109				None		None	None	None		
B-110				None		None	None	None		
B-111				None	None		None	None		
B-112				FIC	None		None	None		
B-201				MT		None	None	None		
B-202				MT		None	None	None		
B-203				MT		None	None	None		
B-204				MT		None	None	None		
BX-101				MT		None	None	None		
BX-102	X			None		None	None	None		
BX-103				FIC	None		None	None		
BX-104			O/S-O/C	FIC	None		None	None		
BX-105				None	None		None	None		
BX-106	X			ENRAF	None	None		None		
BX-107				FIC	None		None	None		

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

149 TANKS (Sheet 2 of 5)

Information as of August 31, 1994

Tank Number	Category		Temperature Readings (5)(6)	Primary Leak Detection Source (9)	Surface Level Readings (1) (-357)			LOW Readings (-357) (	Radiation Readings	
	Watch List(6)	High Heat			MT	FIC	ENRAF	Neutron	Lateral Readings (-357)	Drywell Readings (OSR/SAR)
BX-108				None		None	None	None	None	
BX-109				FIC	None		None	None	None	
BX-110 (4)				None		None	None	None	None	
BX-111 (4)				LOW		None	None		None	
BX-112				FIC	None		None	None	None	
BY-101 (4)				LOW	O/C	None	None		None	
BY-102			O/S-O/C	MT		None	None		None	
BY-103	X			LOW		None	None		None	
BY-104	X			LOW		None	None		None	
BY-105	X			LOW		None	None		None	
BY-106	X			LOW		None	None		None	
BY-107	X			LOW		None	None		None	
BY-108	X			None		None	None	None	None	
BY-109			O/S-O/C	FIC	None		None		None	
BY-110	X			LOW		None	None		None	
BY-111	X			LOW		None	None		None	
BY-112	X			LOW		None	None		None	
C-101				None		None	None	None	None	
C-102				None	None		None	None	None	N/A
C-103	X			ENRAF	None	None		None	None	
C-104				None	None		None	None	None	
C-105				FIC	None		None	None	None	
C-106 (4)	X	X		FIC	None		None	None	None	
C-107				FIC	None		None	None	None	
C-108	X			None		None	None	None	None	
C-109	X			None		None	None	None	None	
C-110				MT		None	None	None	None	
C-111	X			None		None	None	None	None	
C-112	X			None		None	None	None	None	
C-201				None		None	None	None	None	
C-202				None		None	None	None	None	
C-203				None		None	None	None	None	
C-204			O/S - O/C	None		None	None	None	None	
S-101				LOW	None		None		None	
S-102	X			LOW	None		None		None	
S-103				ENRAF	None	None			None	
S-104				None		None	None	None	None	
S-105				LOW	None		None		None	
S-106				ENRAF	None	None			None	
S-107				ENRAF	None	None		None	None	
S-108				LOW			None		None	
S-109				LOW	None		None		None	
S-110				LOW	None		None		None	
S-111	X			ENRAF	None	None			None	
S-112	X			LOW	None		None		None	
SX-101	X			LOW	None		None		None	
SX-102	X			LOW	None		None		None	
SX-103	X			LOW	None		None		None	
SX-104	X			None	None		None	O/S-O/C	None	
SX-105	X			LOW	None		None		O/C	
SX-106	X			ENRAF	None	None			None	
SX-107		X		None		None	None	None	O/C	
SX-108		X		None		None	None	None	O/C	

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

149 TANKS (Sheet 3 of 5)

Information as of August 31, 1994

Tank Number	Category		Temperature Readings (5)(6)	Primary Leak Detection Source (9)	Surface Level Readings (1) (-357)			LOW Readings (-357) (	Radiation Readings	
	Watch List(6)	High Heat			MT	FIC	ENRAF	Neutron	Lateral Readings (-357)	Drywell Readings (OSR/SAR)
SX-109 (4)	X	X		None		None	None	None	O/C	
SX-110		X		None		None	None	None	O/C	
SX-111		X		None		None	None	None	O/C	
SX-112		X		None		None	None	None	O/C	
SX-113				None		None	None	None	None	
SX-114		X		None		None	None	None	O/C	
SX-115			O/S – O/C	None		None	None	None	O/C	
T-101 (4)				None			None	None	None	
T-102			O/S – O/C	ENRAF	None	None		None	None	
T-103				None	None		None	None	None	
T-104				LOW		None	None		None	
T-105			O/S – O/C	None	None		None	None	None	
T-106				None	None		None	None	None	
T-107	X			ENRAF	None	None		None	None	
T-108				MT		None	None	None	None	
T-109				None	None		None	None	None	
T-110	X			LOW	None		None		None	
T-111	X			LOW	None		None		None	
T-112				FIC	None		None	None	None	
T-201				MT		None	None	None	None	
T-202				MT		None	None	None	None	
T-203				None		None	None	None	None	
T-204				MT		None	None	None	None	
TX-101			O/S – O/C	FIC	None		None	None	None	
TX-102			O/C	LOW		None	None		None	
TX-103				None	None		None	None	None	
TX-104				None	None		None	None	None	
TX-105	X			None		None	None	O/S–O/C	None	
TX-106				LOW		None	None		None	
TX-107				None	None		None	None	None	
TX-108				None	None		None		None	
TX-109			O/C	LOW	None		None		None	
TX-110			O/C	LOW		None	None		None	
TX-111				LOW		None	None		None	
TX-112				LOW		None	None		None	
TX-113				LOW		None	None		None	
TX-114			O/C	LOW		None	None		None	
TX-115				LOW		None	None		None	
TX-116			O/S O/C	None		None	None	None	None	
TX-117			O/C	LOW		None	None		None	
TX-118	X			LOW	None		None		None	
TY-101	X			None	None		None	None	None	
TY-102				FIC	None		None	None	None	
TY-103	X			LOW	None		None		None	
TY-104	X			FIC	None		None	None	None	
TY-105				None		None	None	None	None	
TY-106				None		None	None	None	None	
U-101				MT		None	None	None	None	
U-102				LOW	None		None		None	
U-103	X			ENRAF	None	None			None	
U-104			O/S – O/C	None		None	None	None	None	
U-105	X			ENRAF	None	None			None	
U-106	X			ENRAF	None	None			None	

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

149 TANKS (Sheet 4 of 5)

Information as of August 31, 1994

Tank Number	Category		Temperature Readings (5)(6)	Primary Leak Detection Source (9)	Surface Level Readings (1) (-357)			LOW Readings (-357) (	Radiation Readings	
	Watch List(6)	High Heat			MT	FIC	ENRAF	Neutron	Lateral Readings (-357)	Drywell Readings (OSR/SAR)
U-107	X			ENRAF	None	None			None	
U-108	X			LOW	None		None		None	
U-109	X			ENRAF	None	None			None	
U-110				None	None		None	None	None	
U-111	X			LOW	None		None		None	
U-112				None		None	None	None	None	
U-201				MT		None	None	None	None	
U-202				MT		None	None	None	None	
U-203				None		None	None	None	None	
U-204				MT		None	None	None	None	
Catch Tanks and Special Surveillance Facilities										
A-302-A	N/A	N/A	N/A	(10)	None		None	None	None	None
A-302-B	N/A	N/A	N/A	(10)		None	None	None	None	None
311-ER	N/A	N/A	N/A	(10)	None		None	None	None	None
152-AX	N/A	N/A	N/A	(10)		None	None	None	None	None
151-AZ	N/A	N/A	N/A	(10)	None		None	None	None	None
154-AZ	N/A	N/A	N/A	(10)		None	None	None	None	None
BX-TK/SMP	N/A	N/A	N/A	(10)		None	None	None	None	None
A-TK/SMP	N/A	N/A	N/A	(10)		None	None	None	None	None
204-AR	N/A	N/A	N/A	(10)			None	None	None	None
417-A	N/A	N/A	N/A	(10)			None	None	None	None
Vent Sta.	N/A	N/A	N/A	(10)		None	None	None	None	None
S-302	N/A	N/A	N/A	(10)	None		None	None	None	None
S-302-A	N/A	N/A	N/A	(10)	None		None	None	None	None
S-304	N/A	N/A	N/A	(10)		None	None	None	None	None
TX-302-B	N/A	N/A	N/A	(10)		None	None	None	None	None
TX-302-C	N/A	N/A	N/A	(10)	None		None	None	None	None
U-301-B	N/A	N/A	N/A	(10)	None		None	None	None	None
UX-302-A	N/A	N/A	N/A	(10)	None		None	None	None	None
141-S	N/A	N/A	N/A	(10)		None	None	None	None	None
142-S	N/A	N/A	N/A	(10)		None	None	None	None	None
Totals: 149 tanks	46 Watch List Tanks (4)	10 High Heat Tanks (4)	O/C: 14 tanks – (semiannual monitoring frequency) (5)		O/C: 1 tank 0 catch tanks	O/C: 0 tanks 0 catch tanks	O/C: 0 tanks	O/C: 2 tanks 58 tanks have LOWs (2 are O/S)	O/C: 9 tanks	0

See Footnotes on next page

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

Footnotes:

1. All SSTs have either manual tape or FIC, with the exception of S-108 and T-101, which have both. Tank 101-T also has a zip cord. All SST FICs are connected to CASS, with the exception of BX-106; however, the connection for many tanks is broken. For such cases, manual readings are taken. Manual surface level readings include readings taken by manual tape, manual FIC (not connected to CASS; BX-106), manual readings of automatic FIC (if CASS is printing "0"), or automatic FIC. In some cases, the surface level readings are taken using a zip cord. While less accurate, such readings are acceptable for meeting the surface level reading requirements. Beginning in July 1994, ENRAF gauges were installed to replace FICs. The ENRAF gauges are connected to CASS, but are currently being read manually from the field.

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," Fourth Amendment 1994 (Tri-Party Agreement) requires psychrometric readings to be taken in C-105/106 on a monthly frequency; readings were taken this month.

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; these tanks continue to have temperature readings taken weekly although they are only required to be taken semiannually.

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 91 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 July 1994; a total of 15 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. Implementation of New Leak Detection Operation Specification Document (OSD) - In early July 1994, a new leak detection OSD, WHC-OSD-151-T-00031, "Operating Specifications for Tank Farm Leak Detection," was implemented. This document formalized the leak detection actions that were started in late 1993. Single-shell tanks with the surface level measurement device contacting liquid, partial liquid, or floating crust surface, will be monitored for leak detection on a daily basis. Tanks with a solid surface will be monitored for leak detection on a weekly basis by taking neutron scan data from a Liquid Observation Well (LOW), if an LOW is present. Tanks with a solid surface but without LOWs will not be monitored for leak detection if the tank has been interim stabilized, until an LOW is installed. Non-interim-stabilized tanks will have drywell surveys taken as a backup on a monthly basis if surface or interstitial level measurement equipment is unavailable. The OSD specifies what leak detection methods are to be used for each tank, and the requirements if the readings are not taken on the required frequency or if equipment is out of service.

10. Leak detection for the catch tanks is performed by monitoring for the buildup of liquid in the secondary containment (for most tanks with secondary containment) or for decrease in the liquid level for those tanks without secondary containment or secondary containment monitoring.

    Tanks 240-S-302 and 241-S-302-A are monitored for intrusions only, and are not subject to leak detection monitoring requirements until liquid is present above the instrusion level.

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/ENRAF	= Surface level measurement devices
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
None	= no M.T., FIC or ENRAF installed
O/S	= Out of Service
W.F.	= Weight Factor
Rad.	= Radiation

Information as of August 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/ENRAF	W.F.	Rad.	
AN-101			None				
AN-102			None				
AN-103	X		None				
AN-104	X		None				
AN-105	X		None				
AN-106			None				
AN-107			None				
AP-101							
AP-102				O/S			
AP-103							
AP-104			O/S (9)				
AP-105							
AP-106							
AP-107							
AP-108							
AW-101	X						
AW-102							
AW-103							
AW-104							
AW-105							
AW-106							
AY-101				O/S			O/C
AY-102							O/C
AZ-101				O/S			
AZ-102						O/C	
SY-101	X						
SY-102							
SY-103	X						
Totals: 28 tanks	8 Watch List Tanks	O/C: 0	O/C: 0	O/C: 0	O/C: 0	O/C: 1 tank	O/C: 2 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.

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.

9. A new manual tape was installed on July 19, 1994, but the readings are erratic. The tape is known to be approximately six inches too long.

10. Thermocouple trees in the seven tanks in AN Tank farm were added to the Tank Monitor Control System (TMACS) in August 1994.

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

August 31, 1994

Tank No.	SST/DST	Date of Last Automatic FIC Reading	Reading Status	Comments	Required Monitoring Frequency(-357)
AW-101	DST	10/23/92	Taking manual FIC readings	In compliance	Daily
BY-109	SST	07/26/94	Taking manual FIC readings	In compliance	Daily
C-107	SST	08/10/93	Taking manual FIC readings	In compliance	Daily
SY-101	DST	08/23/91	Taking manual FIC readings	In compliance	Daily
TX-107	SST	10/22/93	Taking manual FIC readings	In compliance	Quarterly
U-Farm	SST	05/17/94	Taking manual FIC readings	In compliance	Daily/Quarterly
AP-102	DST	01/27/93	Taking manual tape readings	In compliance	Daily
Catch Tanks					
A-302-A		04/16/91	Taking manual reading	In compliance	Daily
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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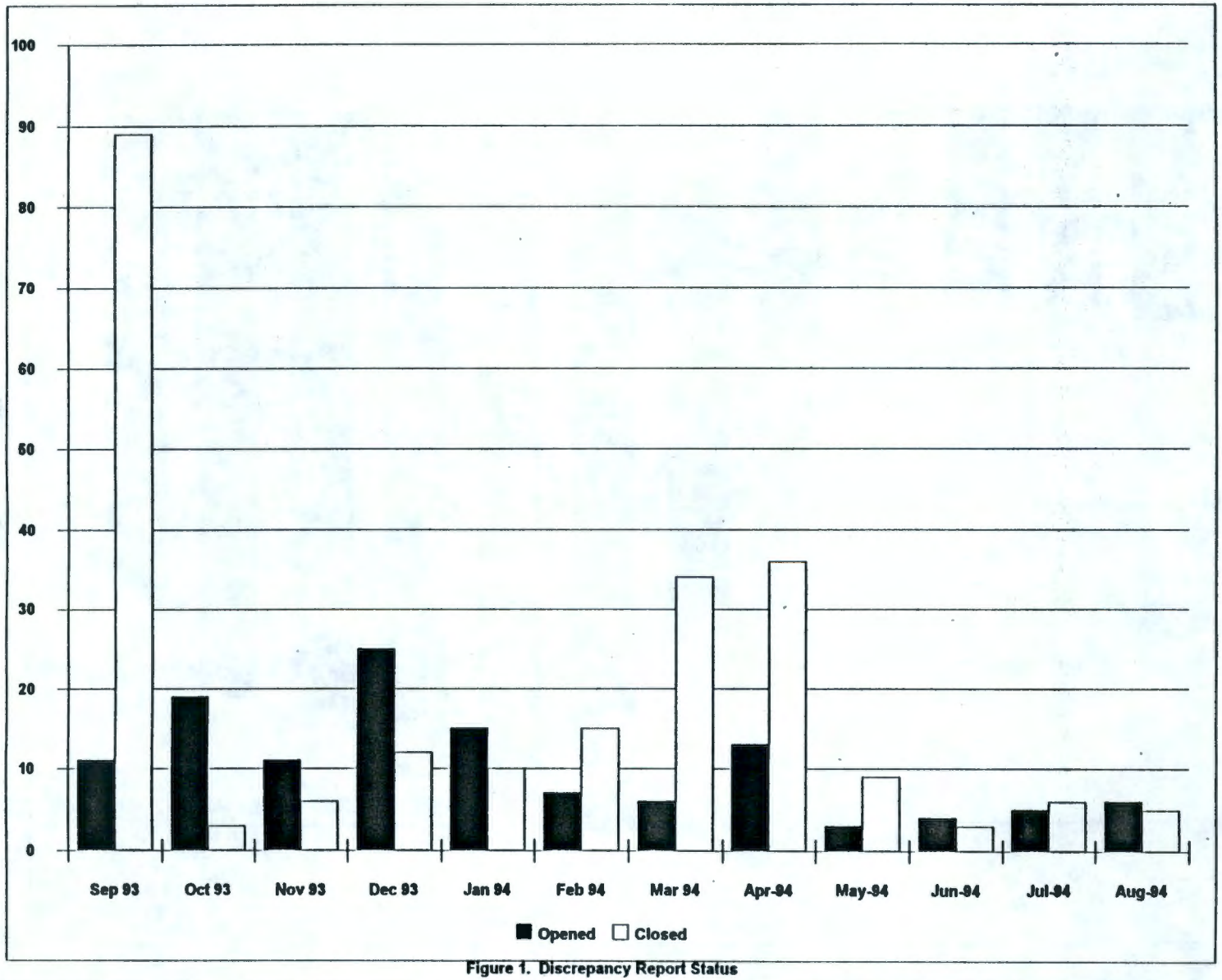

