H COMPLETE

ENGINEERING CHANGE NOTICE

Page 1 of 2

1. ECN № 624024

Proj. ECN

2. ECN Category (mark one)	3. Originator's Name, Organization, MSIN, and Telephone No.	3a. USQ Required?	4. Date
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12. Description of Change

1. Complete rewrite and update of the introduction section.
2. Added HTCE and Supporting Document flow diagram.
3. Added NE quadrant tank farms timeline diagram.
4. Updated and restructured waste and level history plots.
5. Removed temperature data tables since they are available on PC-SACS.
6. Removed drywell data, plots, and well layout diagram.
7. Removed chemical and radionuclide sample data and laboratory reports.
8. Removed unknown tank transfer plots from LANL.
9. Added the Hanford Tank Chemical and Radionuclide Inventories: HWD Model, Rev. 3, containing the Tank Layer Model, Supernatant Mixing Model, and inventory estimate tables.

13a. Justification (mark one)

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13b. Justification Details

To update the supporting document with more complete historical and tank inventory information.

14. Distribution (include name, MSIN, and no. of copies)

See attached distribution sheet.

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15. Design Verification Required	16. Cost Impact				17. Schedule Impact (days)	
	ENGINEERING		CONSTRUCTION			
[] Yes	Additional	[] $	Additional	[] $	Improvement	[]
[X] No	Savings	[] $	Savings	[] $	Delay	[]

18. Change Impact Review: Indicate the related documents (other than the engineering documents identified on Side 1) that will be affected by the change described in Block 12. Enter the affected document number in Block 19.

SDD/DD	[]	Seismic/Stress Analysis	[]	Tank Calibration Manual	[]
Functional Design Criteria	[]	Stress/Design Report	[]	Health Physics Procedure	[]
Operating Specification	[]	Interface Control Drawing	[]	Spares Multiple Unit Listing	[]
Criticality Specification	[]	Calibration Procedure	[]	Test Procedures/Specification	[]
Conceptual Design Report	[]	Installation Procedure	[]	Component Index	[]
Equipment Spec.	[]	Maintenance Procedure	[]	ASME Coded Item	[]
Const. Spec.	[]	Engineering Procedure	[]	Human Factor Consideration	[]
Procurement Spec.	[]	Operating Instruction	[]	Computer Software	[]
Vendor Information	[]	Operating Procedure	[]	Electric Circuit Schedule	[]
OM Manual	[]	Operational Safety Requirement	[]	ICRS Procedure	[]
FSAR/SAR	[]	IEFD Drawing	[]	Process Control Manual/Plan	[]
Safety Equipment List	[]	Cell Arrangement Drawing	[]	Process Flow Chart	[]
Radiation Work Permit	[]	Essential Material Specification	[]	Purchase Requisition	[]
Environmental Impact Statement	[]	Fac. Proc. Samp. Schedule	[]	Tickler File	[]
Environmental Report	[]	Inspection Plan	[]		[]
Environmental Permit	[]	Inventory Adjustment Request	[]	N/A	[X]

19. Other Affected Documents: (NOTE: Documents listed below will not be revised by this ECN.) Signatures below indicate that the signing organization has been notified of other affected documents listed below.

Document Number/Revision	Document Number/Revision	Document Number Revision
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		ADDITIONAL	

Supporting Document for the Historical Tank Content Estimate for C-Tank Farm

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Abstract: This Supporting Document provides historical in-depth characterization information on C-Tank Farm, such as historical waste transfer and level data, tank physical information, temperature plots, liquid observation well plots, chemical analyte and radionuclide inventories for the Historical Tank Content Estimate Report for the northeast quadrant of the Hanford 200 East Area.

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SUPPORTING DOCUMENT FOR THE HISTORICAL TANK CONTENT ESTIMATE FOR

C TANK FARM

WORK ORDER E44205

Prepared for

Westinghouse Hanford Company

May 1996

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C TANK FARM

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INFORMATION FEEDBACK CARD

SUPPORTING DOCUMENT FOR THE HISTORICAL TANK CONTENT ESTIMATE FOR C TANK FARM

E44205

COMMENTS AND CONTRIBUTIONS

The reader is requested to use this card to comment on this document, report any discrepancies, or contribute new information to improve the accuracy and content of the report. Please use the space provided, add additional pages if necessary, and return the comments to the person noted at the address listed below.

Send Comments to: Mr. John W Hunt
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APPENDICES

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Appendix B	References
Appendix C	Waste and Level History Sketches and Data
Appendix D	Temperature Graphs
Appendix E	Surface Level Graphs
Appendix F	Riser Configurations and Tank Cross Sections
Appendix G	Tank Farm Photograph and Tank Montages
Appendix H	Tank Layer Model, Supernatant Mixing Model, and Inventory Estimates

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1.0 Introduction

1.0.1 Purpose

The purpose of this historical characterization document is to present the synthesized summaries of the historical records concerning the physical, radiological, and chemical composition of mixed wastes stored in underground single-shell tanks and the physical conditions of these tanks. The single-shell tanks are located on the Department of Energy Hanford Site, approximately 25 miles northwest of Richland, Washington. The document will be used to assist in characterizing the waste in the tanks in conjunction with the current program of sampling and analyzing the tank wastes. Los Alamos National Laboratory (LANL) developed computer models that used the historical data to attempt to characterize the wastes and to generate estimates of each tank's inventory. A historical review of the tanks may reveal anomalies or unusual contents that could be critical to characterization and post characterization activities.

This report was developed by reviewing the operating plant process histories, waste transfer data, and available physical and chemical data from numerous resources. These resources were generated by numerous contractors from 1945 to the present.

Waste characterization, the process of describing the character or quality of a waste, is required by Federal law (Resource Conservation and Recovery Act) and state law (Washington Administrative Code (WAC) 173-303, Dangerous Waste Regulations). Characterizing the waste is necessary to determine methods to safely retrieve, transport, and/or treat the wastes.

This document is not intended for use as a total design basis document. Further investigations of the information may be required before using this data for design purposes or safety analysis.

1.0.2 Scope

The scope of this document covers available information about the wastes contained in the single-shell tanks in the C Tank Farm. Waste transfer and level data, tank physical information, and surveillance data of tanks and wastes have been compiled for this report. The inventory estimates of waste types and volumes generated by the computer modeling programs developed by LANL are included also. A summary of this information is contained in the *Historical Tank Content Estimate (HTCE) for the Northeast Quadrant of the Hanford 200-East Area*(Brevick et al., 1994). The northeast quadrant document covers six single-shell tank farms. These six tank farms, A, AX, B, BX, BY, and C, are located in the 200-East Area and are shown on the map in Figure 1. A flow diagram showing the relationships between the sources of data, the HTCE, and the supporting documents is in Figure 2.

This document also includes information on the safety issues affecting the tanks and the plants and processes that produced the waste in the underground waste storage tanks.

1.0.3 Approach

This report was compiled from work performed by ICF Kaiser Hanford Company (ICF KH), LANL, and Westinghouse Hanford Company (WHC). ICF KH reviewed the historical records of the

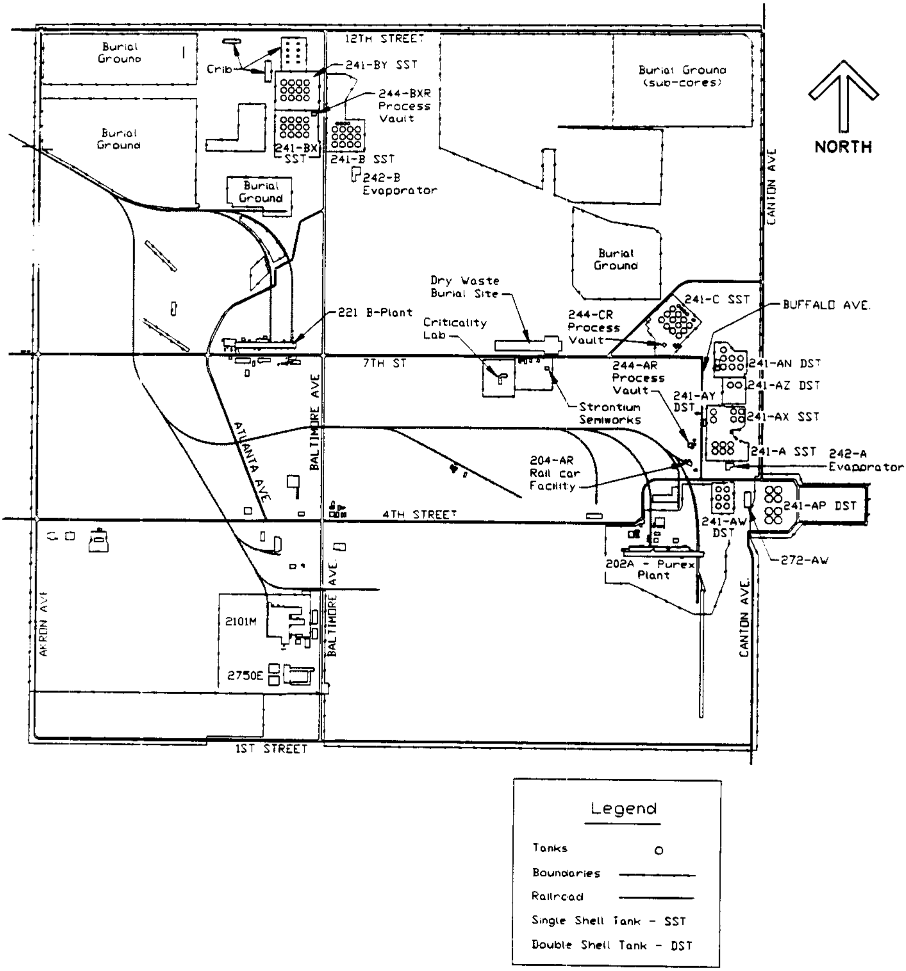

FIGURE 1: 200 EAST AREA

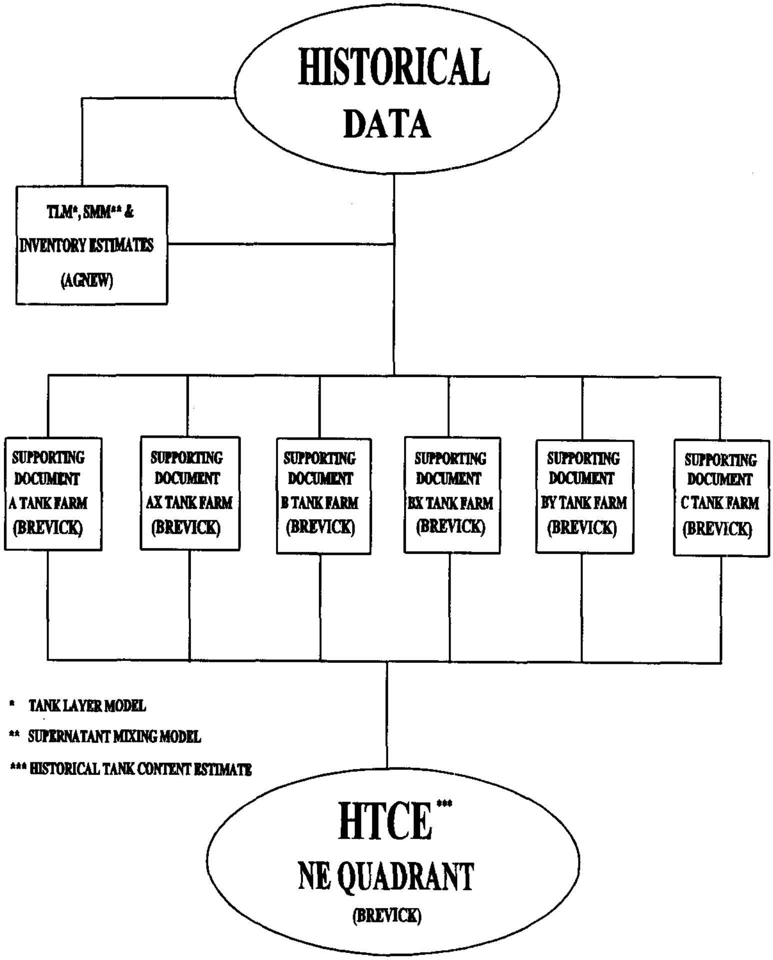

Figure 2 HTCE and Supporting Document Flow Diagram

tanks and incorporated the inventory estimates and models of waste layers in the tanks being developed by LANL into the report.

1.1 Safety Issues

The safety issues that affect the tanks can be divided into two groups: watch list and non-watch list. The watch lists are a listing of all tanks that are believed to pose potential safety hazards to workers, the environment, and the public. Non-watch list issues are of concern because of the possible impact on workers and the environment. Occurrences are unusual events on the Hanford Site that sometimes are related to safety issues.

1.1.1 Watch List Safety Issues

Watch list safety issues for these tanks were identified as "issues/situations that contain most of the most necessary conditions that could lead to worker (onsite) or offsite radiation exposure through an uncontrolled release of fission products" under Public Law 101-510, Section 3137, of the *National Defense Authorization Act of Fiscal Year 1991* (i.e., the Wyden Amendment). As of November 1995, 48 single-shell tanks and 6 double-shell tanks are on watch lists. See the *Approach for Tank Safety Characterization of Hanford Site Waste*(Eberlein et al., 1995) for more information on the watch list issues.

1.1.2 Non-Watch List Safety Issues

Non-watch list issues include safety hazards such as leaking tanks. Tank leaks are a safety hazard because of the potential to release chemicals and radioactive liquids to the ground. Corrosion is the main cause of tank leaks. Three other safety issues that do not require a watch list and continual monitoring under the Wyden Amendment include criticality, tank bumps, and toxic vapor releases. The following sections provide a general description of the different non-watch list safety issues. See the *Hanford Site Tank Farm Facilities Interim Safety Basis*(Leach and Stahl, 1993) for more information.

- **Corrosion**

Corrosion is the most probable degradation mechanism of the steel tank liners resulting from contact with liquid, liquid-vapor, vapor, and solid phases of the wastes. The corrosion mechanisms producing a reduction in the thickness of the carbon steel liners can be divided into two categories: localized and general or uniform. Localized corrosion occurs on a localized area of the liner surface. Some of the localized corrosion mechanisms include pitting corrosion, stress corrosion cracking, and crevice corrosion. General or uniform corrosion occurs over the entire liner surface. Corrosion of the steel tank liners may take the form of one or more of the mentioned mechanisms. Corrosion is a safety issue because it has the potential to degrade the tank liner to the point of causing a leak or, more seriously, structural failure of the tank. Either condition could release contamination to the environment.

- **Criticality**

Criticality is a self-sustained, nuclear chain reaction that can occur when a sufficient mass of fissile material is present in the proper configuration along with a neutron source to start the nuclear reaction. Criticality in the tank farms has been declared an unreviewed safety question, even though the *Hanford Site Tank Farm Facilities Interim Safety Basis*(Leach and Stahl, 1993) indicates that a "...nuclear criticality accident in the tank farms is probably not an imminent risk." The unreviewed safety question on criticality in the tank farms remains because the inventory of fissile material and its distribution within the tanks cannot be confirmed as being within the approved safety envelope defined in the current safety analysis reports. Criticality is a safety issue because of the potential to cause a release of contamination to the environment.

- **Tank Bumps**

A tank bump is the sudden pressurization of the tank. This occurs when solids overheat in the lower portion of the tank followed by uncontrolled mixing of these solids. The stirred hot solids rapidly transfer heat to the liquid in the tank, some of which quickly vaporizes. The rapid vapor generation causes a sudden internal tank pressurization that causes a bump. Uncontrolled mixing of heated solids can occur when an airlift circulator fails allowing the solids to heat up followed by rapid startup of the airlift circulator which causes rapid mixing. Also, uncontrolled mixing can occur when a natural "rollover" of waste occurs in the tank. Tank bumps are a safety issue because of the potential to cause a release of contamination to the environment.

- **Toxic Vapor Releases**

Toxic vapor releases are a recently analyzed safety concern at the Hanford Site. The entire issue of toxic gas releases at the tank farms is being investigated (Leach and Stahl, 1993).

1.1.3 Occurrences

Over the years, unusual events (occurrences) have occurred at the C Tank Farm. An occurrence is an event that falls outside of the normal operating, maintenance and/or construction procedures of the tank farm. Occurrences have been documented by various reporting methods including unusual occurrences reports, off normal reports, event fact sheets, and occurrence reports. The occurrence documentation in each report that could be located was evaluated for its significance in determining the waste content of the tanks before being included in this document. The types of significant occurrences included are occurrences written about surface level changes, temperature changes, and radioactivity changes (activity in the drywells). This document does not contain complete information from the reports, only summaries of the events. For more information on occurrences, refer to the Occurrences section for the specific tank.

1.2 Waste Generating Plants and Processes

1.2.1 Plants Processes

Brief descriptions and histories of the plants and processes that generated waste now contained in the single-shell and double-shell tanks are presented in alphabetical order. Typically, the name of the plant and the process are synonymous. The dates and events described in the following brief histories are presented on time lines in Figures 3 and 4. Although not all of the processes listed below contributed waste directly to tanks in the northeast quadrant, the waste they generated could have been transferred indirectly tank-to-tank.

- **A Plant (PUREX)**

The Plutonium Uranium Extraction (PUREX) plant (i.e., A Plant) began operating in January 1956 (Gerber, 1993b). "The PUREX process is an advanced solvent extraction process that uses a tributyl phosphate in kerosene solvent for recovering uranium and plutonium from nitric acid solutions of irradiated uranium. Nitric acid is used instead of metallic nitrates to promote the extraction of uranium and plutonium from aqueous phase to an organic phase." (Wilson and Reep, 1991, p. B-4). Two campaigns of the Thorex process were conducted in 1966 and 1971 (Jungfleisch, 1984). The Thorex process recovered ^{233}U from thorium irradiated in the Hanford Site reactors (Wilson and Reep, 1991). PUREX reprocessed aluminum-clad fuel elements and zirconium alloy clad fuel elements, and provided plutonium for research reactor development, safety programs, and defense. Also, PUREX recovered slightly enriched uranium to be recycled as fuel in reactors generating electricity and plutonium (Rockwell, 1985). PUREX was put on standby in 1972 (Gerber, 1993b).

The PUREX plant was restarted in November 1983 but was shut down in December 1988 (see Figure 3). The plant was shut down due to the lack of steam pressure needed to operate the support backup safety equipment. There was a brief stabilization run in early 1990. In October 1990, PUREX was placed on standby by Secretary of Energy James Watkins. DOE issued the final closure order in December 1992 (Gerber, 1993c).

- **B Plant**

B Plant used the bismuth phosphate process at first, and later changed its processing capabilities to strontium and cesium fractionation. The bismuth phosphate process "separated plutonium from uranium and the bulk of fission products in irradiated fuel by co-precipitation with bismuth phosphate from a uranium nitrate solution. The plutonium was then separated from fission products by successive precipitation cycles using bismuth phosphate and lanthanum fluoride. The plutonium was isolated as a peroxide and, after dissolving in nitric acid, was concentrated as plutonium nitrate. The waste containing the uranium from which the plutonium had been separated, was made alkaline (neutralized) and stored in underground single-shell tanks. Other acid waste (which included most of the fission products) generated by this process was neutralized and stored in other single-shell tanks." (Wilson and Reep, 1991, p. B-3). "Some of the strontium and cesium fission products were removed (fractionated) from the waste and separately isolated to reduce the heat generation in the tanks. B Plant.....was modified in 1968 to permit removal of these fission products by a combination of precipitation, solvent extraction, and ion-exchange steps. The residual acid waste from the processing was neutralized and stored in single-shell tanks." (Wilson and Reep, 1991, pp. B-4 and B-5).

B Plant began its first batch run on April 13, 1945 (Anderson, 1990) and was shutdown in 1952 (Gerber, 1993c) (see Figure 3). Shortly after the renovations to B Plant were completed in December 1955, the 4X Program was abandoned. The 4X Program "planned to utilize the capabilities of all four Hanford processing plants (B, T, REDOX, and PUREX)" (Gerber, 1993c, p. 12); however, the large production and economic efficiency of the PUREX plant caused the 4X Program to be abandoned (Gerber, 1993c). B Plant restarted in 1968 to recover cesium and strontium from stored liquid waste. Cesium and strontium recovery was completed in September 1983 and February 1985, respectively (Rockwell, 1985).

- **225-B (WESF)**

The Waste Encapsulation and Storage Facility (WESF) converted solutions of cesium and strontium nitrates recovered in B Plant to strontium fluoride and cesium chloride solids that are doubly encapsulated in metal (Ballinger and Hall, 1991). "Strontium and cesium capsules have been used in applications of fission byproducts for gamma and heat sources" (Wilson and Reep, 1991, p. B-5).

WESF was constructed in 1974 (see Figure 3). The process optimization for cesium and strontium was completed in 1978 and 1981, respectively (Rockwell, 1985). The cesium processing ended in 1983 and strontium encapsulation in 1985. The capsule return program started in 1988 and ended in 1995 (Gerber, 1996).

- **C Plant (Strontium Semiworks)**

The Strontium or Hot Semiworks facility (i.e., C Plant) began operating in 1952 as a hot pilot plant for the REDOX process (see Figure 3). In 1954, the plant was converted to a pilot plant for the PUREX process and continued operating until 1956 (Ballinger and Hall, 1991). "The process building (201-C) contains three hot cells equipped only for contact maintenance and is supported by an aqueous makeup and control building (271-C) and a solvent handling building (276-C). The facility also includes a fiberglass exhaust filter and a 200-ft stack." (PNL, 1991, Vol. 1, p. 3.6). In 1960, the plant was reactivated as a pilot plant used to recover strontium 90, promethium 147, and cesium 144 from PUREX waste. The plant was shut down in 1967 and the building and the site have been decontaminated and decommissioned (PNL, 1991).

- **S Plant (REDOX)**

The Reduction and Oxidation extraction (REDOX) plant (i.e., S Plant) began processing on January 9, 1952 (Anderson, 1990) (see Figure 3). "The REDOX extraction process was a second-generation recovery process and the first process to recover both plutonium and uranium. It used a continuous solvent extraction process to extract plutonium and uranium from dissolved fuel into a methyl isobutyl ketone (hexone) solvent. The slightly acidic wastestream contained the fission products and large quantities of aluminum nitrate that were used to promote the extraction of plutonium and uranium. This waste was neutralized and stored in single-shell tanks. The volume of high-level waste from this process was much smaller than that from the bismuth phosphate process, but larger than that from the PUREX process." (Wilson and Reep, 1991, pp. B-3 and B-4). REDOX operated until 1967 (Rockwell, 1985).

- **T Plant**

T Plant was the first full-scale separations plant at the Hanford Site. T plant used the bismuth phosphate process to separate plutonium from uranium and the bulk of fission products in irradiated fuel (B Plant used the same process). "The waste containing the uranium from which the plutonium had been separated was made alkaline (neutralized) and stored in underground single-shell tanks. Other acid waste (which included most of the fission products) generated by this process was neutralized and stored in other single-shell tanks." (Wilson and Reep, 1991, p. B-3).

T Plant began operating in 1944 (Rockwell, 1985) as a separations plant and continued until March 1956 (Gerber, 1994a) (see Figure 4). T Plant's mission was changed in 1957 to the repair and high-level decontamination of equipment (Rockwell, 1985). T Plant was converted to a "central decontamination facility for the site. As such, failed and contaminated equipment was assessed and either repaired or discarded there for over three decades." (Gerber, 1994a, p. 1). Early decontamination operations used steam, sand, chemicals, and detergents. "Smaller equipment pieces were immersed in decontamination solutions in 'thimble tanks,' and larger pieces were flushed with water, chemical solutions, sand-blasted, steam-blasted, high-pressure sprayed (using pressures up to 10,000 pounds per square inch), and/or scrubbed with detergents. During the initial years, a strong nitric acid flush (approximately 60%) usually began the decontamination process, followed by a caustic wash with sodium hydroxide combined with sodium phosphate, boric acid, versene, sodium dichromate, sodium tartrate, or sodium citrate. However, it was learned that versene and tartrate, in particular, adversely affected the ability of soil cribs to absorb the rinsate materials. High-pressure sprays often used 1,1,1 trichloroethane or perchloroethylene, and detergents generally were chloride-based. By the mid-1960s, commercially prepared and trademarked chemical mixtures had replaced most of the simpler chemicals used in the early years. Many commercial products were based on oxalic acid, phosphates, nitric acid-ferrous ammonium sulfate combinations, potassium permanganate, and sodium bisulfate, with some unknown additives." (Gerber, 1994a, pp. 40–42). The facility was modified in 1978 to store pressurized water reactor (PWR) core II fuel assemblies (Rockwell, 1985).

- **U Plant**

U Plant (221-U) was built as one of three original bismuth phosphate process facilities, but it was not used for that purpose. U Plant was modified extensively and used for the uranium recovery process, operating from 1952 to 1958 (see Figure 4). Uranium in waste from the bismuth phosphate process initially was stored in the single-shell tanks. Later, the waste was sluiced, dissolved in nitric acid, and processed through a solvent extraction process using tributyl phosphate in kerosene to recover the uranium. The process was similar to that used later in the plutonium-uranium extraction (PUREX) process except that plutonium was not recovered. The acid waste from the uranium recovery process was made alkaline and returned to single-shell tanks. The tributyl phosphate waste was treated with potassium ferrocyanide as a cesium and strontium scavenger. The recovery process resulted in an increase in nonradioactive salts and a small increase in waste volume (Wilson and Reep, 1991).

- **Uranium Trioxide Plant**

The 224-U Building was converted to a uranium trioxide (UO_3) plant which began operating in 1952 (see Figure 4). The UO_3 plant was capable of handling the uranyl nitrate hexahydrate (UNH) stream from REDOX, U Plant, and PUREX. "The basic UO_3 process, calcining, consisted of concentrating and then heating liquid UNH until it converted to a stable, orange-yellow powder. The nitric acid in the UNH solution could be recovered in the same process. The UO_3 powder was the base material needed for the manufacture of uranium hexafluoride (UF_6), the primary feed material for the United States' gaseous diffusion plants. Because the largest of these plants was located in Ohio and Tennessee, it was considered safer to ship the material across the country in powder rather than in liquid form." (Gerber, 1993c, pp. 33–34). The UO_3 plant was shut down in 1972, but restarted in 1984. Since 1984, there have been 17 campaigns at the plant averaging eight days each. Final deactivation was ordered for the plant in 1992. In April 1993, the UO_3 plant resumed operations to convert 200,000 gallons of remaining UNH to UO_3 powder. A final deactivation plan was written in the summer of 1993 (Gerber, 1993c).

- **Z Plant (Plutonium Finishing Plant)**

The Plutonium Finishing Plant (PFP) or Z Plant, previously called Plutonium Recovery and Finishing Operations, processed plutonium and prepared plutonium products. "Waste from this plant contained only minor amounts of fission products but did contain low concentration of plutonium and other transuranic elements and was high in metallic nitrates. Initially, this waste was discharged via cribs to soil columns, which absorbed the transuranic elements and retained them close to the point of discharge. Beginning in 1973, waste from PFP was stored with other waste in underground tanks." (Wilson and Reep, 1991, p. B-4). "Three types of feed materials are processed at the PFP to produce plutonium metal. Feed material types are handled differently in different process lines...Historically, the main feed for the PFP was purified plutonium nitrate solution that was produced elsewhere in a fuel reprocessing plant. This feed was charged directly to one of the main process lines, which was initially a glovebox line. The glovebox line was replaced by remote mechanical lines, which were upgraded over the years. In time, processes were added to handle rework and scrap plutonium. These processes were used to convert the rework and scrap materials into a purified plutonium nitrate solution that could be handled by the main process." (Duncan and Mayancsik, 1993, pp. 2-1–2-2).

In July 1949, PFP began operations with a glove box line (see Figure 4). The remote mechanical A line replaced the glove box line in May 1953. Installment of the Recuplex Facility at PFP was completed in April 1955. The remote mechanical C line was installed in July 1960. In September 1961, the 232-Z Building was installed with an incinerator and leaching equipment. In June 1964, the Plutonium Reclamation Facility (PRF) replaced the functions of the Recuplex Facility. Fabrication of plutonium metal nuclear weapon components ceased at the PFP in December 1965. In April 1973, the 232-Z Incinerator was shut down and the remote mechanical C line was placed on standby. The PRF was placed on standby in February 1979, and the remote mechanical A line was shutdown in December 1979. In January 1984, the PRF was restarted for a series of campaigns. The remote mechanical C line was restarted in June 1985 for a series of campaigns. In September 1986, operations at PFP were halted for nine months. This partial listing of the process history in the Plutonium Finishing Plant is from D.R. Duncan et al. (1993).

1.2.2 Waste Management Operations

This section describes the different methods used to concentrate waste in the 200 Areas. Evaporating, concentrating, and scavenging are all methods used to reduce liquid volumes or precipitate solids from supernate. Brief descriptions and histories of the operations are presented in alphabetical order. The events and dates described in the brief histories are presented on a time line (Figure 5).

- **242-A Evaporator-Crystallizer**

"The program objective was to reduce the volume of tanked waste liquors through the boiloff of water. This was accomplished by boiling the liquor in an enclosed vessel at reduced pressure. The evaporation was carried out until a slurry containing about 30 wt% solids was formed. The slurry was returned to underground waste tanks for cooling, crystallization, and settling. The principal products of waste solidification have been large volumes of sodium nitrate salt cakes and waste liquors that are rich in sodium hydroxide and sodium aluminate." (Wilson and Reep, 1991, p. B-5).

The 242-A Evaporator-Crystallizer began operating on March 18, 1977 (Anderson, 1990) (see Figure 5). In 1981, the evaporator was shut down for ten months to tie AW Tank Farm into the process (Rockwell, 1985). The evaporator was shut down in 1989 because of regulatory issues, but was restarted in 1994 after extensive modifications (Gerber, 1996).

- **242-B Evaporator**

"The first type of waste solidification facility, the 242-B and 242-T Concentrators, was originally used for concentration of bismuth phosphate process waste. In 1951, they began to concentrate cladding/first cycle waste. These concentrators were steam-heated pot evaporators operated outside the waste tanks and at atmospheric pressure. The liquors were partially boiled down and cycled to underground waste storage tanks." (Jungfleisch, 1984, p. 1-5). This evaporator ran for approximately 4 years (Anderson, 1990) (see Figure 5).

- **242-S Evaporator-Crystallizer**

The 242-S Evaporator-Crystallizer was designed to boil off water from the waste in an enclosed vessel at reduced pressure, similar to the 242-A Evaporator-Crystallizer. "The evaporation was carried out until a slurry containing about 30 wt% solids was formed. The slurry was returned to underground waste tanks for cooling, crystallization, and settling. The principal products of waste solidification have been large volumes of sodium nitrate salt cakes and waste liquors that are rich in sodium hydroxide and s[illegible]um aluminate." (W[illegible]lson and Reep, 1991, p. B-5). The evaporator began operating on November 1[illegible] [illegible]973 (Anderson, 1[illegible][illegible]0) and was shut down in 1981 (Gerber, 1996) (see Figure 5).

- **242-T Evaporator**

The 242-T Evaporator, like the 242-B Evaporator, began operating in 1951 (Gerber, 1992) to reclaim nonboiling waste storage capacity in existing tanks (see Figure 5). The evaporator was shut down in the summer of 1955 and modified for tributyl phosphate scavenging (Godfrey, 1965), although scavenging was never performed in this evaporator. The evaporator was restarted on December 3, 1965 and operated until April 15, 1976 (Anderson, 1990).

- **In-Tank Solidification**

The in-tank solidification systems immobilized high level wastes, that were not self-boiling, by concentrating the waste directly inside of the tanks to form radionuclide-bearing salt cakes (Shefcik, 1964). The first in-tank solidification unit (ITS-1) and the second in-tank solidification unit (ITS-2) operated in tanks in the BY Tank Farm (Caudill, 1965 and 1967). "...one used a hot air sparge (ITS-1) and the other used an immersed electrical heater (ITS-2). The ITS-1 operations were conducted in individual tanks. The ITS-2 concentrations were performed by heating the contents of one tank and moving the heated liquor through a series of other tanks." (Wilson and Reep, 1991, p. B-5).

In-tank solidification units 1 and 2 began operating on March 19, 1965 and February 17, 1968, respectively (see Figure 5). ITS-1 was converted to a cooler for ITS-2 on August 24, 1971. Both units [illegible]e shut down on June 30, 1974 (Anderson, 1990).

1.[illegible].3 Miscellaneous Waste Sources and Equipment

Wastes from various other sources on the Hanford Site have been added to the tanks. Some wastes are from the 300 Area, 100 Area production reactors, various laboratories, and catch tanks.

- **Critical Mass Laboratories**

The critical mass laboratories were used to study the physics of plutonium solutions and solids to avoid accidently creating a criticality or self-sustained nuclear reaction. The first facility began operating in the 120 Building near 100-F in April 1950 and closed in December 1951. The second facility, the 209-E Building, was located next to the Strontium Semiworks and began operating in July 1961 (Ballinger and Hall, 1991). The plutonium used in the lab was reprocessed in PUREX.

- **244-AR, -BXR, and -CR Process Vaults**

Three of the process vaults are the 244-AR Vault, the 244-BXR Vault, and the 244-CR Vault. These vaults were composed of several process vessels or tanks used to prepare waste for treatment or storage. Specific wastes from tanks can be pumped temporarily to the vaults and later sent directly to desired tanks or processing facilities.

The AR Vault is located north and west of the A Tank Farm and was constructed in 1966. The vault facilities include a canyon building with process cells containing tanks. The AR Vault has been on standby since 1978 (Leach and Stahl, 1993).

The 244-BXR Vault, located south of the BX Tank Farm began operating in 1952 (Rodenhizer, 1987) and became inactive in 1956. The waste in the vault was difficult to handle, so the vault was jetted with high-pressure steam in 1976. The 244-BXR Vault was used to process sludge in the recovery of uranium from bismuth phosphate metal waste in the tanks (Rodenhizer, 1987).

The 244-CR Vault was constructed in 1952 and is located south of the C Tank Farm (Leach and Stahl, 1993). Salt-well waste from the C Tank Farm is interimly stored in the CR Vault. The 244-CR Vault was used to process sludge in the recovery of uranium from bismuth phosphate metal waste in the tanks (Rodenhizer, 1987).

- **204-AR and 204-S Railroad Car Facilities**

The 204-AR rail car unloading facility was built in 1981 (Leach and Stahl, 1993) and replaced the 204-S rail car unloading facility. The facilities were built for pumping liquid radioactive waste from tank cars and sending the waste to 200 East Area tank farms (Leach and Stahl, 1993).

1.2.4 Time Lines

Time lines are presented on the following pages that represent many of the events that occurred during the history of the major plants and waste management operations on the Hanford Site. These are the same events as those described in the description of each facility. The plants, associated processes, and methods for managing waste were the main sources of the wastes currently stored in the tanks. Abbreviations are defined in the preceding text and the glossary in Appendix A.

One time line represents the history of each of the tank farms in the northeast quadrant of the 200-East Area (Figure 6). The events represented include the dates of construction, individual tank's entry into service and removal from service, and the deactivation of each tank farm.

PLANTS / PROCESS - TIME LINE

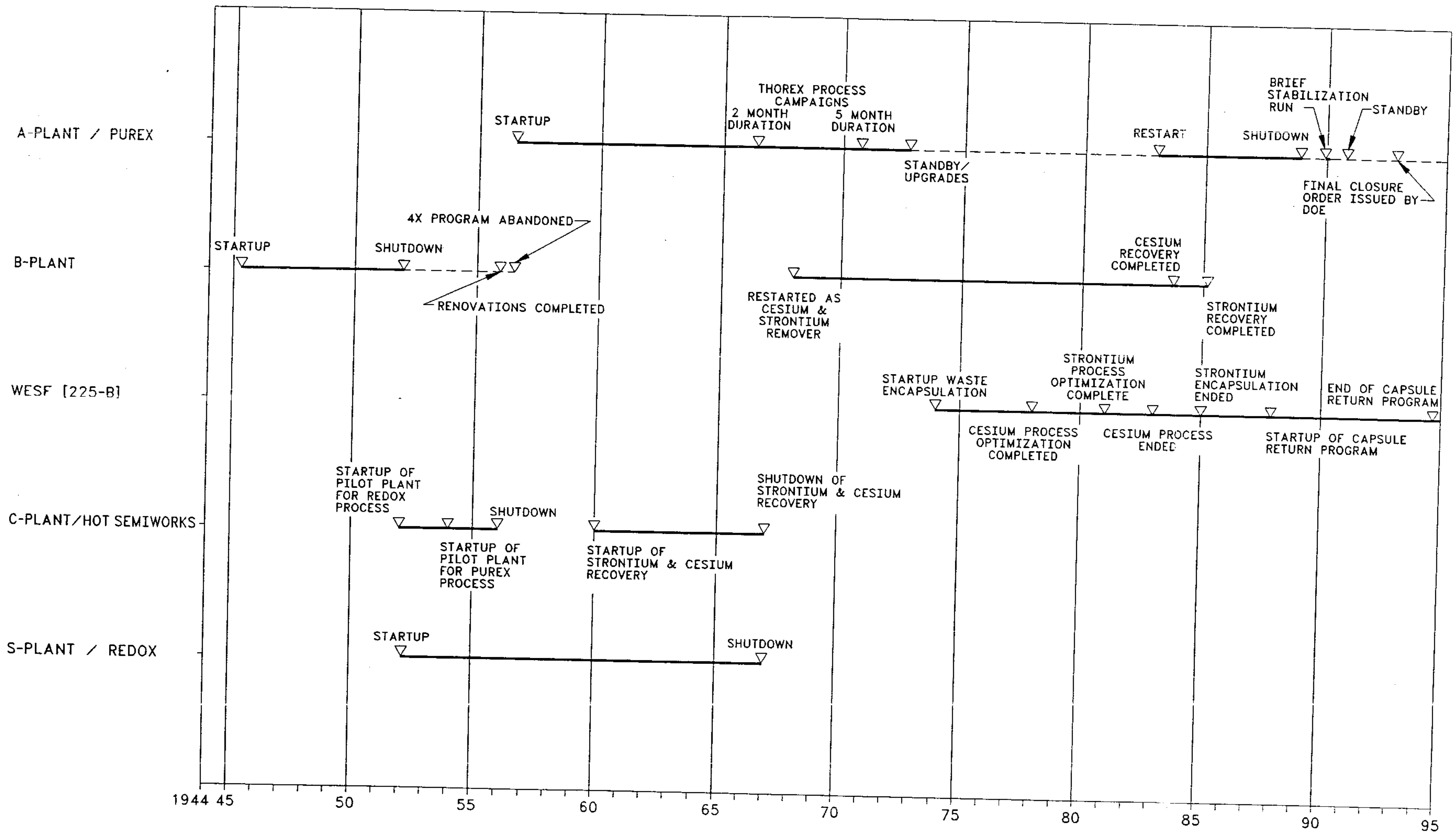

FIGURE 3

PLANTS / PROCESS - TIME LINE

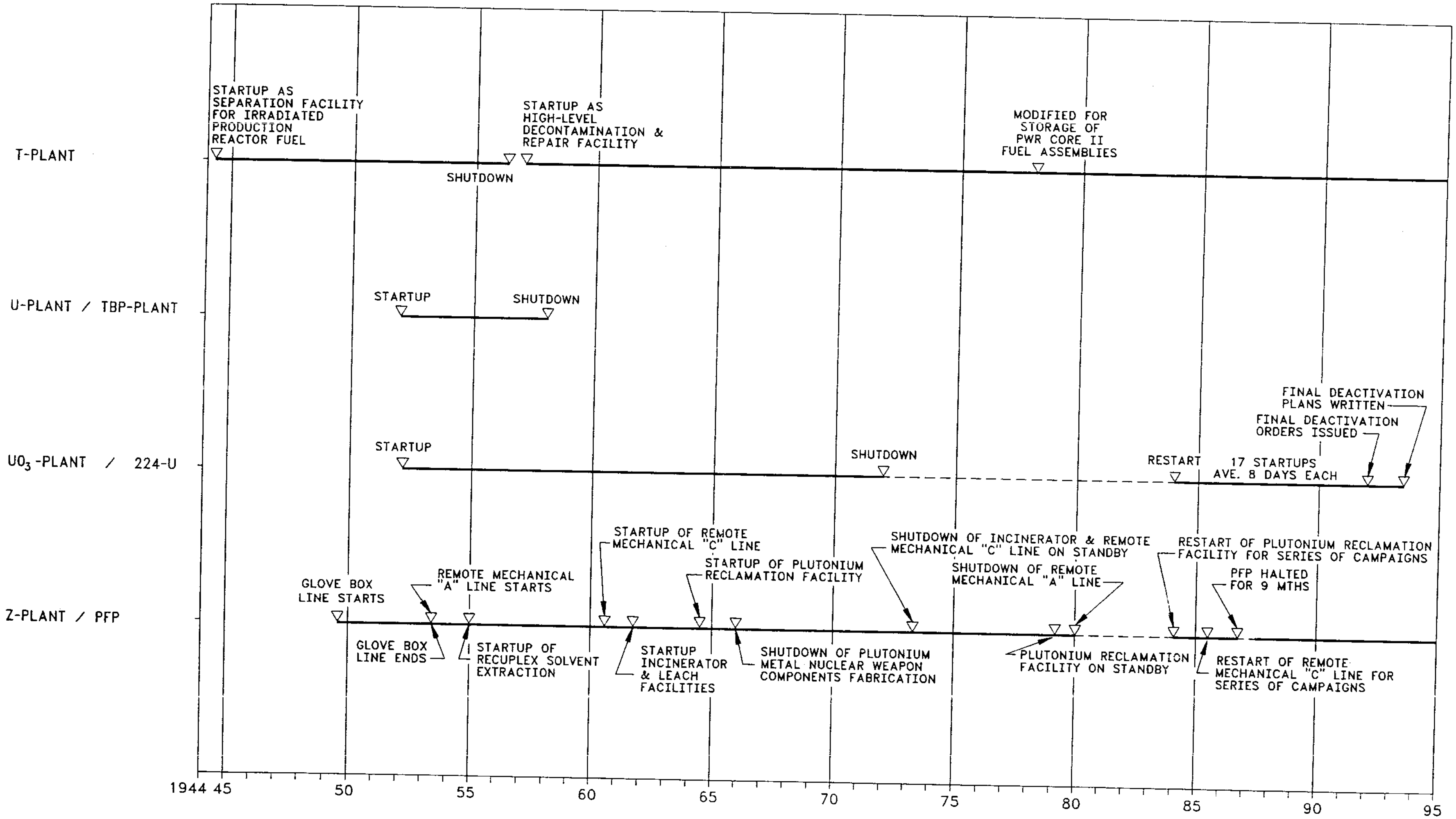

FIGURE 4

WASTE MANAGEMENT – TIME LINE

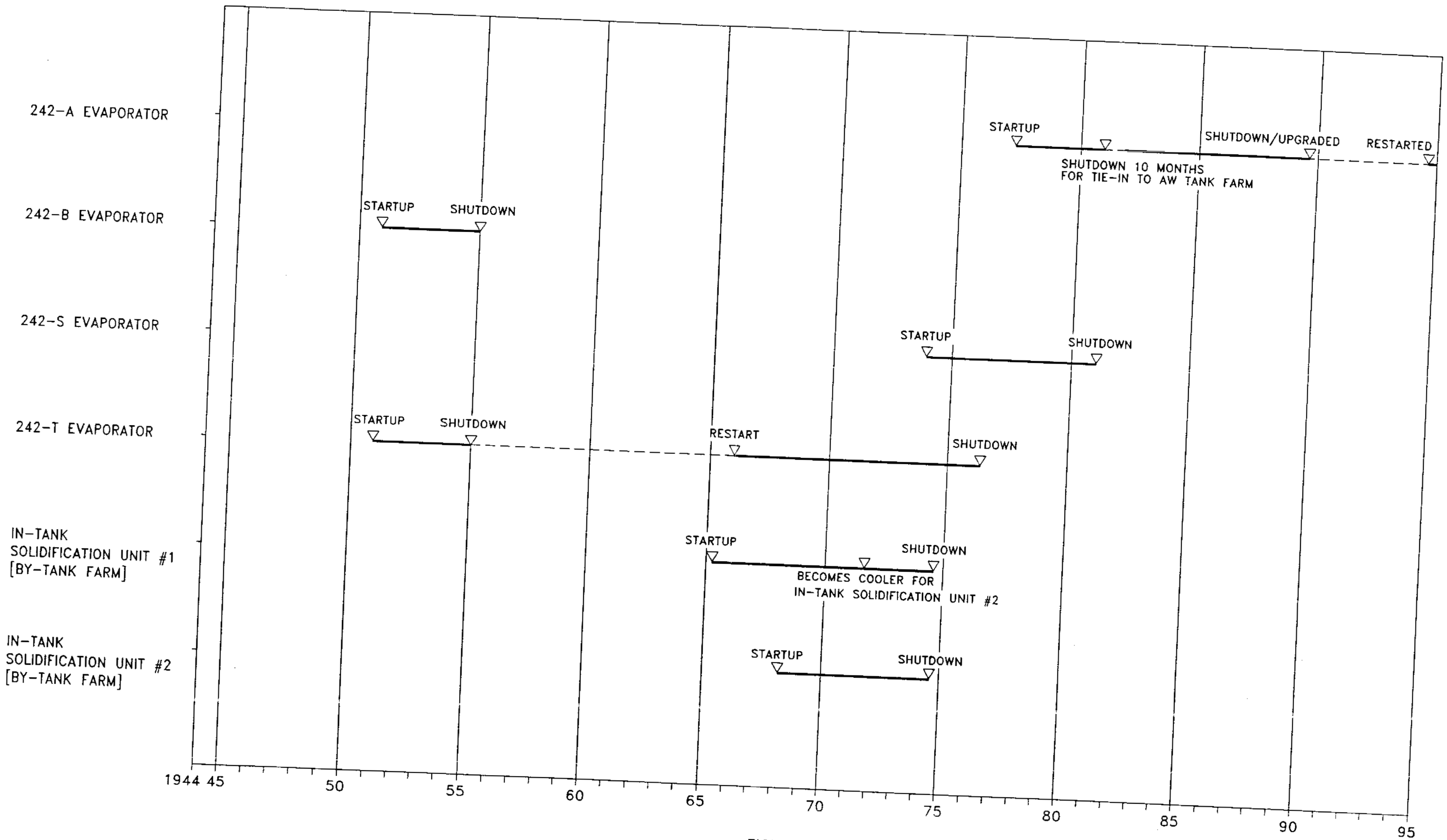

FIGURE 5

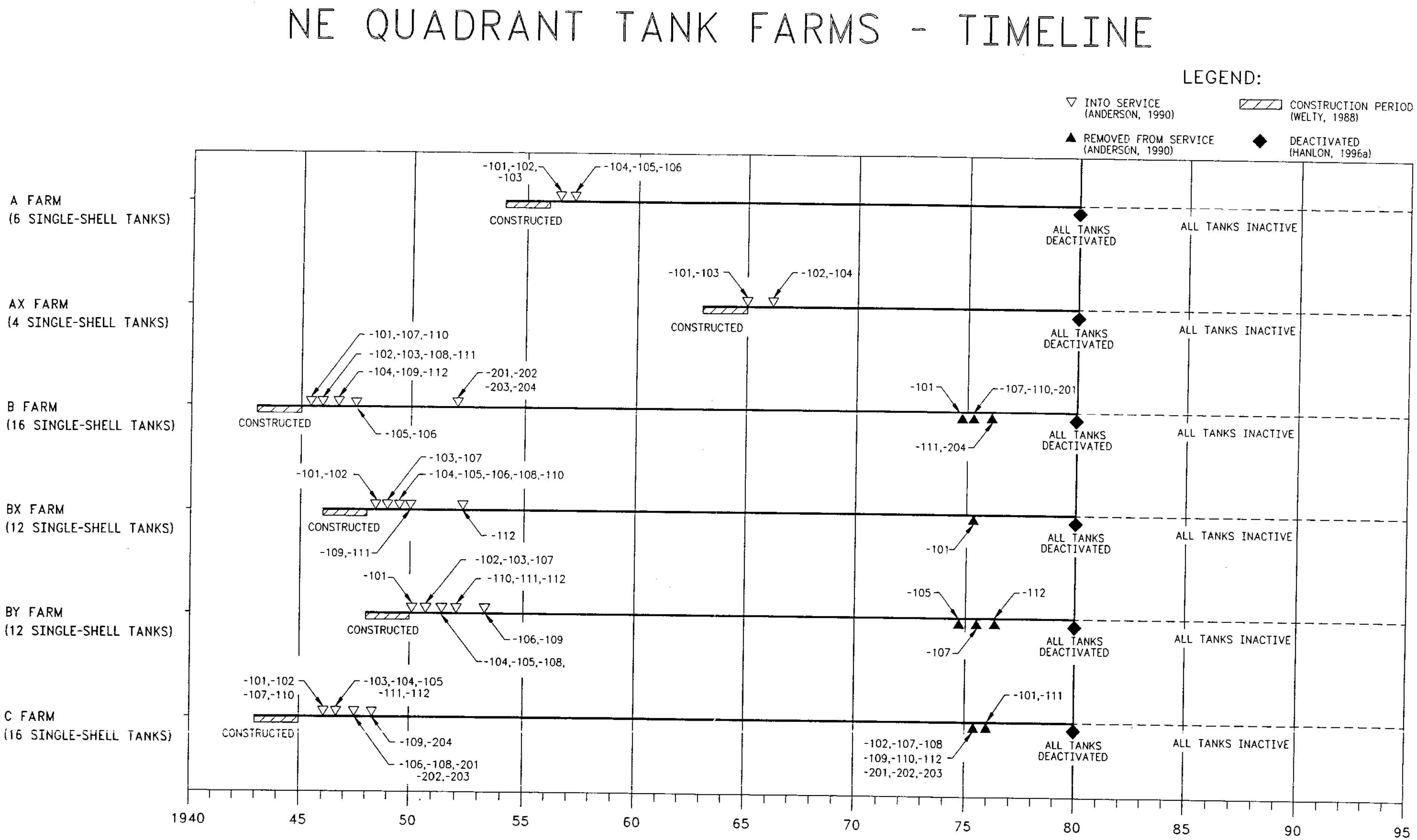
NE QUADRANT TANK FARMS - TIMELINE
LEGEND:
INTO SERVICE (ANDERSON, 1990)
CONSTRUCTION PERIOD (WELTY, 1988)
REMOVED FROM SERVICE (ANDERSON, 1990)
DEACTIVATED (HANLON, 1996a)
A FARM (6 SINGLE-SHELL TANKS)
AX FARM (4 SINGLE-SHELL TANKS)
B FARM (16 SINGLE-SHELL TANKS)
BX FARM (12 SINGLE-SHELL TANKS)
BY FARM (12 SINGLE-SHELL TANKS)
C FARM (16 SINGLE-SHELL TANKS)
CONSTRUCTED
-101,-102, -103
-104,-105,-106
-101,-103
-102,-104
-101,-107,-110
-102,-103,-108,-111
-104,-109,-112
-201,-202 -203,-204
-105,-106
-101
-107,-110,-201
-111,-204
-101,-102
-103,-107
-104,-105,-106,-108,-110
-112
-109,-111
-101
-102,-103,-107
-110,-111,-112
-106,-109
-104,-105,-108,
-105
-112
-107
-101,-102 -107,-110
-103,-104,-105 -111,-112
-109,-204
-106,-108,-201 -202,-203
-101,-111
-102,-107,-108 -109,-110,-112 -201,-202,-203
ALL TANKS DEACTIVATED
ALL TANKS INACTIVE
1940
45
50
55
60
65
70
75
80
85
90
95

FIGURE 6

1.3 Waste and Level History

The Waste and Level History section of this document is presented by a combination of two methods and is represented by sketches shown in Appendix C. The first method presents a graph of waste levels versus time for each tank. The waste levels graphed include the total waste level and the solid waste level. The waste level graphs also include information on transfers, stabilization, intrusion prevention (isolation), salt-well and jet pumping activities, level adjustments, pH, photographs, and a few other miscellaneous items. The second method presents a time line showing the periods of time that different waste types were added to each tank. The time line and the waste level graphs for a given tank have been arranged so that the time axis for each method correlates with one another.

1.3.1 Source of Data

The references used to create the total waste level graph and the solid waste level graph for each level history graph are listed below in chronological order beginning with the oldest documents. Anderson (1990) was the source used for level information from when the tanks entered service until the end of 1980. Level information from 1981 to the present was taken from a series of documents that basically contain the same type of information. These documents have been given various titles over the years but they all reflect the monthly waste status (i.e., waste volumes) for all the tanks. Beginning in 1981, these "monthly waste status reports" have been authored by the following people: O.C. Mudd, O.C. Mudd & D.C. McCann, D.C. McCann, D.C. McCann & T.S. Vail, T.S. Vail, T.S. Vail & G.D. Murry, T.S. Vail & G.J. Carter, G.J. Carter, G.A. Escobar, J.M. Thurman, and B.M. Hanlon. The last "monthly waste status report" reviewed was for October 31, 1995 (Hanlon, 1996a). See Appendix B for more complete reference information.

The reference for the transfer information is only Anderson (1990). Anderson has information for all the tanks through 1980. Transfers that may have occurred after 1980 have not been identified on the sketches of the Waste and Level History. For more transfer information not included in this document see *Waste Status and Transaction Record Summary for the Northeast Quadrant* (Agnew et al., 1995).

The reference for stabilization information is Hanlon (1996a).

For tanks that were intrusion prevented before June 1988, the references Welty (1988). For tanks that were intrusion prevented after June 1988, the references are various "monthly waste status reports". For more complete reference information on intrusion prevention after June 1988, refer to the Waste and Level History sketches in Appendix C where the references for intrusion prevention have been identified.

The reference for the salt-well pumping completion dates and jet pumping completion dates is Welty (1988). Salt-well and jet pumping activities that may have occurred after the release of Welty's document have not been identified on the Waste and Level History sketches.

Level adjustment dates were taken from various "monthly waste status reports" after and including 1981 and from Anderson (1990) prior to 1981. Anderson's document did not contain a complete listing of the level adjustments prior to 1981. For more complete information on level adjustments, refer to the individual "monthly waste status reports." For more complete reference information on level adjustments after 1980, refer to the Waste and Level History sketches in Appendix C where the references for these level adjustments have been identified.

The reference source for the pH information is Borsheim and Kirch (1991). The pH information after the release of Borsheim and Kirch's document has not been identified on the Waste and Level History sketches.

The photographic information was taken from Appendix G of this document.

The information on the time lines came from two sources. The reference for the Waste Types Added Time Line was Anderson (1990). The reference for the Primary Additions Time Line was Agnew et al. (1995b).

1.3.2 Development of Data

The total waste level graphs and the solids waste level graphs were developed from waste volume information from Anderson (1990) and the "monthly waste status reports." Anderson compiled a listing of total waste volumes and solids waste volumes for all the tanks on a quarterly basis prior to January 1981. Since Anderson's document is a compilation of the "monthly waste status reports" prior to January 1981, specific "monthly waste status reports" were reviewed when typographical errors were found. In order to continue on a quarterly basis after January 1981, the total waste volumes and the solids waste volumes were taken from the March, June, September, and December additions of the reports. The waste volumes were converted into equivalent waste levels based upon the following equations:

Tanks 241-C-101 through -112:

$$\frac{\textit{Total Gallons} - 12{,}500\ \textit{Gallons}}{2750\ \dfrac{\textit{Gallons}}{\textit{Inch}}} = \textit{Total Inches}$$

Tanks 241-C-201 through -204:

$$\frac{\textit{Total Gallons} - 590\ \textit{Gallons}}{196\ \dfrac{\textit{Gallons}}{\textit{Inch}}} + 6\ \textit{Inches} = \textit{Total Inches}$$

The "0" reference point for the total waste levels and the solids waste levels for tanks 241-C-101 through -112 is at the bottom knuckle inside of the tank. This places the "0" reference point 12 inches above the bottom of the tank. The "0" reference point for the total waste levels and the solids waste levels for tanks 241-C-201 through -204 is at the bottom inside of the tank. The waste levels have been rounded to the nearest thousand gallons(Kgal). In the event that the total waste level and the solids waste level were the same, the reported volumes were reviewed to determine if the reported volumes were the same. If the volumes were the same, only the solids level was graphed. If the volumes were not the same, then both the total waste level and the solids waste level were graphed. The quarterly waste volumes and associated waste levels have been arranged in tables and are titled the Level History tables. The Level History tables were developed within Microsoft Excel® and are presented in Appendix C.

The total waste level graphs and the solids waste level graphs were all created within AutoCAD®. In order to expedite the creation of these graphs, script files were generated from the information contained within the Level History tables. The script files were generated by arranging the waste level information and the corresponding dates from the Level History tables into a Cartesian coordinate system (i.e., x,y coordinates). The script files allowed AutoCAD® to automatically generate the graphs on the Waste and Level History sketches.

Transfer information was taken from the "Remarks" column of the Waste Status Summary tables from Anderson (1990). Transfer information was available on a quarterly basis. However, due to the scale of the time axis on the Waste and Level History sketch, the transfer information was placed near the total waste level graph corresponding to the appropriate year. Because of space limitations on the sketches, not all the transfer information available within Anderson's document could be included. For more details about the transfer information, see Anderson (1990).

Intrusion prevention (isolation) dates were taken from Welty (1988) and various "monthly waste status reports". However, Welty and the various "monthly waste status reports" issued before 1993 use the old terminology of interim isolated. In 1993, the term "interim isolated" was replaced with "intrusion prevention." In order to remain consistent with current terms, the Waste and Level History sketches have used the interim isolation dates given by Welty and changed the terminology to intrusion prevention.

The Waste Types Added Time Line information was taken from the "Type Waste" column of the Waste Status Summary tables from Anderson (1990). Since Anderson's document is a compilation of the "monthly waste status reports" prior to January 1981, specific "monthly waste status reports" were reviewed when typographical errors were found. The vertical lines on the time line are boundaries between which the types of wastes identified have been added to the tanks. The vertical lines are spaced a minimum of three years apart.

The Primary Additions Time Line information was taken from the spreadsheets located in Appendix C of the *Waste Status and Transaction Record Summary for the Northeast Quadrant* (Agnew et al., 1995b). Two columns in the spreadsheet were reviewed to determine the information that would appear on the time line. The first column reviewed was the "Type" column. The "Type" column describes the type of transaction that occurred in a tank. The type of transactions that were reviewed were the transactions that Agnew et al. labeled as "XIN" or "xin". Agnew et al. used these two labels to indicate an addition of primary waste into a tank. According to Agnew et al., "XIN" is an addition of primary waste from a plant and "xin" is a transaction that was derived. If the "Type" column indicated either an "XIN" or "xin", then the "DWXT" column was reviewed for the type of waste added to the tank. The waste types defined in the "DWXT" column that corresponded to an "XIN" or "xin" from the "Type" column were the waste types added to the time line. The vertical lines on the Primary Additions Time Line are boundaries between which the types of wastes identified have been added to the tanks. The vertical lines are spaced a minimum of three years apart.

1.3.3 Assumptions

An assumption was required in order to begin developing the total waste level graphs and the solid waste level graphs. The assumption was that the tanks did not contain waste prior to the time when Anderson (1990) started recording information.

The waste volume information taken from Anderson (1990) and the various "monthly waste status reports" required an assumption in order to apply the waste volume information to waste level formulas. The actual total waste surface and the actual solid waste surface were assumed to be flat and level.

The total waste level graphs and the solid waste level graphs required an assumption in order to make complete graphs. There were many cases within the Waste Status Summary tables (Anderson, 1990) where the tables lacked waste volume information for one or more consecutive quarters. When this occurred, it was assumed that the waste volume followed an increasing, decreasing, or horizontal linear trend across the quarters in which Anderson lacked the volume information. Because of the linear nature of the waste volume to waste level formulas used to convert waste volumes into waste levels, a linear trend in the volumes results in a linear trend of waste levels on the Waste and Level History sketches.

The solid waste level graphs required an assumption about the time period when the tanks began receiving waste. Information on the solids volume was not recorded in the Waste Status Summary tables (Anderson, 1990) until well after the tanks started receiving waste. The first accumulation of solids within the tanks was not apparent from information by Anderson. An assumption was made that the first accumulation of solids within each tank followed an increasing linear trend. The first accumulation of solids was also assumed to start at the point where the tank was considered empty. In some tanks, solids were assumed to begin accumulating when the tank first started receiving waste.

1.3.4 Quality of Data

The total waste level graphs and the solids waste level graphs on the Waste and Level History sketches were developed by using the waste volume to waste level formulas. There are some limitations with the formulas that affect the waste level results. The formulas have been applied for all volumetric values. However, the formulas do not yield realistic results when the waste volume is less than the volume that can be held below the top of the knuckle. The formulas do not account for construction tolerances on the tanks, the knuckle geometry on the tanks, and the irregularities in the surface of the solid wastes.

The total waste level graphs were developed from the volume data from Anderson (1990) and the "monthly waste status reports." The frequency in which these references have their volume information updated is not consistent with the frequency in which the surface level readings of the SACS database are updated. Therefore, a discrepancy may be noticed between the total waste level graphs of the Waste and Level History sketches in Appendix C and the surface level graphs in Appendix E.

1.4 Temperatures

1.4.1 Surveillance Techniques

Interior tank temperatures of the single-shell tanks in C Tank Farm are monitored with thermocouples. Thermocouples are simple devices that develop a millivoltage when parts of the thermocouple are exposed to temperature differentials. The millivoltage can be converted to a temperature reading based upon a specific voltage versus temperature curve inherent to the type of thermocouple being used. Thermocouples are attached to a fabricated assembly called a thermocouple tree. The number of thermocouples attached to the tree varies as a function of the depth of the tank as well as the thermocouple tree design. The thermocouples are spaced at intervals, along trees that have many thermocouples, so that a vertical temperature profile of the tank contents can be developed. The thermocouple tree is installed in a riser and left in place inside the tank. If necessary, the thermocouple tree can be removed from the tank.

1.4.2 Source of Data

The source of the interior tank temperature data is from the Westinghouse Hanford Company's Surveillance Analysis Computer System (SACS). SACS is a database that stores temperature data along with other types of surveillance data. PCSACS software on a personal computer is the user interface to the SACS database via the Hanford Local Area Network(HLAN). The SACS database was queried back to 1950 for temperature data. Temperature data identified by the query were categorized and located by SACS in several types of files. These files were evaluated for their usefulness in this document.

The SACS database for temperature data contained one of two types of files depending on the specific tank. One type of file contained data that were not correlated to thermocouple, thermocouple tree, or riser. This type of file was not used in this document because the lack of information made the data unusable. The second type of file contained interior tank temperature data that were correlated to a particular thermocouple, thermocouple tree, and/or riser. Files of the second type were the only files from SACS that were used in this document for temperature data. After the SACS data files were evaluated, the files that were selected for use in this document were imported using PCSACS into spreadsheets in Microsoft Excel® software.

1.4.3 Development of Data

Interior tank temperature data imported from SACS into spreadsheets (Microsoft Excel®) were rearranged onto separate spreadsheets depending on the data qualifier assigned by SACS custodians. The SACS database custodians labeled the interior tank temperature data using three data qualifiers or categories. The categories are good (G), transcribed (T), and suspect (S). The temperature data were then filtered to remove all the S data, leaving only the G and T data. The filtered data were used to develop graphs of individual thermocouple data. The graphs were developed within Microsoft Excel®. There were two conditions about the temperature data that were evaluated before the graphs of individual thermocouple data were developed. The first condition evaluated was the number of data points from a particular thermocouple. If a thermocouple had five or less data points, then a graph was not developed for that particular thermocouple. The second condition evaluated was the time span between consecutive data points. If the time span between consecutive data points was greater than 36 months, then the graph was shown as discontinuous across the span (see Appendix D).

The thermocouple elevations that were identified on the individual thermocouple graphs were determined from design drawings listed in the narratives and from the *Thermocouple Status Single Shell and Double Shell Tanks*(Tran, 1993). Tran's document contained design drawing references along with thermocouple elevations. If the design drawings listed in Tran's document could be verified for the individual tanks, then the thermocouple elevations listed by Tran were used. If the design drawings listed in Tran's document could not be verified for an individual tank or if there was no design drawings located, then the thermocouple elevations were labeled as unknown. If Tran's document lacked information about thermocouple elevations for a particular tank and design drawings were located, then the thermocouple elevations were labeled as approximate.

1.4.4 Assumptions

The transcribed data points are data points that have not been verified or validated by Westinghouse Hanford Company. Transcribed data were assumed to be good data and were included in the graphs of individual thermocouple data and the statistics. Individual judgements were not made on particular transcribed data points even though they had a high probability of being suspect. Verification and/or validation of data is not the function of this document.

1.4.5 Quality of Data

The quality of the interior tank temperature data is noted by the three category labels assigned by the custodians of the SACS database. The good and suspect data points have been verified and/or validated by Westinghouse Hanford Company. The transcribed data points have not been reviewed by Westinghouse Hanford Company. The transcribed data could be classified as either good or suspect at a later date.

This document has treated the transcribed data as good data. However, an area where the transcribed data points have a high probability of being suspect is when the temperature data values are below 45-50°F. The approximate temperature of the surrounding soil is 45-50°F and the soil will prevent the temperature of the tank from dropping below this point. Some of the tanks have many data points below the 45-50°F range and should be evaluated carefully as to whether or not they should be considered as good data points.

1.5 Waste Surface Level

1.5.1 Surveillance Techniques

One of four types of waste surface level devices are used to monitor waste surface levels in a single-shell tank. These devices are: a level indicating transmitter or Food Instrument Corporation

(FIC) gauge, a level indicator assembly or manual tape, a high-level detector (an FIC gauge in intrusion mode), and the ENRAF® 854 ATG Liquid Level Indicator/Transmitter.

The Food Instrument Corporation gauge is based on conductivity. A plummet is lowered into the tank. When the plummet contacts an electrically conducting surface that is in contact with the edge of the tank, a circuit is completed between the probe and the tank which is grounded to the instrument. This triggers the drive motor to stop and the motor brake to engage. The brake is held for 60 seconds, before the motor raises the plummet. The plummet is raised until the circuit is broken. This instrument is used as a high-level detector and an actual level detector. The high-level mode is used to detect intrusions (i.e., any unexplained addition to the tank like rainwater) within the tank. The actual level mode can be read automatically, manually, or both. The automatic FIC reading is automatically read in the field and loaded on the surveillance automated computer system (SACS). FIC readings are also read manually in the field and entered into the SACS.

The manual tape flake boxes are an access point for measuring liquid levels manually if other devices fail or do not exist. A hand crank on the flake box is used to lower the tape probe until liquid is contacted and a circuit is completed between the tank and the instruments (similar to the FIC gauge). If the circuit is not closed, the probe is lowered until the tape is slack; then a measurement is recorded.

The ENRAF® 854 ATG Liquid Level Indicator/Transmitter has been installed on several tanks and will eventually replace the old level measurement devices. The ENRAF® 854 ATG is a microprocessor controlled surface level gauge. Level detection is based on the principle of buoyancy of a non-floating polyethylene displacer. The displacer is attached to a stainless steel measuring wire. The measuring wire is attached to a measuring drum which is fixed to a riser of known elevation. The weight of the displacer is entered into the memory of a force transducer. A second weight of about 10-15 grams less than the actual weight of the displacer is entered into the transducer as the control point. An electronic servomechanism turns the measuring drum causing the displacer to move. As the displacer is put in contact with the surface in question, the displacer will exert a smaller force on the transducer due to buoyancy. The displacer is continually lowered until the force exerted on the transducer is equal to the control point. By knowing the elevations of the riser and tank bottom, and the distance from the riser to the surface of the waste, the surface level of the waste can be determined. If the surface level changes, the displacer will be raised or lowered by the measuring drum depending on the force exerted on the transducer relative to the control point. The ENRAF® can be read automatically, manually or both. The automatic ENRAF® reading is loaded on the Westinghouse Hanford Company surveillance automated computer system (SACS). Manual ENRAF® readings are taken at any time of day and are manually entered into the SACS.

1.5.2 Source of Data

The data recorded from January 1, 1991 to the present for the waste surface levels were obtained from the SACS. PCSACS software on a personal computer is the user interface to the SACS database. The information was parsed in a spreadsheet in Microsoft Excel® software and displayed on graphs. Since the intrusion FIC is fixed at a certain elevation, it only records that elevation unless there is an unexplained addition. The device does not truly measure the waste surface level, so the data were not displayed.

1.5.3 Development of Data

Surface level data imported from SACS into spreadsheets (Microsoft Excel®) were rearranged onto separate spreadsheets depending on the data qualifier assigned by SACS custodians. The SACS database custodians label the surface level data using three data qualifiers or categories. The categories are good (G), transcribed (T), and suspect (S). The surface level data were then filtered to remove all the S data, leaving only the G and T data. The good and transcribed data were displayed on graphs. The graphs show waste level versus time. The data are displayed using the best representative scale on the y axis. If the tank has more than one device to measure the waste surface level, an individual graph was made to display the data from each device. The safety limit maximum waste level is placed in the title of each graph (Dougherty, 1995). Current information on the waste surface levels is in Appendix E.

1.5.4 Assumptions

The data obtained from PCSACS are the best available data. The data quality designation, instrument type, and level measurement are accurate. The devices are in good condition and give accurate readings assuming the following: internal tank temperature changes do not cause the tape, wire, or probe to change length; the tape, wire, and probe are straight; the surface profile of the waste is flat; and changes in atmospheric temperature do not effect the portions of the measuring device exposed to the atmosphere.

1.5.5 Quality of Data

Surface level readings may be affected by plummet (i.e., manual tape) error, flushing water accumulation, waste surface irregularities, and gas generation. Crystalline wastes (i.e., salt cake) can build up gradually on the end of the plummet and contact the waste which indicates a false surface level increase. Significant level discrepancies occur when the encrusting waste breaks off or when the measuring instrument plummet is flushed to remove the encrusting salt cake. Flushing the Food Instrument Corporation gauge, manual tapes, or any other equipment may cause accumulated wash water to collect under the plummet which can also indicate a false increase in the overall volume of waste within the tank. Surface level readings are often difficult to obtain from tanks with a relatively dry waste surface of salt cake. Some tanks have crystalline waste built up on internal tank equipment (e.g., pumps, thermocouples, and other protruding equipment). As the supernatant liquid is pumped from the tanks, the crystalline structure may remain attached to the equipment and be suspended above the liquid. Therefore, an accurate surface level measurement would be difficult if the breakup of the crystalline structure was inconsistent and a nonuniform waste surface was created. Steel tapes or wires that are bent or warped from operation or those discarded on the waste surface are other sources of altered surface level readings.

Data from the SACS were obtained electronically from the Westinghouse Hanford Company surveillance group and were plotted. The data are actual surface levels recorded from the surveillance equipment. If the surveillance equipment in a particular tank riser was removed from service, the readings may show a level change when a new instrument and/or riser is used, especially if the waste surface shows severe heterogeneity.

The data used to produce the plots and the data obtained from the surveillance group have been verified as identical. However, errors in the data prior to the exchange of information could still exist. The SACS data were understood to be unverified prior to the exchange. Westinghouse Hanford Company qualified the data with G, S, and T for good, suspect, and transcribed, respectively. Data that is labeled transcribed has not been validated or verified by Westinghouse Hanford Company. The criteria for determining data labeled good or suspect is unknown.

1.6 Riser Configuration

1.6.1 Source of Data

The riser configuration drawings and tables in this report were compiled from design and/or as-built drawings including engineering change notices dated before November 1, 1995, the *Riser Configuration Document for Single-Shell Waste Tanks*(Alstad, 1993), and *Waste Tank Risers Available for Sampling*(Lipnicki, 1995b).

1.6.2 Development of Data

There are two drawings and a table in Appendix F that show each tank's approximate riser locations, construction materials, dimensions, and riser function. Alstad (1993) was used as a guide; however, the design and as-built drawings and engineering change notices take precedence. The tables in Appendix F contain the riser number, diameter, sampling, and description of each riser and nozzle. The sampling column lists risers that are tentatively available for sampling (Lipnicki, 1995b). The description and comment column describes the riser's intended use and, if applicable, gives a brief explanation, date, and number of the pertaining engineering change notices in parentheses.

1.6.3 Assumptions

The design and as-built drawings are the best available data. All the engineering change notices written against the referenced drawings are released and accurate. Since figures or sources were not listed in Lipnicki (1995), the riser numbers labeled tentatively available for sampling are assumed to be the same as riser numbers listed in Alstad (1993).

1.6.4 Quality of Data

The riser configuration section of this document is a mixture of data from three main sources: design and as-built drawings, *Riser Configuration Document for Single-Shell Waste Tanks*(Alstad, 1993), and *Waste Tank Risers Available for Sampling*(Lipnicki, 1995b). All these sources do not agree all the time. Alstad (1993) and Lipnicki (1995) reference the design and as-built drawings in their respective documents. The design and as-built drawings contain a plan view of the tank dome and a table explaining the function of each riser. Sometimes the plan view and table do not match. If there was a discrepancy, a comment was made below the table for that tank. Other design and as-built drawings show a cross-sectional view of the tank. Changes made to the structure of a tank may not have been documented by an engineering change notice. The drawings and tables are intended to give the reader information as to approximate location, number of risers, and what equipment the riser might contain. The drawings are not to scale.

1.7 Photographs and Montages

1.7.1 Source of Data

The photographs include an aerial photograph of the tank farm and a photographic montage of each tank interior, if available(see Appendix G). All of the photographs were obtained from Boeing Computer Services Richland-Photography. The aerial photographs were reviewed to determine the clearest and most recent representation of the C Tank Farm to be used in this document. The montages were created from sets of interior tank photographs. These sets were also reviewed to determine which ones were the clearest and most recent photographs available. Only interior tank photographs representing the waste surface were used. In some cases, existing montages were the clearest and most recent; therefore, a new montage was not created.

1.7.2 Development of Data

The tank farm aerial photograph was labeled to show tank orientation, identifiable equipment, and structures. Arrows were placed on the tank farm aerial photograph to indicate the cascade overflows. The clearest and most recent montage of the tank interior was labeled to show identifiable monitoring equipment, piping, and risers. A table was also developed listing aerial photograph numbers, interior tank montage numbers, photographic set numbers, and the date(see Appendix G).

1.7.3 Quality of Data

The interior tank photographs may not represent the actual colors of the waste surface due to possible alteration of colors during copying of the original photographs. To see the colors of the original montage, an original may be ordered through Boeing Computer Services Richland-Photography. Also, radiation could affect the film distorting the apparent colors of the waste. Some tanks had fogging problems in the vapor space which prevented use of the latest photographs. The montage may not reflect the current waste level and waste type due to pumping, additions, mixing, and/or settling of the waste after the photographs were taken. Also, the equipment configuration may not reflect tank upgrades and/or maintenance.

1.8 Tank Layer Model, Supernatant Mixing Model, and Inventory Estimates

The Tank Layer Model (TLM), Supernatant Mixing Model (SMM), and Inventory Estimates developed by Los Alamos National Laboratory (LANL) are presented in Appendix H along with their approach and development sections. The TLM, SMM, and Inventory Estimates presented in this document represent an estimated waste content of the tanks in C Tank Farm based on an inventory estimate date of December 31, 1993.

1.8.1 Source of Data

The TLM, SMM, Inventory Estimates, and their approach and development sections presented in this document are from the *Hanford Tank Chemical and Radionuclide Inventories: HDW Model Rev. 3*(Agnew et al., 1996).

1.8.2 Development of Data

The data presented in Appendix H were selectively taken from the *Hanford Tank Chemical and Radionuclide Inventories: HDW Model Rev. 3*(Agnew et al., 1996) document to include the TLM, SMM, and the Inventory Estimates for C Tank Farm. The introduction for Agnew's document was included in its entirety. Any reference to appendices in Agnew's introduction and tables in Appendix H are the appendices of his document. The TLM Working Worksheet(Agnew, 1996, Appendix C) was included for only C Tank Farm. The SMM and TLM Volume Tables(Agnew, 1996, Appendix D) was included for all tanks. The Inventory Estimates(Agnew, 1996, Appendix E) was included for only C Tank Farm.

2.0 C Tank Farm

2.0.1 C Tank Farm Information

The C Tank Farm is located west of Canton Avenue and north of 7th Street in the 200-East Area. The farm contains twelve 100 series and four 200 series, dish bottom design, single-shell tanks built in 1943 and 1944 (Welty, 1988). The 100 series tanks are 75 feet in diameter with an operating capacity of 530,000 gallons (Hanlon, 1996a) (see tank cross-section in Appendix F). The 200 series tanks are 20 feet in diameter with an operating capacity of 55,000 gallons (Hanlon, 1996a). The tanks are constructed of a reinforced concrete shell with a steel liner on the interior bottom and sides. The tanks were designed to hold non-boiling waste at a maximum fluid temperature of 220°F (Leach and Stahl, 1993). The dome of each tank is penetrated by risers varying in diameter from 4 to 42 inches. All of the tanks have at least five and a half feet of earth cover.

The twelve 100 series tanks were constructed at different elevations with connecting overflow lines that allowed waste to cascade from tank to tank. The 200 series tanks are not connected by cascade lines. There are four cascade sequences in the C Tank Farm. One cascade is from Tank 241-C-101 through -102 and -103. The second is from Tank 241-C-104 through -105 and -106. The third is from Tank 241-C-107 through -108 and -109, and the fourth is from Tank 241-C-110 through -111 and -112.

2.0.2 C Tank Farm Waste and Level History

The Waste and Level History sketches in Appendix C present the waste history and level history of C Tank Farm.

2.0.3 C Tank Farm Temperature History

Interior tank temperature data for C Tank Farm is quite limited compared to the span of time in which the tanks have been operating. Information about the various temperature monitoring devices and their locations throughout history is also quite limited. The information that was available came from the Surveillance Analysis Computer System (SACS) database. The SACS database had several types of temperature data files available. Data from the files were available as far back as early 1974.

2.0.4 C Tank Farm Occurrences

Only the occurrences determined as significant are included. The reports presented are incomplete because not all of the documentation on occurrences for C Tank Farm could be located.

2.0.5 C Tank Farm Current Status

The tanks in C Tank Farm entered service from 1946 to 1953 (Anderson, 1990). The dates the tanks entered service are based on when the tank first received waste or test water. This date may vary in other documents. The total waste volume for all of the tanks is approximately 1,976,000 gallons as of November 30, 1995 (Hanlon, 1996b). All tanks are out of service. Tanks 241-C-102, -103, -104, -105, -106, -107, -108, -109, and -112 are categorized as sound and Tanks 241-C-101, -110, -111, -201,

-202, -203, and -204 are assumed leakers. Tanks 241-C-102, -103, -106, -108, -109, -111, and -112 are on watch lists. See Appendix E for waste surface level graphs. The risers tentatively available for sampling are listed in Appendix F.

2.0.6 C Tank Farm Photograph and Montages

The photographs for C Tank Farm include an aerial photograph of the farm and a montage of interior tank photographs for each tank. The aerial photograph shows the tank orientation, equipment, and structures. Arrows were placed between the tanks to represent the cascade overflow lines and the flow directions. The interior tank photographs were arranged into montages to show the waste surface, monitoring equipment, piping, and risers in each tank. The photographs and a table listing the photographs, montage numbers, photograph set numbers, and dates of the photographs in this document are in Appendix G.

2.0.7 C Tank Farm Tank Layer Model, Supernatant Mixing Model, and Inventory Estimates

The Tank Layer Model (TLM), Supernatant Mixing Model (SMM), and Inventory Estimates developed by Los Alamos National Laboratory (Agnew et al., 1996) for C Tank Farm are presented in Appendix H along with their introduction sections.

2.1 Tank 241-C-101

2.1.1 Waste and Level History of Tank 241-C-101

The Waste and Level History sketch in Appendix C presents the waste history and level history of Tank 241-C-101.

2.1.2 Temperature History of Tank 241-C-101

Interior tank temperature data for Tank 241-C-101 were recorded by 11 thermocouples attached to one thermocouple tree. Documentation of the design configuration of the thermocouple tree was not located. The design of the thermocouple tree is unclear and the elevations of the individual thermocouples are unknown. The Surveillance Analysis Computer System (SACS) indicates that the thermocouple tree is located in riser 2. In the past, other risers and equipment may have been used to monitor the temperature in the tank. However, the thermocouple tree located at riser 2 is the only source of temperature data for this document. The temperature data were obtained from the SACS database on January 9, 1996. The earliest data retrieved from the SACS were from late July 1974.

Graphs of individual thermocouple data are presented in Appendix D. A graph was created for each thermocouple. The following statistical information was taken from all 11 thermocouples. The maximum temperature was 111.992°F taken by thermocouples 1 and 2 on September 30, 1974 and by thermocouples 1 and 10 on October 7, 1974. The minimum temperature was 62°F taken by thermocouple 11 on March 7, 1980. The maximum and minimum temperatures are labeled as good data points within the SACS. The average temperature for all the thermocouples is 90°F.

2.1.3 Occurrences for Tank 241-C-101

No significant occurrences are associated only with Tank 241-C-101.

2.1.4 Current Status of Tank 241-C-101

Tank 241-C-101 entered service during the first quarter of 1946 (Anderson, 1990) and as of November 30, 1995 stores approximately 88,000 gallons of waste (Hanlon, 1996b). The waste surface level in the tank is measured with a manual tape as of January 1996. The minimum waste surface level was 20.5 inches on October 22, 1994. The maximum waste surface level was 28.5 inches on July 1, 1991 and April 13, 1994. See Appendix E for details on waste surface level. The tank is out of service with interim stabilization and intrusion prevention completed. The tank is listed as an assumed leaker and is passively ventilated. A plan view in Appendix F depicts the approximate riser locations as of February 2, 1996. Tank 241-C-101 has 10 risers with three tentatively available for sampling: two 4-inch risers (Nos. 1 and 8) and one 12-inch riser (No. 7) (Lipnicki, 1995b).

2.1.5 Interior Montage of Tank 241-C-101

The clearest and most recent set of interior tank photographs was taken on November 17, 1987. Other interior tank photographs are available, but only the photographs showing the waste surface were

used to create a montage. The montage has labels identifying some of the monitoring equipment, piping, and risers in the tank. The montage and photographic information are shown in Appendix G.

2.1.6 Tank Layer Model, Supernatant Mixing Model, and Inventory Estimate of Tank 241-C-101

The Tank Layer Model(TLM), Supernatant Mixing Model(SMM), and Inventory Estimate developed by Los Alamos National Laboratory (Agnew et al., 1996) for Tank 241-C-101 are presented in Appendix H along with their introduction sections.

2.2 Tank 241-C-102

2.2.1 Waste and Level History of Tank 241-C-102

The Waste and Level History sketch in Appendix C presents the waste history and level history of Tank 241-C-102. The assumed solids level for this tank does not follow the assumptions developed in the introduction. Due to there being only one data point for the solids volume in 1958, it was assumed the solids level went up to that point and then went back down to zero within that year since the tank was being scavenged. The assumed solids line from 1959 to 1965 was drawn in so that the solids did not exceed the total waste level during that period.

2.2.2 Temperature History of Tank 241-C-102

Interior tank temperature data for Tank 241-C-102 were recorded by 11 thermocouples attached to one thermocouple tree. Documentation of the design configuration of the thermocouple tree was not located. The design of the thermocouple tree is unclear and the elevations of the individual thermocouples are unknown. The Surveillance Analysis Computer System (SACS) indicates that the thermocouple tree is located in riser 7. Drawing H-2-73342, Rev. 4, indicates that riser 1 was once associated with temperature monitoring. It is unclear what type of information was gathered or what type of temperature monitoring equipment was located at this riser. In the past, other risers and equipment may have been used to monitor the temperature in the tank. However, the thermocouple tree located at riser 7 is the only source of temperature data for this document. The temperature data were obtained from the SACS database on January 9, 1996. The earliest data retrieved from the SACS were from early November 1975.

Graphs of individual thermocouple data are presented in Appendix D. A graph was created for each thermocouple. The following statistical information was taken from all 11 thermocouples. The maximum temperature was 106°F taken by thermocouple 1 on February 26, 1978. The minimum temperature was 52°F taken by thermocouple 11 on March 29, 1978. The maximum and minimum temperatures are labeled as good data points within the SACS. The average temperature for all the thermocouples is 80°F.

2.2.3 Occurrences for Tank 241-C-102

No significant occurrences are associated only with Tank 241-C-102.

2.2.4 Current Status of Tank 241-C-102

Tank 241-C-102 entered service during the second quarter of 1946 (Anderson, 1990) and as of November 30, 1995 stores approximately 316,000 gallons of waste (Hanlon, 1996b). The waste surface level in the tank is measured with a manual FIC level gauge as of January 1996. The minimum waste surface level was 146 inches on July 31, 1995. The maximum waste surface level was 149.9 inches on numerous dates from January 21, 1991 through March 1, 1993. See Appendix E for details on waste surface level. The tank is out of service with interim stabilization and partial interim isolation completed. The tank is listed as sound and is passively ventilated. Tank 241-C-102 was added to the Organics Watch List in May 1994. A plan view in Appendix F depicts the approximate riser locations as of

February 2, 1996. Tank 241-C-102 has 10 risers with two tentatively available for sampling: two 12-inch risers (Nos. 2 and 3) (Lipnicki, 1995b).

2.2.5 Interior Montage of Tank 241-C-102

The clearest and most recent set of interior tank photographs was taken on May 17, 1976. Other interior tank photographs are available, but only the photographs showing the waste surface were used to create a montage. The montage has labels identifying some of the monitoring equipment, piping, and risers in the tank. The montage and photographic information are shown in Appendix G.

2.2.6 Tank Layer Model, Supernatant Mixing Model, and Inventory Estimate of Tank 241-C-102

The Tank Layer Model(TLM), Supernatant Mixing Model(SMM), and Inventory Estimate developed by Los Alamos National Laboratory (Agnew et al., 1996) for Tank 241-C-102 are presented in Appendix H along with their introduction sections.

2.3 Tank 241-C-103

2.3.1 Waste and Level History of Tank 241-C-103

The Waste and Level History sketch in Appendix C presents the waste history and level history of Tank 241-C-103.

2.3.2 Temperature History of Tank 241-C-103

Interior tank temperature data for Tank 241-C-103 were recorded by six thermocouples attached to one thermocouple tree. Drawing H-2-90342, Sht. 2, Rev. 2, indicates that a thermocouple tree is located in riser 1 and is designed as shown on Drawing H-2-90342, Sht. 1, Rev. 4. However, the thermocouple tree design only indicates three thermocouples. The Surveillance Analysis Computer System (SACS) indicates that the thermocouple tree is located in riser 1 with six thermocouples. The design of the thermocouple tree is unclear and the elevations of the individual thermocouples are unknown. In the past, other risers and equipment may have been used to monitor the temperature in the tank. However, the thermocouple tree located at riser 1 is the only source of temperature data for this document. The temperature data were obtained from the SACS database on January 9, 1996. The earliest data retrieved from the SACS were from late July 1974.

Graphs of individual thermocouple data are presented in Appendix D. A graph was created for each thermocouple. The following statistical information was taken from all six thermocouples. The maximum temperature was 168°F taken by thermocouple 2 on November 29, 1977. The minimum temperature was 57°F taken by thermocouple No. 6 on August 10, 1977. The maximum and minimum temperatures are labeled as good data points within the SACS. The average temperature for all the thermocouples is 112°F.