Figure 1. Discrepancy Report Status

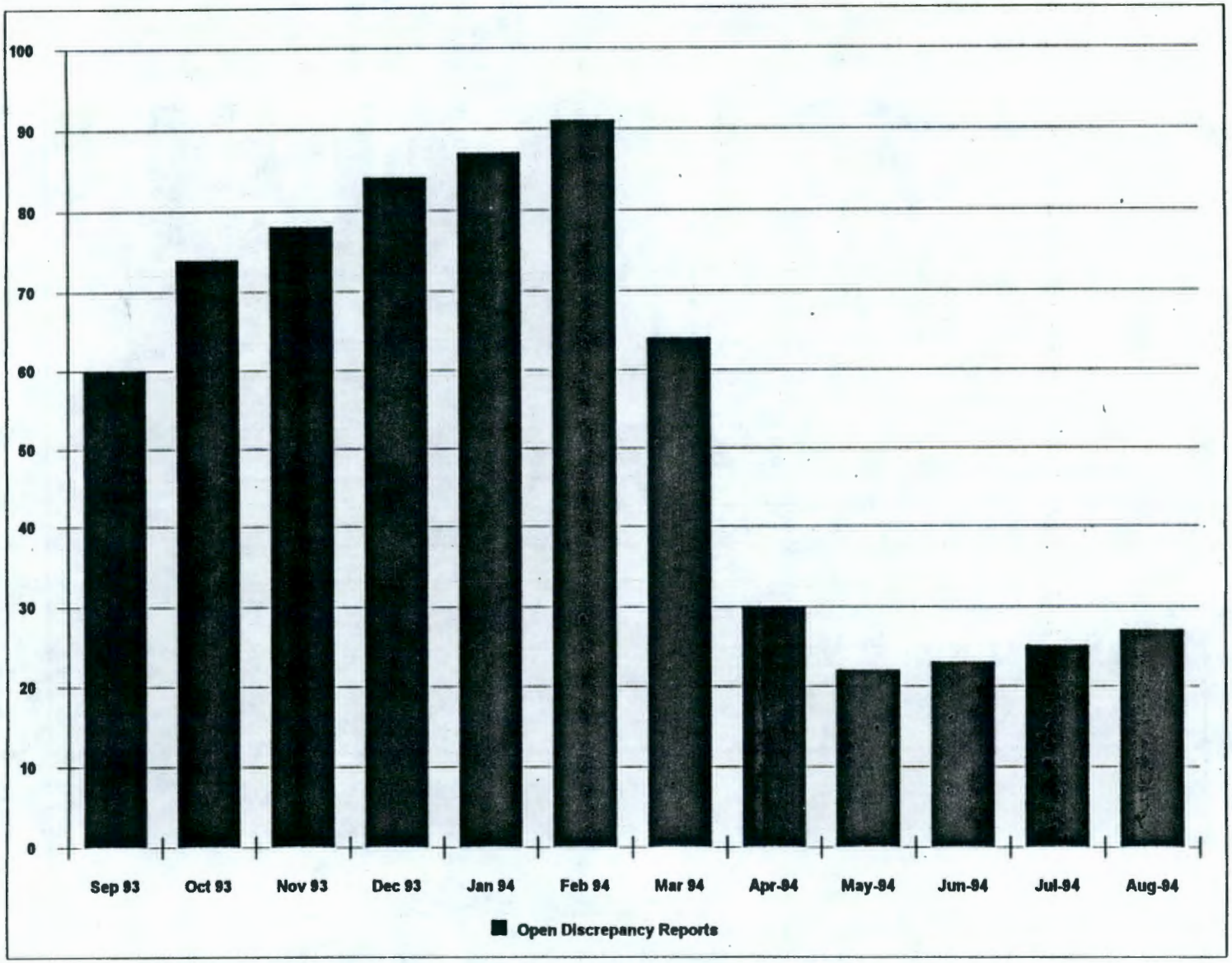

Figure2. Discrepancy Report Status

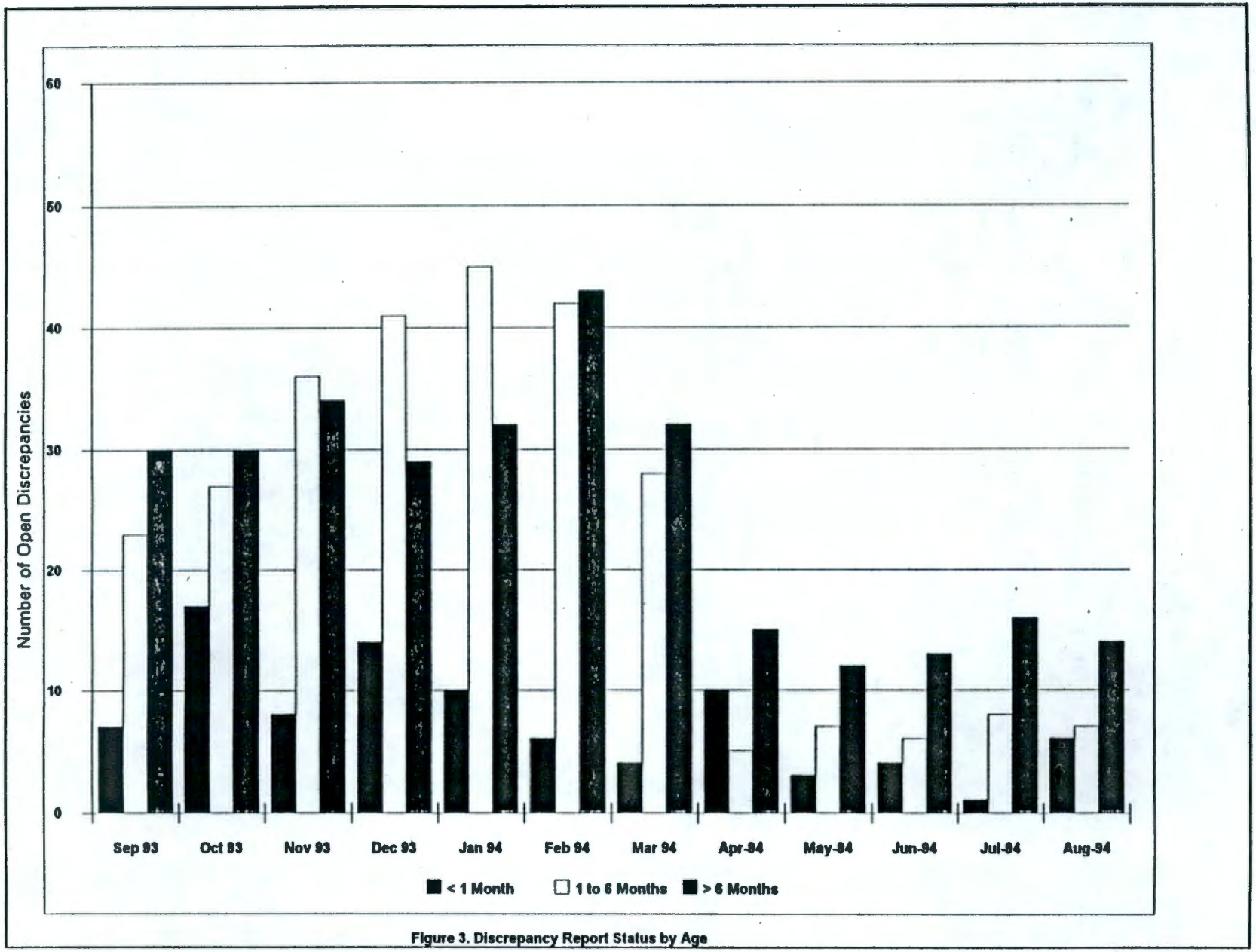

Figure 3. Discrepancy Report Status by Age

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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
AUGUST 1994

DOUBLE-SHELL TANK INVENTORY BY WASTE TYPE

Complexed Waste (102-AN, 107-AN, 101-SY, 103-SY) 101-AY (DC))	4.86 Mgal
Concentrated Phosphate Waste (102-AP,106-AN)	1.12 Mgal
Double-Shell Slurry and Slurry Feed (103-AN, 104-AN, 105-AN, 105-AP, 101-AW)	5.08 Mgal
Aging Waste (NCAW) at 5M Na	1.23 Mgal
Dilute in Aging Tanks (101-AZ, 102-AZ)	0.7 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, 102-AY, 102-SY, 104-AP	8.94 Mgal
NCRW,PFP and Settled Solids (103-AW, 105-AW, 102-SY, 102-AW, 104-AW, 106-AW, 102-AY)	1.52 Mgal
Total Inventory=	23.45 Mgal

SPACE DESIGNATED FOR SPECIFIC USE

Spare Tanks (3) (1 Aging & 1 Non-Aging Waste Tank)	2.28 Mgal
Segregated Tank Space (102-AP, 105-AP, 101-AY, 102-AN, 107-AN,)	0.60 Mgal
Watch List Tank Space (103-AN, 104-AN, 105-AN, 101-SY, 103-SY, 101-AW)	0.73 Mgal
Priority/Operational Tank Space (2) (101-AN, 102-SY, 102-AW, 106-AW)	1.83 Mgal
Miscellaneous Head Space	0.11 Mgal
Total Specific Use Space (06/30/94)	5.55 Mgal

TOTAL DOUBLE-SHELL TANK SPACE

24 Tanks at 1140 Kgal	27.36 Mgal
4 Tanks at 980 Kgal	3.92 Mgal
	31.28 Mgal
Total Available Space	31.28 Mgal
Double-Shell Tank Inventory	23.45 Mgal
Space Designated for Specific Use	5.55 Mgal
Remaining Unallocated Space	2.28 Mgal

(1) Was reduced in volume by -0.00 Mgal this month (Evaporator WVR)
(2) Reduced by Saltwell Liquid pumping, 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. Tank 104-AP has been designated as the non-aging spare tank.

Note: Net change in total inventory since last month: +0.007 Mgal

WVPTOT

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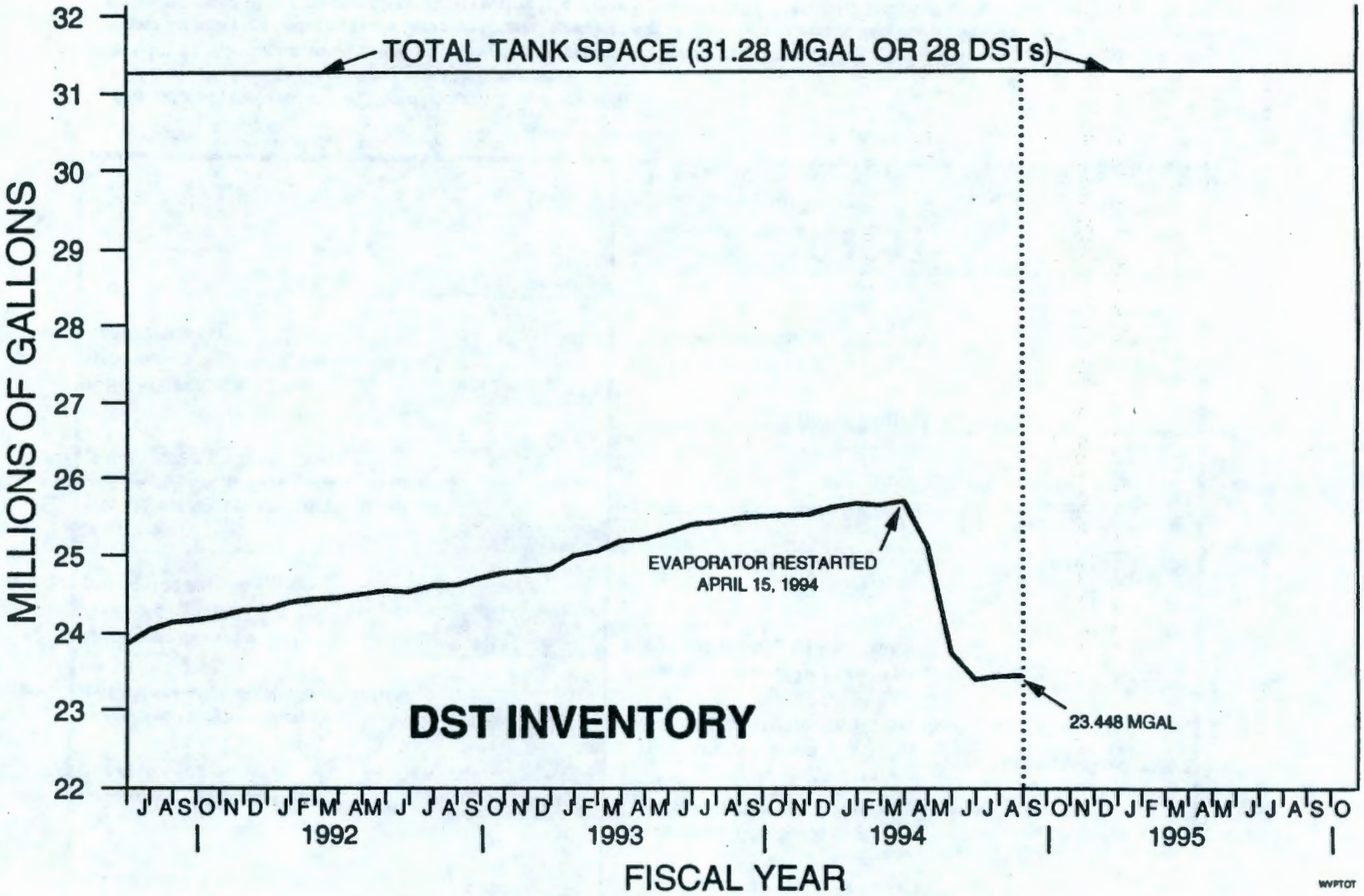

FIGURE B-1. TOTAL DOUBLE-SHELL TANK INVENTORY AND CHANGES

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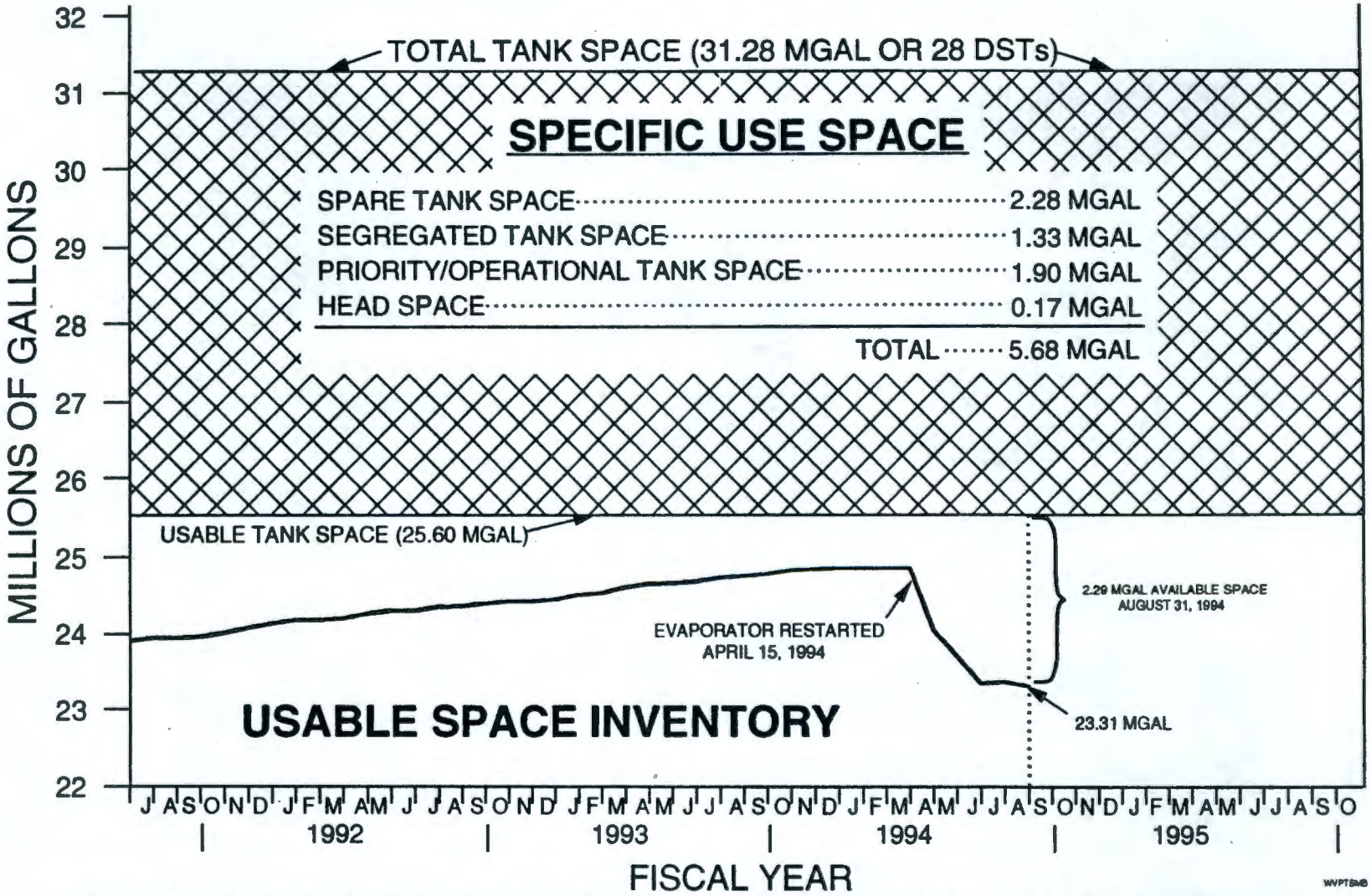
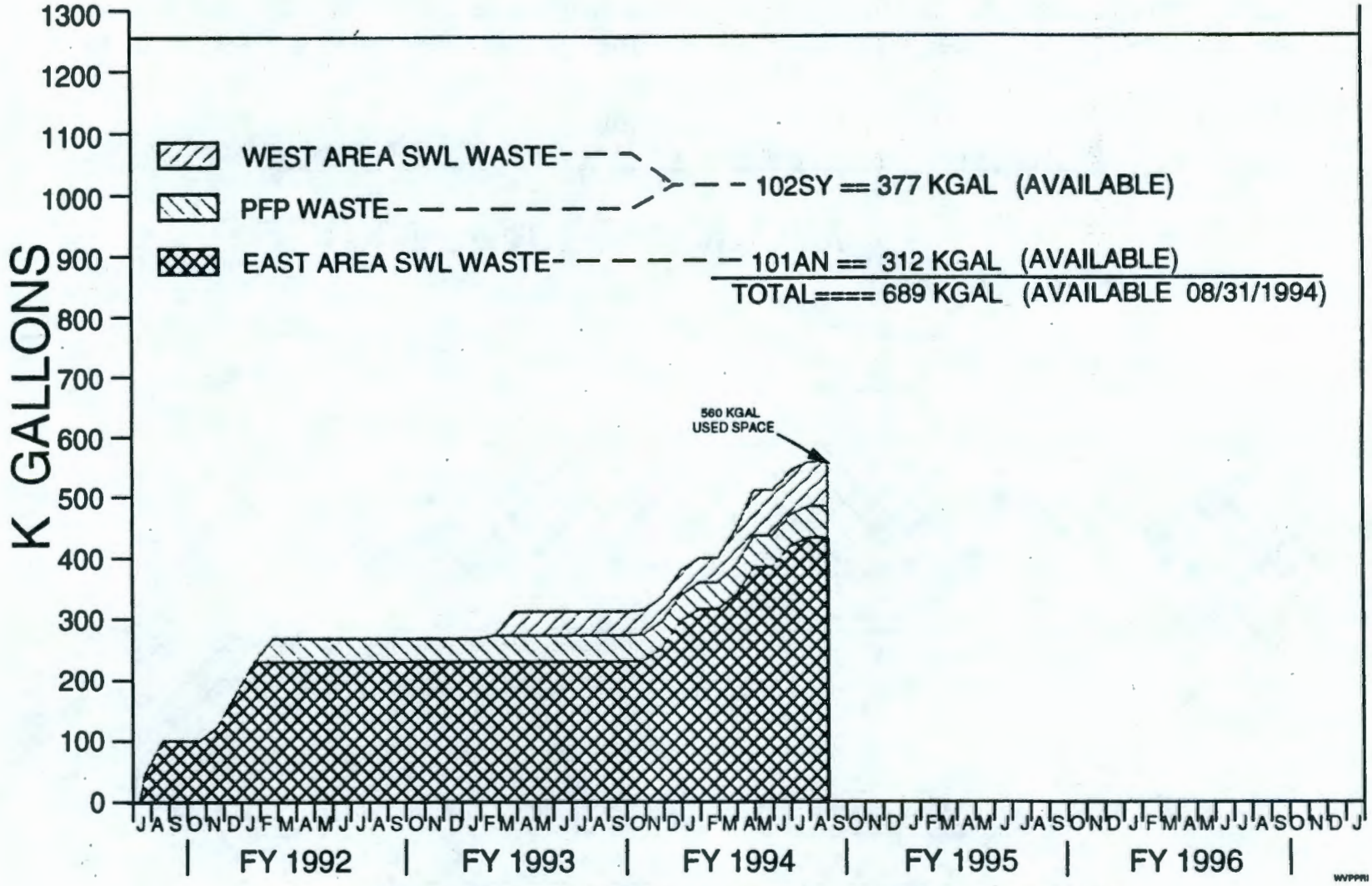


NOTE: THIS GRAPHIC DEPICTS "USABLE" TANK SPACE CHANGES; NOT TOTAL RECEIPTS TO DOUBLE-SHELL TANKS

FIGURE B-2. USABLE TANK SPACE INVENTORY AND CHANGES



NOTE: Graphic Depicts Priority Space Usage, Operational Tanks are not Included

FIGURE B-3. CONTRIBUTIONS TO PRIORITY SPACE

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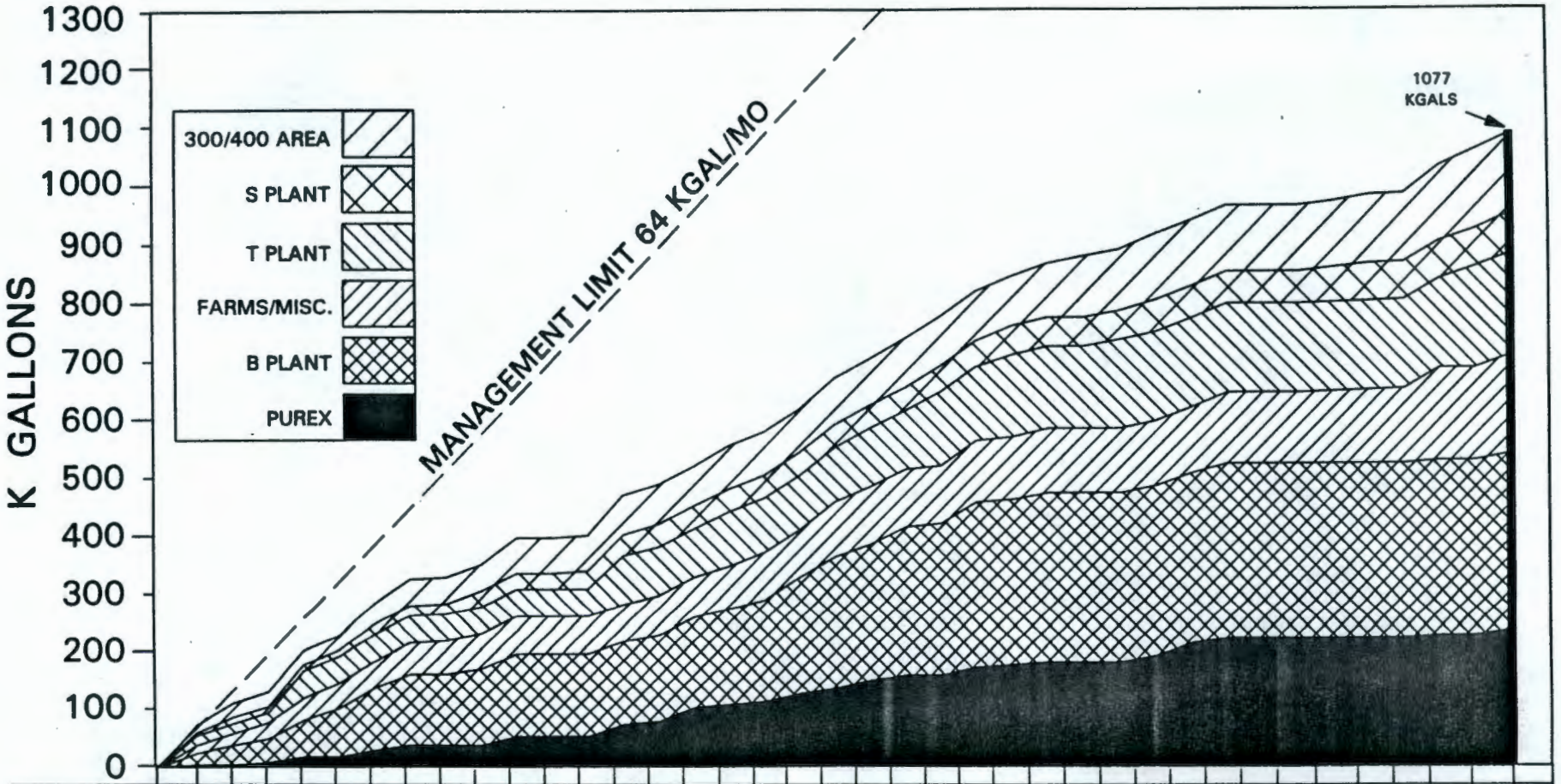

MONTHLY LIMIT	JUL 91	AUG 91	SEP 91	OCT 91	NOV 91	DEC 91	JAN 92	FEB 92	MAR 92	APR 92	MAY 92	JUN 92	JUL 92	AUG 92	SEP 92	OCT 92	NOV 92	DEC 92	JAN 93	FEB 93	MAR 93	APR 93	MAY 93	JUN 93	JUL 93	AUG 93	SEP 93	OCT 93	NOV 93	DEC 93	JAN 94	FEB 94	MAR 94	APR 94	MAY 94	JUN 94	JUL 94	AUG 94	SEP 94
300/400 AREA	5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

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

WVPFACIL

FIGURE B-4. COMPARISON OF FACILITY GENERATATIONS TO MANAGEMENT LIMIT

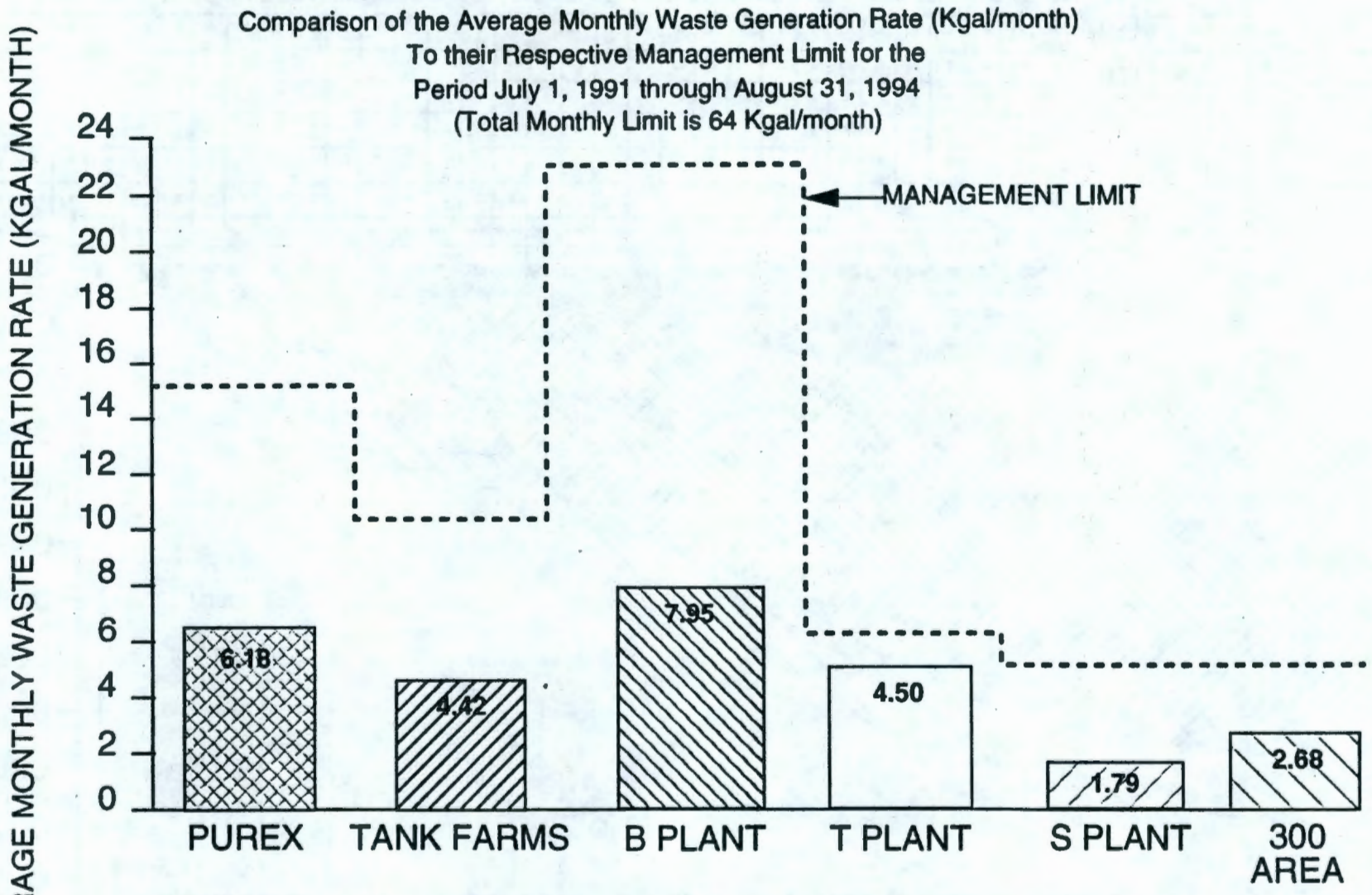

Figure B-5. Comparison of Monthly Average Waste Generation to Management Limit by Facility

WVPAVE

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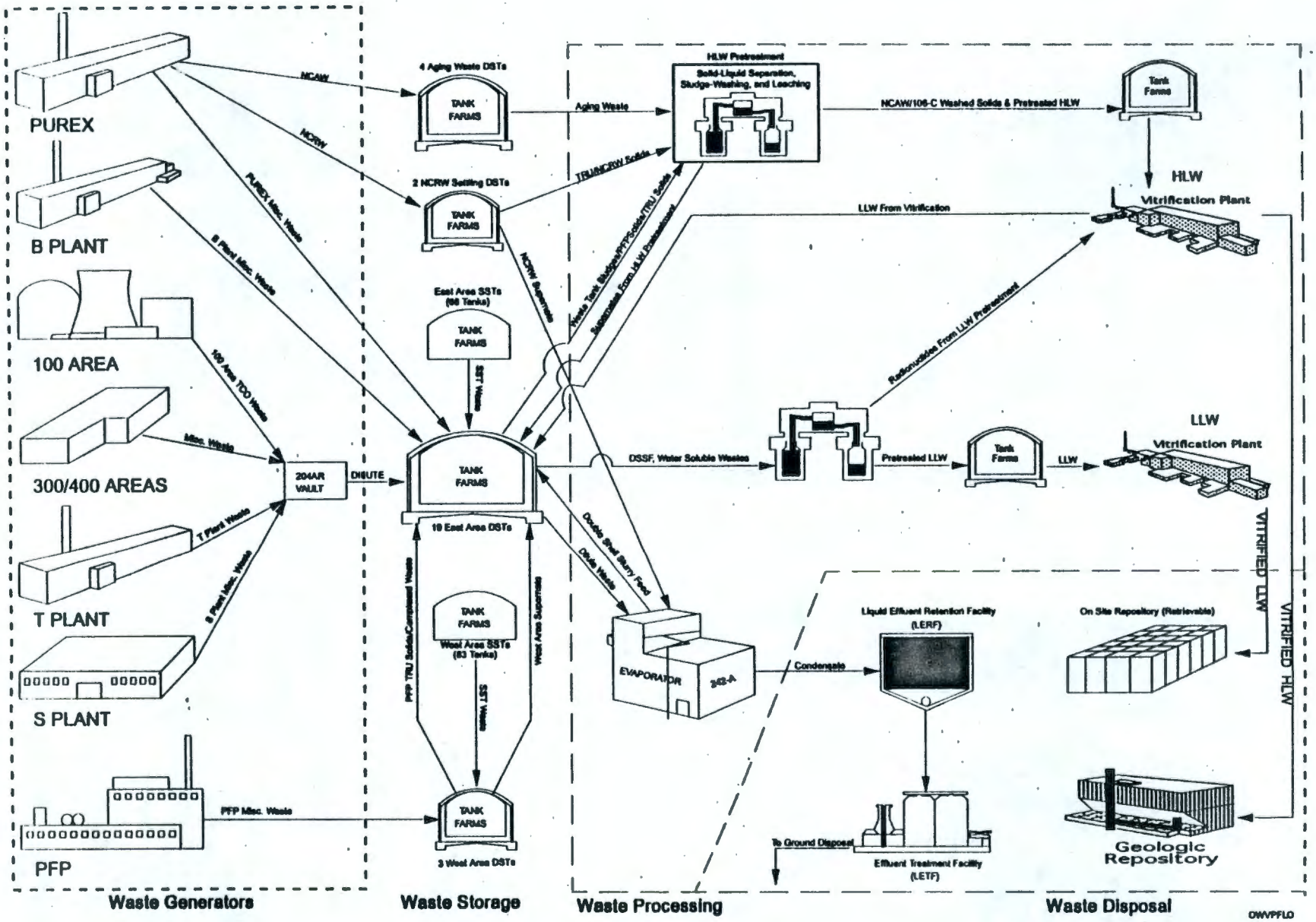

Figure B-6. Overall Waste Flow - Hanford Tank Waste Disposal

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

TANKS	INVENTORY	SOLIDS	TYPE	LEFT
101AW=	1126	84	DSSF	14
102AW=	837	3	DN	303
103AW=	646	487	NCRW	494
104AW=	1123	267	DN	17
105AW=	1057	388	NCRW	83
106AW=	716	211	DN	424
101AY=	869	83	DC	111
102AY=	762	32	DN	218
101AZ=	958	35	NCAW	22
102AZ=	957	95	NCAW	23
101AN=	828	0	DN	312
102AN=	1086	89	CC	54
103AN=	953	373	DSS	187
104AN=	1060	264	DSSF	80
105AN=	1126	0	DSSF	14
106AN=	21	17	CP	1119
107AN=	1061	134	CC	79
101SY=	1101	560	CC	39
102SY=	763	133	PT/DN	377
103SY=	747	4	CC	393
101AP=	316	0	DN	824
102AP=	1102	0	CP	38
103AP=	28	0	DN	1112
104AP=	18	0	DN	1122
105AP=	820	0	DSSF	320
106AP=	1127	0	DN	13
107AP=	1109	0	DN	31
108AP=	1131	0	DN	9
TOTAL=	23448		TOTAL	7832

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

INVENTORY CHANGE	
07/94 TOTAL	23441
08/94 TOTAL	23448
INCREASE	7

SEGREGATED SPACE	
* 101AW=	14
102AP=	38
105AP=	320
* 101SY=	39
* 103SY=	393
101AY=	111
102AN=	54
* 103AN=	187
* 104AN=	80
* 105AN=	14
107AN=	79
TOTAL=	1329

* WATCHLIST TANKS

USABLE SPACE	
101AP=	824
103AP=	1112
104AP=	1122
108AP=	9
103AW=	494
105AW=	83
102AY=	218
106AN=	1119
102AW=	303
106AW=	424
TOTAL=	5708
EVAP. OPERATION	-1140
SPARES	-2280
USABLE LEFT =	2288