2.3.3 Occurrences for Tank 241-C-103

An unusual occurrence report was issued in October 1988 due to a decrease in the surface level. The loss of liquid was attributed to natural breathing of the tank.

An off-normal occurrence report was issued in November 1990 due to a decrease in the surface level. The loss of liquid was attributed to evaporation.

2.3.4 Current Status of Tank 241-C-103

Tank 241-C-103 entered service during the third quarter of 1946 (Anderson, 1990) and as of November 30, 1995 stores approximately 195,000 gallons of waste (Hanlon, 1996b). The waste surface level in the tank is measured with an automatic and manual ENRAF® level gauge as of January 1996. The minimum waste surface level was 65.9 inches on October 18, 1993. The maximum waste surface level was 69.27 inches on May 21, 1995. See Appendix E for details on waste surface level. Tank 241-C-103 was added to the Organics Watch List in January 1991. The tank is out of service with interim stabilization and partial interim isolation completed. The tank is listed as sound and is passively ventilated. A plan view in Appendix F depicts the approximate riser locations as of February 2, 1996. Tank 241-C-103 has 10 risers with two tentatively available for sampling: two 12-inch risers (Nos. 2 and 7) (Lipnicki, 1995b).

2.3.5 Interior Montage of Tank 241-C-103

The clearest and most recent set of interior tank photographs was taken on July 28, 1987. Other interior tank photographs are available, but only the photographs showing the waste surface were used to create a montage. The montage has labels identifying some of the monitoring equipment, piping, and risers in the tank. The montage and photographic information are shown in Appendix G.

2.3.6 Tank Layer Model, Supernatant Mixing Model, and Inventory Estimate of Tank 241-C-103

The Tank Layer Model(TLM), Supernatant Mixing Model(SMM), and Inventory Estimate developed by Los Alamos National Laboratory (Agnew et al., 1996) for Tank 241-C-103 are presented in Appendix H along with their introduction sections.

2.4 Tank 241-C-104

2.4.1 Waste and Level History of Tank 241-C-104

The Waste and Level History sketch in Appendix C presents the waste history and level history of Tank 241-C-104.

2.4.2 Temperature History of Tank 241-C-104

Interior tank temperature data for Tank 241-C-104 were recorded by 12 thermocouples attached to one thermocouple tree. Drawing H-2-99138, Sht. 2, Rev. 1, indicates that a thermocouple tree is located in riser 7 and is designed as shown on Drawing H-2-99138, Sht. 1, Rev. 1. However, the thermocouple tree design only indicates 10 thermocouples. The Surveillance Analysis Computer System (SACS) indicates that the thermocouple tree is located in riser 7 with 12 thermocouples. The design of the thermocouple tree is unclear and the elevations of the individual thermocouples are unknown. In the past, other risers and equipment may have been used to monitor the temperature in the tank. However, the thermocouple tree located at riser 7 is the only source of temperature data for this document. The temperature data were obtained from the SACS database on January 9, 1996. The earliest data retrieved from the SACS were from late July 1974.

Graphs of individual thermocouple data are presented in Appendix D. A graph was created for each thermocouple. The following statistical information was taken from all 12 thermocouples. The maximum temperature was 195°F taken by thermocouple No. 3 on July 24, 1982. The minimum temperature was 53°F taken by thermocouple No. 5 on January 14, 1978. The maximum and minimum temperatures are labeled as good data points within the SACS. The average temperature for all the thermocouples is 95°F.

2.4.3 Occurrences for Tank 241-C-104

No significant occurrences are associated only with Tank 241-C-104.

2.4.4 Current Status of Tank 241-C-104

Tank 241-C-104 entered service during the fourth quarter of 1946 (Anderson, 1990) and as of November 30, 1995 stores approximately 295,000 gallons of waste (Hanlon, 1996b). The waste surface level in the tank is measured with a manual FIC level gauge as of January 1996. The minimum waste surface level was 86.05 inches on January 1, 1996. The maximum waste surface level was 90.2 inches on numerous dates from January 3, 1991 through February 5, 1991. See Appendix E for details on waste surface level. The tank is out of service with interim stabilization and intrusion prevention completed. The tank is listed as sound and is actively ventilated. A plan view in Appendix F depicts the approximate riser locations as of February 2, 1996. Tank 241-C-104 has 11 risers with two tentatively available for sampling: one 10-inch riser (No. 2) and one 12-inch riser (No. 3) (Lipnicki, 1995b).

2.4.5 Interior Montage of Tank 241-C-104

The clearest and most recent set of interior tank photographs was taken on July 25, 1990 Other interior tank photographs are available, but only the photographs showing the waste surface were used to create a montage. The montage has labels identifying some of the monitoring equipment, piping, and risers in the tank. The montage and photographic information are shown in Appendix G.

2.4.6 Tank Layer Model, Supernatant Mixing Model, and Inventory Estimate of Tank 241-C-104

The Tank Layer Model(TLM), Supernatant Mixing Model(SMM), and Inventory Estimate developed by Los Alamos National Laboratory (Agnew et al., 1996) for Tank 241-C-104 are presented in Appendix H along with their introduction sections.

2.5 Tank 241-C-105

2.5.1 Waste and Level History of Tank 241-C-105

The Waste and Level History sketch in Appendix C presents the waste history and level history of Tank 241-C-105. The level history data for the second quarter of 1987 through the fourth quarter of 1987 are questionable because the solids waste is greater than the total waste.

2.5.2 Temperature History of Tank 241-C-105

Interior tank temperature data for Tank 241-C-105 were recorded by six thermocouples attached to one thermocouple tree. Drawing H-2-90342, Sht. 2, Rev. 2, indicates that a thermocouple tree is located in riser 1 and is designed as shown on Drawing H-2-90342, Sht. 1, Rev. 4. However, the thermocouple tree design only indicates three thermocouples. Drawing H-2-99138, Sht. 2, Rev. 1, indicates that a thermocouple tree is located in riser 1 and riser 6 and they are designed as shown on Drawing H-2-99138, Sht. 1, Rev. 1. However, these thermocouple tree designs only indicate ten thermocouples each. The Surveillance Analysis Computer System (SACS) indicates that the thermocouple tree is located in riser 1 with six thermocouples. The design of the thermocouple tree is unclear and the elevations of the individual thermocouples are unknown. In the past, other risers and equipment may have been used to monitor the temperature in the tank. However, the thermocouple tree located at riser 1 is the only source of temperature data for this document. The temperature data were obtained from the SACS database on January 9, 1996. The earliest data retrieved from the SACS were from mid August 1974.

Graphs of individual thermocouple data are presented in Appendix D. A graph was created for each thermocouple. The following statistical information was taken from all six thermocouples. The maximum temperature was 156.2°F taken by thermocouple No. 1 on November 5, 1976. The minimum temperature was 40°F taken by thermocouple No. 1 on May 10, 1982. The maximum and minimum temperatures are labeled as good data points within the SACS. The average temperature for all the thermocouples is 95°F.

2.5.3 Occurrences for Tank 241-C-105

No significant occurrences are associated only with Tank 241-C-105.

2.5.4 Current Status of Tank 241-C-105

Tank 241-C-105 entered service during the first quarter of 1947 (Anderson, 1990) and as of November 30, 1995 stores approximately 134,000 gallons of waste (Hanlon, 1996b). The waste surface level in the tank is measured with a manual FIC level gauge as of January 1996. The minimum waste surface level was 43.55 inches on January 29, 1996. The maximum waste surface level was 48.9 inches on numerous dates from January 1, 1991 through January 12, 1991. See Appendix E for details on waste surface level. The tank is out of service with interim stabilization and partial interim isolation completed. The tank is listed as sound and is actively ventilated. A plan view in Appendix F depicts the approximate riser locations as of February 2, 1996. Tank 241-C-105 has 12 risers with two tentatively available for sampling: one 4-inch riser (No. 8) and one 12-inch riser (No. 2) (Lipnicki, 1995b).

2.5.5 Interior Montage of Tank 241-C-105

The clearest and most recent set of interior tank photographs was taken on April 1, 1988. Other interior tank photographs are available, but only the photographs showing the waste surface were used to create a montage. The montage has labels identifying some of the monitoring equipment, piping, and risers in the tank. The montage and photographic information are shown in Appendix G.

2.5.6 Tank Layer Model, Supernatant Mixing Model, and Inventory Estimate of Tank 241-C-105

The Tank Layer Model(TLM), Supernatant Mixing Model(SMM), and Inventory Estimate developed by Los Alamos National Laboratory (Agnew et al., 1996) for Tank 241-C-105 are presented in Appendix H along with their introduction sections.

2.6 Tank 241-C-106

2.6.1 Waste and Level History of Tank 241-C-106

The Waste and Level History sketch in Appendix C presents the waste history and level history of Tank 241-C-106.

2.6.2 Temperature History of Tank 241-C-106

Interior tank temperature data for Tank 241-C-106 were recorded by thermocouples located on two different thermocouple trees. Drawing H-2-90342, Sht. 2, Rev. 2, indicates that a thermocouple tree is located in riser 8 and is designed as shown on Drawing H-2-90342, Sht. 1, Rev. 4 with six thermocouples. The Surveillance Analysis Computer System (SACS) indicates that a thermocouple tree is located in riser 8. Drawing H-2-99138, Sht. 2, Rev. 1, indicates that a thermocouple tree is located in riser 8 and riser 14 and they are designed as shown on Drawing H-2-99138, Sht. 1, Rev. 1. However, these thermocouple tree designs indicate ten thermocouples each. The SACS indicates that the thermocouple tree located in riser 8 has six thermocouples. It is assumed that the thermocouple tree in riser 8 is designed as shown on drawing H-2-90342, Sht. 1, Rev. 4. The SACS indicates that the thermocouple tree located in riser 14 has 12 thermocouples. The design of the thermocouple tree in riser 14 is unclear and the elevations of the individual thermocouples are unknown. In the past, other risers and equipment may have been used to monitor the temperature in the tank. However, the thermocouple trees located at Risers 8 and 14 are the only sources of temperature data for this document.

The temperature data were obtained from the SACS database on January 9, 1996. The SACS database contained two file types for temperature data: a historical file and a file with temperature data tied to Risers 8 and 14. Since there was no way to correlate the data in the historical file with a particular thermocouple, thermocouple tree, or riser, data from this file were not included in this document. Only data from the files that tied the temperature data to Risers 8 and 14 were used. The earliest data retrieved from the SACS were from mid April 1984.

Graphs of individual thermocouple data are presented in Appendix D. A graph was created for each thermocouple. The following statistical information was taken from all 18 thermocouples. The maximum temperature was 216.5°F taken by thermocouple No. 1 in riser 14 on August 2, 1994. The minimum temperature was 45°F taken by thermocouple No. 10 in riser 14 on June 11, 1982. The maximum and minimum temperatures are labeled as good data points within SACS. The average temperature for all the thermocouples is 99°F.

2.6.3 Occurrences for Tank 241-C-106

An occurrence report was issued in November 1990 when the liquid level slowly rose to the increase limit of two inches. The increase was preceded by the failure of both the exhauster and the FIC gauge.

2.6.4 Current Status of Tank 241-C-106

Tank 241-C-106 entered service during the third quarter of 1947 (Anderson, 1990) and as of November 30, 1995 stores approximately 229,000 gallons of waste (Hanlon, 1996b). The waste surface level in the tank is measured with an automatic ENRAF® level gauge as of January 1996. The minimum waste surface level was 69.2 inches on June 1, 1994. The maximum waste surface level was 79.1 inches on July 27, 1994. See Appendix E for details on waste surface level. Tank 241-C-106 was added to the High Heat Load Watch List in January 1991. The tank is out of service with partial interim isolation completed. The tank is listed as sound and is actively ventilated. A plan view in Appendix F depicts the approximate riser locations as of February 2, 1996. Tank 241-C-106 has 13 risers with two tentatively available for sampling: one 4-inch riser (No. 1) and one 12-inch riser (No. 7) (Lipnicki, 1995b).

2.6.5 Interior Montage of Tank 241-C-106

The clearest and most recent set of interior tank photographs was taken on April 5, 1979. Other interior tank photographs are available, but only the photographs showing the waste surface were used to create a montage. The montage has labels identifying some of the monitoring equipment, piping, and risers in the tank. The montage and photographic information are shown in Appendix G.

2.6.6 Tank Layer Model, Supernatant Mixing Model, and Inventory Estimate of Tank 241-C-106

The Tank Layer Model(TLM), Supernatant Mixing Model(SMM), and Inventory Estimate developed by Los Alamos National Laboratory (Agnew et al., 1996) for Tank 241-C-106 are presented in Appendix H along with their introduction sections.

2.7 Tank 241-C-107

2.7.1 Waste and Level History of Tank 241-C-107

The Waste and Level History sketch in Appendix C presents the waste history and level history of Tank 241-C-107.

2.7.2 Temperature History of Tank 241-C-107

Interior tank temperature data for Tank 241-C-107 were recorded by six thermocouples attached to one thermocouple tree. Drawing H-2-90342, Sht. 2, Rev. 2, indicates that a thermocouple tree is located in riser 5 and is designed as shown on Drawing H-2-90342, Sht. 1, Rev. 4. The Surveillance Analysis Computer System SACS indicates that the thermocouple tree is located in riser 5. In the past, other risers and equipment may have been used to monitor the temperature in the tank. The temperature data were obtained from the SACS database on January 9, 1996. The earliest data retrieved from SACS were from late April 1975.

Graphs of individual thermocouple data are presented in Appendix D. A graph was created for each thermocouple. The following statistical information was taken from all six thermocouples. The maximum temperature was 168°F taken by thermocouple No. 3 on December 6, 1988. The minimum temperature was 71°F taken by thermocouple No. 1 on September 3, 1977. The maximum temperature is labeled as a transcribed data point and the minimum temperature is labeled as a good data point within the SACS. The average temperature for all the thermocouples is 117°F.

2.7.3 Occurrences for Tank 241-C-107

An occurrence report was issued in August 1992 because of increasing activity monitored from the top 20 feet of a drywell. The increasing activity was due to residual radioactive waste within the 110-C saltwell transfer line. When the line was flushed, the drywell readings returned to pre-event levels.

2.7.4 Current Status of Tank 241-C-107

Tank 241-C-107 entered service during the second quarter of 1946 (Anderson, 1990) and as of November 30, 1995 stores approximately 237,000 gallons of waste (Hanlon, 1996b). The waste surface level in the tank is measured with an automatic and manual ENRAF® level gauge as of January 1996. The minimum waste surface level was 86.1 inches on September 22, 1995 and January 14, 1996. The maximum waste surface level was 106.2 inches on April 29, 1991. See Appendix E for details on waste surface level. The tank is out of service with interim stabilization and partial interim isolation completed. The tank is listed as sound and is passively ventilated. A plan view in Appendix F depicts the approximate riser locations as of February 2, 1996. Tank 241-C-107 has 9 risers with four tentatively available for sampling: one 4-inch riser (No. 4) and three 12-inch risers (Nos. 2, 3, and 7) (Lipnicki, 1995b).

2.7.5 Interior Montage of Tank 241-C-107

No clear and recent set of interior tank photographs was available.

2.7.6 Tank Layer Model, Supernatant Mixing Model, and Inventory Estimate of Tank 241-C-107

The Tank Layer Model(TLM), Supernatant Mixing Model(SMM), and Inventory Estimate developed by Los Alamos National Laboratory (Agnew et al., 1996) for Tank 241-C-107 are presented in Appendix H along with their introduction sections.

2.8 Tank 241-C-108

2.8.1 Waste and Level History of Tank 241-C-108

The Waste and Level History sketch in Appendix C presents the waste history and level history of Tank 241-C-108.

2.8.2 Temperature History of Tank 241-C-108

Interior tank temperature data for Tank 241-C-108 were recorded by thermocouples located on two different thermocouple trees. ECN No. 169757 and ECN No. 193105 indicate that a thermocouple tree is located in riser 1 and is designed as shown on Drawing H-2-83312, Sht. 1, Rev. 0, with six thermocouples. The Surveillance Analysis Computer System (SACS) indicates that the thermocouple tree is located in riser 1. The SACS indicates that the thermocouple tree located in riser 5 has 11 thermocouples. Documentation of the design configuration of the thermocouple tree in riser 5 was not located. The design of the thermocouple tree in riser 5 is unclear and the elevations of the individual thermocouples are unknown. In the past, other risers and equipment may have been used to monitor the temperature in the tank. However, the thermocouple trees located at Risers 1 and 5 are the only sources of temperature data for this document.

The temperature data were obtained from the SACS database on January 9, 1996. The SACS database contained two file types for temperature data: a historical file and a file with temperature data tied to Risers 1 and 5. Since there was no way to correlate the data in the historical file with a particular thermocouple, thermocouple tree, or riser, data from this file were not included in this document. Only data from the files that tied the temperature data to Risers 1 and 5 were used. The earliest data retrieved from the SACS were from late January 1975.

Graphs of individual thermocouple data are presented in Appendix D. A graph was created for each thermocouple. The following statistical information was taken from all 17 thermocouples. The maximum temperature was 98.6°F taken by thermocouple No. 1 in riser 5 on May 4, 1980. The minimum temperature was 52°F taken by thermocouple No. 2 in riser 5 on March 24, 1994. The maximum and minimum temperatures are labeled as good data points within the SACS. The average temperature for all the thermocouples is 76°F.

2.8.3 Occurrences for Tank 241-C-108

An occurrence report was issued in 1974 because of increasing activity in a drywell. The activity was attributed to the migration of existing contamination.

2.8.4 Current Status of Tank 241-C-108

Tank 241-C-108 entered service during the third quarter of 1947 (Anderson, 1990) and as of November 30, 1995 stores approximately 66,000 gallons of waste (Hanlon, 1996b). The waste surface level in the tank is measured with a manual tape as of January 1996. The minimum waste surface level was 13.25 inches on April 1, 1992. The maximum waste surface level was 20 inches on numerous dates from October 6, 1992 through January 4, 1993. See Appendix E for details on waste surface level.

Tank 241-C-108 was added to the Ferrocyanide Watch List in January 1991. The tank is out of service with interim stabilization and intrusion prevention completed. The tank is listed as sound and is passively ventilated. A plan view in Appendix F depicts the approximate riser locations as of February 2, 1996. Tank 241-C-108 has 9 risers with five tentatively available for sampling: one 4-inch riser (No. 4) and four 12-inch risers (Nos. 2, 3, 6, and 7) (Lipnicki, 1995b).

2.8.5 Interior Montage of Tank 241-C-108

No clear and recent set of interior tank photographs was available.

2.8.6 Tank Layer Model, Supernatant Mixing Model, and Inventory Estimate of Tank 241-C-108

The Tank Layer Model(TLM), Supernatant Mixing Model(SMM), and Inventory Estimate developed by Los Alamos National Laboratory (Agnew et al., 1996) for Tank 241-C-108 are presented in Appendix H along with their introduction sections.

2.9 Tank 241-C-109

2.9.1 Waste and Level History of Tank 241-C-109

The Waste and Level History sketch in Appendix C presents the waste history and level history of Tank 241-C-109.

2.9.2 Temperature History of Tank 241-C-109

Interior tank temperature data for Tank 241-C-109 were recorded by thermocouples located on two different thermocouple trees. Drawing No. H-2-99138, Sht. 2, Rev. 1, indicates that a thermocouple tree is located in riser 3 and is designed as shown on Drawing H-2-99138, Sht. 1, Rev. 1, with 10 thermocouples. The Surveillance Analysis Computer System (SACS) indicates that the thermocouple tree is located in Risers 3. The SACS indicates that the thermocouple tree located in riser 8 has 11 thermocouples. Documentation of the design configuration of the thermocouple tree in riser 8 was not located. The design of the thermocouple tree in riser 8 is unclear and the elevations of the individual thermocouples are unknown. In the past, other risers and equipment may have been used to monitor the temperature in the tank. However, the thermocouple trees located at Risers 3 and 8 are the only sources of temperature data for this document.

The temperature data were obtained from the SACS database on January 9, 1996. The SACS database contained two file types for temperature data: a historical file and a file with temperature data tied to Risers 3 and 8. Since there was no way to correlate the data in the historical file with a particular thermocouple, thermocouple tree, or riser, data from this file were not included in this document. Only data from the files that tied the temperature data to Risers 3 and 8 were used. The earliest data retrieved from the SACS were from late April 1975.

Graphs of individual thermocouple data are presented in Appendix D. A graph was created for each thermocouple except for thermocouples 6 through 9 in riser 3. Thermocouples Nos. 6 through 9 were not graphed due to a lack of data. The following statistical information was taken from all 21 thermocouples. The maximum temperature was 102°F taken by thermocouple No. 1 in riser 8 on November 29, 1977. The minimum temperature was 56°F taken by thermocouple No. 11 in riser 8 on May 11, 1983. The maximum and minimum temperatures are labeled as good data points within the SACS. The average temperature for all the thermocouples is 79°F.

2.9.3 Occurrences for Tank 241-C-109

An occurrence report was issued in January 1982 because of increasing activity in a drywell. The activity was attributed to the migration of existing contamination in the vicinity of Tank 241-C-108.

2.9.4 Current Status of Tank 241-C-109

Tank 241-C-109 entered service during the second quarter of 1948 (Anderson, 1990) and as of November 30, 1995 stores approximately 66,000 gallons of waste (Hanlon, 1996b). The waste surface level in the tank is measured with a manual tape as of January 1996. The minimum waste surface level was 18 inches on numerous dates from January 21, 1992 through July 2, 1994. The maximum waste surface level was 19.5 inches on April 1, 1992. See Appendix E for details on waste surface level. Tank 241-C-109 was added to the Ferrocyanide Watch List in January 1991. The tank is out of service with interim stabilization and intrusion prevention completed. The tank is listed as sound and is passively ventilated. A plan view in Appendix F depicts the approximate riser locations as of February 2, 1996. Tank 241-C-109 has 9 risers with five tentatively available for sampling: one 4-inch riser (No. 4) and four 12-inch risers (Nos. 2, 3, 6 and 7) (Lipnicki, 1995b).

2.9.5 Interior Montage of Tank 241-C-109

The clearest and most recent set of interior tank photographs was taken on December 9, 1974. Other interior tank photographs are available, but only the photographs showing the waste surface were used to create a montage. The montage has labels identifying some of the monitoring equipment, piping, and risers in the tank. The montage and photographic information are shown in Appendix G.

2.9.6 Tank Layer Model, Supernatant Mixing Model, and Inventory Estimate of Tank 241-C-109

The Tank Layer Model(TLM), Supernatant Mixing Model(SMM), and Inventory Estimate developed by Los Alamos National Laboratory (Agnew et al., 1996) for Tank 241-C-109 are presented in Appendix H along with their introduction sections.

2.10 Tank 241-C-110

2.10.1 Waste and Level History of Tank 241-C-110

The Waste and Level History sketch in Appendix C presents the waste history and level history of Tank 241-C-110.

2.10.2 Temperature History of Tank 241-C-110

Interior tank temperature data for Tank 241-C-110 were recorded by 11 thermocouples attached to one thermocouple tree. Documentation of the design configuration of the thermocouple tree was not located. The design of the thermocouple tree is unclear and the elevations of the individual thermocouples are unknown. The Surveillance Analysis Computer System (SACS) indicates that the thermocouple tree is located in riser 8. In the past, other risers and equipment may have been used to monitor the temperature in the tank. However, the thermocouple tree located at riser 8 is the only source of temperature data for this document. The temperature data were obtained from the SACS database on January 9, 1996. The earliest data retrieved from the SACS were from late July 1974.

Graphs of individual thermocouple data are presented in Appendix D. A graph was created for each thermocouple. The following statistical information was taken from all 11 thermocouples. The maximum temperature was 118°F taken by thermocouple No. 2 on July 10, 1985. The minimum temperature was 31.1°F taken by thermocouple No. 1 on January 7, 1994. The maximum temperature is labeled as a good data point and the minimum temperature is labeled as a transcribed data point within the SACS. The average temperature for all the thermocouples is 69°F.

2.10.3 Occurrences for Tank 241-C-110

No significant occurrences are associated only with Tank 241-C-110.

2.10.4 Current Status of Tank 241-C-110

Tank 241-C-110 entered service during the second quarter of 1946 (Anderson, 1990) and as of November 30, 1995 stores approximately 178,000 gallons of waste (Hanlon, 1996b). The waste surface level in the tank is measured with a manual tape as of January 1996. The minimum waste surface level was 60.5 inches on numerous dates from May 20, 1995 through June 12, 1995. The maximum waste surface level was 69 inches on numerous dates from April 1, 1991 through November 25, 1991. See Appendix E for details on waste surface level. The tank is out of service with interim stabilization and partial interim isolation completed. The tank is listed as an assumed leaker and is passively ventilated. A plan view in Appendix F depicts the approximate riser locations as of February 2, 1996. Tank 241-C-110 has 9 risers with six tentatively available for sampling: two 4-inch risers (Nos. 1 and 5) and four 12-inch risers (Nos. 2, 3, 6, and 7) (Lipnicki, 1995b).

2.10.5 Interior Montage of Tank 241-C-110

The clearest and most recent set of interior tank photographs was taken on August 12, 1986. Other interior tank photographs are available, but only the photographs showing the waste surface were

used to create a montage. The montage has labels identifying some of the monitoring equipment, piping, and risers in the tank. The montage and photographic information are shown in Appendix G.

2.10.6 Tank Layer Model, Supernatant Mixing Model, and Inventory Estimate of Tank 241-C-110

The Tank Layer Model(TLM), Supernatant Mixing Model(SMM), and Inventory Estimate developed by Los Alamos National Laboratory (Agnew et al., 1996) for Tank 241-C-110 are presented in Appendix H along with their introduction sections.

2.11 Tank 241-C-111

2.11.1 Waste and Level History of Tank 241-C-111

The Waste and Level History sketch in Appendix C presents the waste history and level history of Tank 241-C-111.

2.11.2 Temperature History of Tank 241-C-111

Interior tank temperature data for Tank 241-C-111 were recorded by 11 thermocouples attached to one thermocouple tree. Documentation of the design configuration of the thermocouple tree was not located. The design of the thermocouple tree is unclear and the elevations of the individual thermocouples are unknown. The Surveillance Analysis Computer System (SACS) indicates that the thermocouple tree is located in riser 5. In the past, other risers and equipment may have been used to monitor the temperature in the tank. However, the thermocouple tree located at riser 5 is the only source of temperature data for this document. The temperature data were obtained from the SACS database on January 9, 1996. The earliest data retrieved from the SACS were from late January 1975.

Graphs of individual thermocouple data are presented in Appendix D. A graph was created for each thermocouple. The following statistical information was taken from all 11 thermocouples. The maximum temperature was 105.8°F taken by thermocouple No. 7 on May 10, 1982. The minimum temperature was 52.7°F taken by thermocouple No. 9 on April 5, 1994. The maximum and minimum temperatures are labeled as good data points within the SACS. The average temperature for all the thermocouples is 74°F.

2.11.3 Occurrences for Tank 241-C-111

No significant occurrences are associated only with Tank 241-C-111.

2.11.4 Current Status of Tank 241-C-111

Tank 241-C-111 entered service during the third quarter of 1946 (Anderson, 1990) and as of November 30, 1995 stores approximately 57,000 gallons of waste (Hanlon, 1996b). The waste surface level in the tank is measured with a manual tape as of January 1996. The minimum waste surface level was 15 inches on numerous dates from January 3, 1994 through February 3, 1994. The maximum waste surface level was 16.5 inches on numerous dates from January 1, 1991 through January 1, 1996. See Appendix E for details on waste surface level. Tank 241-C-111 was added to the Ferrocyanide Watch List in January 1991. The tank is out of service with interim stabilization and intrusion prevention completed. The tank is listed as an assumed leaker and is passively ventilated. A plan view in Appendix F depicts the approximate riser locations as of February 2, 1996. Tank 241-C-111 has 9 risers with six tentatively available for sampling: two 4-inch risers (Nos. 1 and 4) and four 12-inch risers (Nos. 2, 3, 6, and 7) (Lipnicki, 1995b).

2.11.5 Interior Montage of Tank 241-C-111

The clearest and most recent set of interior tank photographs was taken on February 25, 1970. Other interior tank photographs are available, but only the photographs showing the waste surface were used to create a montage. The montage has labels identifying some of the monitoring equipment, piping, and risers in the tank. The montage and photographic information are shown in Appendix G.

2.11.6 Tank Layer Model, Supernatant Mixing Model, and Inventory Estimate of Tank 241-C-111

The Tank Layer Model(TLM), Supernatant Mixing Model(SMM), and Inventory Estimate developed by Los Alamos National Laboratory (Agnew et al., 1996) for Tank 241-C-111 are presented in Appendix H along with their introduction sections.

2.12 Tank 241-C-112

2.12.1 Waste and Level History of Tank 241-C-112

The Waste and Level History sketch in Appendix C presents the waste history and level history of Tank 241-C-112.

2.12.2 Temperature History of Tank 241-C-112

Interior tank temperature data for Tank 241-C-112 were recorded by thermocouples located on two different thermocouple trees. Drawing No. H-2-99138, Sht. 2, Rev. 1, indicates that a thermocouple tree is located in riser 8 and is designed as shown on Drawing H-2-99138, Sht. 1, Rev. 1 with 10 thermocouples. The Surveillance Analysis Computer System (SACS) indicates that the thermocouple tree is located in riser 8. The SACS indicates that the thermocouple tree located in riser 1 has 11 thermocouples. Documentation of the design configuration of the thermocouple tree in riser 1 was not located. The design of the thermocouple tree in riser 1 is unclear and the elevations of the individual thermocouples are unknown. In the past, other risers and equipment may have been used to monitor the temperature in the tank. However, the thermocouple trees located at Risers 1 and 8 are the only sources of temperature data for this document.

The temperature data were obtained from the SACS database on January 9, 1996. The SACS database contained two file types for temperature data: a historical file and a file with temperature data tied to Risers 1 and 8. Since there was no way to correlate the data in the historical file with a particular thermocouple, thermocouple tree, or riser, data from this file were not included in this document. Only data from the files that tied the temperature data to Risers 1 and 8 were used. The earliest data retrieved from SACS were from late April 1975.

Graphs of individual thermocouple data are presented in Appendix D. A graph was created for each thermocouple except for thermocouples 2, 5, 6, and 7 in riser 1 and thermocouples Nos. 6 through 9 in riser 8. Thermocouple No. 2 in riser 1 was not graphed due to a lack of data. Thermocouples 5, 6, and 7 in riser 1 were not graphed because there were no temperature data available. Thermocouples 6 through 9 in riser 8 were not graphed due to a lack of data. The following statistical information was taken from the 15 thermocouples that had temperature data. The maximum temperature was 87.8°F taken by thermocouple No. 4 in riser 8 on October 1, 7, 9, 10, and 13, 1994. The minimum temperature was 56°F taken by thermocouple No. 8 in riser 1 on March 24, 1994. The maximum and minimum temperatures are labeled as good data points within the SACS. The average temperature for all the thermocouples is 81°F.

2.12.3 Occurrences for Tank 241-C-112

No significant occurrences are associated only with Tank 241-C-112.

2.12.4 Current Status of Tank 241-C-112

Tank 241-C-112 entered service during the fourth quarter of 1946 (Anderson, 1990) and as of November 30, 1995 stores approximately 104,000 gallons of waste (Hanlon, 1996b). The waste surface level in the tank is measured with a manual tape as of January 1996. The minimum waste surface level was 22.5 inches on January 31, 1996. The maximum waste surface level was 35 inches on November 20, 1992. See Appendix E for details on waste surface level. Tank 241-C-112 was added to the Ferrocyanide Watch List in January 1991. The tank is out of service with interim stabilization and partial interim isolation completed. The tank is listed as sound and is passively ventilated. A plan view in Appendix F depicts the approximate riser locations as of February 2, 1996. Tank 241-C-112 has 9 risers with five tentatively available for sampling: one 4-inch riser (No. 4) and four 12-inch risers (Nos. 2, 3, 6, and 7) (Lipnicki, 1995b).

2.12.5 Interior Montage of Tank 241-C-112

The clearest and most recent set of interior tank photographs was taken on September 18, 1990. Other interior tank photographs are available, but only the photographs showing the waste surface were used to create a montage. The montage has labels identifying some of the monitoring equipment, piping, and risers in the tank. The montage and photographic information are shown in Appendix G.

2.12.6 Tank Layer Model, Supernatant Mixing Model, and Inventory Estimate of Tank 241-C-112

The Tank Layer Model(TLM), Supernatant Mixing Model(SMM), and Inventory Estimate developed by Los Alamos National Laboratory (Agnew et al., 1996) for Tank 241-C-112 are presented in Appendix H along with their introduction sections.

2.13 Tank 241-C-201

2.13.1 Waste and Level History of Tank 241-C-201

The Waste and Level History sketch in Appendix C presents the waste history and level history of Tank 241-C-201.

2.13.2 Temperature History of Tank 241-C-201

Interior tank temperature data for Tank 241-C-201 were recorded by 11 thermocouples attached to one thermocouple tree. Documentation of the design configuration of the thermocouple tree was not located. The design of the thermocouple tree is unclear and the elevations of the individual thermocouples are unknown. The Surveillance Analysis Computer System (SACS) indicates that the thermocouple tree is located in riser 6. In the past, other risers and equipment may have been used to monitor the temperature in the tank. However, the thermocouple tree located at riser 6 is the only source of temperature data for this document. The temperature data were obtained from the SACS database on January 9, 1996. The earliest data retrieved from the SACS were from late April 1975.

Graphs of individual thermocouple data are presented in Appendix D. A graph was created for each thermocouple. The following statistical information was taken from all 11 thermocouples. The maximum temperature was 81°F taken by thermocouple No. 1 on February 26, 1978. The minimum temperature was 36°F taken by thermocouples 1 through 9 on August 10, 1977. The maximum and minimum temperatures are labeled as transcribed data points within the SACS. The average temperature for all the thermocouples is 63°F.

2.13.3 Occurrences for Tank 241-C-201

No significant occurrences are associated only with Tank 241-C-201.

2.13.4 Current Status of Tank 241-C-201

Tank 241-C-201 entered service during the fourth quarter of 1947 (Anderson, 1990) and as of November 30, 1995 stores approximately 2,000 gallons of waste (Hanlon, 1996b). The waste surface level in the tank is measured with a manual tape as of January 1996. The minimum waste surface level was 11 inches on numerous dates from April 1, 1991 through October 1, 1995. The maximum waste surface level was 14 inches on April 13, 1994. See Appendix E for details on waste surface level. The tank is out of service with interim stabilization and intrusion prevention completed. The tank is listed as an assumed leaker and is passively ventilated. A plan view in Appendix F depicts the approximate riser locations as of February 2, 1996. Tank 241-C-201 has 6 risers with two tentatively available for sampling: one 4-inch riser (No. 8) and one 12-inch riser (No. 7) (Lipnicki, 1995b).

2.13.5 Interior Montage of Tank 241-C-201

The clearest and most recent set of interior tank photographs was taken on December 2, 1986. Other interior tank photographs are available, but only the photographs showing the waste surface were

used to create a montage. The montage has labels identifying some of the monitoring equipment, piping, and risers in the tank. The montage and photographic information are shown in Appendix G.

2.13.6 Tank Layer Model, Supernatant Mixing Model, and Inventory Estimate of Tank 241-C-201

The Tank Layer Model(TLM), Supernatant Mixing Model(SMM), and Inventory Estimate developed by Los Alamos National Laboratory (Agnew et al., 1996) for Tank 241-C-201 are presented in Appendix H along with their introduction sections.

2.14 Tank 241-C-202

2.14.1 Waste and Level History of Tank 241-C-202

The Waste and Level History sketch in Appendix C presents the waste history and level history of Tank 241-C-202.

2.14.2 Temperature History of Tank 241-C-202

Interior tank temperature data for Tank 241-C-202 were recorded by 11 thermocouples attached to one thermocouple tree. Documentation of the design configuration of the thermocouple tree was not located. The design of the thermocouple tree is unclear and the elevations of the individual thermocouples are unknown. The Surveillance Analysis Computer System (SACS) indicates that the thermocouple tree is located in riser 6. In the past, other risers and equipment may have been used to monitor the temperature in the tank. However, the thermocouple tree located at riser 6 is the only source of temperature data for this document. The temperature data were obtained from the (SACS) database on January 9, 1996. The earliest data retrieved from the SACS were from late April 1975.

Graphs of individual thermocouple data are presented in Appendix D. A graph was created for each thermocouple. The following statistical information was taken from all 11 thermocouples. The maximum temperature was 80°F taken by thermocouple No. 1 on February 26, 1978. The minimum temperature was 51.998°F taken by thermocouple No. 11 on May 19, 1975. The maximum and minimum temperatures are labeled as good data points within the SACS. The average temperature for all the thermocouples is 63°F.

2.14.3 Occurrences for Tank 241-C-202

No significant occurrences are associated only with Tank 241-C-202.

2.14.4 Current Status of Tank 241-C-202

Tank 241-C-202 entered service during the fourth quarter of 1947 (Anderson, 1990) and as of November 30, 1995 stores approximately 1,000 gallons of waste (Hanlon, 1996b). The waste surface level in the tank is measured with a manual tape as of January 1996. The minimum waste surface level was 3.25 inches on January 1, 1995. The maximum waste surface level was 9 inches on April 13, 1994 and January 1, 1996. See Appendix E for details on waste surface level. The tank is out of service with interim stabilization and intrusion prevention completed. The tank is listed as an assumed leaker and is passively ventilated. A plan view in Appendix F depicts the approximate riser locations as of February 2, 1996. Tank 241-C-202 has 6 risers with two tentatively available for sampling: one 4-inch riser (No. 8) and one 12-inch riser (No. 7) (Lipnicki, 1995b).

2.14.5 Interior Montage of Tank 241-C-202

The clearest and most recent set of interior tank photographs was taken on December 9, 1986. Other interior tank photographs are available, but only the photographs showing the waste surface were

used to create a montage. The montage has labels identifying some of the monitoring equipment, piping, and risers in the tank. The montage and photographic information are shown in Appendix G.

2.14.6 Tank Layer Model, Supernatant Mixing Model, and Inventory Estimate of Tank 241-C-202

The Tank Layer Model(TLM), Supernatant Mixing Model(SMM), and Inventory Estimate developed by Los Alamos National Laboratory (Agnew et al., 1996) for Tank 241-C-202 are presented in Appendix H along with their introduction sections.

2.15 Tank 241-C-203

2.15.1 Waste and Level History of Tank 241-C-203

The Waste and Level History sketch in Appendix C presents the waste history and level history of Tank 241-C-203.

2.15.2 Temperature History of Tank 241-C-203

Interior tank temperature data for Tank 241-C-203 were recorded by 11 thermocouples attached to one thermocouple tree. Documentation of the design configuration of the thermocouple tree was not located. The design of the thermocouple tree is unclear and the elevations of the individual thermocouples are unknown. The Surveillance Analysis Computer System (SACS) indicates that the thermocouple tree is located in riser 6. In the past, other risers and equipment may have been used to monitor the temperature in the tank. However, the thermocouple tree located at riser 6 is the only source of temperature data for this document. The temperature data were obtained from the SACS database on January 9, 1996. The earliest data retrieved from the SACS were from late April 1975.

Graphs of individual thermocouple data are presented in Appendix D. A graph was created for each thermocouple. The following statistical information was taken from all 11 thermocouples. The maximum temperature was 83°F taken by thermocouple No. 1 on February 26, 1978. The minimum temperature was 47°F taken by thermocouples 4 through 11 on May 10, 1982. The maximum and minimum temperatures are labeled as good data points within the SACS. The average temperature for all the thermocouples is 61°F.

2.15.3 Occurrences for Tank 241-C-203

No significant occurrences are associated only with Tank 241-C-203.

2.15.4 Current Status of Tank 241-C-203

Tank 241-C-203 entered service during the fourth quarter of 1947 (Anderson, 1990) and as of November 30, 1995 stores approximately 5,000 gallons of waste (Hanlon, 1996b). The waste surface level in the tank is measured with a manual tape as of January 1996. The minimum waste surface level was 18 inches on January 1, 1996. The maximum waste surface level was 21.5 inches on April 1, 1991. See Appendix E for details on waste surface level. The tank is out of service with interim stabilization and intrusion prevention completed. The tank is listed as an assumed leaker and is passively ventilated. A plan view in Appendix F depicts the approximate riser locations as of February 2, 1996. Tank 241-C-203 has 6 risers with two tentatively available for sampling: one 4-inch riser (No. 8) and one 12-inch riser (No. 7) (Lipnicki, 1995b).

2.15.5 Interior Montage of Tank 241-C-203

The clearest and most recent set of interior tank photographs was taken on December 9, 1986. Other interior tank photographs are available, but only the photographs showing the waste surface were

used to create a montage. The montage has labels identifying some of the monitoring equipment, piping, and risers in the tank. The montage and photographic information are shown in Appendix G.

2.15.6 Tank Layer Model, Supernatant Mixing Model, and Inventory Estimate of Tank 241-C-203

The Tank Layer Model(TLM), Supernatant Mixing Model(SMM), and Inventory Estimate developed by Los Alamos National Laboratory (Agnew et al., 1996) for Tank 241-C-203 are presented in Appendix H along with their introduction sections.

2.16 Tank 241-C-204

2.16.1 Waste and Level History of Tank 241-C-204

The Waste and Level History sketch in Appendix C presents the waste history and level history of Tank 241-C-204.

2.16.2 Temperature History of Tank 241-C-204

The Surveillance Analysis Computer System database did not contain any temperature data for tank 241-C-204.

2.16.3 Occurrences for Tank 241-C-204

No significant occurrences are associated only with Tank 241-C-204.

2.16.4 Current Status of Tank 241-C-204

Tank 241-C-204 entered service during the first quarter of 1948 (Anderson, 1990) and as of November 30, 1995 stores approximately 3,000 gallons of waste (Hanlon, 1996b). The waste surface level in the tank is measured with a manual tape as of January 1996. The minimum waste surface level was 8 inches on numerous dates from January 1, 1991 through May 21, 1994. The maximum waste surface level was 17 inches on May 27, 1994. See Appendix E for details on waste surface level. The tank is out of service with interim stabilization and intrusion prevention completed. The tank is listed as an assumed leaker and is passively ventilated. A plan view in Appendix F depicts the approximate riser locations as of February 2, 1996. Tank 241-C-204 has 6 risers with two tentatively available for sampling: one 4-inch riser (No. 8) and one 12-inch riser (No. 7) (Lipnicki, 1995b).

2.16.5 Interior Montage of Tank 241-C-204

The clearest and most recent set of interior tank photographs was taken on December 9, 1986. Other interior tank photographs are available, but only the photographs showing the waste surface were used to create a montage. The montage has labels identifying some of the monitoring equipment, piping, and risers in the tank. The montage and photographic information are shown in Appendix G.

2.16.6 Tank Layer Model, Supernatant Mixing Model, and Inventory Estimate of Tank 241-C-204

The Tank Layer Model(TLM), Supernatant Mixing Model(SMM), and Inventory Estimate developed by Los Alamos National Laboratory (Agnew et al., 1996) for Tank 241-C-204 are presented in Appendix H along with their introduction sections.

GLOSSARY

This glossary of Hanford terminology has been compiled from numerous sources. A lot of the terms have come from Anderson(1991), Jungfleisch(1984) and Agnew(1996). These definitions may conflict with other sources.

1C	First-cycle decontamination waste from the bismuth phosphate($BiPO_4$) process at B and T Plants consisting of by-products co-precipitated from a solution containing plutonium (contains 10% of the original fission product activity and 2% of the products). By-product cake solution was mixed with product waste and neutralized with 50% caustic. Coating waste from removing aluminum fuel element cladding was added and comprised about 24% of the waste.
1C1	First-cycle decontamination waste from the bismuth phosphate($BiPO_4$) process, 1944-49 (LANL defined waste #3)
1C2	First-cycle decontamination waste from the bismuth phosphate($BiPO_4$) process, 1950-56 (LANL defined waste #4)
224	224-U Waste. LaF_3 finishing waste from $BiPO_4$ process and uranium recovery in the 224 buildings by T Plant and B Plant and the Plutonium Finishing Plant (LANL defined waste #7)
2C	Second-cycle decontamination waste from the bismuth phosphate($BiPO_4$) process at B and T Plants (see second-cycle decontamination waste)
2C1	Second-cycle decontamination waste from the bismuth phosphate($BiPO_4$) process, 1944-49 (LANL defined waste #5)
2C2	Second-cycle decontamination waste from the bismuth phosphate($BiPO_4$) process, 1950-56 (LANL defined waste #6)
5-6	Waste from cell 5 tank 6 in B Plant; the hot waste collected in the bottom of cell 5 when the liquid boiled over during dissolving and neutralizing phases of the $BiPO_4$ process.
Active Drywell	Drywell in which radiation readings of greater than 50 counts per second are detected. The readings must be consistent as to depth and radiation level for repeated readings to be considered active.

Airlift Circulator	A device installed in aging waste tanks to promote mixing of the supernate. By maintaing motion within the body of the liquid, the circulators minimize superheat buildup and, consequently, minimize burping.
AR	Washed PUREX sludge from the 244-AR Vault (LANL defined waste #31)
Assumed Leaker	A waste storage tank for which past surveillance data has indicated a loss of liquid attributed to a breach of integrity. In 1984, the designations of "suspect leaker," "questionable integrity," "confirmed leaker," "declared leaker," "dormant", and "borderline" were merged into one category called "assumed leaker."
B	High-level waste from PUREX acidified waste processed through B Plant to extract strontium (LANL defined waste #32)
BG	Below grade
BL	B Plant low-level waste beginning 1968 (LANL defined waste #33)
BM	Bench mark
BNW	Battelle Northwest Laboratory waste
BSLTCK	Salt cake waste generated from the 242-B Evaporator, 1951-53 (LANL defined waste #41)
BYSLTCK	Salt cake waste generated from in-tank solidification units 1 and 2 in BY Tank Farm, 1965-74 (LANL defined waste #44)
Cascade	Eleven of the single-shell tank farms (all except the AX Tank Farm) were equipped with overflow lines between tanks. The tanks were connected in series and were placed at different elevations creating a downhill gradient for liquids to flow (cascade) from one tank to another. Thus, multiple tanks could be filled with one pump.
Catch Tanks	Small capacity single-shell tanks associated with diversion boxes and diverter stations. The tanks are designed to receive any transfer line clean out, spills or leakage from the boxes, or leakage from the adjacent pipe encasement.

CC	Complexant concentrate waste or concentrated complexant; concentrated product from evaporating dilute complexed waste which contained high concentrations of organic complexants, such as HEDTA, EDTA, and citric acid.
CCPLX	Complexant concentrate or concentrated complexant waste; see CC.
CCW	Concentrated customer waste; the product of concentrating waste received from 100N or the Fast Flux Test Facility having phosphate and/or sulfate concentrations which, after concentration, exhibit the characteristics of a complexed liquid.
CEM	Cement
CF	Cesium feed; a PUREX sludge supernate.
CPLX	Complexed waste; dilute waste containing relatively high concentrations of organic chelating agents such as EDTA and HEDTA form B Plant waste fractionization.
Crib	An underground structure filled with aggregate designed to receive liquid waste, usually through a perforated pipe. The filtration and ion exchange properties of the soil in and around the crib were used to contain the radionuclides.
CSR	Waste (supernate) from cesium recovery of tank supernate at B Plant (LANL defined waste #35)
CW	Coating (cladding) waste produced at PUREX from dissolution of Zircaloy or aluminum fuel cladding.
CWZR1	Coating (cladding) waste (PUREX), Zircaloy cladding; 1968-72 (LANL defined waste #23)
CWZR2	Coating (cladding) waste (PUREX), Zircaloy cladding; 1983-88 (LANL defined waste #47); see NCRW and PD; also known as CWP/ZR2
CWP	Coating (cladding) waste (PUREX)
CWP1	Coating (cladding) waste (PUREX); (LANL defined waste #21, CWP/Al, 1956-60)
CWP2	Cladding (coating) waste (PUREX), (LANL defined waste #22, CWP/Al, 1961-72)

CWP/ZR	Now called PD or NCRW
CWR1	REDOX cladding (coating) waste, (LANL defined waste #15, CWR/Al, 1952-60)
CWR2	Coating (cladding) waste (REDOX), (LANL defined waste #16, CWL/Al with some Zr, 1961-72)
DC	Dilute complexed waste characterized by organic carbon including organic complexants: EDTA, citric acid, HEDTA, and iminodiacetate.
DE	Diatomaceous Earth; Diatomite(SiO_2); a light friable siliceous material derived from diatom (algal) remains; added to some underground waste storage tanks to absorb residual liquids.
Ditch	A linear excavation often used for the temporary diversion or disposal of process waste streams.
Diversion Box	A below grade, concrete enclosure containing the remotely maintained jumpers and spare nozzles for routing waste solution to storage tank farms.
DSSF	Double-shell slurry feed; Waste concentrated in evaporators until the solution is nearly saturated with sodium aluminate without exceeding receiver tank composition limits. This form is not as concentrated as double-shell slurry.
Drywell	A steel casing, generally 6-inch internal diameter, drilled into the ground to various depths (but do not reach the water table) and used to insert monitoring instruments for measuring the presence of radioactivity or moisture content.
DW	Decontamination waste; a wash solution from equipment decontamination at T Plant (LANL defined waste #39)
EB	Evaporator bottoms; a slurry from the evaporators
EF	Evaporator feed; various supernatant liquids whose composition depends on the source
EVAP	Evaporator feed (post 1976 designation)
Evaporator Feed	Any waste liquid that can be concentrated to form salt cake; e.g., aged waste, low heat waste, dilute interstitial liquor, and other radioactive waste solutions.

FD	Feed dilute
Ferrocyanide	An ion composed of iron and cyanide with the chemical formula of $Fe(CN)_6^{-4}$.
H_2O	Water
HDRL	Hanford defense residual liquor; late 1970s designation for terminal liquors remaining after evaporation; includes complexed and noncomplexed waste, partially neutralized waste, and DSSF (see RESID).
HLO	Hanford Laboratory Operations; also, Hanford laboratory operations waste; laboratory waste from the 300 Area
HS	Hot Semiworks (C Plant); a pilot facility with a variety of operations. Also, Hot or Strontium Semiworks waste (LANL defined waste #28); see SSW.
ILL	Interstitial liquid level
Inactive Tank	A tank that has been removed from liquid-processing service, has been pumped to less than 33,000 gallons of waste, and will be, or is in the process of being, stabilized followed by intrusion prevention. This includes all tanks not in active or active-restricted categories. Also included are inactive spare tanks that would be used if an active tank failed.
Interim Isolation	An 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".)
Interim Stabilization	A tank which contains less than 50,000 gallons of drainable interstitial liquid and less than 5,000 gallons of supernate. If a jet pump was used to achieve interim stabilization, then the jet pump flowrate must have been at or below 0.05 gallons per minute before interim stabilization was completed.
Interstitial Liquid	The interstitial liquid within the tanks is the liquid that fills the interstitial(voids) spaces of the solid waste.
Intrusion Prevention	An administrative designation reflecting the completion of the physical effort required to minimize the addition of liquids into an inactive storage tank, process vault, catch tank, sump, or diversion box.

IWW	Inorganic wash waste (i.e., concentrated neutralized high-level waste from PUREX); see NCAW and P. This was also designated as 1WW because it is bottoms waste from the #1 acid concentrator.
IX	Ion exchange waste from the cesium recovery process at B Plant
Knuckle	Point where the side wall and the bottom curved surface of a tank meet.
Level Adjustment	Any update in the waste inventory (or tank level) in a tank. The adjustments usually result from surveillance observations or historical investigations.
Liquid Observation Well (LOW)	A liquid observation well is a fiber glass or tefzel-reinforced epoxy-polyester resin, 89 mm (3.5 inches) diameter pipe that is capped on the bottom end. This end is placed within 25 mm (1 inch) above the bottom portion of the steel tank liner. Three types of probes are used in the LOW to monitor changes in the interstitial liquid level: acoustic, gamma, and neutron.
LW	Laboratory waste from the 222-S Building
Mixed Waste	Waste containing both radioactive and hazardous (dangerous as defined in WAC 173-303) waste.
MW	Waste from the bismuth phosphate process (which extracted plutonium) containing all the uranium, approximately 90% of the original fission product activity, and approximately 1% of the product. This waste was brought to the neutral point with 50% caustic and then treated with an excess of sodium carbonate. This procedure yielded almost completely soluble waste at a minimum total volume. The exact composition of the carbonate compounds was not known, but was assumed to be a uranium phosphate carbonate mixture. The term "metal" was the code word for plutonium.
MW1	Metal waste from $BiPO_4$, 1944-49 (LANL defined waste #1, same as MW)
MW2	Metal waste from $BiPO_4$, 1950-56 (LANL defined waste #2, same as MW)
N	Phosphate decontamination waste from N Reactor (LANL defined waste #40)

NCAW	Neutralized current acid waste, primary high-level waste stream from PUREX process (LANL defined waste #45, formerly P3, 1983-88)
NCPLX	Non-complexed waste; general term for supernates and salt well liquors that did not contain organic complexants.
NCRW	Neutralized cladding removal waste, same as CWP/Zr.
NIT	HNO_3/$KMNO_4$ solution added during evaporator operation
Non-Complexed	General waste term applied to all Hanford Site liquors not identified as complexed (containing organics).
Out-of-Service-Tank	A tank that does not meet the definition of an in-service tank. Before September 1988, these tanks were defined as inactive. (Note: All single-shell tanks are out of service.)
OWW	Organic Wash Waste; The solvent used in PUREX was treated before reuse by washing with potassium permanganate and sodium carbonate, followed by dilute nitric acid.
OWW1	Organic wash waste, 1956-62, also known as CARB (LANL defined waste #24)
OWW2	Organic wash waste, 1963-67 (LANL defined waste #25)
OWW3	Organic wash waste, 1968-72 (LANL defined waste #26)
P	High-level neutralized acid waste from PUREX
P1	PUREX high-level waste, 1956-62 (LANL defined waste #17)
P2	PUREX high-level waste, 1963-67 (LANL defined waste #18)
P2'	1968-1972, assigned to P2.
P3	1983-1988, now called PXNAW or NCAW.
Partial Interim Isolation	The administrative designation for completing the physical effort required for interim isolation, except for isolating the risers and piping that will be required for jet pumping or for other methods of stabilization.
PASF	PUREX ammonia scrubber feed (LANL defined waste #48)
PD	PUREX decladding waste

PFeCN1	Ferrocyanide sludge produced by in-plant scavenging (using 0.005 M ferrocyanide) of waste from uranium recovery (LANL defined waste #9)
PFeCN2	Same as PFeCN1 except 0.0025 M ferrocyanide used (LANL defined waste #10)
pH	A measure of the hydrogen ion concentration in solution.
PL	Low-level waste from PUREX
PL1	PUREX low-level waste (LANL defined waste #20)
PL2	1983-88, now called PXMSC, among other things.
Primary Addition	An addition of waste from a specific plant or process vault.
PSS	PUREX sludge supernate; produced by leaching PUREX sludge
PXMSC	Dilute, non-complexed waste from PUREX misc. streams
PXNAW	Aging waste from PUREX high level waste; see NCAW (LANL defined waste #45, formerly P3, 1983-88)
R	High-level waste from REDOX
R1	REDOX waste, 1952-57 (LANL defined waste #13)
R2	REDOX waste, 1958-66 (LANL defined waste #14)
RESID	Hanford defense residual liquor (see HDRL)
Riser	A vertical pipe through a tank dome (access to the tank interior).
RIX	REDOX ion exchange waste produced at B Plant by extractng cesium from REDOX supernate
RSLTCK	Salt-cake waste from the REDOX concentrator (LANL defined waste #43)
RSN	REDOX supernate
SACS	Surveillance analysis computer system

Salt Cake	Crystallized nitrate and other salts deposited in waste tanks, usually after the waste is concentrated by evaporation.
Salt Well	A hole drilled or sluiced into salt cake and lined with a cylindrical screen to permit drainage and jet pumping of interstitial liquids.
Scavenged Waste	Waste which has been treated with ferrocyanide to remove cesium from the supernate by precipitating it into a sludge.
Self-Concentrating Waste	Liquid, high-level radioactive waste whose decaying radionuclides heat the solution sufficiently to boil off (i.e., evaporate) the water, thus concentrating the waste.
SIX	Waste from removing cesium from PUREX sludge supernate by ion exchange at B Plant
Sluicing, or sluiced	To wash with water. At Hanford, this has meant to dissolve or suspend waste in solution using a high pressure water stream.
Slurry	Insoluble material suspended in water or aqueous solution.
SMM	Supernatant Mixing Model (created at LANL) that calculates the composition of tank liquids and concentrates as linear combinations of supernates from the *Hanford Defined Wastes: Chemical and Radionuclide Compositions* (Agnew, 1995a)
SMP	Sludge measuring port
SMMA1	Solids from concentrate calculated by SMM. Waste type is tank dependent.
SMMA2	Solids from concentrate calculated by SMM. Waste type is tank dependent.
Sound	The integrity classification of a waste storage tank for which surveillance data indicate no loss of liquid attributed to a breach of integrity.
SRR	Sluiced PUREX sludge from A and AX Tank Farms sent to B Plant to recover strontium from 1967-76 (LANL defined waste #34). The sludge returned from B Plant was sent to the AR Vault and the supernate was sent to 241-C-105.

SRS	Strontium sludge; PUREX sludges sluiced for strontium recovery at B Plant were washed in the AR Vault with supernate from 241-C-105, and the resulting supernates were sent to CSR.
SST	Single-shell tank
SSW	Strontium Semiworks waste; produced from the strontium extraction process at the Strontium Semiworks after 1961
Stabilization	The removal or immobilization, as completely as possible, of the liquid contained in a radioactive waste storage tank by pumping via a salt well, adding diatomaceous earth, etc.
Supernatant or Supernate	Liquid floating above the solids in the waste storage tanks. Supernate is usually derived by subtracting the solids level measurement from the liquid level measurement.
T1SLTCK	Salt-cake waste generated from the 242-T Evaporator, 1951-56 (LANL defined waste #42)
T2SLTCK	Salt-cake waste generated from the 242-T Evaporator, 1965-76
Tank Farm	An area containing underground storage tanks for storing waste.
TBP	Tributyl phosphate, a solvent used in the uranium extraction process at U Plant; also, a waste which is sometimes called uranium recovery waste (UR).
Terminal Liquor	The concentrated supernatant liquid decanted from the evaporator bottoms (produced by the evaporators), which may not be concentrated further without forming solids that was unacceptable for storage in single-shell tanks (see HDRL). Terminal liquor is characterized by a caustic concentration of approximately 5.5 $\underline{M}$ (the caustic molarity was lower if the aluminum salt saturation was reached first).
TFeCN	Ferrocyanide sludge produced by in-tank or in-farm scavenging (LANL defined waste #11)
TH1	Thoria high-level or cladding waste, 1966 (LANL defined waste #29, formerly TH66)
TH2	Thoria high-level or cladding waste, 1970 (LANL defined waste #30, formerly TH70)

TH66	See TH1.
TH70	Thoria 1970.
Thermocouple	Thermocouples are simple devices that develop a millivoltage when parts of the thermocouple are exposed to temperature differentials. The millivoltage can be converted to a temperature reading based upon a specific voltage versus temperature curve inherent to the type of thermocouple being used. Thermocouples are attached to a fabricated assembly called a thermocouple tree.
Thermocouple Tree	Thermocouples are attached to a fabricated assembly called a thermocouple tree. The number of thermocouples attached to the tree varies as a function of the depth of the tank as well as the thermocouple tree design. The thermocouples are spaced at intervals, along trees that have many thermocouples, so that a vertical temperature profile of the tank contents can be developed. The thermocouple tree is installed in a riser and left in place inside the tank.
Thorium	A chemical element which is fertile material. Fertile means that when it is subjected to radiation in a nuclear reactor, it will be converted, in this case, to ^{233}U, a potential fuel.
TLM	Tank Layer Model (created at LANL and derived from *Waste Status and Transaction Record Summary* database) models the volumes of wastes in the tanks.
Trench	A linear excavation used for the disposal of solid waste.
TRUEX	Transuranic extraction process
UNK	Unknown waste type (LANL defined waste)
UR	Uranium recovery operation in U Plant, 1952-57. Created uranium recovery waste (UR) (LANL defined waste #8), also known as tributyl phosphate (TBP) waste, and FeCN (scavenging wastes). See TFeCN and PFeCN.

Watch List Tank	An underground storage tank requiring special safety precautions because the tank potentially could release high-level radioactive waste if uncontrolled increases in pressure or temperature occur. Special restrictions have been placed on the tanks by "Safety Measures for Waste Tanks at Hanford Nuclear Reservation," Section 3137, National Defense Authorization Act for Fiscal Year 1991, November 5, 1990, Public Law 101-501 (also called the Wyden Amendment).
WC	Weather cover
WESF	Waste Encapsulation and Storage Facility
WTR	Water; flush water from miscellaneous sources.
Wyden Amendment	See watch list tank.
Z	Waste discharged from Z Plant (PFP) (LANL defined waste #27)

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WASTE TYPES ADDED TIME LINE (ANDERSON 1990)	MW:	TBP:	EB: TBP:	CW: P: TBP:	P:
PRIMARY ADDITIONS TIME LINE (AGNEW) 1995b	MW1:	UR:	WTR: CWP1: CWP2:	DW:	

TANK INFO:

CONSTRUCTED 1943-1944
NOMINAL CAPACITY: 530,000 GAL
DISH BOTTOM, 4 FOOT RADIUS KNUCKLE
75 FOOT DIAMETER TANK

REFERENCES

* ANDERSON 1990
** WELTY 1988
*** BORSHEIM AND KIRCH 1991
◇ HANLON 1996a
◇◇ McCANN 1982b

NOTES:

1) TRANSFER SOURCES AND DESTINATIONS ARE NOT AVAILABLE FOR ALL LEVEL CHANGES. FOR MORE DETAILS ABOUT TRANSFER INFORMATION SEE ANDERSON 1990.
2) INTERSTITIAL LIQUID LEVEL IS UNKNOWN
3) IN JUNE 1993, INTERIM ISOLATION WAS REPLACED BY INTRUSION PREVENTION.

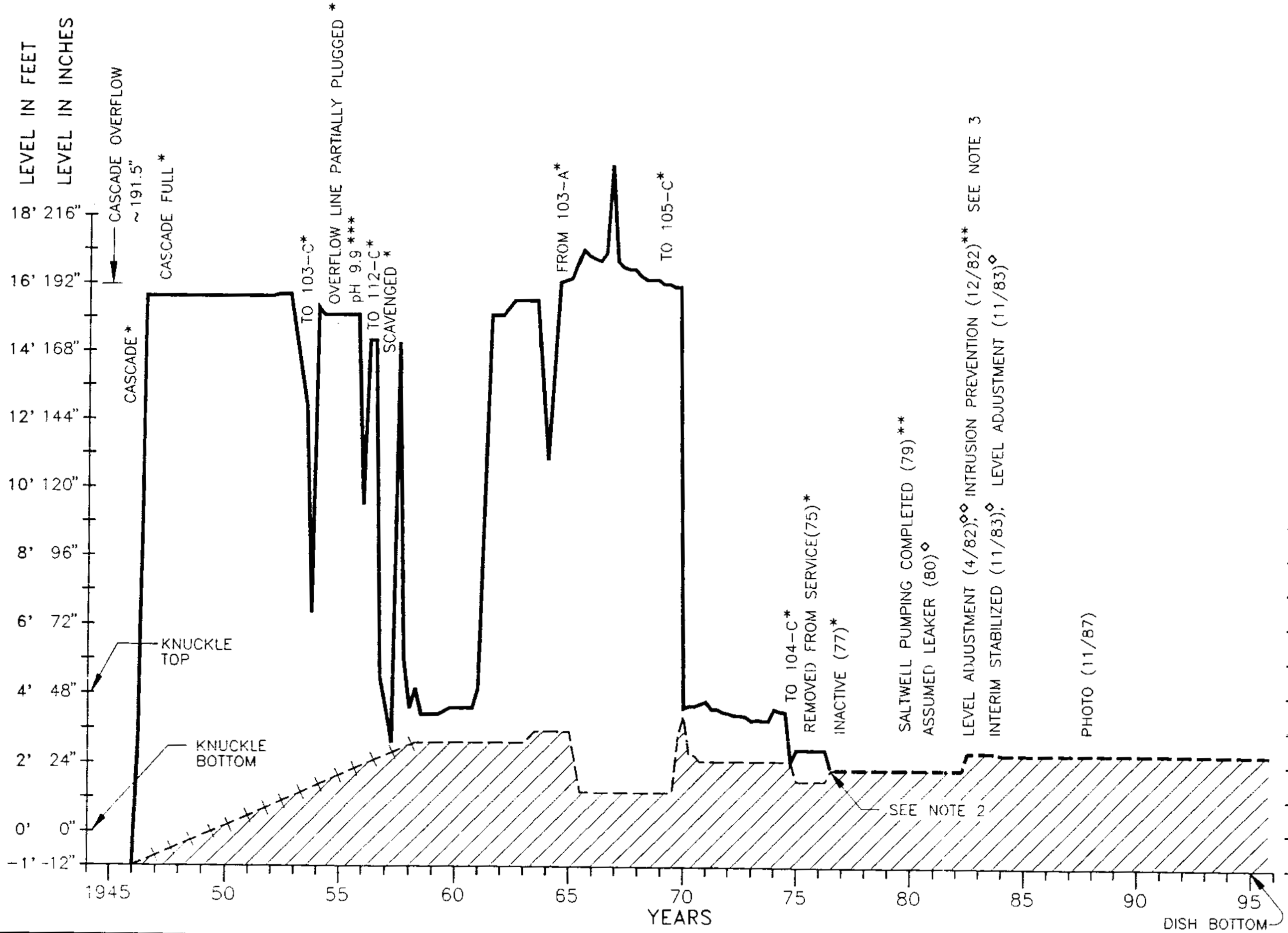
GLOSSARY OF WASTE TERMS:

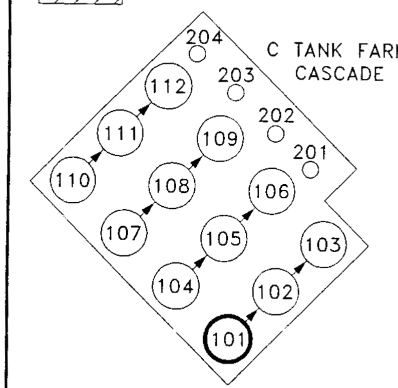
FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A

CWP1: COATING(CLADDING)WASTE-PUREX 1956-60
CWP1: COATING(CLADDING)WASTE-PUREX 1961-72
CW: CLADDING WASTE-PUREX
DW: DECONTAMINATION WASTE
EB: EVAPORATOR BOTTOMS
MW: METAL WASTE
MW1: METAL WASTE 1944-1951
P: PUREX HIGH-LEVEL WASTE
TBP: TRIBUTYL PHOSPHATE
UR: URANIUM RECOVERY WASTE
WTR: WATER

LEGEND

TOTAL WASTE LEVEL (SUPERNATE)
TOTAL WASTE LEVEL (SOLIDS)
SOLIDS LEVEL
+++++ ASSUMED SOLIDS LEVEL
SOLIDS





U.S. DEPARTMENT OF ENERGY
RICHLAND FIELD OFFICE
ICF KAISER HANFORD

241-C-101 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1946-1995
ASSUMED LEAKER/STABILIZED TANK
WATCH LIST: N/A

SIZE	BLDG NO.	DWG NO.	DATE
B	241	ES-TKS-E51	5/96
SCALE NONE		JOB NO.	SHEET 1 OF 1

TKSE051

WASTE TYPES ADDED TIME LINE (ANDERSON 1990)	MW:	TBP:	TBP: CW:		CW: OWW:	
PRIMARY ADDITIONS TIME LINE (AGNEW) 1995b	UR:	CWP1: WTR: CWP2:	TH1: CWP2: OWW3	CWP2: OWW3:	BYSLTCK:	

TANK INFO:

CONSTRUCTED 1943-1944
NOMINAL CAPACITY: 530,000 GAL
DISH BOTTOM, 4 FOOT RADIUS KNUCKLE
75 FOOT DIAMETER TANK

REFERENCES

* ANDERSON 1990
** WELTY 1988
*** BORSHEIM AND KIRCH 1991
◇ HANLON 1996a
◇◇ McCANN 1982b

NOTES:

1) TRANSFER SOURCES AND DESTINATIONS ARE NOT AVAILABLE FOR ALL LEVEL CHANGES. FOR MORE DETAILS ABOUT TRANSFER INFORMATION SEE ANDERSON 1990.
2) INTERSTITIAL LIQUID LEVEL IS UNKNOWN

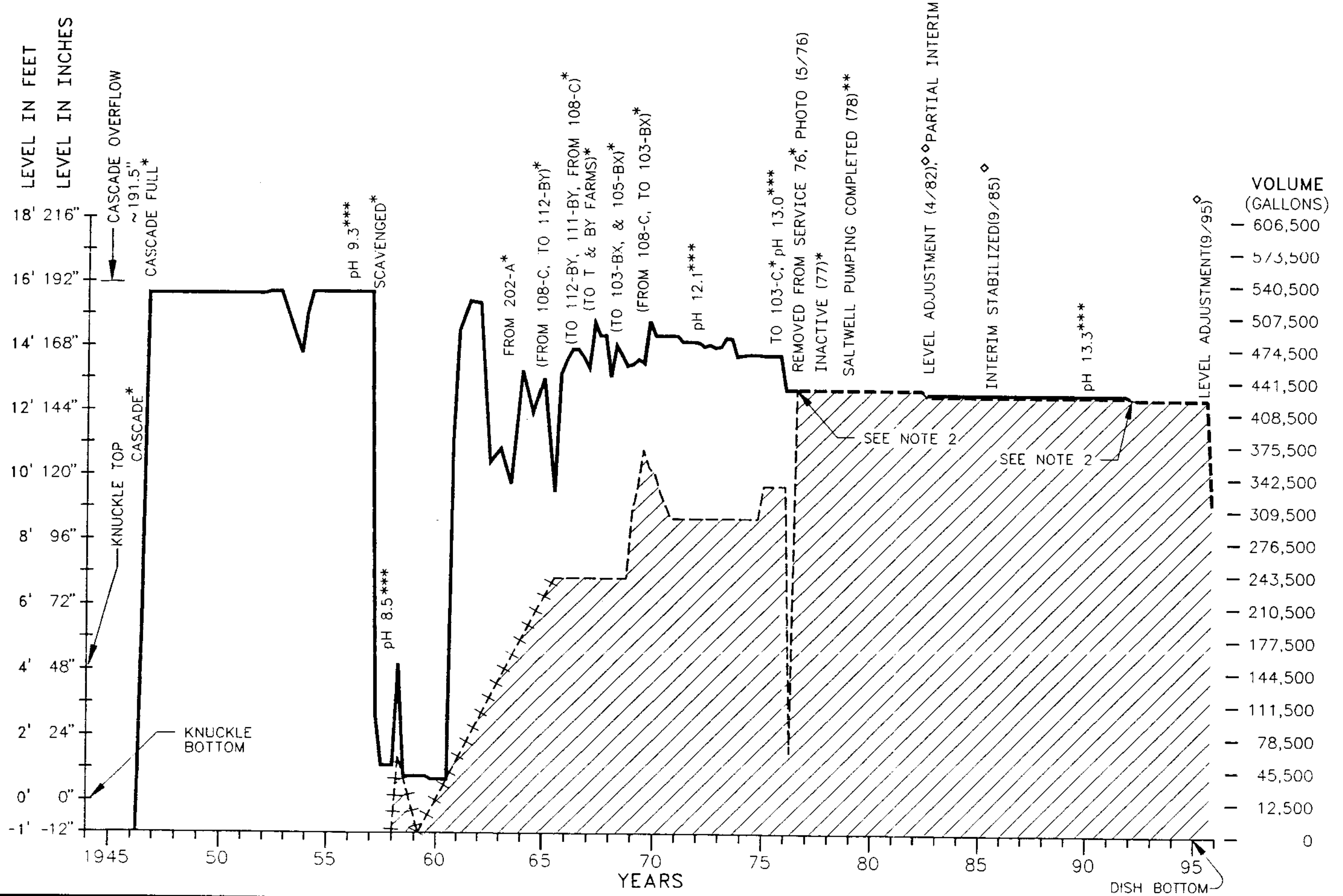
GLOSSARY OF WASTE TERMS:

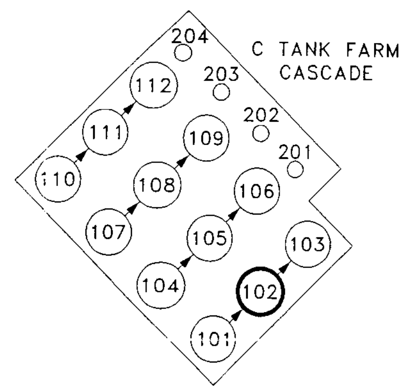
FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A

BYSLTCK: SALTCAKE WASTE 1965-1974
CW: COATING(COATING)WASTE
CWP1: CLADDING WASTE-PUREX
CWP2: CLADDING WASTE-PUREX
MW: METAL WASTE
OWW: PUREX ORGANIC WASH WASTE
OWW3: PUREX ORGANIC WASH WASTE 1968-72
TBP: TRIBUTYL PHOSPHATE
TH1: THORIA 1966
UR: URANIUM RECOVERY WASTE
WTR: WATER

LEGEND

TOTAL WASTE LEVEL (SUPERNATE)
TOTAL WASTE LEVEL (SOLIDS)
SOLIDS LEVEL
ASSUMED SOLIDS LEVEL
SOLIDS



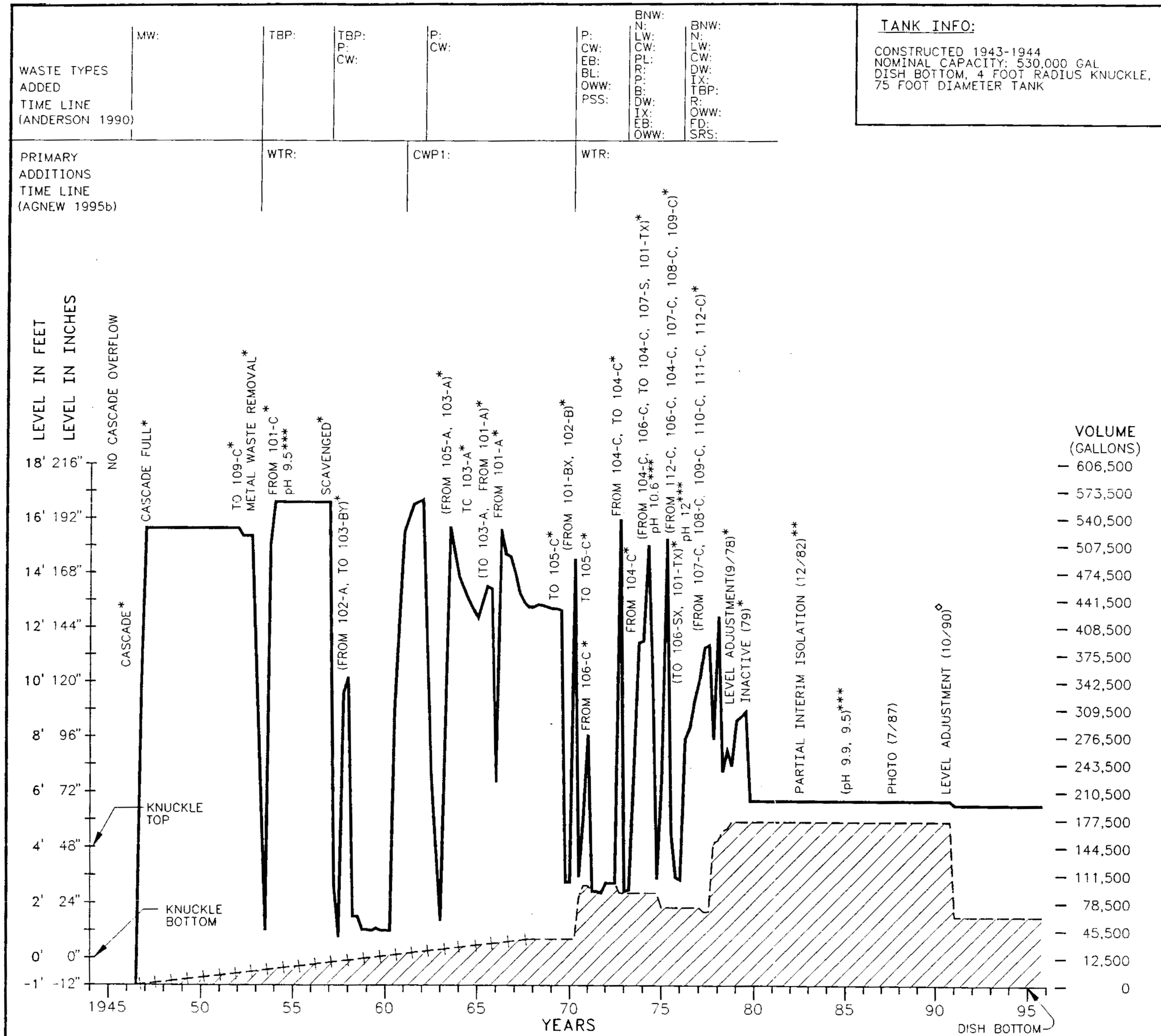


U.S. DEPARTMENT OF ENERGY
RICHLAND FIELD OFFICE
ICF KAISER HANFORD

241-C-102 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1946-1995
SOUND/STABILIZED TANK
WATCH LIST: ORGANICS

SIZE	BLDG NO.	DWG NO	DATE
B	241	ES-TKS-E52	5/96
SCALE NONE		JOB NO.	SHEET 1 OF 1

ITKSE052



TANK INFO:

CONSTRUCTED 1943-1944
NOMINAL CAPACITY: 530,000 GAL
DISH BOTTOM, 4 FOOT RADIUS KNUCKLE,
75 FOOT DIAMETER TANK

REFERENCES

- * ANDERSON 1990
- ** WELTY 1988
- *** BORSHEIM AND KIRCH 1991
- ◇ HANLON 1996a

NOTES:

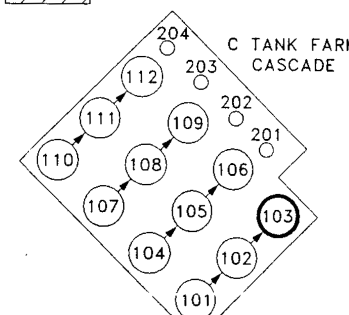
1) TRANSFER SOURCES AND DESTINATIONS ARE NOT AVAILABLE FOR ALL LEVEL CHANGES. FOR MORE DETAILS ABOUT TRANSFER INFORMATION SEE ANDERSON 1990.

GLOSSARY OF WASTE TERMS:
FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A

B:	B-PLANT HIGH-LEVEL WASTE
BL:	B-PLANT LOW-LEVEL WASTE
BNW:	BATTELLE PACIFIC NW LAB WASTE
CW:	COATING WASTE
CWP:	CLADDING WASTE-PUREX
DW:	DECONTAMINATION WASTE
EB:	EVAPORATOR BOTTOMS
FD:	FEED DILUTE
IX:	ION EXCHANGE WASTE
LW.	LABORATORY WASTE
MW:	METAL WASTE
N:	N-REACTOR WASTE
OWW:	ORGANIC WASH WASTE
P:	PUREX HIGH-LEVEL WASTE
PL:	PUREX LOW-LEVEL WASTE
PSS:	PUREX SLUDGE SUPERNATE
R:	REDOX HIGH-LEVEL WASTE
SS:	STRONTIUM SLUDGE
TBP:	TRIBUTYL PHOSPHATE
WTR:	WATER

LEGEND

- TOTAL WASTE LEVEL (SUPERNATE)
- TOTAL WASTE LEVEL (SOLIDS)
- SOLIDS LEVEL
- ASSUMED SOLIDS LEVEL
- SOLIDS

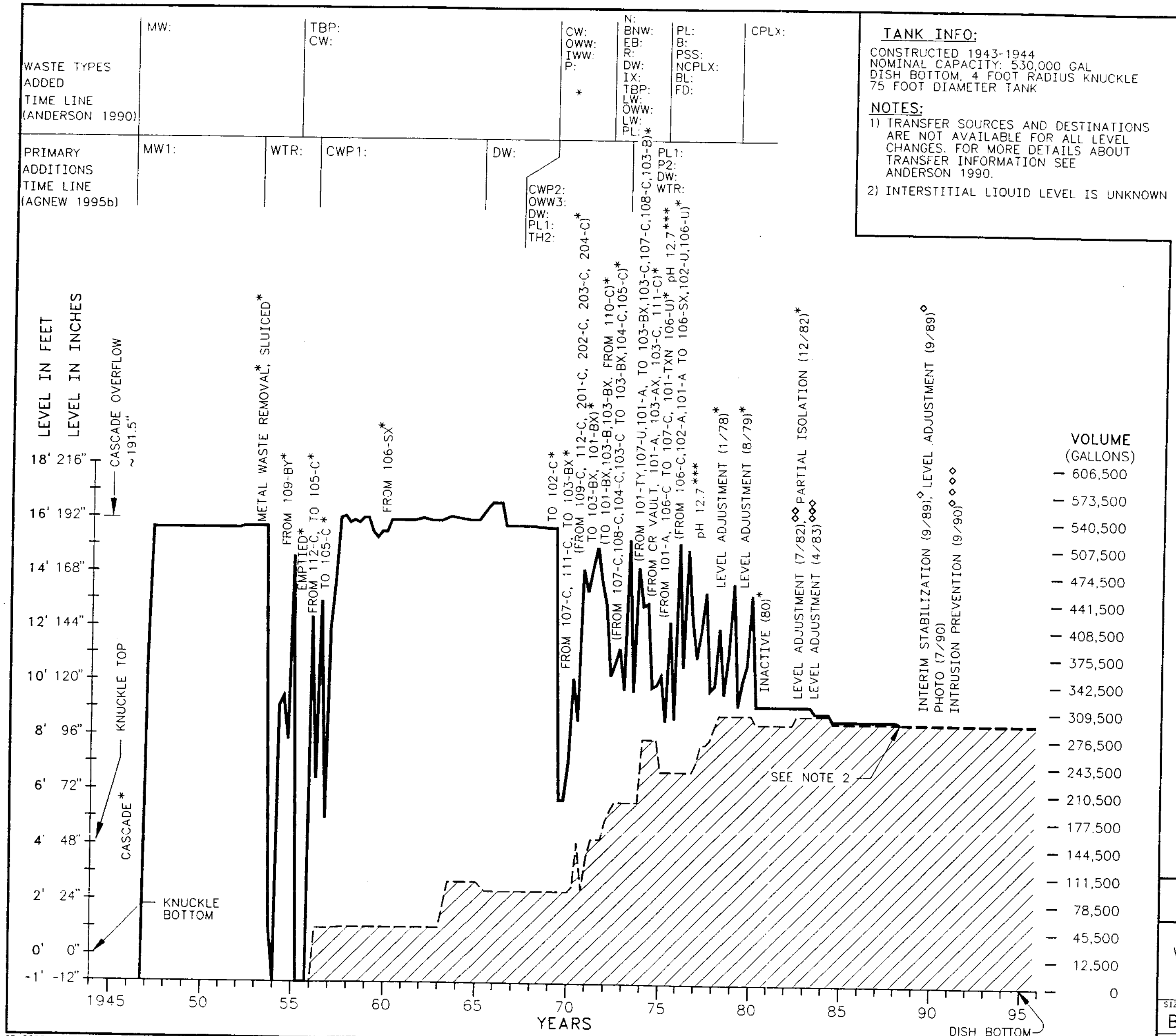


U.S. DEPARTMENT OF ENERGY
RICHLAND FIELD OFFICE
ICF KAISER HANFORD

241-C-103 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1946-1995
SOUND/NON-STABILIZED TANK
WATCH LIST: ORGANICS

SIZE	BLDG NO	DWG NO	DATE
B	241	ES-TKS-E53	5/96
SCALE NONE		JOB NO.	SHEET 1 OF 1

ITKSE053



TANK INFO:

CONSTRUCTED 1943-1944
NOMINAL CAPACITY: 530,000 GAL
DISH BOTTOM, 4 FOOT RADIUS KNUCKLE
75 FOOT DIAMETER TANK

NOTES:

1) TRANSFER SOURCES AND DESTINATIONS ARE NOT AVAILABLE FOR ALL LEVEL CHANGES. FOR MORE DETAILS ABOUT TRANSFER INFORMATION SEE ANDERSON 1990.
2) INTERSTITIAL LIQUID LEVEL IS UNKNOWN

REFERENCES

*	ANDERSON 1990
**	WELTY 1988
***	BORSHEIM AND KIRCH 1991
◊	HANLON 1996a
◊◊	McCANN 1982e
◊◊◊	McCANN 1983e
◊◊◊◊	HANLON 1991c

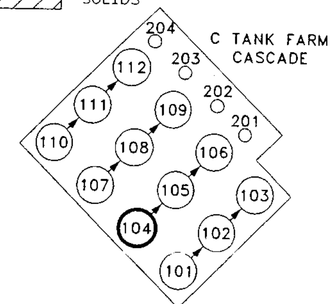
GLOSSARY OF WASTE TERMS:

FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A

B:	B-PLANT HIGH-LEVEL WASTE
BL:	B-PLANT LOW-LEVEL WASTE
BNW:	BATTELLE NORTHWEST LAB WASTE
CFLX:	COMPLEX WASTE
CW:	COATING (CLADDING)WASTE
CWP1:	COATING(CLADDING)WASTE-PUREX 1956-60
CWP2:	COATING(CLADDING)WASTE-PUREX 1961-72
DW:	DECONTAMINATION WASTE
EB:	EVAPORATOR BOTTOMS
FD:	FEED DILUTE
IX:	ION EXCHANGE WASTE
IWW:	INORGANIC WASTE WASH
LW:	LABORATORY WASTE
MW:	METAL WASTE
MW1:	METAL WASTE 1944-51
N:	N-REACTOR WASTE
NCPLX:	NON-COMPLEXED WASTE
OWW:	ORGANIC WASH WASTE
OWW3:	ORGANIC WASH WASTE 1956-62
P:	PUREX HIGH-LEVEL WASTE
P2:	PUREX HIGH-LEVEL WASTE 1963-67
PL:	PUREX LOW-LEVEL WASTE
PL1:	PUREX LOW-LEVEL WASTE
PSS:	PUREX SLUDGE SUPERNATANT
R:	REDOX HIGH-LEVEL WASTE
TBP:	TRIBUTYL PHOSPHATE
TH2:	THORIA
WTR:	WATER

LEGEND

TOTAL WASTE LEVEL (SUPERNATE)
TOTAL WASTE LEVEL (SOLIDS)
SOLIDS LEVEL
ASSUMED SOLIDS LEVEL
SOLIDS

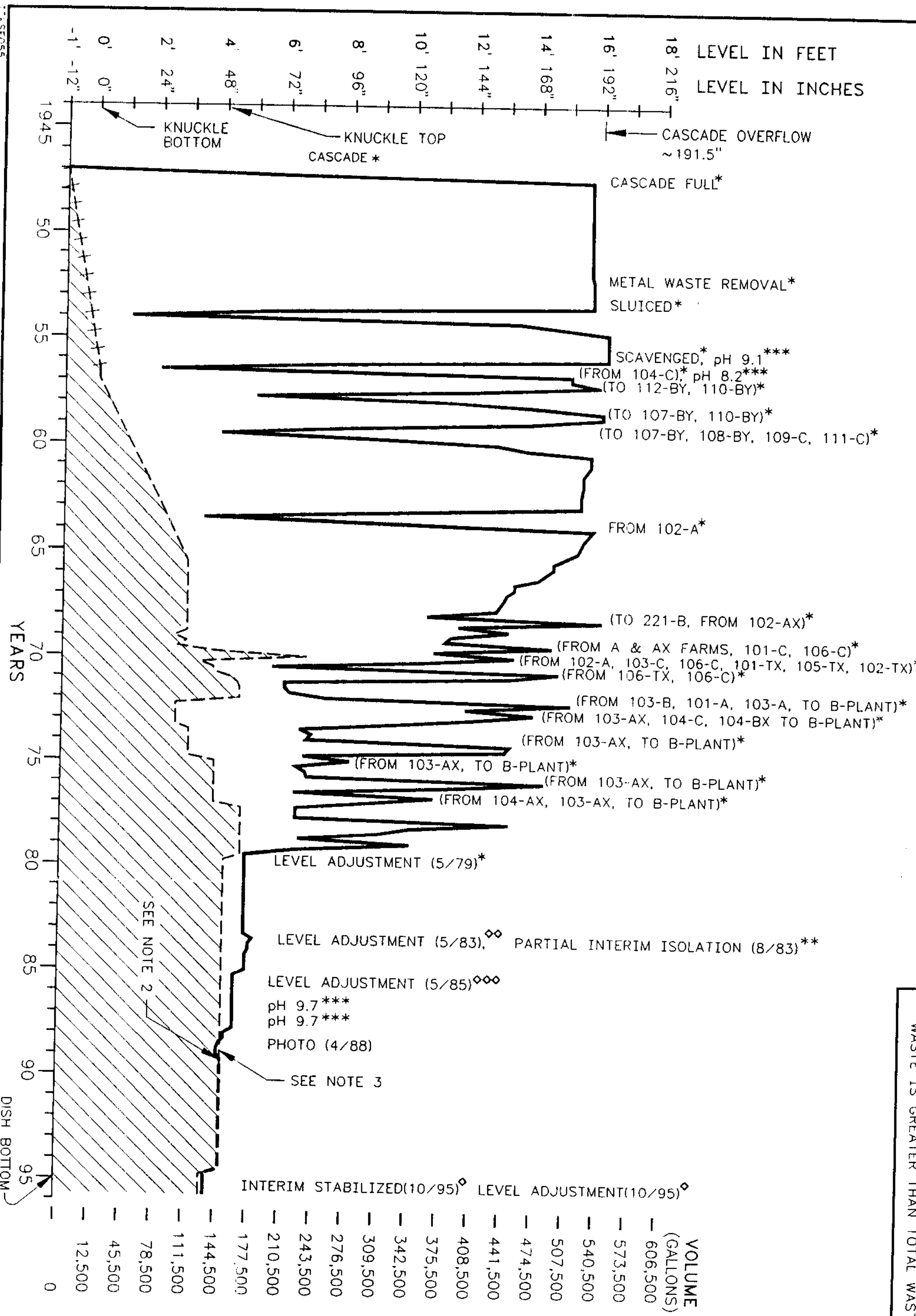


U.S. DEPARTMENT OF ENERGY
RICHLAND FIELD OFFICE
ICF KAISER HANFORD

241-C-104 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1946-1995
SOUND/STABILIZED TANK
WATCH LIST: N/A

SIZE	BLDG NO.	DWG NO.	DATE
B	241	ES-TKS-E54	5/96
SCALE NONE		JOB NO.	SHEET 1 OF 1

ITKSE054



TANK INFO:

CONSTRUCTED 1943-1944
NOMINAL CAPACITY: 530,000 GAL
DISH BOTTOM, 4 FOOT RADIUS KNUCKLE
75 FOOT DIAMETER TANK

NOTES:
1) TRANSFER SOURCES AND DESTINATIONS ARE NOT AVAILABLE FOR ALL LEVEL CHANGES. FOR MORE DETAILS ABOUT TRANSFER INFORMATION SEE ANDERSON 1990.
2) INTERSTIAL LIQUID LEVEL IS UNKNOWN.
3) DATA IS QUESTIONABLE BECAUSE ANDERSON 1990 INDICATES SOLIDS WASTE IS GREATER THAN TOTAL WASTE.

REFERENCES

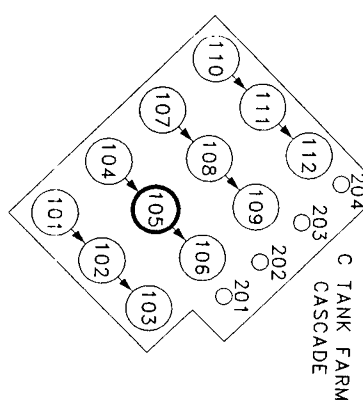
* ANDERSON 1990
** WELTY 1988
*** BORSHEIM AND KIRCH 1991
◇ HANLON 1996a
◇◇ McCANN 1983f
◇◇◇ VAIL 1985c

GLOSSARY OF WASTE TERMS:
FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A

AR: PUREX SLUDGE
BL: B-PLANT LOW-LEVEL WASTE
CF: CESIUM FEED
CPLX: COMPLEXED WASTE
CW: COATING(CLADDING)WASTE
CWP1: COATING(CLADDING)WASTE-PUREX
H_2O: WATER
MW: METAL WASTE
NCPLX: NON-COMPLEXED WASTE
P: PUREX HIGH-LEVEL WASTE
PSS: PUREX SLUDGE SUPERNATANT
R: REDOX HIGH-LEVEL WASTE
RSN: REDOX SUPERNATANT
TBP: TRIBUTYL PHOSPHATE
UNK: UNKNOWN
UR: URANIUM RECOVERY WASTE
WTR: WATER

LEGEND

TOTAL WASTE LEVEL (SUPERNATE)
TOTAL WASTE LEVEL (SOLIDS)
SOLIDS LEVEL
ASSUMED SOLIDS LEVEL
SOLIDS

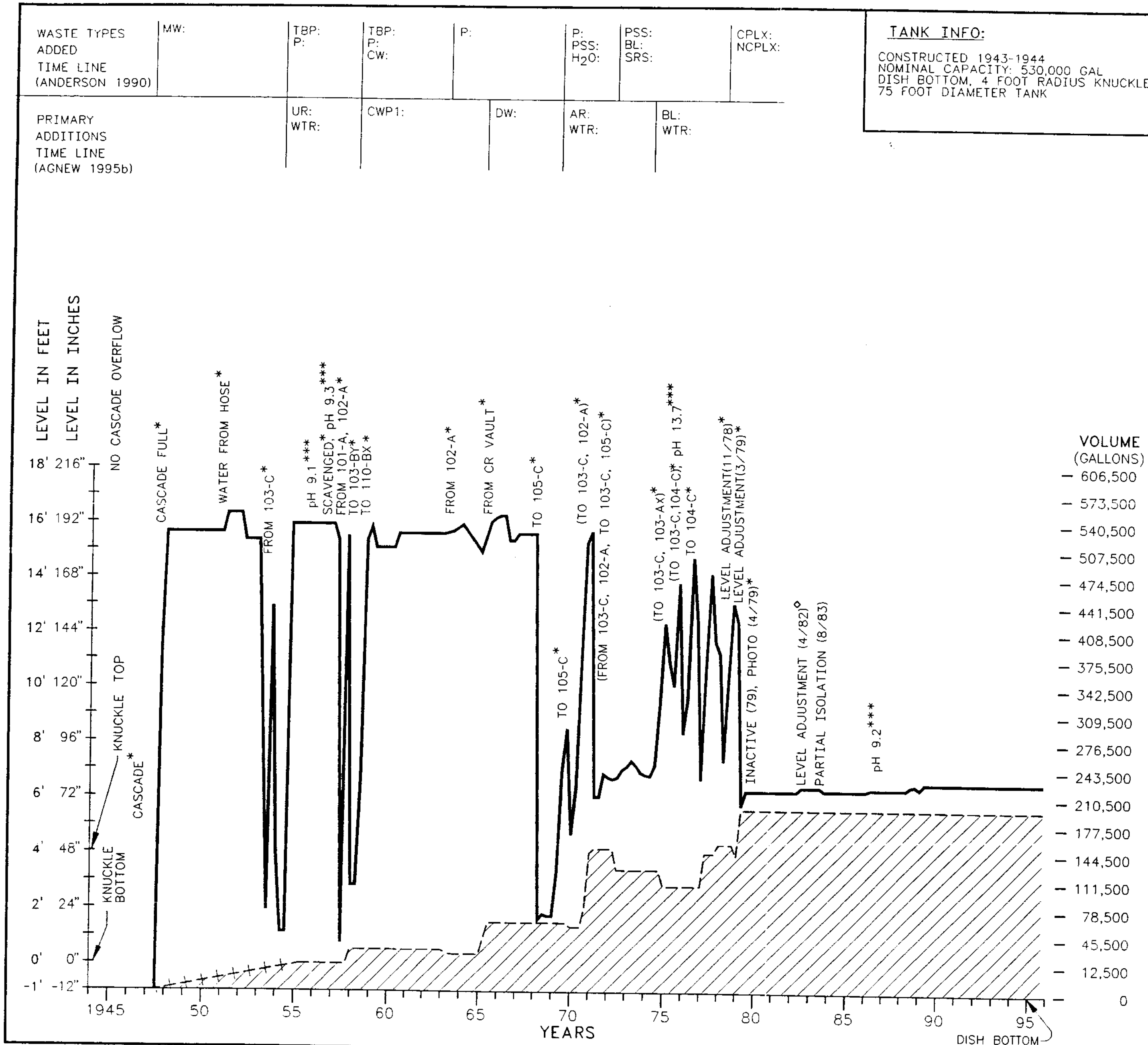


C TANK FARM CASCADE

U.S. DEPARTMENT OF ENERGY
RICHLAND FIELD OFFICE
ICF KAISER HANFORD

241-C-105 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1947-1995
SOUND/STABILIZED TANK
WATCH LIST: N/A

SIZE	BLDG NO.	DWG NO.	DATE
B	241	ES-TKS-E55	5/96
SCALE NONE	JOB NO.		SHEET 1 OF 1



TANK INFO:

CONSTRUCTED 1943-1944
NOMINAL CAPACITY: 530,000 GAL
DISH BOTTOM, 4 FOOT RADIUS KNUCKLE
75 FOOT DIAMETER TANK

REFERENCES

* ANDERSON 1990
** WELTY 1988
*** BORSHEIM AND KIRCH 1991
◇ HANLON 1996a

NOTES:

1) TRANSFER SOURCES AND DESTINATIONS ARE NOT AVAILABLE FOR ALL LEVEL CHANGES. FOR MORE DETAILS ABOUT TRANSFER INFORMATION SEE ANDERSON 1990.

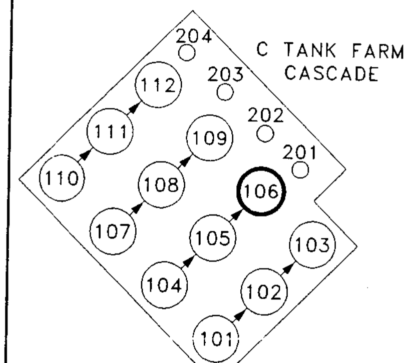
GLOSSARY OF WASTE TERMS:

FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A

AR: PUREX SLUDGE
BL: B-PLANT LOW-LEVEL WASTE
CPLX: COMPLEX WASTE
CW: COATING (CLADDING)WASTE
CWP1: COATING(CLADDING)WASTE-PUREX
DW: DECONTAMINATION WASTE
H_2O: WATER
MW: METAL WASTE
NCPLX: NON-COMPLEXED WASTE
P: PUREX HIGH-LEVEL WASTE
PSS: PUREX SLUDGE SUPERNATANT
SRS: STRONTIUM SLUDGE
TBP: TRIBUTYL PHOSPHATE
UR: URANIUM RECOVERY WASTE
WTR: WATER

LEGEND

TOTAL WASTE LEVEL (SUPERNATE)
TOTAL WASTE LEVEL (SOLIDS)
SOLIDS LEVEL
+++++ ASSUMED SOLIDS LEVEL
SOLIDS



U.S. DEPARTMENT OF ENERGY
RICHLAND FIELD OFFICE
ICF KAISER HANFORD

241-C-106 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1947-1995
SOUND/NON-STABILIZED TANK
WATCH LIST: HIGH-HEAT LOAD

SIZE	BLDG NO	DWG NO	DATE
B	241	ES-TKS-E56	5/96
SCALE NONE		JOB NO.	SHEET 1 OF 1

ITKSE056

WASTE TYPES ADDED TIME LINE (ANDERSON 1990)	1C:	TBP:	1C:	CW:	CW: HLO: HS:	CW: SSW: BNW: IX:	BNW: CW: DW: EB: IX: LW: N:	SRS: NCPLX:
PRIMARY ADDITIONS TIME LINE (AGNEW 1995b)	1C1:	UR:	WTR:	CWP2: HS: DW:		WTR: HS:		SRS:

TANK INFO:

CONSTRUCTED 1943-1944
NOMINAL CAPACITY: 530,000 GAL
DISH BOTTOM, 4 FOOT RADIUS KNUCKLE,
75 FOOT DIAMETER TANK

NOTES:

1) TRANSFER SOURCES AND DESTINATIONS ARE NOT AVAILABLE FOR ALL LEVEL CHANGES. FOR MORE DETAILS ABOUT TRANSFER INFORMATION SEE ANDERSON 1990.
2) INTERSTIAL LIQUID LEVEL IS UNKNOWN.

REFERENCES

- * ANDERSON 1990
- ** WELTY 1988
- *** BORSHEIM AND KIRCH 1991
- ◇ HANLON 1996a
- ◇◇ HANLON 1992d

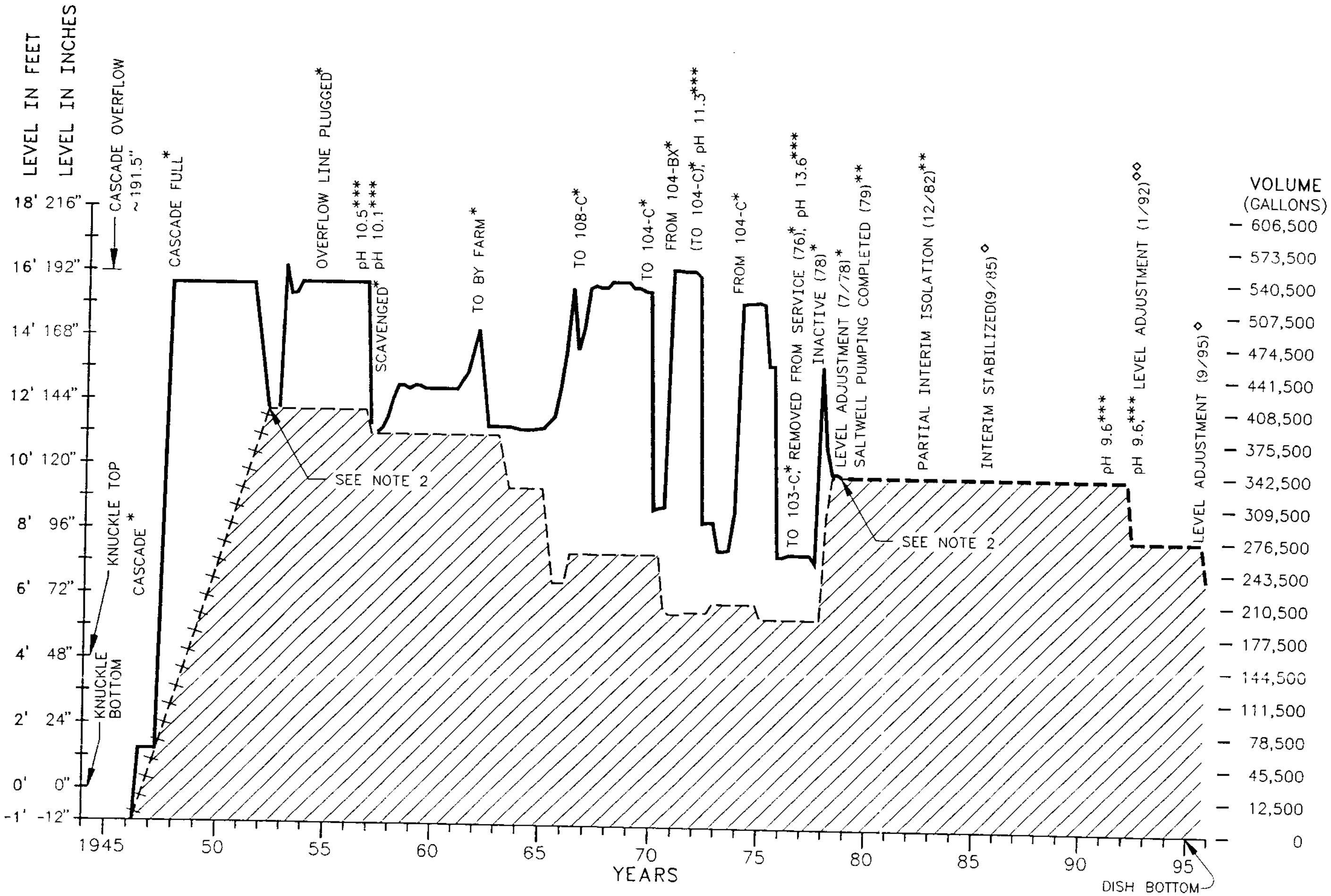
GLOSSARY OF WASTE TERMS:

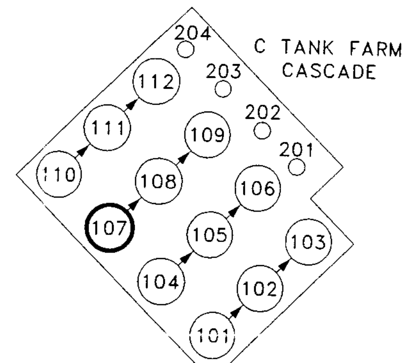
FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A

BNW: BATTELLE NORTHWEST LAB WASTE
CW: COATING (CLADDING)WASTE
CWP2: COATING(CLADDING) WASTE-PUREX 1961-72
DW: DECONTAMINATION WASTE
EB: EVAPORATOR BOTTOMS
HLO: HANFORD LABORATORY OPERATIONS
HS: HOT SEMI WORKS
IX: ION EXCHANGE WASTE
LW: LABORATORY WASTE
N: N-REACTOR WASTE
NCPLX: NON-COMPLEXED WASTE
SRS: STRONTIUM SLUDGE
SSW: STRONTIUM SEMI-WORKS
TBP: TRIBUTYL PHOSPHATE
UR: URANIUM RECOVERY WASTE
WTR: WATER
1C: FIRST CYCLE WASTE
1C1: FIRST CYCLE WASTE 1944-1951

LEGEND

TOTAL WASTE LEVEL (SUPERNATE)
TOTAL WASTE LEVEL (SOLIDS)
SOLIDS LEVEL
+++++ ASSUMED SOLIDS LEVEL
SOLIDS





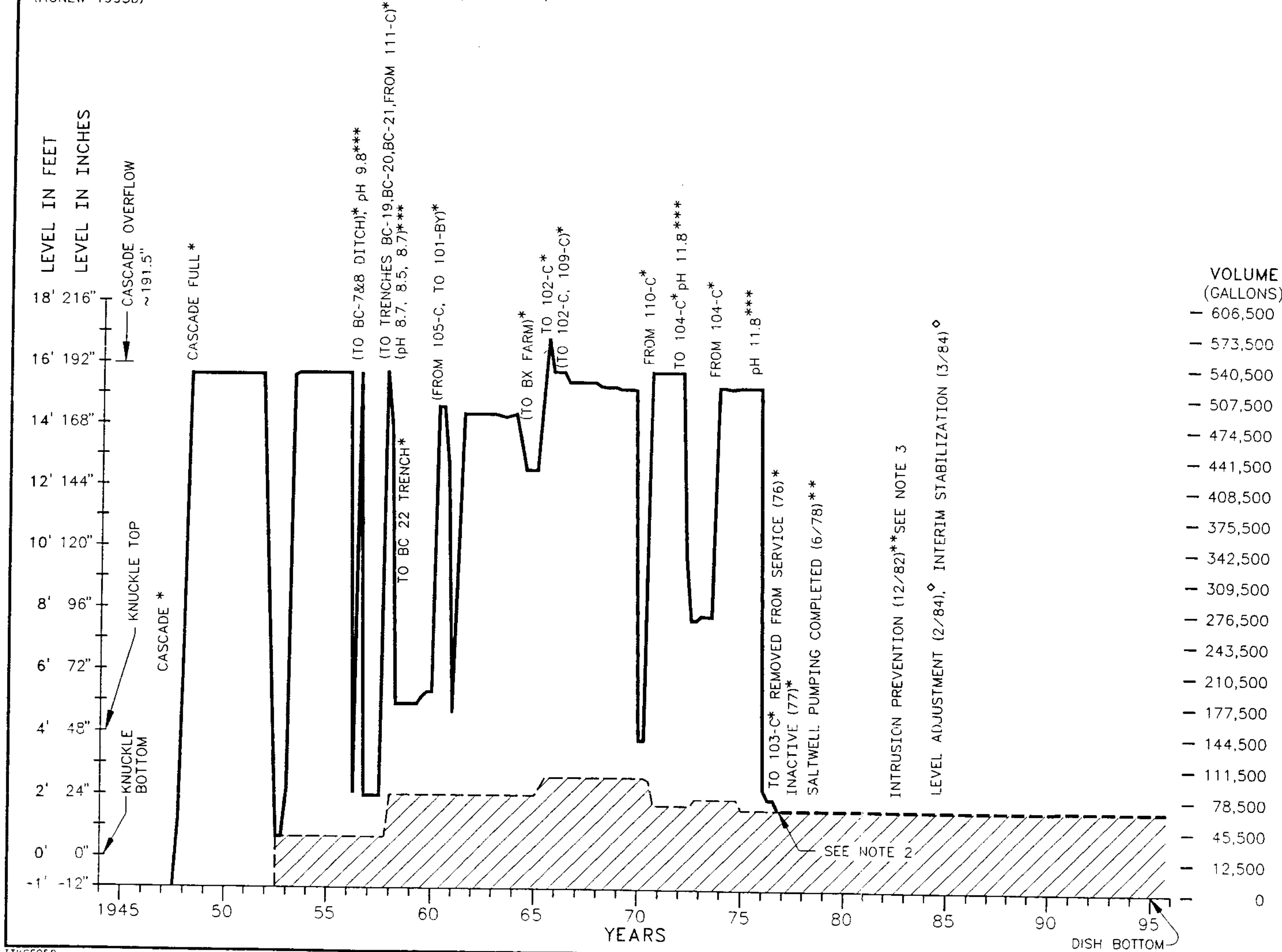
U.S. DEPARTMENT OF ENERGY
RICHLAND FIELD OFFICE
ICF KAISER HANFORD

241-C-107 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1946-1995
SOUND/STABILIZED TANK
WATCH LIST: N/A

SIZE	F.DG NO.	DWG NO	DATE
B	241	ES-TKS-E57	5/96
SCALE: NONE		JOB NO.	SHEET 1 OF 1

ITKSE057

WASTE TYPES ADDED TIME LINE (ANDERSON 1990)	1C:	TBP:	1C: TBP: EB:	TBP: CW:	CW: HS:	CW: SSW: OWW: IX:	CW: OWW: IX: BNW: N: LW: DW: TBP: R:	N: CW: DW: IX: R: OWW:
PRIMARY ADDITIONS TIME LINE (AGNEW 1995b)		UR:	WTR: TFeCN:	CWP2:	HS:			



TANK INFO:

CONSTRUCTED 1943-1944
NOMINAL CAPACITY: 530,000 GAL
DISH BOTTOM, 4 FOOT RADIUS KNUCKLE
75 FOOT DIAMETER TANK

REFERENCES

* ANDERSON 1990
** WELTY 1988
*** BORSHEIM AND KIRCH 1991
◇ HANLON 1996a

NOTES:

1) TRANSFER SOURCES AND DESTINATIONS ARE NOT AVAILABLE FOR ALL LEVEL CHANGES. FOR MORE DETAILS ABOUT TRANSFER INFORMATION SEE ANDERSON 1990.
2) INTERSTITIAL LIQUID LEVEL IS UNKNOWN.
3) IN JUNE 1993, INTERIM ISOLATION WAS REPLACED BY INTRUSION PREVENTION.

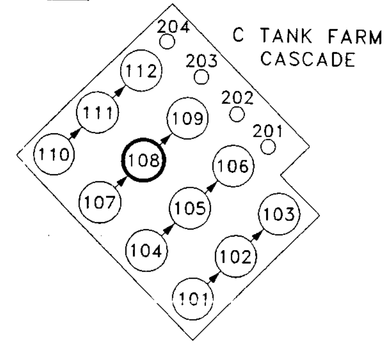
GLOSSARY OF WASTE TERMS:

FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A

BNW: BATTELLE NORTHWEST LABORATORY WASTE
CW: COATING (CLADDING)WASTE
CWP2: COATING(CLADDING)WASTE-PUREX 1961-72
DW: DECONTAMINATION WASTE
EB: EVAPORATOR BOTTOMS
HS: HOT SEMI-WORKS
IX: ION EXCHANGE WASTE
LW: LABORATORY WASTE
N: N-REACTOR WASTE
OWW: ORGANIC WASH WASTE
R: REDOX HIGH-LEVEL WASTE
SSW: STRONTIUM SEMI-WORKS WASTE
TBP: TRIBUTYL PHOSPHATE
TFeCN: IN-TANK FERROCYANIDE WASTE
UR: URANIUM RECOVERY WASTE
WTR: WATER
1C: FIRST CYCLE WASTE

LEGEND

TOTAL WASTE LEVEL (SUPERNATE)
TOTAL WASTE LEVEL (SOLIDS)
SOLIDS LEVEL
+++++ ASSUMED SOLIDS LEVEL
SOLIDS

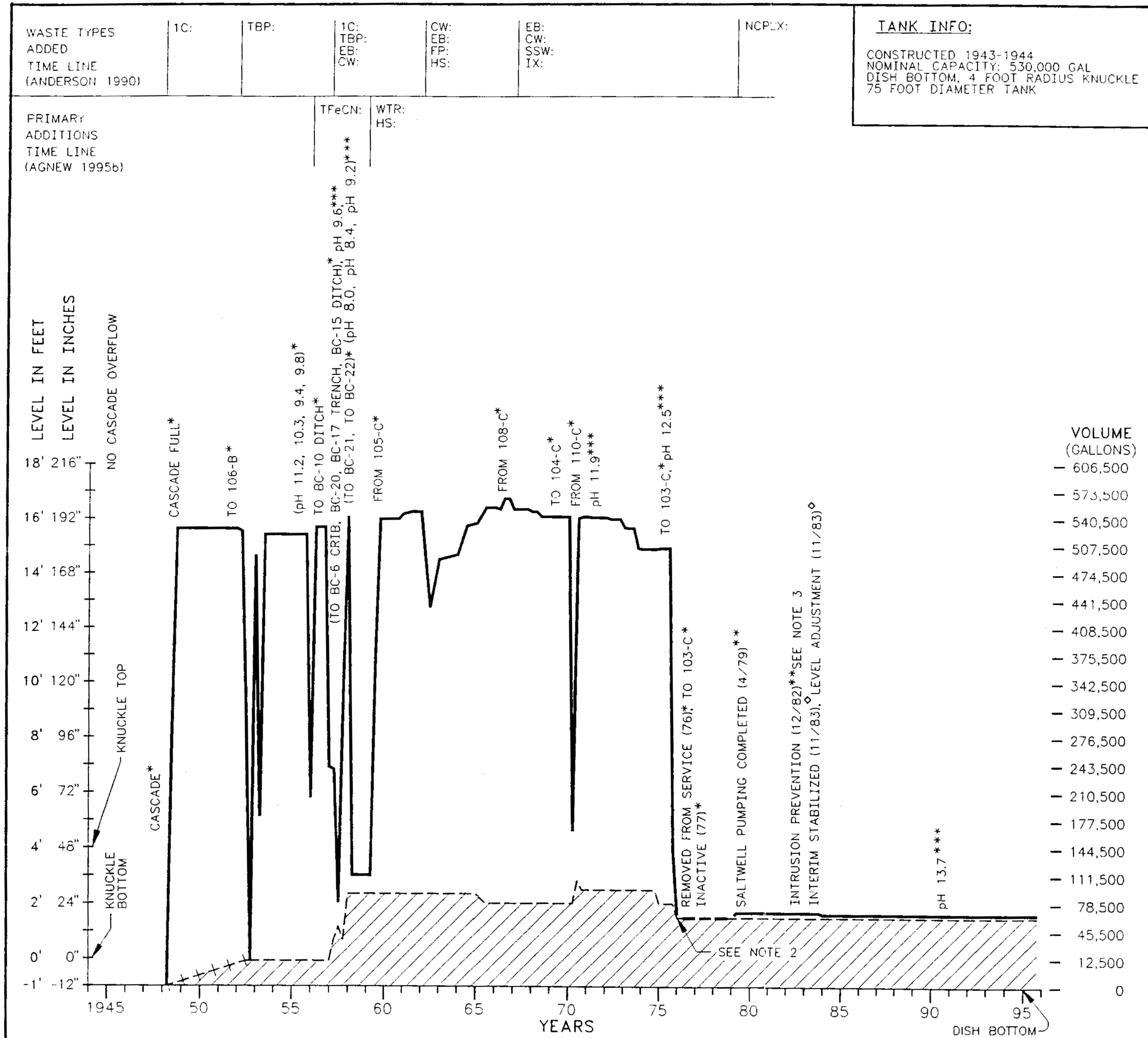


U.S. DEPARTMENT OF ENERGY
RICHLAND FIELD OFFICE
ICF KAISER HANFORD

241-C-108 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1947-1995
SOUND/STABILIZED TANK
WATCH LIST: FERROCYANIDE

SIZE	BLDG NO.	DWG NO	DATE
B	241	ES-TKS-E58	5/96
SCALE NONE		JOB NO.	SHEET 1 OF 1

ITKSE058



TANK INFO:

CONSTRUCTED 1943-1944
NOMINAL CAPACITY: 530,000 GAL
DISH BOTTOM, 4 FOOT RADIUS KNUCKLE
75 FOOT DIAMETER TANK

REFERENCES

* ANDERSON 1990
** WELTY 1988
*** BORSHEIM AND KIRCH 1991
◊ HANLON 1996a

NOTES:

1) TRANSFER SOURCES AND DESTINATIONS ARE NOT AVAILABLE FOR ALL LEVEL CHANGES. FOR MORE DETAILS ABOUT TRANSFER INFORMATION SEE ANDERSON 1990.
2) INTERSTITIAL LIQUID LEVEL IS UNKNOWN.
3) IN JUNE 1993, INTERIM ISOLATION WAS REPLACED BY INTRUSION PREVENTION.

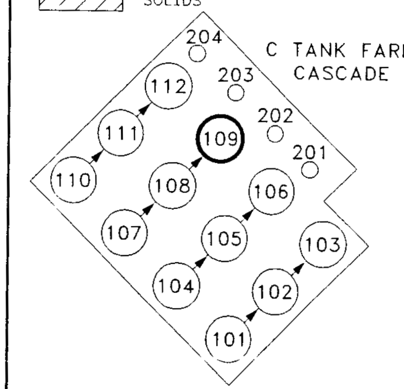
GLOSSARY OF WASTE TERMS:

FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A

CW: COATING(CLADDING)WASTE
EB: EVAPORATOR BOTTOMS
FP: FISSION PRODUCT WASTE
HS: HOT SEMI-WORKS
IX: ION EXCHANGE WASTE
SSW: STRONTIUM SEMI-WORKS
NCPLX: NON-COMPLEXED WASTE
TBP: TRIBUTYL PHOSPHATE
TFeCN: IN-TANK FERROCYANIDE WASTE
WTR: WATER
1C: FIRST CYCLE WASTE

LEGEND

TOTAL WASTE LEVEL (SUPERNATE)
TOTAL WASTE LEVEL (SOLIDS)
SOLIDS LEVEL
+++++ ASSUMED SOLIDS LEVEL
SOLIDS

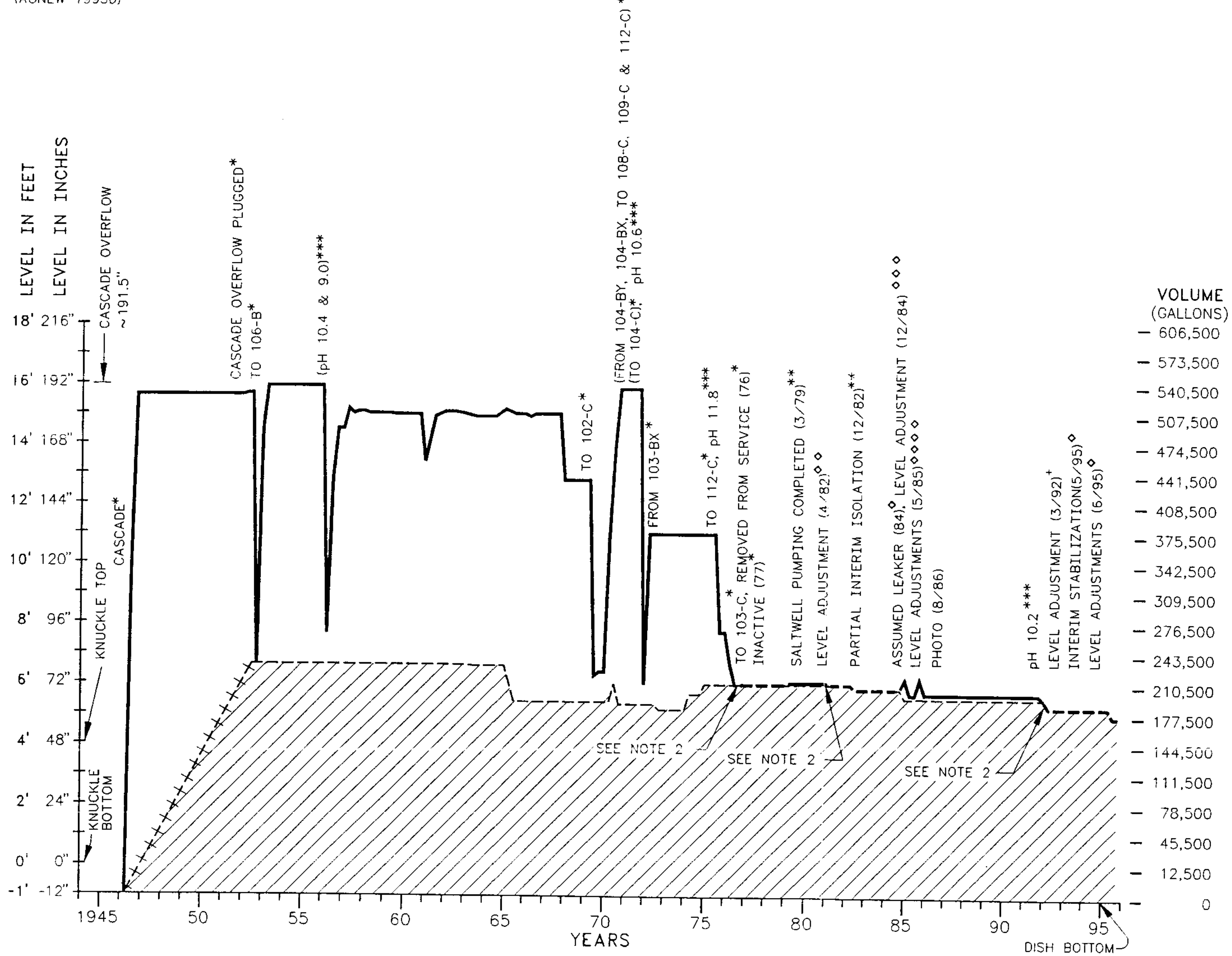


U.S. DEPARTMENT OF ENERGY
RICHLAND FIELD OFFICE
ICF KAISER HANFORD

241-C-109 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1948-1995
SOUND/STABILIZED TANK
WATCH LIST: FERROCYANIDE

SIZE	BLDG NO.	DWG NO	DATE
B	241	ES-TKS-E59	5/96
SCALE NONE		JOB NO.	SHEET 1 OF 1

WASTE TYPES ADDED TIME LINE (ANDERSON 1990)	1C:	TBP:	1C: OWW:	OWW: IX: EB:	CW: EB: OWW: RIX:	NCPLX:
PRIMARY ADDITIONS TIME LINE (AGNEW 1995b)	1C1:	UR:	OWW1			



TANK INFO:

CONSTRUCTED 1943-1944
NOMINAL CAPACITY: 530,000 GAL
DISH BOTTOM, 4 FOOT RADIUS KNUCKLE,
75 FOOT DIAMETER TANK

REFERENCES

* ANDERSON 1990
** WELTY 1988
*** BORSHEIM AND KIRCH 1991
◇ HANLON 1996a
◇◇ McCANN 1982b
◇◇◇ McCANN & VAIL 1985b
◇◇◇◇ VAIL 1985c
\+ HANLON 1992f

NOTES:

1) TRANSFER SOURCES AND DESTINATIONS ARE NOT AVAILABLE FOR ALL LEVEL CHANGES. FOR MORE DETAILS ABOUT TRANSFER INFORMATION SEE ANDERSON 1990.
2) INTERSTIAL LIQUID LEVEL IS UNKNOWN.

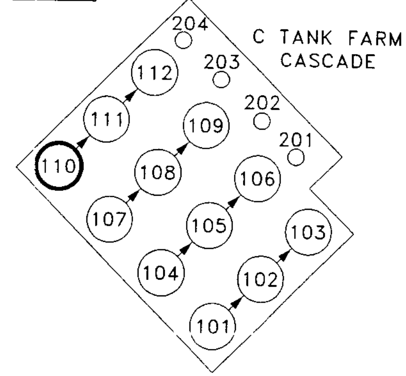
GLOSSARY OF WASTE TERMS:

FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A

CW: COATING (CLADDING)WASTE
EB: EVAPORATOR BOTTOMS
IX: ION EXCHANGE WASTE
NCPLX: NON-COMPLEXED WASTE
OWW: ORGANIC WASH WASTE
RIX: REDOX ION EXCHANGE WASTE
TBP: TRIBUTYL PHOSPHATE
UR: URANIUM RECOVERY WASTE
1C: FIRST CYCLE WASTE
1C1: FIRST CYCLE WASTE 1944-1951

LEGEND

TOTAL WASTE LEVEL (SUPERNATE)
TOTAL WASTE LEVEL (SOLIDS)
SOLIDS LEVEL
++++ ASSUMED SOLIDS LEVEL
SOLIDS



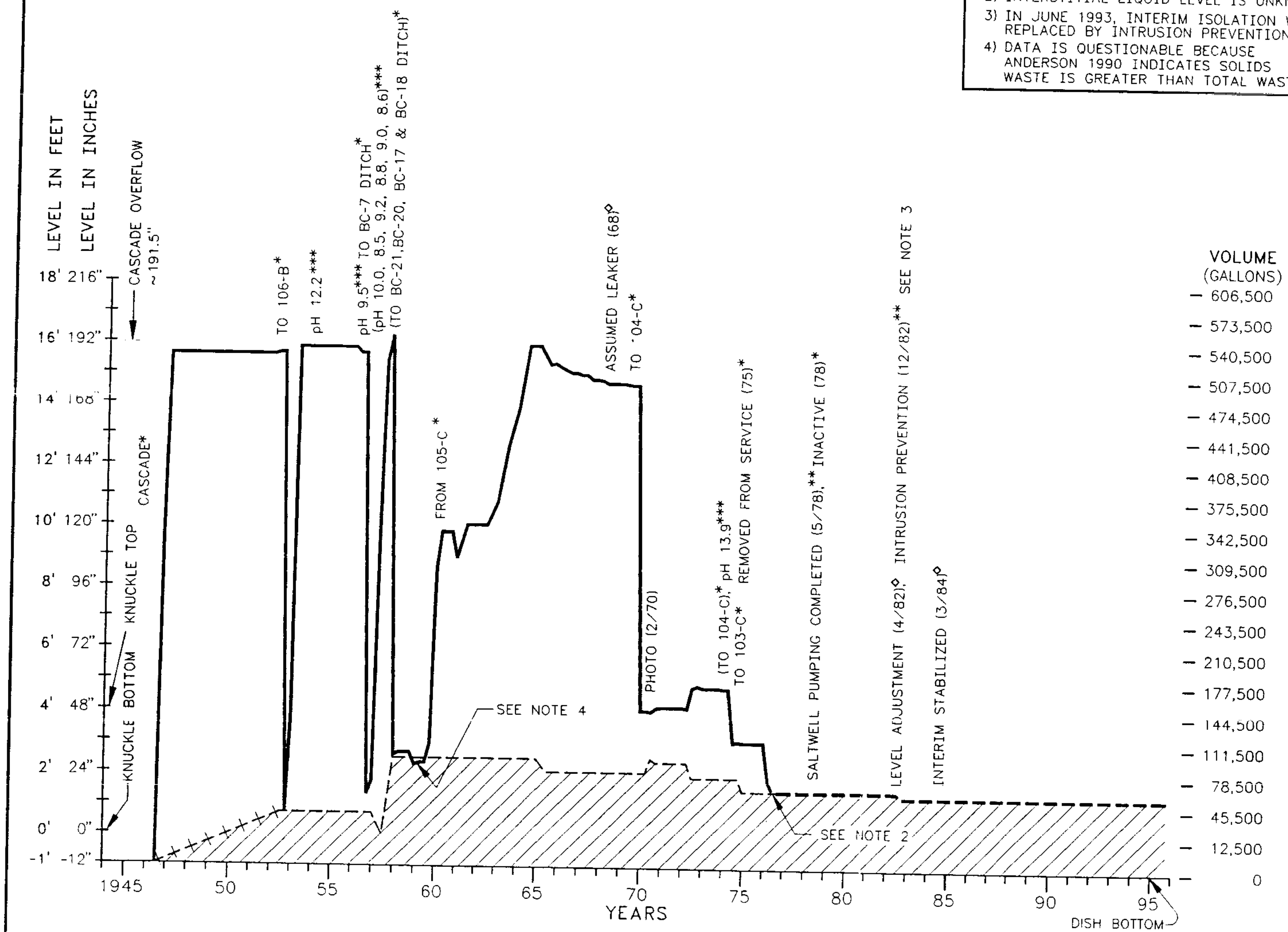
U.S. DEPARTMENT OF ENERGY
RICHLAND FIELD OFFICE
ICF KAISER HANFORD

241-C-110 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1946-1995
ASSUMED LEAKER/STABILIZED TANK
WATCH LIST: N/A

SIZE	E-DG NO	DWG NO	DATE
B	241	ES-TKS-E60	5/96
SCALE NONE		JOB NO.	SHEET 1 OF 1

ITKSE060

WASTE TYPES ADDED TIME LINE (ANDERSON 1990)	1C:	TBP:	OWW: 1C: CW: TBP: EB:	EB: CW: FP:	EB: CW: HS:	EB: CW: SSW:
PRIMARY ADDITIONS TIME LINE (AGNEW 1995b)		UR:	TFeCN: OWW1: CW1: WTR:	CWP1: HS:		WTR:



TANK INFO:

CONSTRUCTED 1943-1944
NOMINAL CAPACITY: 530,000 GAL
DISH BOTTOM, 4 FOOT RADIUS KNUCKLE
75 FOOT DIAMETER TANK

NOTES:

1) TRANSFER SOURCES AND DESTINATIONS ARE NOT AVAILABLE FOR ALL LEVEL CHANGES. FOR MORE DETAILS ABOUT TRANSFER INFORMATION SEE ANDERSON 1990.
2) INTERSTITIAL LIQUID LEVEL IS UNKNOWN.
3) IN JUNE 1993, INTERIM ISOLATION WAS REPLACED BY INTRUSION PREVENTION.
4) DATA IS QUESTIONABLE BECAUSE ANDERSON 1990 INDICATES SOLIDS WASTE IS GREATER THAN TOTAL WASTE.

REFERENCES

* ANDERSON 1990
** WELTY 1988
*** BORSHEIM AND KIRCH 1991
◊ HANLON 1996a

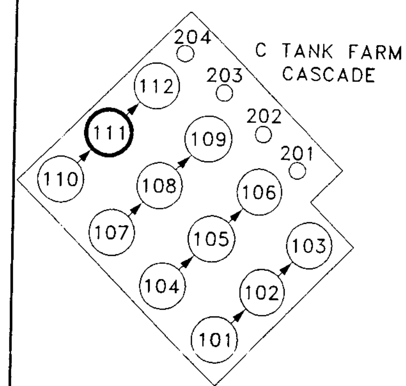
GLOSSARY OF WASTE TERMS:

FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A

CW: COATING(CLADDING) WASTE
CWP1: COATING(CLADDING)WASTE-PUREX 1956-60
EB: EVAPORATOR BOTTOMS
FP: FISSION PRODUCT WASTE
HS: HOT SEMIWORKS
OWW: ORGANIC WASH WASTE
OWW1: ORGANIC WASH WASTE 1956-62
SSW: STRONTIUM SEMIWORKS
TBP: TRIBUTYL PHOSPHATE
TFeCN: IN-TANK FERROCYANIDE WASTE
UR: URANIUM RECOVERY WASTE
WTR: WATER
1C: FIRST CYCLE WASTE

LEGEND

TOTAL WASTE LEVEL (SUPERNATE)
TOTAL WASTE LEVEL (SOLIDS)
SOLIDS LEVEL
+++++ ASSUMED SOLIDS LEVEL
SOLIDS



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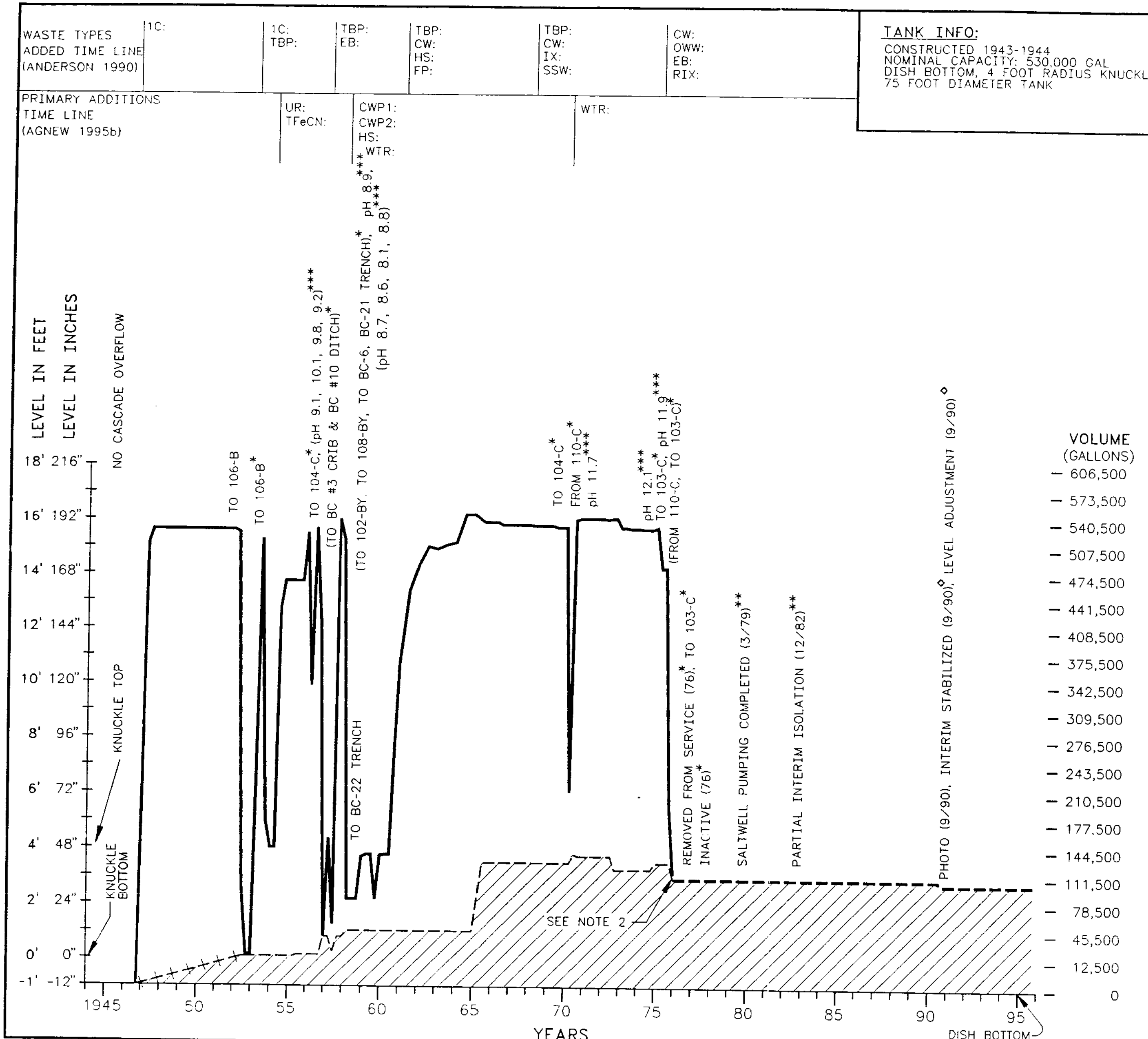
RICHLAND FIELD OFFICE
ICF KAISER HANFORD

241-C-111 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1946-1995
ASSUMED LEAKER/STABILIZED TANK
WATCH LIST: FERROCYANIDE

SIZE	BLDG NO.	DWG NO.	DATE
B	241	ES-TKS-E61	5/96
SCALE NONE		JOB NO.	SHEET 1 OF 1



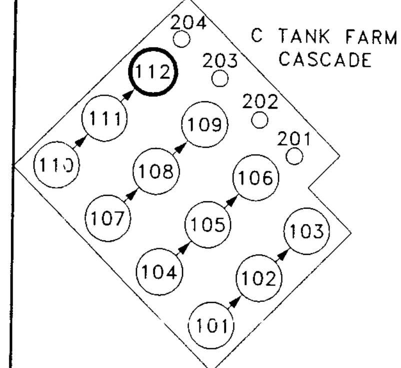
TANK INFO:
CONSTRUCTED 1943-1944
NOMINAL CAPACITY: 530,000 GAL
DISH BOTTOM, 4 FOOT RADIUS KNUCKLE
75 FOOT DIAMETER TANK

REFERENCES
* ANDERSON 1990
** WELTY 1988
*** BORSHEIM AND KIRCH 1991
◇ HANLON 1996a
◇◇ VAIL 1985e

NOTES:
1) TRANSFER SOURCES AND DESTINATIONS ARE NOT AVAILABLE FOR ALL LEVEL CHANGES. FOR MORE DETAILS ABOUT TRANSFER INFORMATION SEE ANDERSON 1990.
2) INTERSTITIAL LIQUID LEVEL IS UNKNOWN

GLOSSARY OF WASTE TERMS:
FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A
CW: COATING (CLADDING) WASTE
CWP1: COATING (CLADDING) WASTE-PUREX 1956-60
CWP2: COATING (CLADDING) WASTE-PUREX 1961-72
EB: EVAPORATOR BOTTOMS
FP: FISSION PRODUCT WASTE
HS: HOT SEMIWORKS
IX: ION EXCHANGE WASTE
OWW: ORGANIC WASH WASTE
RIX: REDOX ION EXCHANGE WASTE
SSW: STRONTIUM SEMI WORKS
TBP: TRIBUTYL PHOSPHATE
TFeCN: IN-TANK FERROCYANIDE WASTE
UR: URANIUM RECOVERY WASTE
WTR: WATER
1C: FIRST CYCLE WASTE

LEGEND
TOTAL WASTE LEVEL (SUPERNATE)
TOTAL WASTE LEVEL (SOLIDS)
SOLIDS LEVEL
+ + + + + ASSUMED SOLIDS LEVEL
SOLIDS



U.S. DEPARTMENT OF ENERGY
RICHLAND FIELD OFFICE
ICF KAISER HANFORD

241-C-112 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1946-1995
SOUND/STABILIZED TANK
WATCH LIST: FERROCYANIDE

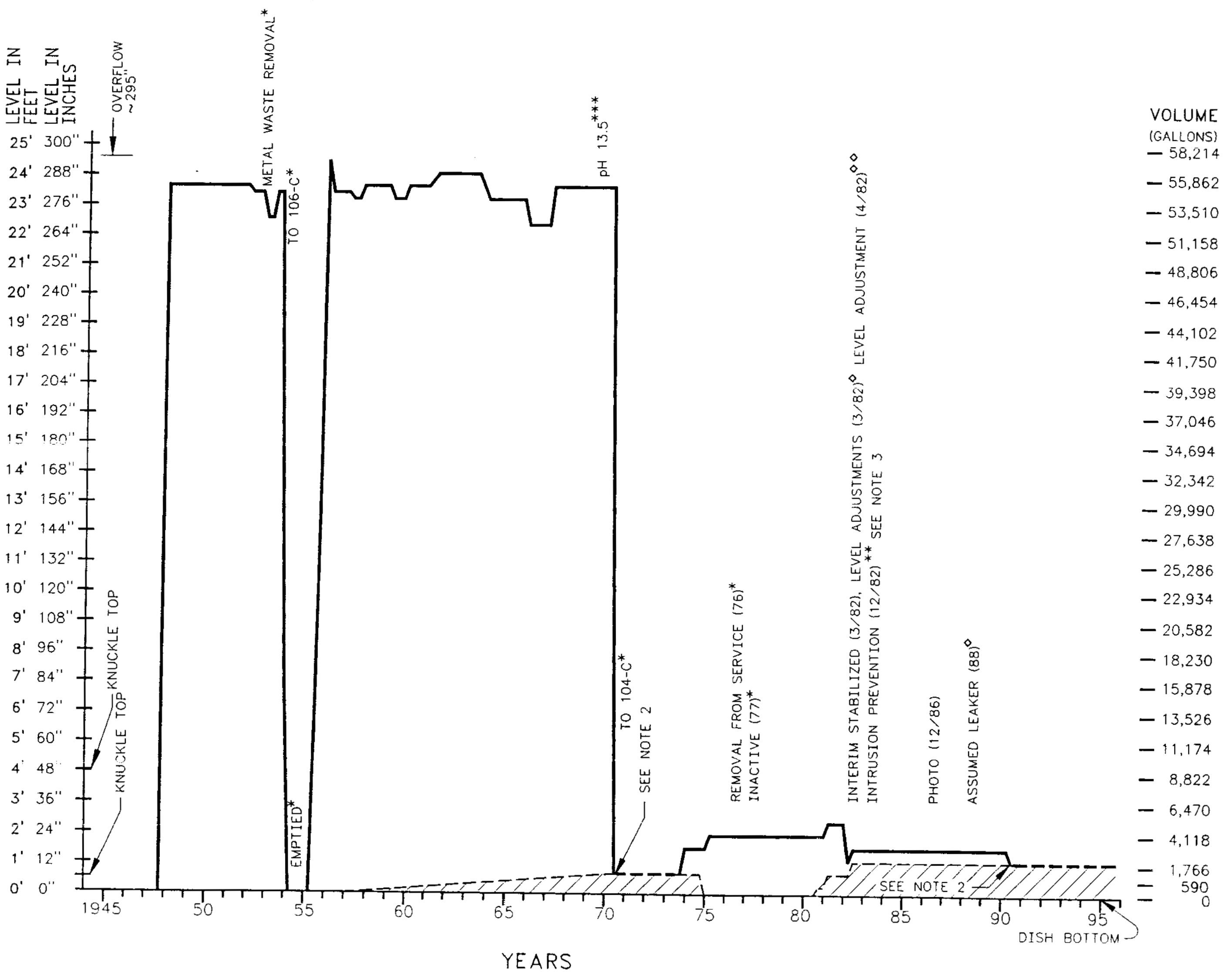
SIZE	BLDG NO.	DWG NO	DATE
B	241	ES-TKS-E62	5/96
SCALE NONE		JOB NO.	SHEET 1 OF 1

IT-SE062

WASTE TYPES ADDED TIME LINE (ANDERSON 1990)	MW:	HS: SSW:	SSW:	NCPLX:
PRIMARY ADDITIONS TIME LINE (AGNEW 1995b)	MW1:	HS:		

TANK INFO:

CONSTRUCTED 1943-1944
NOMINAL CAPACITY: 54,000 GAL
DISH BOTTOM, 3 FOOT RADIUS KNUCKLE, 20 FOOT DIAMETER TANK



REFERENCES

- * ANDERSON 1990
- ** WELTY 1988
- *** BORSHEIM AND KIRCH 1991
- ◇ HANLON 1996a
- ◇◇ McCANN 1982b

NOTES:

1) TRANSFER SOURCES AND DESTINATIONS ARE NOT AVAILABLE FOR ALL LEVEL CHANGES. FOR MORE DETAILS ABOUT TRANSFER INFORMATION SEE ANDERSON 1990.
2) INTERSTITIAL LIQUID LEVEL IS UNKNOWN
3) IN JUNE 1993, INTERIM ISOLATION WAS REPLACED BY INTRUSION PREVENTION.

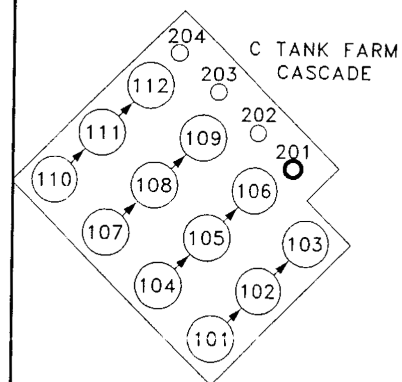
GLOSSARY OF WASTE TERMS:

FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A

- MW: METAL WASTE
- MW1: METAL WASTE 1944-51
- NCPLX: NON-COMPLEXED WASTE
- HS: HOT SEMIWORKS WASTE
- SSW: STRONTIUM SEMIWORKS

LEGEND

- TOTAL WASTE LEVEL (SUPERNATE)
- TOTAL WASTE LEVEL (SOLIDS)
- SOLIDS LEVEL
- ASSUMED SOLIDS LEVEL
- SOLIDS



U.S. DEPARTMENT OF ENERGY
RICHLAND FIELD OFFICE
ICF KAISER HANFORD

241-C-201 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1947-1995
ASSUMED LEAKER/STABILIZED TANK
WATCH LIST: N/A

SIZE	BLDG NO	DWG NO	DATE
B	241	ES-TKS-E63	5/96
SCALE NONE		JOB NO.	SHEET 1 OF 1

ITKSE063

WASTE TYPES ADDED TIME LINE (ANDERSON 1990)	MW:	SSW: HS:	SSW:	NCPLX:
PRIMARY ADDITIONS TIME LINE (AGNEW 1995b)	HS: WTR:			

TANK INFO:

CONSTRUCTED 1943-1944
NOMINAL CAPACITY: 55,000 GAL
DISH BOTTOM, 3 FOOT RADIUS KNUCKLE
20 FOOT DIAMETER TANK

REFERENCES

* ANDERSON 1990
** WELTY 1988
*** BORSHEIM AND KIRCH 1991
◇ HANLON 1996a
◇◇ VAIL 1985e

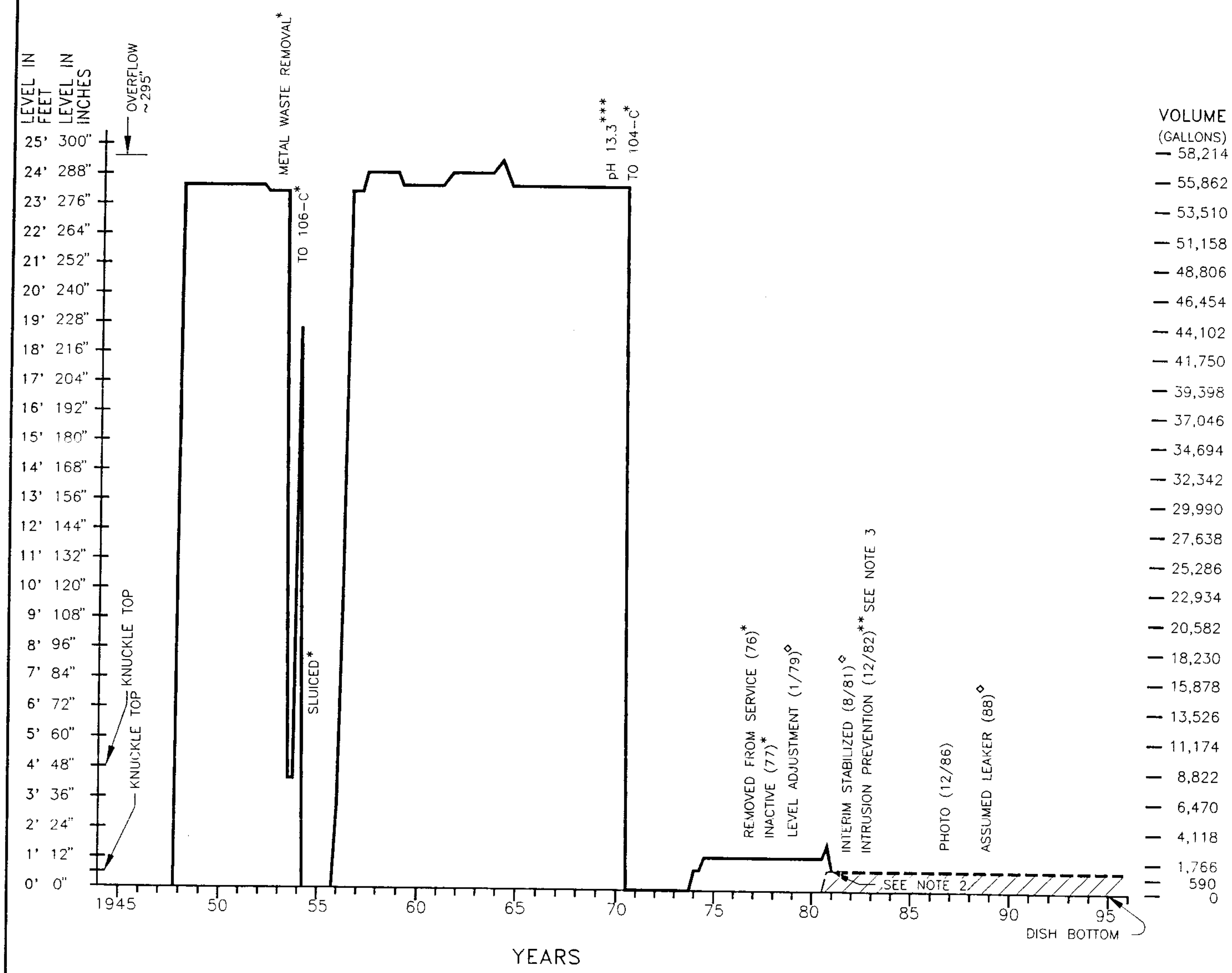
NOTES:

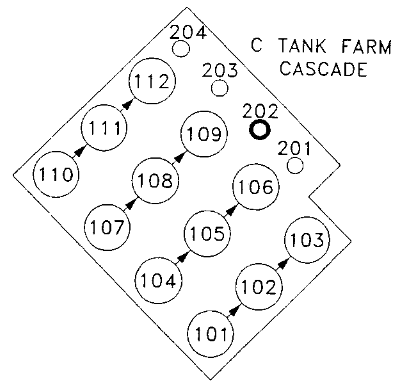
1) TRANSFER SOURCES AND DESTINATIONS ARE NOT AVAILABLE FOR ALL LEVEL CHANGES. FOR MORE DETAILS ABOUT TRANSFER INFORMATION SEE ANDERSON 1990.
2) INTERSTITIAL LIQUID LEVEL IS UNKNOWN.
3) IN JUNE 1993, INTERIM ISOLATION WAS REPLACED BY INTRUSION PREVENTION.

GLOSSARY OF WASTE TERMS:

FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A.

HS: HOT SEMIWORKS
MW: METAL WASTE
NCPLX: NON-COMPLEXED WASTE
SSW: STRONIUM SEMIWORKS
WTR: WATER





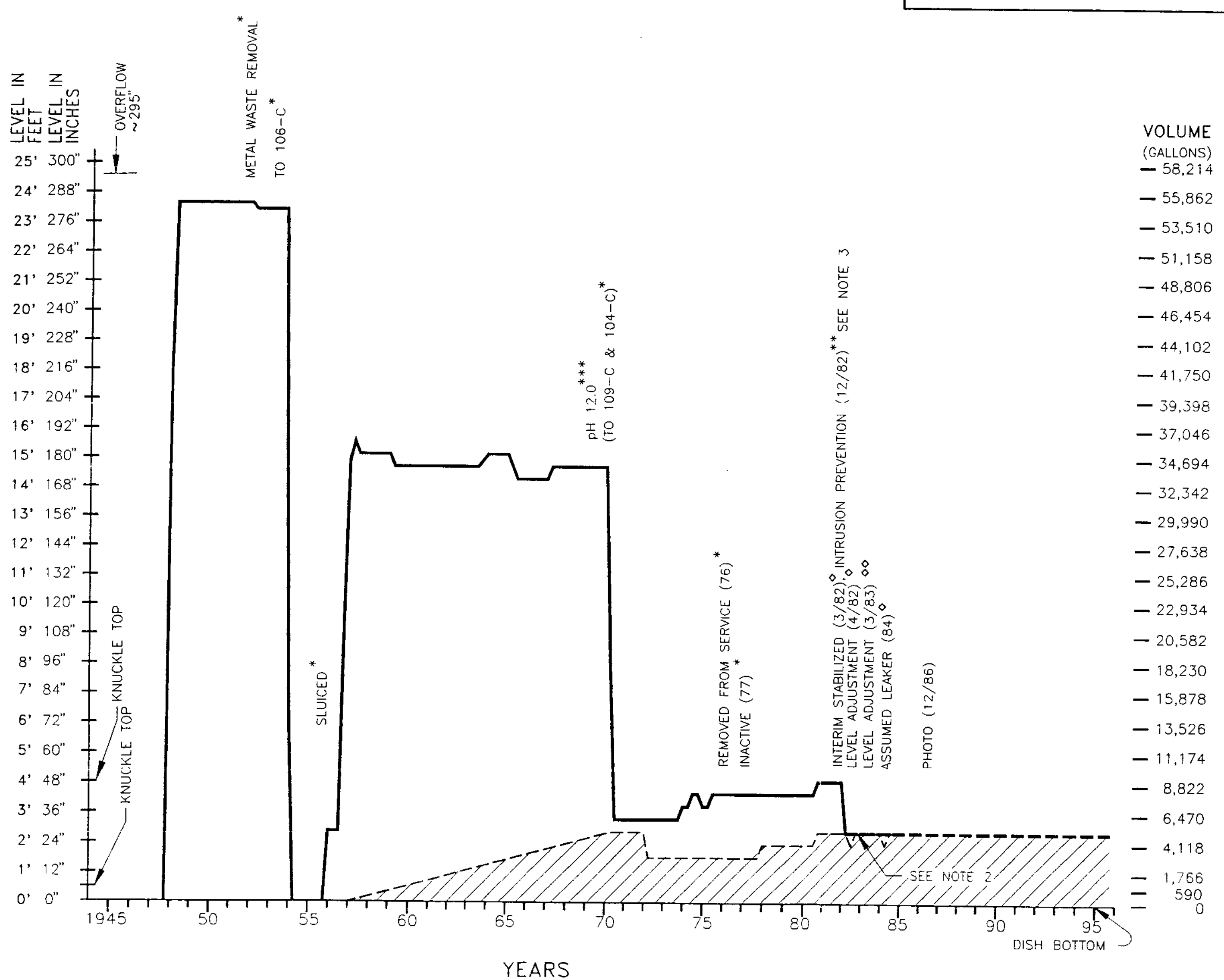
U.S. DEPARTMENT OF ENERGY
RICHLAND FIELD OFFICE
ICF KAISER HANFORD

241-C-202 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1947-1995
ASSUMED LEAKER/STABILIZED TANK
WATCH LIST: N/A

SIZE	BLDG NO.	DWG NO.	DATE
B	241	ES-TKS-E64	5/96
SCALE NONE		JOB NO.	SHEET 1 OF 1

TKSE064

WASTE TYPES ADDED TIME LINE (ANDERSON 1990)	MW:	SSW: HS:	SSW:	NCPLX:
PRIMARY ADDITIONS TIME LINE (AGNEW 1995b)	HS: WTR:			



TANK INFO:

CONSTRUCTED 1943–1944
NOMINAL CAPACITY: 55,000 GAL
3 FOOT RADIUS KNUCKLE, DISH BOTTOM,
20 FOOT DIAMETER TANK

REFERENCES

- * ANDERSON 1990
- ** WELTY 1988
- *** BORSHEIM AND KIRCH 1991
- ◇ HANLON 1996a
- ◇◇ McCANN 1982a

NOTES:

1) TRANSFER SOURCES AND DESTINATIONS ARE NOT AVAILABLE FOR ALL LEVEL CHANGES. FOR MORE DETAILS ABOUT TRANSFER INFORMATION SEE ANDERSON 1990.
2) INTERSTITIAL LIQUID LEVEL IS UNKNOWN.
3) IN JUNE 1993, INTERIM ISOLATION WAS REPLACED BY INTRUSION PREVENTION.

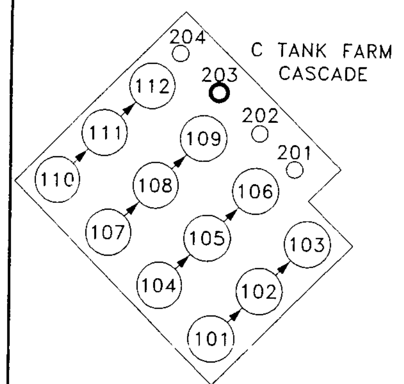
GLOSSARY OF WASTE TERMS:

FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A.

HS:	HOT SEMI-WORKS
MW:	METAL WASTE
NCPLX:	NON-COMPLEXED WASTE
SSW:	STRONIUM SEMIWORKS
WTR:	WATER

LEGEND

———	TOTAL WASTE LEVEL (SUPERNATE)
— — —	TOTAL WASTE LEVEL (SOLIDS)
- - - -	SOLIDS LEVEL
+++++	ASSUMED SOLIDS LEVEL
//////	SOLIDS



U.S. DEPARTMENT OF ENERGY
RICHLAND FIELD OFFICE
ICF KAISER HANFORD

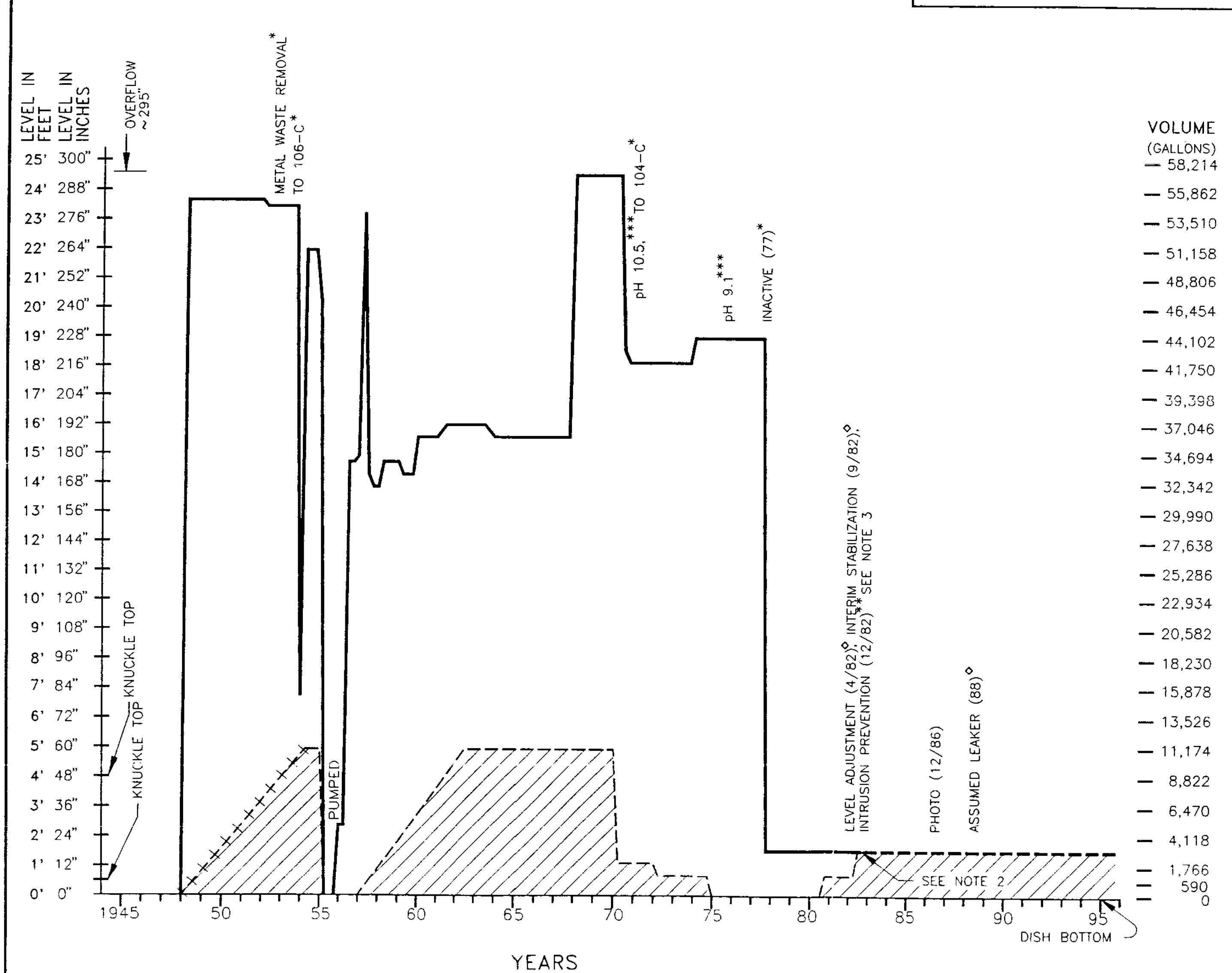
241-C-203 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1947–1995
ASSUMED LEAKER/STABILIZED TANK
WATCH LIST: N/A

SIZE	BLDG NO.	DWG NO.	DATE
B	241	ES-TKS-E65	5/96
SCALE NONE		JOB NO.	SHEET 1 OF 1

ITHSEC65

WASTE TYPES ADDED TIME LINE (ANDERSON 1990) — MW: | HS: SSW: | SSW: | NCPLX:

PRIMARY ADDITIONS TIME LINE (AGNEW 1995b) — HS: WTR: | HS:



TANK INFO:

CONSTRUCTED 1943-1944
NOMINAL CAPACITY: 55,000 GAL
DISH BOTTOM, 3 FOOT RADIUS KNUCKLE,
20 FOOT DIAMETER TANK

REFERENCES

* ANDERSON 1990
** WELTY 1988
*** BORSHEIM AND KIRCH 1991
◇ HANLON 1996a
◇◇ VAIL 1985e

NOTES:

1) TRANSFER SOURCES AND DESTINATIONS ARE NOT AVAILABLE FOR ALL LEVEL CHANGES. FOR MORE DETAILS ABOUT TRANSFER INFORMATION SEE ANDERSON 1990.
2) INTERSTITIAL LIQUID LEVEL IS UNKNOWN.
3) IN JUNE 1993, INTERIM ISOLATION WAS REPLACED BY INTRUSION PREVENTION.

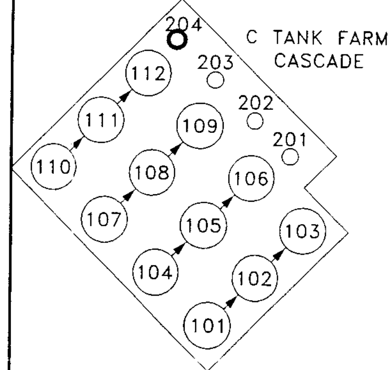
GLOSSARY OF WASTE TERMS:

FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A.