MISC. HEADSPACE	
106AP=	13
107AP=	31
104AW=	17
101AZ=	22
102AZ=	23
TOTAL=	106

USABLE SPACE CHANGE	
07/94 TOTAL SPACE	2232
08/94 TOTAL SPACE	2288
INCREASE=	56

NOTE: Increase partially due to Tank 101-AP being moved From "Headspace" to "Usable"

PRIORITY SPACE	
102SY=	377
101AN=	312
TOTAL=	689

PRIORITY SPACE CHANGE	
07/94 TOTAL SPACE	689
08/94 TOTAL SPACE	689
CHANGE=	0

Inventory Calculation by Waste Type:

COMPLEXED WASTE		
102AN=	1086	(CC)
107AN=	1061	(CC)
101SY=	1101	(CC & DSS)
103SY=	747	(CC, DSS & SWL)
101AY=	869	(DC)
TOTAL=	4864	

NCRW SOLIDS (PD)	
103AW=	487
105AW=	388
TOTAL=	875

PFP SOLIDS (PT)	
102SY=	133
TOTAL=	133

CONCENTRATED PHOSPHATE (CP)	
106AN=	21
102AP=	1102
TOTAL=	1123

DILUTE WASTE (DN)	
101AP=	316
103AP=	28
106AP=	1127
107AP=	1109
106AP=	1131
101AN=	828
102AW=	834
104AW=	856
106AW=	505
102AY=	730
104AP=	18
103AW=	159
105AW=	669
102SY=	630
TOTAL=	8940

NCAW (AGING WASTE) (@ 5M Na)	
101AZ=	791
102AZ=	434
AT 5M Na	1225
DN=	690
TOTAL=	1915

DSS/DSSF	
105AP=	820
103AN=	953
104AN=	1060
105AN=	1126
101AW=	1126
TOTAL=	5085

GRAND TOTALS	
CC=	3995
DC=	869
NCRW SOLIDS=	875
DST SOLIDS=	513
PFP SOLIDS=	133
CP=	1123
NCAW=	1915
DSS/DSSF=	5085
DILUTE=	8940
TOTAL=	23448

NOTE: All Values are in Kilogallons.
(*) Watch List Tanks

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

TOTAL AVAILABLE SPACE AS OF AUGUST 31, 1994:			**7832**	**KGALS**

SEGREGATED TANK SPACE: (*)Watch List Tanks	TANK	WASTE TYPE	AVAILABLE SPACE	
	* 101-AW	DSSF	14	KGALS
	102-AP	CP	38	KGALS
	105-AP	DSSF	320	KGALS
	* 101-SY	CC/DSS	39	KGALS
	* 103-SY	CC/DSS	393	KGALS
	101-AY	DC	111	KGALS
	102-AN	CC	54	KGALS
	* 103-AN	DSS	187	KGALS
	* 104-AN	DSSF	80	KGALS
	* 105-AN	DSSF	14	KGALS
	107-AN	CC	79	KGALS
		TOTAL=	**1329**	**KGALS**

AVAILABLE TANK SPACE=	7832	KGALS
MINUS SEGREGATED SPACE=	-1329	KGALS
TOTAL AVAILABLE SPACE AFTER SEGREGATION=	**6503**	**KGALS**

PRIORITY TANK SPACE:	TANK	WASTE TYPE	AVAILABLE SPACE	
	102-SY	DN	377	KGALS
	101-AN	DN	312	KGALS
		TOTAL=	**689**	**KGALS**

AVAILABLE SPACE AFTER SEGREGATION=	6503	KGALS
MINUS PRIORITY SPACE=	-689	KGALS
TOTAL AVAILABLE SPACE AFTER PRIORITY=	**5814**	**KGALS**

MISCELLANEOUS HEADSPACE:	TANK	WASTE TYPE	AVAILABLE SPACE	
	106-AP	DN	13	KGALS
	107-AP	DN	31	KGALS
	104-AW	DN	17	KGALS
	101-AZ	AW	22	KGALS
	102-AZ	AW	23	KGALS
		TOTAL=	**106**	**KGALS**

AVAILABLE SPACE AFTER PRIORITY=	5814	KGALS
MINUS MISCELLANEOUS HEADSPACE=	-106	KGALS
TOTAL AVAILABLE SPACE AFTER HEADSPACE=	**5708**	**KGALS**

USABLE TANK SPACE:	TANK	WASTE TYPE	AVAILABLE SPACE	
	101-AP	DN	824	KGALS
	103-AP	DN	1112	KGALS
	104-AP	DN	1122	KGALS
	108-AP	DN	9	KGALS
	103-AW	NCRW	494	KGALS
	105-AW	NCRW	83	KGALS
	102-AY	DN	218	KGALS
	108-AN	CP	1119	KGALS
EVAPORATOR FEED TANK	102-AW	DN	303	KGALS
EVAPORATOR RECEIVER TANK	106-AW	DN	424	KGALS
		TOTAL AVAILABLE USABLE TANK SPACE=	**5708**	**KGALS**

EVAPORATOR OPERATIONAL TANK SPACE:	-1140	KGALS
SPARE TANK SPACE:	-2280	KGALS
TOTAL TANK SPACE AVAILABLE AFTER ALL DEDUCTIONS=	**2288**	**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
August 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
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).

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 (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 (NCPLX) 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 are out of service.)

INTERIM 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.

Jet Pump
The jet pump system includes 1) a jet assembly with foot valve mounted to the base of two pipes that extend from the top of the well to near the bottom of the well casing inside the saltwell screen, 2) a centrifugal pump to supply power fluid to the down-hole jet assembly, 3) flexible or rigid transfer jumpers, 4) a flush line, and 5) a flowmeter. The jumpers contain piping, valves, and pressure and limit switches.

The centrifugal pump and jet assembly are needed to pump the interstitial liquid from the saltwell screen into the pump pit, nominally a 40-foot elevation rise. The power fluid passes through a nozzle in the jet assembly and acts to convert fluid pressure head to velocity head, thereby reducing the pressure in the jet assembly chamber. The reduction in pressure allows the interstitial liquid to enter the jet assembly chamber and mix with the power fluid. Velocity head is converted to pressure head above the nozzle, lifting power fluid, and interstitial liquid to the pump pit. Pumping rates vary from 0.05 gal to about 4 gal/min.

Saltwell Screen

The saltwell system is a 10-inch diameter saltwell casing consisting of a stainless steel saltwell screen welded to a Schedule 40 carbon steel pipe. The casing and screen are to be inserted into the 12-inch tank riser located in the pump pit. The stainless steel screen portion of the system will extend through the tank waste to near the bottom of the tank. The saltwell screen portion of the casing is an approximately 10-foot length of 300 Series, 10-inch diameter, stainless steel pipe with screen openings (slots) of 0.05 inches.

Emergency Pumping Trailer

A 45-foot Tractor-Type trailer is equipped to provide storage space and service facilities for emergency pumping equipment: this consists of two dedicated jet pump jumpers and two jet pumps, piping and dip tubes for each, two submersible pumps and attached piping, and a skid-mounted Weight Factor Instrument Enclosure (WFIE) with an air compressor and electronic recording instruments. The skid also contains a power control station for the pumps, pump pit leak detection, and instrumentation. A rack for over 100 feet of overground double-contained piping is also in the trailer.

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.

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 entered into the Computer Automated Surveillance System (CASS).

Automatic FIC
An automatic waste surface level measurement device is manufactured by the Food Instrument Company (FIC). The instrument consists of a conductivity electrode (plummet) connected to a calibrated steel tape, a steel tape reel housing and a controller that automatically raises and lowers the plummet to obtain a waste surface level reading. The controller can provide a digital display of the data

and also transmit the reading to the CASS. Some tanks have gauges connected to CASS and others are read manually.

Annulus

The annulus is the space between the inner and outer shells on DSTs only. 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 usually constructed of fiberglass or TEFZEL*-reinforced epoxy-polyester resin. There are a few LOWs constructed of steel. LOWs are sized to extend to within 1 in. of the bottom of the waste tank, 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, rather than routine, 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, 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.

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

TERMS/ACRONYMS

CASS	Computer Automated Surveillance System
MT/FIC/ENRAF	Manual Tape, Food Instrument Corporation, ENRAF Corporation (surface level measurement devices)
OSD	Operating Specifications Document
OSR	Operational Safety Requirements (OSRs are sections in SARs - see below)
SAR	Safety Analysis Reports
TMACS	Tank Monitor and Control System
TPA	Hanford Federal Facility Consent and Compliance Order, "Washington State Department of Ecology, U. S. Environmental Protection Agency, and U. S. Department of Energy," Fourth Amendment, 1994 (Tri-Party Agreement)
USQ	Unreviewed Safety Question
Wyden Amendment	"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.

4. INVENTORY AND STATUS BY TANK - VOLUME CALCULATIONS/DEFINITIONS FOR TABLE E-5 (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.

COLUMN HEADING	VOLUME CALCULATIONS/DEFINITIONS
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 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 pump from 1979 to date.
Drainable Liquid Remaining	Supernate plus Drainable Interstitial. (See Supernatant Liquid 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 shown as Pumpable Liquid Remaining is the sum of pumpable interstitial liquid and supernate minus total gallons pumped.

COLUMN HEADING	VOLUME CALCULATIONS/DEFINITIONS
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 crystallization 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 the previous month. A footnote explanation for the change follows the Inventory and Status by Tank section (Table E-5).

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APPENDIX D

TANK FARM CONFIGURATION, STATUS, AND FACILITY CHARTS

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Below is the design configuration for the large Hanford high-level waste storage tanks. Nearly all of the tanks are 75 feet in diameter. In "A Study to Determine the Economical Tank Size for Radioactive Waste Disposal," HW-34860, it was determined that the optimal cost per surface area resulted from a 75-foot diameter tank. The optimal volume was identified as one million gallons.

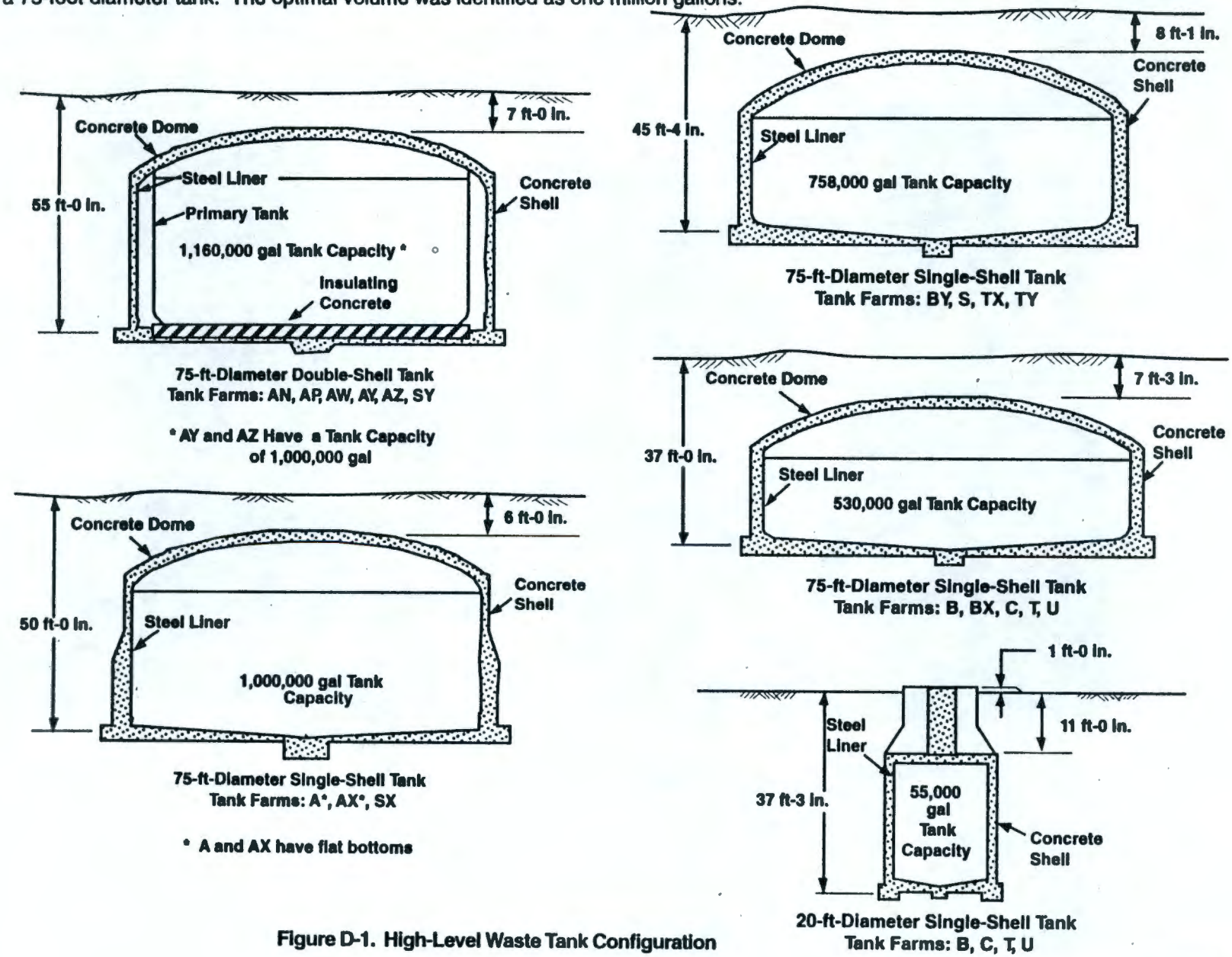

Figure D-1. High-Level Waste Tank Configuration

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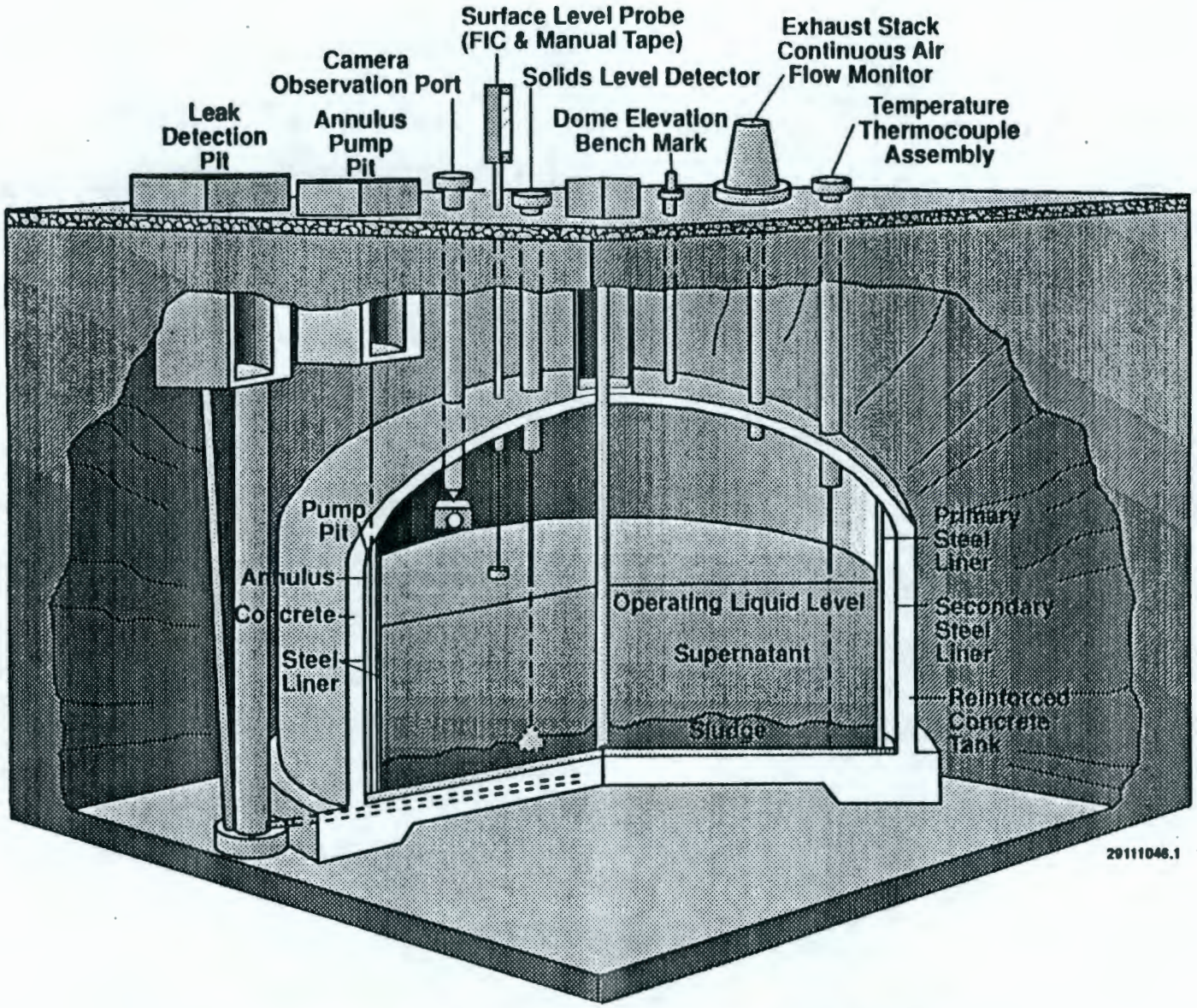