HS: HOT SEMIWORKS
MW: METAL WASTE
NCPLX: NON-COMPLEXED WASTE
SSW: STRONIUM SEMIWORKS
WTR: WATER

LEGEND

TOTAL WASTE LEVEL (SUPERNATE)
TOTAL WASTE LEVEL (SOLIDS)
SOLIDS LEVEL
ASSUMED SOLIDS LEVEL
SOLIDS



U.S. DEPARTMENT OF ENERGY
RICHLAND FIELD OFFICE
ICF KAISER HANFORD

241-C-204 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1948-1995
ASSUMED LEAKER/STABILIZED TANK
WATCH LIST: N/A

SIZE	BLDG NO.	DWG NO	DATE
B	241	ES-TKS-E66	5/96
SCALE NONE		JOB NO.	SHEET 1 OF 1

TKSE066

241-C-101 LEVEL HISTORY

Year	Total	Total	Solids	Solids
	(K gal)	(in)	(K gal)	(in)
1-1944				
2				
3				
4				
1-1945				
2				
3				
4				
1-1946	111	36		
2	528	187		
3	528	187		
4	528	187		
1-1947	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1948	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1949	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1950	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1951	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1952	530	188		
2	530	188		
3	530	188		
4				
1-1953				
2	422	149		
3	222	76		
4	517	183		
1-1954	510	181		
2	510	181		
3	510	181		
4	510	181		
1-1955	510	181		
2	510	181		

241-C-101 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
3	510	181		
4	326	114		
1-1956	485	172		
2	485	172		
3	161	54		
4	131	43		
1-1957	98	31		
2	483	171		
3	178	60		
4	131	43		
1-1958	150	50	98	31
2	125	41	98	31
3	125	41	98	31
4	125	41	98	31
1-1959	125	41	98	31
2	128	42	98	31
3	131	43	98	31
4	131	43	98	31
1-1960	131	43	98	31
2	131	43	98	31
3	131	43	98	31
4	150	50	98	31
1-1961				
2	510	181	98	31
3				
4	510	181	98	31
1-1962				
2	524	186	98	31
3				
4	524	186	98	31
1-1963				
2	524	186	109	35
3				
4	370	130	109	35
1-1964				
2	542	193	109	35
3				
4	546	194	109	35
1-1965				
2	574	204	51	14
3	568	202	51	14
4	565	201	51	14
1-1966	563	200	51	14
2	571	203	51	14
3	656	234	51	14
4	563	200	51	14

241-C-101 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1967	557	198	51	14
2	555	197	51	14
3	555	197	51	14
4	549	195	51	14
1-1968	545	194	51	14
2	545	194	51	14
3	545	194	51	14
4	541	192	51	14
1-1969	541	192	51	14
2	538	191	51	14
3	538	191	106	34
4	132	43	125	41
1-1970	134	44	87	27
2	134	44	87	27
3	136	45	81	25
4	138	46	81	25
1-1971	131	43	81	25
2	131	43	81	25
3	128	42	81	25
4	127	42	81	25
1-1972	125	41	81	25
2	125	41	81	25
3	124	41	81	25
4	120	39	81	25
1-1973	121	39	81	25
2	120	39	81	25
3	120	39	81	25
4	131	43	81	25
1-1974	129	42	81	25
2	128	42	81	25
3	81	25	81	25
4	92	29	62	18
1-1975	92	29	62	18
2	92	29	62	18
3	92	29	62	18
4	92	29	62	18
1-1976	92	29	62	18
2	73	22	73	22
3	73	22	73	22
4	73	22	73	22
1-1977	73	22	73	22
2	73	22	73	22
3	73	22	73	22
4	73	22	73	22
1-1978	73	22	73	22
2	73	22	73	22

241-C-101 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
3	73	22	73	22
4	73	22	73	22
1-1979	73	22	73	22
2	73	22	73	22
3	73	22	73	22
4	73	22	73	22
1-1980	73	22	73	22
2	73	22	73	22
3	73	22	73	22
4	73	22	73	22
1-1981	73	22	73	22
2	73	22	73	22
3	73	22	73	22
4	73	22	73	22
1-1982	73	22	73	22
2	90	28	90	28
3	90	28	90	28
4	90	28	90	28
1-1983	90	28	90	28
2	90	28	90	28
3	90	28	90	28
4	88	27	88	27
1-1984	88	27	88	27
2	88	27	88	27
3	88	27	88	27
4	88	27	88	27
1-1985	88	27	88	27
2	88	27	88	27
3	88	27	88	27
4	88	27	88	27
1-1986	88	27	88	27
2	88	27	88	27
3	88	27	88	27
4	88	27	88	27
1-1987	88	27	88	27
2	88	27	88	27
3	88	27	88	27
4	88	27	88	27
1-1988	88	27	88	27
2	88	27	88	27
3	88	27	88	27
4	88	27	88	27
1-1989	88	27	88	27
2	88	27	88	27
3	88	27	88	27
4	88	27	88	27

241-C-101 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1990	88	27	88	27
2	88	27	88	27
3	88	27	88	27
4	88	27	88	27
1-1991	88	27	88	27
2	88	27	88	27
3	88	27	88	27
4	88	27	88	27
1-1992	88	27	88	27
2	88	27	88	27
3	88	27	88	27
4	88	27	88	27
1-1993	88	27	88	27
2	88	27	88	27
3	88	27	88	27
4	88	27	88	27
1-1994	88	27	88	27
2	88	27	88	27
3	88	27	88	27
4	88	27	88	27
1-1995	88	27	88	27
2	88	27	88	27
3	88	27	88	27

241-C-102 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1944				
2				
3				
4				
1-1945				
2				
3				
4				
1-1946				
2	195	66		
3	528	187		
4	528	187		
1-1947	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1948	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1949	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1950	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1951	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1952	530	188		
2	530	188		
3	530	188		
4				
1-1953				
2				
3	467	165		
4	508	180		
1-1954	530	188		
2	530	188		
3	530	188		
4	530	188		
1-1955	530	188		
2	530	188		

241-C-102 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
3	530	188		
4	530	188		
1-1956	530	188		
2	530	188		
3	530	188		
4	530	188		
1-1957	98	31		
2	48	13		
3	48	13		
4	48	13		
1-1958	150	50	98	31
2	37	9		
3	37	9		
4	37	9		
1-1959	37	9		
2	37	9		
3	34	8		
4	34	8		
1-1960	34	8		
2	34	8		
3	378	133		
4	491	174		
1-1961				
2	521	185		
3				
4	519	184		
1-1962				
2	356	125		
3				
4	370	130		
1-1963				
2	334	117		
3				
4	450	159		
1-1964				
2	407	143		
3				
4	442	156		
1-1965				
2	326	114	238	82
3	447	158	238	82
4	461	163	238	82
1-1966	472	167	238	82
2	472	167	238	82
3	464	164	238	82
4	453	160	238	82

241-C-102 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1967	499	177	238	82
2	486	172	238	82
3	486	172	238	82
4	444	157	238	82
1-1968	476	169	238	82
2	466	165	238	82
3	455	161	238	82
4	457	162	307	107
1-1969	462	163	332	116
2	458	162	369	130
3	501	178	[illegible]	123
4	486	172	[illegible]	121
1-1970	486	172	326	114
2	486	172	312	109
3	486	172	299	104
4	486	172	299	104
1-1971	480	170	299	104
2	480	170	299	104
3	480	170	299	104
4	479	170	299	104
1-1972	475	168	299	104
2	477	169	299	104
3	474	168	299	104
4	475	168	299	104
1-1973	484	171	299	104
2	483	171	299	104
3	465	165	299	104
4	466	165	299	104
1-1974	467	165	299	104
2	467	165	299	104
3	467	165	299	104
4	466	165	332	116
1-1975	466	165	332	116
2	466	165	332	116
3	466	165	332	116
4	431	152	332	116
1-1976	431	152	62	18
2	431	152	431	152
3	431	152	431	152
4	431	152	431	152
1-1977	431	152	431	152
2	431	152	431	152
3	431	152	431	152
4	431	152	431	152
1-1978	431	152	431	152
2	431	152	431	152

241-C-102 LEVEL HISTORY

Year	Total	Total	Solids	Solids
	(K gal)	(in)	(K gal)	(in)
3	431	152	431	152
4	431	152	431	152
1-1979	431	152	431	152
2	431	152	431	152
3	431	152	431	152
4	431	152	431	152
1-1980	431	152	431	152
2	431	152	431	152
3	431	152	431	152
4	431	152	431	152
1-1981	431	152	431	152
2	431	152	431	152
3	431	152	431	152
4	431	152	431	152
1-1982	431	152	431	152
2	427	151	424	150
3	427	151	424	150
4	427	151	424	150
1-1983	427	151	424	150
2	427	151	424	150
3	427	151	424	150
4	427	151	424	150
1-1984	427	151	424	150
2	427	151	424	150
3	427	151	424	150
4	427	151	424	150
1-1985	427	151	424	150
2	427	151	424	150
3	427	151	424	150
4	427	151	424	150
1-1986	427	151	424	150
2	427	151	424	150
3	427	151	424	150
4	427	151	424	150
1-1987	427	151	424	150
2	427	151	424	150
3	427	151	424	150
4	427	151	424	150
1-1988	427	151	424	150
2	427	151	424	150
3	427	151	424	150
4	427	151	424	150
1-1989	427	151	424	150
2	427	151	424	150
3	427	151	424	150
4	427	151	424	150

241-C-102 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1990	427	151	424	150
2	427	151	424	150
3	427	151	424	150
4	427	151	424	150
1-1991	427	151	424	150
2	427	151	424	150
3	427	151	424	150
4	424	150	424	150
1-1992	423	149	423	149
2	423	149	423	149
3	423	149	423	149
4	423	149	423	149
1-1993	423	149	423	149
2	423	149	423	149
3	423	149	423	149
4	423	149	423	149
1-1994	423	149	423	149
2	423	149	423	149
3	423	149	423	149
4	423	149	423	149
1-1995	423	149	423	149
2	423	149	423	149
3	316	110	316	110

241-C-103 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1944				
2				
3				
4				
1-1945				
2				
3				
4				
1-1946				
2				
3	333	117		
4	528	187		
1-1947	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1948	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1949	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1950	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1951	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1952	519	184		
2	519	184		
3	519	184		
4				
1-1953				
2	45	12		
3	508	180		
4	560	199		
1-1954	560	199		
2	560	199		
3	560	199		
4	560	199		
1-1955	560	199		
2	560	199		

241-C-103 LEVEL HISTORY

Year	Total	Total	Solids	Solids
	(K gal)	(in)	(K gal)	(in)
3	560	199		
4	560	199		
1-1956	560	199		
2	560	199		
3	560	199		
4	560	199		
1-1957	98	31		
2	37	9		
3	329	115		
4	348	122		
1-1958	62	18		
2	62	18		
3	46	12		
4	46	12		
1-1959	45	12		
2	48	13		
3	45	12		
4	45	12		
1-1960	45	12		
2	309	108		
3	416	147		
4	524	186		
1-1961				
2	557	198		
3				
4	563	200		
1-1962				
2	227	78		
3				
4	57	16		
1-1963				
2	530	188		
3				
4	469	166		
1-1964				
2	442	156		
3				
4	420	148		
1-1965				
2	458	162		
3	455	161		
4	222	76		
1-1966	527	187		
2	497	176		
3	494	175		
4	475	168		

241-C-103 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1967	450	159		
2	439	155		
3	433	153	35	8
4	433	153	35	8
1-1968	436	154	35	8
2	435	154	35	8
3	433	153	35	8
4	431	152	35	8
1-1969	431	152	35	8
2	429	151	35	8
3	103	33	35	8
4	103	33	35	8
1-1970	491	174	35	8
2	109	35	85	26
3	180	61	99	31
4	279	97	99	31
1-1971	92	29	92	29
2	92	29	92	29
3	90	28	90	28
4	102	33	102	33
1-1972	102	33	102	33
2	102	33	102	33
3	539	191	90	28
4	92	29	90	28
1-1973	94	30	90	28
2	239	82	90	28
3	390	137	90	28
4	392	138	90	28
1-1974	508	180	90	28
2	343	120	90	28
3	107	34	90	28
4	224	77	73	22
1-1975	516	183	73	22
2	164	55	73	22
3	109	35	73	22
4	106	34	73	22
1-1976	274	95	73	22
2	288	100	73	22
3	321	112	73	22
4	345	121	73	22
1-1977	384	135	68	20
2	387	136	68	20
3	274	95	150	50
4	422	149	153	51
1-1978	235	81	164	55
2	260	90	167	56

241-C-103 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
3	242	83	175	59
4	296	103	175	59
1-1979	301	105	175	59
2	307	107	175	59
3	200	68	175	59
4	200	68	175	59
1-1980	200	68	175	59
2	200	68	175	59
3	200	68	175	59
4	200	68	175	59
1-1981	200	68	175	59
2	200	68	175	59
3	200	68	175	59
4	200	68	175	59
1-1982	200	68	175	59
2	200	68	175	59
3	200	68	175	59
4	200	68	175	59
1-1983	200	68	175	59
2	200	68	175	59
3	200	68	175	59
4	200	68	175	59
1-1984	200	68	175	59
2	200	68	175	59
3	200	68	175	59
4	200	68	175	59
1-1985	200	68	175	59
2	200	68	175	59
3	200	68	175	59
4	200	68	175	59
1-1986	200	68	175	59
2	200	68	175	59
3	200	68	175	59
4	200	68	175	59
1-1987	200	68	175	59
2	200	68	175	59
3	200	68	175	59
4	200	68	175	59
1-1988	200	68	175	59
2	200	68	175	59
3	200	68	175	59
4	200	68	175	59
1-1989	200	68	175	59
2	200	68	175	59
3	200	68	175	59
4	200	68	175	59

241-C-103 LEVEL HISTORY

Year	Total	Total	Solids	Solids
	(K gal)	(in)	(K gal)	(in)
1-1990	200	68	175	59
2	200	68	175	59
3	200	68	175	59
4	195	66	62	18
1-1991	195	66	62	18
2	195	66	62	18
3	195	66	62	18
4	195	66	62	18
1-1992	195	66	62	18
2	195	66	62	18
3	195	66	62	18
4	195	66	62	18
1-1993	195	66	62	18
2	195	66	62	18
3	195	66	62	18
4	195	66	62	18
1-1994	195	66	62	18
2	195	66	62	18
3	195	66	62	18
4	195	66	62	18
1-1995	195	66	62	18
2	195	66	62	18
3	195	66	62	18

241-C-104 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1944				
2				
3				
4				
1-1945				
2				
3				
4				
1-1946				
2				
3				
4	356	125		
1-1947	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1948	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1949	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1950	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1951	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1952	530	188		
2	530	188		
3	530	188		
4	530	188		
1-1953	530	188		
2	530	188		
3	46	12		
4	0	-12		
1-1954	312	109		
2	323	113		
3	271	94		
4	494	175		
1-1955	0	-12		
2	0	-12	0	-12

241-C-104 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
3	0	-12	0	-12
4	420	148	0	-12
1-1956	224	77	45	12
2	439	155	45	12
3	176	59	45	12
4	406	143	45	12
1-1957	464	164		
2	541	192		
3	543	193	46	12
4	535	190	46	12
1-1958	538	191	46	12
2	535	190	46	12
3	541	192	46	12
4	541	192	46	12
1-1959	524	186	46	12
2	517	183	46	12
3	524	186	46	12
4	524	186	46	12
1-1960	538	191	46	12
2	538	191	46	12
3	538	191	46	12
4	538	191	46	12
1-1961				
2	538	191	46	12
3				
4	541	192	46	12
1-1962				
2	538	191	46	12
3				
4	538	191	46	12
1-1963				
2	543	193	101	32
3				
4	541	192	101	32
1-1964				
2	539	191	101	32
3				
4	539	191	101	32
1-1965				
2	554	197	90	28
3	560	199	90	28
4	560	199	90	28
1-1966	560	199	90	28
2	532	189	90	28
3	532	189	90	28
4	532	189	90	28

241-C-104 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1967	532	189	90	28
2	532	189	90	28
3	532	189	90	28
4	532	189	90	28
1-1968	531	189	90	28
2	531	189	90	28
3	530	188	90	28
4	530	188	90	28
1-1969	530	188	90	28
2	200	68	90	28
3	200	68	90	28
4	246	85	90	28
1-1970	347	122	96	30
2	296	103	149	50
3	480	170	92	29
4	453	160	132	43
1-1971	481	170	153	51
2	507	180	153	51
3	466	165	153	51
4	437	154	175	59
1-1972	351	123	188	64
2	366	129	198	67
3	384	135	198	67
4	334	117	198	67
1-1973	517	183	198	67
2	332	116	198	67
3	483	171	198	67
4	436	154	274	95
1-1974	439	155	274	95
2	337	118	274	95
3	340	119	274	95
4	351	123	235	81
1-1975	296	103	235	81
2	417	147	235	81
3	299	104	235	81
4	513	182	235	81
1-1976	362	127	235	81
2	505	179	235	81
3	420	148	235	81
4	373	131	246	85
1-1977	406	143	268	93
2	453	160	268	93
3	334	117	274	95
4	340	119	290	101
1-1978	409	144	304	106
2	329	115	304	106

241-C-104 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
3	378	133	304	106
4	464	164	304	106
1-1979	315	110	304	106
2	345	121	304	106
3	365	128	304	106
4	450	159	304	106
1-1980	315	110	293	102
2	315	110	293	102
3	315	110	293	102
4	315	110	293	102
1-1981	315	110	293	102
2	315	110	293	102
3	315	110	293	102
4	315	110	293	102
1-1982	315	110	293	102
2	315	110	304	106
3	315	110	304	106
4	315	110	304	106
1-1983	315	110	304	106
2	307	107	304	106
3	307	107	304	106
4	307	107	304	106
1-1984	307	107	304	106
2	298	104	295	103
3	298	104	295	103
4	298	104	295	103
1-1985	298	104	295	103
2	298	104	295	103
3	298	104	295	103
4	298	104	295	103
1-1986	298	104	295	103
2	298	104	295	103
3	298	104	295	103
4	298	104	295	103
1-1987	298	104	295	103
2	298	104	295	103
3	298	104	295	103
4	298	104	295	103
1-1988	295	103	295	103
2	295	103	295	103
3	295	103	295	103
4	295	103	295	103
1-1989	295	103	295	103
2	295	103	295	103
3	295	103	295	103
4	295	103	295	103

241-C-104 LEVEL HISTORY

Year	Total	Total	Solids	Solids
	(K gal)	(in)	(K gal)	(in)
1-1990	295	103	295	103
2	295	103	295	103
3	295	103	295	103
4	295	103	295	103
1-1991	295	103	295	103
2	295	103	295	103
3	295	103	295	103
4	295	103	295	103
1-1992	295	103	295	103
2	295	103	295	103
3	295	103	295	103
4	295	103	295	103
1-1993	295	103	295	103
2	295	103	295	103
3	295	103	295	103
4	295	103	295	103
1-1994	295	103	295	103
2	295	103	295	103
3	295	103	295	103
4	295	103	295	103
1-1995	295	103	295	103
2	295	103	295	103
3	295	103	295	103

241-C-105 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1944				
2				
3				
4				
1-1945				
2				
3				
4				
1-1946				
2				
3				
4				
1-1947	208	71		
2	528	187		
3	528	187		
4	528	187		
1-1948	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1949	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1950	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1951	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1952	530	188		
2	530	188		
3	530	188		
4	530	188		
1-1953	530	188		
2	530	188		
3	202	69		
4	48	13		
1-1954	453	160		
2				
3	546	194		
4	546	194		
1-1955	546	194		
2	546	194		

241-C-105 LEVEL HISTORY

Year	Total	Total	Solids	Solids
	(K gal)	(in)	(K gal)	(in)
3	546	194		
4	546	194		
1-1956	252	87		
2	79	24	15	1
3	508	180	15	1
4	508	180	15	1
1-1957	538	191		
2	406	143		
3	178	60		
4	381	134		
1-1958	475	168		
2	541	192		
3	541	192		
4	461	163		
1-1959	271	94		
2	142	47		
3	309	108		
4	431	152		
1-1960	461	163		
2	529	188		
3	529	188		
4	529	188		
1-1961				
2	521	185		
3				
4	521	185		
1-1962				
2	519	184		
3				
4	519	184		
1-1963				
2	125	41		
3				
4	532	189		
1-1964				
2	522	185		
3				
4	516	183		
1-1965				
2	491	174	109	35
3	491	174	109	35
4	483	171	109	35
1-1966	475	168	109	35
2	450	159	109	35
3	450	159	109	35
4	442	156	109	35

241-C-105 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1967	439	155	109	35
2	435	154	109	35
3	431	152	109	35
4	359	126	109	35
1-1968	542	193	109	35
2	392	138	109	35
3	444	157	109	35
4	384	135	96	30
1-1969	378	133	109	35
2	490	174	99	31
3	366	129	139	46
4	450	159	233	80
1-1970	348	122	123	40
2	198	67	136	45
3	497	176	139	46
4	447	158	156	52
1-1971	211	72	162	54
2	211	72	164	55
3	216	74	164	55
4	253	87	164	55
1-1972	510	181	98	31
2	400	141	98	31
3	471	167	98	31
4	411	145	98	31
1-1973	326	114	98	31
2	227	78	112	36
3	239	82	112	36
4	234	81	112	36
1-1974	447	158	112	36
2	442	156	112	36
3	231	79	112	36
4	279	97	139	46
1-1975	224	77	139	46
2	233	80	139	46
3	235	81	139	46
4	483	171	139	46
1-1976	381	134	139	46
2	222	76	139	46
3	367	129	139	46
4	299	104	139	46
1-1977	224	77	167	56
2	224	77	167	56
3	224	77	167	56
4	447	158	167	56
1-1978	343	120	167	56
2	310	108	167	56

241-C-105 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
3	227	78	167	56
4	343	120	167	56
1-1979	224	77	167	56
2	172	58	167	56
3	172	58	150	50
4	172	58	150	50
1-1980	172	58	150	50
2	172	58	150	50
3	172	58	150	50
4	172	58	150	50
1-1981	172	58	150	50
2	172	58	150	50
3	172	58	150	50
4	172	58	150	50
1-1982	172	58	150	50
2	172	58	150	50
3	172	58	150	50
4	172	58	150	50
1-1983	172	58	150	50
2	181	61	150	50
3	177	60	150	50
4	177	60	150	50
1-1984	174	59	150	50
2	174	59	150	50
3	174	59	150	50
4	174	59	150	50
1-1985	162	54	150	50
2	162	54	150	50
3	162	54	150	50
4	162	54	150	50
1-1986	162	54	150	50
2	162	54	150	50
3	162	54	150	50
4	162	54	150	50
1-1987	162	54	150	50
2	162	54	150	50
3	162	54	150	50
4	153	51	150	50
1-1988	153	51	150	50
2	148	49	150	50
3	146	49	150	50
4	146	49	150	50
1-1989	150	50	150	50
2	150	50	150	50
3	150	50	150	50
4	150	50	150	50

241-C-105 LEVEL HISTORY

Year	Total	Total	Solids	Solids
	(K gal)	(in)	(K gal)	(in)
1-1990	150	50	150	50
2	150	50	150	50
3	150	50	150	50
4	150	50	150	50
1-1991	150	50	150	50
2	150	50	150	50
3	150	50	150	50
4	150	50	150	50
1-1992	150	50	150	50
2	150	50	150	50
3	150	50	150	50
4	150	50	150	50
1-1993	150	50	150	50
2	150	50	150	50
3	150	50	150	50
4	150	50	150	50
1-1994	150	50	150	50
2	150	50	150	50
3	135	45	130	43
4	135	45	130	43
1-1995	135	45	130	43
2	135	45	130	43
3	135	45	130	43

241-C-106 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1944				
2				
3				
4				
1-1945				
2				
3				
4				
1-1946				
2				
3				
4				
1-1947				
2				
3	388	137		
4	528	187		
1-1948	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1949	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1950	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1951	551	196		
2	551	196		
3	551	196		
4	551	196		
1-1952	519	184		
2	519	184		
3	519	184		
4	519	184		
1-1953				
2	76	23		
3	439	155		
4	143	47		
1-1954	50	14		
2	50	14		
3	538	191		
4	538	191		
1-1955	538	191	12	0
2	538	191	12	0

241-C-106 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
3	538	191	12	0
4	538	191	12	0
1-1956	538	191	12	0
2	538	191	12	0
3	538	191	12	0
4	538	191	12	0
1-1957	519	184	12	0
2	37	9	12	0
3	524	186	12	0
4	106	34	29	6
1-1958	106	34	29	6
2	232	80	29	6
3	519	184	29	6
4	535	190	29	6
1-1959	510	181	29	6
2	510	181	29	6
3	510	181	29	6
4	510	181	29	6
1-1960	510	181	29	6
2	527	187	29	6
3	527	187	29	6
4	527	187	29	6
1-1961				
2	527	187	29	6
3				
4	527	187	29	6
1-1962				
2	527	187	29	6
3				
4	527	187	29	6
1-1963				
2	530	188	24	4
3				
4	538	191	24	4
1-1964				
2	522	185	24	4
3				
4	505	179	24	4
1-1965				
2	541	192	62	18
3	546	194	62	18
4	549	195	62	18
1-1966	549	195	62	18
2	519	184	62	18
3	519	184	62	18
4	527	187	62	18

241-C-106 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1967	527	187	62	18
2	527	187	62	18
3	527	187	62	18
4	527	187	62	18
1-1968	66	19	62	18
2	72	22	62	18
3	70	21	62	18
4	70	21	62	18
1-1969	124	41	62	18
2	244	84	62	18
3	293	102	62	18
4	167	56	57	16
1-1970	222	76	57	16
2	379	133	57	16
3	517	183	79	24
4	530	188	145	48
1-1971	212	73	150	50
2	212	73	150	50
3	239	82	150	50
4	235	81	150	50
1-1972	233	80	150	50
2	235	81	125	41
3	244	84	125	41
4	248	86	125	41
1-1973	255	88	125	41
2	249	86	125	41
3	241	83	125	41
4	238	82	125	41
1-1974	237	82	125	41
2	250	86	125	41
3	324	113	125	41
4	420	148	106	34
1-1975	373	131	106	34
2	345	121	106	34
3	469	166	106	34
4	288	100	106	34
1-1976	329	115	106	34
2	499	177	106	34
3	422	149	106	34
4	233	80	106	34
1-1977	373	131	145	48
2	480	170	145	48
3	398	140	145	48
4	384	135	156	52
1-1978	255	88	156	52
2	356	125	156	52

241-C-106 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
3	444	157	156	52
4	422	149	142	47
1-1979	202	69	197	67
2	219	75	197	67
3	219	75	197	67
4	219	75	197	67
1-1980	219	75	197	67
2	219	75	197	67
3	219	75	197	67
4	219	75	197	67
1-1981	219	75	197	67
2	219	75	197	67
3	219	75	197	67
4	219	75	197	67
1-1982	219	75	197	67
2	224	77	197	67
3	224	77	197	67
4	224	77	197	67
1-1983	224	77	197	67
2	224	77	197	67
3	220	75	197	67
4	220	75	197	67
1-1984	220	75	197	67
2	220	75	197	67
3	220	75	197	67
4	220	75	197	67
1-1985	220	75	197	67
2	220	75	197	67
3	220	75	197	67
4	220	75	197	67
1-1986	222	76	197	67
2	222	76	197	67
3	222	76	197	67
4	222	76	197	67
1-1987	222	76	197	67
2	222	76	197	67
3	222	76	197	67
4	222	76	197	67
1-1988	222	76	197	67
2	226	78	197	67
3	227	78	197	67
4	223	77	197	67
1-1989	229	79	197	67
2	229	79	197	67
3	229	79	197	67
4	229	79	197	67

241-C-106 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1990	229	79	197	67
2	229	79	197	67
3	229	79	197	67
4	229	79	197	67
1-1991	229	79	197	67
2	229	79	197	67
3	229	79	197	67
4	229	79	197	67
1-1992	229	79	197	67
2	229	79	197	67
3	229	79	197	67
4	229	79	197	67
1-1993	229	79	197	67
2	229	79	197	67
3	229	79	197	67
4	229	79	197	67
1-1994	229	79	197	67
2	229	79	197	67
3	229	79	197	67
4	229	79	197	67
1-1995	229	79	197	67
2	229	79	197	67
3	229	79	197	67

241-C-107 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1944				
2				
3				
4				
1-1945				
2				
3				
4				
1-1946				
2	53	15		
3	53	15		
4	53	15		
1-1947	53	15		
2	274	95		
3	528	187		
4	528	187		
1-1948	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1949	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1950	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1951	528	187		
2	528	187		
3				
4				
1-1952	399	141	399	141
2	399	141	399	141
3	399	141	399	141
4	547	194	399	141
1-1953	518	184	399	141
2	519	184	399	141
3	530	188	399	141
4	530	188	399	141
1-1954	530	188	399	141
2	530	188	399	141
3	530	188	399	141
4	530	188	399	141
1-1955	530	188	399	141
2	530	188	399	141

241-C-107 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
3	530	188	399	141
4	530	188	399	141
1-1956	530	188	399	141
2	530	188	399	141
3	530	188	399	141
4	375	132	375	132
1-1957	376	132	375	132
2	381	134	375	132
3	392	138	375	132
4	411	145	375	132
1-1958	425	150	375	132
2	425	150	375	132
3	422	149	375	132
4	425	150	375	132
1-1959	425	150	375	132
2	422	149	375	132
3	422	149	375	132
4	422	149	375	132
1-1960	422	149	375	132
2	422	149	375	132
3	422	149	375	132
4	422	149	375	132
1-1961				
2	439	155	375	132
3				
4	483	171	375	132
1-1962				
2	384	135	375	132
3				
4	384	135	375	132
1-1963				
2	384	135	321	112
3				
4	381	134	321	112
1-1964				
2	381	134	321	112
3				
4	383	135	321	112
1-1965				
2	395	139	225	77
3	425	150	225	77
4	466	165	225	77
1-1966	527	187	255	88
2	464	164	255	88
3	486	172	255	88
4	527	187	255	88

241-C-107 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1967	530	188	255	88
2	528	187	255	88
3	528	187	255	88
4	534	190	255	88
1-1968	534	190	255	88
2	534	190	255	88
3	534	190	255	88
4	528	187	255	88
1-1969	528	187	255	88
2	525	186	255	88
3	524	186	255	88
4	301	105	255	88
1-1970	303	106	255	88
2	304	106	200	68
3	547	194	195	66
4	547	194	195	66
1-1971	546	194	195	66
2	546	194	197	67
3	546	194	197	67
4	541	192	197	67
1-1972	288	100	197	67
2	289	101	197	67
3	289	101	206	70
4	260	90	206	70
1-1973	260	90	206	70
2	261	90	206	70
3	299	104	206	70
4	513	182	206	70
1-1974	514	182	206	70
2	514	182	206	70
3	515	183	206	70
4	513	182	191	65
1-1975	450	159	191	65
2	450	159	191	65
3	255	88	191	65
4	255	88	191	65
1-1976	257	89	191	65
2	257	89	191	65
3	257	89	191	65
4	257	89	191	65
1-1977	257	89	191	65
2	249	86	191	65
3	450	159	191	65
4	367	129	296	103
1-1978	340	119	337	118
2	340	119	337	118

241-C-107 LEVEL HISTORY

Year	Total	Total	Solids	Solids
	(K gal)	(in)	(K gal)	(in)
3	337	118	337	118
4	337	118	337	118
1-1979	337	118	337	118
2	337	118	337	118
3	337	118	337	118
4	337	118	337	118
1-1980	337	118	337	118
2	337	118	337	118
3	337	118	337	118
4	337	118	337	118
1-1981	337	118	337	118
2	337	118	337	118
3	337	118	337	118
4	337	118	337	118
1-1982	337	118	337	118
2	337	118	337	118
3	337	118	337	118
4	337	118	337	118
1-1983	337	118	337	118
2	337	118	337	118
3	337	118	337	118
4	337	118	337	118
1-1984	337	118	337	118
2	337	118	337	118
3	337	118	337	118
4	337	118	337	118
1-1985	337	118	337	118
2	337	118	337	118
3	337	118	337	118
4	337	118	337	118
1-1986	337	118	337	118
2	337	118	337	118
3	337	118	337	118
4	337	118	337	118
1-1987	337	118	337	118
2	337	118	337	118
3	337	118	337	118
4	337	118	337	118
1-1988	337	118	337	118
2	337	118	337	118
3	337	118	337	118
4	337	118	337	118
1-1989	337	118	337	118
2	337	118	337	118
3	337	118	337	118
4	337	118	337	118

241-C-107 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1990	337	118	337	118
2	337	118	337	118
3	337	118	337	118
4	337	118	337	118
1-1991	337	118	337	118
2	337	118	337	118
3	337	118	337	118
4	337	118	337	118
1-1992	275	95	275	95
2	275	95	275	95
3	275	95	275	95
4	275	95	275	95
1-1993	275	95	275	95
2	275	95	275	95
3	275	95	275	95
4	275	95	275	95
1-1994	275	95	275	95
2	275	95	275	95
3	275	95	275	95
4	275	95	275	95
1-1995	275	95	275	95
2	275	95	275	95
3	237	82	237	82

241-C-108 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1944				
2				
3				
4				
1-1945				
2				
3				
4				
1-1946				
2				
3				
4				
1-1947				
2				
3	53	15		
4	249	86		
1-1948	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1949	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1950	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1951	528	187		
2	528	187		
3	528	187		
4				
1-1952				
2	34	8	34	8
3	34	8	34	8
4	85	26	34	8
1-1953	527	187	34	8
2	530	188	34	8
3	530	188	34	8
4	530	188	34	8
1-1954	530	188	34	8
2	530	188	34	8
3	530	188	34	8
4	530	188	34	8
1-1955	530	188	34	8
2	530	188	34	8

241-C-108 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
3	530	188	34	8
4	530	188	34	8
1-1956	80	25	34	8
2	530	188	34	8
3	78	24	34	8
4	78	24	34	8
1-1957	78	24	34	8
2	78	24	34	8
3	532	189	34	8
4	472	167	79	24
1-1958	175	59	79	24
2	175	59	79	24
3	175	59	79	24
4	175	59	79	24
1-1959	175	59	79	24
2	183	62	79	24
3	188	64	79	24
4	188	64	79	24
1-1960	494	175	79	24
2	494	175	79	24
3	430	152	79	24
4	166	56	79	24
1-1961				
2	486	172	79	24
3				
4	486	172	79	24
1-1962				
2	486	172	79	24
3				
4	486	172	79	24
1-1963				
2	483	171	79	24
3				
4	486	172	79	24
1-1964				
2	426	150	79	24
3				
4	426	150	79	24
1-1965				
2	568	202	98	31
3	532	189	98	31
4	532	189	98	31
1-1966	532	189	98	31
2	521	185	98	31
3	521	185	98	31
4	521	185	98	31

241-C-108 LEVEL HISTORY

Year	Total	Total	Solids	Solids
	(K gal)	(in)	(K gal)	(in)
1-1967	521	185	98	31
2	521	185	98	31
3	521	185	98	31
4	517	183	98	31
1-1968	516	183	98	31
2	516	183	98	31
3	516	183	98	31
4	514	182	98	31
1-1969	514	182	98	31
2	514	182	98	31
3	513	182	98	31
4	138	46	98	31
1-1970	138	46	98	31
2	532	189	95	30
3	532	189	69	21
4	532	189	69	21
1-1971	532	189	69	21
2	532	189	69	21
3	532	189	69	21
4	532	189	69	21
1-1972	334	117	69	21
2	266	92	69	21
3	266	92	76	23
4	271	94	76	23
1-1973	270	94	76	23
2	270	94	76	23
3	516	183	76	23
4	516	183	76	23
1-1974	515	183	76	23
2	515	183	76	23
3	516	183	76	23
4	516	183	65	19
1-1975	516	183	65	19
2	516	183	65	19
3	516	183	65	19
4	87	27	65	19
1-1976	76	23	65	19
2	76	23	65	19
3	65	19	65	19
4	65	19	65	19
1-1977	65	19	65	19
2	65	19	65	19
3	65	19	65	19
4	65	19	65	19
1-1978	65	19	65	19
2	65	19	65	19

241-C-108 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
3	65	19	65	19
4	65	19	65	19
1-1979	65	19	65	19
2	65	19	65	19
3	65	19	65	19
4	65	19	65	19
1-1980	65	19	65	19
2	65	19	65	19
3	65	19	65	19
4	65	19	65	19
1-1981	65	19	65	19
2	65	19	65	19
3	65	19	65	19
4	65	19	65	19
1-1982	65	19	65	19
2	65	19	65	19
3	65	19	65	19
4	65	19	65	19
1-1983	65	19	65	19
2	65	19	65	19
3	65	19	65	19
4	65	19	65	19
1-1984	65	19	65	19
2	65	19	65	19
3	65	19	65	19
4	65	19	65	19
1-1985	65	19	65	19
2	65	19	65	19
3	65	19	65	19
4	65	19	65	19
1-1986	65	19	65	19
2	65	19	65	19
3	65	19	65	19
4	65	19	65	19
1-1987	65	19	65	19
2	65	19	65	19
3	65	19	65	19
4	65	19	65	19
1-1988	65	19	65	19
2	65	19	65	19
3	65	19	65	19
4	65	19	65	19
1-1989	65	19	65	19
2	65	19	65	19
3	65	19	65	19
4	65	19	65	19

241-C-108 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1990	65	19	65	19
2	66	19	66	19
3	66	19	66	19
4	66	19	66	19
1-1991	66	19	66	19
2	66	19	66	19
3	66	19	66	19
4	66	19	66	19
1-1992	66	19	66	19
2	66	19	66	19
3	66	19	66	19
4	66	19	66	19
1-1993	66	19	66	19
2	66	19	66	19
3	66	19	66	19
4	66	19	66	19
1-1994	66	19	66	19
2	66	19	66	19
3	66	19	66	19
4	66	19	66	19
1-1995	66	19	66	19
2	66	19	[illegible]	19
3	66	19	[illegible]	19

241-C-109 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1944				
2				
3				
4				
1-1945				
2				
3				
4				
1-1946				
2				
3				
4				
1-1947				
2				
3				
4				
1-1948				
2	288	100		
3	528	187		
4	528	187		
1-1949	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1950	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1951	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1952	525	186		
2	311	109	10	-1
3	10	-1	10	-1
4	496	176	10	-1
1-1953	182	62	10	-1
2	521	185	10	-1
3	521	185	10	-1
4	521	185	10	-1
1-1954	521	185	10	-1
2	521	185	10	-1
3	521	185	10	-1
4	521	185	10	-1
1-1955	521	185	10	-1
2	521	185	10	-1

241-C-109 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
3	521	185	10	-1
4	204	70	10	-1
1-1956	530	188	10	-1
2	530	188	10	-1
3	530	188	10	-1
4	241	83	10	-1
1-1957	238	82	35	8
2	79	24	51	14
3	340	119	35	8
4	543	193	90	28
1-1958	112	36	90	28
2	112	36	90	28
3	112	36	90	28
4	112	36	90	28
1-1959	112	36	90	28
2	373	131	90	28
3	540	192	90	28
4	540	192	90	28
1-1960	540	192	90	28
2	540	192	90	28
3	540	192	90	28
4	546	194	90	28
1-1961				
2	549	195	90	28
3				
4	549	195	90	28
1-1962				
2	433	153	90	28
3				
4	491	174	90	28
1-1963				
2	494	175	90	28
3				
4	497	176	90	28
1-1964				
2	532	189	90	28
3				
4	535	190	90	28
1-1965				
2	554	197	79	24
3	554	197	79	24
4	554	197	79	24
1-1966	552	196	79	24
2	565	201	79	24
3	565	201	79	24
4	552	196	79	24

241-C-109 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1967	552	196	79	24
2	552	196	79	24
3	552	196	79	24
4	549	195	79	24
1-1968	549	195	79	24
2	543	193	79	24
3	543	193	79	24
4	543	193	79	24
1-1969	543	193	79	24
2	543	193	79	24
3	543	193	79	24
4	543	193	79	24
1-1970	165	55	79	24
2	541	192	106	34
3	543	193	95	30
4	543	193	95	30
1-1971	542	193	95	30
2	542	193	95	30
3	542	193	95	30
4	542	193	95	30
1-1972	540	192	95	30
2	540	192	95	30
3	540	192	95	30
4	530	188	95	30
1-1973	529	188	95	30
2	529	188	95	30
3	505	179	95	30
4	504	179	95	30
1-1974	504	179	95	30
2	504	179	95	30
3	504	179	95	30
4	505	179	79	24
1-1975	505	179	79	24
2	505	179	79	24
3	142	47	79	24
4	62	18	62	18
1-1976	62	18	62	18
2	62	18	62	18
3	62	18	62	18
4	62	18	62	18
1-1977	62	18	62	18
2	62	18	62	18
3	62	18	62	18
4	62	18	62	18
1-1978	62	18	62	18
2	62	18	62	18

241-C-109 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
3	62	18	62	18
4	62	18	62	18
1-1979	68	20	62	18
2	68	20	62	18
3	68	20	62	18
4	68	20	62	18
1-1980	68	20	62	18
2	68	20	62	18
3	68	20	62	18
4	68	20	62	18
1-1981	68	20	62	18
2	68	20	62	18
3	68	20	62	18
4	68	20	62	18
1-1982	68	20	62	18
2	68	20	62	18
3	68	20	62	18
4	68	20	62	18
1-1983	68	20	62	18
2	68	20	62	18
3	68	20	62	18
4	66	19	62	18
1-1984	66	19	62	18
2	66	19	62	18
3	66	19	62	18
4	66	19	62	18
1-1985	66	19	62	18
2	66	19	62	18
3	66	19	62	18
4	66	19	62	18
1-1986	66	19	62	18
2	66	19	62	18
3	66	19	62	18
4	66	19	62	18
1-1987	66	19	62	18
2	66	19	62	18
3	66	19	62	18
4	66	19	62	18
1-1988	66	19	62	18
2	66	19	62	18
3	66	19	62	18
4	66	19	62	18
1-1989	66	19	62	18
2	66	19	62	18
3	66	19	62	18
4	66	19	62	18

241-C-109 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1990	66	19	62	18
2	66	19	62	18
3	66	19	62	18
4	66	19	62	18
1-1991	66	19	62	18
2	66	19	62	18
3	66	19	62	18
4	66	19	62	18
1-1992	66	19	62	18
2	66	19	62	18
3	66	19	62	18
4	66	19	62	18
1-1993	66	19	62	18
2	66	19	62	18
3	66	19	62	18
4	66	19	62	18
1-1994	66	19	62	18
2	66	19	62	18
3	66	19	62	18
4	66	19	62	18
1-1995	66	19	62	18
2	66	19	62	18
3	66	19	62	18

241-C-110 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1944				
2				
3				
4				
1-1945				
2				
3				
4				
1-1946				
2	337	118		
3	528	187		
4	528	187		
1-1947	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1948	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1949	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1950	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1951	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1952	530	188		
2	530	188	231	79
3	231	79	231	79
4	490	174	231	79
1-1953	538	191	231	79
2	538	191	231	79
3	538	191	231	79
4	538	191	231	79
1-1954	538	191	231	79
2	538	191	231	79
3	538	191	231	79
4	538	191	231	79
1-1955	538	191	231	79
2	538	191	231	79

241-C-110 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
3	538	191	231	79
4	538	191	231	79
1-1956	265	92	231	79
2	436	154	231	79
3	491	174	231	79
4	491	174	231	79
1-1957	513	182	231	79
2	508	180	231	79
3	510	181	231	79
4	510	181	231	79
1-1958	508	180	231	79
2	508	180	231	79
3	508	180	231	79
4	508	180	231	79
1-1959	508	180	231	79
2	507	180	231	79
3	507	180	231	79
4	507	180	231	79
1-1960	507	180	231	79
2	507	180	231	79
3	507	180	231	79
4	455	161	231	79
1-1961				
2	505	179	231	79
3				
4	510	181	231	79
1-1962				
2	510	181	231	79
3				
4	508	180	231	79
1-1963				
2	505	179	230	79
3				
4	505	179	230	79
1-1964				
2	505	179	230	79
3				
4	513	182	230	79
1-1965				
2	508	180	191	65
3	508	180	191	65
4	508	180	191	65
1-1966	505	179	191	65
2	508	180	191	65
3	508	180	191	65
4	508	180	191	65

241-C-110 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1967	508	[illegible]	191	65
2	508	180	191	65
3	508	180	191	65
4	435	154	191	65
1-1968	435	154	191	65
2	435	154	191	65
3	435	154	191	65
4	435	154	191	65
1-1969	435	154	191	65
2	220	75	191	65
3	224	77	191	65
4	224	77	191	65
1-1970	375	132	191	65
2	470	166	211	72
3	536	190	189	64
4	536	190	189	64
1-1971	536	190	189	64
2	536	190	189	64
3	536	190	189	64
4	211	72	189	64
1-1972	376	132	189	64
2	376	132	189	64
3	376	132	183	62
4	376	132	183	62
1-1973	376	132	183	62
2	376	132	183	62
3	376	132	183	62
4	376	132	183	62
1-1974	376	132	200	68
2	376	132	200	68
3	376	132	200	68
4	376	132	211	72
1-1975	376	132	211	72
2	376	132	211	72
3	268	93	211	72
4	268	93	211	72
1-1976	233	80	211	72
2	211	72	211	72
3	211	72	211	72
4	211	72	211	72
1-1977	211	72	211	72
2	211	72	211	72
3	211	72	211	72
4	211	72	211	72
1-1978	211	72	211	72
2	211	72	211	72

241-C-110 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
3	211	72	211	72
4	211	72	211	72
1-1979	213	73	211	72
2	213	73	211	72
3	213	73	211	72
4	213	73	211	72
1-1980	213	73	211	72
2	213	73	211	72
3	213	73	211	72
4	213	73	211	72
1-1981	211	72	211	72
2	211	72	211	72
3	211	72	211	72
4	211	72	211	72
1-1982	211	72	211	72
2	207	71	206	70
3	207	71	206	70
4	207	71	206	70
1-1983	207	71	206	70
2	207	71	206	70
3	207	71	206	70
4	207	71	206	70
1-1984	207	71	206	70
2	207	71	206	70
3	207	71	206	70
4	217	74	196	67
1-1985	200	68	196	67
2	200	68	196	67
3	217	74	197	67
4	201	69	196	67
1-1986	201	69	196	67
2	201	69	196	67
3	201	69	196	67
4	201	69	196	67
1-1987	201	69	196	67
2	201	69	196	67
3	201	69	196	67
4	201	69	196	67
1-1988	201	69	196	67
2	201	69	196	67
3	201	69	196	67
4	201	69	196	67
1-1989	201	69	196	67
2	201	69	196	67
3	201	69	196	67
4	201	69	196	67

241-C-110 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1990	201	69	196	67
2	201	69	196	67
3	201	69	196	67
4	201	69	196	67
1-1991	201	69	196	67
2	201	69	196	67
3	201	69	196	67
4	196	67	196	67
1-1992	187	63	187	63
2	187	63	187	63
3	187	63	187	63
4	187	63	187	63
1-1993	187	63	[illegible]	63
2	187	63	[illegible]	63
3	187	63	187	63
4	187	63	187	63
1-1994	187	63	187	63
2	187	63	187	63
3	187	63	[illegible]	63
4	187	63	[illegible]	63
1-1995	187	63	187	63
2	178	60	177	60
3	178	60	177	60

241-C-111 LEVEL HISTORY

Year	Total	Total	Solids	Solids
	(K gal)	(in)	(K gal)	(in)
1-1944				
2				
3				
4				
1-1945				
2				
3				
4				
1-1946				
2				
3	331	116		
4	528	187		
1-1947	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1948	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1949	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1950	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1951	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1952	530	188		
2	530	188	36	9
3	36	9	36	9
4	139	46	36	9
1-1953	536	190	36	9
2	536	190	36	9
3	536	190	36	9
4	536	190	36	9
1-1954	536	190	36	9
2	536	190	36	9
3	536	190	36	9
4	536	190	36	9
1-1955	536	190	36	9
2	536	190	36	9

241-C-111 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
3	536	190	36	9
4	536	190	36	9
1-1956	530	188	36	9
2	530	188	36	9
3	56	16	36	9
4	70	21	36	9
1-1957	332	116		
2	521	185	13	0
3	549	195	54	15
4	98	31	95	30
1-1958	101	32	95	30
2	101	32	95	30
3	101	32	95	30
4	88	27	95	30
1-1959	90	28	95	30
2	90	28	95	30
3	111	36	95	30
4	298	104	95	30
1-1960	337	118	95	30
2	337	118	95	30
3	337	118	95	30
4	309	108	95	30
1-1961				
2	345	121	95	30
3				
4	345	121	95	30
1-1962				
2	345	121	95	30
3				
4	370	130	95	30
1-1963				
2	431	152	95	30
3				
4	472	167	95	30
1-1964				
2	539	191	95	30
3				
4	539	191	95	30
1-1965				
2	519	184	81	25
3	520	185	81	25
4	516	183	81	25
1-1966	513	182	81	25
2	510	181	81	25
3	510	181	81	25
4	508	180	81	25

241-C-111 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1967	508	180	81	25
2	503	178	81	25
3	503	178	81	25
4	502	178	81	25
1-1968	499	177	81	25
2	499	177	81	25
3	499	177	81	25
4	499	177	81	25
1-1969	498	177	81	25
2	497	176	81	25
3	497	176	81	25
4	147	49	81	25
1-1970	147	49	81	25
2	146	49	96	30
3	150	50	92	29
4	151	50	92	29
1-1971	151	50	92	29
2	151	50	92	29
3	151	50	92	29
4	151	50	92	29
1-1972	150	50	92	29
2	172	58	76	23
3	174	59	76	23
4	172	58	76	23
1-1973	172	58	76	23
2	172	58	76	23
3	172	58	76	23
4	171	58	76	23
1-1974	171	58	76	23
2	114	37	76	23
3	115	37	76	23
4	114	37	62	18
1-1975	114	37	62	18
2	114	37	62	18
3	114	37	62	18
4	114	37	62	18
1-1976	73	22	62	18
2	62	18	62	18
3	62	18	62	18
4	62	18	62	18
1-1977	62	18	62	18
2	62	18	62	18
3	62	18	62	18
4	62	18	62	18
1-1978	62	18	62	18
2	62	18	62	18

241-C-111 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
3	62	18	62	18
4	62	18	62	18
1-1979	62	18	62	18
2	62	18	62	18
3	62	18	62	18
4	62	18	62	18
1-1980	62	18	62	18
2	62	18	62	18
3	62	18	62	18
4	62	18	62	18
1-1981	62	18	62	18
2	62	18	62	18
3	62	18	62	18
4	62	18	62	18
1-1982	62	18	62	18
2	62	18	62	18
3	57	16	57	16
4	57	16	57	16
1-1983	57	16	57	16
2	57	16	57	16
3	57	16	57	16
4	57	16	57	16
1-1984	57	16	57	16
2	57	16	57	16
3	57	16	57	16
4	57	16	57	16
1-1985	57	16	57	16
2	57	16	57	16
3	57	16	57	16
4	57	16	57	16
1-1986	57	16	57	16
2	57	16	57	16
3	57	16	57	16
4	57	16	57	16
1-1987	57	16	57	16
2	57	16	57	16
3	57	16	57	16
4	57	16	57	16
1-1988	57	16	57	16
2	57	16	57	16
3	57	16	57	16
4	57	16	57	16
1-1989	57	16	57	16
2	57	16	57	16
3	57	16	57	16
4	57	16	57	16

241-C-111 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1990	57	16	57	16
2	57	16	57	16
3	57	16	57	16
4	57	16	57	16
1-1991	57	16	57	16
2	57	16	57	16
3	57	16	57	16
4	57	16	57	16
1-1992	57	16	57	16
2	57	16	57	16
3	57	16	57	16
4	57	16	57	16
1-1993	57	16	57	16
2	57	16	57	16
3	57	16	57	16
4	57	16	57	16
1-1994	57	16	57	16
2	57	16	57	16
3	57	16	57	16
4	57	16	57	16
1-1995	57	16	57	16
2	57	16	57	16
3	57	16	57	16

241-C-112 LEVEL HISTORY

Year	Total	Total	Solids	Solids
	(K gal)	(in)	(K gal)	(in)
1-1944				
2				
3				
4				
1-1945				
2				
3				
4				
1-1946				
2				
3				
4	225	77		
1-1947	512	182		
2	528	187		
3	528	187		
4	528	187		
1-1948	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1949	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1950	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1951	528	187		
2	528	187		
3	528	187		
4	528	187		
1-1952	525	186		
2	99	31	15	1
3	17	2	15	1
4	17	2	15	1
1-1953	249	86	15	1
2	517	183	15	1
3	178	60	15	1
4	145	48	15	1
1-1954	145	48	15	1
2	433	153	15	1
3	466	165	15	1
4	466	165	15	1
1-1955	466	165	15	1
2	466	165	17	2

241-C-112 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
3	466	165	17	2
4	524	186	17	2
1-1956	340	119	17	2
2	530	188	17	2
3	417	147	17	2
4	39	10	39	10
1-1957	156	52	39	10
2	54	15	21	3
3	541	192	39	10
4	516	183	39	10
1-1958	84	26	46	12
2	84	26	46	12
3	84	26	46	12
4	134	44	46	12
1-1959	137	45	46	12
2	137	45	46	12
3	84	26	46	12
4	136	45	46	12
1-1960	137	45	46	12
2	137	45	46	12
3	263	91	46	12
4	367	129	46	12
1-1961				
2	455	161	46	12
3				
4	486	172	46	12
1-1962				
2	508	180	46	12
3				
4	505	179	46	12
1-1963				
2	510	181	46	12
3				
4	513	182	46	12
1-1964				
2	547	194	46	12
3				
4	547	194	46	12
1-1965				
2	538	191	128	42
3	538	191	128	42
4	538	191	128	42
1-1966	538	191	128	42
2	535	190	128	42
3	535	190	128	42
4	535	190	128	42

241-C-112 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1967	535	190	128	42
2	535	190	128	42
3	535	190	128	42
4	535	190	128	42
1-1968	534	190	128	42
2	534	190	128	42
3	534	190	128	42
4	534	190	128	42
1-1969	534	190	128	42
2	532	189	128	42
3	532	189	128	42
4	532	189	128	42
1-1970	213	73	128	42
2	541	192	138	46
3	543	193	136	45
4	543	193	136	45
1-1971	543	193	136	45
2	543	193	136	45
3	543	193	136	45
4	543	193	136	45
1-1972	542	193	136	45
2	543	193	136	45
3	543	193	120	39
4	532	189	120	39
1-1973	532	189	120	39
2	531	189	120	39
3	531	189	120	39
4	531	189	120	39
1-1974	530	188	120	39
2	530	188	120	39
3	530	188	120	39
4	532	189	128	42
1-1975	483	171	128	42
2	483	171	128	42
3	194	66	128	42
4	109	35	109	35
1-1976	109	35	109	35
2	109	35	109	35
3	109	35	109	35
4	109	35	109	35
1-1977	109	35	109	35
2	109	35	109	35
3	109	35	109	35
4	109	35	109	35
1-1978	109	35	109	35
2	109	35	109	35

241-C-112 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
3	109	35	109	35
4	109	35	109	35
1-1979	109	35	109	35
2	109	35	109	35
3	109	35	109	35
4	109	35	109	35
1-1980	109	35	109	35
2	109	35	109	35
3	109	35	109	35
4	109	35	109	35
1-1981	109	35	109	35
2	109	35	109	35
3	109	35	109	35
4	109	35	109	35
1-1982	109	35	109	35
2	109	35	109	35
3	109	35	109	35
4	109	35	109	35
1-1983	109	35	109	35
2	109	35	109	35
3	109	35	109	35
4	109	35	109	35
1-1984	109	35	109	35
2	109	35	109	35
3	109	35	109	35
4	109	35	109	35
1-1985	109	35	109	35
2	109	35	109	35
3	109	35	109	35
4	109	35	109	35
1-1986	109	35	109	35
2	109	35	109	35
3	109	35	109	35
4	109	35	109	35
1-1987	109	35	109	35
2	109	35	109	35
3	109	35	109	35
4	109	35	109	35
1-1988	109	35	109	35
2	109	35	109	35
3	109	35	109	35
4	109	35	109	35
1-1989	109	35	109	35
2	109	35	109	35
3	109	35	109	35
4	109	35	109	35

241-C-112 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1990	109	35	109	35
2	109	35	109	35
3	104	33	104	33
4	104	33	104	33
1-1991	104	33	104	33
2	104	33	104	33
3	104	33	104	33
4	104	33	104	33
1-1992	104	33	104	33
2	104	33	104	33
3	104	33	104	33
4	104	33	104	33
1-1993	[illegible]	33	104	33
2	104	33	104	33
3	104	33	104	33
4	104	33	104	33
1-1994	104	33	104	33
2	104	33	104	33
3	104	33	104	33
4	104	33	104	33
1-1995	104	33	104	33
2	104	33	104	33
3	104	33	104	33

241-C-201 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1947				
2				
3				
4	55	284		
1-1948	55	284		
2	55	284		
3	55	284		
4	55	284		
1-1949	55	284		
2	55	284		
3	55	284		
4	55	284		
1-1950	55	284		
2	55	284		
3	55	284		
4	55	284		
1-1951	55	284		
2	55	284		
3	55	284		
4	55	284		
1-1952	54.5	281		
2	54.5	281		
3	54.5	281		
4	52.5	271		
1-1953	52.5	271		
2	54.5	281		
3	54.5	281		
4	15.7	83		
1-1954	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
1-1955	0	0	0	0
2	13	69	0	0
3	30	156	0	0
4	57	294	0	0
1-1956	54.5	281	0	0
2	54.5	281	0	0
3	54.5	281	0	0
4	54.5	281	0	0
1-1957	54	279		
2	54	279		
3	55	284		
4	55	284		
1-1958	55	284		
2	55	284		

241-C-201 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
3	55	284		
4	55	284		
1-1959	54	279		
2	54	279		
3	54	279		
4	55	284		
1-1960	55	284		
2	55	284		
3	55	284		
4	55	284		
1-1961				
2	56	289		
3				
4	56	289		
1-1962				
2	56	289		
3				
4	56	289		
1-1963				
2	56	289		
3				
4	54	279		
1-1964				
2	54	279		
3				
4	54	279		
1-1965				
2	54	279		
3	54	279		
4	52	268		
1-1966	52	268		
2	52	268		
3	52	268		
4	52	268		
1-1967	55	284		
2	55	284		
3	55	284		
4	55	284		
1-1968	55	284		
2	55	284		
3	55	284		
4	55	284		
1-1969	55	284		
2	55	284		
3	55	284		
4	55	284		

241-C-201 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1970	55	284	1	8
2	1	8	1	8
3	1	8	1	8
4	1	8	1	8
1-1971	1	8	1	8
2	1	8	1	8
3	1	8	1	8
4	1	8	1	8
1-1972	1	8	1	8
2	1	8	1	8
3	1	8	1	8
4	1	8	1	8
1-1973	1	8	1	8
2	1	8	1	8
3	1	8	1	8
4	3	18	1	8
1-1974	3	18	1	8
2	3	18	1	8
3	3	18	1	8
4	3	18	0	0
1-1975	4	23	0	0
2	4	23	0	0
3	4	23	0	0
4	4	23	0	0
1-1976	4	23	0	0
2	4	23	0	0
3	4	23	0	0
4	4	23	0	0
1-1977	4	23	0	0
2	4	23	0	0
3	4	23	0	0
4	4	23	0	0
1-1978	4	23	0	0
2	4	23	0	0
3	4	23	0	0
4	4	23	0	0
1-1979	4	23	0	0
2	4	23	0	0
3	4	23	0	0
4	4	23	0	0
1-1980	4	23	0	0
2	4	23	0	0
3	4	23	0	3
4	4	23	0	3
1-1981	5	29	1	8
2	5	29	1	8

241-C-201 LEVEL HISTORY

Year	Total	Total	Solids	Solids
	(K gal)	(in)	(K gal)	(in)
3	5	29	1	8
4	5	29	1	8
1-1982	2	13	1	8
2	3	18	2	13
3	3	18	2	13
4	3	18	2	13
1-1983	3	18	2	13
2	3	18	2	13
3	3	18	2	13
4	3	18	2	13
1-1984	3	18	2	13
2	3	18	2	13
3	3	18	2	13
4	3	18	2	13
1-1985	3	18	2	13
2	3	18	2	13
3	3	18	2	13
4	3	18	2	13
1-1986	3	18	2	13
2	3	18	2	13
3	3	18	2	13
4	3	18	2	13
1-1987	3	18	2	13
2	3	18	2	13
3	3	18	2	13
4	3	18	2	13
1-1988	3	18	2	13
2	3	18	2	13
3	3	18	2	13
4	3	18	2	13
1-1989	3	18	2	13
2	3	18	2	13
3	3	18	2	13
4	3	18	2	13
1-1990	3	18	2	13
2	2	13	2	13
3	2	13	2	13
4	2	13	2	13
1-1991	2	13	2	13
2	2	13	2	13
3	2	13	2	13
4	2	13	2	13
1-1992	2	13	2	13
2	2	13	2	13
3	2	13	2	13
4	2	13	2	13

241-C-201 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1993	2	13	2	13
2	2	13	2	13
3	2	13	2	13
4	2	13	2	13
1-1994	2	13	2	13
2	2	13	2	13
3	2	13	2	13
4	2	13	2	13
1-1995	2	13	2	13
2	2	13	2	13
3	2	13	2	13

241-C-202 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1947				
2				
3				
4	55	284		
1-1948	55	284		
2	55	284		
3	55	284		
4	55	284		
1-1949	55	284		
2	55	284		
3	55	284		
4	55	284		
1-1950	55	284		
2	55	284		
3	55	284		
4	55	284		
1-1951	55	284		
2	55	284		
3	55	284		
4	55	284		
1-1952	54.5	281		
2	54.5	281		
3	54.5	281		
4	54.5	281		
1-1953	54.5	281		
2	8	44		
3	8	44		
4	43.7	226		
1-1954	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
1-1955	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	6	34	0	0
1-1956	23.5	123	0	0
2	54.5	281	0	0
3	54.5	281	0	0
4	54.5	281	0	0
1-1957	56	289		
2	56	289		
3	56	289		
4	56	289		
1-1958	56	289		
2	56	289		

241-C-202 LEVEL HISTORY

Year	Total	Total	Solids	Solids
	(K gal)	(in)	(K gal)	(in)
3	56	289		
4	55	284		
1-1959	55	284		
2	55	284		
3	55	284		
4	55	284		
1-1960	55	284		
2	55	284		
3	55	284		
4	55	284		
1-1961				
2	56	289		
3				
4	56	289		
1-1962				
2	56	289		
3				
4	56	289		
1-1963				
2	56	289		
3				
4	57	294		
1-1964				
2	55	284		
3				
4	55	284		
1-1965				
2	55	284		
3	55	284		
4	55	284		
1-1966	55	284		
2	55	284		
3	55	284		
4	55	284		
1-1967	55	284		
2	55	284		
3	55	284		
4	55	284		
1-1968	55	284		
2	55	284		
3	55	284		
4	55	284		
1-1969	55	284		
2	55	284		
3	55	284		
4	55	284		

241-C-202 LEVEL HISTORY

Year	Total	Total	Solids	Solids
	(K gal)	(in)	(K gal)	(in)
1-1970	55	284		
2	0	0		
3	0	0		
4	0	0		
1-1971	0	0		
2	0	0		
3	0	0		
4	0	0		
1-1972	0	0		
2	0	0		
3	0	0		
4	0	0		
1-1973	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	1	8	0	0
1-1974	1	8	0	0
2	2	13	0	0
3	2	13	0	0
4	2	13	0	0
1-1975	2	13	0	0
2	2	13	0	0
3	2	13	0	0
4	2	13	0	0
1-1976	2	13	0	0
2	2	13	0	0
3	2	13	0	0
4	2	13	0	0
1-1977	2	13	0	0
2	2	13	0	0
3	2	13	0	0
4	2	13	0	0
1-1978	2	13	0	0
2	2	13	0	0
3	2	13	0	0
4	2	13	0	0
1-1979	2	13	0	0
2	2	13	0	0
3	2	13	0	0
4	2	13	0	0
1-1980	2	13	0	0
2	2	13	0	0
3	3	18	1	8
4	1	8	1	8
1-1981	1	8	1	8
2	1	8	1	8

241-C-202 LEVEL HISTORY

Year	Total	Total	Solids	Solids
	(K gal)	(in)	(K gal)	(in)
3	1	8	1	8
4	1	8	1	8
1-1982	1	8	1	8
2	1	8	1	8
3	1	8	1	8
4	1	8	1	8
1-1983	1	8	1	8
2	1	8	1	8
3	1	8	1	8
4	1	8	1	8
1-1984	1	8	1	8
2	1	8	1	8
3	1	8	1	8
4	1	8	1	8
1-1985	1	8	1	8
2	1	8	1	8
3	1	8	1	8
4	1	8	1	8
1-1986	1	8	1	8
2	1	8	1	8
3	1	8	1	8
4	1	8	1	8
1-1987	1	8	1	8
2	1	8	1	8
3	1	8	1	8
4	1	8	1	8
1-1988	1	8	1	8
2	1	8	1	8
3	1	8	1	8
4	1	8	1	8
1-1989	1	8	1	8
2	1	8	1	8
3	1	8	1	8
4	1	8	1	8
1-1990	1	8	1	8
2	1	8	1	8
3	1	8	1	8
4	1	8	1	8
1-1991	1	8	1	8
2	1	8	1	8
3	1	8	1	8
4	1	8	1	8
1-1992	1	8	1	8
2	1	8	1	8
3	1	8	1	8
4	1	8	1	8

241-C-202 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1993	1	8	1	8
2	1	8	1	8
3	1	8	1	8
4	1	8	1	8
1-1994	1	8	1	8
2	1	8	1	8
3	1	8	1	8
4	1	8	1	8
1-1995	1	8	1	8
2	1	8	1	8
3	1	8	1	8

241-C-203 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1947				
2				
3				
4	41	212		
1-1948	55	284		
2	55	284		
3	55	284		
4	55	284		
1-1949	55	284		
2	55	284		
3	55	284		
4	55	284		
1-1950	55	284		
2	55	284		
3	55	284		
4	55	284		
1-1951	55	284		
2	55	284		
3	55	284		
4	55	284		
1-1952	54.5	281		
2	54.5	281		
3	54.5	281		
4	54.5	281		
1-1953	54.5	281		
2	54.5	281		
3	54.5	281		
4	14.8	79		
1-1954	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
1-1955	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	5	29	0	0
1-1956	5	29	0	0
2	5	29	0	0
3	22	115	0	0
4	34.5	179	0	0
1-1957	36	187		
2	35	182		
3	35	182		
4	35	182		
1-1958	35	182		
2	35	182		

241-C-203 LEVEL HISTORY

Year	Total	Total	Solids	Solids
	(K gal)	(in)	(K gal)	(in)
3	35	182		
4	35	182		
1-1959	34	176		
2	34	176		
3	34	176		
4	34	176		
1-1960	34	176		
2	34	176		
3	34	176		
4	34	176		
1-1961				
2	34	176		
3				
4	34	176		
1-1962				
2	34	176		
3				
4	34	176		
1-1963				
2	34	176		
3				
4	35	182		
1-1964				
2	35	182		
3				
4	35	182		
1-1965				
2	33	171		
3	33	171		
4	33	171		
1-1966	33	171		
2	33	171		
3	33	171		
4	33	171		
1-1967	34	176		
2	34	176		
3	34	176		
4	34	176		
1-1968	34	176		
2	34	176		
3	34	176		
4	34	176		
1-1969	34	176		
2	34	176		
3	34	176		
4	34	176		

241-C-203 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1970	18	95	5	29
2	6	34	5	29
3	6	34	5	29
4	6	34	5	29
1-1971	6	34	5	29
2	6	34	5	29
3	6	34	5	29
4	6	34	5	29
1-1972	6	34	3	18
2	6	34	3	18
3	6	34	3	18
4	6	34	3	18
1-1973	6	34	3	18
2	6	34	3	18
3	6	34	3	18
4	7	39	3	18
1-1974	7	39	3	18
2	8	44	3	18
3	8	44	3	18
4	7	39	3	18
1-1975	7	39	3	18
2	8	44	3	18
3	8	44	3	18
4	8	44	3	18
1-1976	8	44	3	18
2	8	44	3	18
3	8	44	3	18
4	8	44	3	18
1-1977	8	44	3	18
2	8	44	3	18
3	8	44	3	18
4	8	44	4	23
1-1978	8	44	4	23
2	8	44	4	23
3	8	44	4	23
4	8	44	4	23
1-1979	8	44	4	23
2	8	44	4	23
3	8	44	4	23
4	8	44	4	23
1-1980	8	44	4	23
2	8	44	4	23
3	9	49	5	29
4	9	49	5	29
1-1981	9	49	5	29
2	9	49	5	29

241-C-203 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
3	9	49	5	29
4	9	49	5	29
1-1982	5	29	5	29
2	5	29	4	23
3	5	29	5	29
4	5	29	5	29
1-1983	5	29	5	29
2	5	29	5	29
3	5	29	5	29
4	5	29	5	29
1-1984	5	29	4	23
2	5	29	5	29
3	5	29	5	29
4	5	29	5	29
1-1985	5	29	5	29
2	5	29	5	29
3	5	29	5	29
4	5	29	5	29
1-1986	5	29	5	29
2	5	29	5	29
3	5	29	5	29
4	5	29	5	29
1-1987	5	29	5	29
2	5	29	5	29
3	5	29	5	29
4	5	29	5	29
1-1988	5	29	5	29
2	5	29	5	29
3	5	29	5	29
4	5	29	5	29
1-1989	5	29	5	29
2	5	29	5	29
3	5	29	5	29
4	5	29	5	29
1-1990	5	29	5	29
2	5	29	5	29
3	5	29	5	29
4	5	29	5	29
1-1991	5	29	5	29
2	5	29	5	29
3	5	29	5	29
4	5	29	5	29
1-1992	5	29	5	29
2	5	29	5	29
3	5	29	5	29
4	5	29	5	29

241-C-203 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1993	5	29	5	29
2	5	29	5	29
3	5	29	5	29
4	5	29	5	29
1-1994	5	29	5	29
2	5	29	5	29
3	5	29	5	29
4	5	29	5	29
1-1995	5	29	5	29
2	5	29	5	29
3	5	29	5	29

241-C-204 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1947				
2				
3				
4				
1-1948	55	284		
2	55	284		
3	55	284		
4	55	284		
1-1949	55	284		
2	55	284		
3	55	284		
4	55	284		
1-1950	55	284		
2	55	284		
3	55	284		
4	55	284		
1-1951	55	284		
2	55	284		
3	55	284		
4	55	284		
1-1952	54.5	281		
2	54.5	281		
3	54.5	281		
4	54.5	281		
1-1953	54.5	281		
2	54.5	281		
3	54.5	281		
4	15.2	81		
1-1954	51	263	11	59
2	51	263	11	59
3	51	263	11	59
4	47	243	11	59
1-1955	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	5	29	0	0
1-1956	5	29	0	0
2	34	176	0	0
3	34	176	0	0
4	34.5	179	0	0
1-1957	54	279		
2	33	171		
3	32	166		
4	32	166		
1-1958	34	176		
2	34	176		

241-C-204 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
3	34	176		
4	34	176		
1-1959	33	171		
2	33	171		
3	33	171		
4	36	187		
1-1960	36	187		
2	36	187		
3	36	187		
4	36	187		
1-1961				
2	37	192		
3				
4	37	192		
1-1962				
2	37	192	11	59
3				
4	37	192	11	59
1-1963				
2	37	192	11	59
3				
4	36	187	11	59
1-1964				
2	36	187	11	59
3				
4	36	187	11	59
1-1965				
2	36	187	11	59
3	36	187	11	59
4	36	187	11	59
1-1966	36	187	11	59
2	36	187	11	59
3	36	187	11	59
4	36	187	11	59
1-1967	36	187	11	59
2	36	187	11	59
3	36	187	11	59
4	57	294	11	59
1-1968	57	294	11	59
2	57	294	11	59
3	57	294	11	59
4	57	294	11	59
1-1969	57	294	11	59
2	57	294	11	59
3	57	294	11	59
4	57	294	11	59

241-C-204 LEVEL HISTORY

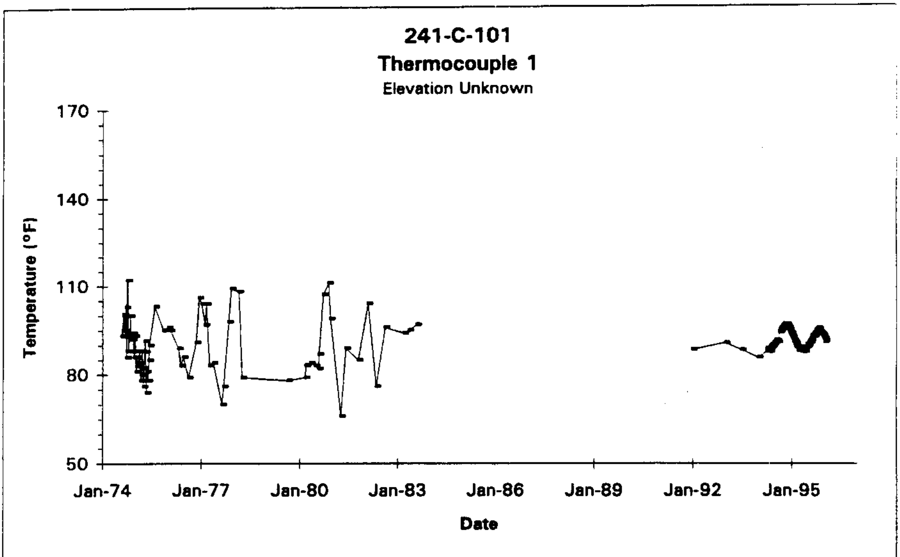
Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1970	57	294	2	13
2	43	222	2	13
3	42	217	2	13
4	42	217	2	13
1-1971	42	217	2	13
2	42	217	2	13
3	42	217	2	13
4	42	217	2	13
1-1972	42	217	1	8
2	42	217	1	8
3	42	217	1	8
4	42	217	1	8
1-1973	42	[illegible]	1	8
2	42	217	1	8
3	42	21[illegible]	1	8
4	44	227	1	8
1-1974	44	227	1	8
2	44	227	1	8
3	44	227	1	8
4	44	227	0	0
1-1975	44	227	0	0
2	44	227	0	0
3	44	227	0	0
4	44	227	0	0
1-1976	44	227	0	0
2	44	227	0	0
3	44	227	0	0
4	44	227	0	0
1-1977	44	227	0	0
2	44	227	0	0
3	3	18	0	0
4	3	18	0	0
1-1978	3	18	0	0
2	3	18	0	0
3	3	18	0	0
4	3	18	0	0
1-1979	3	18	0	0
2	3	18	0	0
3	3	18	0	0
4	3	18	0	0
1-1980	3	18	0	0
2	3	18	0	0
3	3	18	1	8
4	3	18	1	8
1-1981	3	18	1	8
2	3	18	1	8

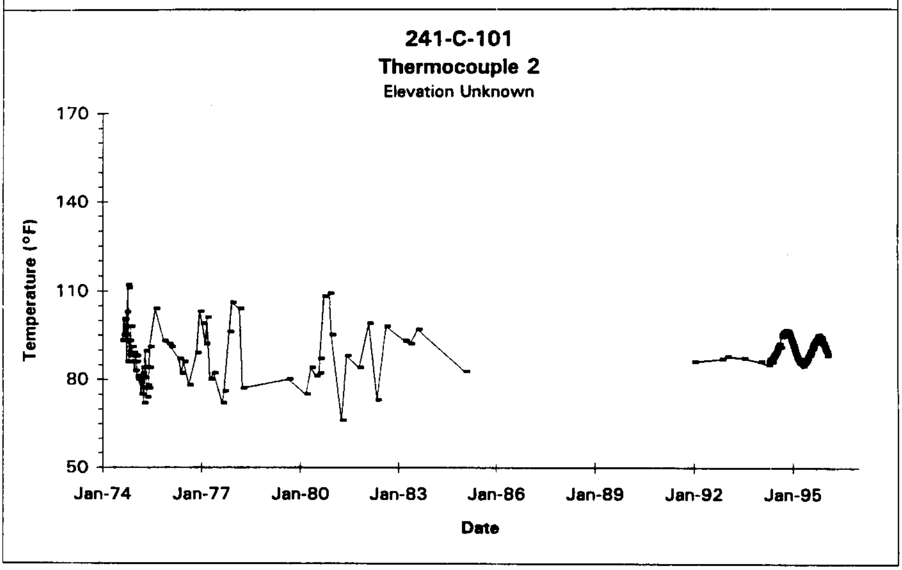
241-C-204 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
3	3	18	1	8
4	3	18	1	8
1-1982	3	18	1	8
2	3	18	3	18
3	3	18	3	18
4	3	18	3	18
1-1983	3	18	3	18
2	3	18	3	18
3	3	18	3	18
4	3	18	3	18
1-1984	3	18	3	18
2	3	18	3	18
3	3	18	3	18
4	3	18	3	18
1-1985	3	18	3	18
2	3	18	3	18
3	3	18	3	18
4	3	18	3	18
1-1986	3	18	3	18
2	3	18	3	18
3	3	18	3	18
4	3	18	3	18
1-1987	3	18	3	18
2	3	18	3	18
3	3	18	3	18
4	3	18	3	18
1-1988	3	18	3	18
2	3	18	3	18
3	3	18	3	18
4	3	18	3	18
1-1989	3	18	3	18
2	3	18	3	18
3	3	18	3	18
4	3	18	3	18
1-1990	3	18	3	18
2	3	18	3	18
3	3	18	3	18
4	3	18	3	18
1-1991	3	18	3	18
2	3	18	3	18
3	3	18	3	18
4	3	18	3	18
1-1992	3	18	3	18
2	3	18	3	18
3	3	18	3	18
4	3	18	3	18

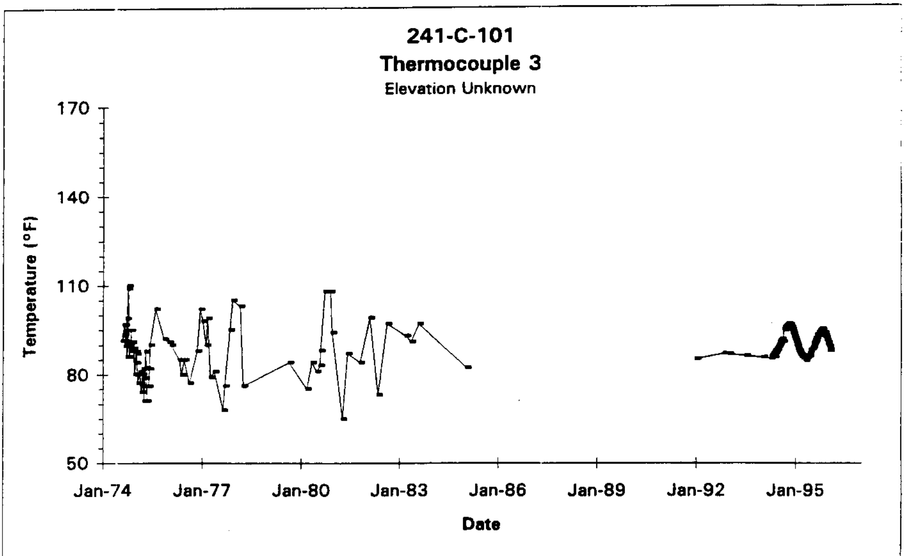
241-C-204 LEVEL HISTORY

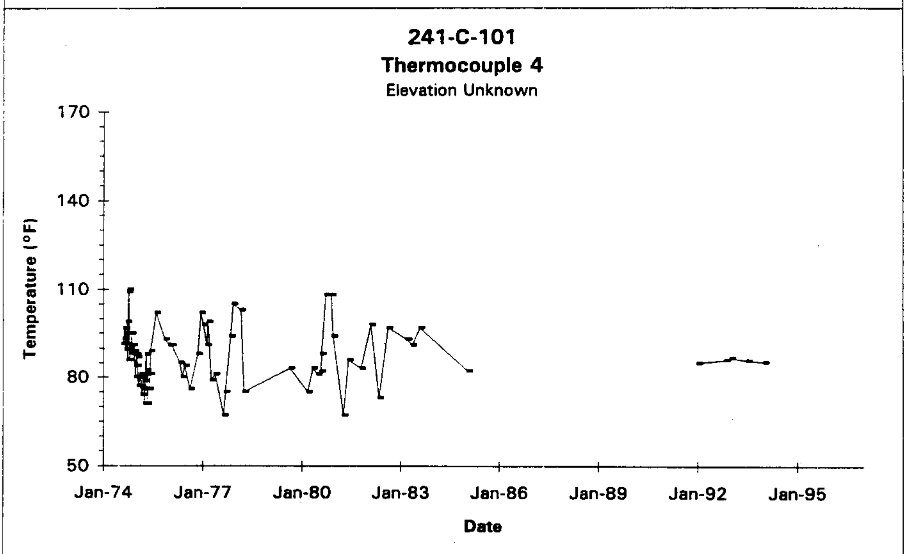
Year	Total	Total	Solids	Solids
	(K gal)	(in)	(K gal)	(in)
1-1993	3	18	3	18
2	3	18	3	18
3	3	18	3	18
4	3	18	3	18
1-1994	3	18	3	18
2	3	18	3	18
3	3	18	3	18
4	3	18	3	18
1-1995	3	18	3	18
2	3	18	3	18
3	3	18	3	18





Data obtained from WHC Surveillance Analysis Computer System (SACS), Jan 9, 1996.





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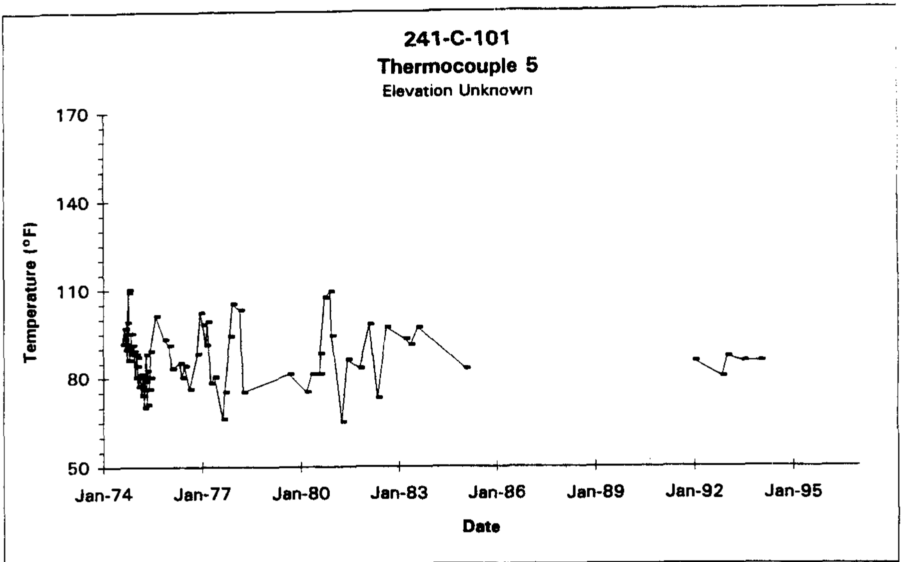

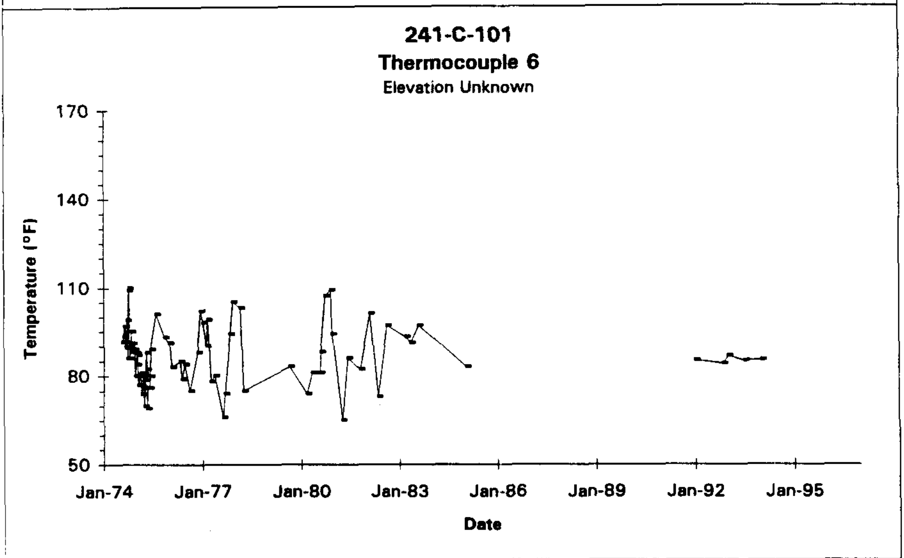

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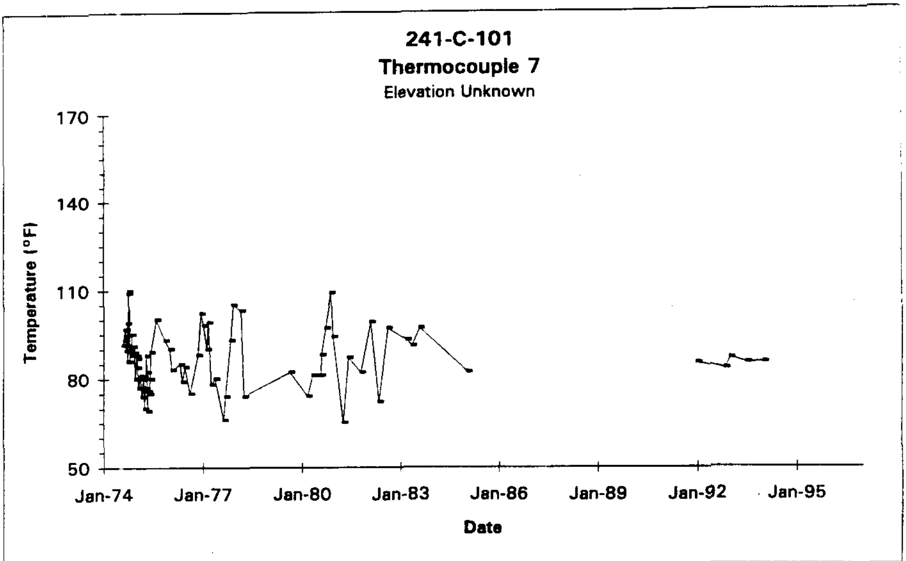

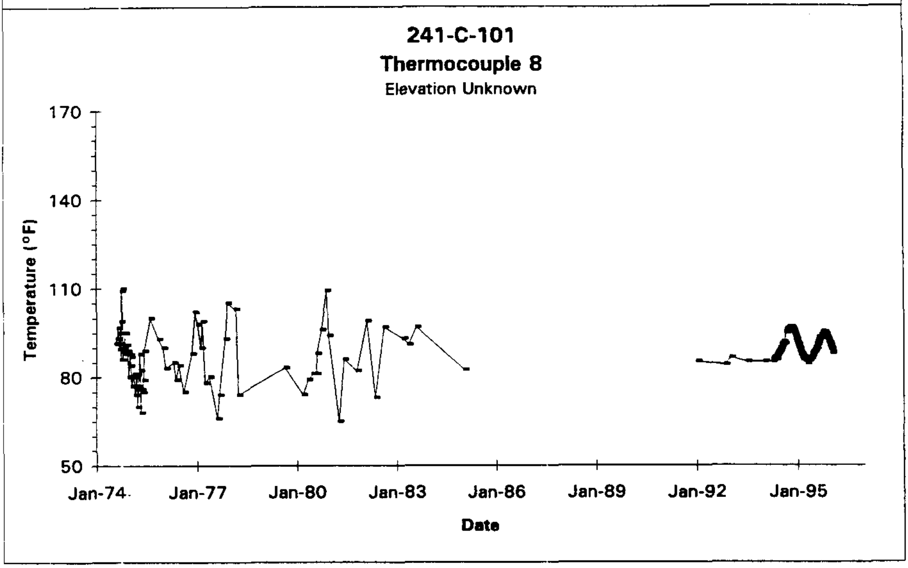

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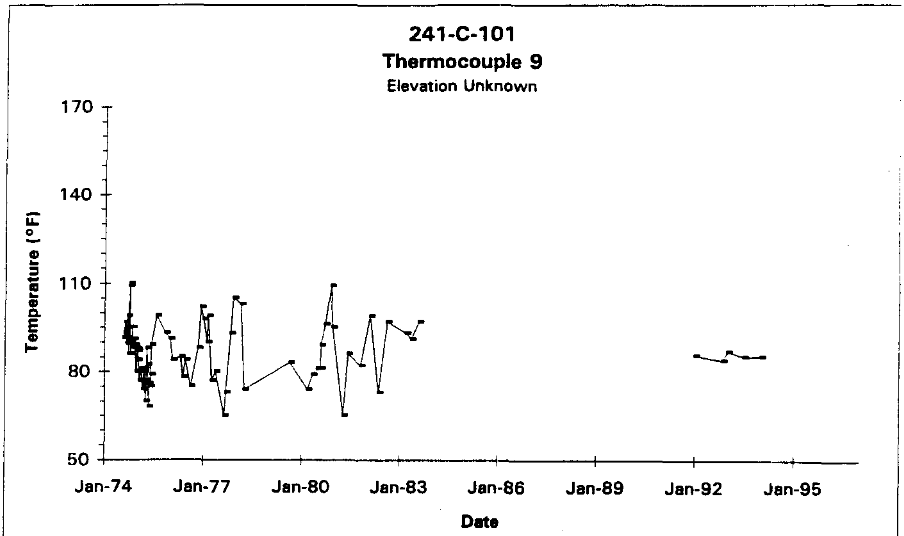

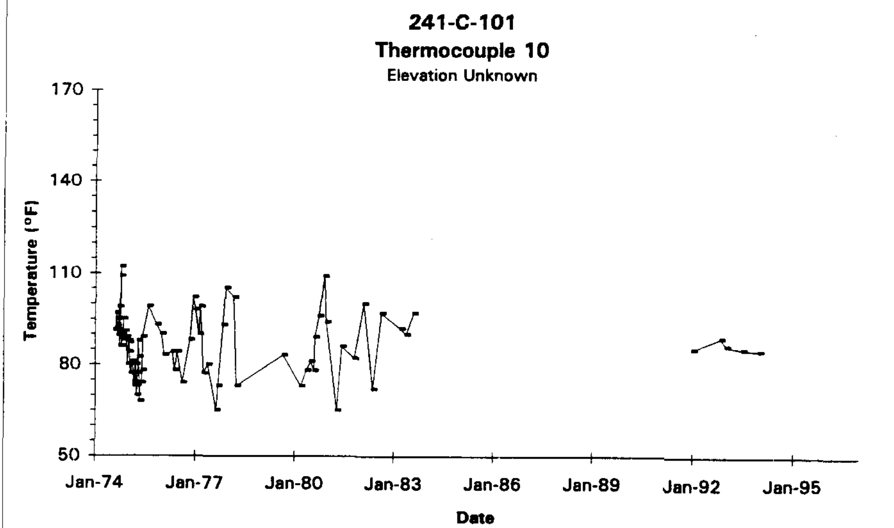

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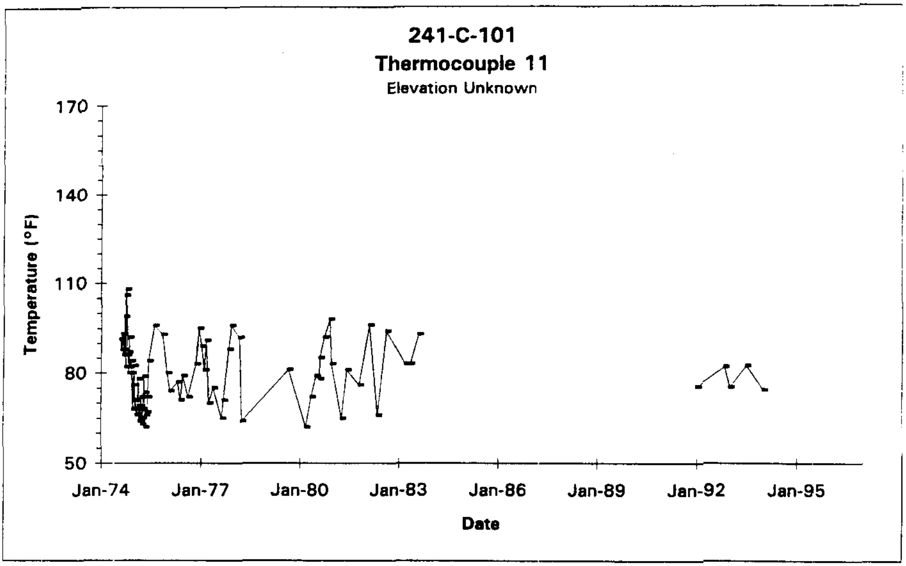

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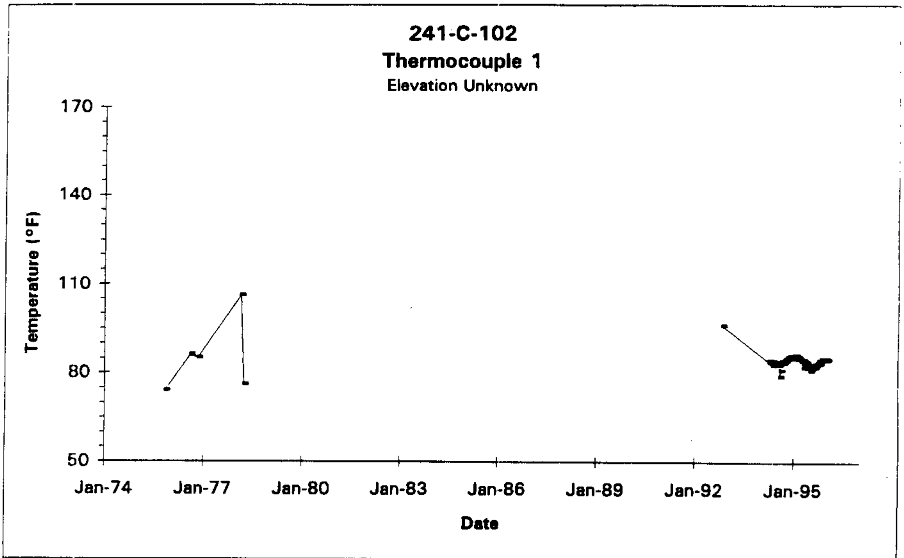

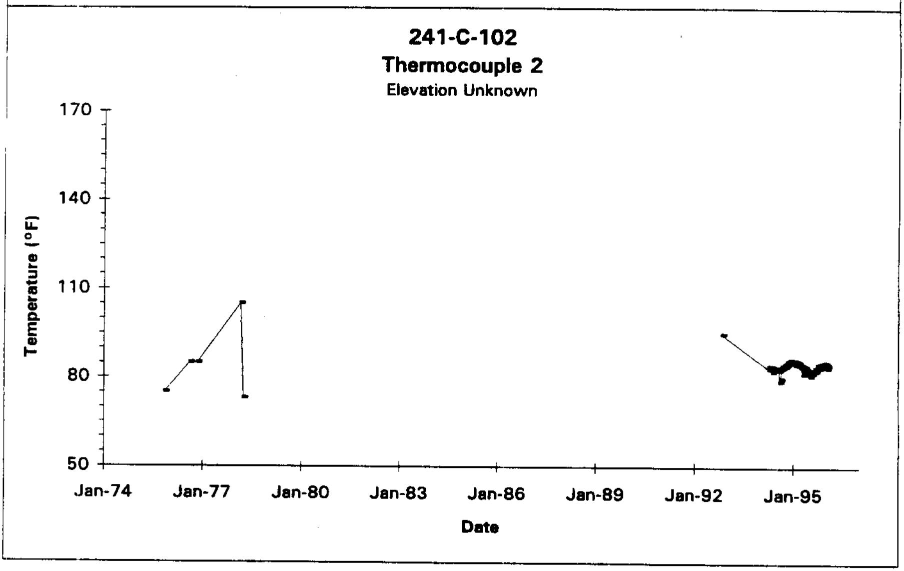

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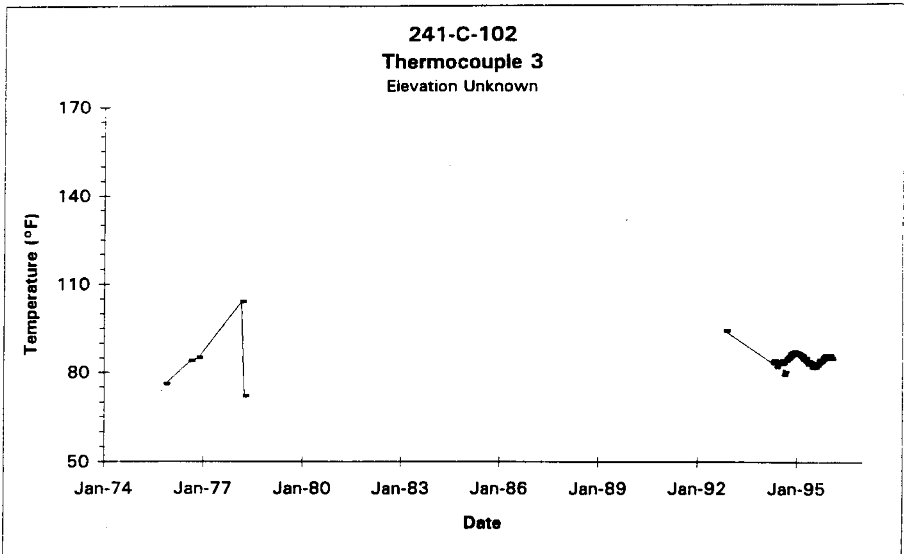

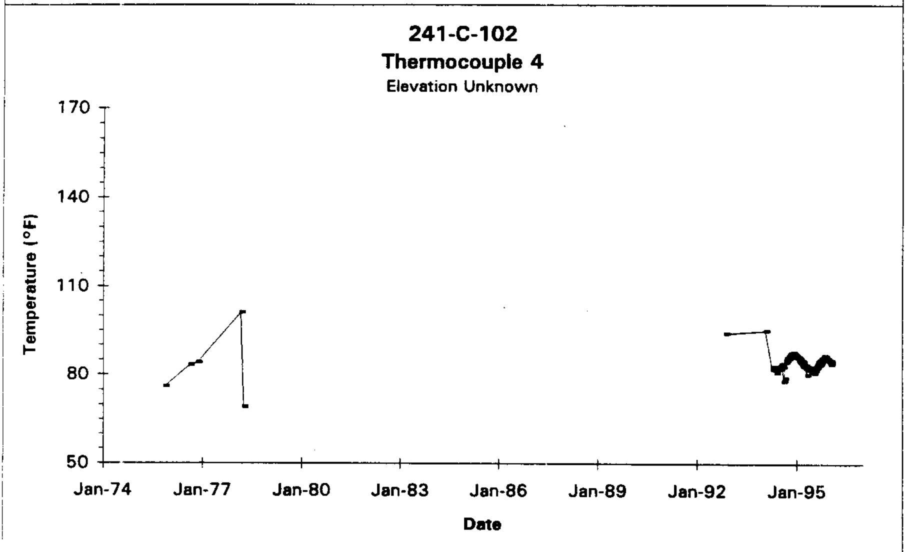

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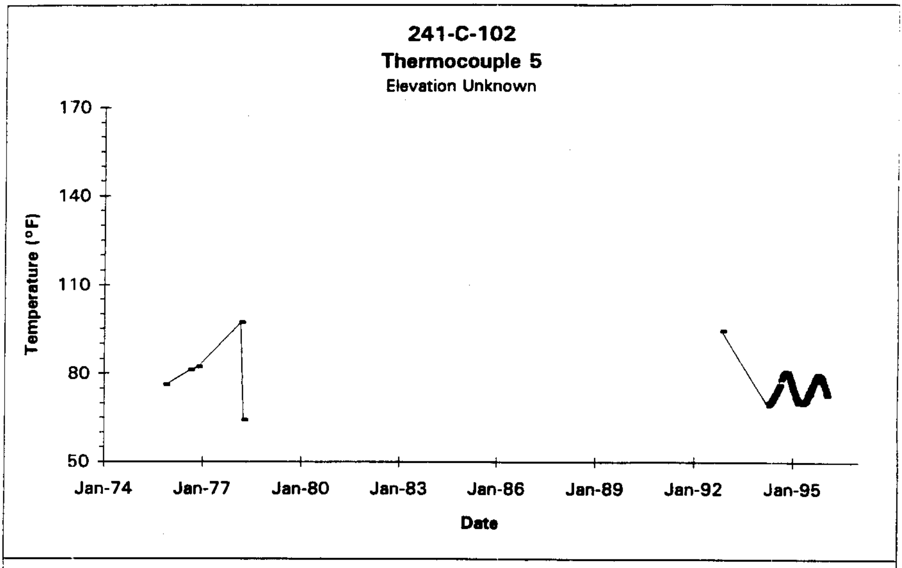

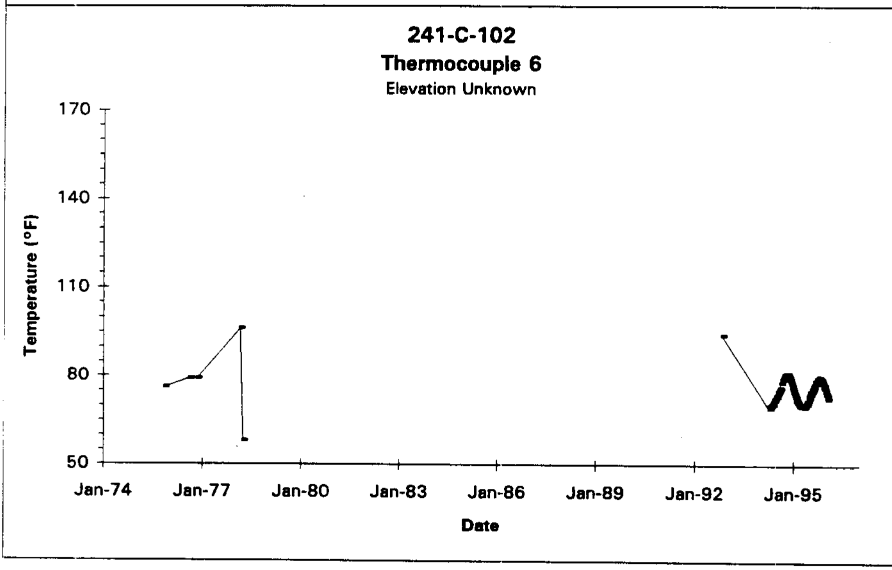

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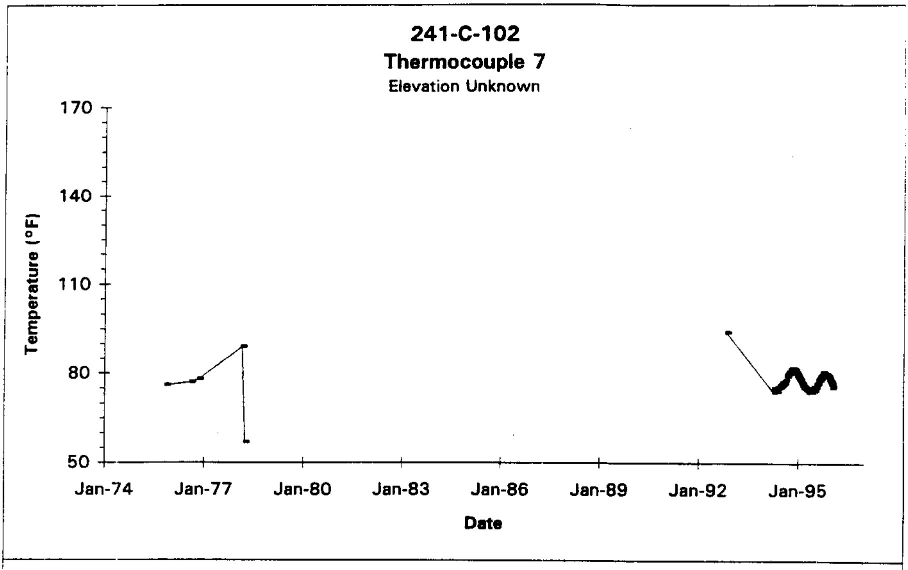

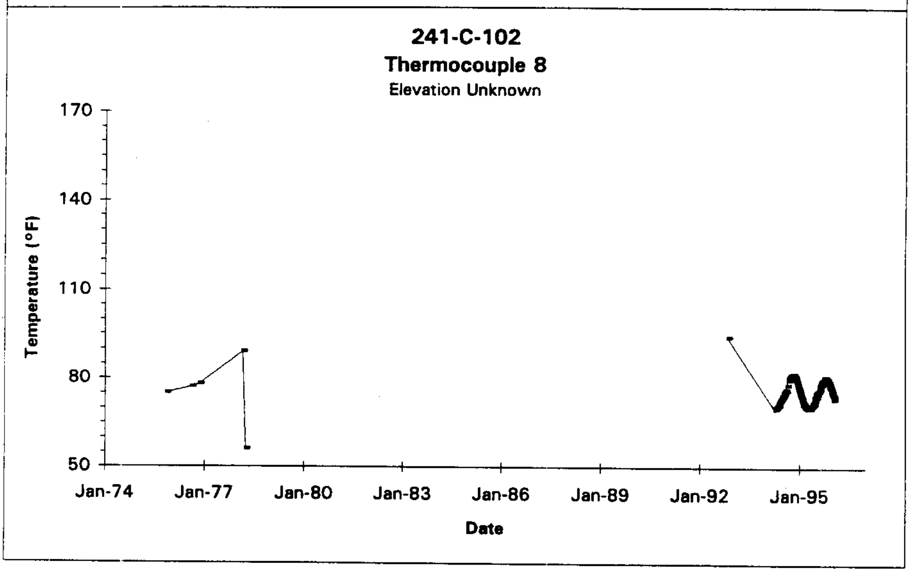

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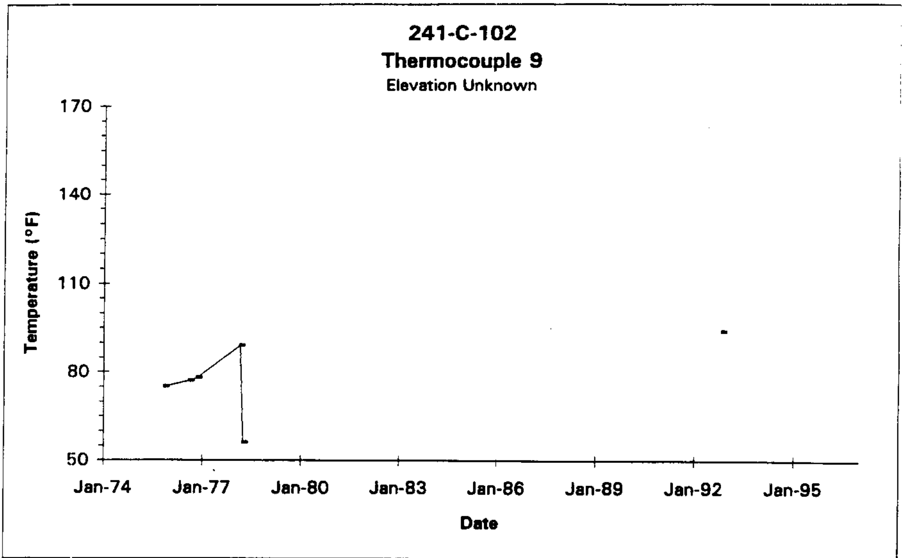

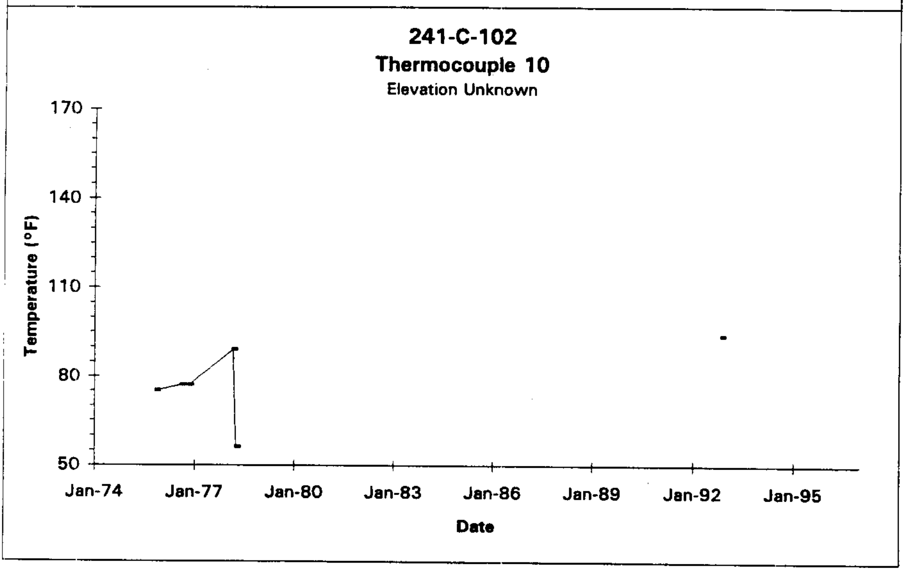

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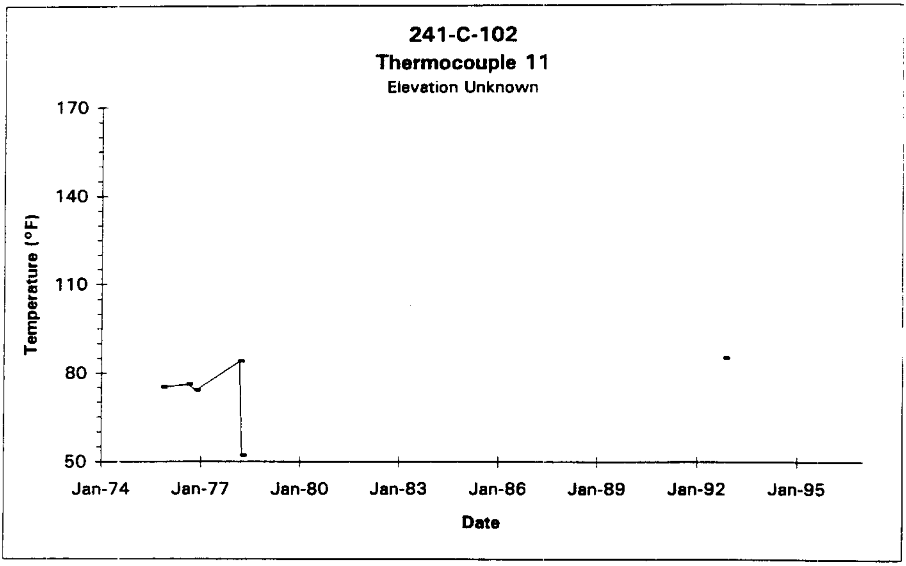

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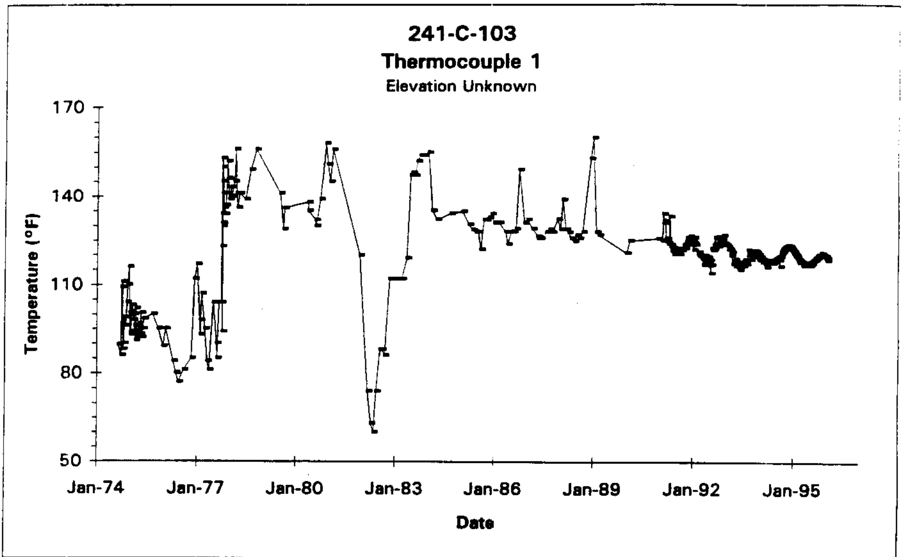

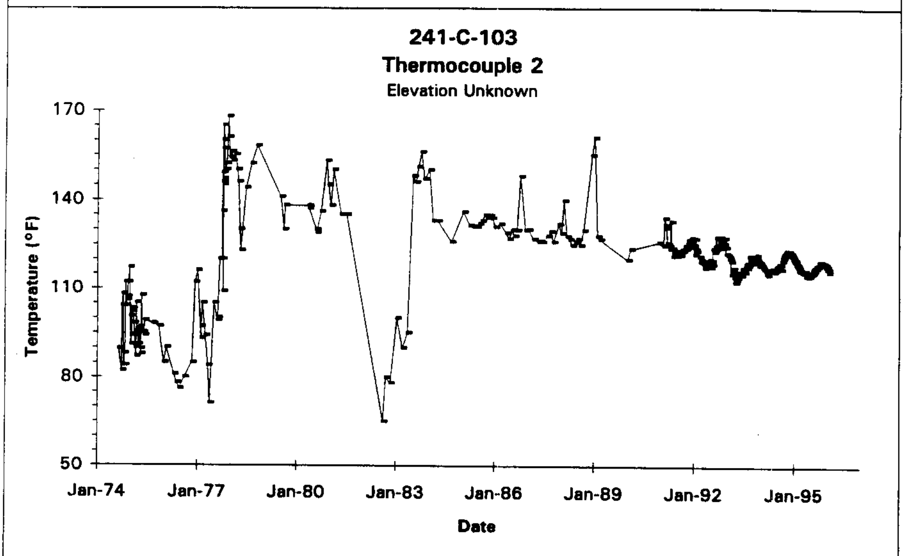

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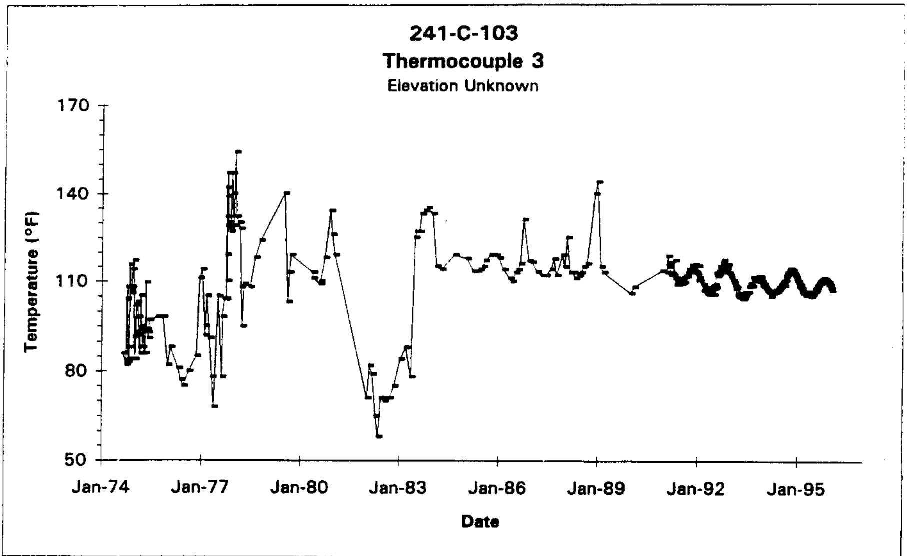

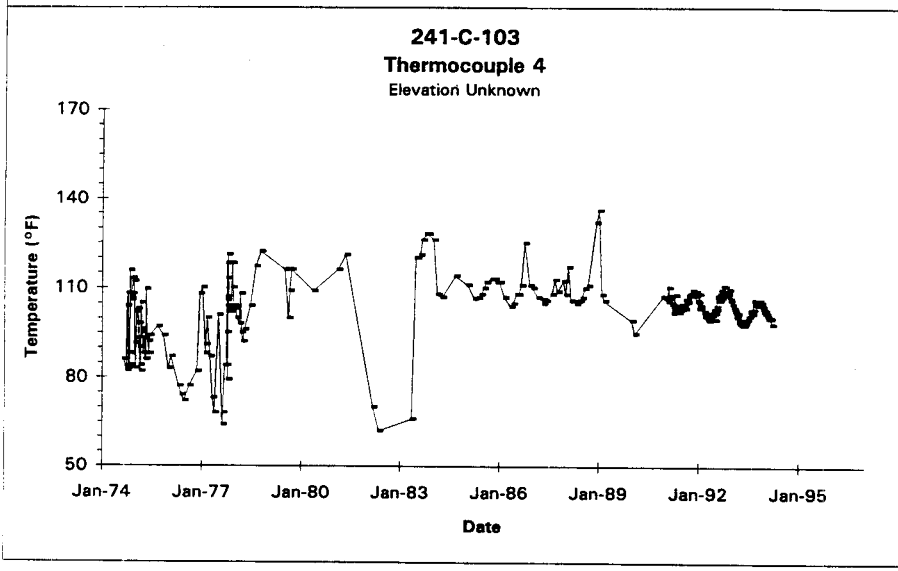

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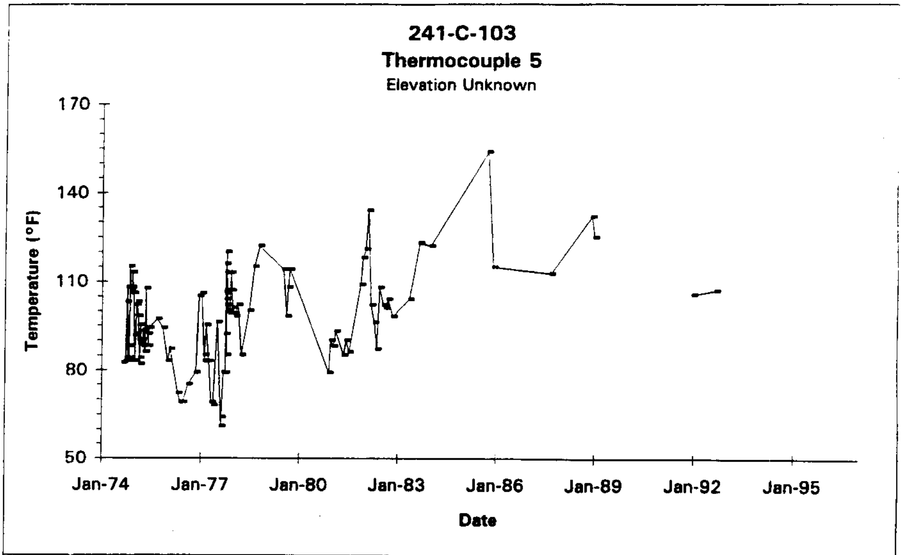

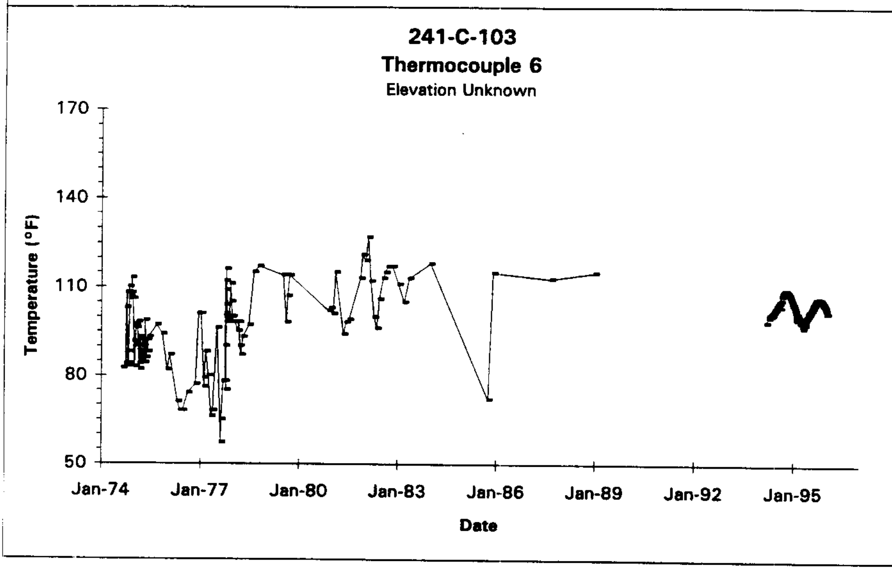

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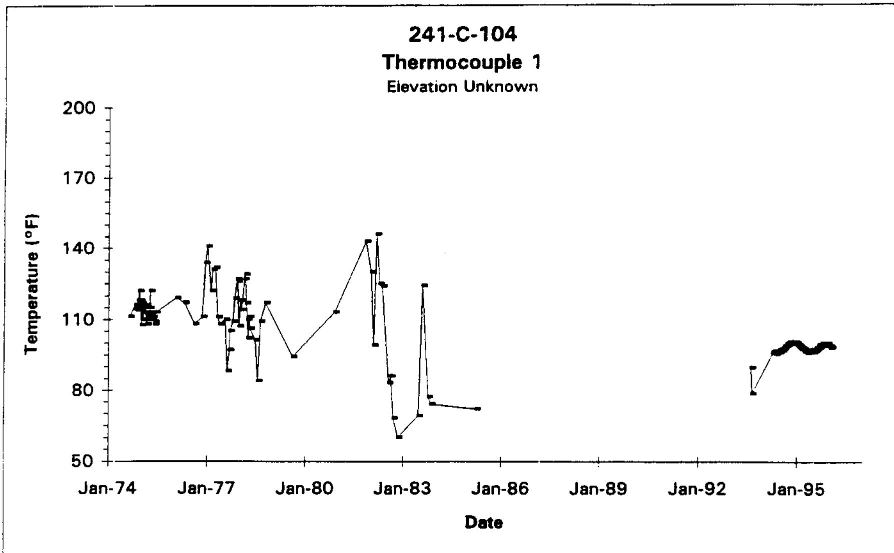

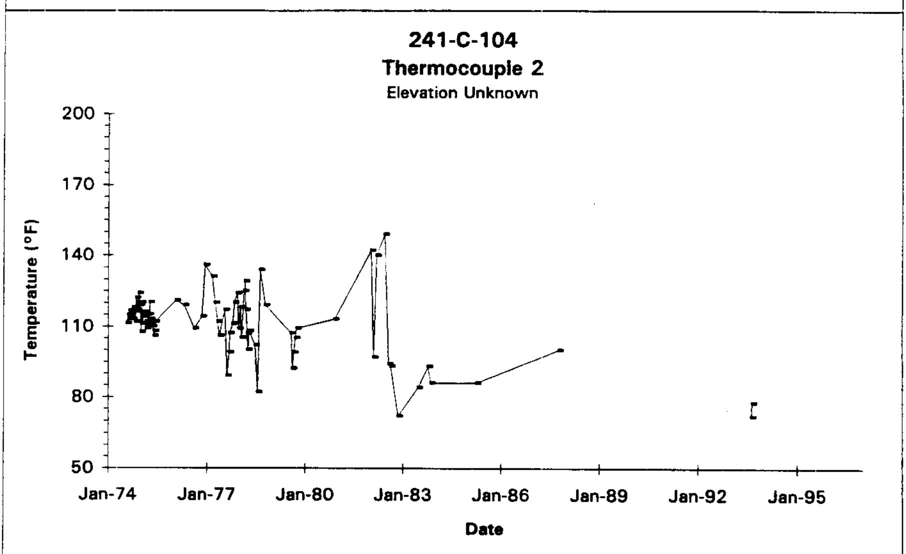

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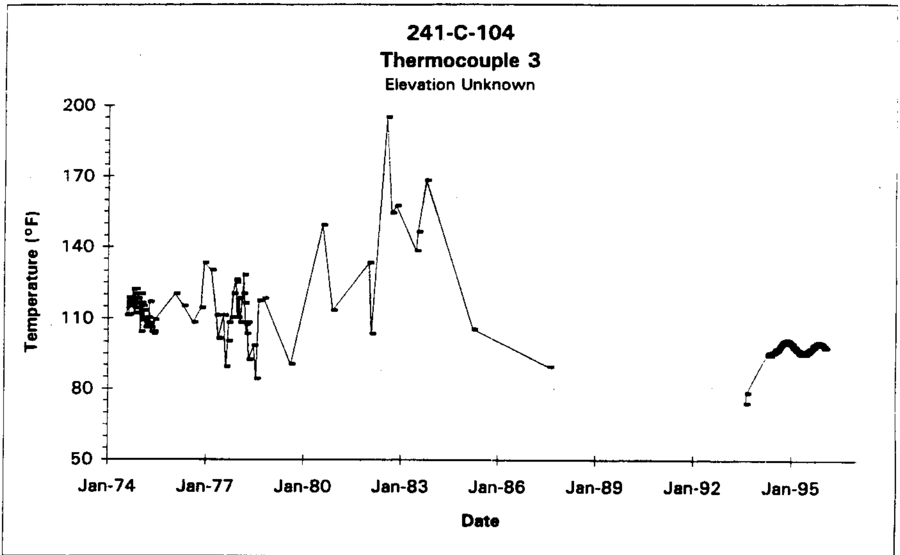

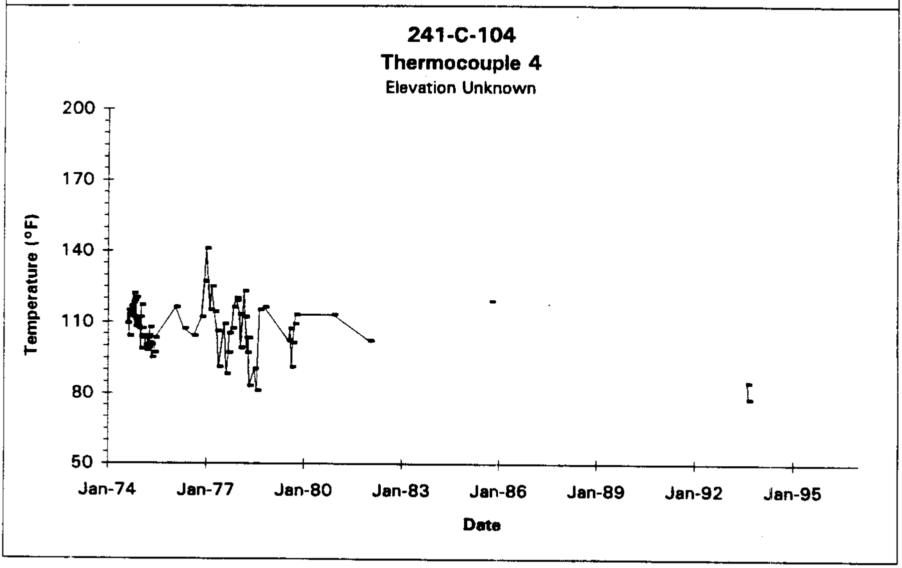

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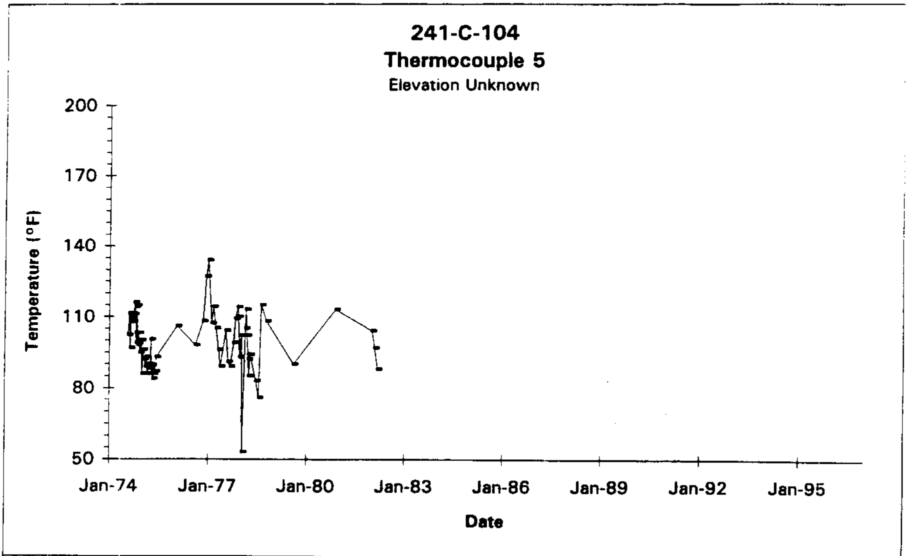

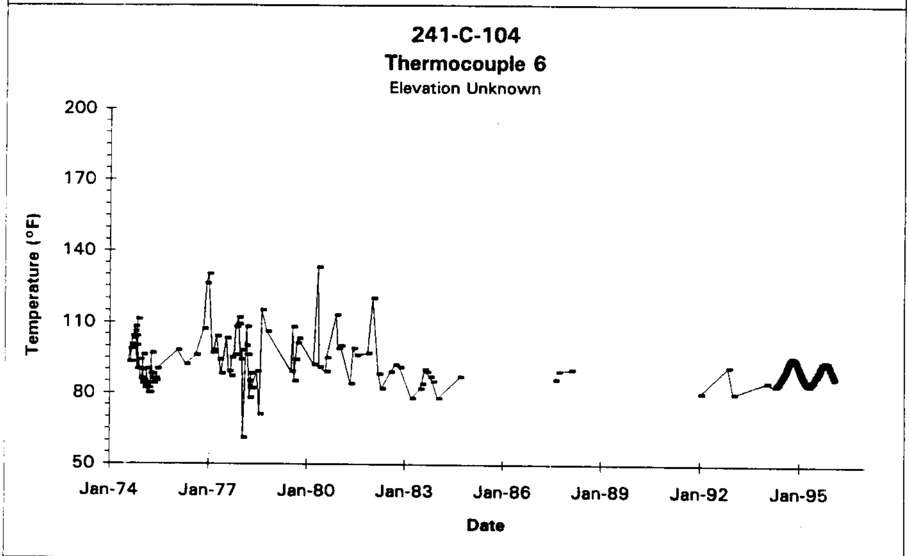

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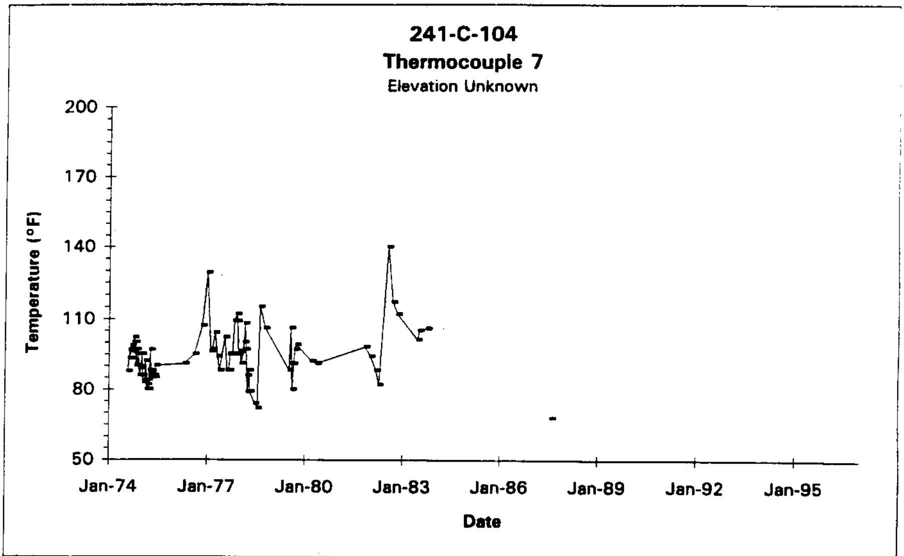

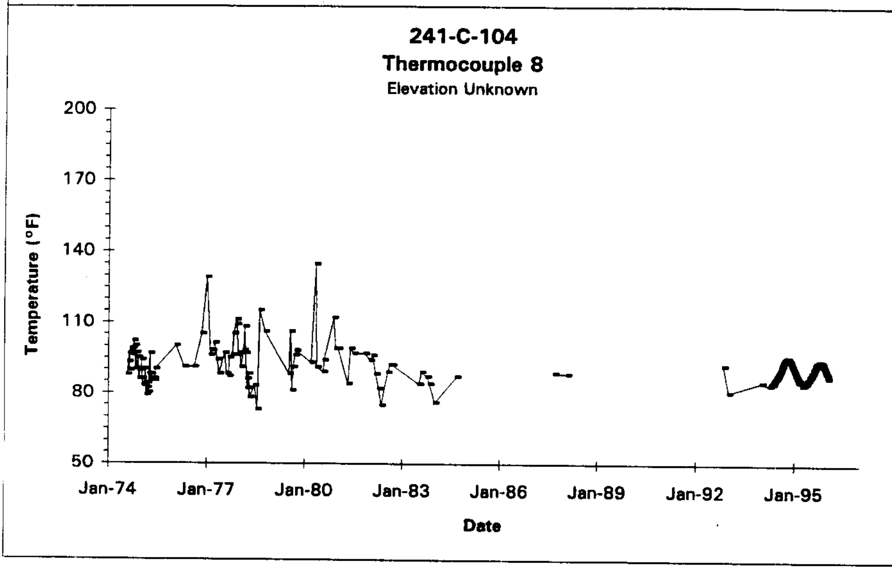

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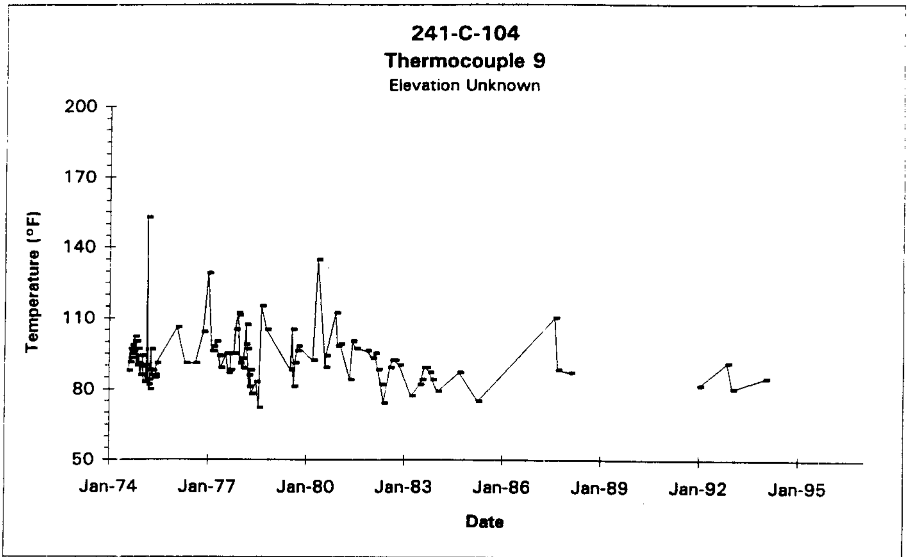

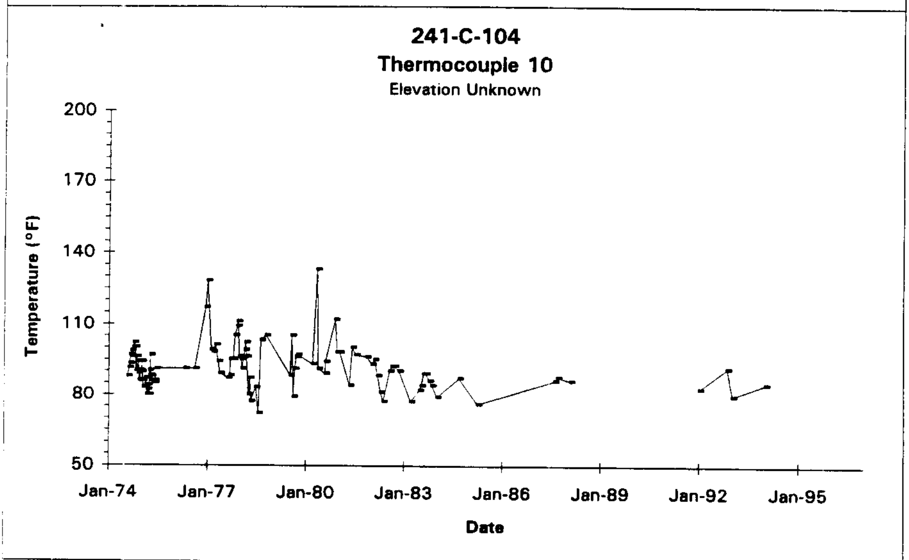

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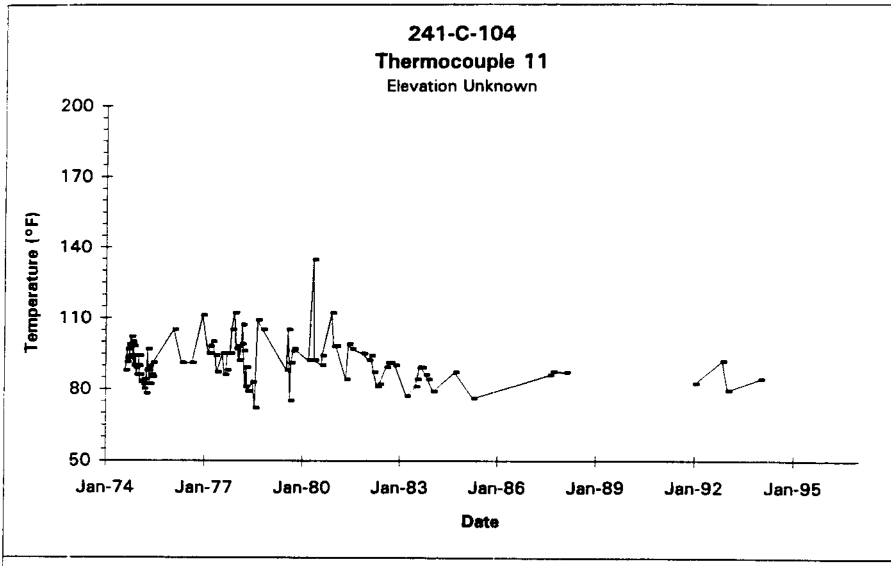

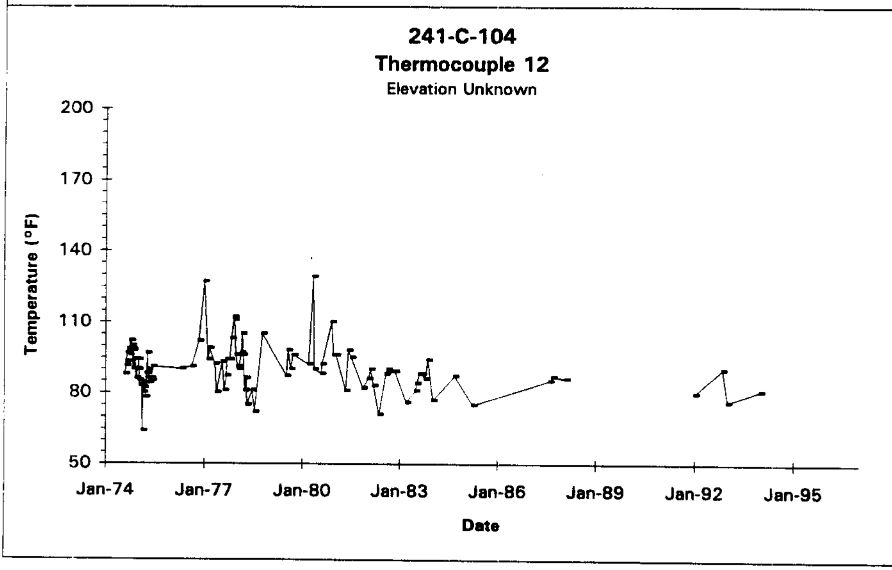

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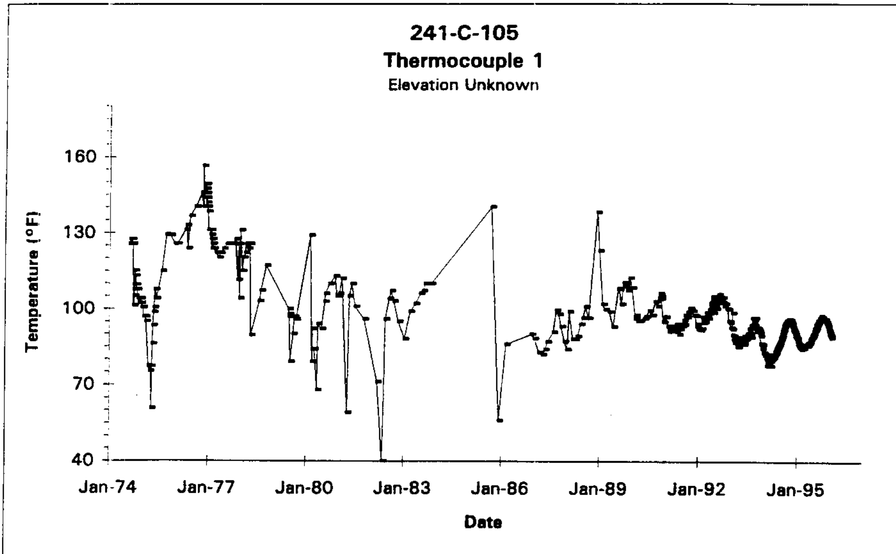

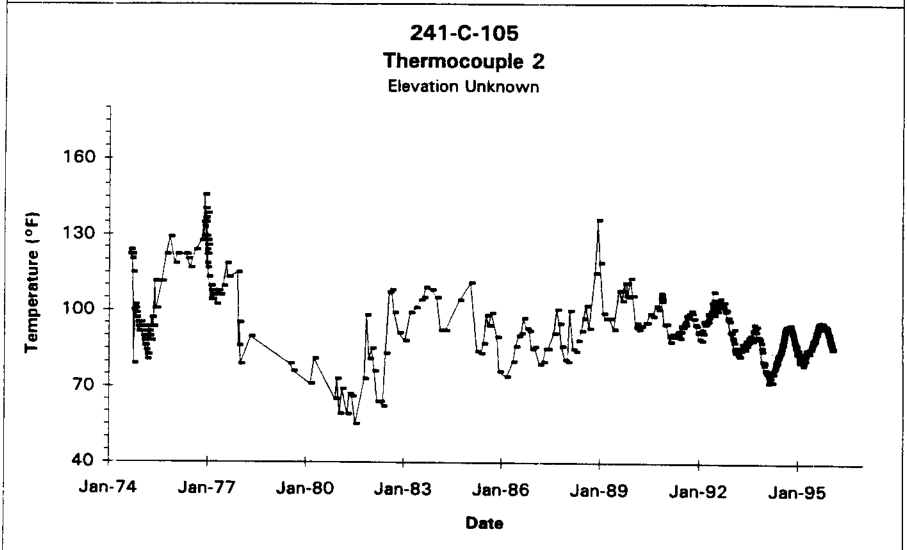

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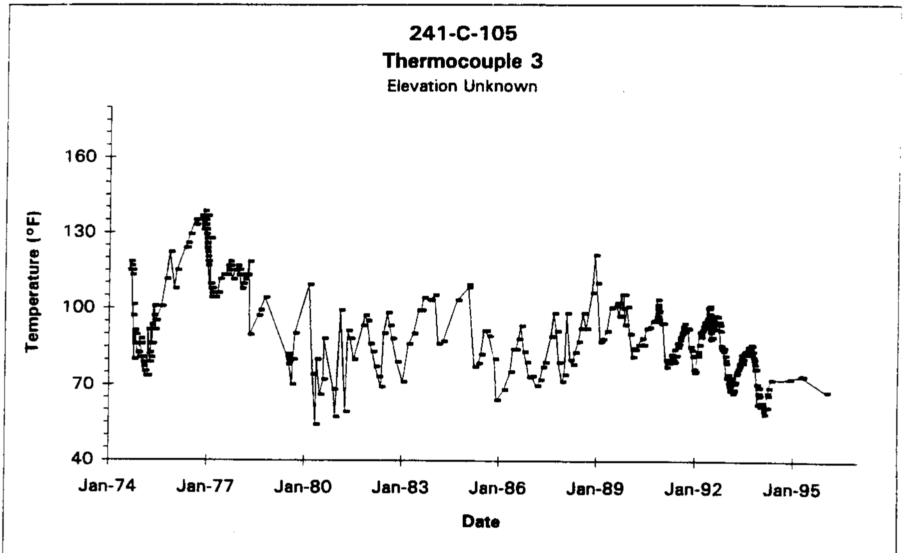

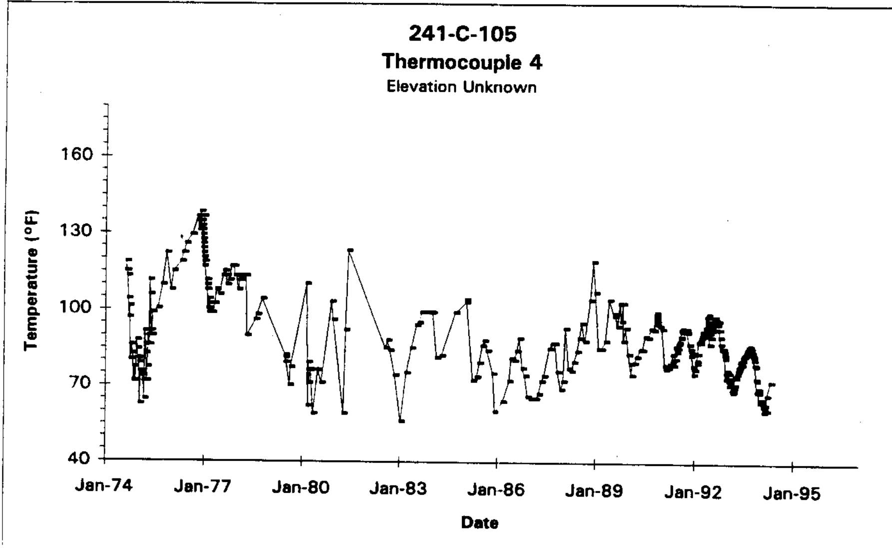

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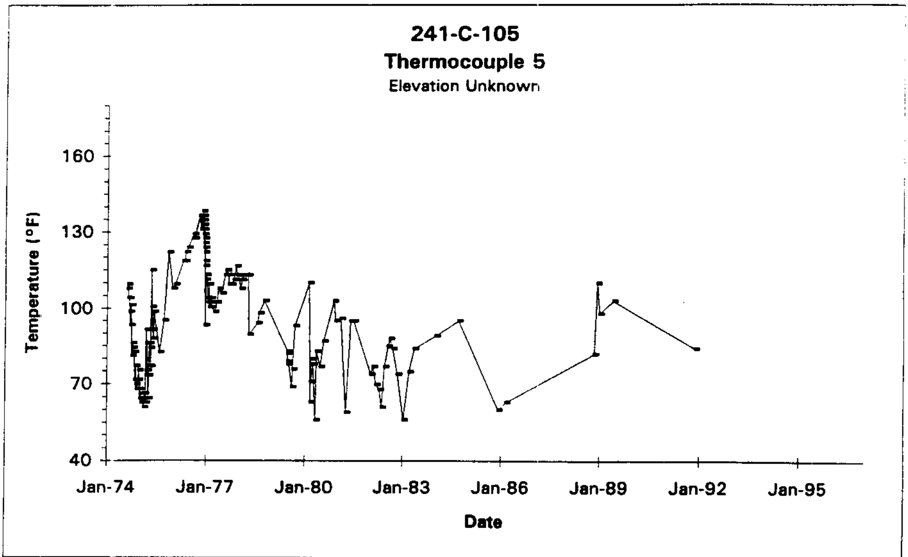

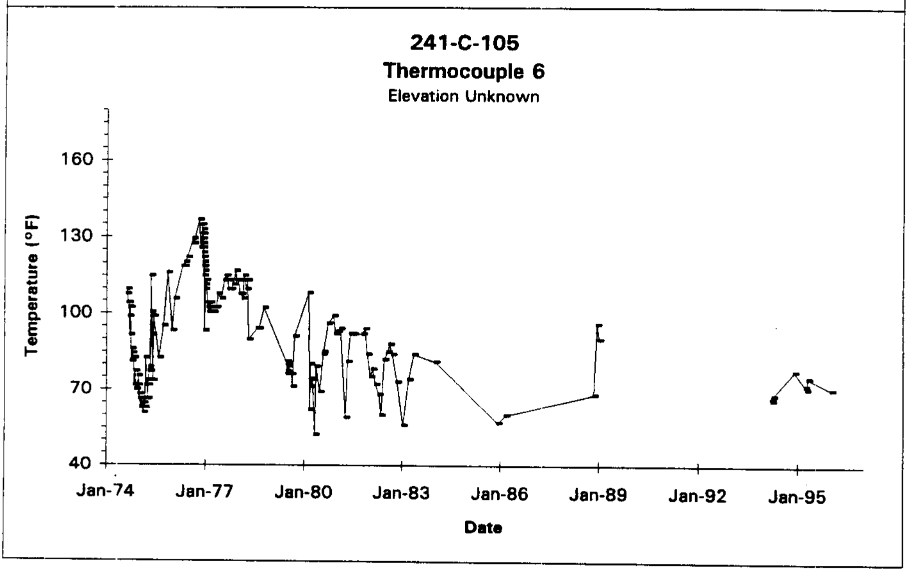

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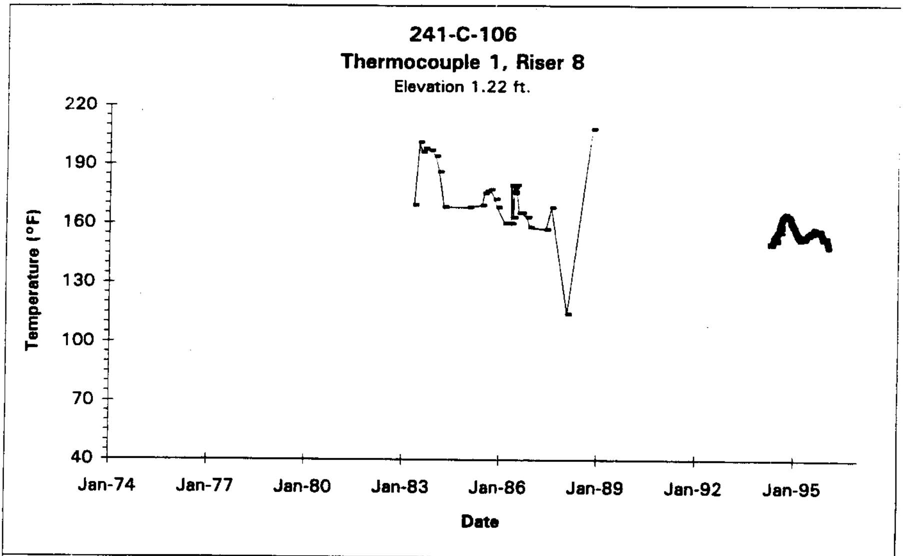

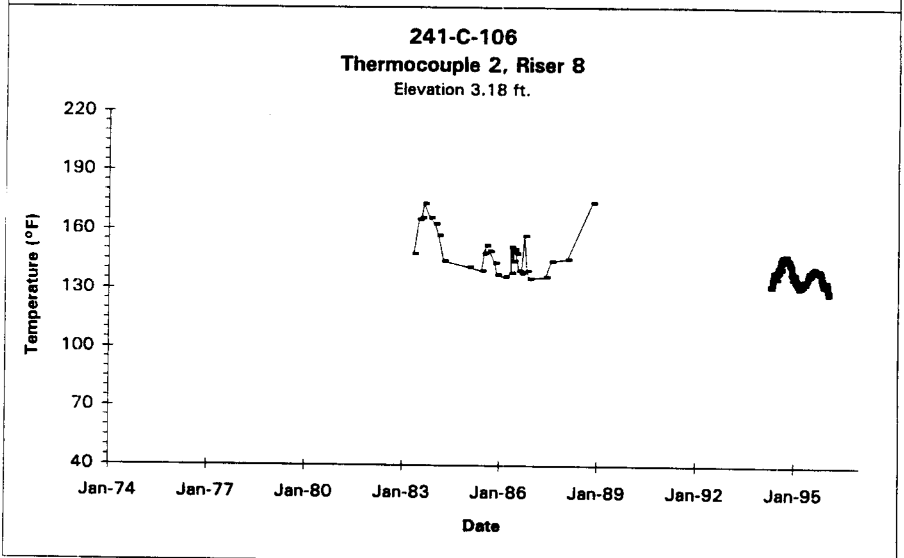

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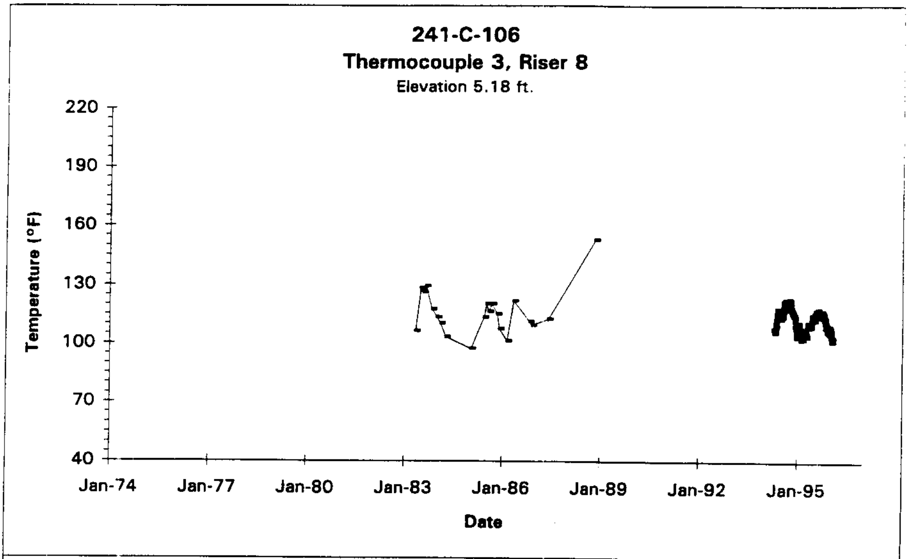

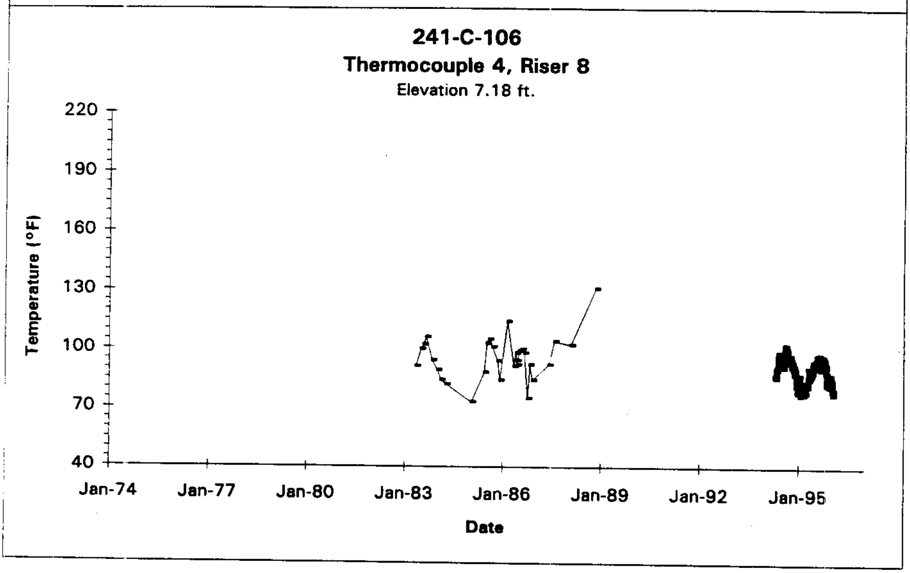

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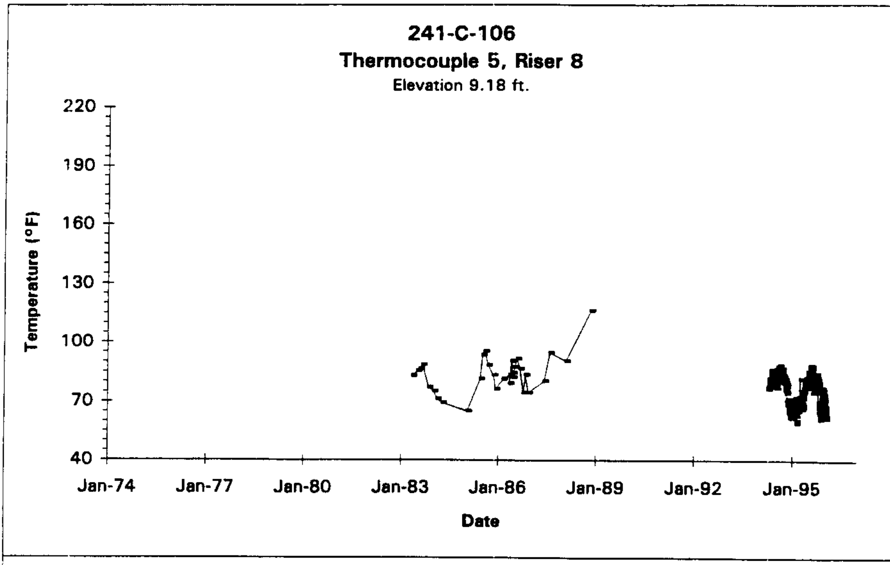

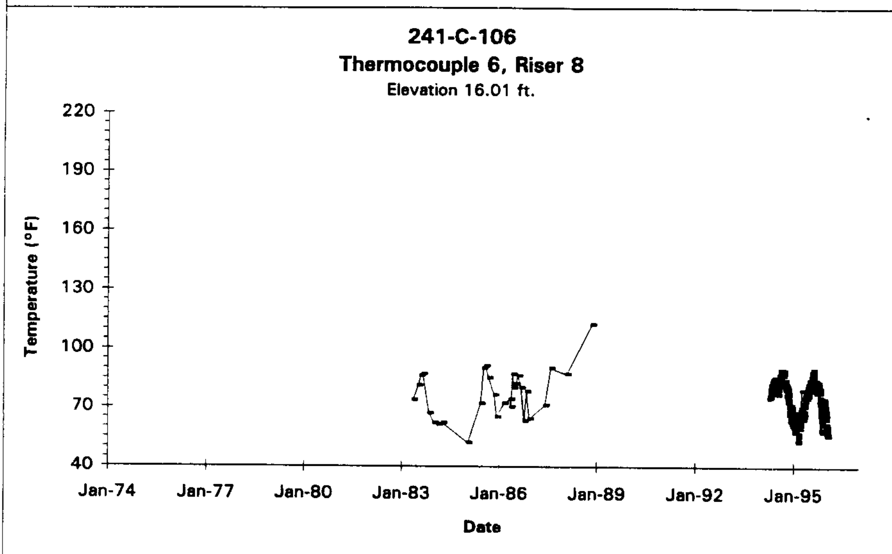

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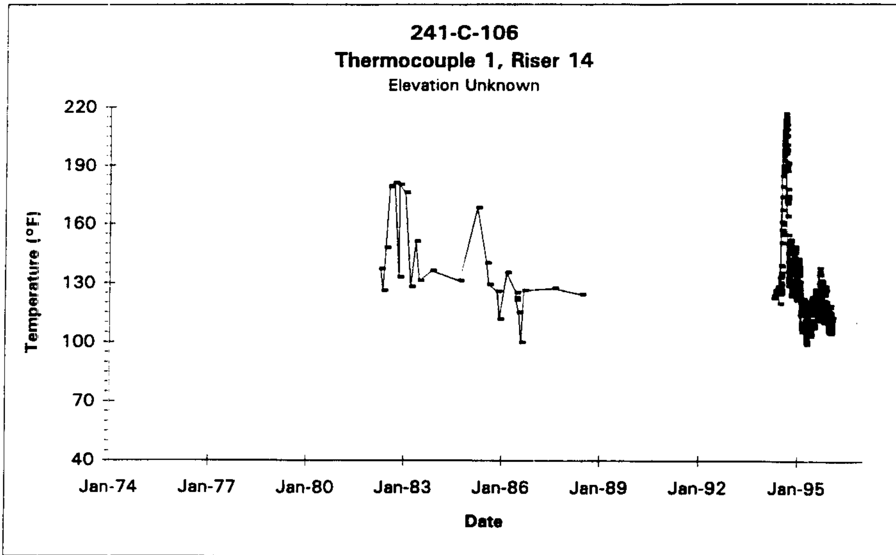

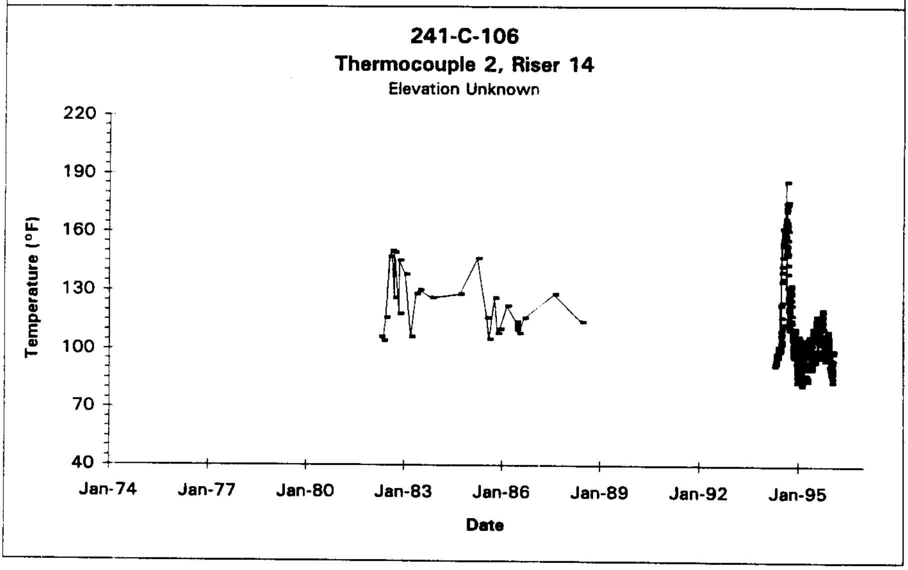

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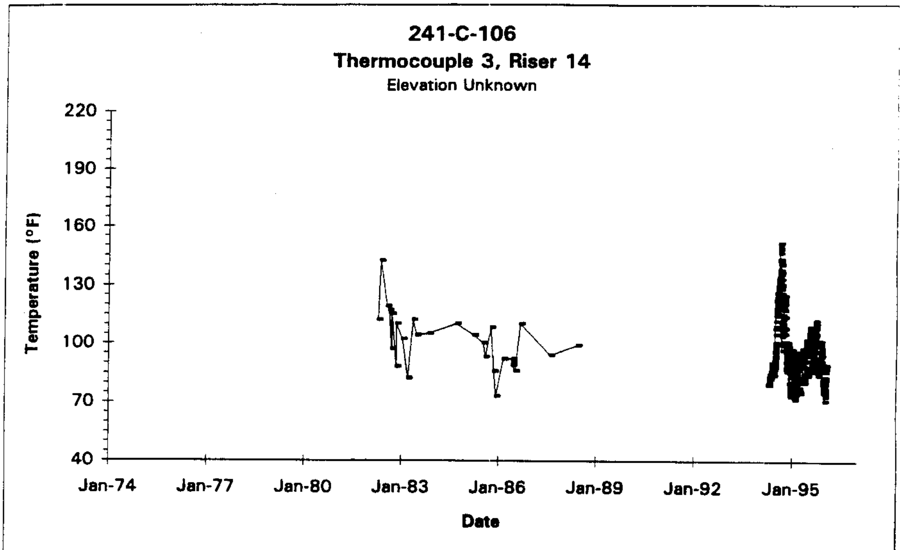

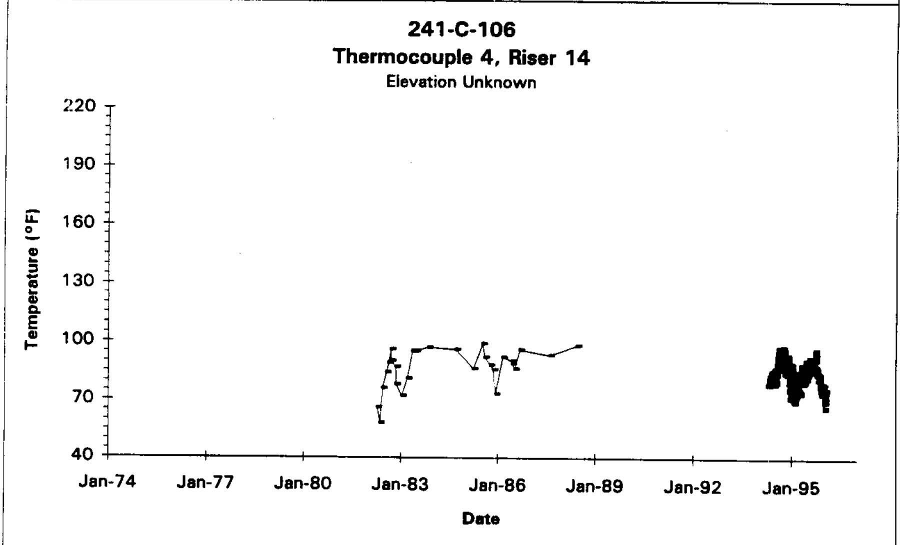

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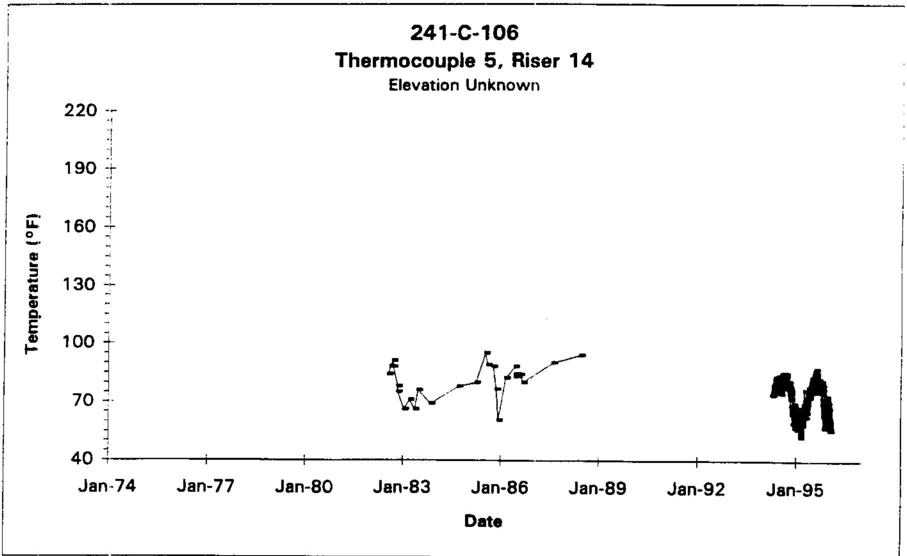

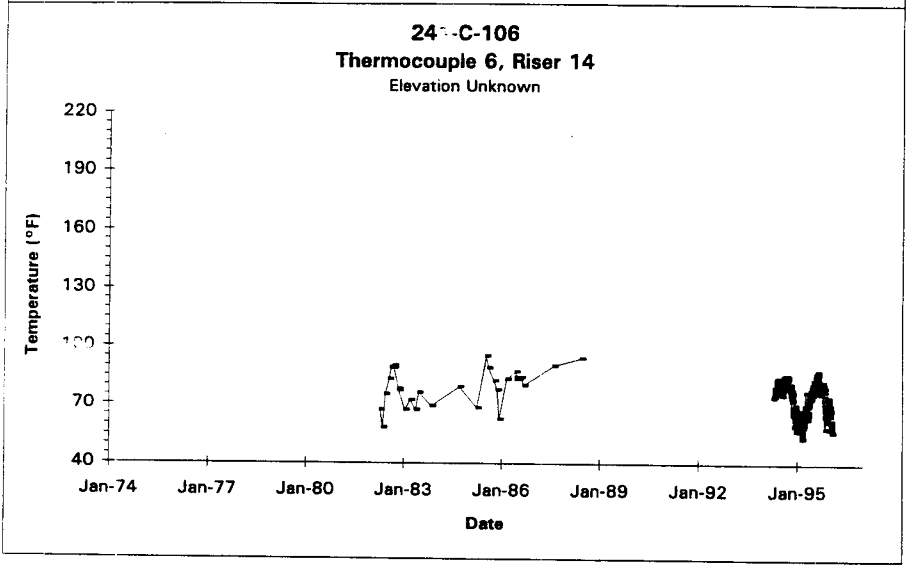

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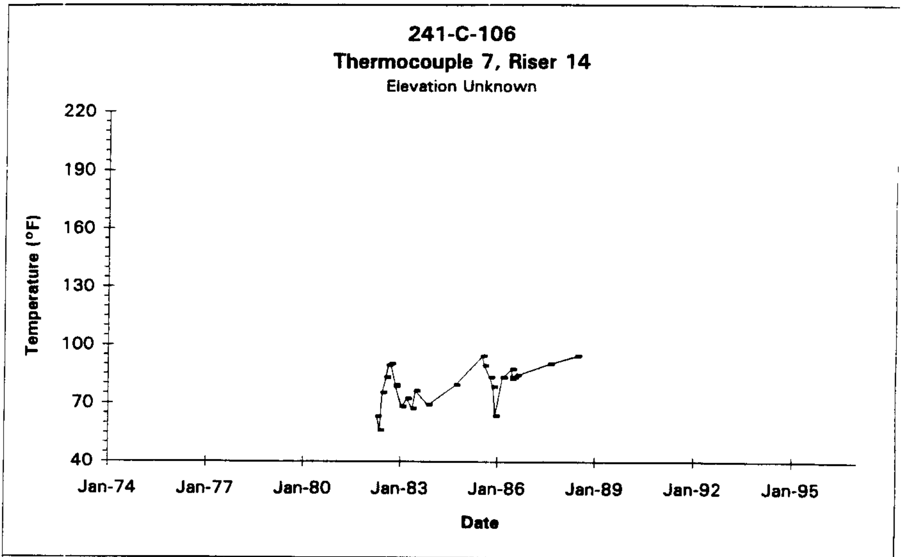

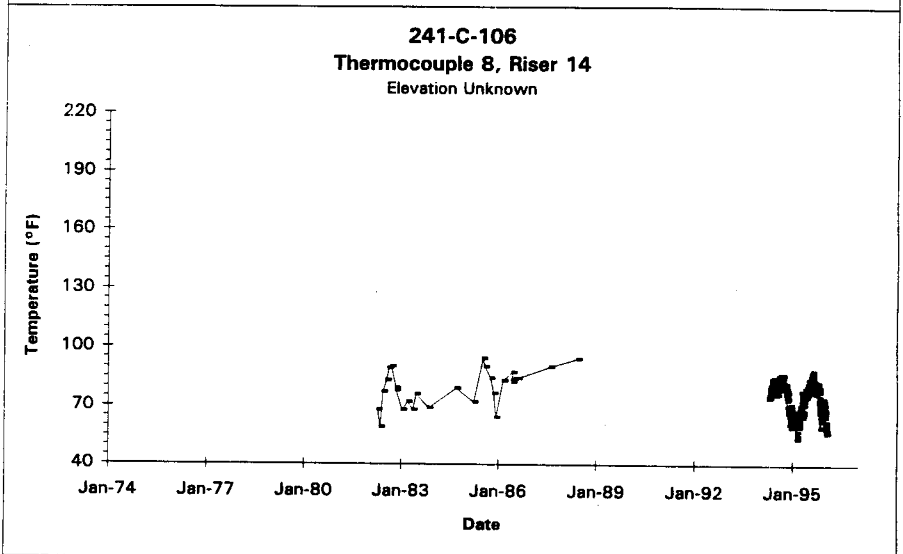

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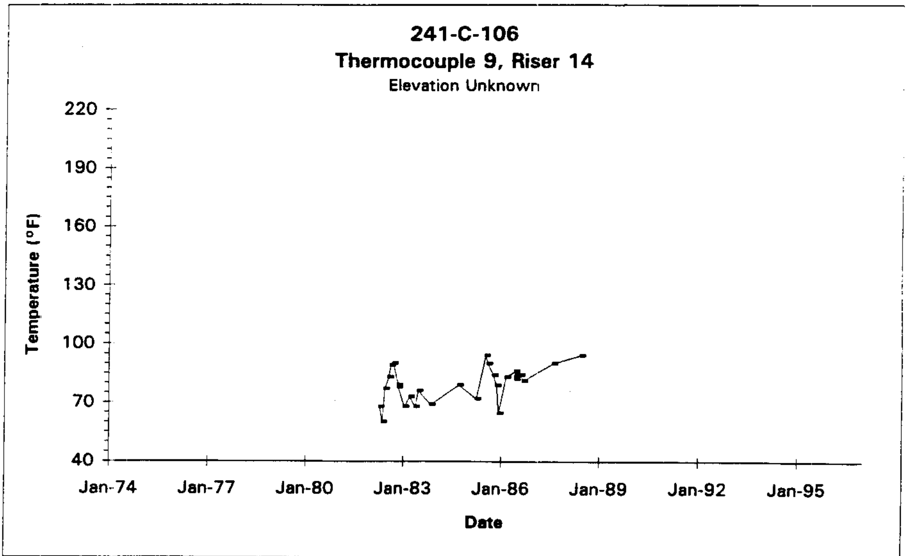

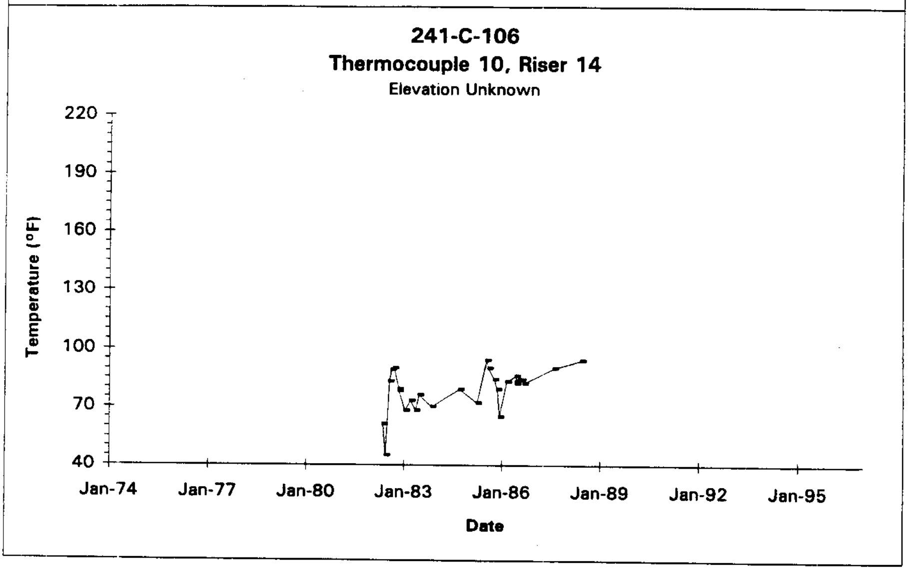

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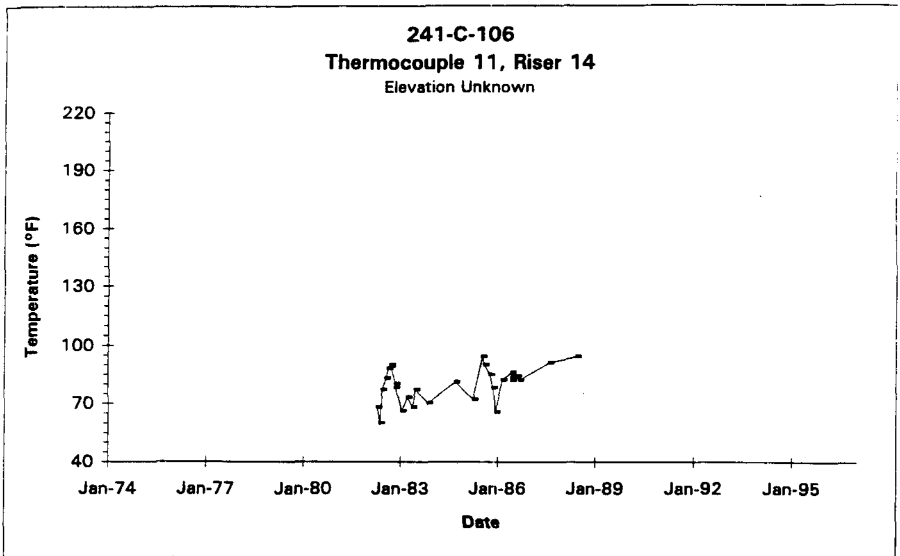

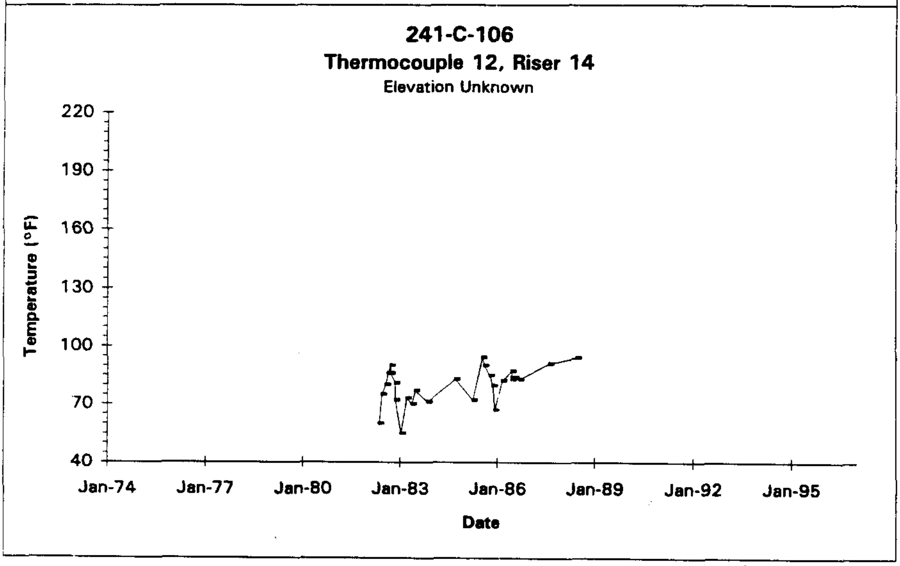

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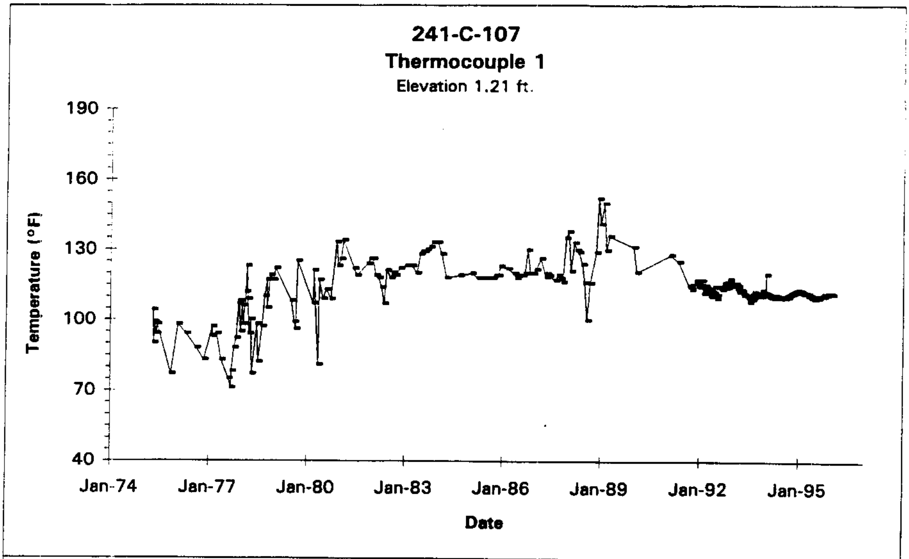

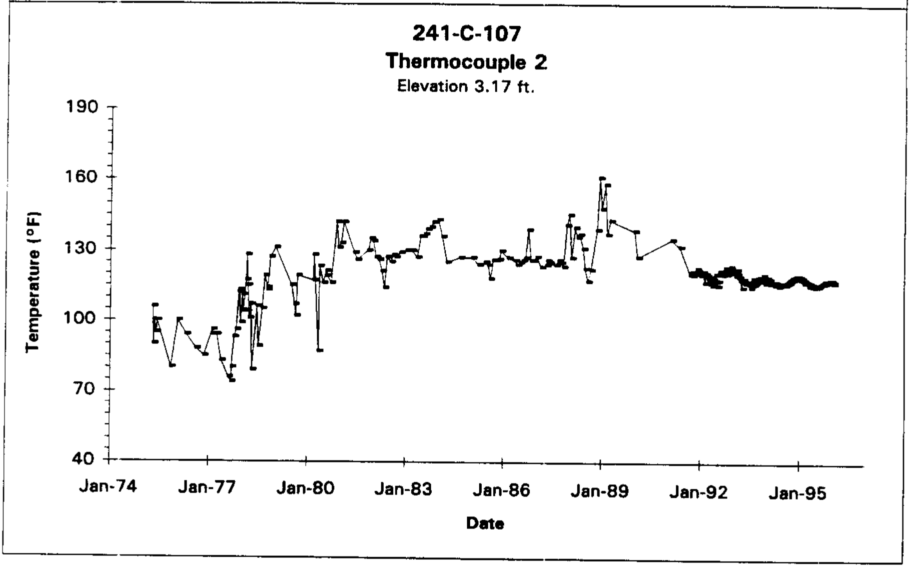

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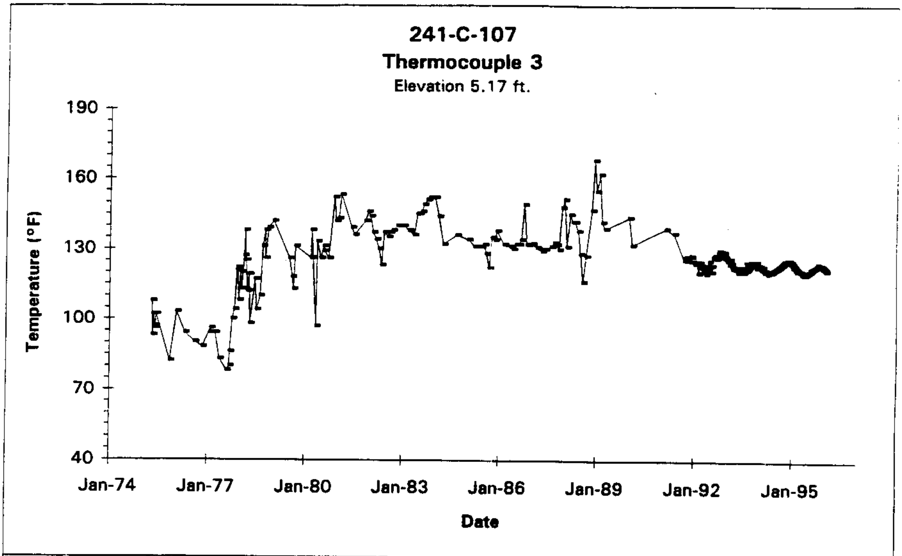

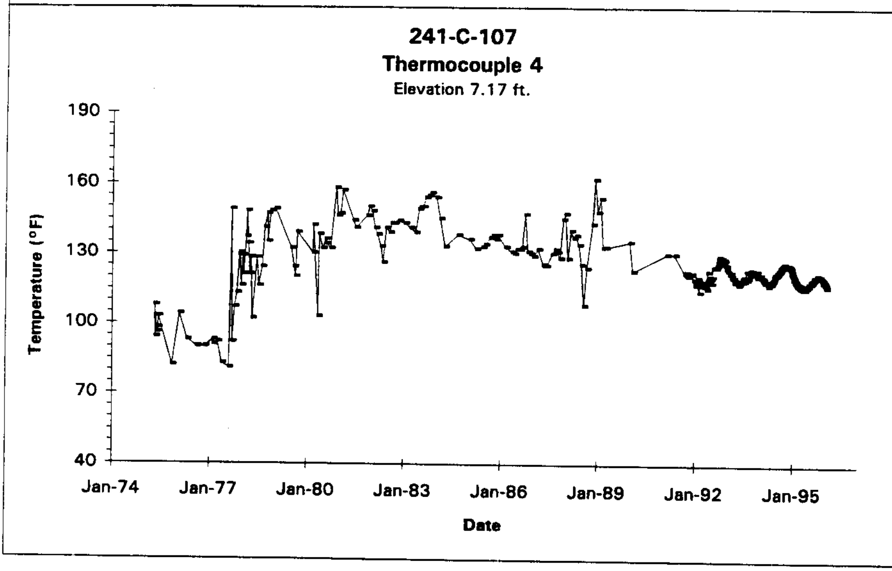

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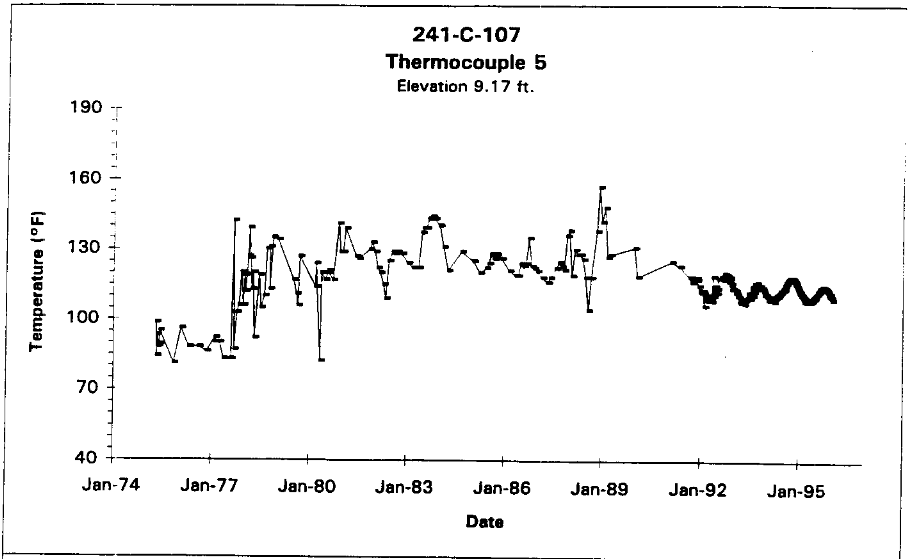

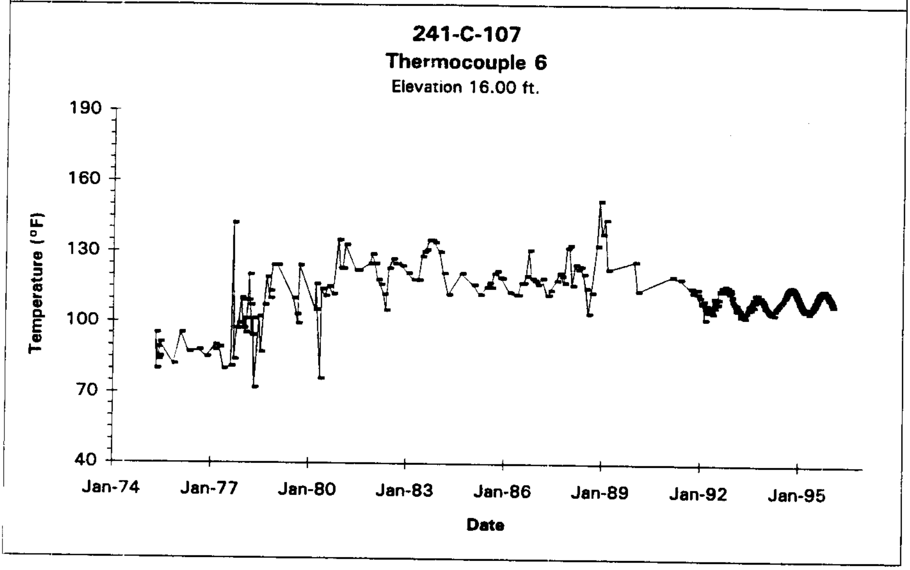

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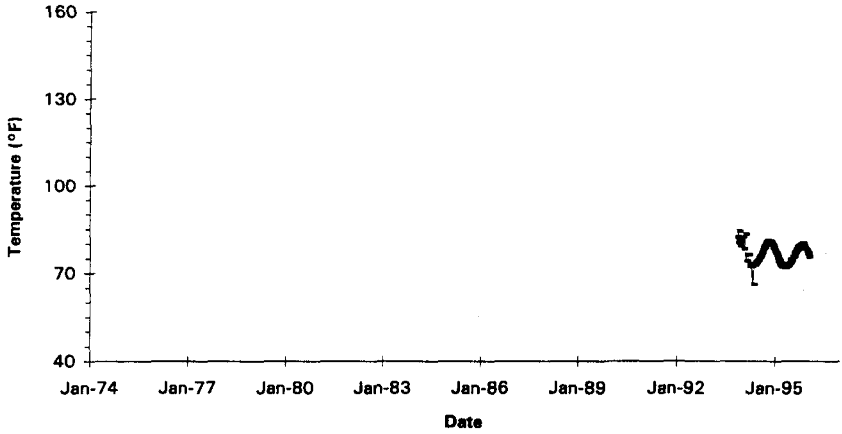
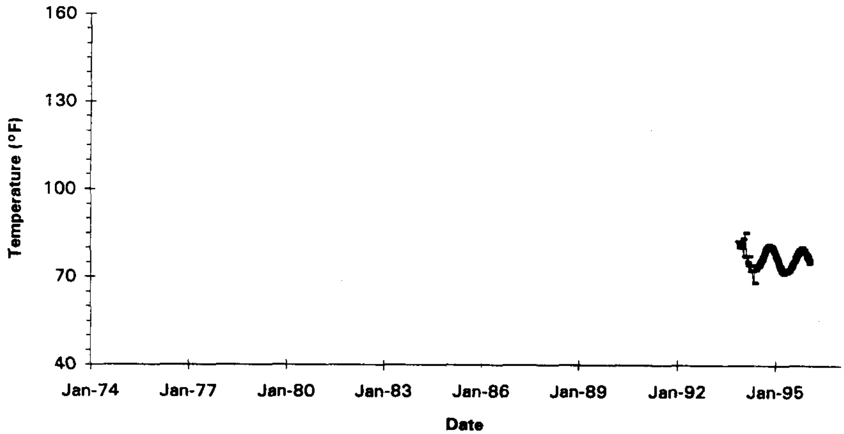
241-C-108
Thermocouple 1, Riser 1
Approximate Elevation .2 ft.