Figure D-2. Double-Shell Tank Instrumentation Configuration

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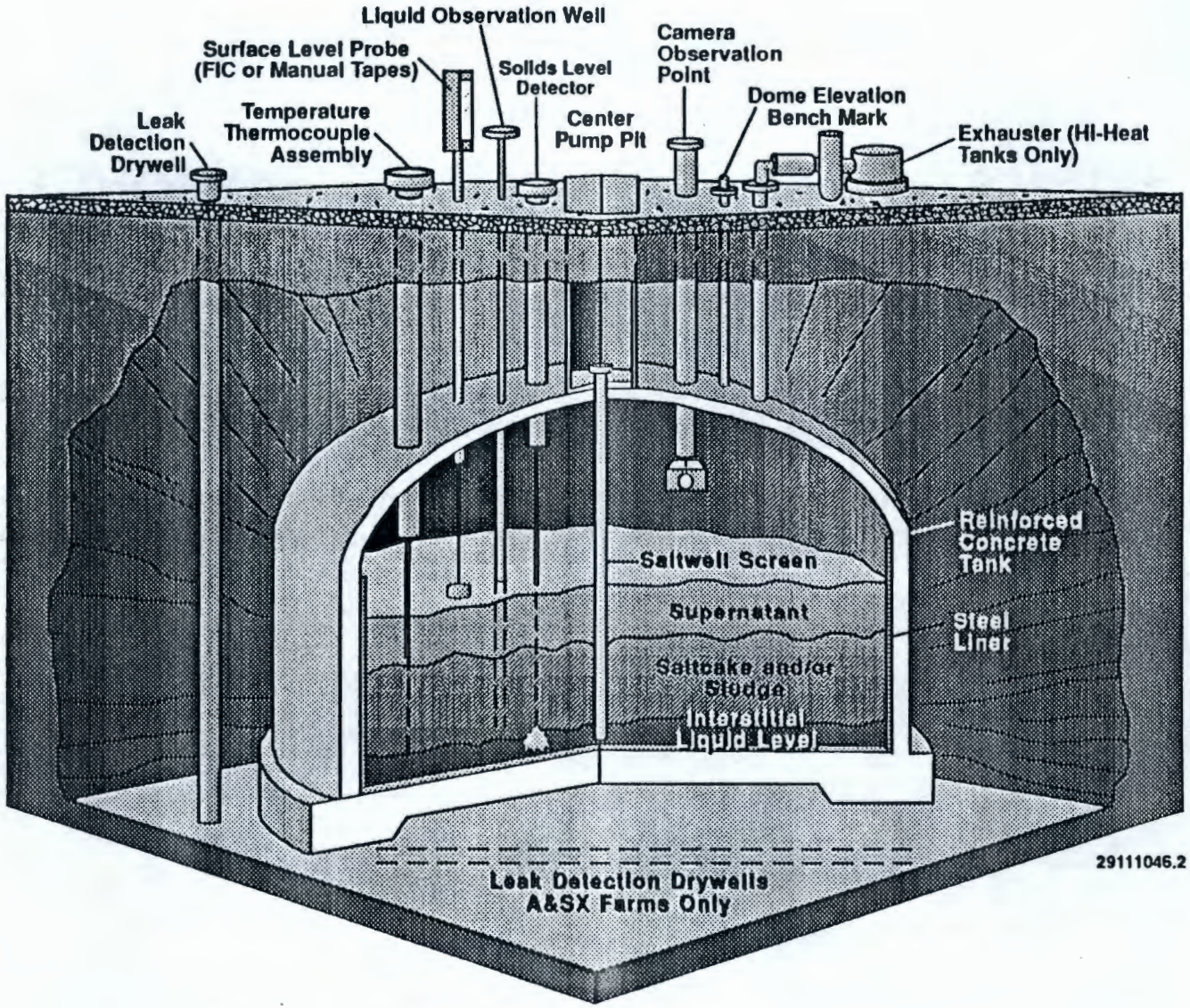

Figure D-3. Single-Shell Tank Instrumentation Configuration

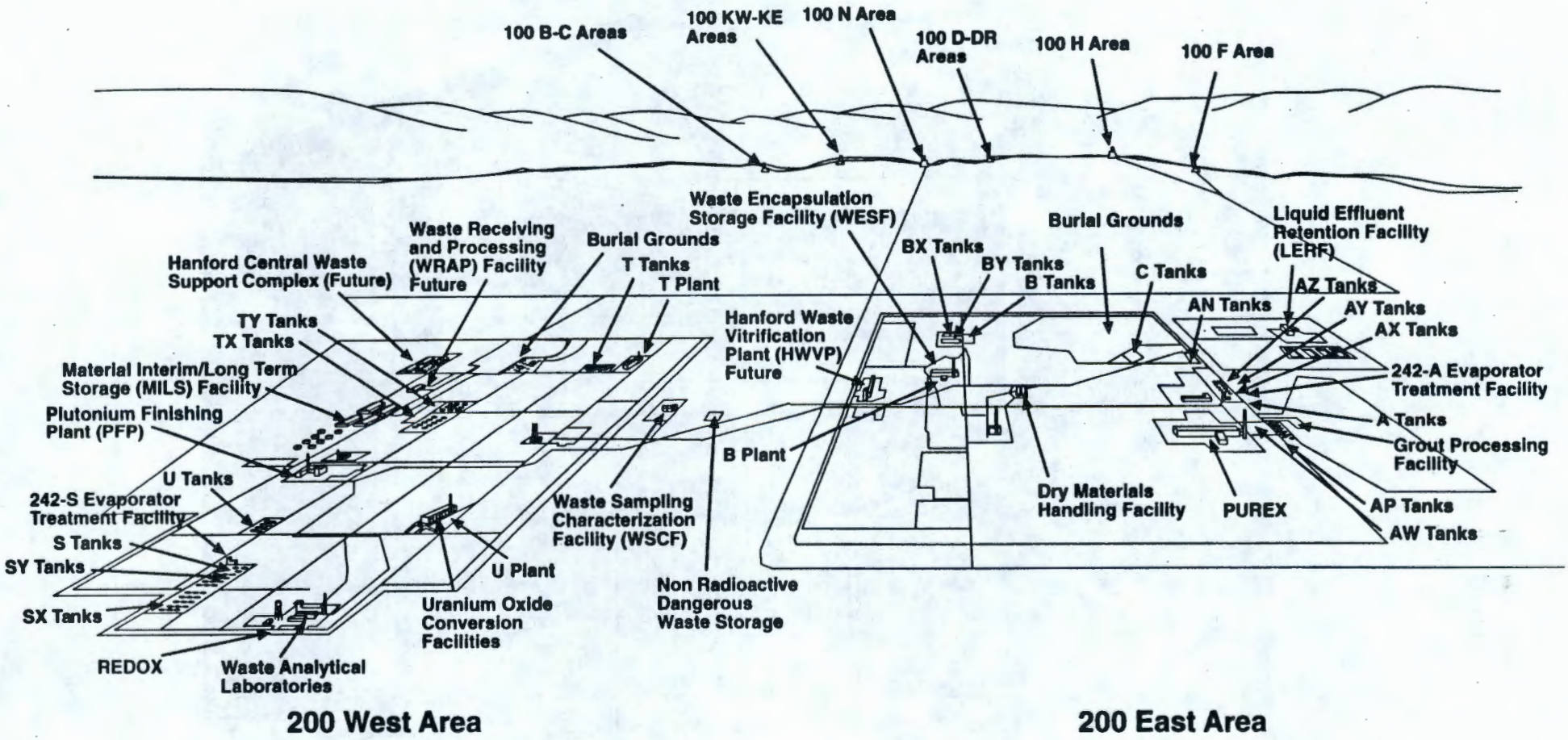

Figure D-4. Storage and Disposal Operations - 200 Area Facilities

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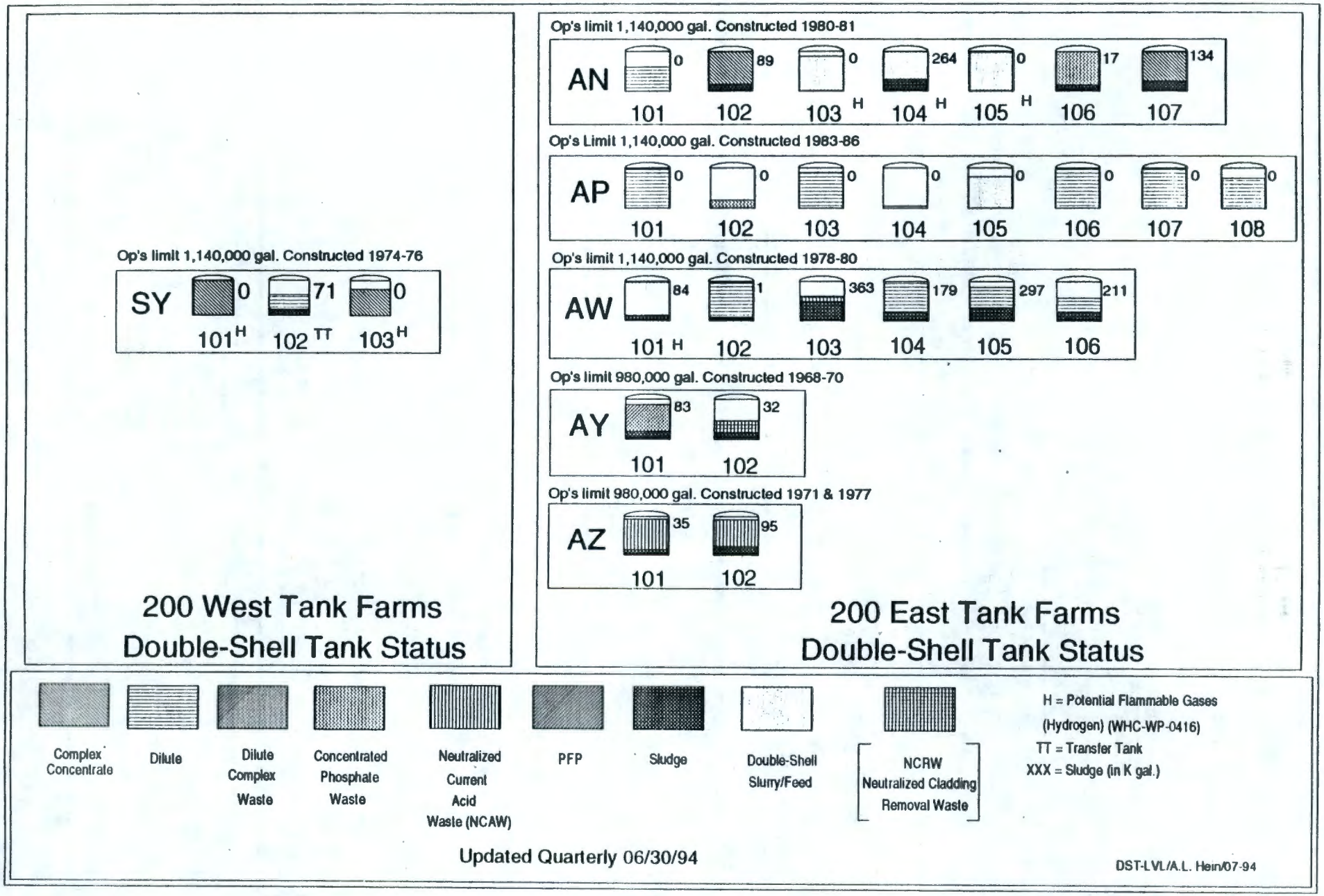

Figure D-5 Double-Shell Tank Status

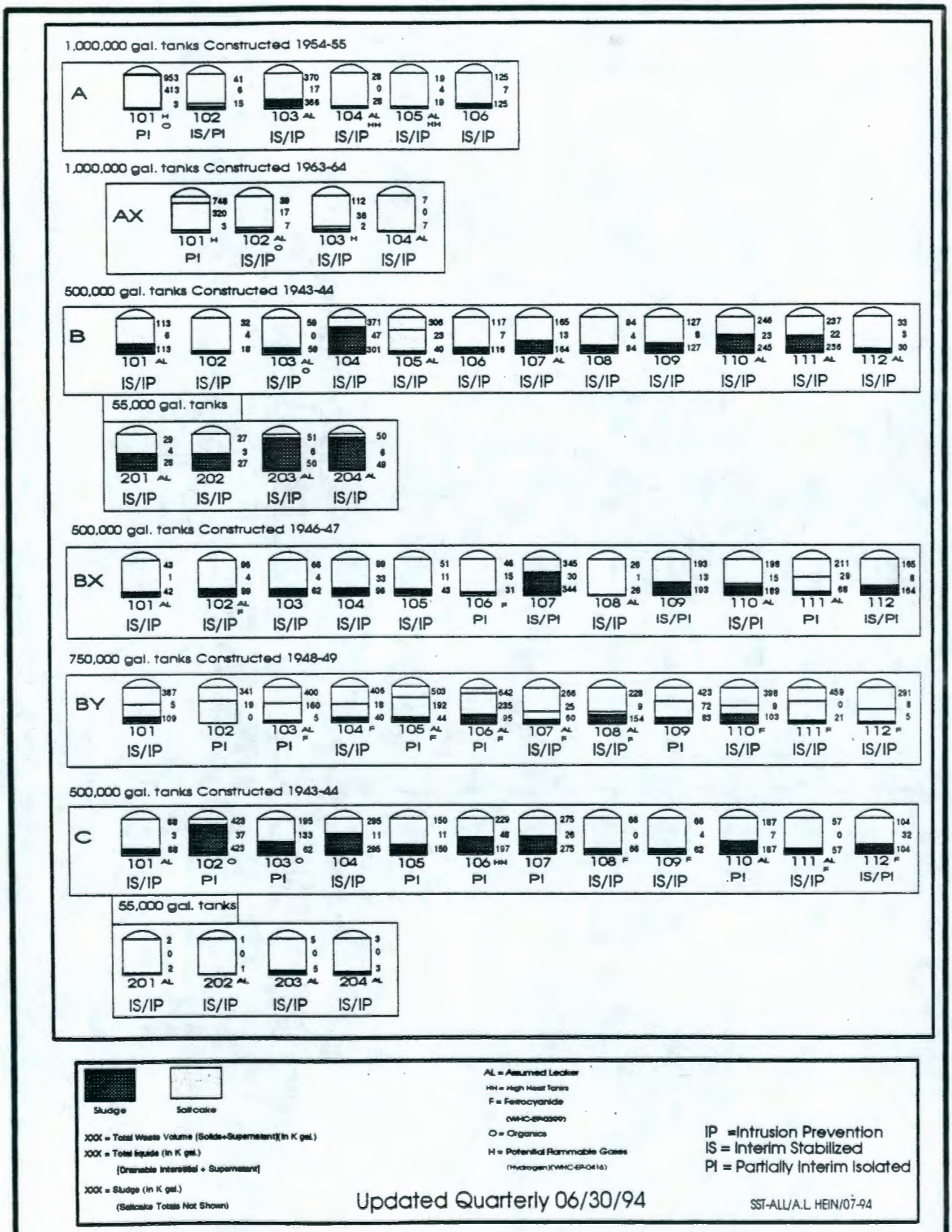

Figure D-6. 200E Single-Shell Tank Status

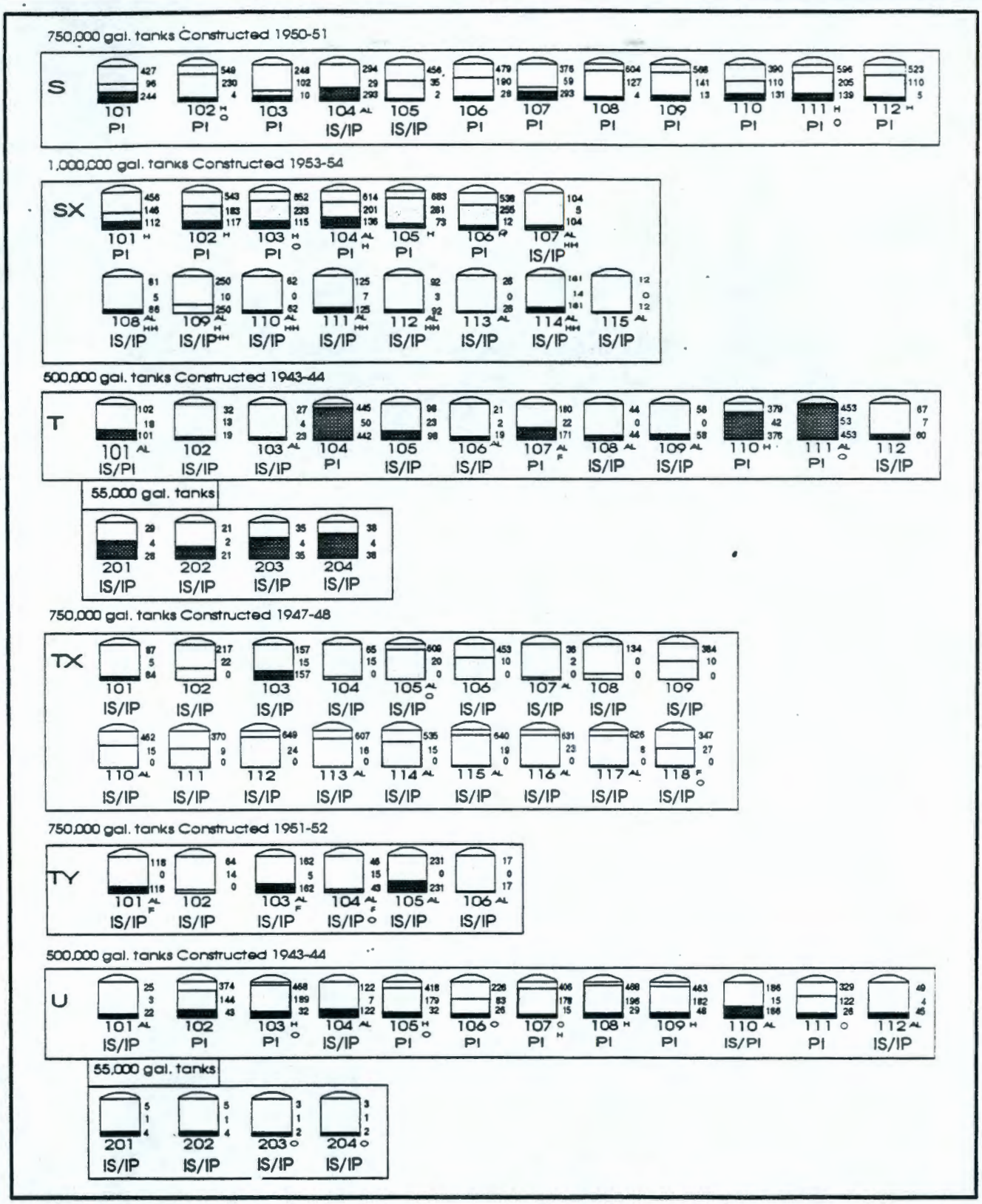

Fig. D-7. 200W Single-Shell Tank Status

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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