241-C-108
Thermocouple 2, Riser 1
Approximate Elevation .6 ft.



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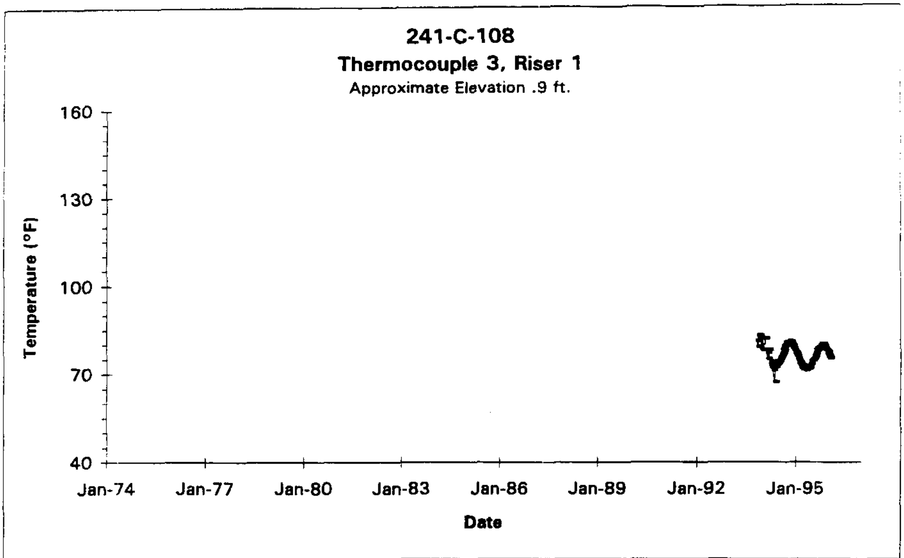

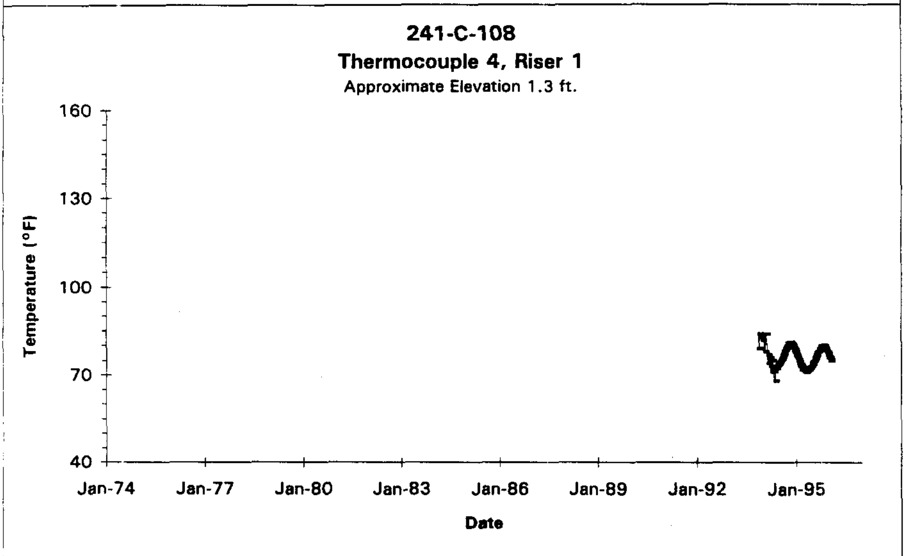

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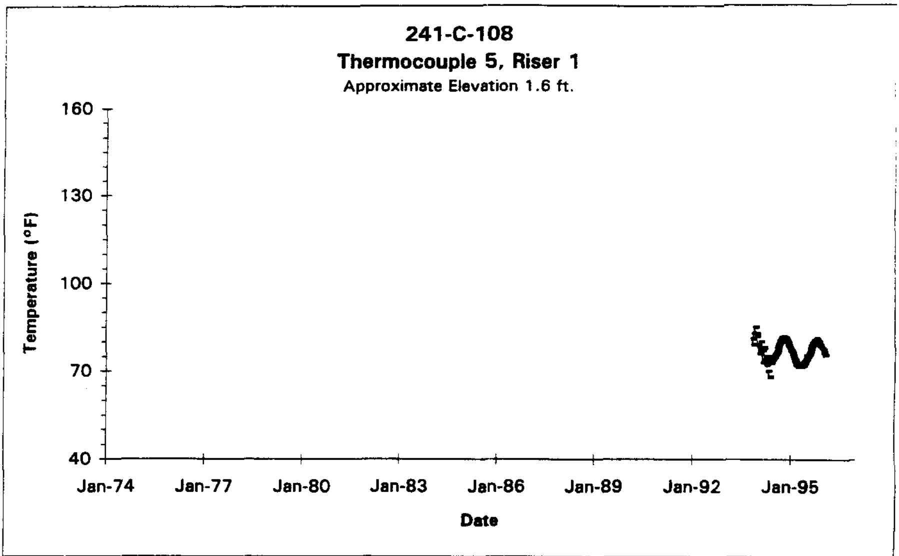

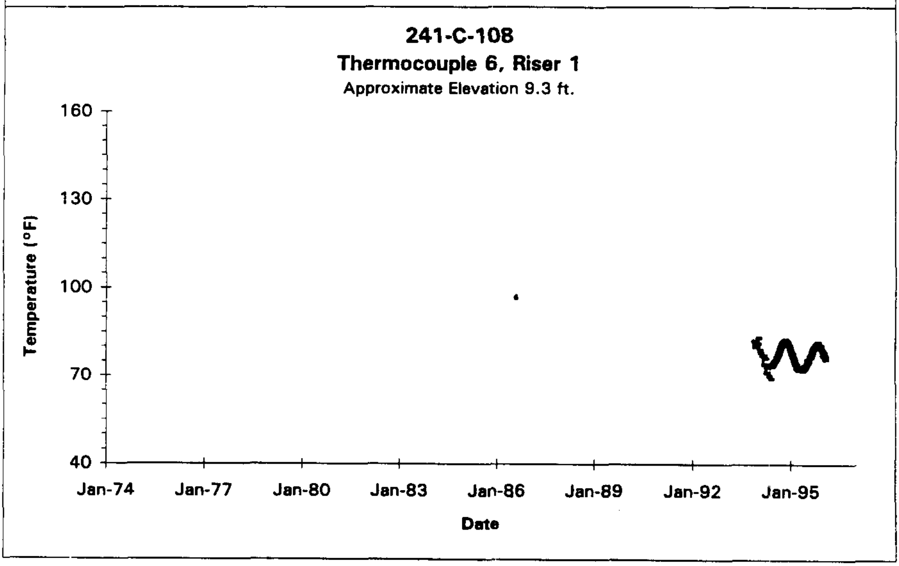

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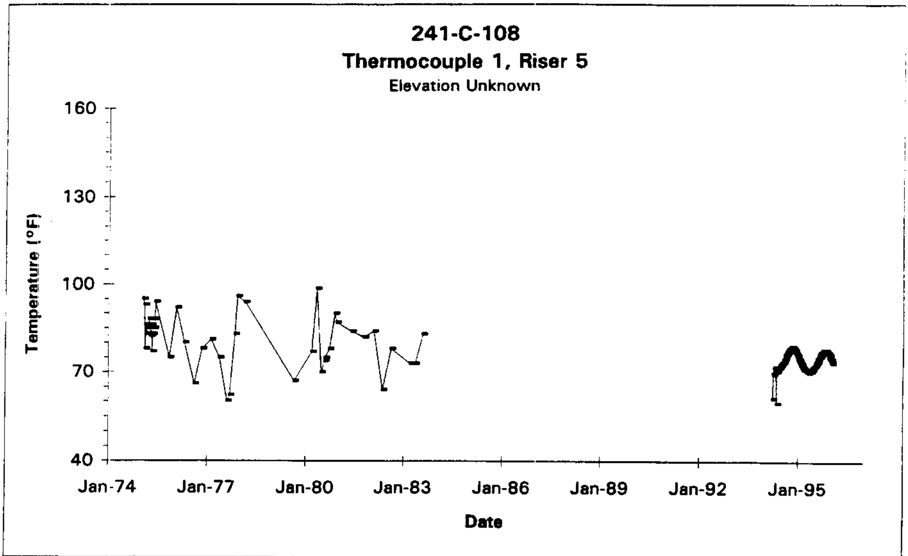

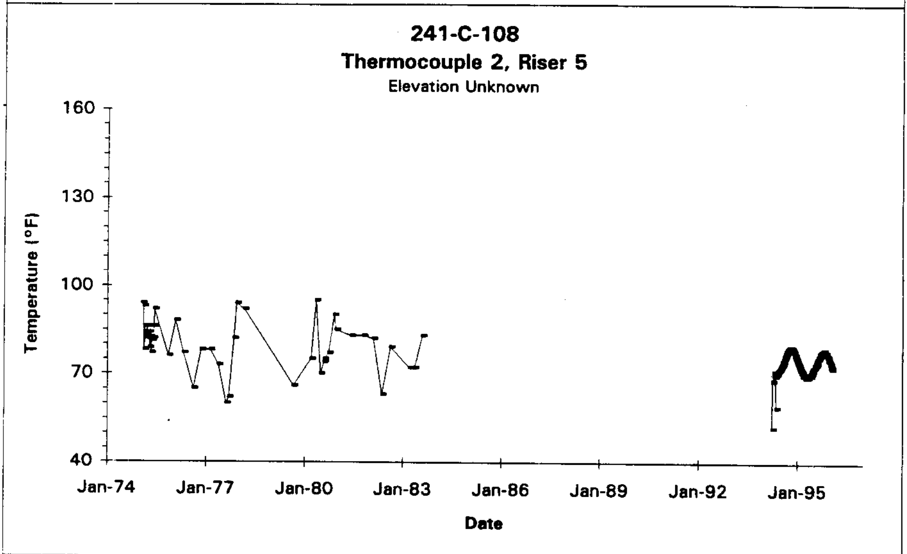

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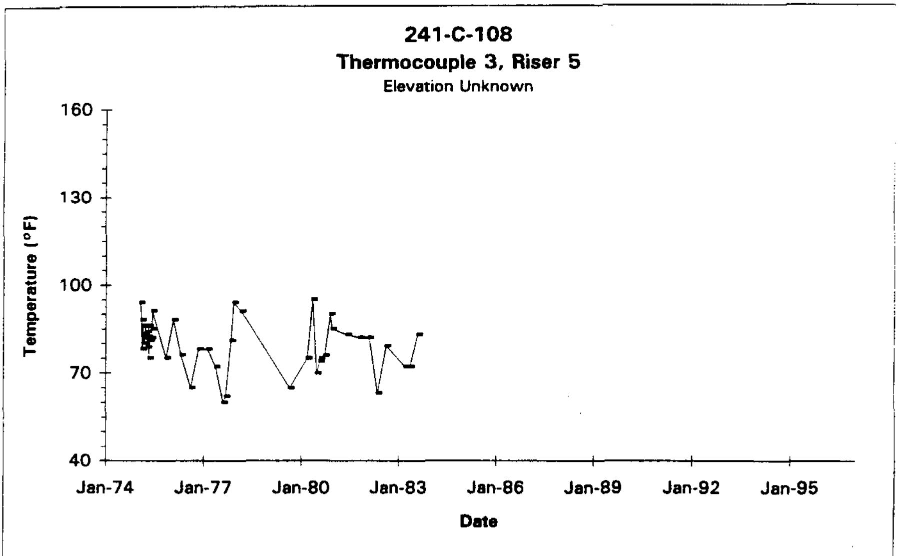

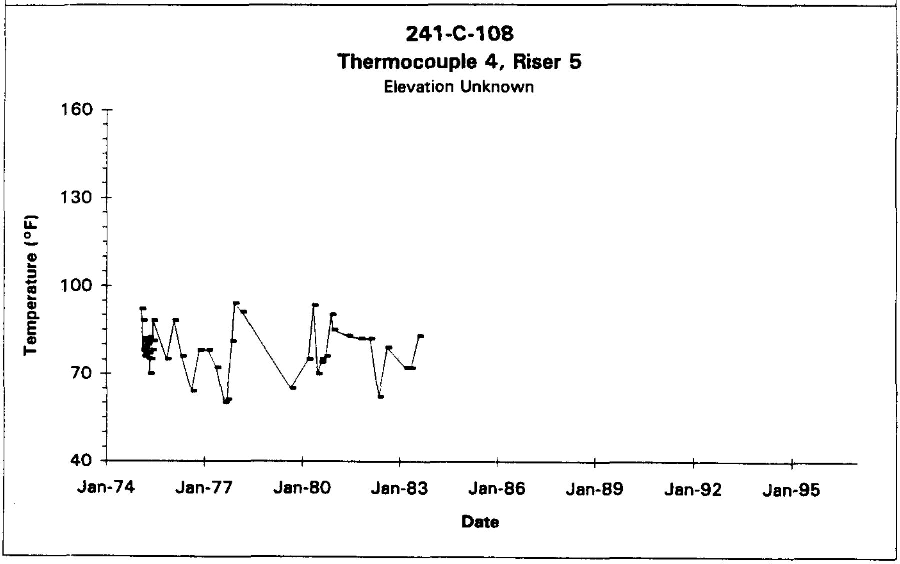

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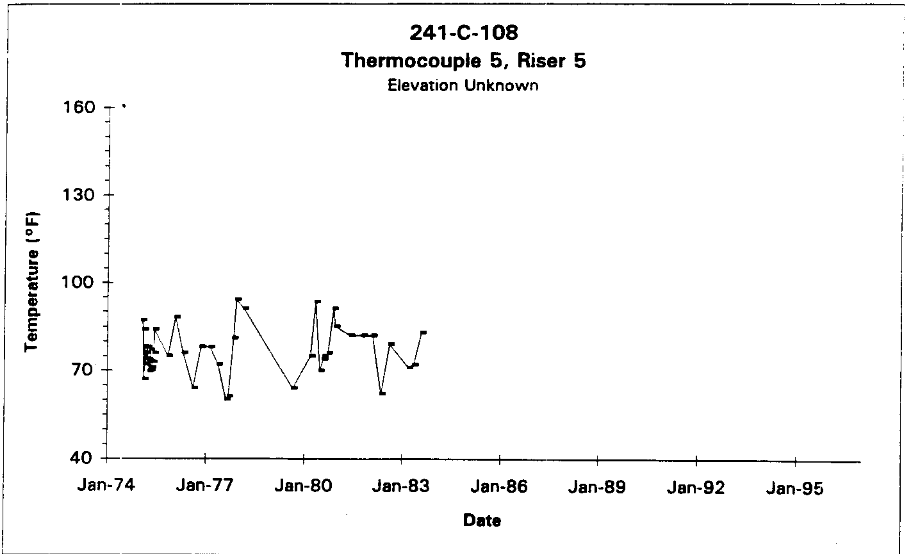

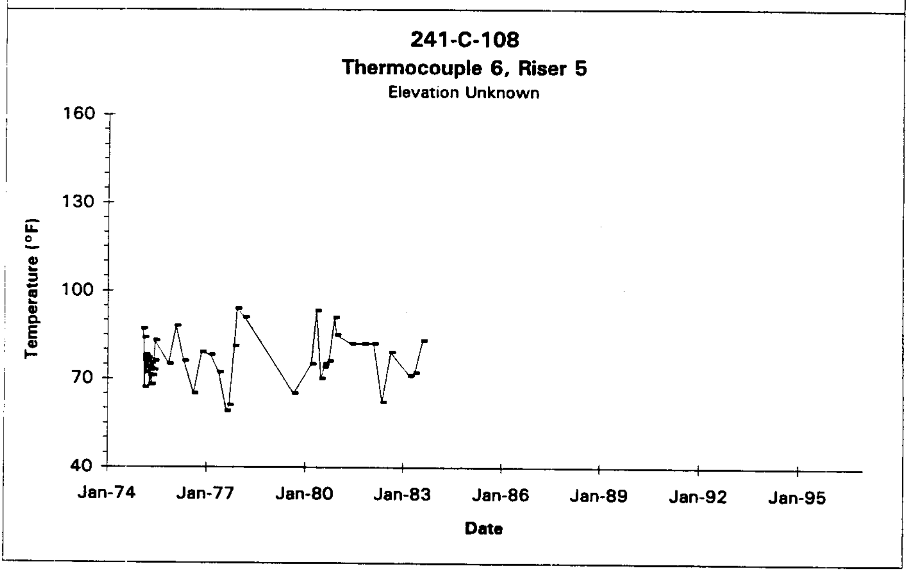

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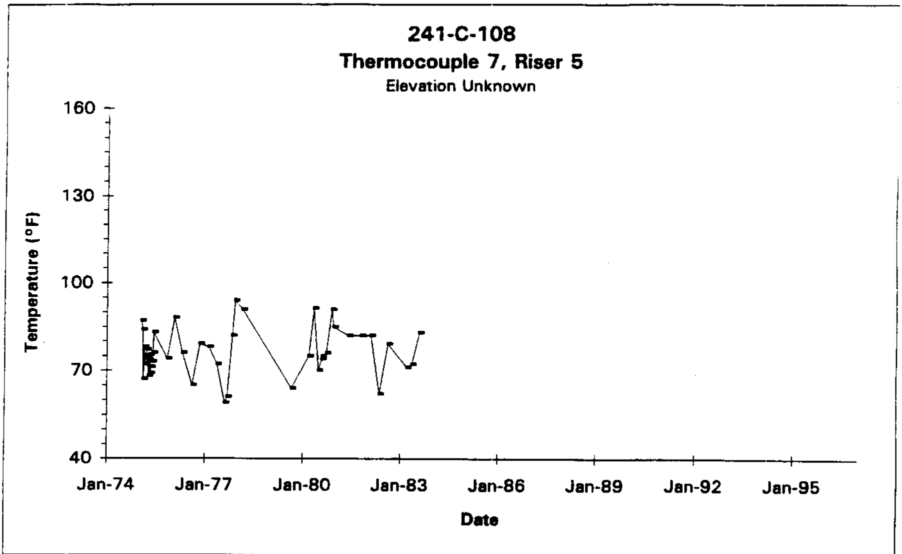

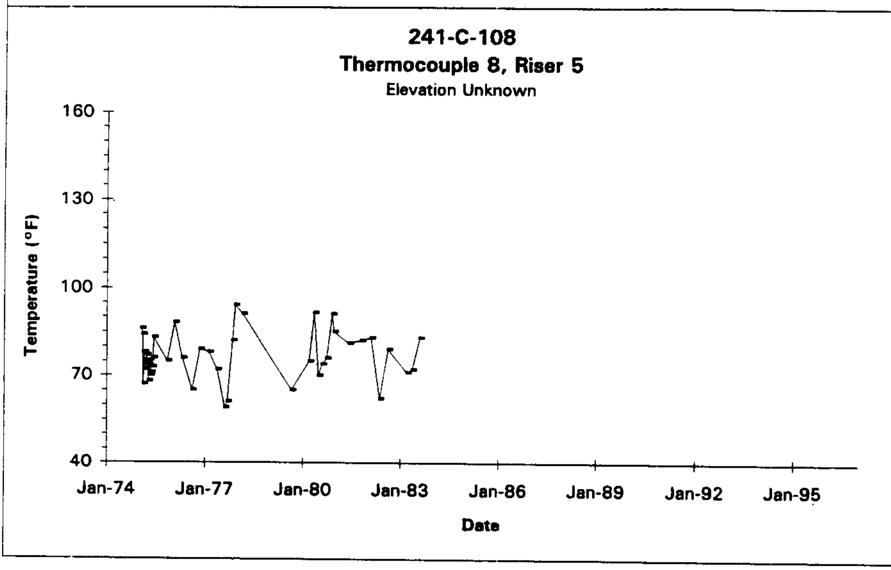

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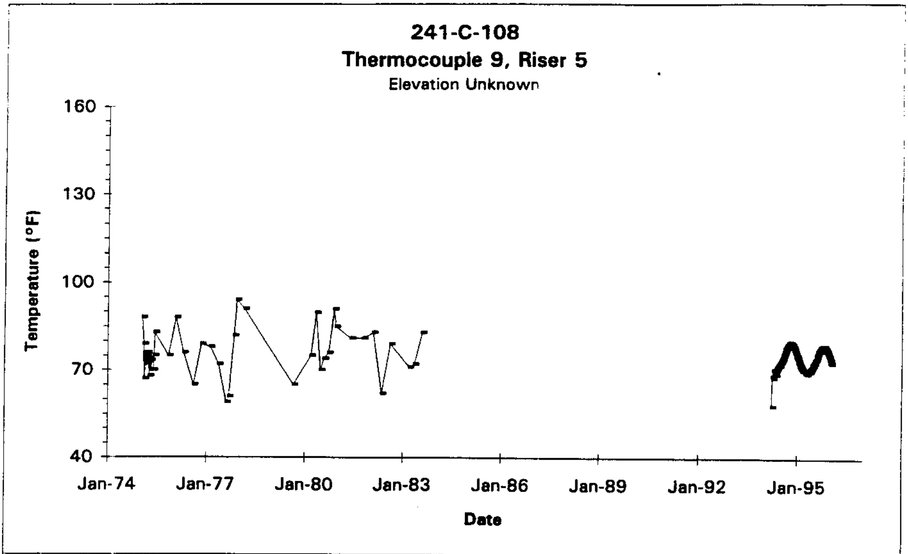

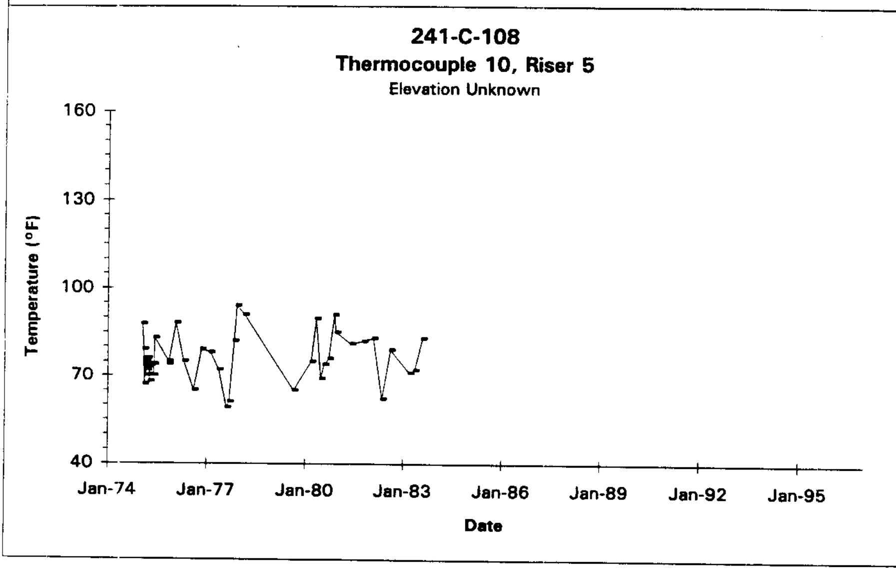

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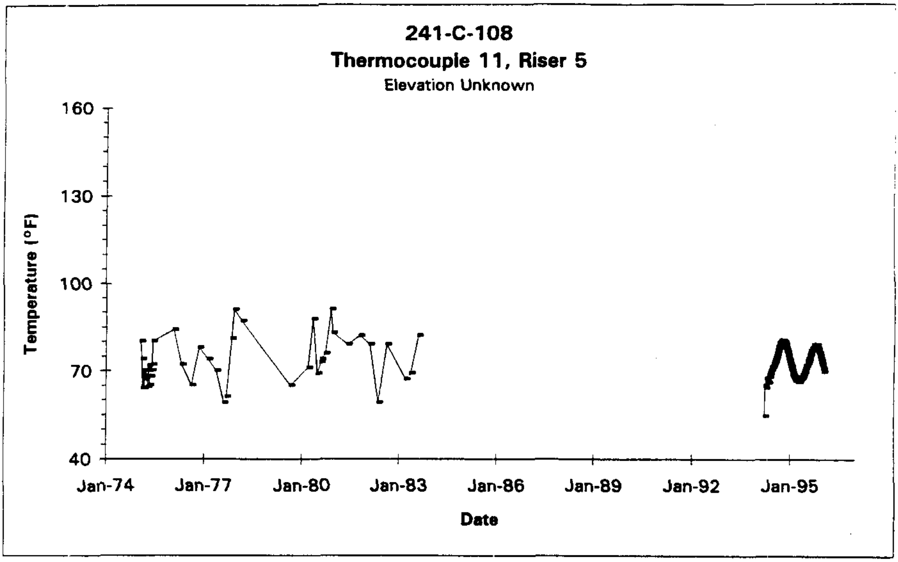

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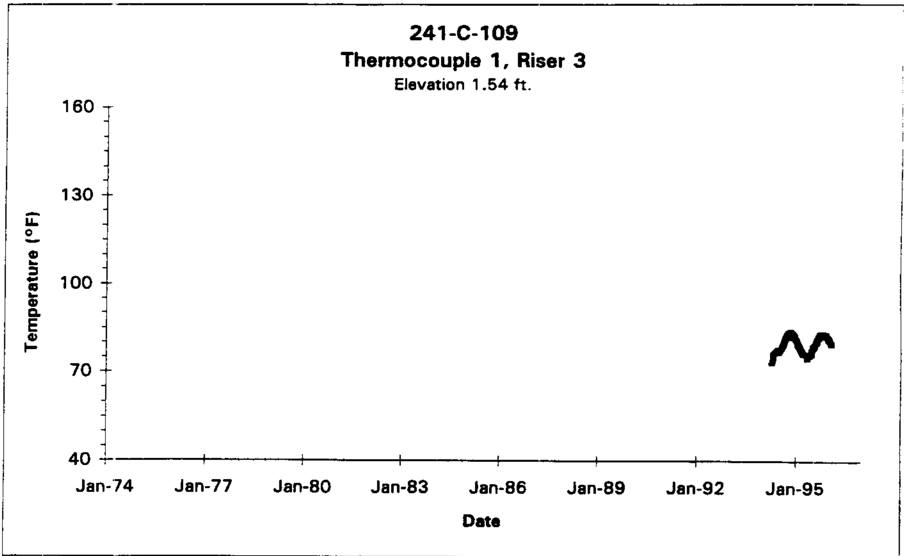

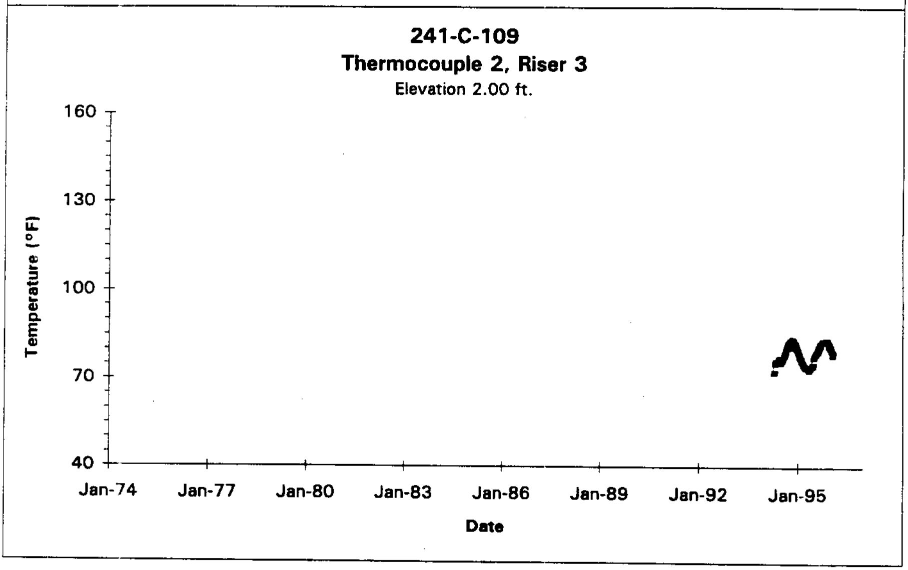

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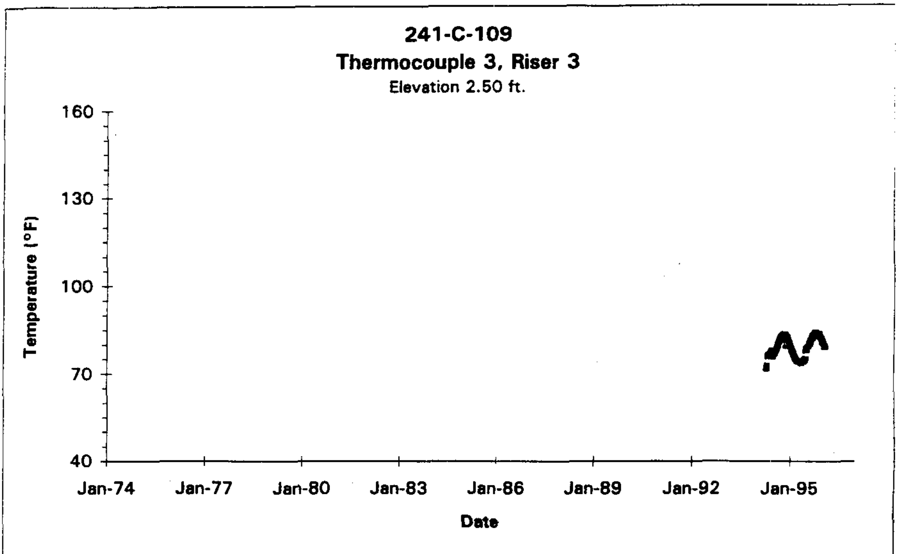

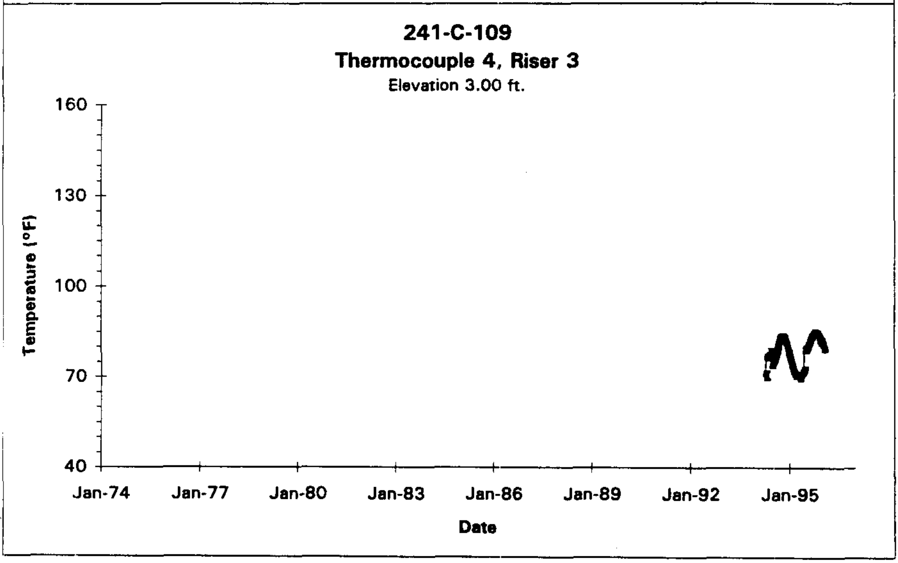

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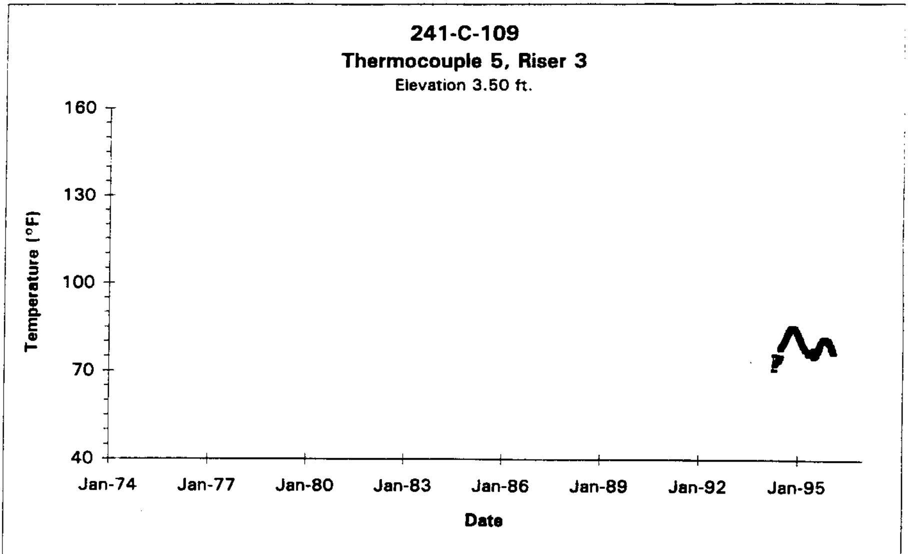

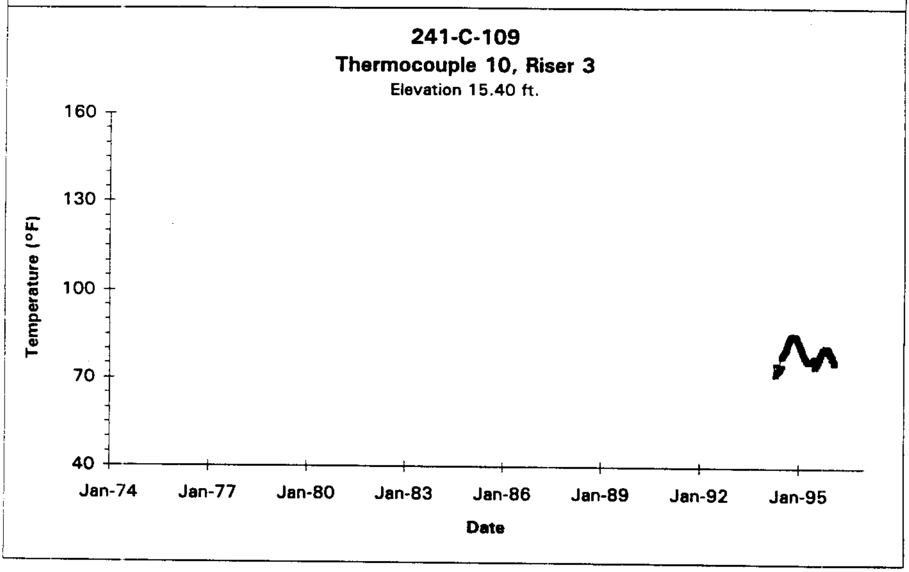

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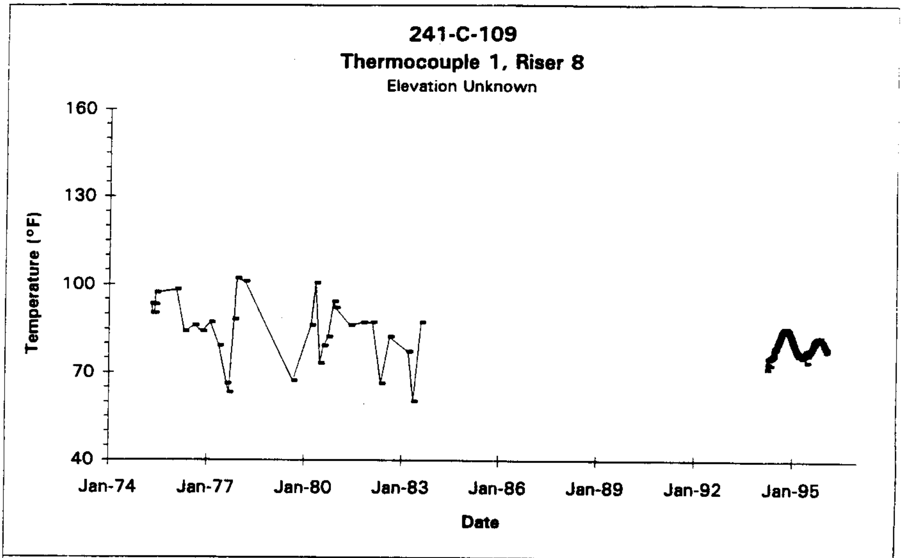

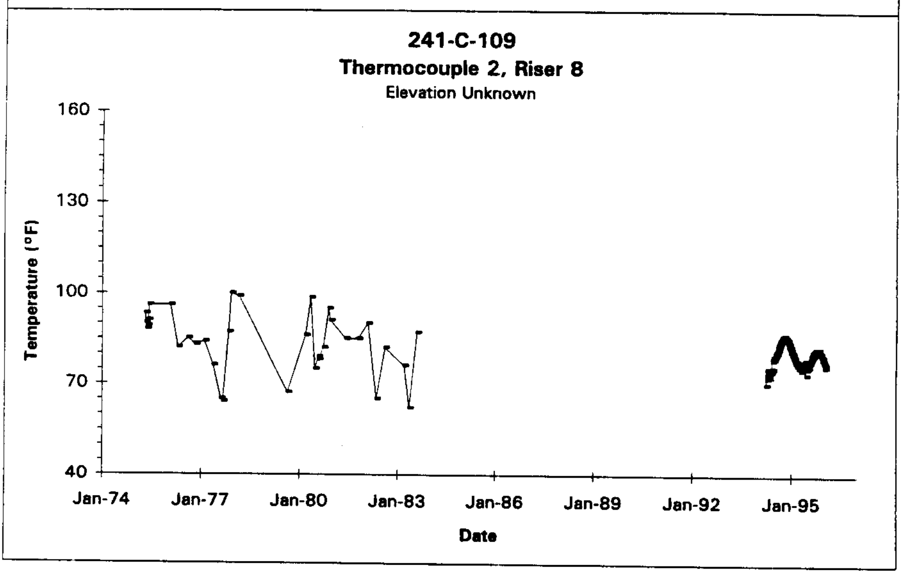

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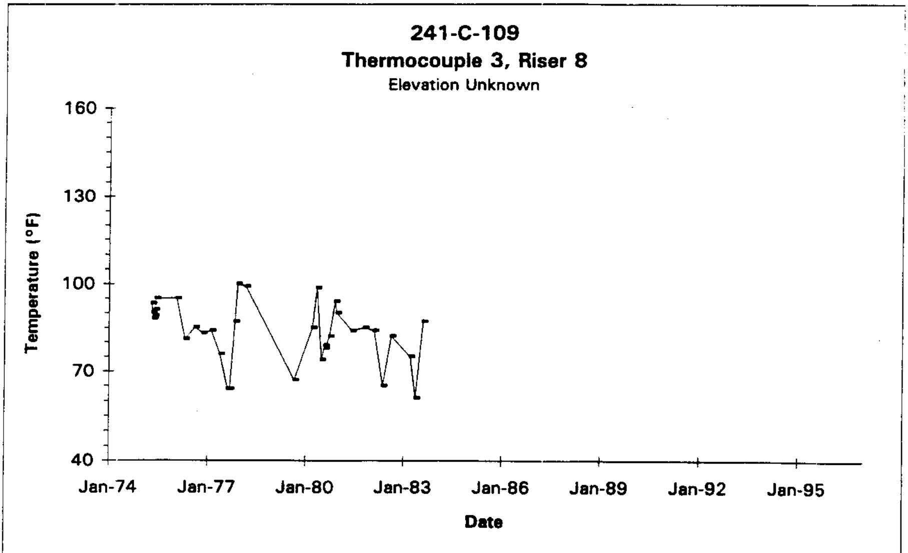

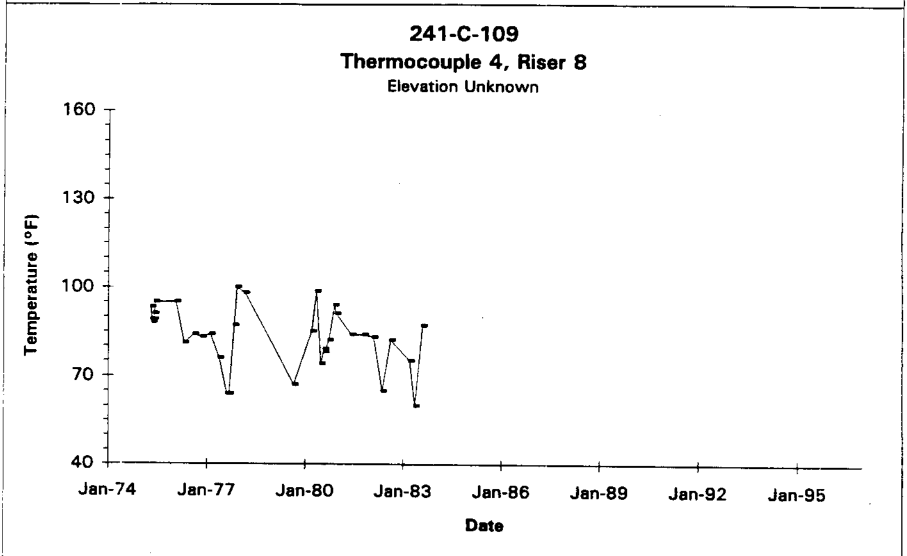

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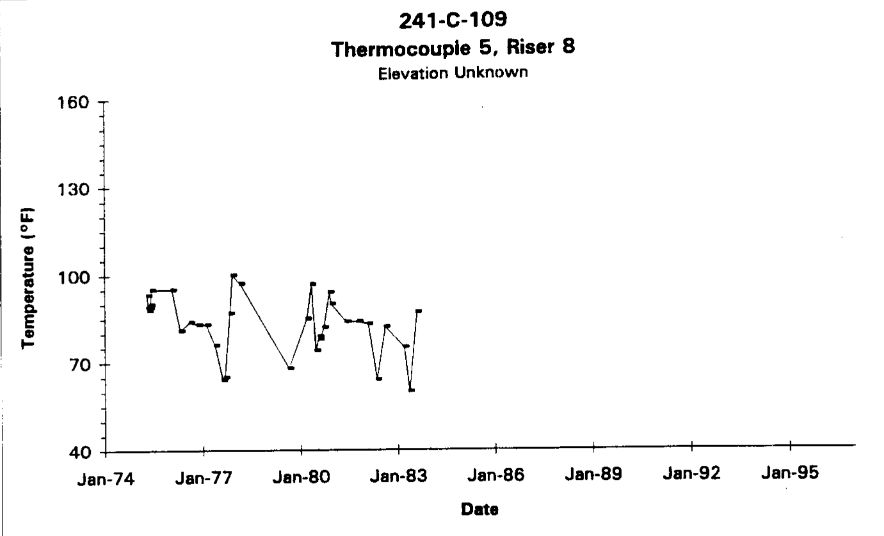

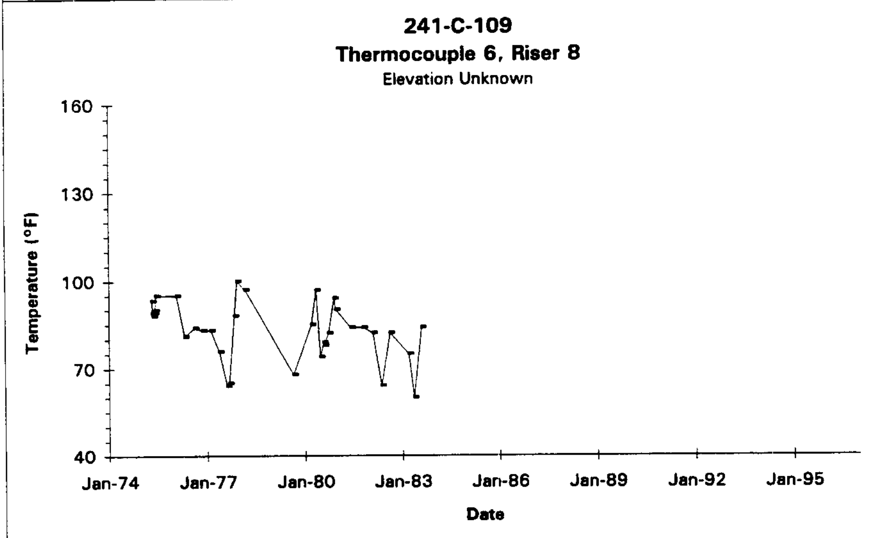

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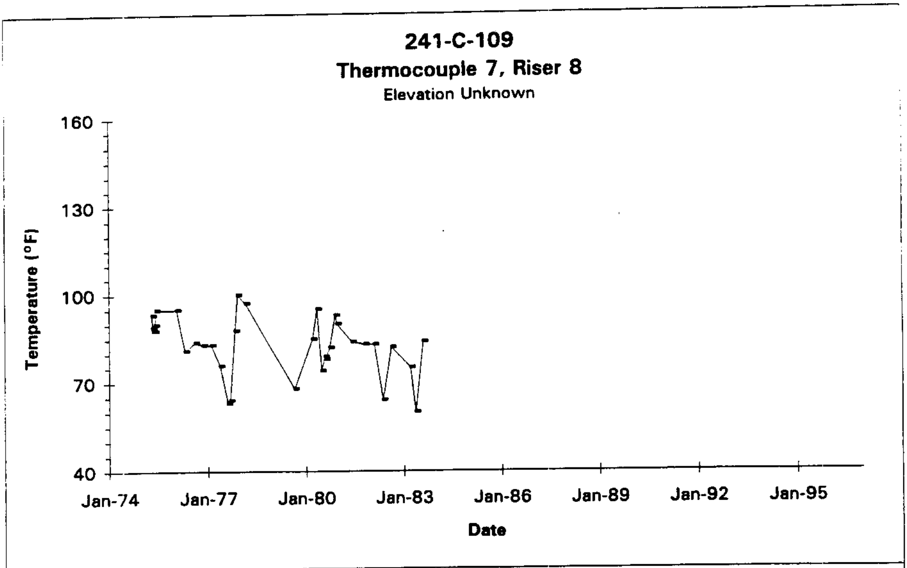

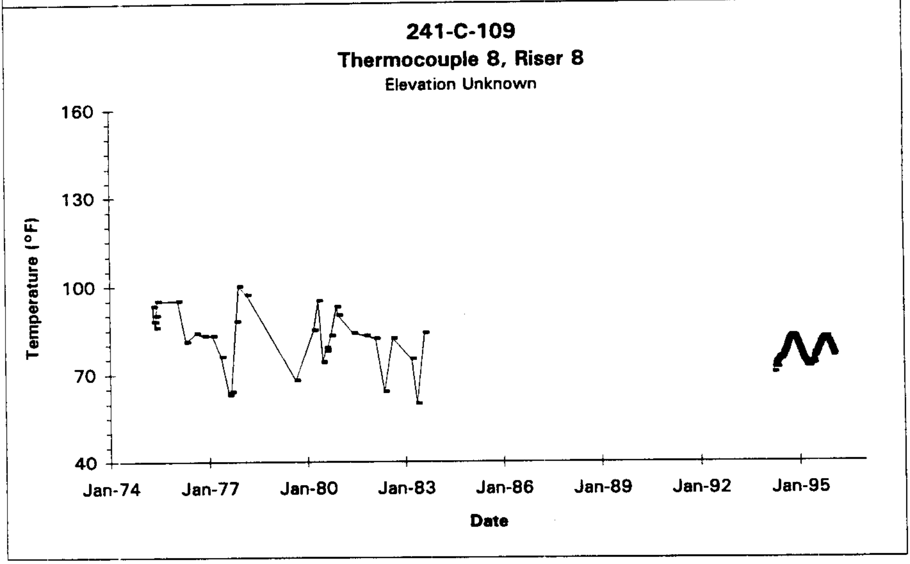

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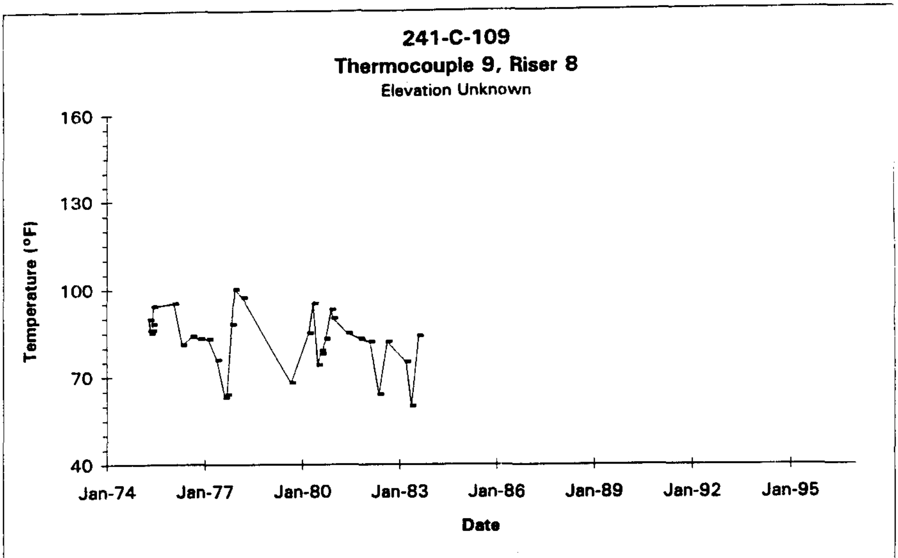

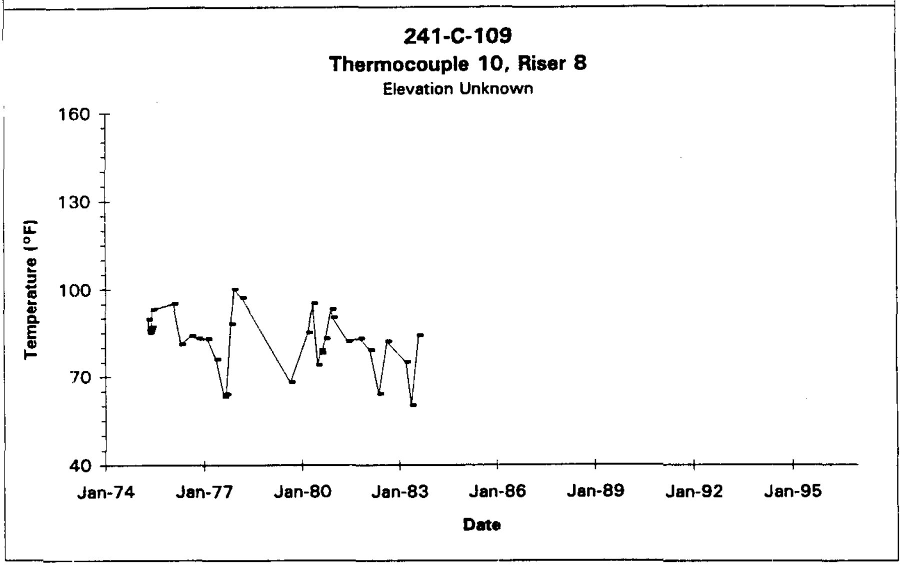

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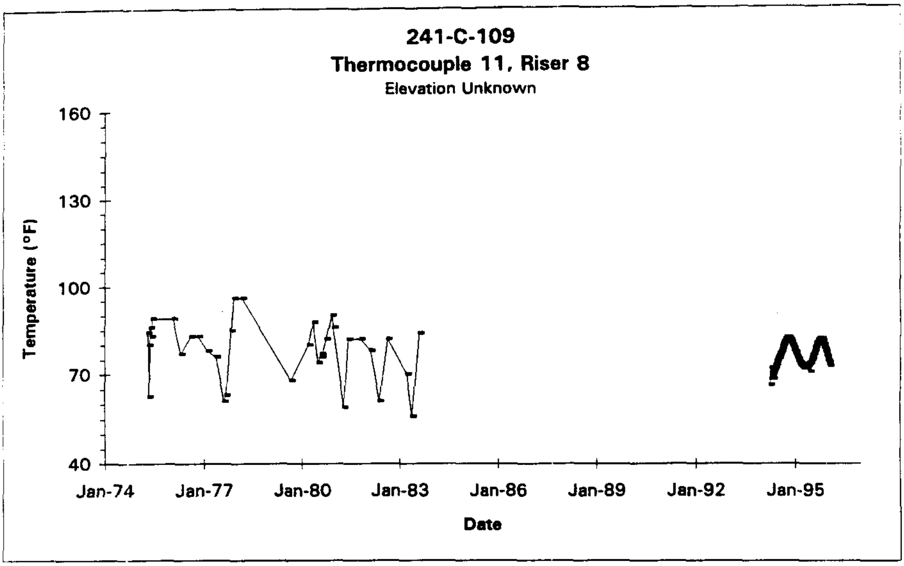

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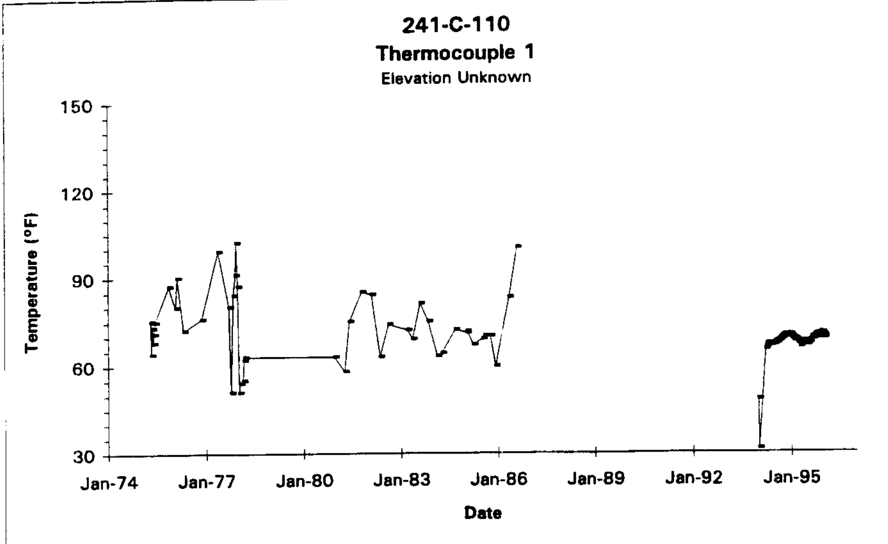

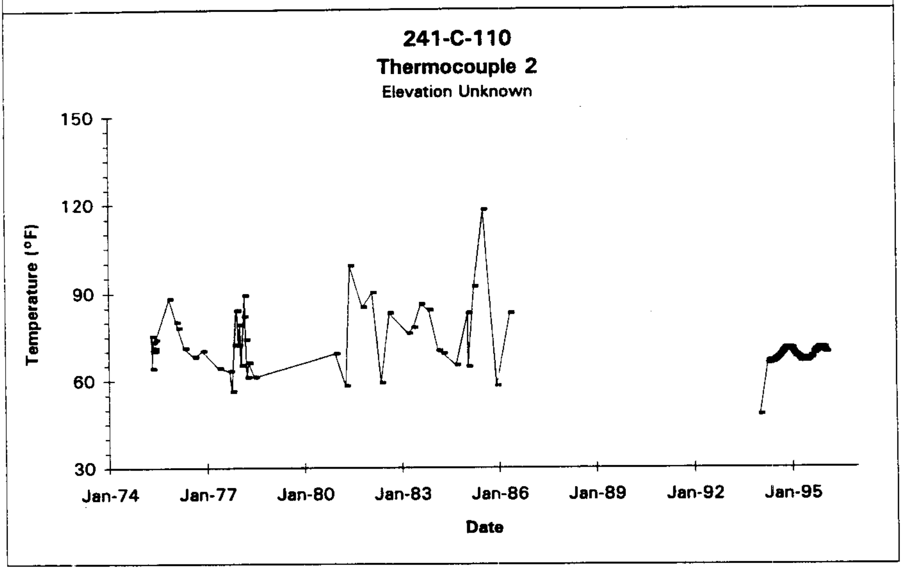

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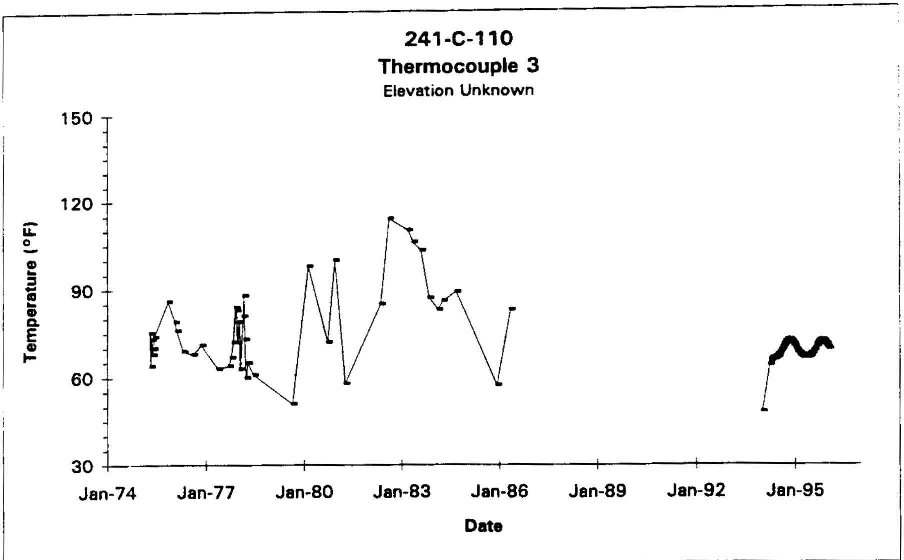

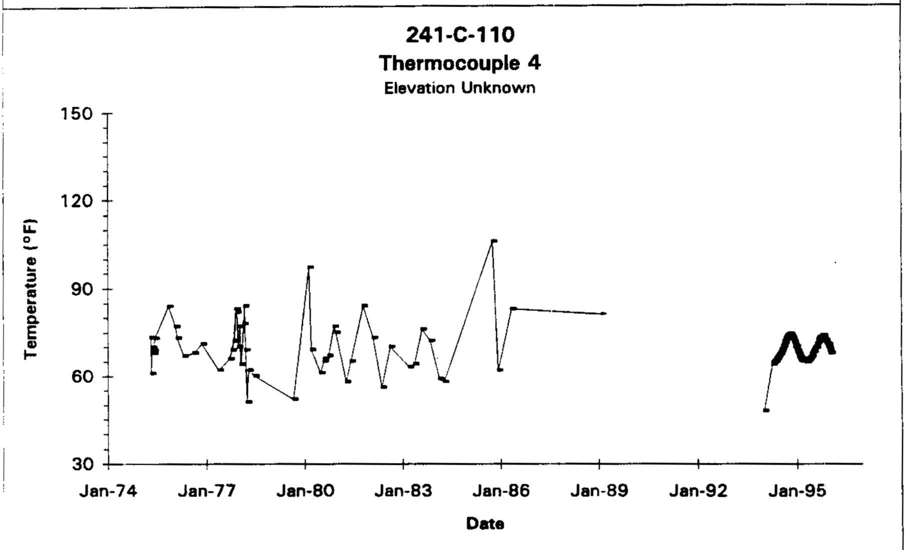

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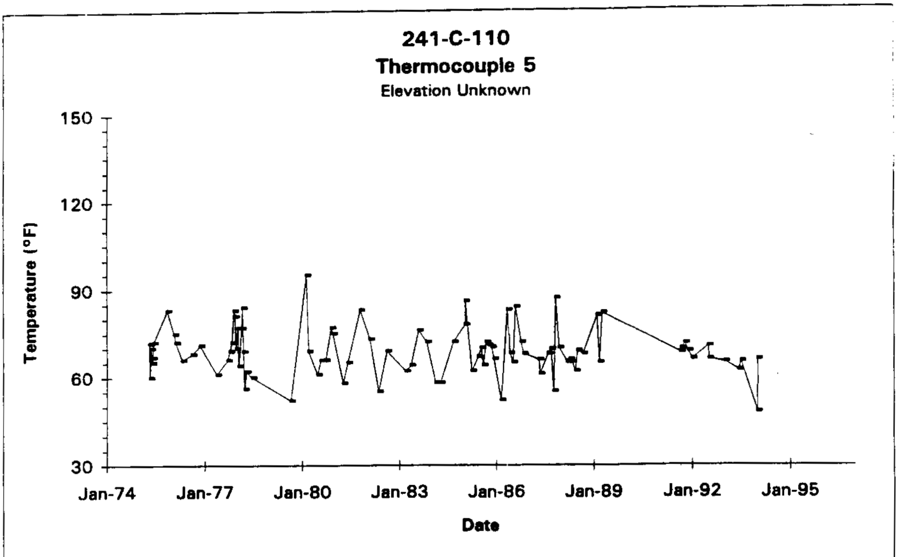

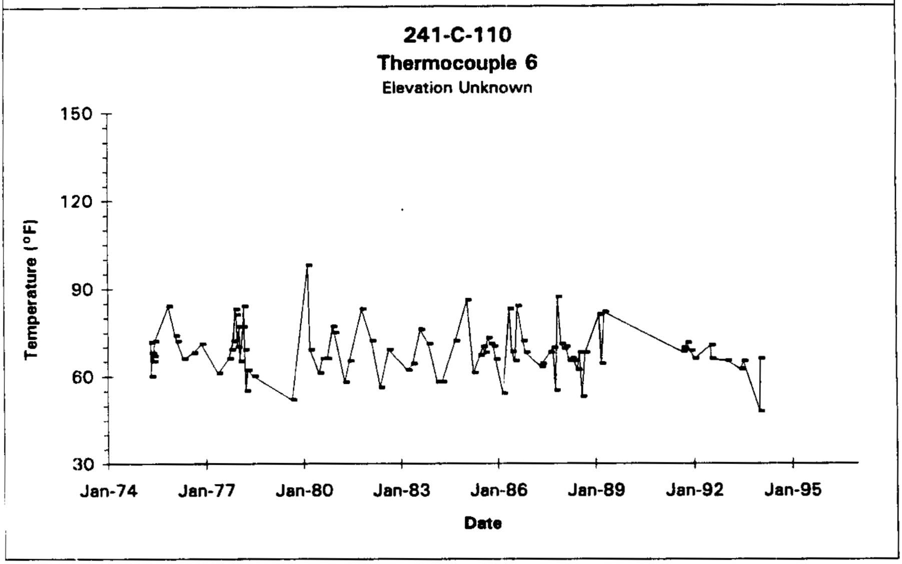

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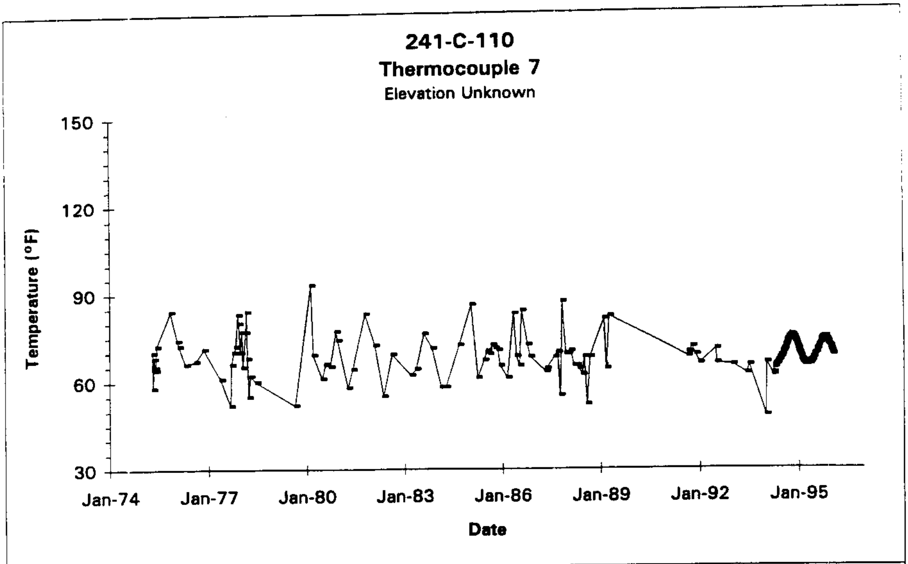

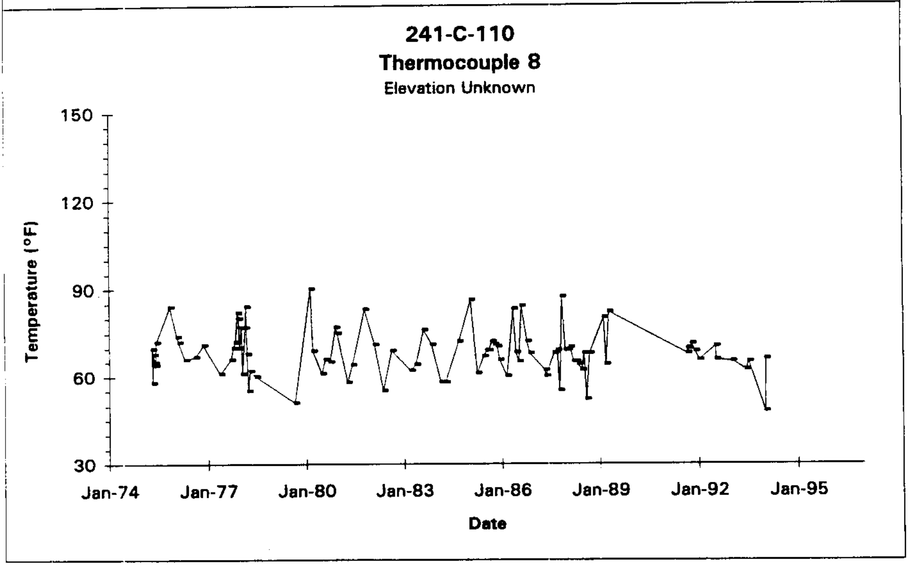

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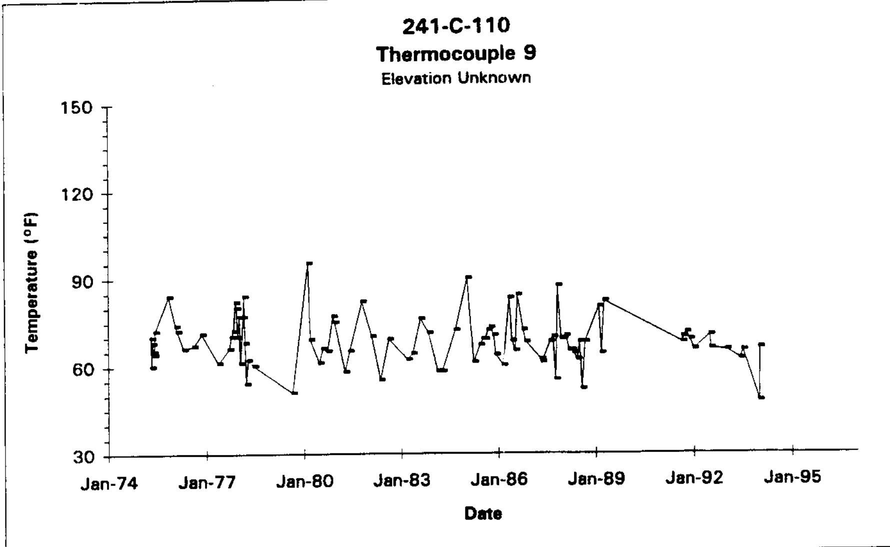

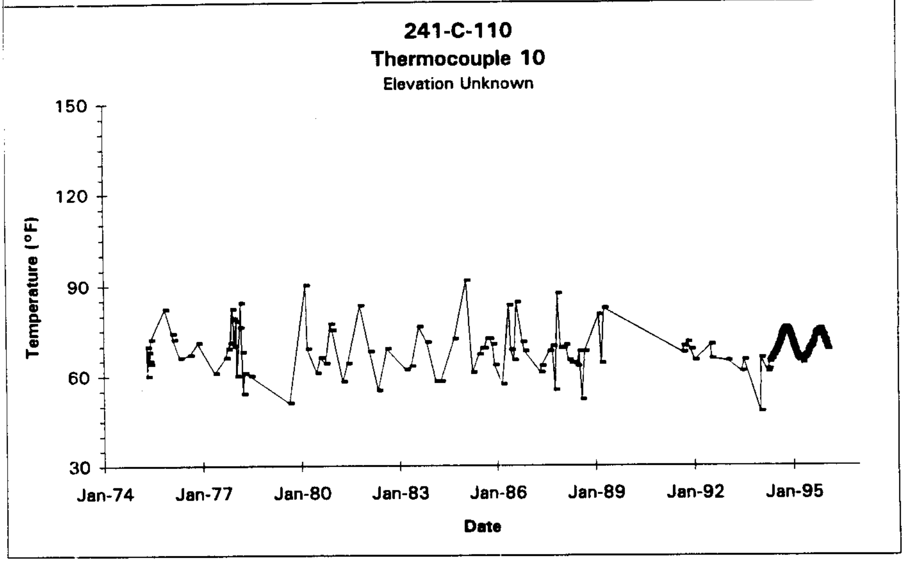

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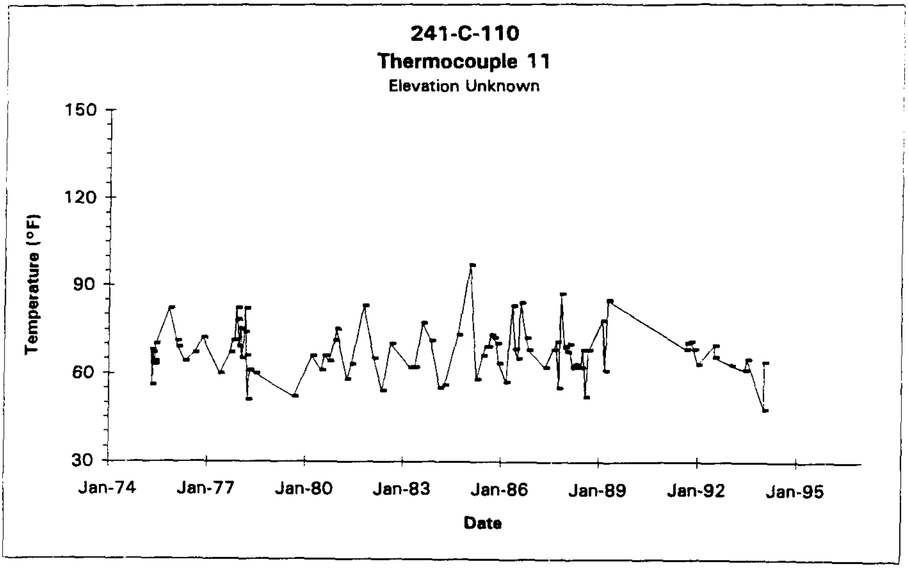

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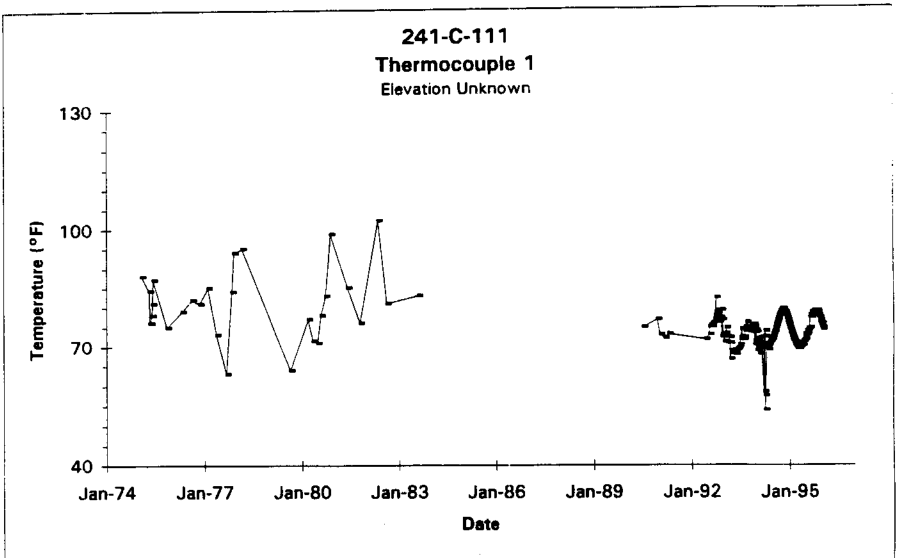

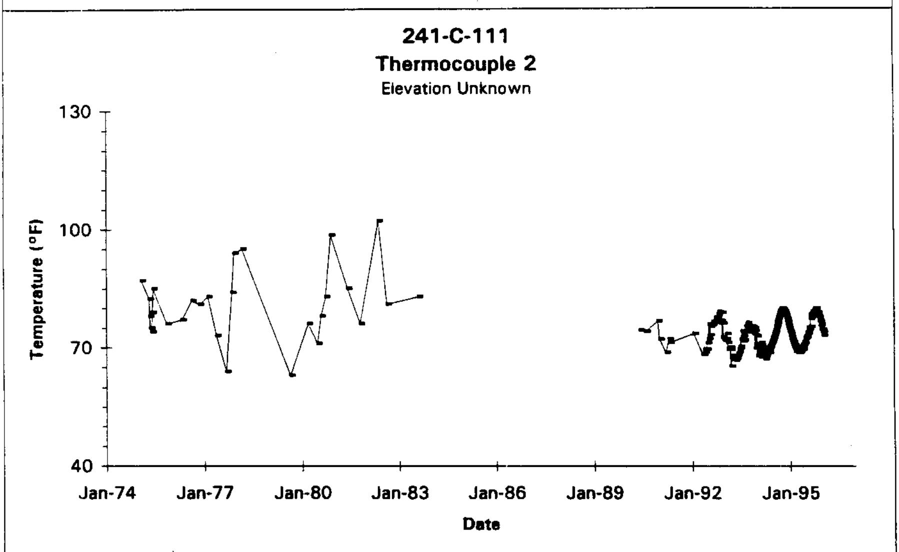

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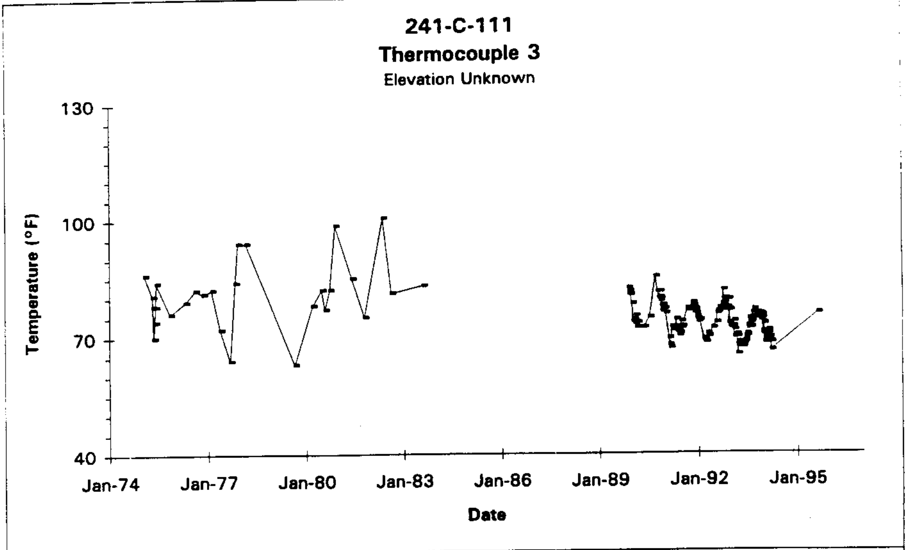

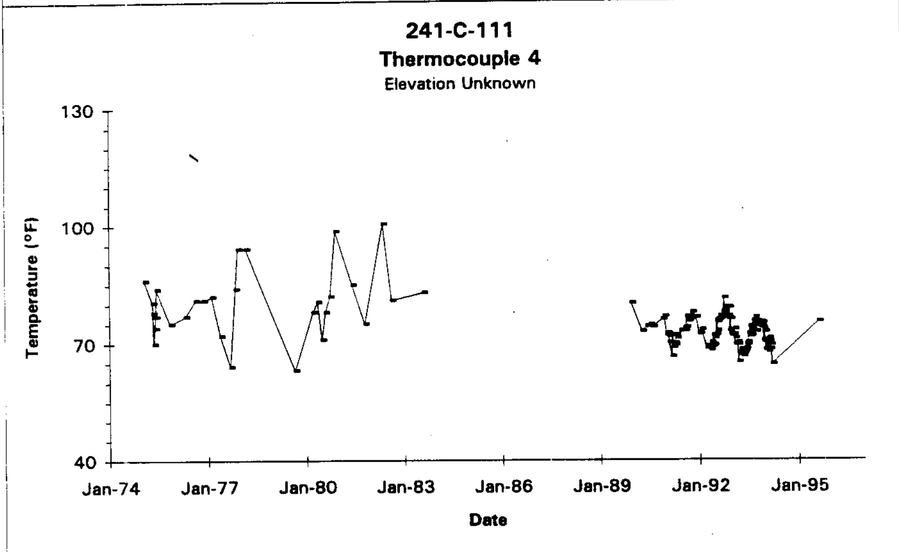

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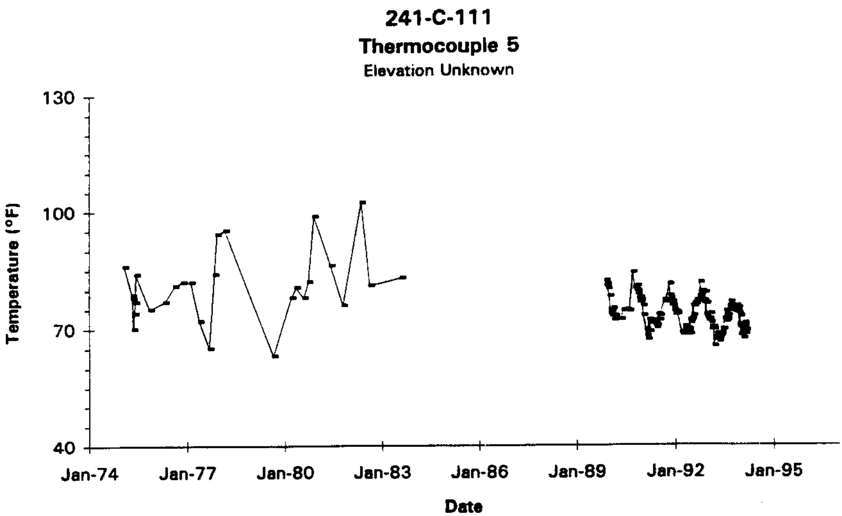

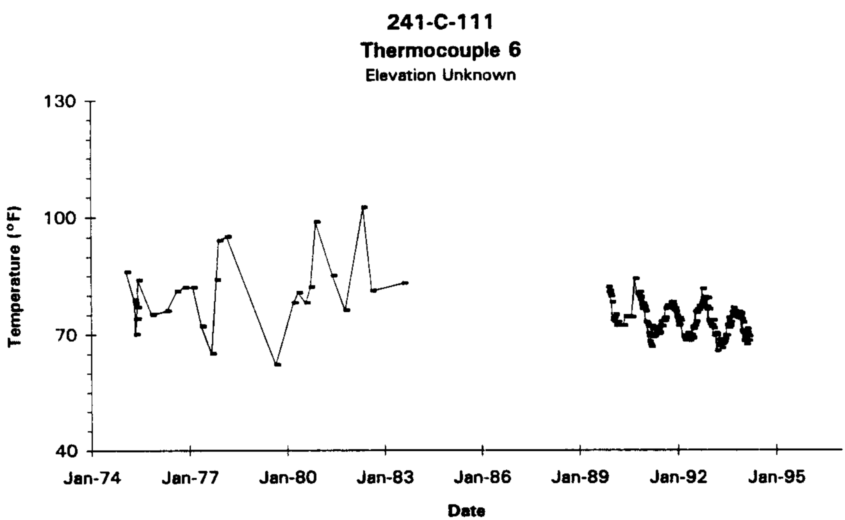

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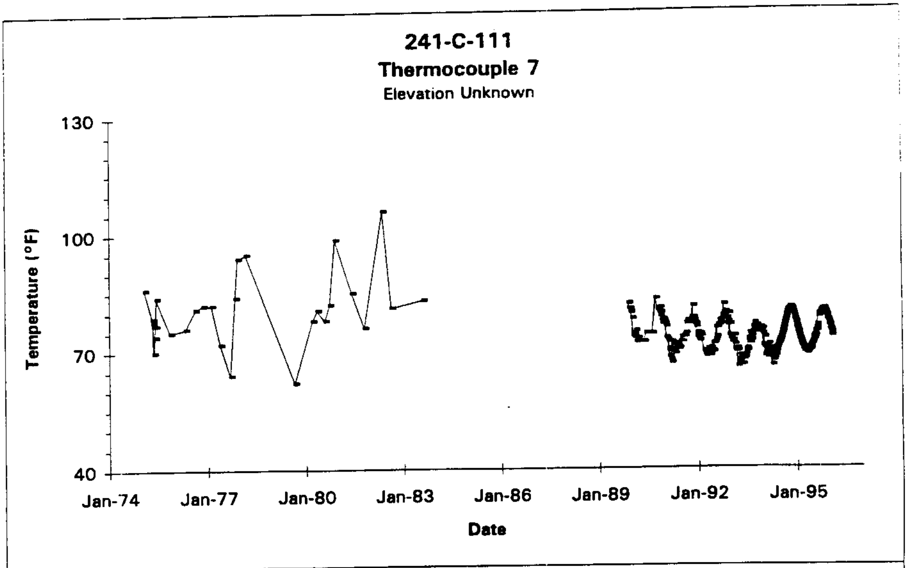