Single-Shell
Double-Shell
Sound Tanks

HH
High Heat Load Tanks

All tanks 75 ft. dia. except 200 series tanks which are 22 ft. dia. @ 55,000 gal

Intrusion Prevention Completed

DST = Double-Shell Tank
SST = Single-Shell Tank
DCRT = Double Contained Receiver Tank
CASS = Computer Automated Surveillance System
FIC/ENRAF = Liquid Level Monitoring Devices
TMACS = Tank Monitor and Control System

Tank Number
Radiation Monitoring Dry Well – Approx Location
● = Active
○ = Inactive
Radiation Monitoring Laterals Under Tank (X = not used)
Total Solids (1,000 gal) Salt Cake/ Sludge/DSS (Inactive Tanks)
Drainable Liquid Remaining (1000 gal) (Inactive Tanks)
Operating Exhauster
Liquid-Level Gauges
▼ = FIC read manually
Y = Tape read manually
▽ = Auto FIC on CASS
▽ = Intrusion Mode FIC
Watch List Tanks
Interim Stabilized (Yellow Tank)
■=ENRAF Read Manually
◪=Auto ENRAF on CASS
Airlift Circulators (AN-107 and AW-102 are inoperative)
Temperature Reading Automatic Readings:
● By CASS for DSTs
By TMACS for SSTs
○ Manual Readings
Liquid Observation Well (LOW)
Screen – Jet Pump –
Assumed Leaker
Assumed Leaked Date

Watch List Tanks

- Ferrocyanide
- H2/Flammable gases (109-SX has potential only-other tanks vent through it)
- Organics

106-C (cooling water added)

Status as of August 31, 1994 - Updated Monthly Issued by WHC/WTPE

BY-Tank Farm
In Service 1950-51
12 @ 758,000 gal

B-Tank Farm
In Service 1945-47
12 @ 530,000 gal
4 @ 55,000 gal

BX-Tank Farm
In Service 1948-50
12 @ 530,000 gal

C-Tank Farm
In Service 1946-53
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
In Service 1981
7 @ 1,160,000 gal

AZ-Tank Farm
In Service 1975-76
(Aging Waste Tanks)
2 @ 1,000,000 gal

AY-Tank Farm
In Service 1971-76
(Aging Waste Tanks) 2 @ 1,000,000 gal

AX-Tank Farm
In Service 1965-66
4 @ 1,000,000 gal

AX-152
Valve Pits

A-Tank Farm
In Service 1956-57
6 @ 1,000,000 gal

Valve Pits
242-A Evaporator
Valve Pits
PUREX
A-151
Grout Equip
Vault Field

AW-Tank Farm
In Service 1980
6 @ 1,160,000 gal

AP-Tank Farm
In Service 1986
8 @ 1,160,000 gal

Figure D-8

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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

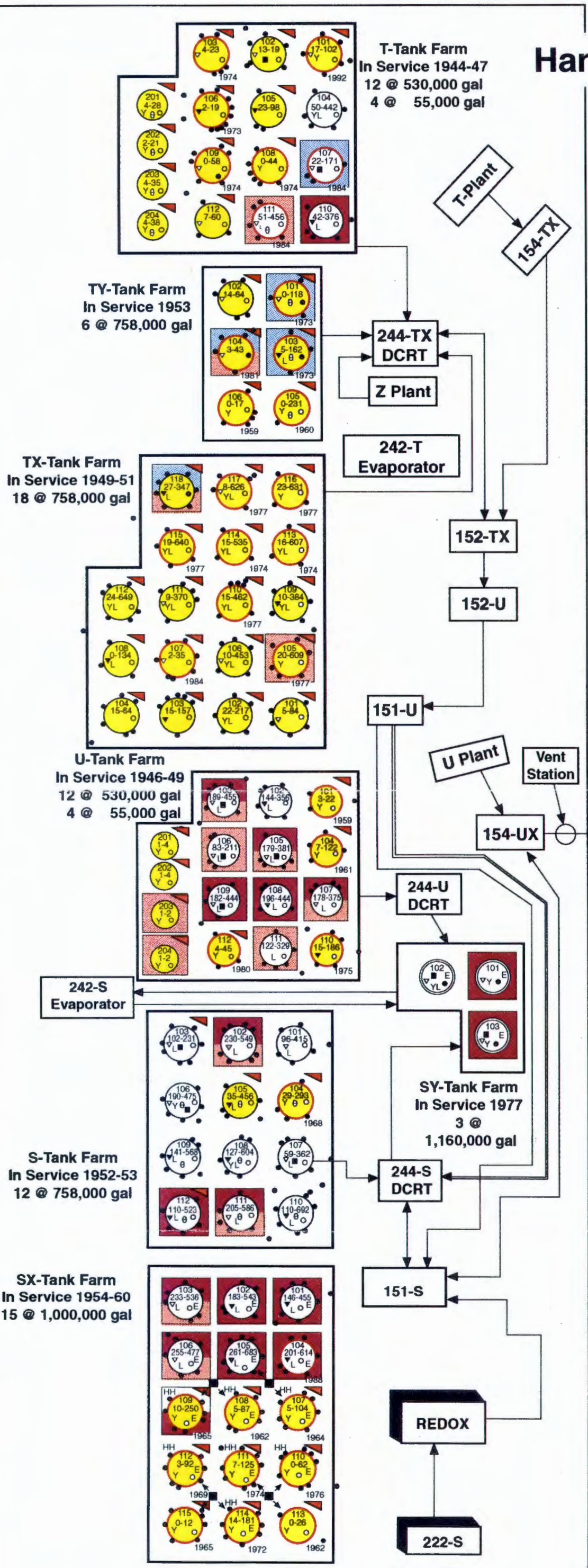
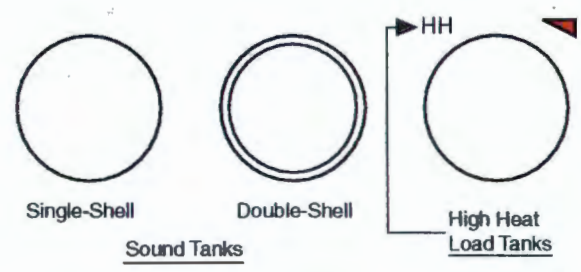


Figure D-9

Double-Walled Pipe

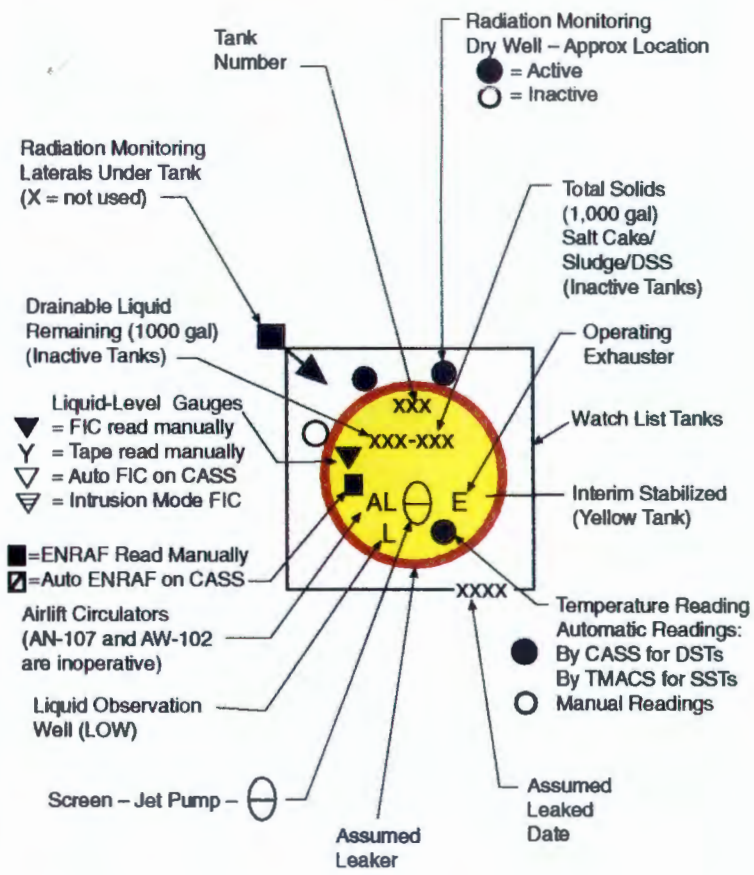
Single-Walled Pipe Direct Buried



All tanks 75 ft. dia. except 200 series tanks which are 22 ft. dia. @ 55,000 gal

Intrusion Prevention Completed

DST = Double-Shell Tank
SST = Single-Shell Tank
DCRT = Double Contained Receiver Tank
CASS = Computer Automated Surveillance System
FIC/ENRAF = Liquid Level Monitoring Devices
TMACS = Tank Monitor and Control System



Watch List Tanks

- Ferrocyanide
- H2/Flammable gases (109-SX has potential only-other tanks vent through it)
- Organics

Status as of August 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

August 31, 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	1785	0	1785	0	1785	1785
CC	Complexant concentrate waste	1929	181	2110	3	2107	2110
CP	Concentrated phosphate waste	1106	0	1106	0	1106	1106
DC	Dilute complexed waste	786	1	787	1	786	787
DN	Dilute non-complexed waste	7376	0	7376	0	7376	7376
DN/PD	Dilute non-complex/PUREX TRU solids	1043	0	1043	0	1043	1043
DN/PT	Dilute non-complex/PFP TRU solids	0	692	692	0	692	692
DSSF	Double-shell slurry feed	3807	48	3855	57	3798	3855
NCPLX	Non-complexed waste	219	291	510	510	0	510
TOTAL SUPERNATANT		18051	1213	19264	571	18693	19264
SOLIDS							
Double-shell slurry		937	1103	2040	0	2040	2040
Sludge		8186	5927	14113	12158	1955	14113
Saltcake		6577	17529	24106	23346	760	24106
TOTAL SOLIDS		15700	24559	40259	35504	4755	40259
TOTAL WASTE		33751	25772	59523	36075	23448	59523
AVAILABLE SPACE IN TANKS		7023	809	7832	0	7832 (2)	7832
DRAINABLE INTERSTITIAL		2197	4496	6693	6254	439	6693
DRAINABLE LIQUID REMAINING		20250	5709	25959	6827	19132	25959

(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

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TABLE E-2. TANK USE SUMMARY

August 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

August 31, 1994

TANK FARM	TOTAL WASTE	AVAIL SPACE	SUPERNATANT LIQUID VOLUMES (Kgallons) 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	6135	1845	0	1926	4	0	828	0	0	1936	0	4694	937	504	0	1441
AP	5651	3469	0	0	1102	0	3729	0	0	820	0	5651	0	0	0	0
AW	5505	1335	0	0	0	0	2089	1043	0	1042	0	4174	0	1135	196	1331
AX	906	0	0	3	0	0	0	0	0	0	0	3	0	19	884	903
AY	1631	329	0	0	0	786	730	0	0	0	0	1516	0	115	0	115
AZ	1915	45	1785	0	0	0	0	0	0	0	0	1785	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	2131	0	0	0	0	0	0	0	0	0	174	174	0	1977	0	1977
Total	33751	7023	1785	1929	1106	786	7376	1043	0	3807	219	18051	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	2611	809	0	181	0	0	0	0	692	0	0	873	1103	71	564	1738
T	2029	0	0	0	0	0	0	0	0	0	43	43	0	1980	0	1980
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	25772	809	0	181	0	1	0	0	692	48	291	1213	1103	5921	17529	24553
TOTAL	59523	7832	1785	2110	1106	787	7376	1043	692	3855	510	19264	2040	14127	24106	40273

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

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TABLE E-4. INVENTORY AND STATUS BY TANK
DOUBLE-SHELL TANKS
August 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	301.1	828	312	828	0	828	828	0	0	0	FM	S	08/22/89	0/ 0/ 0	
AN-102	CC	SOUND	CWHT	394.9	1086	54	997	3	1000	997	0	89	0	FM	S	08/22/89	0/ 0/ 0	
AN-103	DSS	SOUND	CWHT	346.5	953	187	16	0	16	16	937	0	0	FM	S	08/22/89	10/29/87	
AN-104	DSSF	SOUND	CWHT	385.5	1060	80	796	25	821	799	0	264	0	FM	S	08/22/89	08/19/88	
AN-105	DSSF	SOUND	CWHT	409.5	1126	14	1126	0	1126	1126	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	385.8	1061	79	927	9	936	927	0	134	0	FM	S	08/22/89	09/01/88	
7 DOUBLE-SHELL TANKS				TOTALS:	6135	1845	4694	37	4731	4697	937	504	0					
							AP TANK FARM STATUS											
AP-101	DN	SOUND	DRCVR	114.9	316	824	316	0	316	316	0	0	0	FM	S	05/01/89	0/ 0/ 0	
AP-102	CP	SOUND	GRTFD	400.7	1102	38	1102	0	1102	1102	0	0	0	FM	S	07/11/89	0/ 0/ 0	
AP-103	DN	SOUND	DRCVR	10.2	28	1112	28	0	28	28	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	409.8	1127	13	1127	0	1127	1127	0	0	0	FM	S	10/13/88	0/ 0/ 0	
AP-107	DN	SOUND	DRCVR	403.3	1109	31	1109	0	1109	1109	0	0	0	FM	S	10/13/88	0/ 0/ 0	
AP-108	DN	SOUND	DRCVR	411.3	1131	9	1131	0	1131	1131	0	0	0	FM	S	10/13/88	0/ 0/ 0	
8 DOUBLE-SHELL TANKS				TOTALS:	5651	3469	5651	0	5651	5651	0	0	0					

TABLE E-4. INVENTORY AND STATUS BY TANK
DOUBLE-SHELL TANKS
August 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	409.5	1126	14	1042	2	1044	1042	0	84	0	FM	S	10/22/84	03/17/88	
AW-102	DN	SOUND	EVFD	304.4	837	303	836	0	836	836	0	1	0	FM	S	02/29/84	02/02/83	
AW-103	DN/PD	SOUND	DRCVR	234.9	646	494	283	37	320	298	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	384.4	1057	83	760	29	789	767	0	297	0	FM	S	03/05/87	0/ 0/ 0	
AW-106	DN	SOUND	SRCVR	260.4	716	424	420	42	462	440	0	211	85	FM	S	01/31/92	02/02/83	
6 DOUBLE-SHELL TANKS				TOTALS:	5505	1335	4174	159	4333	4243	0	1135	196					
								AY TANK FARM STATUS									
AY-101	DC	SOUND	DRCVR	316.0	869	111	786	2	788	786	0	83	0	FM	S	02/02/87	12/28/82	
AY-102	DN	SOUND	DRCVR	277.1	762	218	730	0	730	730	0	32	0	FM	S	02/10/88	04/28/81	
2 DOUBLE-SHELL TANKS				TOTALS:	1631	329	1516	2	1518	1516	0	115	0					
								AZ TANK FARM STATUS									
AZ-101	AGING	SOUND	CWHT	348.4	958	22	923	0	923	923	0	35	0	FM	S	09/30/90	08/18/83	
AZ-102	AGING	SOUND	DRCVR	348.0	957	23	862	4	866	862	0	95	0	FM	S	06/04/92	12/24/84	
2 DOUBLE-SHELL TANKS				TOTALS:	1915	45	1785	4	1789	1785	0	130	0					

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TABLE E-4. INVENTORY AND STATUS BY TANK
DOUBLE-SHELL TANKS
August 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
								SY TANK FARM STATUS									
SY-101	CC	SOUND	CWHT	400.4	1101	39	11	237	248	242	530	0	560	FM	S	01/31/92	04/12/89	
SY-102	DN/PT	SOUND	DRCVR	277.5	763	377	692	0	692	692	0	71	0	FM	S	05/12/87	04/29/81	
SY-103	CC	SOUND	CWHT	271.6	747	393	170	0	170	170	573	0	4	FM	S	10/22/84	10/01/85	
3 DOUBLE-SHELL TANKS				TOTALS:	2611	809	873	237	1110	1104	1103	71	564					
GRAND TOTAL					23448	7832	18693	439	19132	18996	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
August 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
August 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
August 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)	05/05/94	
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	0.0	4.0	17	6	189	9	MP	M	08/22/85	(1)	07/15/94	(a)
BX-111	NCPLX	ASMD LKR	/PI	211	0	29	0.0	111.6	29	7	68	143	M	M	07/26/77		05/19/94	(b)
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	134	0.0	183.4	166	92	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	23	2.0	140.9	23	4	0	341	MP	M	08/30/91	(2)	09/11/87	(c)
BY-103	NCPLX	ASMD LKR	/PI	400	0	160	0.0	78.5	160	137	5	395	MP	M	04/03/90	(2)	09/07/89	
BY-104	NCPLX	SOUND	IS/IP	406	0	18	0.0	329.5	18	0	40	366	P	M	04/28/82		04/27/83	
BY-105	NCPLX	ASMD LKR	/PI	503	0	192	0.0	0.0	192	169	44	459	P	MP	04/28/82		07/11/86	
BY-106	NCPLX	ASMD LKR	/PI	642	0	235	0.0	0.0	235	213	95	547	P	MP	04/28/82		11/04/82	
BY-107	NCPLX	ASMD LKR	IS/IP	266	0	25	0.0	56.4	25	0	60	206	P	MP	04/28/82		10/15/86	

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TABLE E-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
August 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	61	2.9	111.3	61	40	83	340	F	PS	08/30/91	(2)	10/15/86	(d)
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	745	4.9	1422.8	745	563	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	135	5	9	0.0	0.0	14	8	130	0	F	S	05/31/85		08/05/94	(f)
C-106	NCPLX	SOUND	/PI	229	32	16	0.0	0.0	48	42	197	0	F	PS	04/28/82		08/05/94	
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
August 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:	2131	174	141	0.0	36.8	315	258	1957	0						
						++++++ S FARM STATUS ++++++												
S-101	NCPLX	SOUND	/PI	427	12	84	0.0	0.0	96	90	244	171	F	PS	09/16/80		03/18/88	
S-102	DSSF	SOUND	/PI	549	0	230	0.0	0.0	230	208	4	545	P	FP	04/28/82		03/18/88	
S-103	DSSF	SOUND	/PI	248	17	85	0.0	0.0	102	79	10	221	M	S	11/20/80		06/01/89	
S-104	NCPLX	ASMD LKR	IS/IP	294	1	28	0.0	0.0	29	23	293	0	M	M	12/20/84	(1)	12/12/84	
S-105	NCPLX	SOUND	IS/IP	456	0	35	0.0	114.3	35	13	2	454	MP	S	09/26/88		04/12/89	
S-106	NCPLX	SOUND	/PI	479	4	186	0.0	97.0	190	168	28	447	P	FP	12/31/93		03/17/89	
S-107	NCPLX	SOUND	/PI	376	14	45	0.0	0.0	59	52	293	69	F	PS	09/25/80		03/12/87	
S-108	NCPLX	SOUND	/PI	604	0	127	0.0	151.6	127	105	4	600	P	MP	04/28/82		03/12/87	
S-109	NCPLX	SOUND	/PI	568	0	141	0.0	111.0	141	119	13	555	F	PS	09/30/75		08/24/84	
S-110	NCPLX	SOUND	/PI	390	0	110	0.0	185.9	110	103	131	259	F	PS	05/14/92		03/12/87	
S-111	NCPLX	SOUND	/PI	596	10	195	0.0	3.3	205	134	139	447	P	FP	04/28/82		08/10/89	
S-112	NCPLX	SOUND	/PI	523	0	110	0.0	125.1	110	107	5	518	P	FP	12/31/93		03/24/87	
12 SINGLE-SHELL TANKS			TOTALS:	5510	58	1376	0.0	788.2	1434	1201	1166	4286						

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TABLE E-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
August 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		06/09/94	
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
August 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	453	0	53	0.0	5.2	53	47	453	0	P	FP	04/18/94	(2)	04/13/94	(e)
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:	2029	43	204	0.0	30.5	247	180	1986	0						

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TABLE E-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
August 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						

TABLE E-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
August 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	

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TABLE E-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
August 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				36075	571	6254	5	3974	6827	5350	12158	23346						

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 COGNIZANT ENGINEER MONTHLY INPUT (Retained 10 yr in Monthly Summary Report author's office)

Footnotes:

(a) BX-110 In-tank photos were taken in July 1994, but it was not possible to determine the amount of liquids remaining in the tank. Additional photos are planned. Following review of these photos, an estimate of the liquid remaining will be developed, and a decision on stabilization status will be made.

TABLE E-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
August 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) BX-111 - Following information from Cognizant Engineer, Stabilization:
Pumping began October 22, 1993, and was completed April 29, 1993. After photo review in May, pumping resumed. No pumping was done in August.
Total waste: 211 Kgal
Supernate: 0
Drainable Interstitial: 28.5 Kgal
Pumped this Month: 0 Kgal
Total Pumped: 111.6 Kgal
Drainable Liquid Remaining: 28.5 Kgal
Pumpable Liquid Remaining: 6.5 Kgal
Sludge: 68 Kgal
Saltcake: 143 Kgal
Photos were taken May 19, 1994

(c) BY-102 - Following information from Cognizant Engineer, Stabilization:
Pumping restarted May 30, 1994.
Total waste: 341 Kgal (no change)
Supernate: 0 Kgal (no change)
Drainable Interstitial Liquid: 23.4
Pumped this Month: 2.0 Kgal
Total Pumped: 140.9 Kgal
Drainable Liquid Remaining: 23.4 Kgal
Pumpable Liquid Remaining: 4.4 Kgal
Sludge: 0 (no change)
Saltcake: 341 Kgal (no change)

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TABLE E-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
August 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

(d) BY-109 - Following information from Cognizant Engineer, Stabilization:
Pumping restarted May 31, 1994
Total waste: 423 Kgal (no change)
Supernate: 0 Kgal (no change)
Drainingble Interstitial Liquid: 60.6 Kgal
Pumped this Month: 2.9 Kgal
Total Pumped: 111.3 Kgal
Drainable Liquid Remaining: 60.6 Kgal
Pumpable Liquid Remaining: 39.5 Kgal
Sludge: 83 Kgal (no change)
Saltcake: 340 Kgal (no change)
Solids volume update: April 18, 1994

(e) T-111 - Following information from Cognizant Engineer, Stabilization:
Pumping began May 17, 1994. No pumping was done in August.
Total waste: 452.9
Supernate: 0 Kgal (pumping showed that the 9.0 Kgal supernate estimate was not accurate: 3.0 Kgal was more accurate.)
Drainingble Interstitial Liquid: 52.5 Kgal
Pumped this Month: 0 Kgal
Total pumped: 5.2 Kgal
Drainable Liquid Remaining: 52.5 Kgal
Pumpable Liquid Remaining: 46.5 Kgal
Sludge: 452.9 Kgal
Saltcake: 0 Kgal
Solids volume update: May 31, 1994

TABLE E-5. INVENTORY AND STATUS BY TANK
SINGLE-SHELL TANKS
August 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

(f) C-105 - Following information from Cognizant Engineer, Stabilization:
A process test was started July 1993, and the liquid surface is continuing to evaporate. New in-tank photos were taken August 5, 1994.
Photo evaluation and the current FIC surface level measurement of 44.5 inches resulted in the following changes:
Total waste: 135 Kgal
Supernate: 5 kgal
Drainable Interstitial Liquid: 8.6 Kgal
Drainable Liquid Remaining: 13.6 Kgal
Pumpable Liquid Remaing: 7.6 Kgal
Sludge: 130 Kgal
Saltcake: 0 Kgal

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APPENDIX F

PERFORMANCE SUMMARY

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

WASTE VOLUMES (Kgallons)

August 31, 1994

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

SOURCE		THIS MONTH	FY1994 TO DATE
B PLANT		2	11
PUREX TOTAL (1)		9	55
PFP (1)		0	7
T PLANT (1)		0	20
S PLANT (1)		5	19
300/400 AREAS (1)		0	30
SULFATE WASTE -100 N (2)		0	0
MINI-RUN (14)		0	67
TANK FARMS & SALTWELL LIQUID (6)		11	279
OTHER GAINS		9	252
Slurry increase (3)	5		
Condensate	3		
Instrument change (7)	0		
Unknown (5)	1		
OTHER LOSSES		-29	-382
Slurry decrease (3)	-1		
Evaporation (4)	-23		
Instrument change (7)	0		
Unknown (5)	-5		
EVAPORATED		0	-2417
GROUTED		0	0
Total		7	-2059

+/-1 Kgal differences are the result of rounding

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

SOURCE		THIS MONTH	FY1994 TO DATE
106-C (8)	Gains	0	39
	Losses	-6	-50
Total		-6 (*)	-11

(*) No water was added in August

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) (after conversion of Unit 1 to a cooler for Unit 2)	7965
242-T (Modified) (9)	24471
242-S EVAPORATOR (11)	41983
242-A EVAPORATOR (12)	67644
B PLANT (Cell 23) (13)	1185
REDOX (12)	12393
Total	199165

Note: 242-A Evaporator was restarted April 15, 1994.

Footnotes: See Next Page

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

Footnotes:

INCREASES/DECREASES IN WASTE VOLUMES

(1) Including Flush

(2) Sulfate waste is generated from ion exchange backflushing and sand filter clean out, resulting in sulfate waste (Na_2SO_4).

(3) Slurry increase/growth is caused by gas generation within the waste. The gas which is trapped in the waste expands in the tank causing the surface level and volume to increase. Slurry decrease results from the periodic release of gas in the waste.

(4) Aging waste tanks

(5) Unknown waste gains or losses may be the result of rounding calculations, clean water slowly leaking through a valve, changes in levels (expansion/contraction) because of ambient temperature changes, different measuring devices being used by Tank Farm operators, transfers taking place during the end of the month, Tank Farm activities such as miscellaneous water additions not associated with facility waste generation, or the addition of water which is added to aging waste tanks and then evaporated off.

(6) Includes Tank Farms miscellaneous flushes (flushes are used to "clean out" pipelines and reduce personnel exposure, reduce potential for waste incompatibility, prevent line plugging, and reduce waste content of potential spills or leaks), and saltwell liquid, which results from pumping of single-shell tanks to double-shell tanks.

(7) Liquid level measurement instrument changes from the automatic FIC to manual tape (and vice versa) result in unusual gains or losses because the manual tape may rest on an uneven crust surface giving a different reading from that of the automatic FIC. These instrument changes are made when the automatic FIC is out of service and the reading from the manual tape is used for reporting purposes. The reported reading reverts back to the automatic FIC when it is repaired.

(8) Water is periodically added 106-C to provide evaporative cooling. Losses due to evaporation are calculated assuming all losses are evaporative losses. Some drywells are monitored weekly and some are monitored every two weeks on tank 106-C. If there are any indications of a leak from this tank, the assumption that all losses are due to evaporation will be reevaluated.

WASTE VOLUME REDUCTION

(9) Currently inoperative. These evaporator systems (242-B and 242-T) were installed in 1952 in each of the two operating areas to remove water from the waste, and ran for approximately 4 yr after which both units were shut down. The 242-T Evaporator was reactivated in December 1965, and shut down again in April 1976.

(10) Currently inoperative. These two in-tank solidification (ITS) units provided in-tank heating to promote in-tank boiling or evaporation. The ITS Unit 1 started up March 1965, and ITS Unit 2 started up February 1968. In August 1971, ITS Unit 1 was converted from an evaporator to a cooler for ITS Unit 2. Both units were shut down June 1974.

(11) Currently inoperative. The 242-S Evaporator-Crystallizer was started up November 1973, and shut down March 1980, when its processing campaign was completed. It is in standby mode with no future mission. This evaporator operates under a vacuum, employing evaporative concentration with subsequent crystallization and precipitation of salt crystals.

(12) Currently operative. The 242-A Evaporator-Crystallizer was started up March 1977, and shut down April 1989 because of regulatory issues, and 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). The evaporator was restarted on April 15, 1994.

(13) Currently inoperative. Additional concentration of wastes was completed by using the concentrators at REDOX and B Plant. The REDOX concentrator was used from July 1967 to June 1972, while the B Plant concentrator was used from July 1967 to February 1968.

(14) Waste generated for training and testing purposes prior to Evaporator restart.

APPENDIX G

PUMPING RECORD
LIQUID STATUS AND PUMPABLE LIQUID
REMAINING IN TANKS

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TABLE G-1. PUMPING RECORD

August 31, 1994
(Kgallons)

TANK FARMS	PUMPED THIS MONTH	PUMPED FY TO DATE	CUMULATIVE TOTAL PUMPED 1979 TO DATE
EAST			
A	0.0	0.0	150.5
AN	N/A	N/A	N/A
AP	N/A	N/A	N/A
AW	N/A	N/A	N/A
AX	0.0	0.0	13.0
AY	N/A	N/A	N/A
AZ	N/A	N/A	N/A
B	0.0	0.0	0.0
BX	0.0	111.6	183.4
BY	4.9	116.6	1422.8 (a)
C	0.0	0.0	36.8
Total	4.9	228.2	1806.5
WEST			
S	0.0	0.0	788.2
SX	0.0	0.0	113.2
SY	N/A	N/A	N/A
T	0.0	5.2	30.5
TX	0.0	0.0	1205.7
TY	0.0	0.0	29.9
U	0.0	0.0	0.0
Total	0.0	5.2	2167.5
TOTAL	4.9	233.4	3974.0

NA = Not Applicable

(a) The total volume pumped was adjusted by the Single-Shell Tanks Cognizant 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.

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

August 31, 1994

Waste Volumes (Kgallons)

TANK FARMS	SUPERNATANT LIQUID	DRAINABLE INTERSTITIAL LIQUID	DRAINABLE LIQUID REMAINING	PUMPABLE LIQUID REMAINING
EAST				
A	9	441	450	390
AN	4694	37	4731	N/A
AP	5651	0	5651	N/A
AW	4174	159	4333	N/A
AX	3	370	373	304
AY	1516	2	1518	N/A
AZ	1785	4	1789	N/A
B	15	164	179	80
BX	30	134	166	92
BY	0	745	745	563
C	174	141	315	258
Total	18051	2197	20250	1687
WEST				
S	58	1376	1434	1201
SX	63	1260	1323	1178
SY	873	237	1110	N/A
T	43	204	247	180
TX	5	250	255	0
TY	3	31	34	0
U	168	1138	1306	1104
Total	1213	4496	5709	3663
TOTAL	19264	6693	25959	5350 (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

August 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	1843	CASS/FIC	PUMPED 08/11/92
241-ER-311	B PLANT	ER-151, ER-152 DB	8630	CASS/FIC	PUMPED 05/29/91
241-AX-152	AX FARM	AX-152 DB	3311	MANUALLY	DIAL O/S, USING ZIP CORD, PUMPED 08/29/92
241-AZ-151	AZ FARM	AZ-152 DB, AZ LOOP SEAL	3275	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	17705	MANUALLY	USING MANUAL TAPE FOR TANK
244-A-TK/SMP	A COMPLEX	DCRT - RECEIVES FROM SEVERAL FARMS	7313	MCS	
AR-204	AY FARM	RR CARS DURING TRANSFER TO REC. TKS	450	DIP TUBE	ALARMS ON CASS
A-417	A FARM	A-702 PROCESS CONDENSATE	17700	DIP TUBE	
Vent Station Catch Tank		CROSS COUNTRY TRANSFER LINE	651	MT	
WEST AREA					
241-TX-302-C	TX FARM	TX-154 DB	3952	CASS/FIC	FIC REPAIRED
241-U-301-B	U FARM	U-151, U-152, U-153, U-252 DB	6906	CASS/FIC	RETURNED TO SERVICE 12/30/93
241-UX-302-A	U PLANT	UX-154 DB	12220	CASS/MFIC	
241-S-304	S FARM	S-151 DB	3805	RS	OPERATIONAL 10/91, REPLACED S-302-A
244-S-TK/SMP	S FARM	DCRT - RECEIVES FROM SEVERAL FARMS	12303	MANUALLY	CWF
244-TX-TK/SMP	TX FARM	DCRT - RECEIVES FROM SEVERAL FARMS	9195	MANUALLY	MT

Total active facilities 16

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

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

INACTIVE – no longer receiving waste transfers

August 31, 1994

FACILITY	LOCATION	RECEIVED WASTE FROM:	VOLUME OF CONTENTS (Gallons)	MONITORED BY	REMARKS
241-A-302-B	A FARM	A-152 DB	4047	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

August 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	1460	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	1979, 1994 (13)	<1000 (9)		N/A	1994	(f)(t)
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

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 few years to reevaluate these leak volume estimates, however, the activity is not currently funded.

(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.

(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.

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

(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) An unexplained 0.30 inch level decrease was observed in 1974 and the tank was then declared "Questionable Integrity" and removed from service. Tank T-111 was declared an assumed re-leaker on February 28, 1994, due to a decreasing trend in surface level measurement.

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.

(t) WHC, 1994, Occurrence Report, "Apparent Liquid Level Decrease in Single Shell Underground Storage Tank 241-T-111; Declared an Assumed Re-Leaker," RL-WHC-TANKFARM-1994-0009, Westinghouse Hanford Company, Richland, Washington.