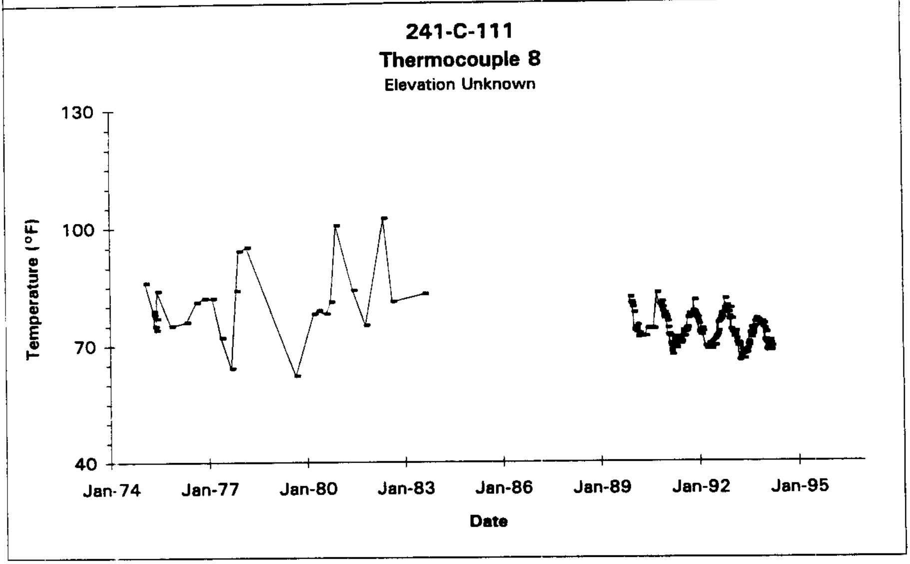

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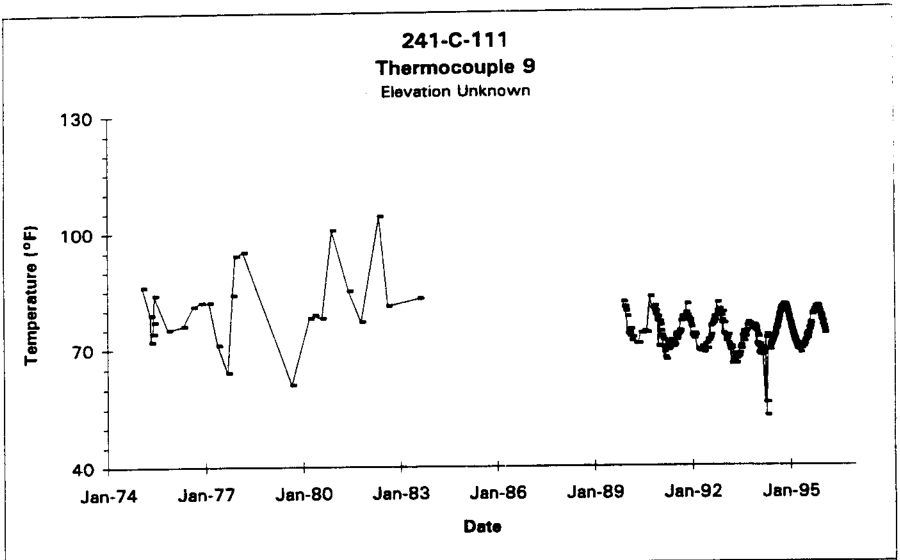

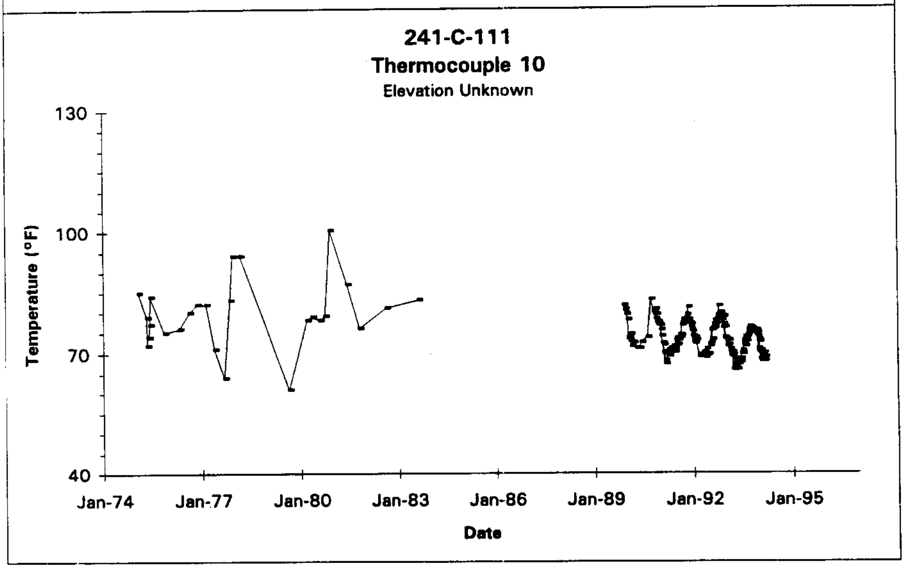

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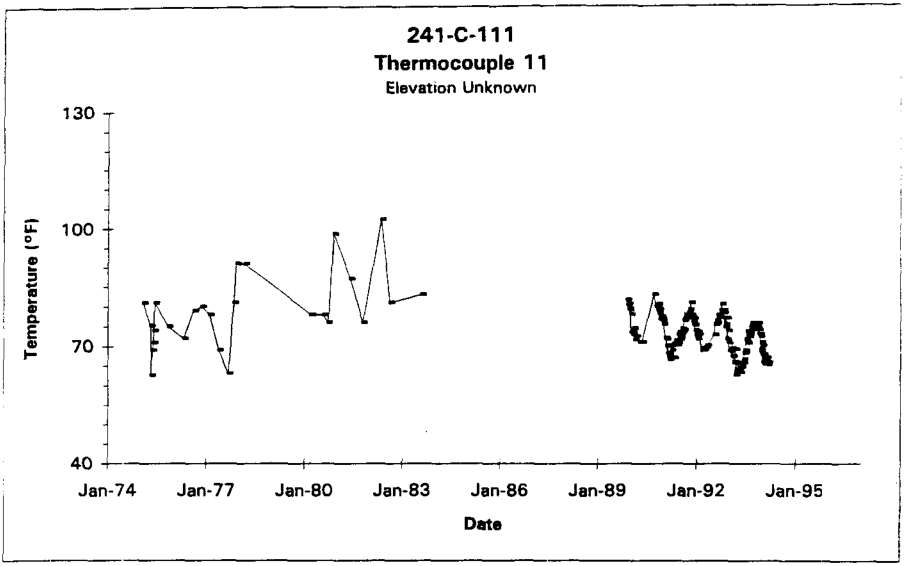

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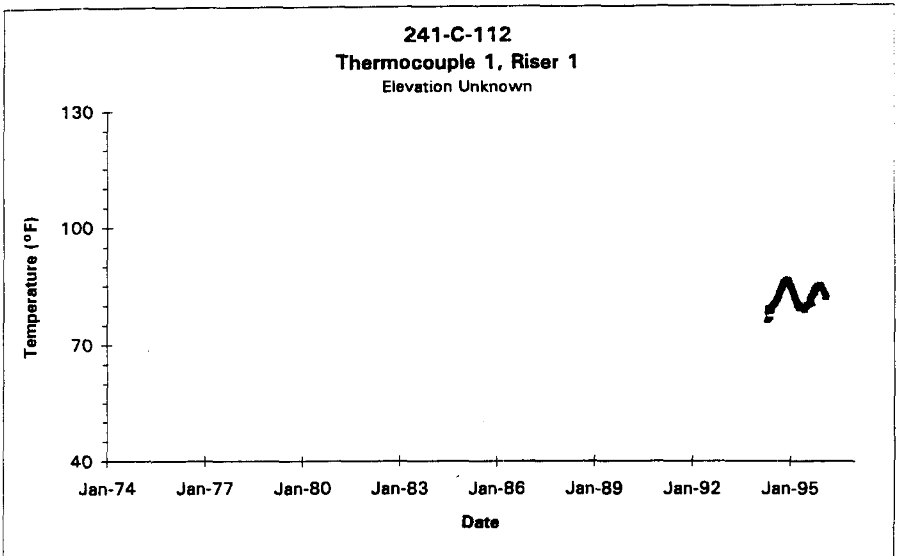

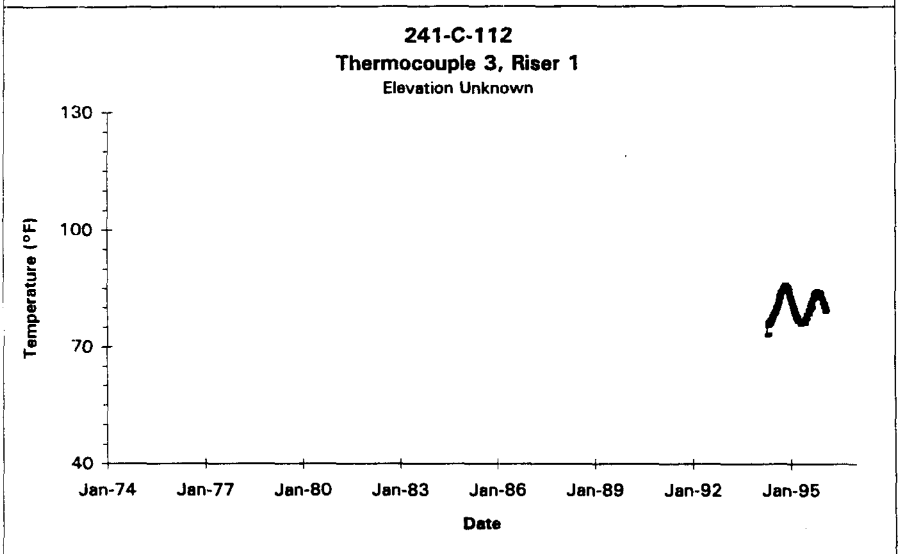

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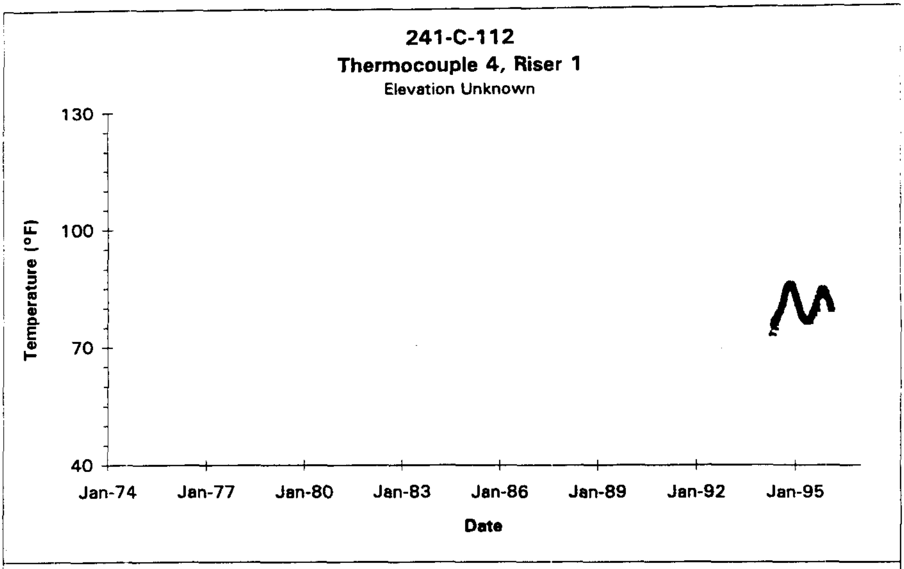

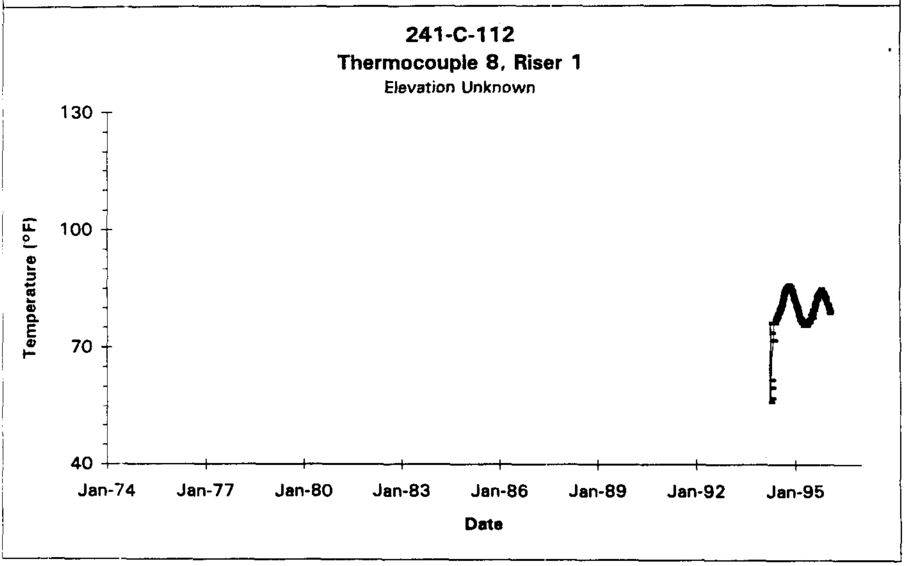

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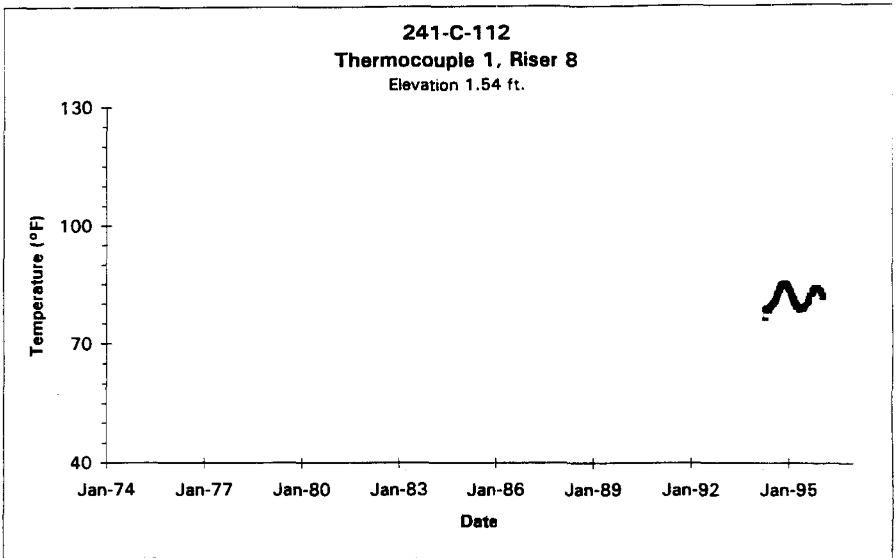

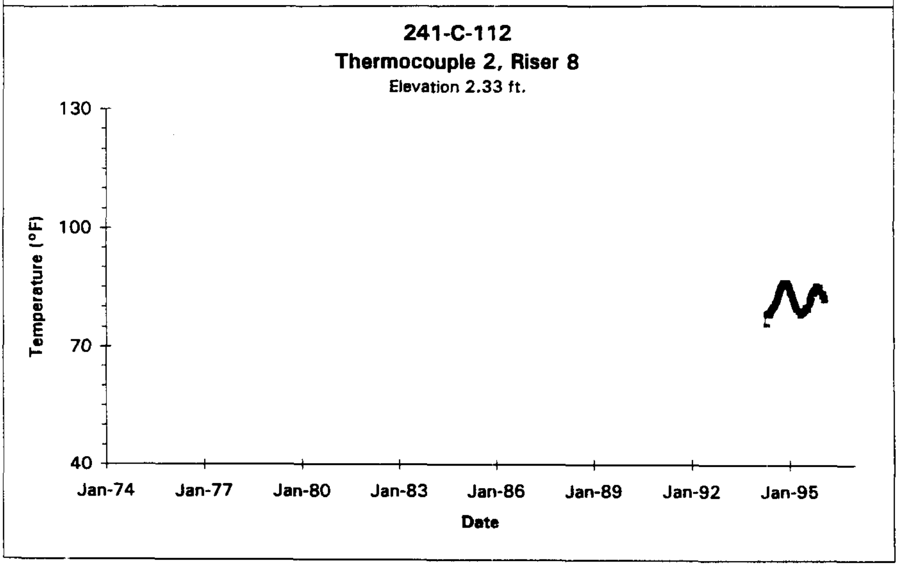

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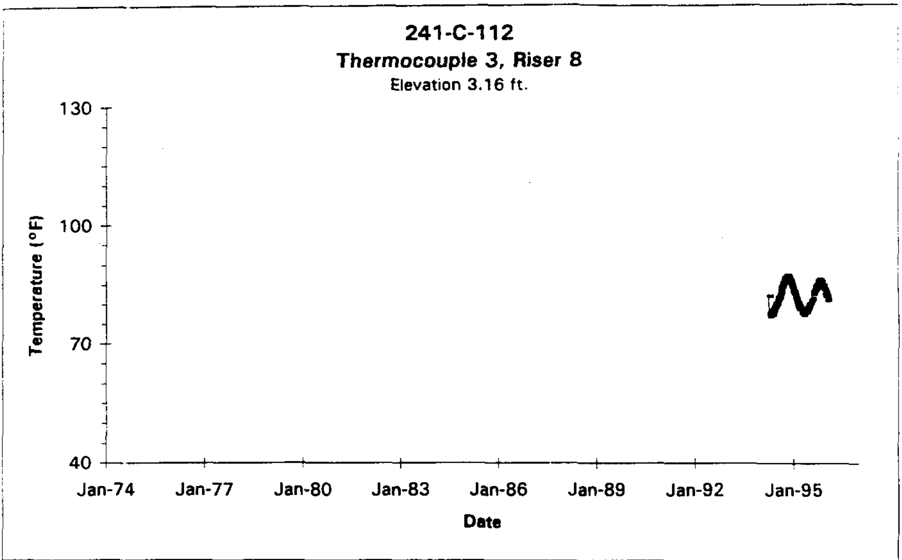

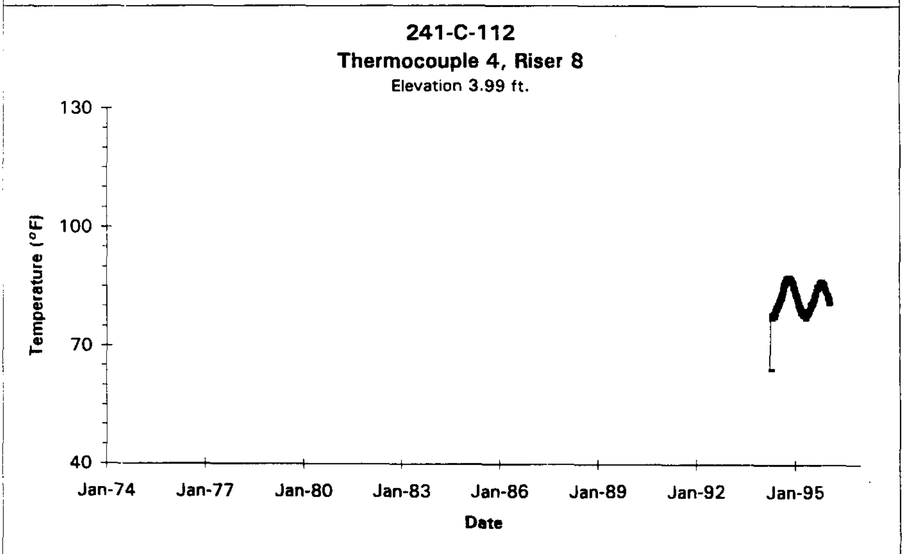

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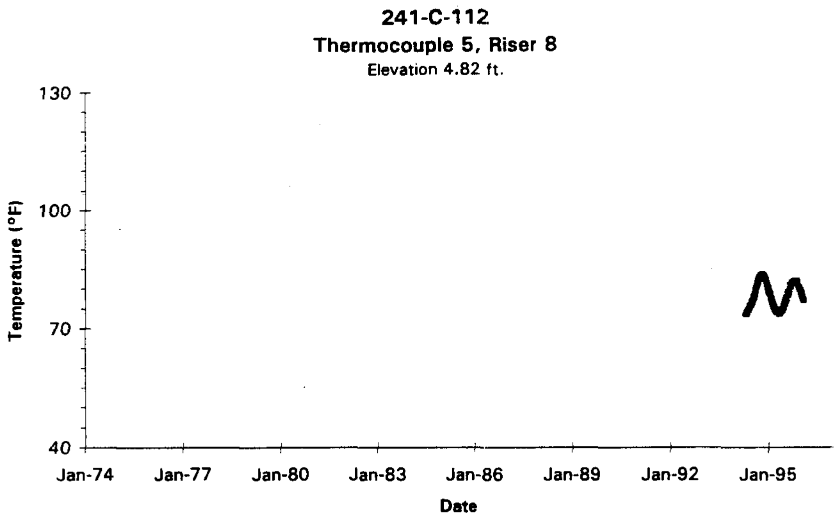

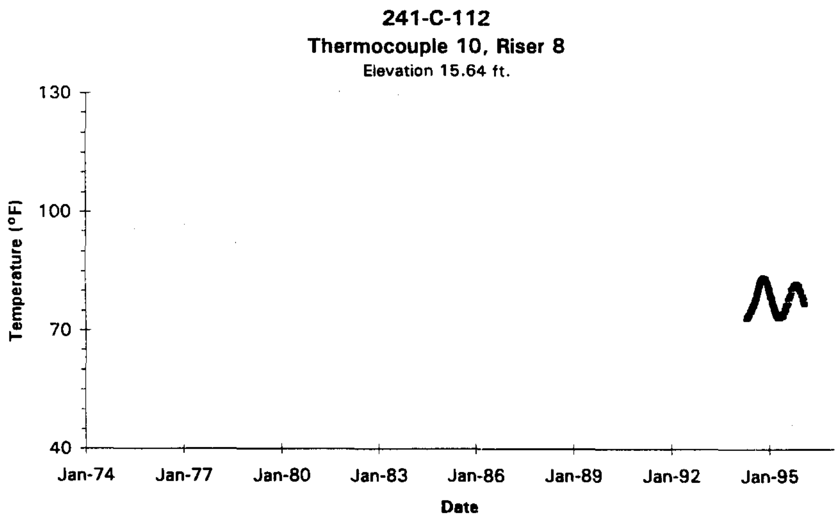

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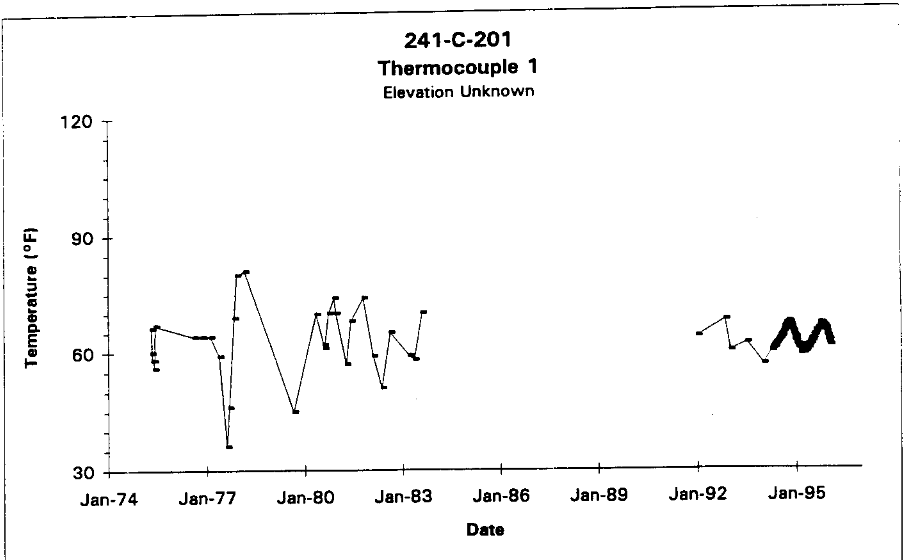

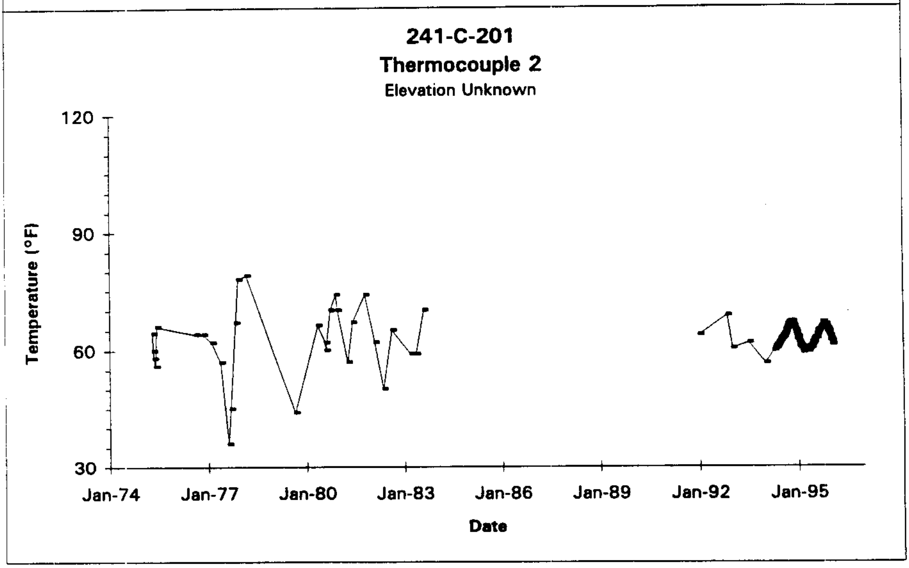

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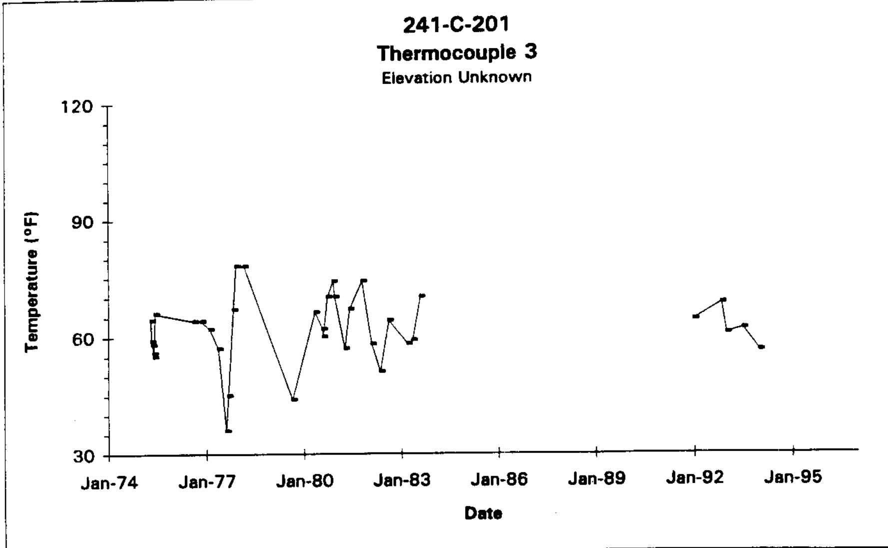

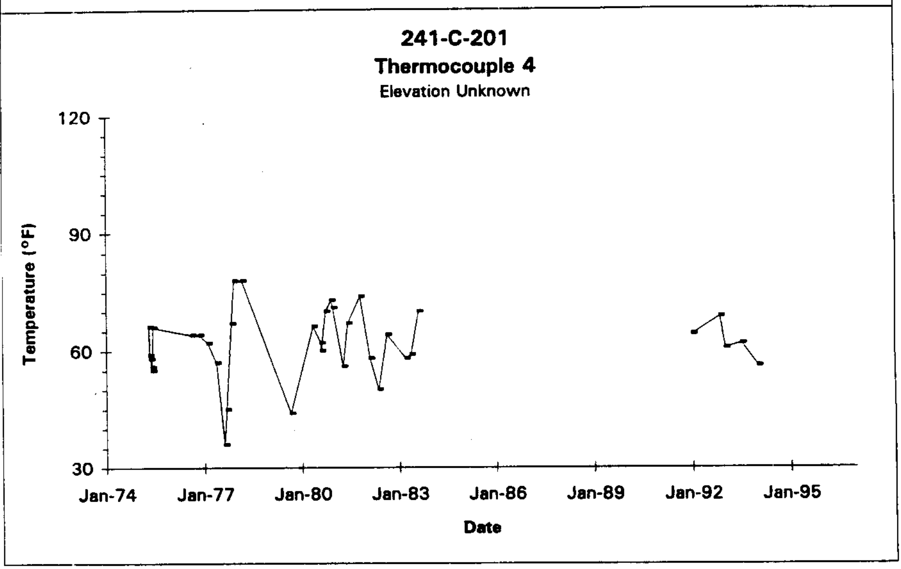

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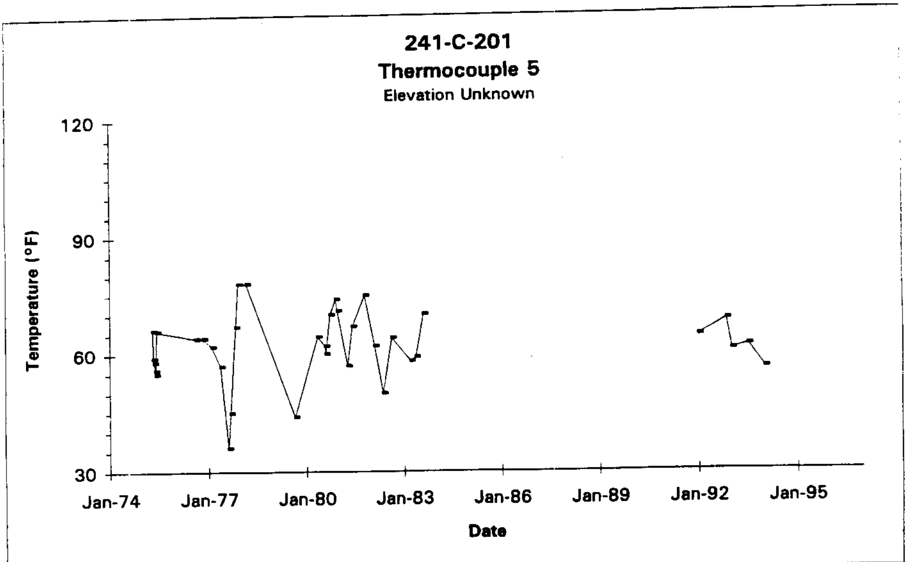

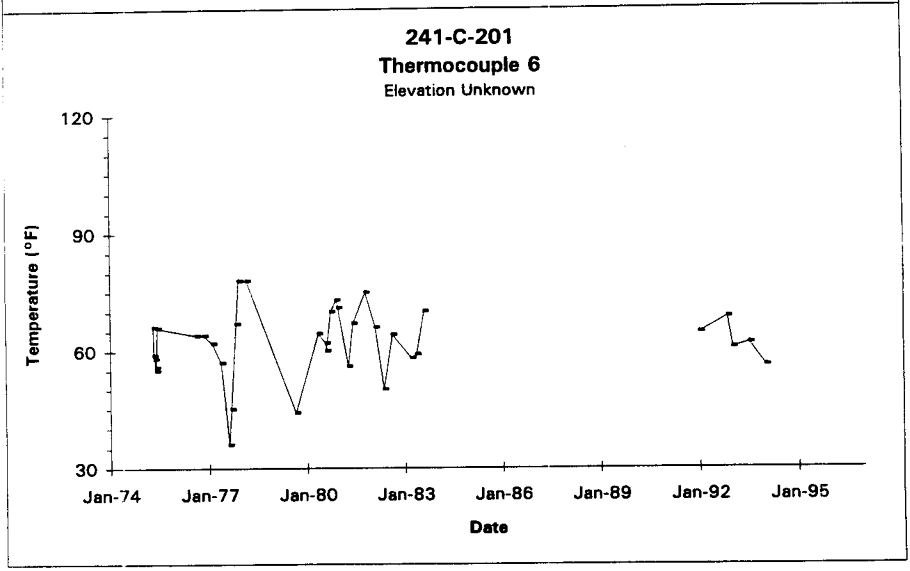

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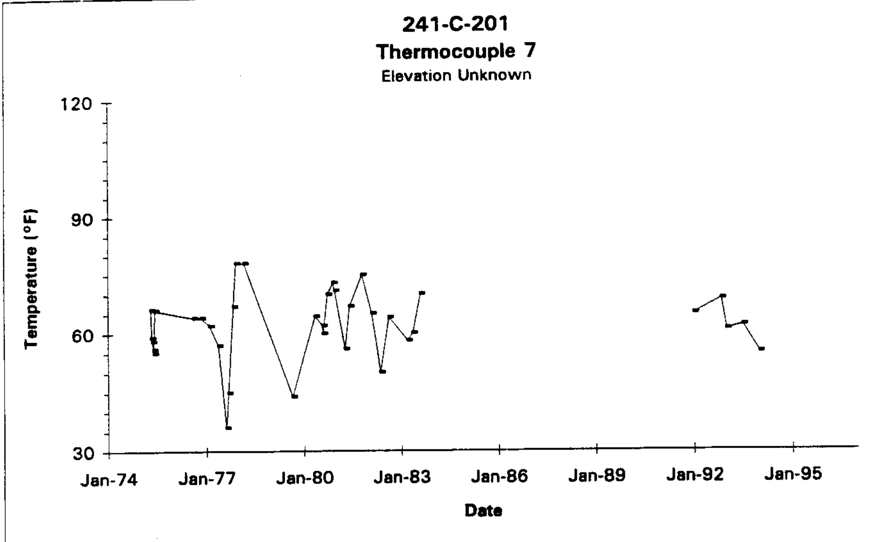

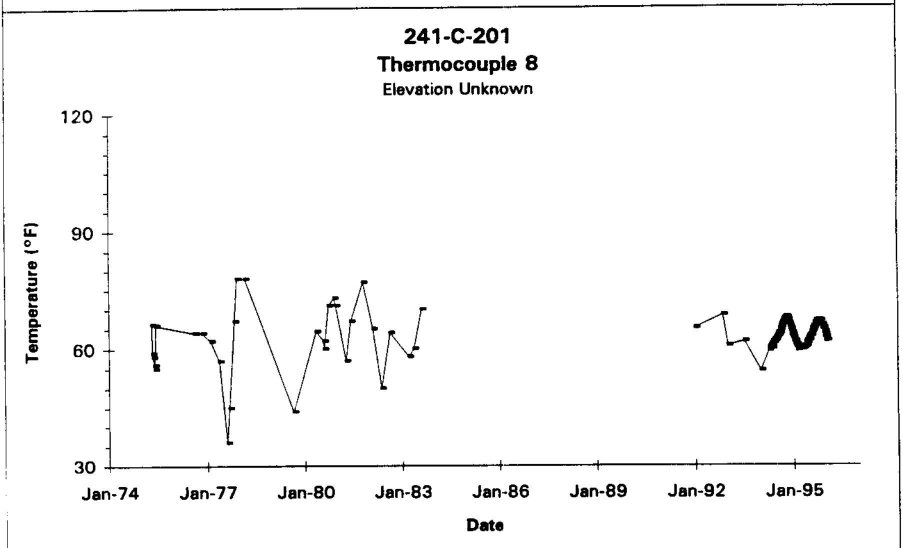

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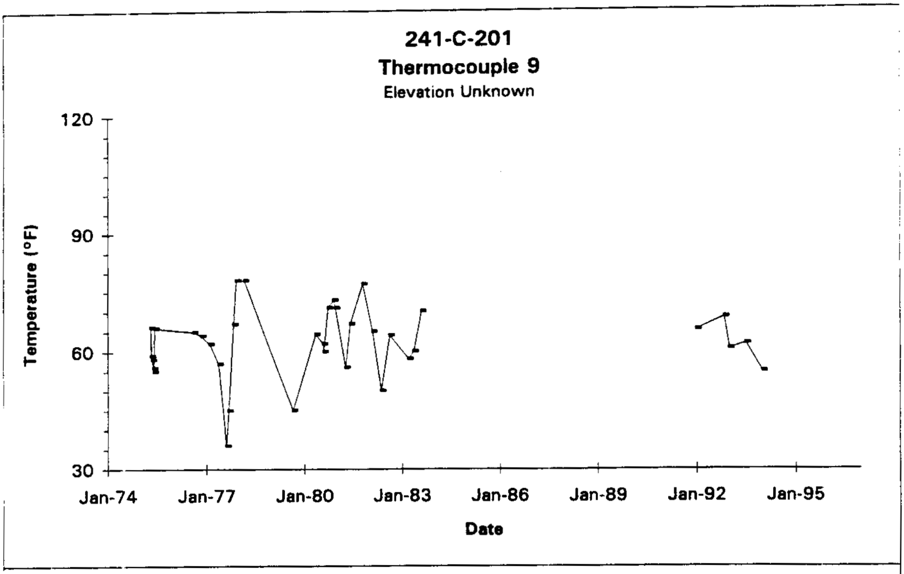

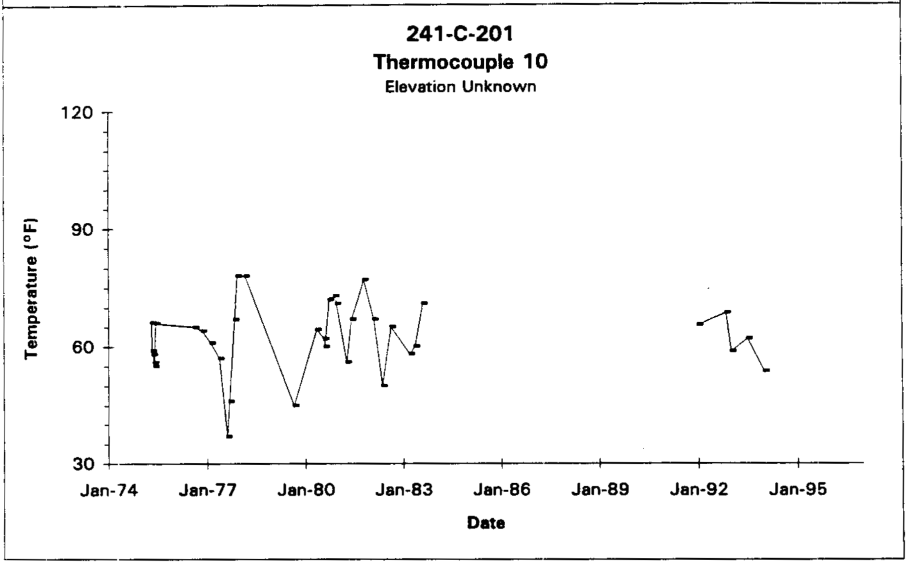

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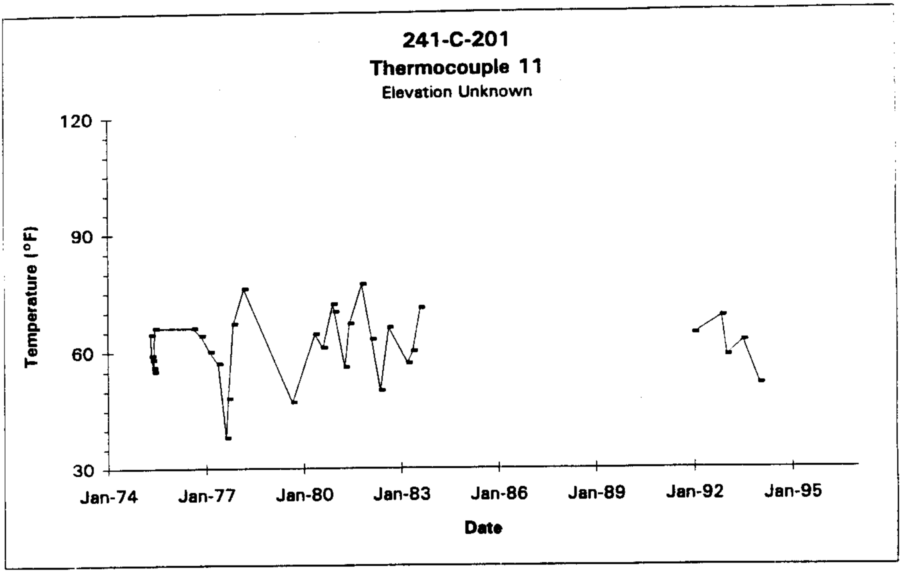

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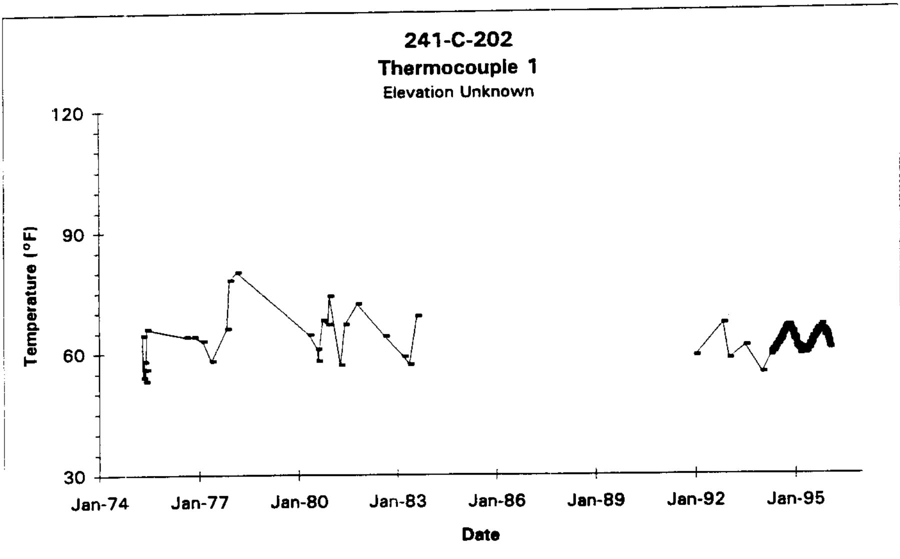

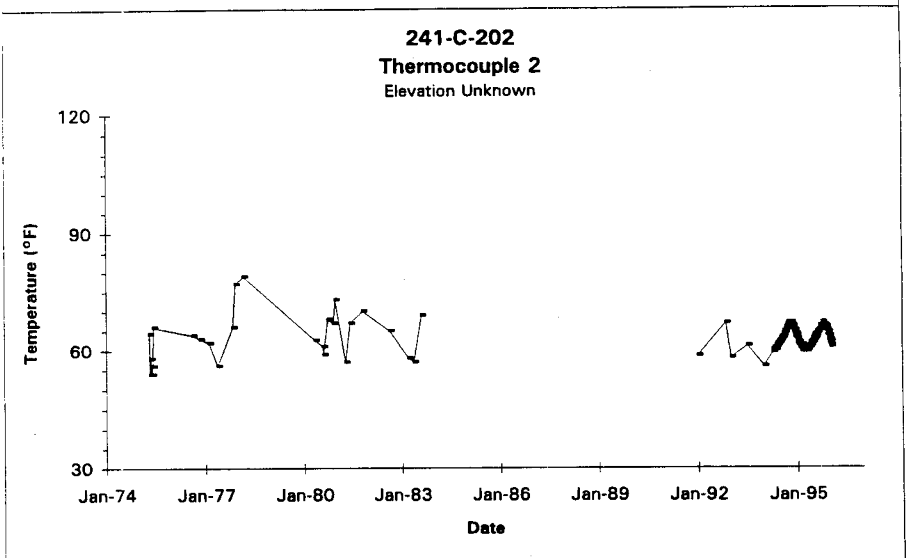

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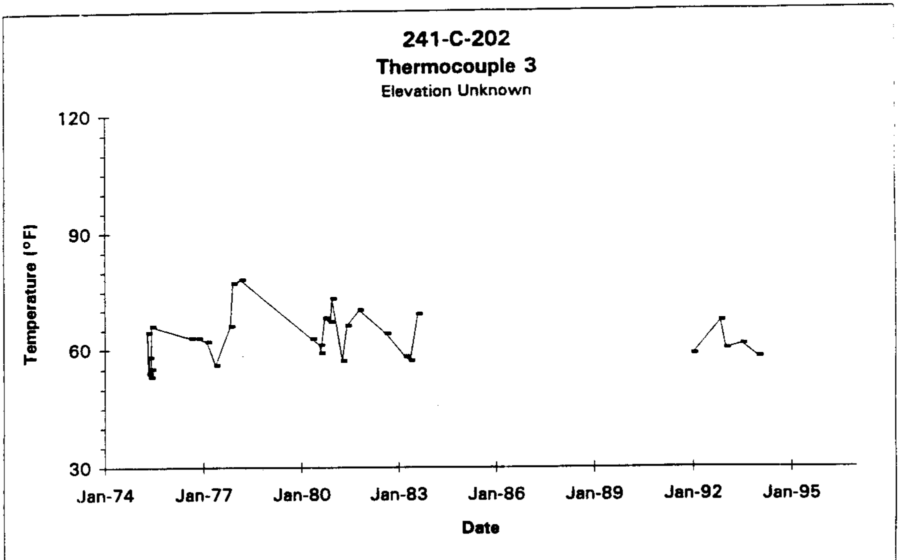

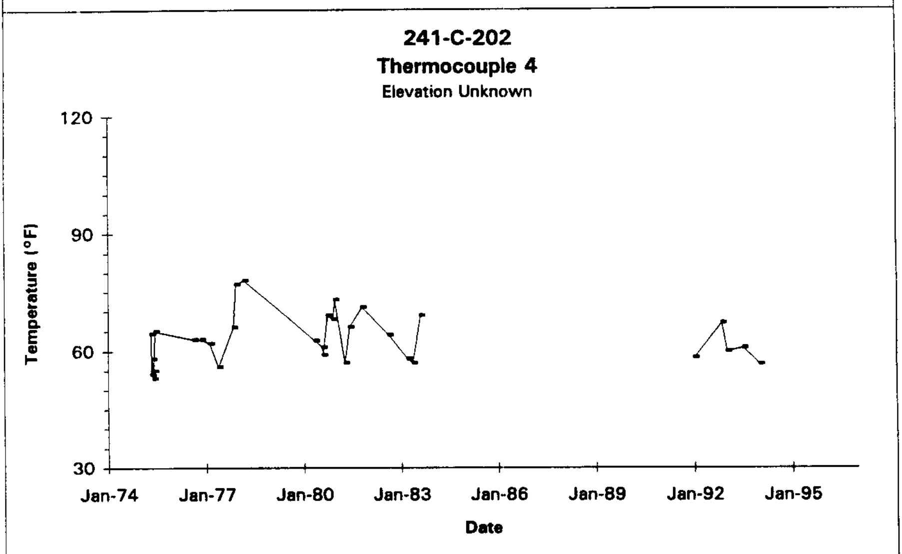

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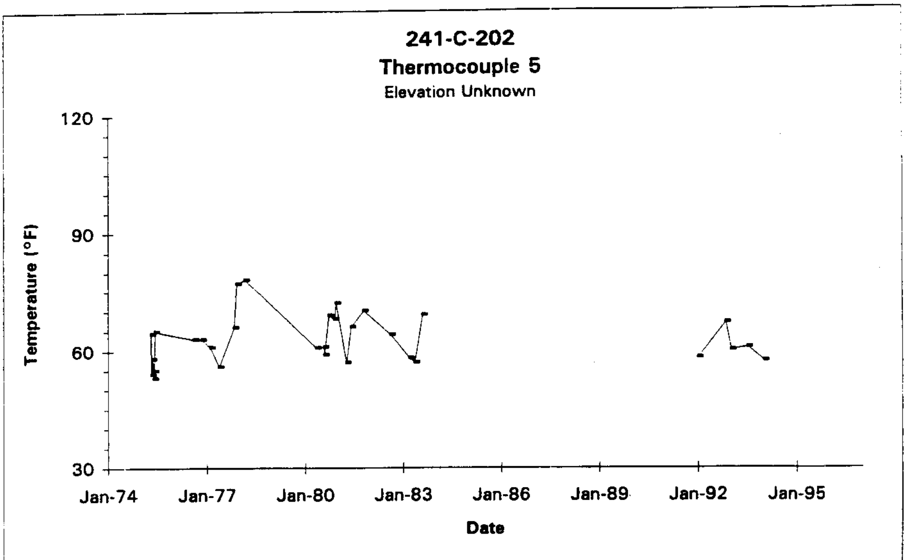

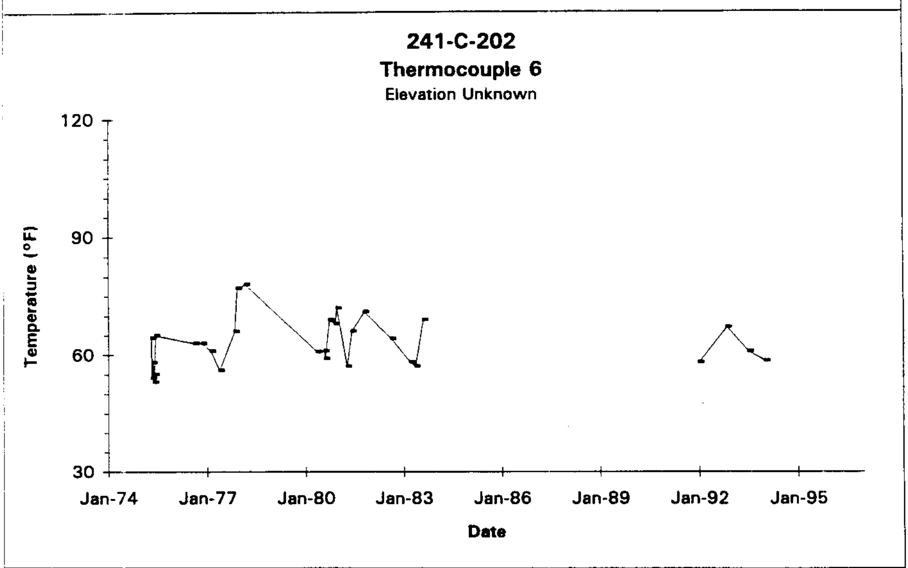

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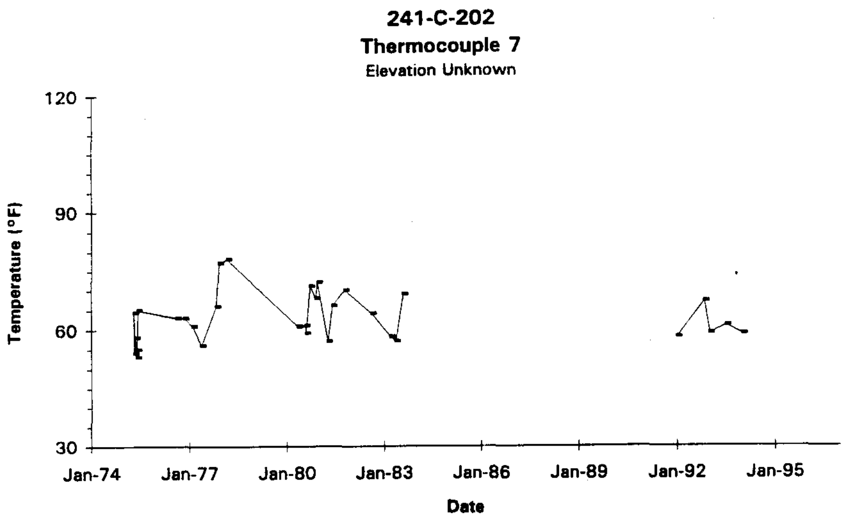

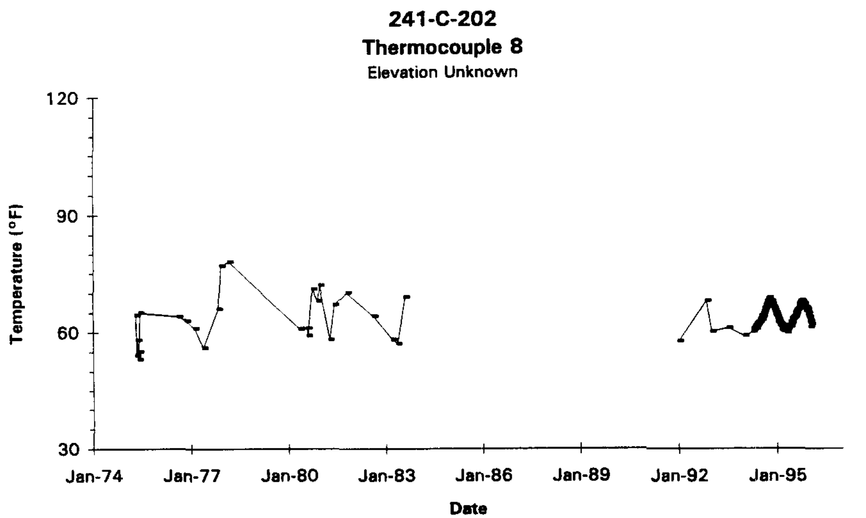

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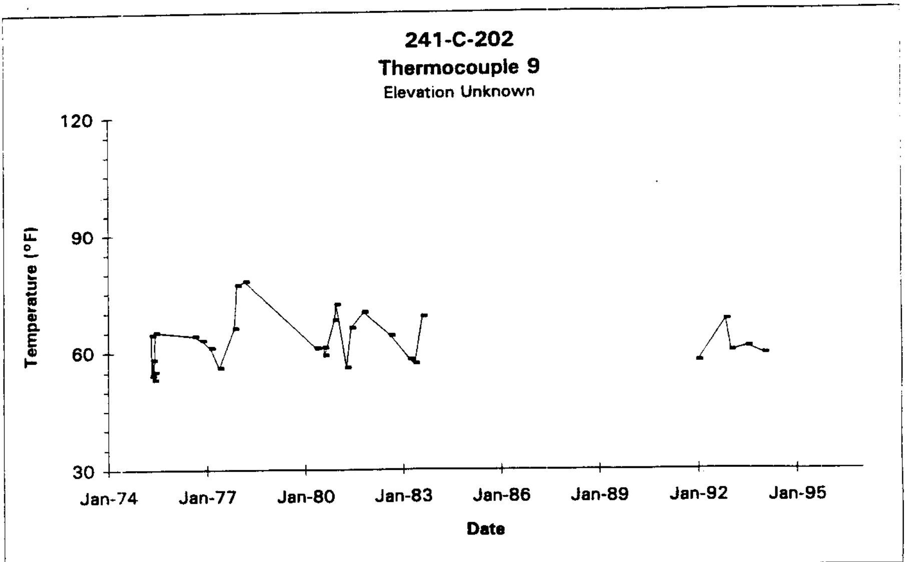

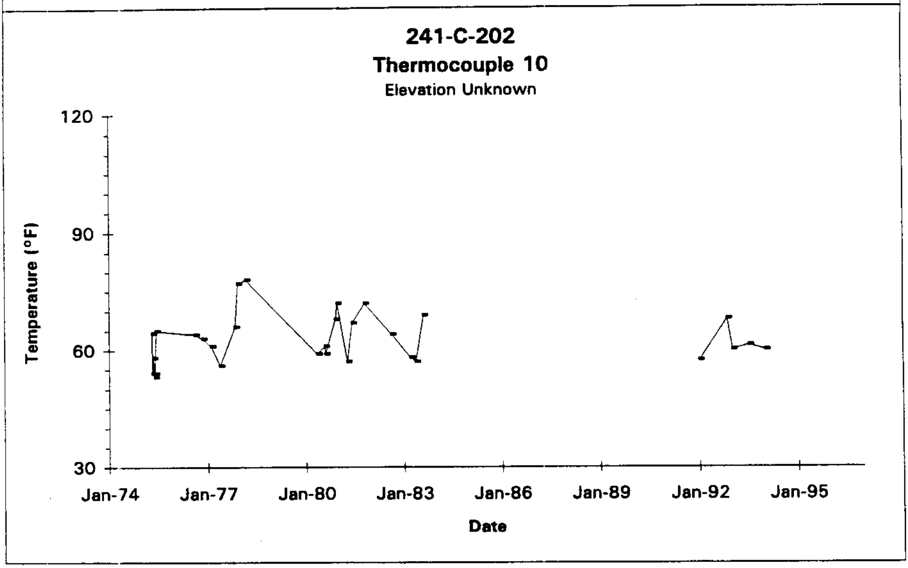

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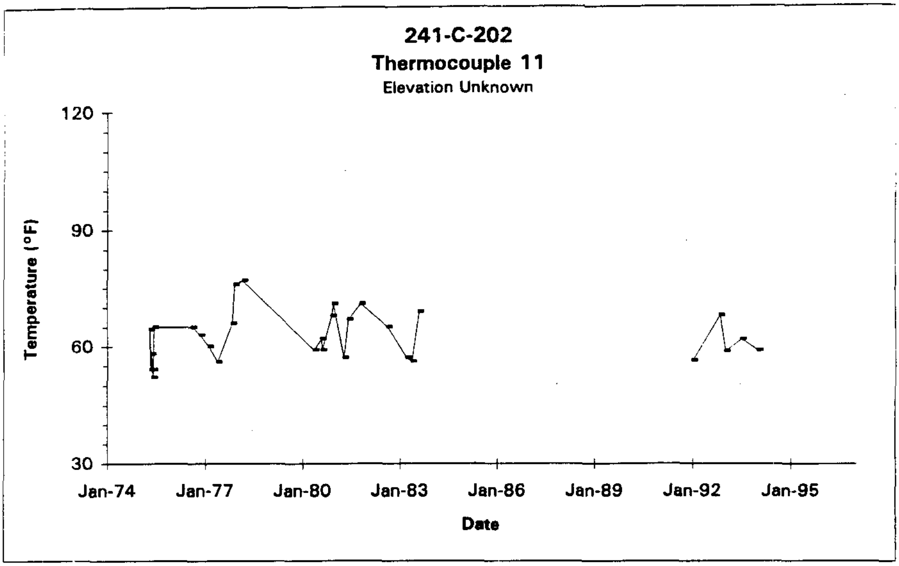

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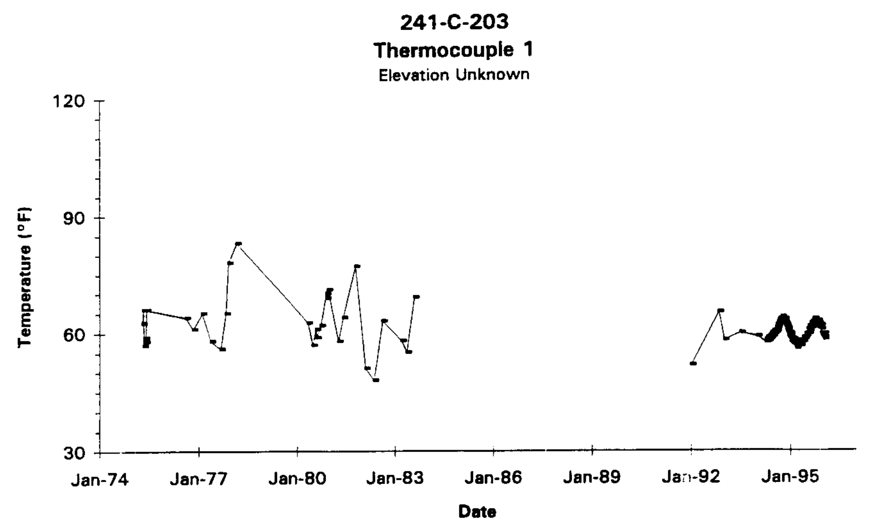

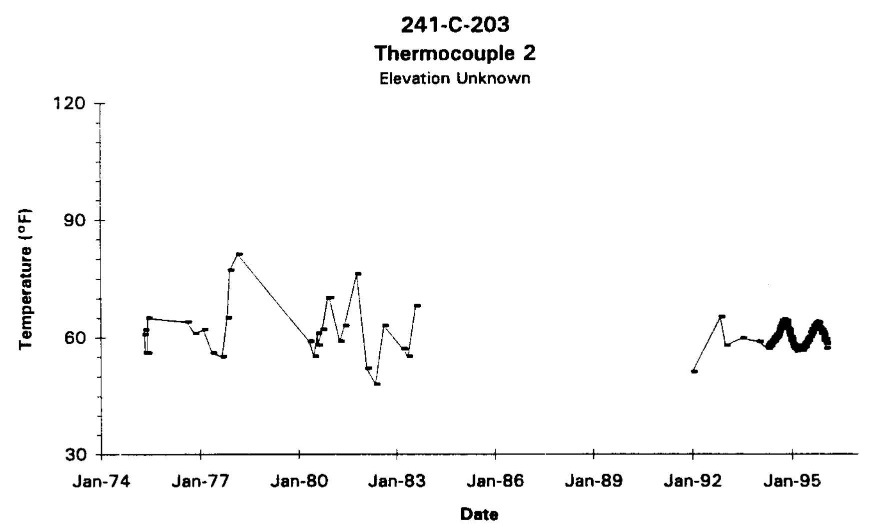

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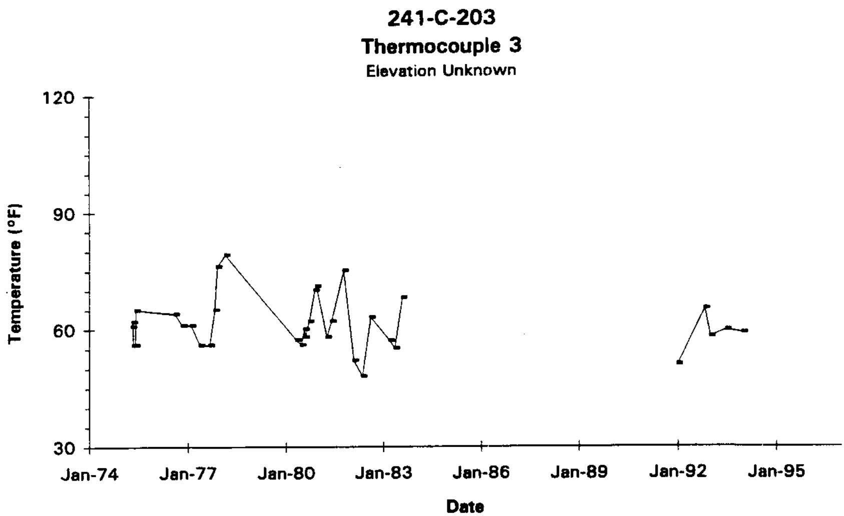

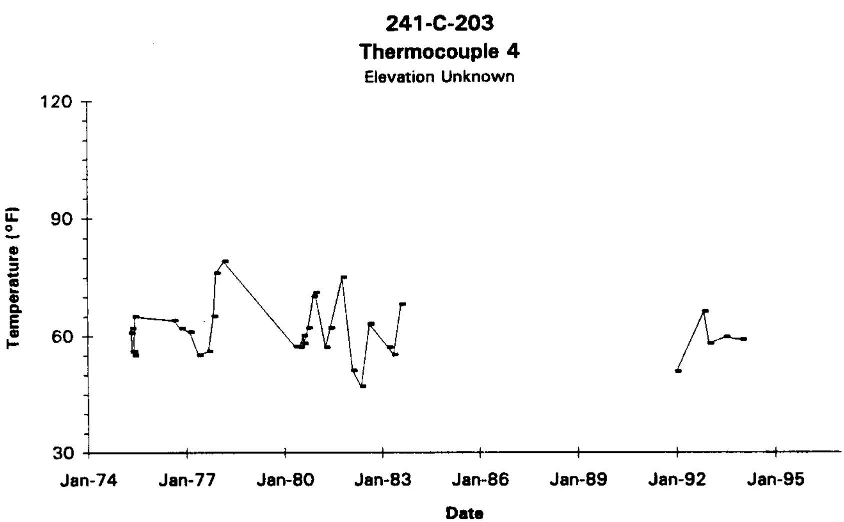

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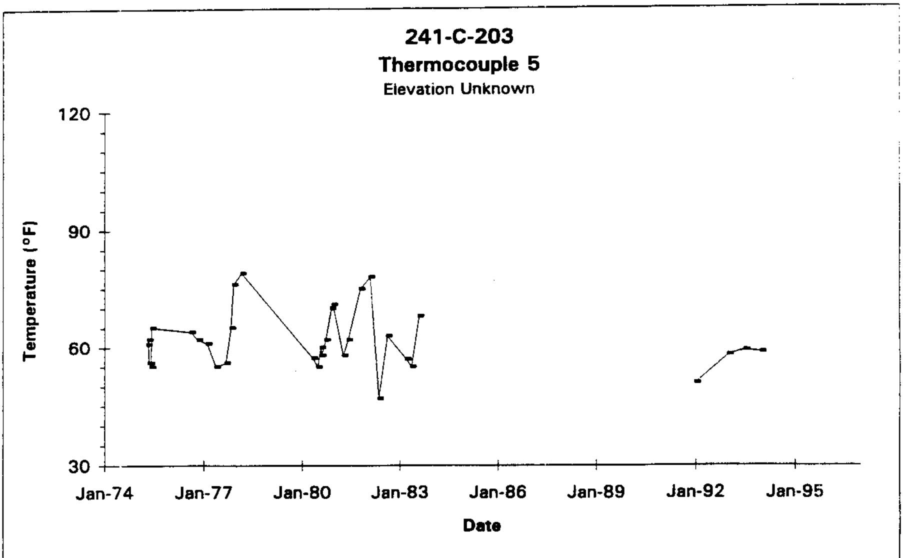

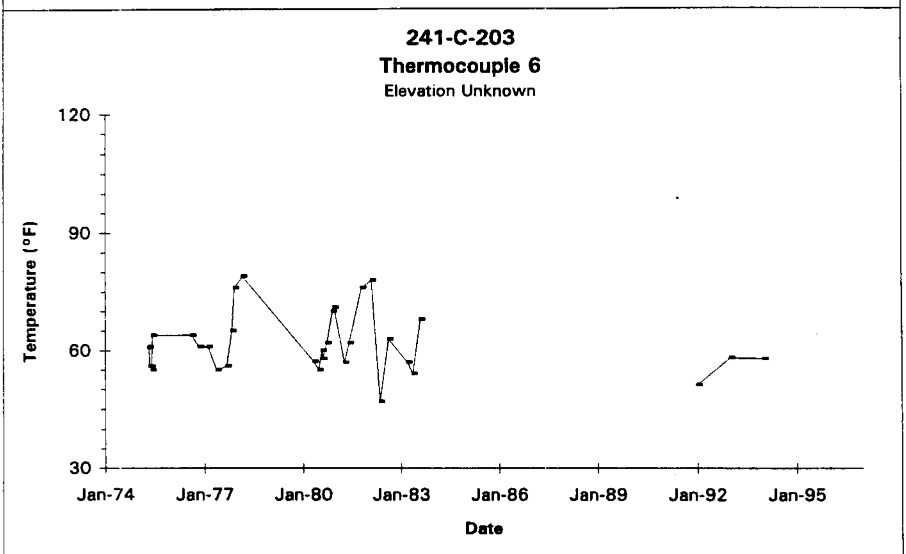

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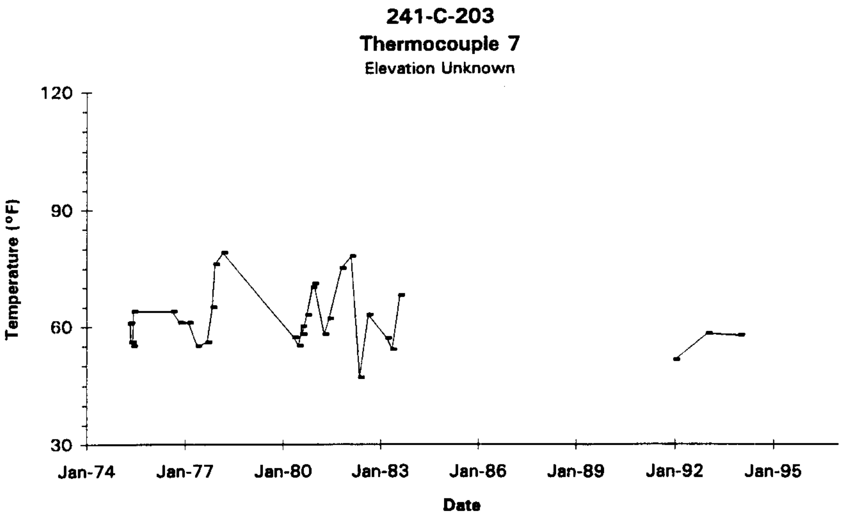

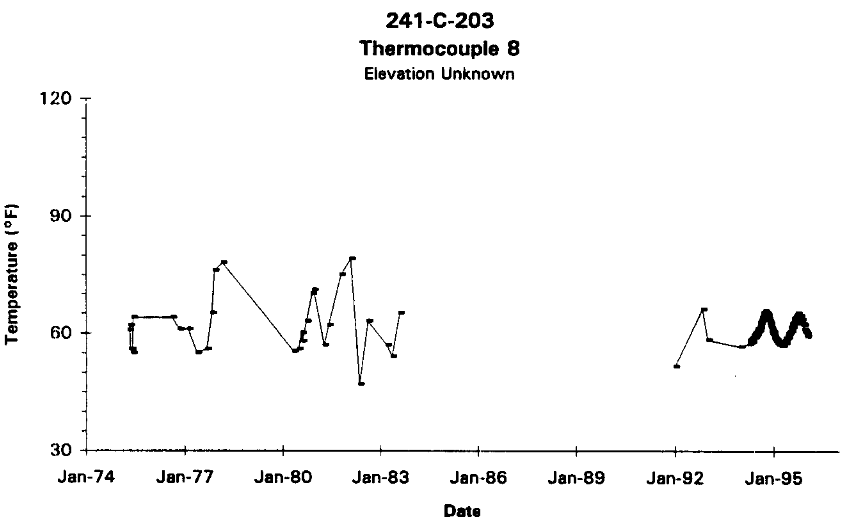

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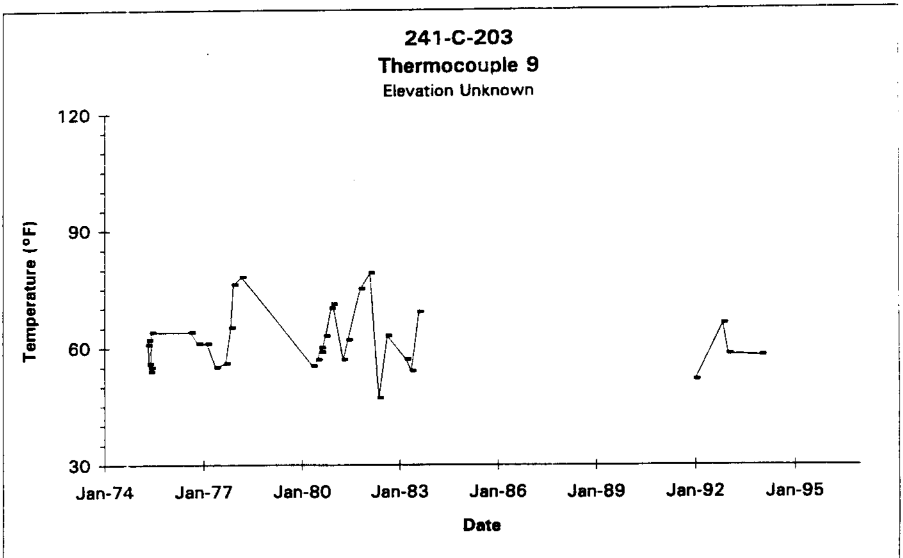

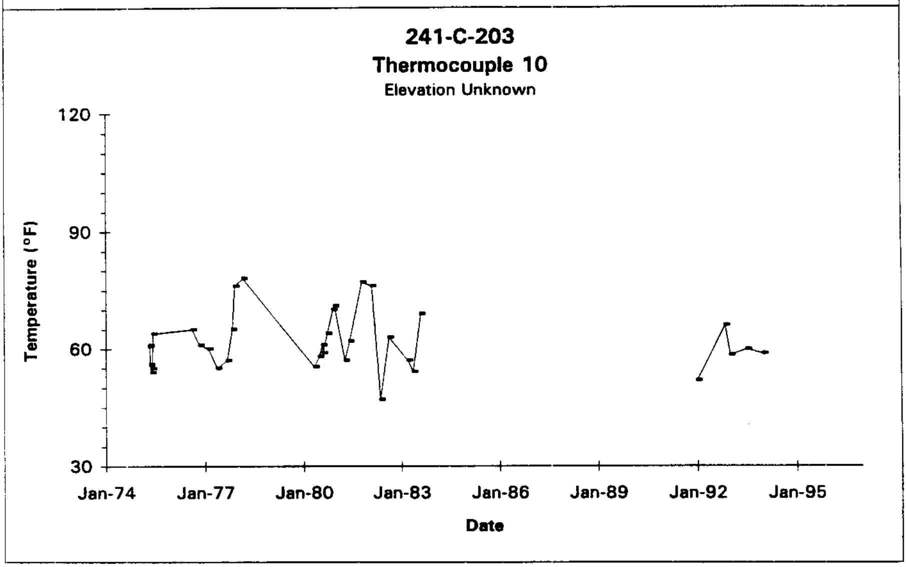

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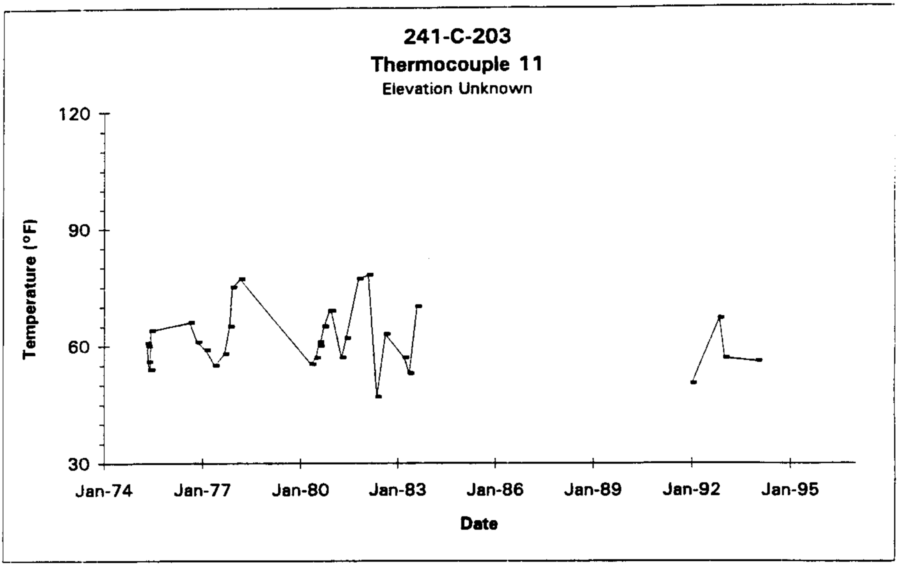

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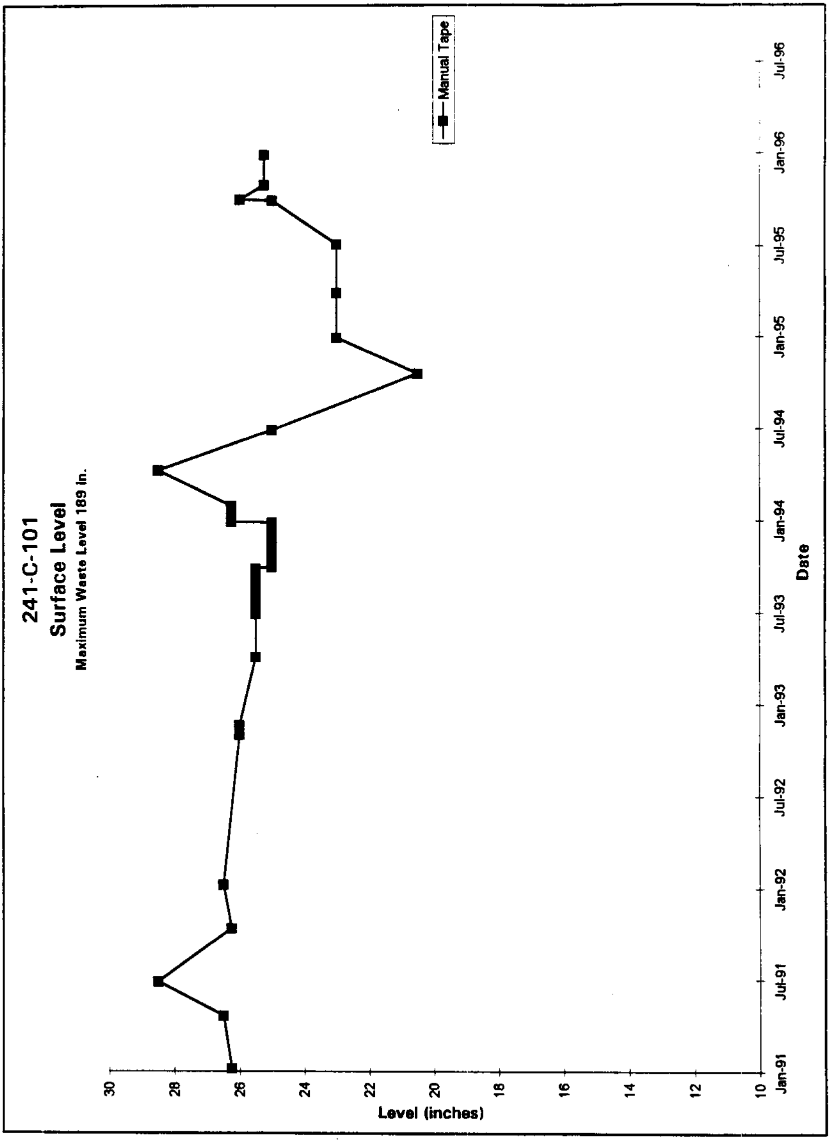

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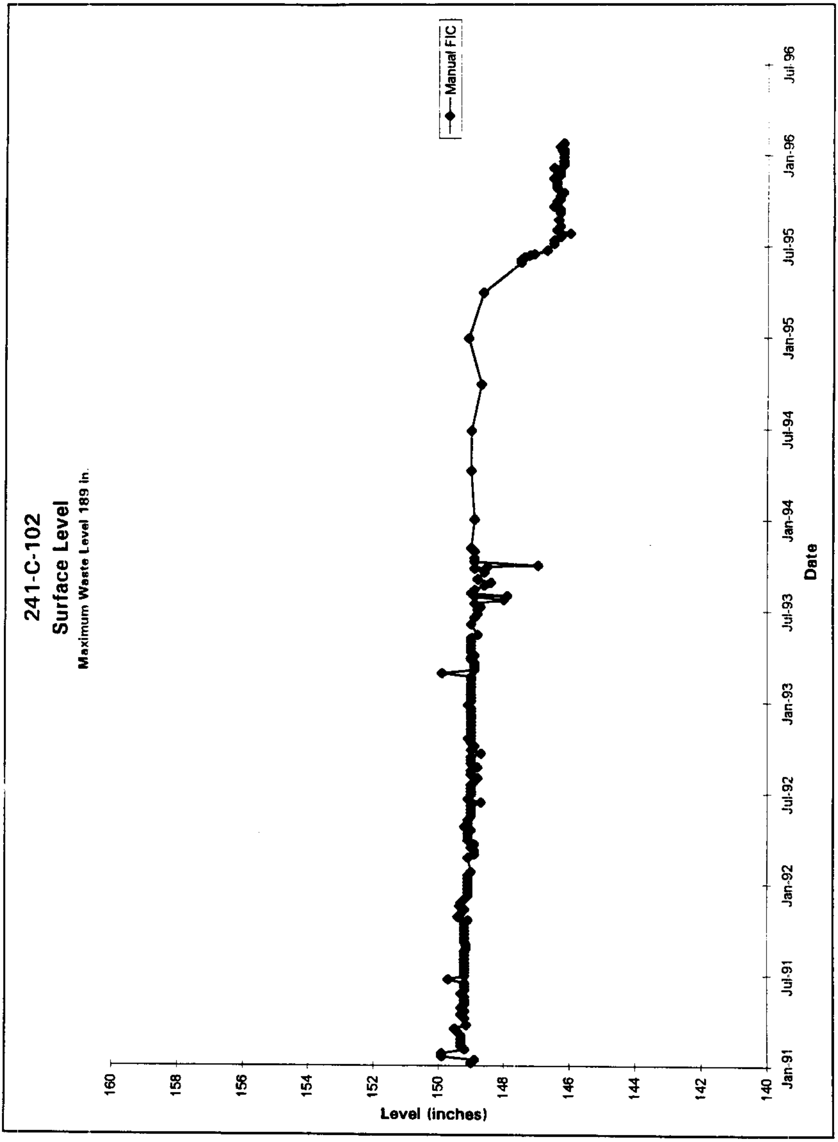

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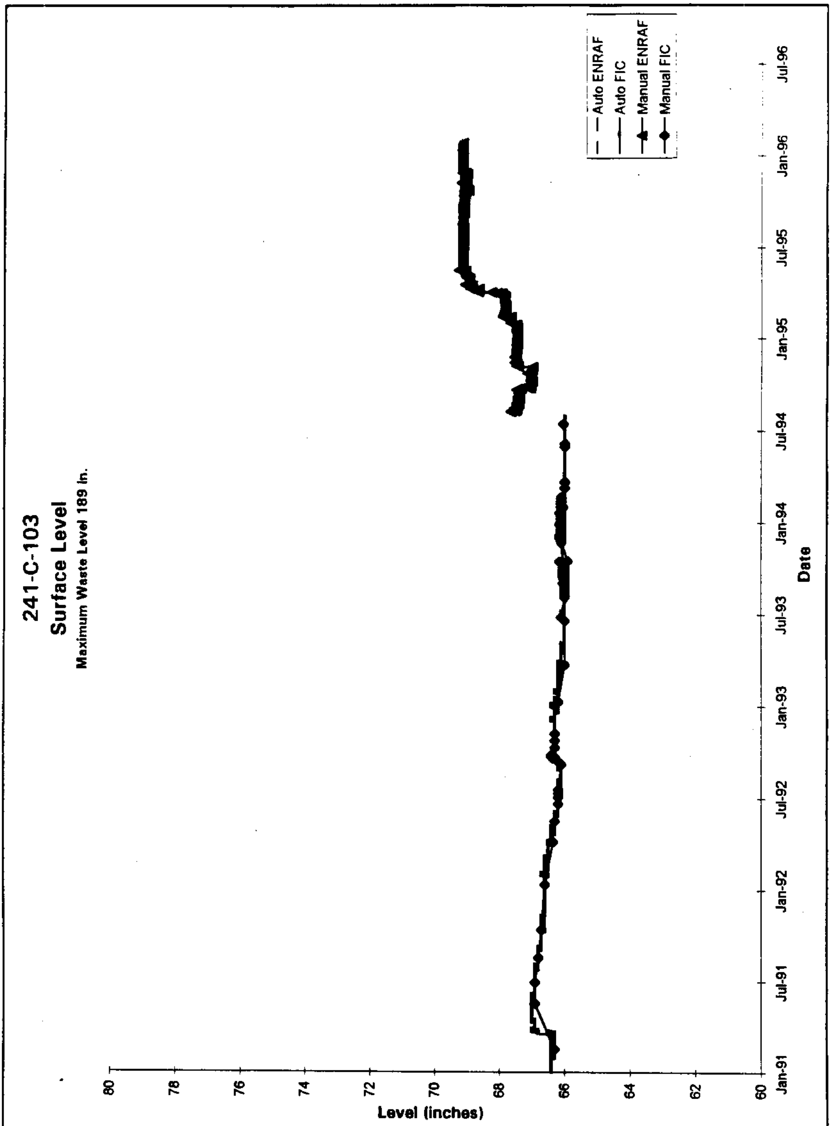

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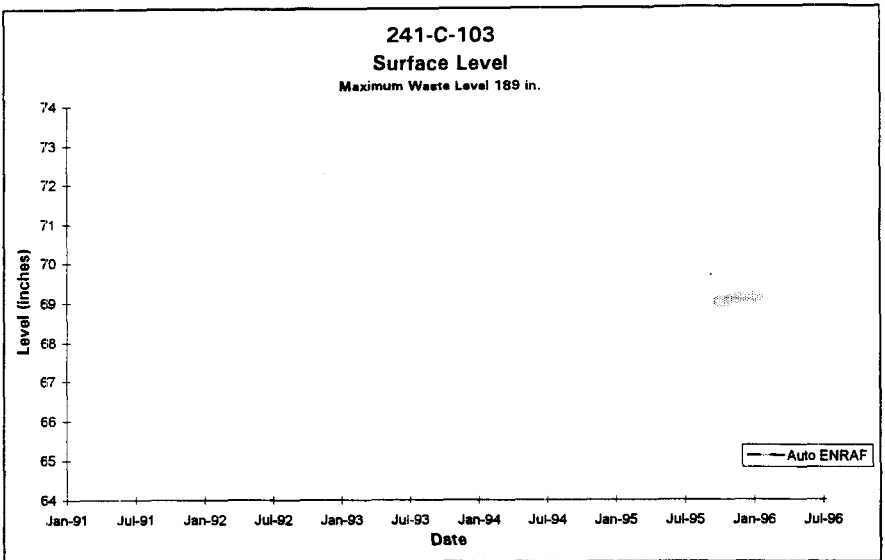

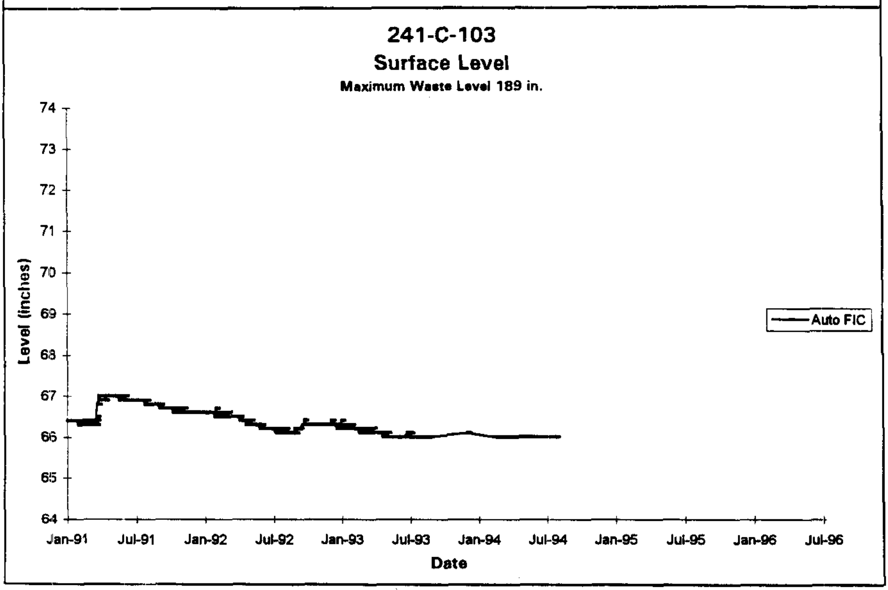

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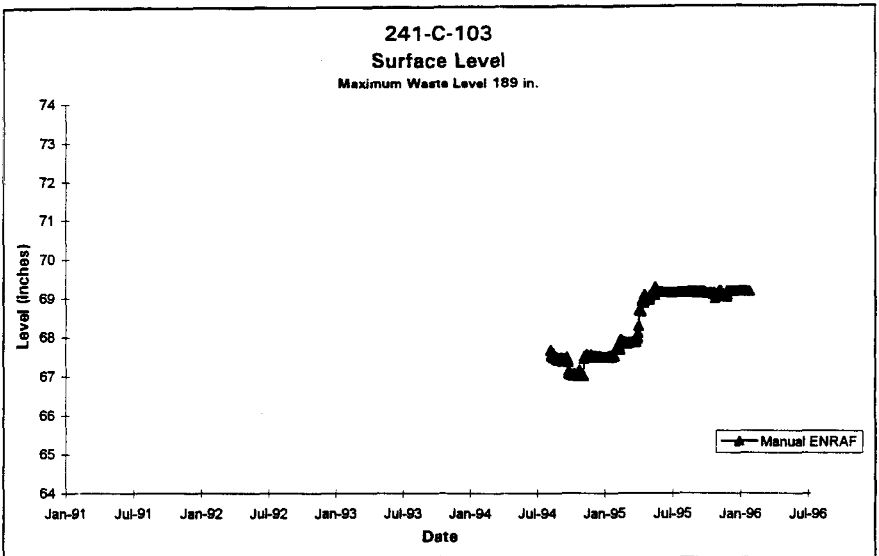

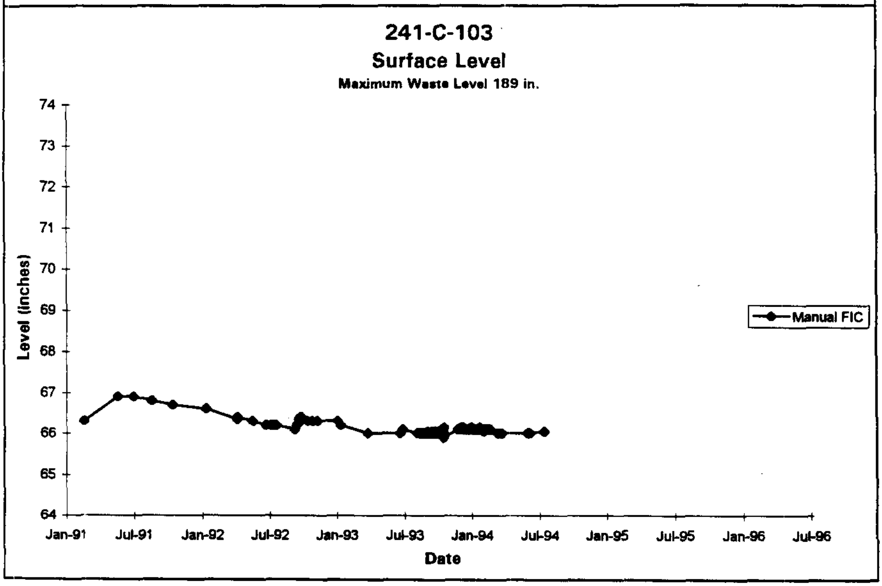

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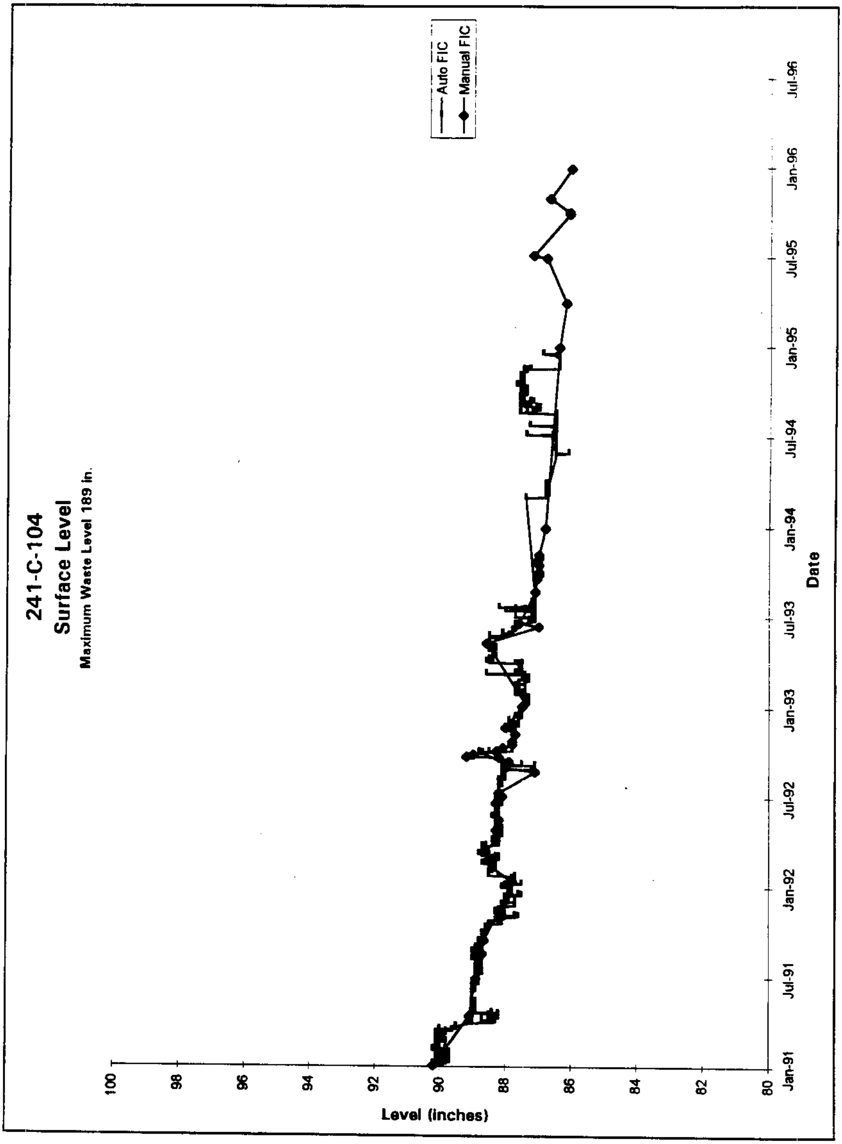
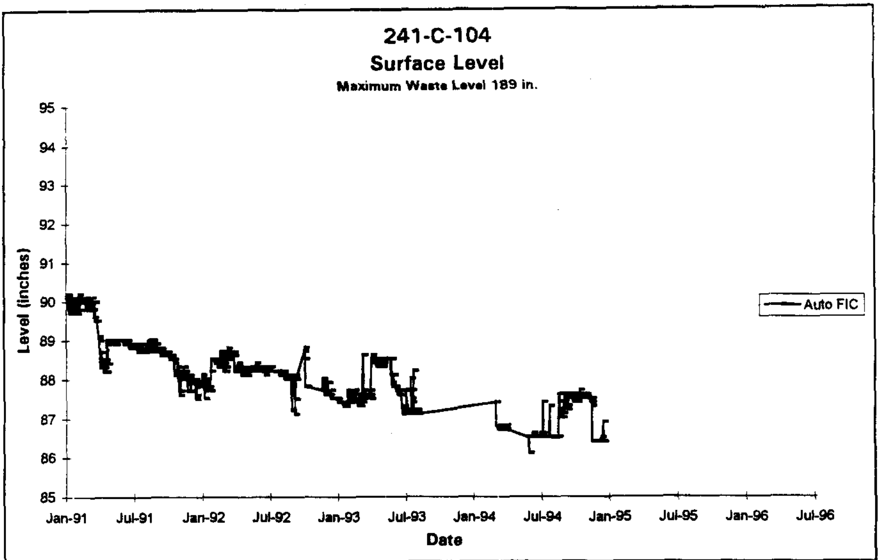
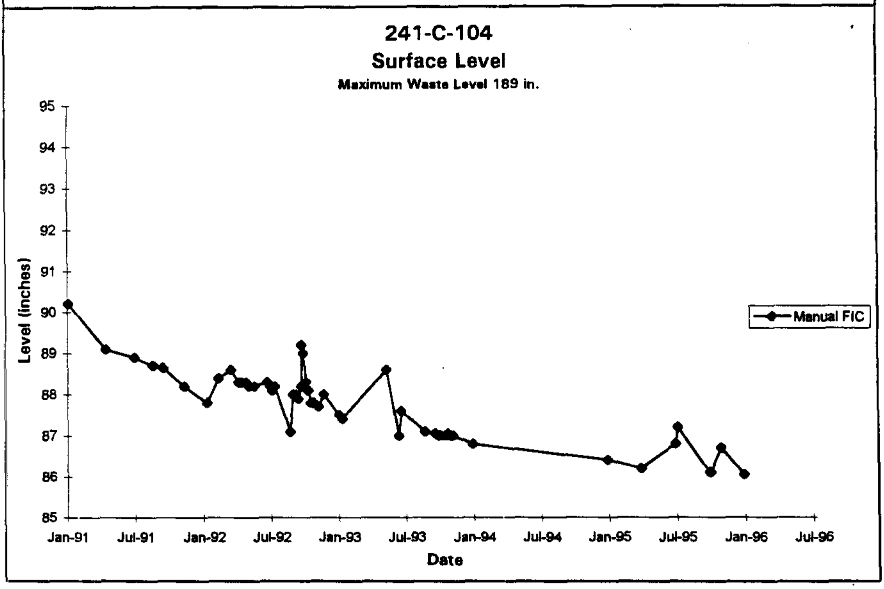
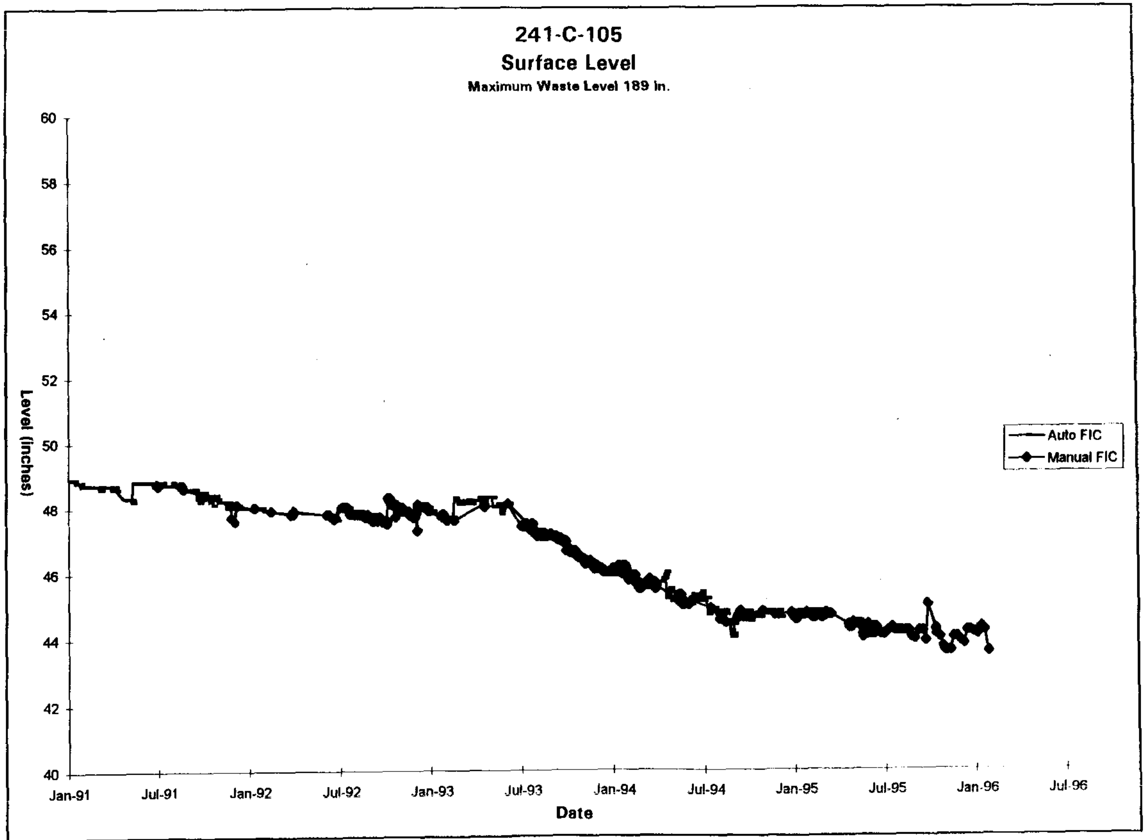


Data obtained from WHC Surveillance Analysis Computer System (SACS), February 20, 1996.