APPENDIX J

INTERIM STABILIZATION STATUS

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

August 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	03/82	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

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

Footnotes:

(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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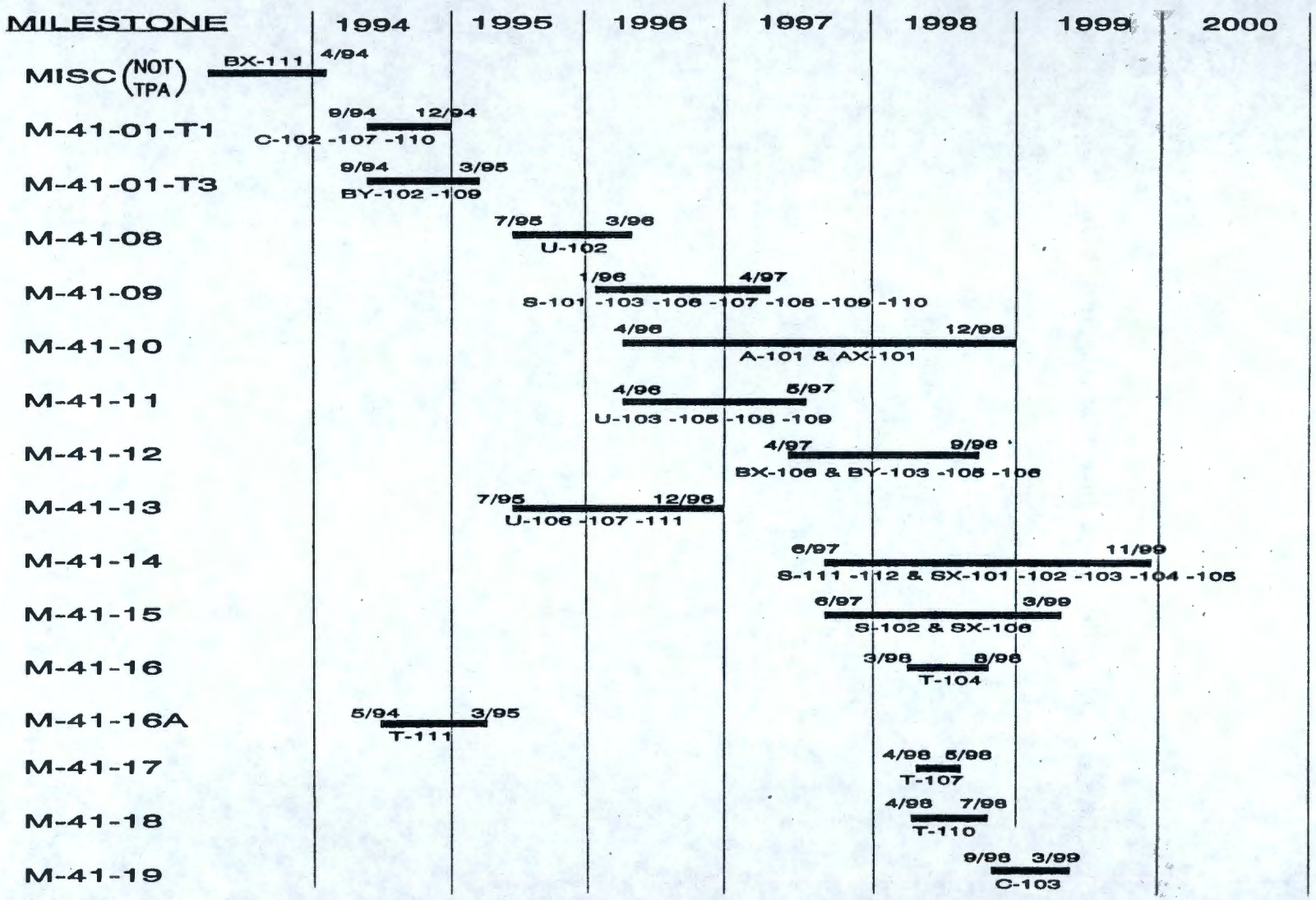
(START OF PUMPING/COMPLETION OF PUMPING)



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

Table J-2. Tri-Party Agreement Single-Shell Tank 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 4)

Activity ID	Early start	Early finish	JCS #	Activity
VS55-4	12NOV93A	16NOV93A	2E-92-0154	TAKE SAMPLES SJ-4/SJ-4\5 Vapor C-103
VS46-4	14DEC93A	15DEC93A	2E-92-1760	C-103 VAPOR SAMPLE INS PROBE, TAKE SAMPLES-SJ-6
VS38-4	25JAN94A	25JAN94A	2E-93-0465	C-103 VAPOR SAMPLE Using VSS Truck - SJ-6b
VS03-4	14FEB94A	17FEB94A	2E-93-2248	C-105/106 VAPOR SAMPLE (B,C)
VS99-4	22FEB94A	03MAR94A	2E-93-2249	C-104 VAPOR SAMPLE (B,C)
GS11-4	07MAR94A	04MAR94A	2W-94-0244	T-111 GRAB SAMPLE [EMERGENT WORK)
GS01-4	10MAR94A	10MAR94A	2W-94-0251	SY-102 GRAB SAMPLE (EMERGENT WORK)
GS51-3	21MAR94A	22MAR94A	2E-94-0066	AP-108 START GRAB SAMPLE/EVAPORATOR FEED 325
VS98-4	24MAR94A	25MAR94A	2E-94-0203	BY-108 VAPOR SAMPLE FeCn TC/V
VS97-4	25MAR94A	28MAR94A	2E-94-0203	BY-107 VAPOR SAMPLE FeCn TC/V
PS01-4	31MAR94A	03MAY94A	2E-92-1256	C-111 PUSH MODE SAMPLING Samples 2-3 Seg 2 222S
VS47-4	08APR94A	08APR94A	2E-93-0447	C-103 VAPOR SAMPLE - SJ-7A
VSE2-3	28APR94A	28APR94A	2E-93-0203	BY 104 RISER INSPECTION
GS55-4	04MAY94A	19MAY94A	2E-94-0066	AN-107 SLUDGE SAMPLING 222s
VSE5-3	05MAY94A	05MAY94A	2E-94-0203	BY 106 RISER INSPECTION
VSE3-3	06MAY94A	06MAY94A	2E-94-0203	BY 103 RISER INSPECTION
VSE4-3	09MAY94A	09MAY94A	2E-93-0276	BY 105 RISER INSPECTION VS (2)
HP11-4	10MAY94A	24MAY94A	2E-93-0276	BY 105 INSTALL HVP
VS52-3	11MAY94A	11MAY94A	2E-94-0203	BY-111 RISER INSPECTTION VS (2) (OPPORTUNITY)
HP13-4	16MAY94A	23MAY94A	2E-93-0276	BY 104 INSTALL HVP
GS54-4	18MAY94A	19MAY94A	2W-94-0348	S-110 PROCESS GRAB SAMPLE (Area Dry-No Sample)
PS11-4	18MAY94A	14JUN94A	2E-92-1257	C-108 START PUSH MODE SAMPLE
HP14-4	25MAY94A	26MAY94A	2E-93-0276	BY 106 INSTALL HVP
AS01-4	02JUN94A	08JUN94A	2W-93-1125	SY-103 AUGER SAMPLE Samples 3 222S
GS52-4	07JUN94A	08JUN94A	2E-94-0065	AY-102 PROCESS GRAB SAMPLE 222s
AS03-4	08JUN94A	27JUN94A	2E-93-2241	BX-101 AUGER SAMPLING Samples 2 Segments 1 225
VS30-B	16JUN94A	16JUN94A	2E-93-2006	C RISER INSP C107 VS (2)
VS30-A	17JUN94A	06JUL94A	2E-93-2006	C RISER INSP C111 VS (2)
GS07-4	20JUN94A	20JUN94A		T-107 PROCESS GRAB SAMPLING (CANCELLED) 222
GS10-4	20JUN94A	20JUN94A	2W-94-0506	T-104 PROCESS GRAB SAMPLE (CANCELLED)
GS02-4	21JUN94A	21JUN94A	2E-94-0835	BY-105 PROCESS GRAB SAMPLING (SUSPENDED) 222s
GS15-4	21JUN94A	21JUN94A	2E-94-0684	BY-106 PROCESS GRAB SAMPLING (SUSPENDED) 222s
VS30-6	23JUN94A	23JUN94A	2E-93-2006	C RISER INSP C109 VS (2)

Project Start 01OCT93
Project Finish 28AUG95
Data Date 12SEP94
Plot Date 14SEP94

Early Bar
Early Bar
Progress Bar
Critical Activity

(c) Primavera Systems, Inc.

CHA4

WESTINGHOUSE-HANFORD
TANK FARM OPERATIONS
SAMPLING SCHEDULE

Sheet 1 of 4

Developed DA Healey

Date	Revision	Checked	Approved

Table K-1. Tank Farm Operations Sampling Schedule Status (Sheet 2 of 4)

Activity ID	Early Start	Early Finish	JCS	
VS30-7	23JUN94A	05AUG94A	2E-93-2006	C RISER INSP C110 VS (2) (Cancelled)
VS30-9	23JUN94A	24JUN94A	2E-93-2006	C RISER INSP C112 VS (2)
VSE2-5	24JUN94A	24JUN94A	2E-93-0276	BY 104 VAPOR SAMPLE (3)
GS51-4	29JUN94A	29JUN94A	2E-94-0064	AP-108 COMP RCRA GRAB SAMPLE/EVAPORATOR FEED 222
GS53-4	29JUN94A	30JUN94A	2W-94-0670	T-112 PROCESS GRAB SAMPLE 222s
VS30-2	30JUN94A	15AUG94A	2E-93-2006	C RISER INSP C101
VSD3-5	30JUN94A	30JUN94A	2E-94-0587	BX RISER INSP BX-104 VS(2) (CANCELLED-E.NEILSEN)
VS30-5	07JUL94A	20JUL94A	2E-93-2006	C-RISER INSPECTION C108 VS (2)
VSE5-5	11JUL94A	11JUL94A	2E-93-0276	BY 106 VAPOR SAMPLE (3)
VSE4-5	12JUL94A	12JUL94A	2E-93-0276	BY 105 VAPOR SAMPLE (3)
GS18-4	14JUL94A	15JUL94A	2W-94-0513	T-102 PROCESS GRAB SAMPLING 222s
GS03-4	15JUL94A	15JUL94A	2W-94-0274	TX-244 GRAB SAMPLE (EMERGENT WORK) (CANCELLED)
AS07-4	19JUL94A	20JUL94A	2E-94-0571	BX-108 AUGER SAMPLING Sample 2 Segments 1 222S
AS09-4	22JUL94A	22JUL94A	2W-94-0621	TX-118 AUGER SAMPLE (DELETED)
AS12-4	22JUL94A	22JUL94A	2W-94-0725	U-107 AUGER SAMPLING (DELETED)
GS08-4	22JUL94A	22JUL94A		AZ-102 RCRA GRAB SAMPLE (DELETED)
PS20-4	22JUL94A	22JUL94A	2E-94-0450	AN107 OH Push Mode (DELETED-ADDED WORK SCOPE)
PS24-4	22JUL94A	22JUL94A		AY101 D.nCX Push Sample 2 Seg 3 (DELETED)
VS82-5	22JUL94A	05AUG94A	2W-94-0504	TY RISER INSPECTION TY103 VS (2)
VS82-6	22JUL94A	04AUG94A	2W-94-0504	TY RISER INSPECTION TY104 VS (2)
VSE6-3	22JUL94A	15AUG94A	2E-94-0203	BY 108 RISER INSPECTION
VS82-4	26JUL94A	05AUG94A	2W-94-0504	TY RISER INSPECTION TY101 VS (2)
HP08-8	27JUL94A	27JUL94A	2E-94-0659	C-108 INSTALL HVP
HP08-9	27JUL94A	27JUL94A	2E-94-0659	C-109 INSTALL HVP
HP08-B	27JUL94A	27JUL94A	2E-94-0659	C-112 INSTALL HVP
GS43-4	10AUG94A	11AUG94A	2E-94-1062	AP-104 GRAB SAMPLE
VS02-7	10AUG94A	10AUG94A	2E-94-0660	C-109 VAPOR SAMPLING (3)
VS02-9	11AUG94A	11AUG94A	2E-94-0660	C-112 VAPOR SAMPLING (3)
VS02-6	12AUG94A	12AUG94A	2E-94-0660	C-108 VAPOR SAMPLE (3)
VS30-3	15AUG94A	15AUG94A	2E-93-2006	C RISER INSP C102
HP08-4	16AUG94A	16AUG94A	2E-94-0659	C-101 INSTALL HVP
HP08-5	16AUG94A	16AUG94A	2E-94-0659	C-102 INSTALL HVP
HP08-A	18AUG94A	18AUG94A	2E-94-0659	C-110 INSTALL HVP
PS02-4	18AUG94A	22SEP94	2W-94-0183	SY-103 PUSH SAMPLE RISER 14A
VS02-8	18AUG94A	18AUG94A	2E-94-0660	C-110 VAPOR SAMPLING (3)
PS23-4	19AUG94A	19AUG94A		AZ102 Push Mode (deferred FY 96)

Sheet 2 of 4

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Table K-1. Tank Farm Operations Sampling Schedule Status (Sheet 3 of 4)

Activity ID	Early start	Early finish	JCS	
RS02-4	19AUG94A	19AUG94A	2E-93-2200	C-106 ROTARY SAMPLING Samples 2 Seg 5(Deferred)
VSC3-4	22AUG94A	23AUG94A	2W-94-0505	U RISER INSPECTION U-106 RISER 7
VS02-4	23AUG94A	23AUG94A	2E-94-0659	C-102 VAPOR SAMPLE (3)
GS19-4	24AUG94A	24AUG94A	ES-94-1120	AW-105 PROCESS GRAB SAMPLE (Emergent Work)
PS08-4	29AUG94A	29AUG94A		C-104 PUSH MODE SAMPLE 2 (DEFERRED)
GS48-4	30AUG94A	30AUG94A		S-304 CATCH TK GRAB SAMPLE(Suspended)
GS49-4	30AUG94A	30AUG94A		S-244 DCRT GRAB SAMPLE(Suspended)
VS02-3	31AUG94A	01SEP94A	2E-94-0660	C-101 VAPOR SAMPLE (3)
VS67-4	02SEP94A	05SEP94A	2W-94-0506	TX-118 VAPOR SAMPLE (2)
HP30-4	05SEP94A	06SEP94A	2E-94-0659	C-111 INSTALL HVP
AS07-5	12SEP94A	13SEP94A	2E-94-0571	BX-108 AUGER SAMPLE RISER 13A
VS02-A	12SEP94A	13SEP94A	2E-94-0660	C-111 VAPOR SAMPLING (3)
GS09-4	12SEP94	12SEP94	2W-94-0754	U-108 PROCESS GRAB SAMPLE RISER 7 VS (2)
GS20-4	12SEP94*	13SEP94	ES-94-1119	AY-102 PROCESS GRAB SAMPLE (Emergent Work)
VSC3-C	12SEP94*	13SEP94	2W-94-0505	U RISER INSPECTION U-106 RISER 10
VSF3-4	12SEP94*	13SEP94	2W-94-0505	BY109 VS (2) Support Saltwell Pump (Emergent)
AS08-4	19SEP94*	20SEP94	2E-94-0570	BX-105 AUGER SAMPLE RISER 2
GS47-4	19SEP94*	20SEP94	2W-94-0840	UX302 CATCH TK GRAB SAMPLE(Possible Suspension)
GS65-4	20SEP94*	21SEP94	ES-94-1121	C-108 GRAB SAMPLE BEFORE H20 ADDITION
HP29-8	20SEP94	22SEP94	2E-94-0367	C-107 INSTALL HVP
AS08-5	21SEP94	22SEP94	2E-94-0570	BX-105 AUGER SAMPLE RISER 6
GS21-4	21SEP94	27SEP94	2E-94-0671	AN-102 GRAB SAMPLING RCRA Samples 3 222s
PS02-5	23SEP94	06OCT94	2W-94-0183	SY-103 PUSH SAMPLE RISER 7B Segments 15
RS04-4	26SEP94	21OCT94	2E-94-0808	BY-106 ROTARY MODE Samples 2 Segments 12
VS02-5	26SEP94*	27SEP94	2E-94-0660	C-107 VAPOR SAMPLING (3)
AS11-4	27SEP94*	27SEP94	2E-94-0703	A-104 AUGER SAMPLE Riser 1
GS66-4	27SEP94*	28SEP94	ES-94-1122	C-108 GRAB SAMPLE AFTER H20 ADDITION
AS05-4	28SEP94*	29SEP94	2E-93-2242	B-102 AUGER SAMPLE RISER 1
AS11-5	28SEP94*	28SEP94	2E-94-0703	A-104 AUGER SAMPLE Riser 4
GS67-4	28SEP94*	29SEP94		AP-104 GRAB SAMPLE - Support Caustic Addition
AS11-6	29SEP94*	29SEP94	2E-94-0703	A-104 AUGER SAMPLE Risers 7
VS33-4	29SEP94	30SEP94	2W-94-0503	T RISER INSPECTION T-107 VS (2)
AS05-5	30SEP94	03OCT94	2E-93-2242	B-102 AUGER SAMPLE RISER 7
AS11-7	30SEP94*	30SEP94	2E-94-0703	A-104 AUGER SAMPLE Riser 17
HP03-5	30SEP94*	03OCT94	2W-94-0514	U-106 INSTALL HVP
VS33-5	03OCT94	04OCT94	2W-94-0503	T RISER INSPECTION T-111 VS (2)

Sheet 3 of 4

Table K-1. Tank Farm Operations Sampling Schedule Status (Sheet 4 of 4)

Activity ID	Early start	Early finish	JCS	1994 OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP	1995 OCT NOV DEC JAN FEB MAR APR	
GS05-4	04OCT94	05OCT94	2E-94-0841		AW-104 RCRA GRAB SAMPLING RCRA	325
GS44-4	04OCT94	05OCT94	2E-94-0952		AY-101 VAPOR SAMPLE (A)GRAB SAMPLE RCRA	222s
GS24-4	05OCT94	06OCT94	2W-94-0771		T-111 SLUDGE PROCESS SAMPLE	
AS06-4	07OCT94	11OCT94	2E-94-0702		AX104 AUGER SAMPLE	
GS16-4	07OCT94	13OCT94			AY-102 GRAB SAMPLE (CHGD FROM PUSH)	
PS05-4	07OCT94	21OCT94	2E-93-0451		C-103 PUSH SAMPLE Sample 2 Segments 4	
VS89-3	07OCT94	10OCT94	2W-94-0515		U-106 VAPOR SAMPLE (3) (FOLLOWS VAPOR TUBE I	
VSD3-4	07OCT94	10OCT94	2E-94-0567		BX RISER INSP BX-102 VS (2)	
VSD3-6	07OCT94	10OCT94	2E-94-0567		BX RISER INSP BX-106 VS (2)	
GS63-4	10OCT94	11OCT94			ER-311 CATCH TANK GRAB SAMPLE	
GS64-4	10OCT94	11OCT94			A-244 CATCH TANK GRAB SAMPLE	

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