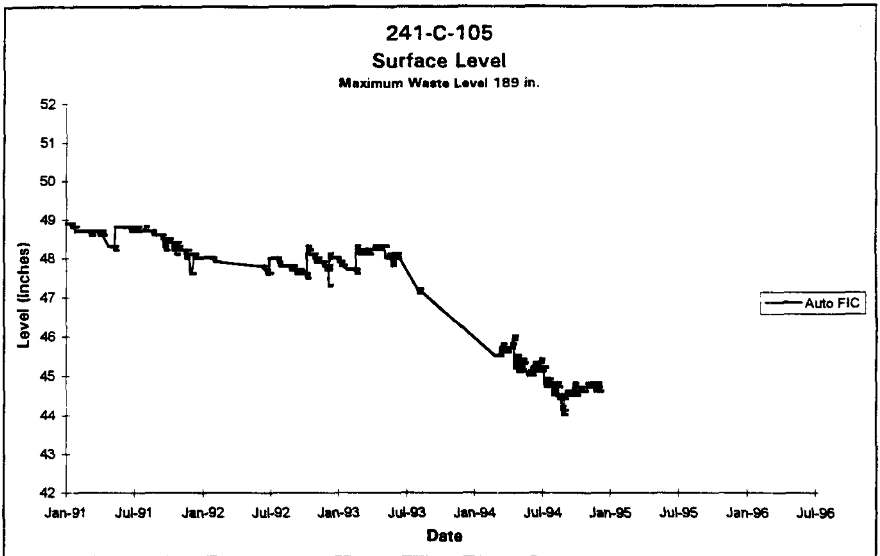


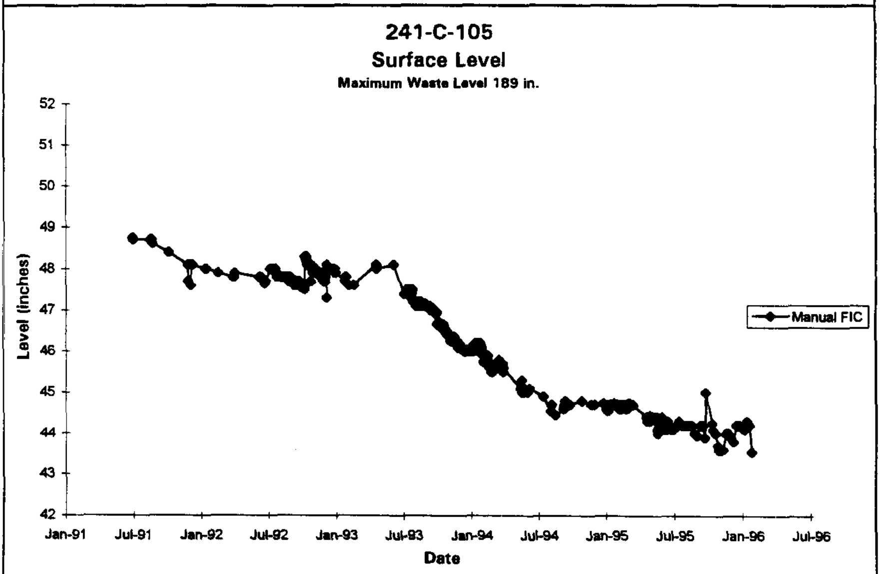


Data obtained from WHC Surveillance Analysis Computer System (SACS), February 20, 1996.

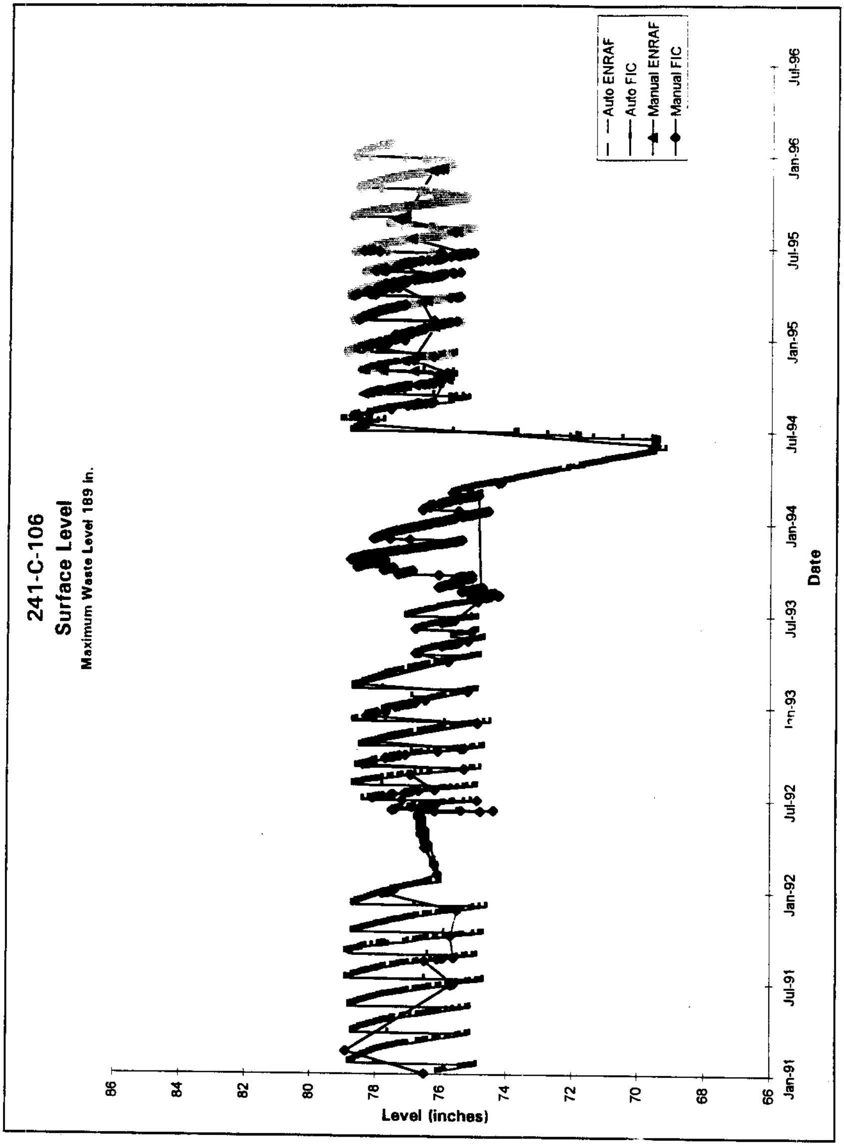


Data obtained from WHC Surveillance Analysis Computer System (SACS), February 20, 1996.

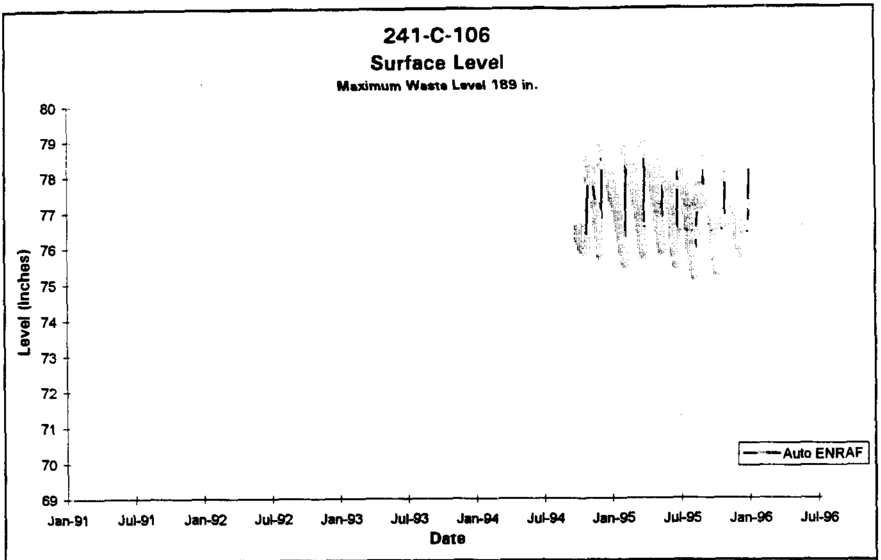


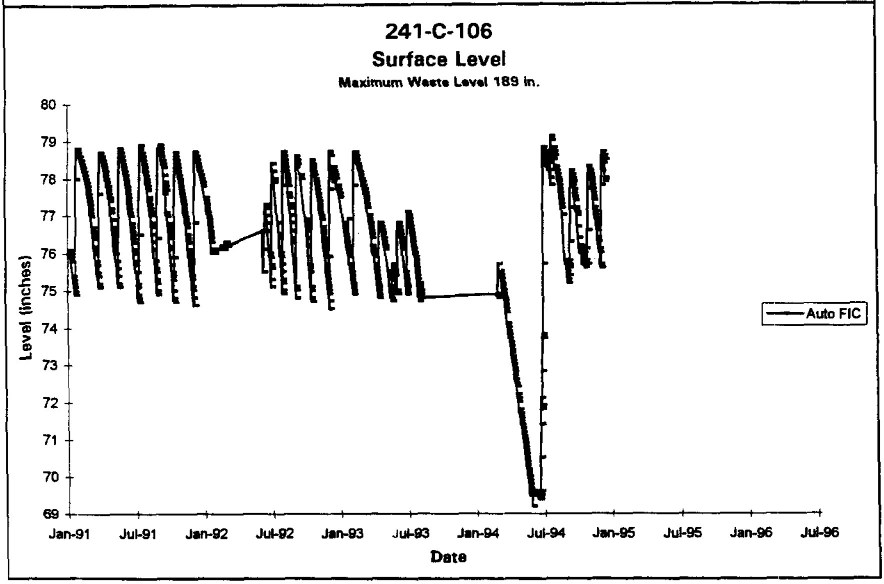


Data obtained from WHC Surveillance Analysis Computer System (SACS), February 20, 1996.



Data obtained from WHC Surveill... Analysis Computer System (SACS), February 20, 1996.





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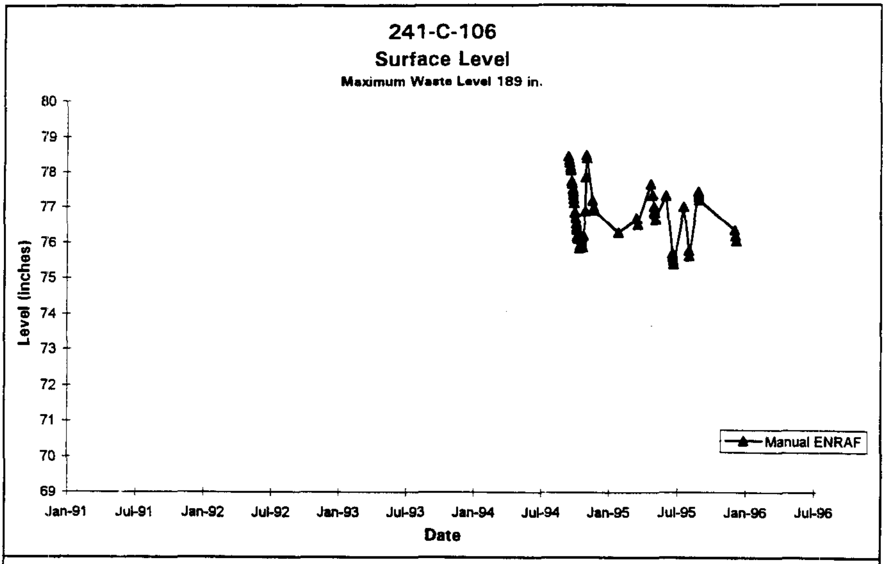
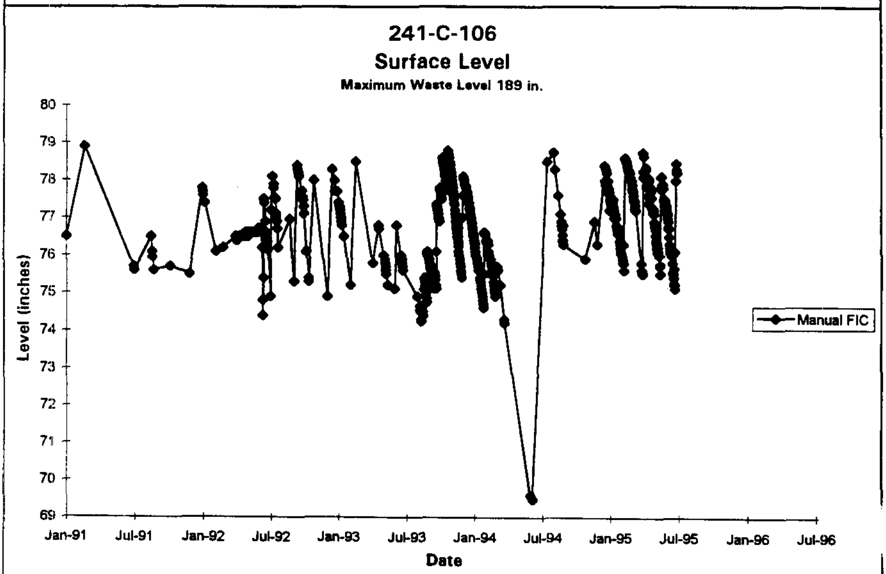
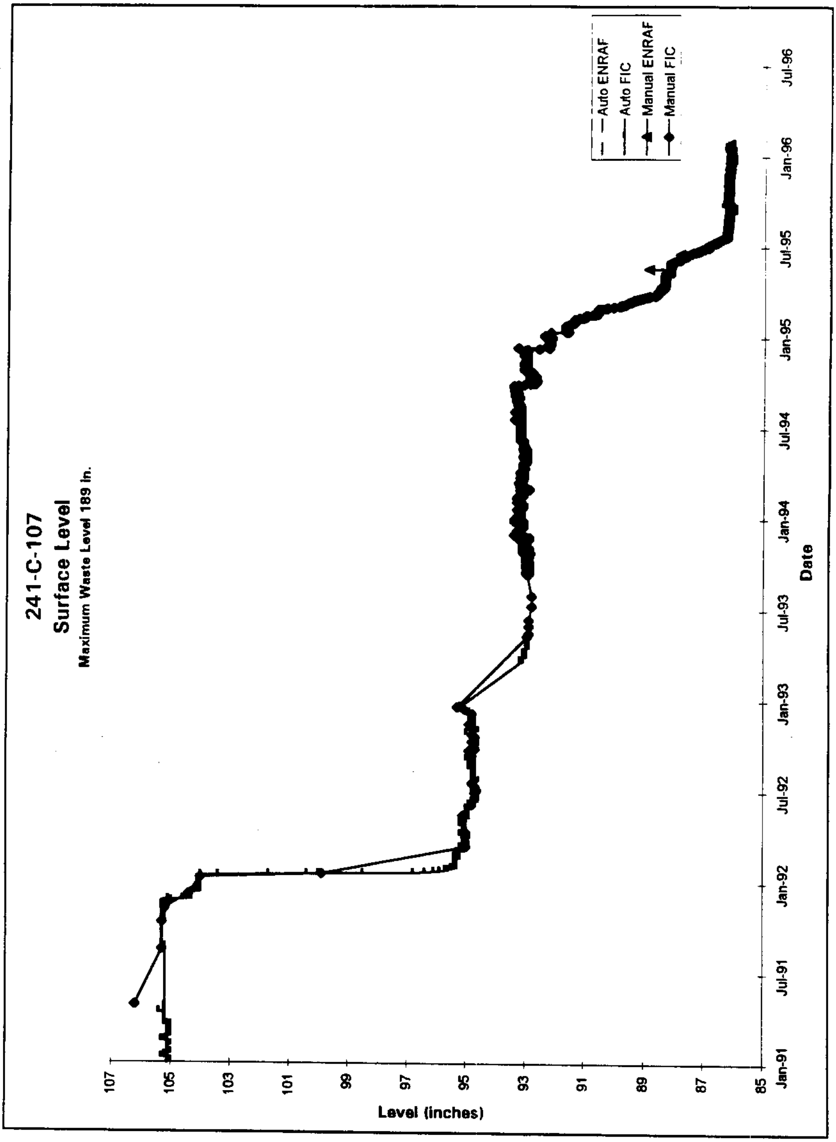
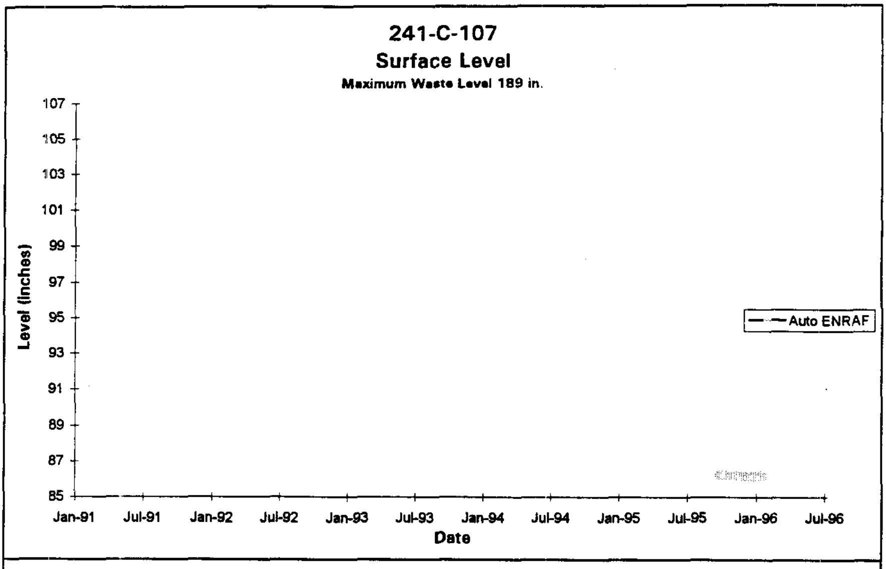
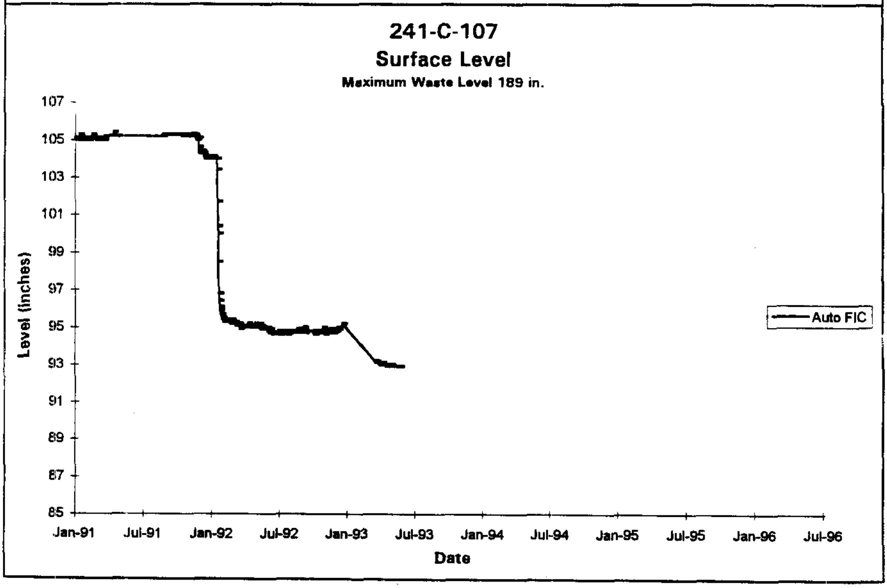




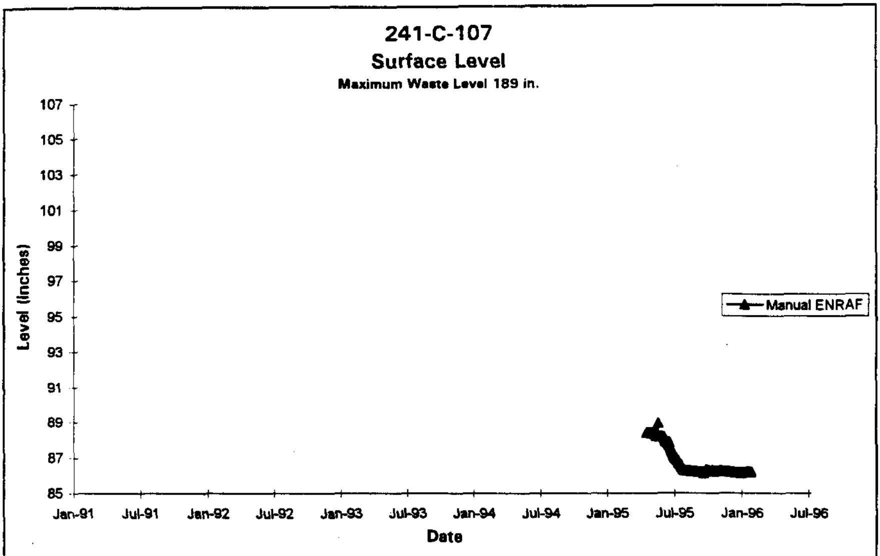
Data obtained from WHC Surveillance Analysis Computer System (SACS), February 20, 1996.

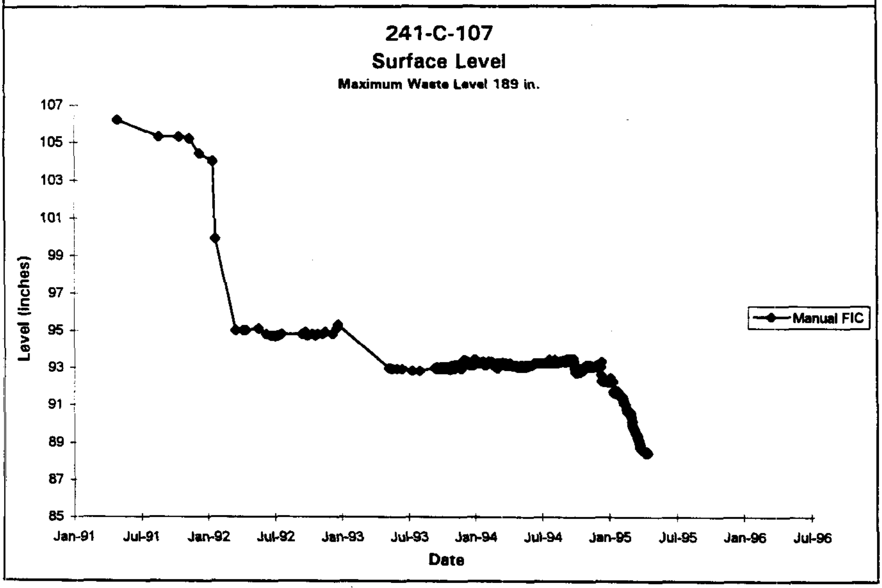

241-C-107
Surface Level
Maximum Waste Level 189 In.
Auto ENRAF
Auto FIC
Manual ENRAF
Manual FIC
Level (inches)
107
105
103
101
99
97
95
93
91
89
87
85
Jan-91
Jul-91
Jan-92
Jul-92
Jan-93
Jul-93
Jan-94
Jul-94
Jan-95
Jul-95
Jan-96
Jul-96
Date
Data obtained from WHC Surveillance Analysis Computer System (SACS), February 20, 1996.



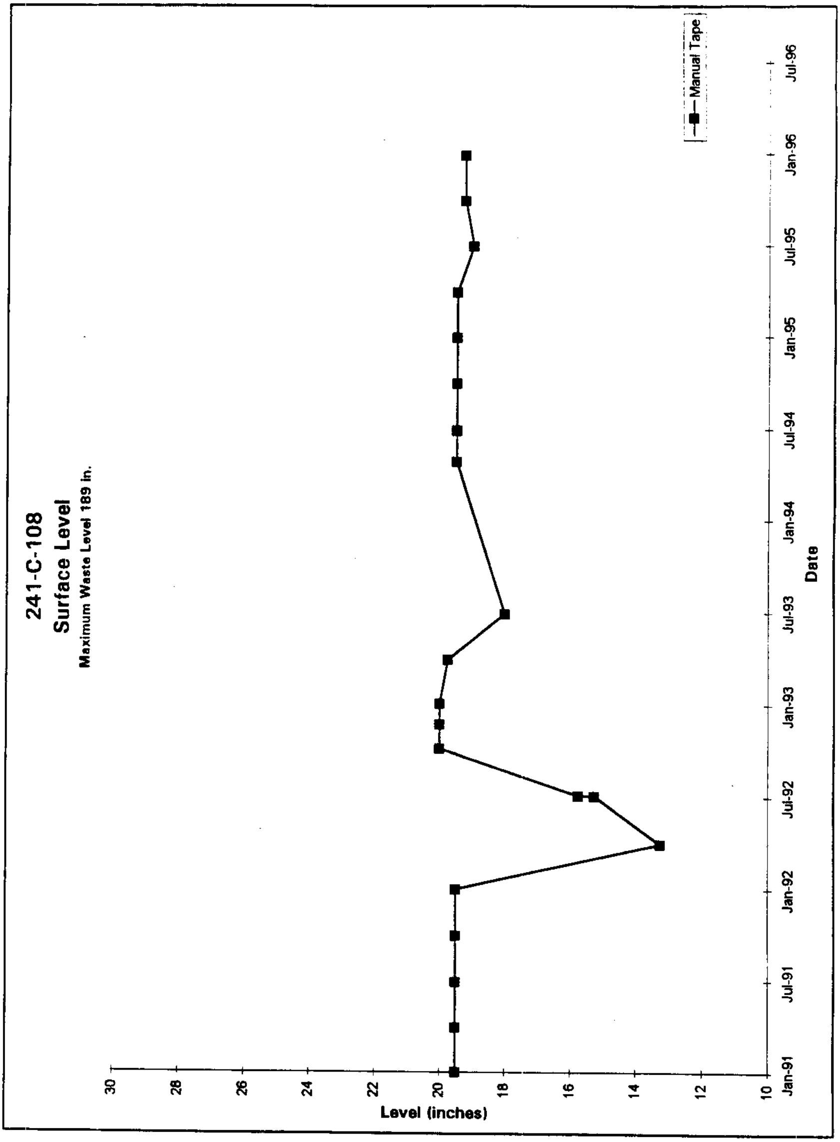


Data obtained from WHC Surveillance Analysis Computer System (SACS), February 20, 1996.

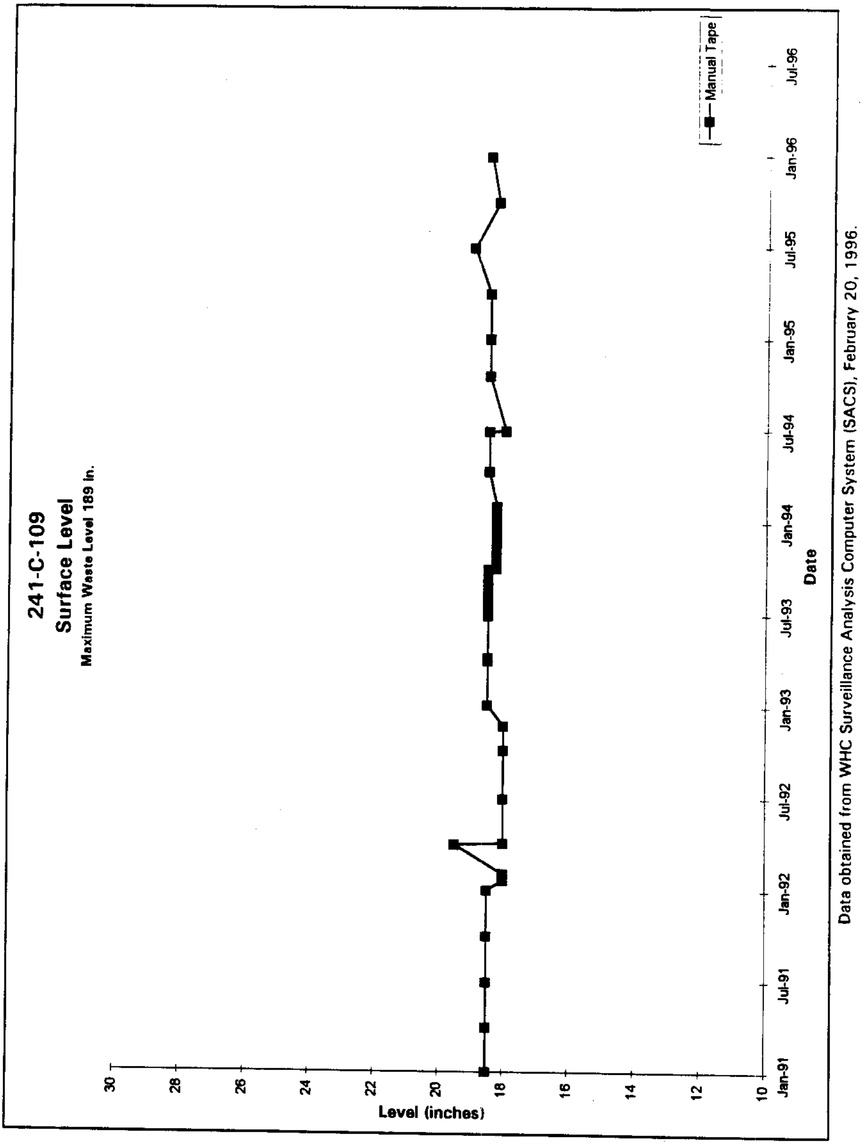


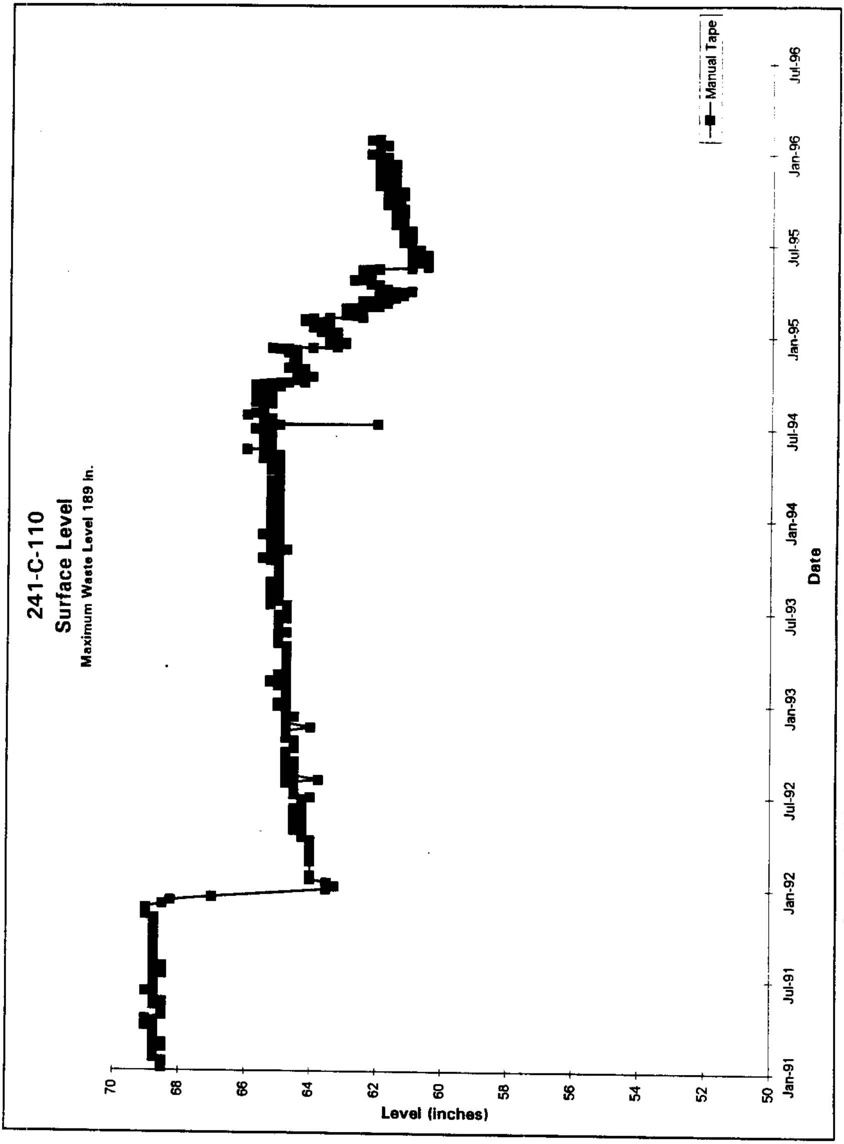


Data obtained from WHC Surveillance Analysis Computer System (SACS), February 20, 1996.

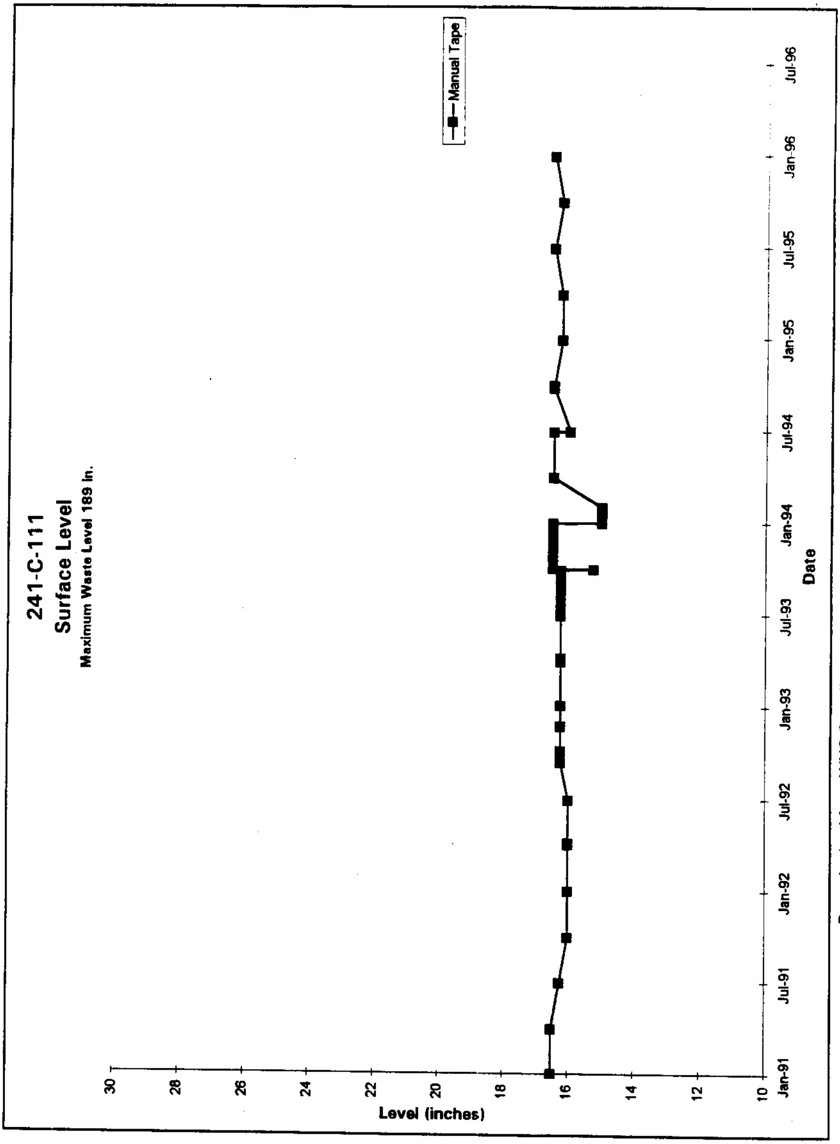


Data obtained from WHC Surveillance Analysis Computer System (SACS), February 20, 1996.

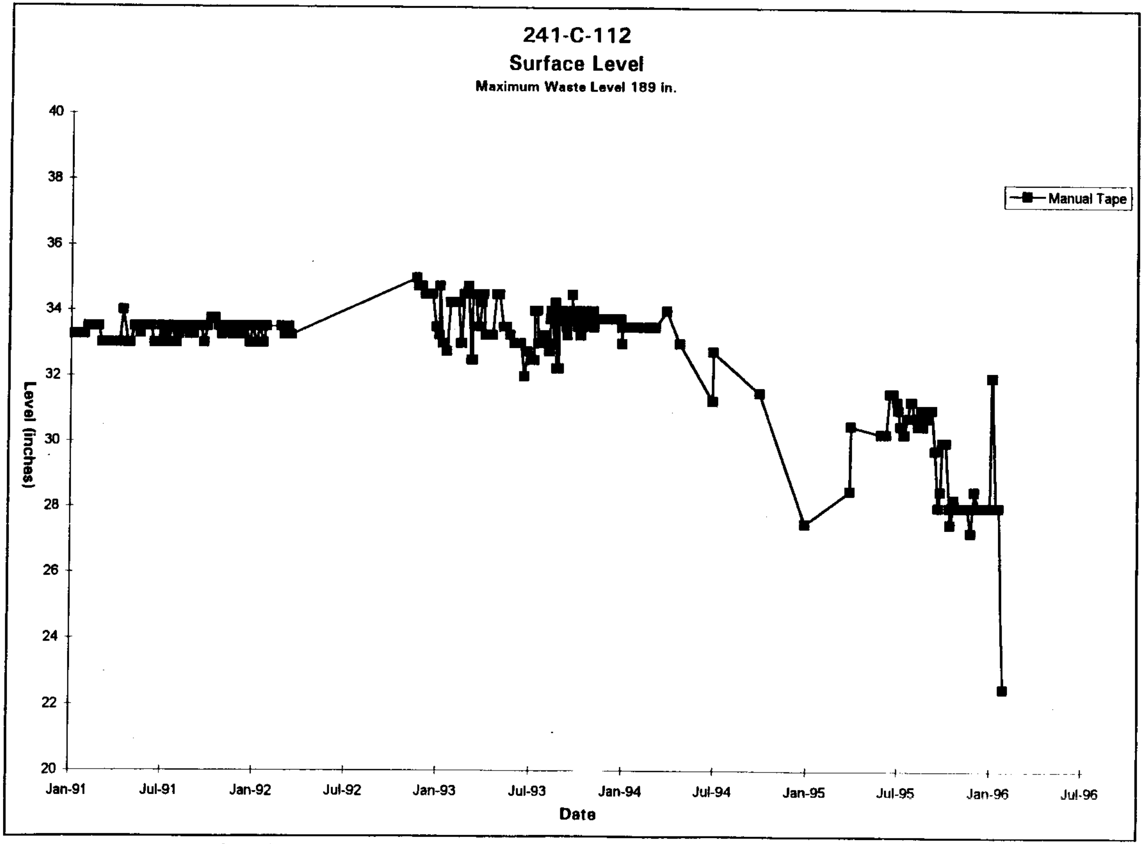

241-C-109
Surface Level
Maximum Waste Level 189 in.
Manual Tape
Level (inches)
30
28
26
24
22
20
18
16
14
12
10
Jan-91
Jul-91
Jan-92
Jul-92
Jan-93
Jul-93
Jan-94
Jul-94
Jan-95
Jul-95
Jan-96
Jul-96
Date
Data obtained from WHC Surveillance Analysis Computer System (SACS), February 20, 1996.



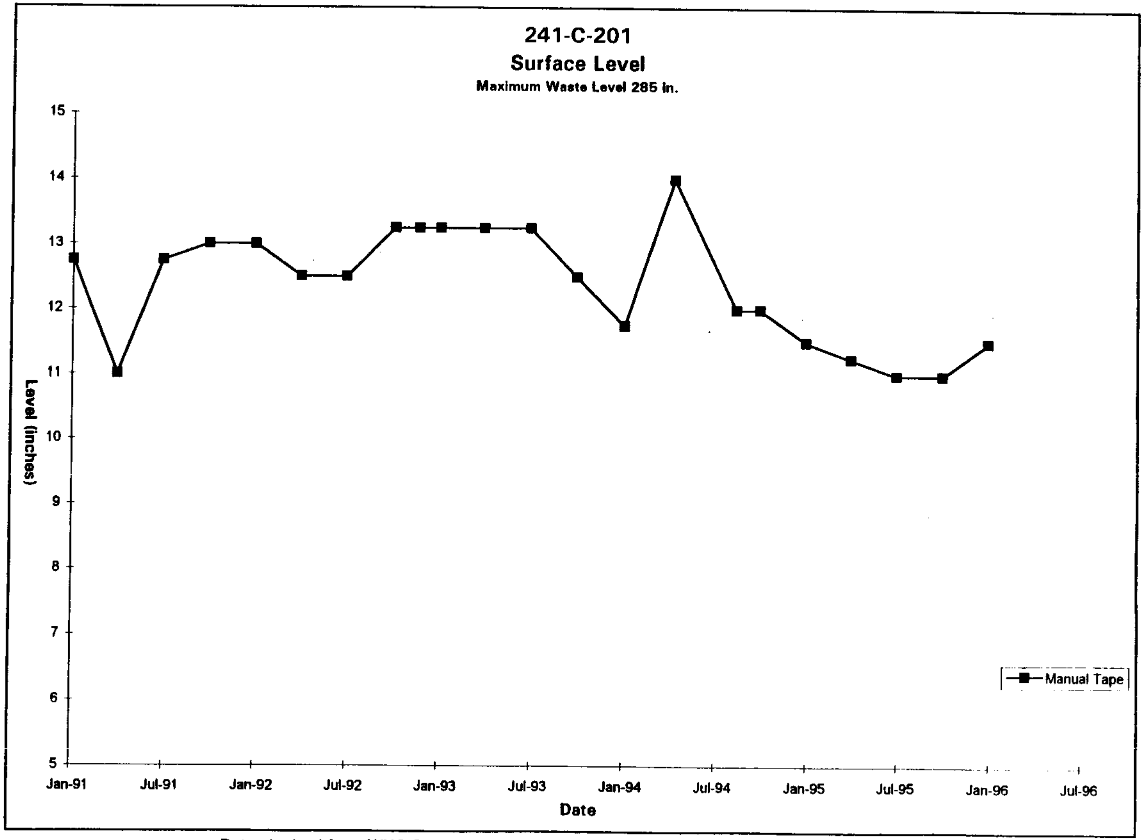
Data obtained from WHC Surveillance Analysis Computer System (SACS), February 20, 1996.



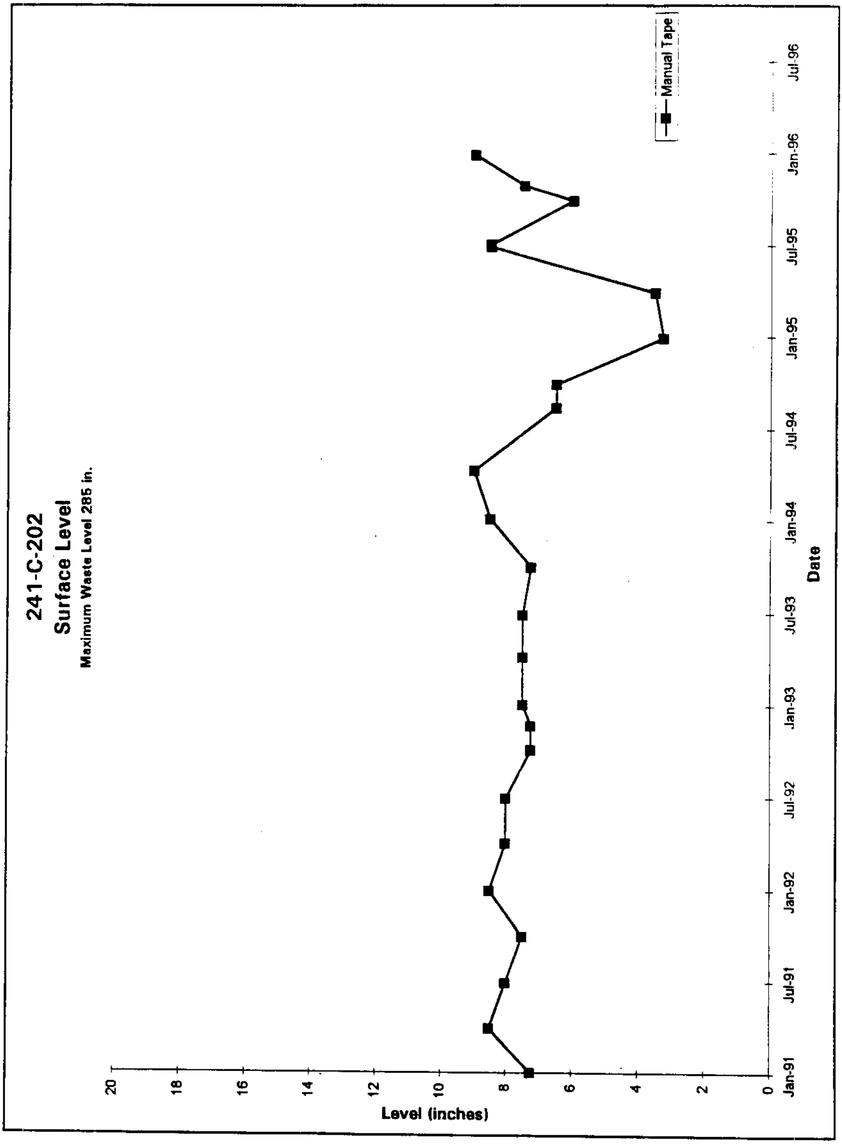
Data obtained from WHC Surveillance Analysis Computer System (SACS), February 20, 1996.



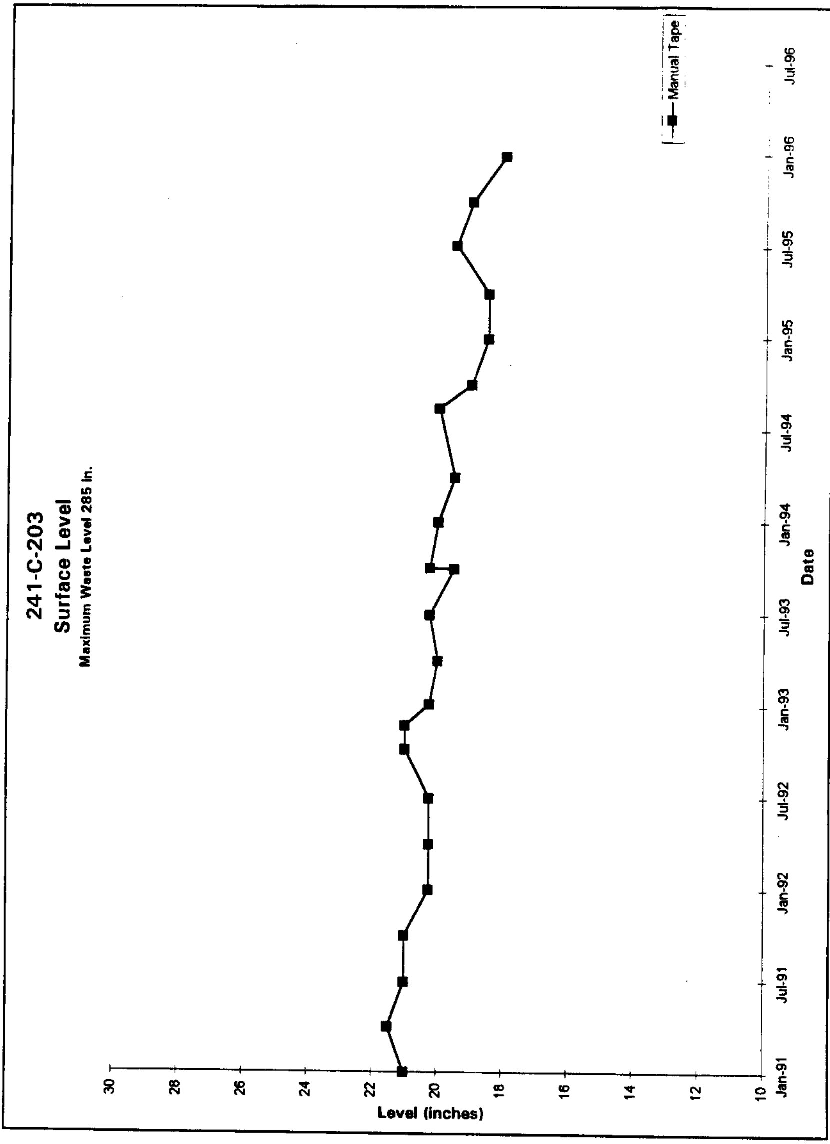
Data obtained from WHC Surveillance Analysis Computer System (SACS), February 20, 1996.



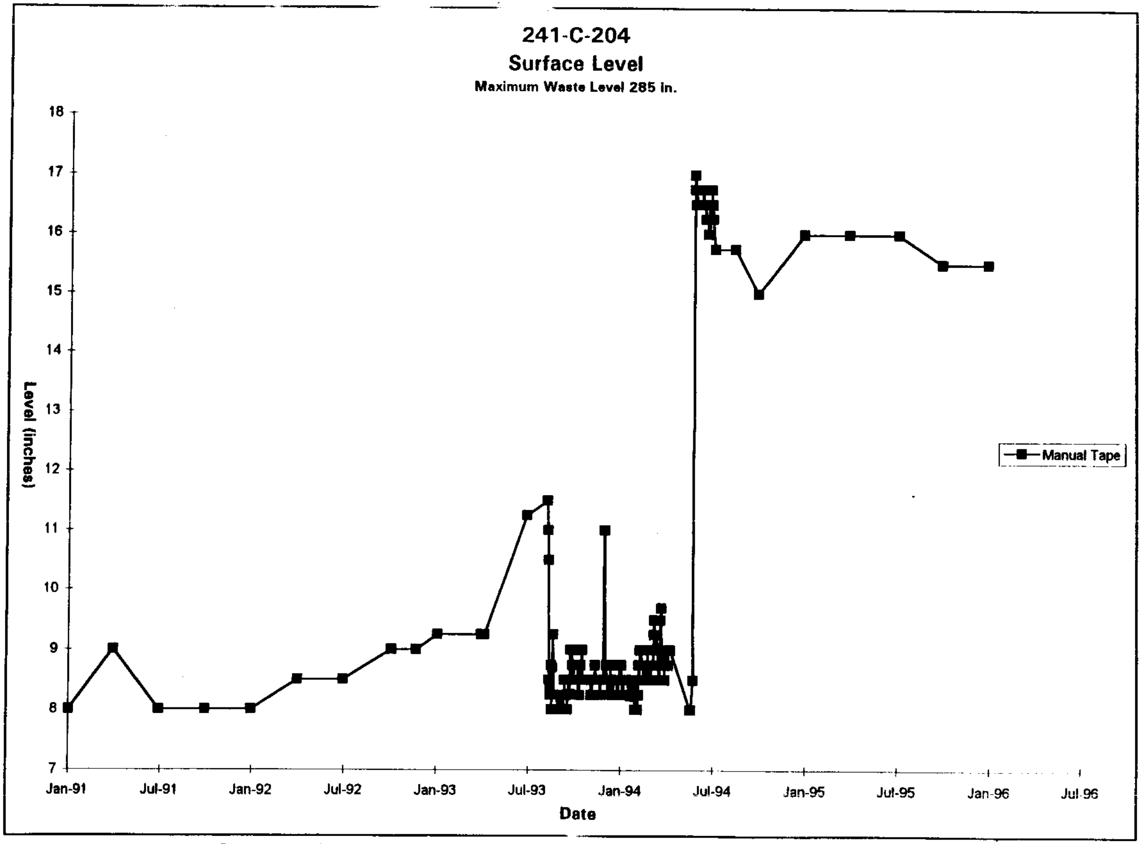
Data obtained from WHC Surveillance Analysis Computer System (SACS), February 20, 1996.



Data obtained from WHC Surveillance Analysis Computer System (SACS), February 20, 1996.



Data obtained from WHC Surveillance Analysis Computer System (SACS), February 20, 1996.

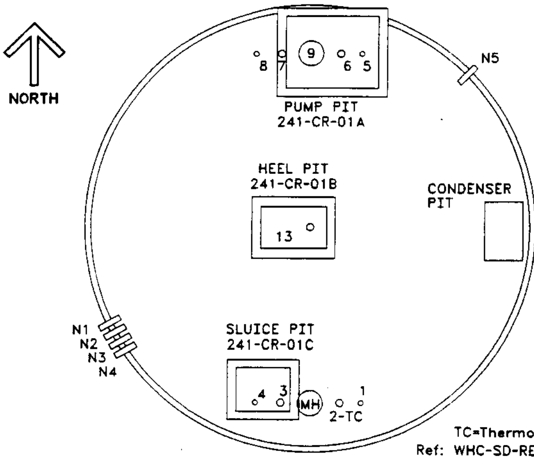


Data obtained from WHC Surveillance Analysis Computer System (SACS), February 20, 1996.

Intentionally left blank.

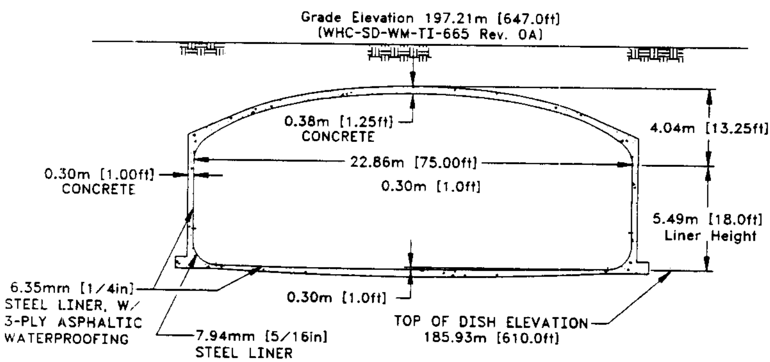
241-C-101

2,006,300 Liters
[530,000 Gallons]



TC=Thermocouple
Ref: WHC-SD-RE-TI-053, Rev. 9
WHC-SD-WM-TI-553, Rev. 0
H-2-73340, Rev. 2
H-2-37001, Rev. 2

TANK RISER LOCATION



Ref: H-2-1744, Rev. 3
CVI 73550, dwg D-2

NOT TO SCALE

241-C-101			
NO.	DIA.	SAMPLING*	DESCRIPTION AND COMMENTS
1	4"	X	FLANGE [BM CEO-36922 12/11/86]
2	12"		LIQUID LEVEL REEL AND TEMPERATURE PROBE
3	12"		SLUICING NOZZLE, WC
4	4"		DRAIN, WC
5	4"		DRAIN, WC
6	12"		PUMP, WC
7	12"	X	B-222 OBSV PORT
8	4"	X	BREATHER FILTER [VAPOR ASSEMBLY/BREATHER FILTER OFFSET ADAPTER ECN-618483 01/10/95] [SPARE/BREATHER FILTER W/ OFFSET ADAPTER ECN-620821 05/02/95]
13	12"		PUMP, WC
9	42"		PUMP
N1	3"		SPARE, PLUGGED
N2	3"		SPARE, PLUGGED
N3	3"		LINE V102, SEALED IN DIVERSION BOX 241-C-151
N4	3"		LINE V104, SEALED IN DIVERSION BOX 241-C-151
N5	3"		OVERFLOW

Ref: WHC-SD-RE-TI-053, Rev.9 *WHC-SD-WM-TI-710, Rev.2
WHC-SD-WM-TI-553, Rev.0 H-2-73340, Rev. 2

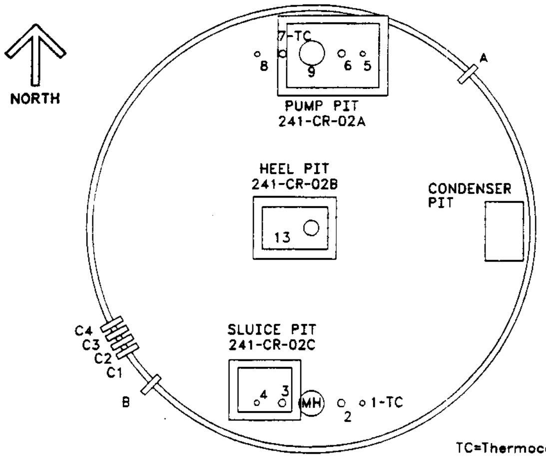
If there was a discrepancy between the documents and the drawings, the drawings shall take precedence.

Comments placed in [] denote Engineering Change Notices (ECN) made against the reference drawings.

- Denotes risers tentatively available for sampling (Lipnicki 1995)

241-C-102

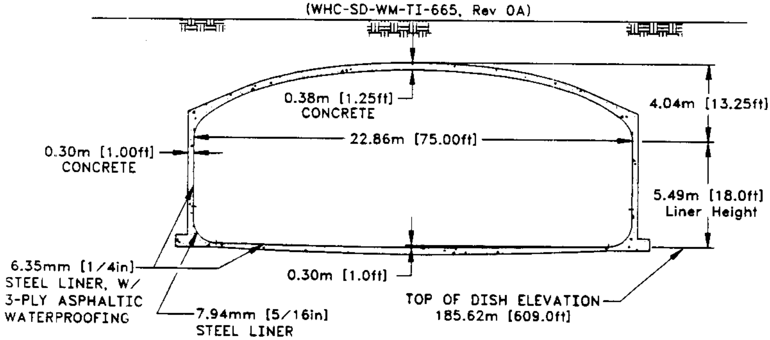
2,006,300 Liters
[530,000 Gallons]



TC=Thermocouple
Ref: WHC-SD-RE-TI-053, Rev. 9
WHC-SD-WM-TI-553, Rev. 0
H-2-73342, Rev. 4
H-2-37002, Rev. 1

TANK RISER LOCATION

Approximate Grade Elevation 196.87m [645.9ft]
(WHC-SD-WM-TI-665, Rev 0A)



Ref: H-2-1744, Rev. 3
CVI 73550, dwg D-2

NOT TO SCALE

241-C-102			
NO.	DIA.	SAMPLING*	DESCRIPTION AND COMMENTS
1	4"		UNUSED TEMPERATURE PROBE, FLANGE [BM CEO-36922 12/11/86]
2	12"	X	FIC [OBSV PORT ECN-625939 10/05/95]
3	12"	X	B-222 OBSV PORT/BREATHER FILTER [ENRAF 854 ECN-625939 10/05/95]
4	4"		RECIRCULATING DIP LEG, WC
5	4"		RECIRCULATING DIP LEG, WC
6	12"		SLUICING ACCESS, WC
7	12"		TEMPERATURE PROBE, FLANGE
8	4"		LOW
9	42"		SLUDGE PUMP, WC
13	26"		SALTWELL SCREEN
A	3"		OVERFLOW OUTLET TO TANK 241-C-103
B	3"		OVERFLOW INLET FROM TANK 241-C-101
C1	3"		SPARE INLET, CAPPED
C2	3"		SPARE INLET, CAPPED
C3	3"		SPARE INLET, CAPPED
C4	3"		SPARE INLET, CAPPED

Ref: WHC-SD-RE-TI-053, Rev.9 *WHC-SD-WM-TI-710, Rev.2
WHC-SD-WM-TI-553, Rev.0 H-2-73342, Rev. 4

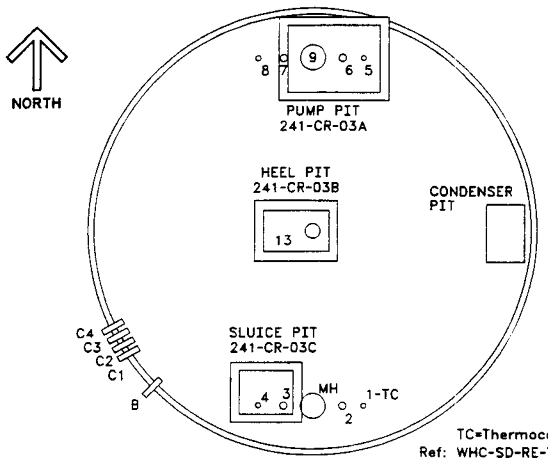
If there was a discrepancy between the documents and the drawings, the drawings shall take precedence.

Comments placed in [] denote Engineering Change Notices (ECN) made against the reference drawings.

- Denotes risers tentatively available for sampling (Lipnicki 1995)

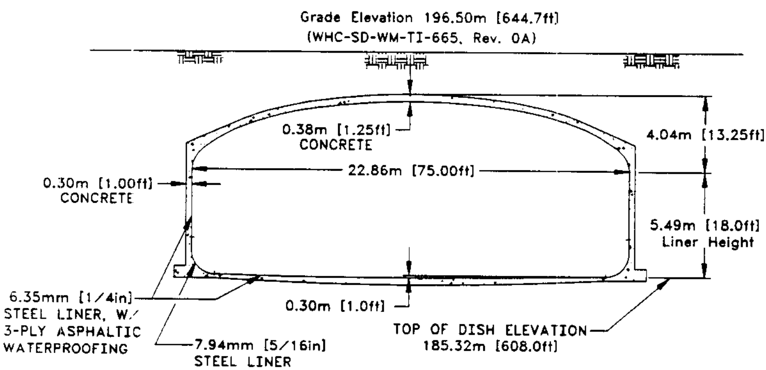
241-C-103

2,006,300 Liters
[530,000 Gallons]



TC=Thermocouple
Ref: WHC-SD-RE-TI-053, Rev. 9
WHC-SD-WM-TI-553, Rev. 0
H-2-73343, Rev. 4
H-2-37003, Rev. 1

TANK RISER LOCATION



Ref: H-2-1744, Rev. 3
CVI 73550, dwg D-2

NOT TO SCALE

241-C-103			
NO.	DIA.	SAMPLING*	DESCRIPTION AND COMMENTS
1	4"		TEMPERATURE PROBE [BM CEO-36922 12/11/86]
2	12"	X	BREATHER FILTER [FLEX TUBING TO ULTRA LOW FLOWMETER ECN-608894L 04/05/95] [AIR FILTER W/ VAPOR MIXING SYSTEM ECN-620758 05/11/95]
3	12"		SLUICING ACCESS, WC
4	4"		RECIRCULATING DIP LEG, WC
5	4"		RECIRCULATING DEP LEG, WC
6	12"		SLUICING ACCESS, WC
7	12"	X	BLANK [AEROSOL SAMPLING FLANGE ECN-190882 04/15/93]
8	4"		FIC [ENRAF 854 ECN-608131 06/08/94]
9	42"		SPECIAL PROBE, WC
13	26"		SALTWELL SCREEN
B	3"		OVERFLOW INLET
C1	3"		SPARE INLET, CAPPED
C2	3"		SPARE INLET, CAPPED
C3	3"		SPARE INLET, CAPPED
C4	3"		SPARE INLET, CAPPED

Ref: WHC-SD-RE-TI-053, Rev.9 *WHC-SD-WM-TI-710, Rev.2
WHC-SD-WM-TI-553, Rev.0 H-2-73343, Rev. 3

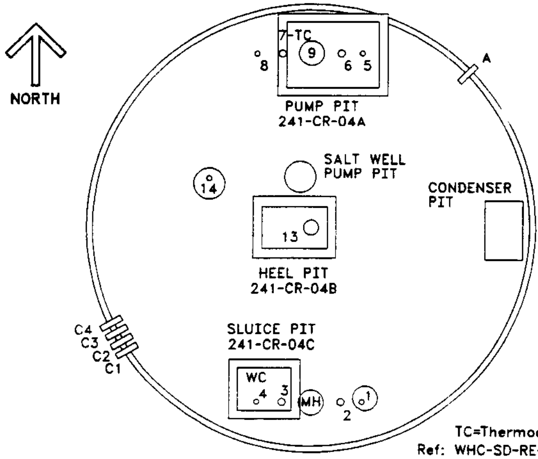
If there was a discrepancy between the documents and the drawings, the drawings shall take precedence.

Comments placed in [] denote Engineering Change Notices (ECN) made against the reference drawings.

* Denotes risers tentatively available for sampling (Lipnicki 1995)

241-C-104

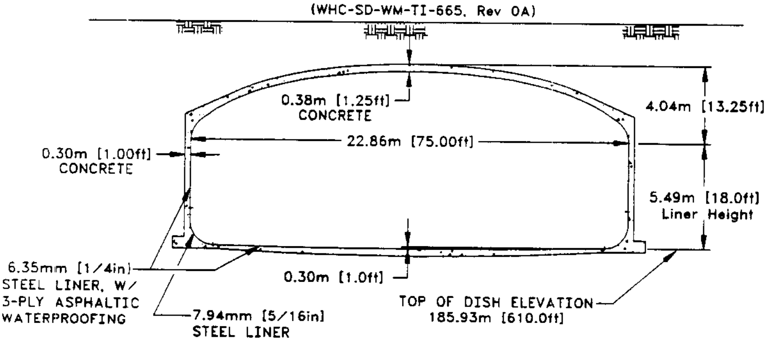
2,006,300 Liters
[530,000 Gallons]



TC=Thermocouple
Ref: WHC-SD-RE-TI-053, Rev. 8
WHC-SD-WM-TI-553, Rev. 0
H-2-73344, Rev. 4
H-2-37004, Rev. 1

TANK RISER LOCATION

Grade Elevation 197.30m [647.3ft]
(WHC-SD-WM-TI-665, Rev 0A)



Ref: H-2-1744, Rev. 3
CVI 73550, dwg D-2

NOT TO SCALE

241-C-104			
NO.	DIA.	SAMPLING*	DESCRIPTION AND COMMENTS
1	4"		LIQUID LEVEL WELL "B"
2	10"	X	BREATHER FILTER [BM CEO-36912 12/11/86] [10" TO 4" ADAPTER ECN-192277L 05/18/93]
3	12"	X	B-222 OBSV PORT
4	4"		RECIRCULATING DIP LEG, WC
5	4"		RECIRCULATING DIP LEG, WC
6	12"		SLUICING ACCESS, WC
7	12"		TEMPERATURE PROBE, FLANGE
8	4"		FIC
9	42"		SLUDGE PUMP, WC
13	26"		SALTWELL RISER
14			LIQUID LEVEL WELL "A"
A	3"		OVERFLOW OUTLET
C1	3"		FILL LINE V150
C2	3"		FILL LINE V149, SEALED IN DIVERSION BOX 241-C-153
C3	3"		FILL LINE V148, SEALED IN DIVERSION BOX 241-C-153
C4	3"		SPARE, CAPPED

Ref: WHC-SD-RE-TI-053, Rev.9 *WHC-SD-WM-TI-710, Rev.2
WHC-SD-WM-TI-553, Rev.0 H-2-73344, Rev. 4

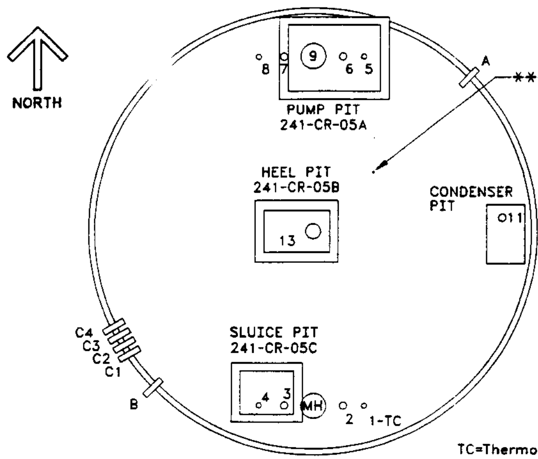
If there was a discrepancy between the documents and the drawings, the drawings shall take precedence.

Comments placed in [] denote Engineering Change Notices (ECN) made against the reference drawings.

* Denotes risers tentatively available for sampling (Lipnicki 1995)

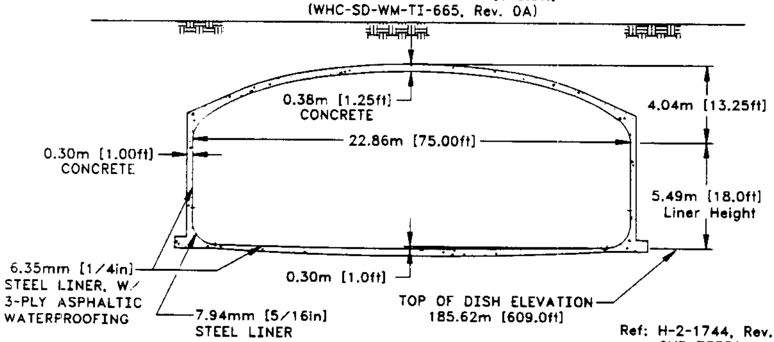
241-C-105

2,006,300 Liters
[530,000 Gallons]



TC=Thermocouple
Ref: WHC-SD-RE-TI-053, Rev. 9
WHC-SD-WM-TI-553, Rev. 0
H-2-73345, Rev. 2
H-2-37005, Rev. 1

TANK RISER LOCATION



Ref: H-2-1744, Rev. 3
CVI 73550, dwg D-2

NOT TO SCALE

241-C-105			
NO.	DIA.	SAMPLING*	DESCRIPTION AND COMMENTS
1	4"		TEMPERATURE PROBE, B-221 [MULTI-FUNCTIONAL INSTRUMENT TREE ECN-107980 06/03/91] [BM CEO-36922 12/11/86]
2	12"	X	VENT LINE [AIR INLET FILTER ECN-101611 04/17/88 & ECN-103736 11/30/88]
3	12"		BLANK, WC
4	4"		RECIRCULATING DIP LEG, WC
5	4"		RECIRCULATING DIP LEG, WC
6	12"		SLUICING ACCESS/WEATHER CAP, WC [TEMPERATURE PROBE ECN-101611 04/17/88]
7	12"		LEAD COVEREDWC
8	4"	X	FIC [FIC/PRESSURE GUAGE ECN-103736 11/30/88] [ENRAF 854 ECN-619367 03/16/95]
9	42"		SLUDGE PUMP, WC
11**	12"		[EXHAUSTER PORT ECN-103736 11/30/88]
13	26"		DISTRIBUTOR JET, WC
****	4"		[ADD NEW 4" RISER FCN-54902 05/14/81]
A	3"		OVERFLOW OUTLET
B	3"		OVERFLOW INLET
C1	3"		INLET LINE V103, SEALED IN DIVERSION BOX 241-C-151
C2	3"		SPARE INLET, CAPPED
C3	3"		SPARE INLET, CAPPED
C4	3"		SPARE INLET, CAPPED

Ref: WHC-SD-RE-TI-053, Rev.9 *WHC-SD-WM-TI-710, Rev.2
WHC-SD-WM-TI-553, Rev.0 H-2-73345, Rev. 2
H-2-72352, Rev. 0

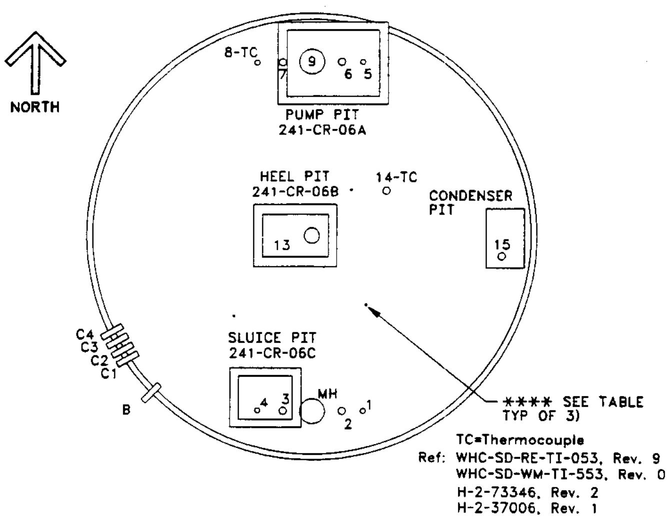
If there was a discrepancy between the documents and the drawings, the drawings shall take precedence.

Comments placed in [] denote Engineering Change Notices (ECN) made against the reference drawings.

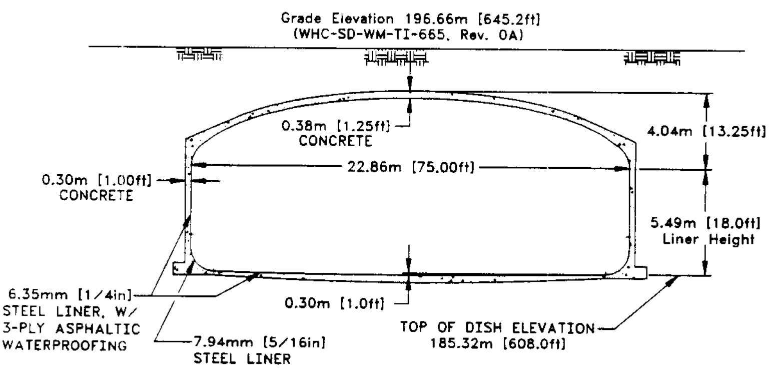
- * Denotes risers tentatively available for sampling (Lipnicki 1995)
- ** Created by ECN-103736.
- **** Created by FCN-54902 and H-2-72352; however, this was not mentioned in isolation drawing.

241-C-106

2,006,300 Liters
[530,000 Gallons]



TANK RISER LOCATION



Ref: H-2-1744, Rev. 3
CVI 73550, dwg D-2

NOT TO SCALE

241-C-106			
NO.	DIA.	SAMPLING*	DESCRIPTION AND COMMENTS
1	4"	X	FIC [BM CEO-36922 12/11/86] [ENRAF 854 ECN-629511 01/25/96]
2	12"		EXHAUSTER PORT
3	12"		BLANK, WC
4	4"		RECIRCULATING DIP LEG, WC
5	4"		RECIRCULATING DIP LEG, WC
6	12"		SLUICING ACCESS
7	12"	X	B-222 OBSV PORT [MULTI-PORT RISER ADAPTER ECN-613184 08/11/94] [TEMPERATURE PROBE ECN-613207L 09/15/94] [ENRAF AND PRESSURE GAUGE ECN-629512L 01/30/96]
8	4"		TEMPERATURE PROBE
9	42"		SLUDGE PUMP
13	26"		DISTRIBUTOR JET, WC
14	4"		SPARE
15***	12"		[INLET FILTER ECN-103653 10/24/88]
****			[ADD NEW 4" RISER FCN-54902 05/14/81] [ADD 2 NEW 4" RISERS FCN-50547 10/16/79]
B	3"		OVERFLOW INLET
C1	3"		SPARE INLET, CAPPED
C2	3"		SPARE INLET, CAPPED
C3	3"		SPARE INLET, CAPPED
C4	3"		SPARE INLET, CAPPED

Ref: WHC-SD-RE-TI-053, Rev.9 *WHC-SD-WM-TI-710, Rev.2
WHC-SD-WM-TI-553, Rev.0 H-2-73346, Rev. 2
H-2-72352, Rev. 0

If there was a discrepancy between the documents and the drawings, the drawings shall take precedence.

Comments placed in [] denote Engineering Change Notices (ECN) made against the reference drawings.

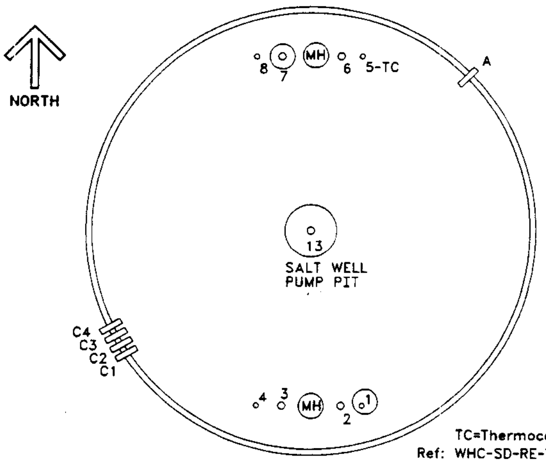
* Denotes risers tentatively available for sampling (Lipnicki 1995)

*** Created by ECN-103653.

**** Created by FCN-50547 written against H-2-72352 rev. 0. and FCN-54902.

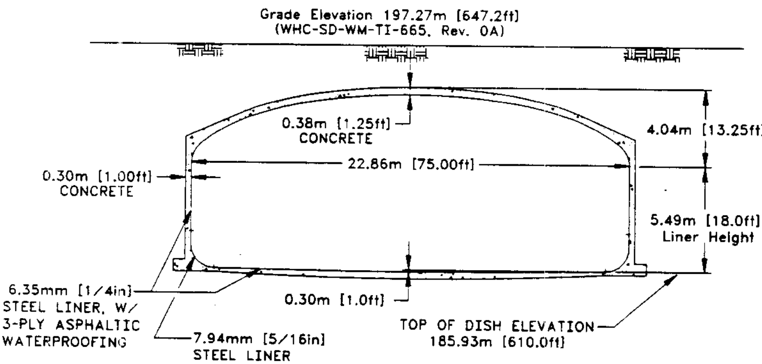
241-C-107

2,006,300 Liters
[530,000 Gallons]



TC=Thermocouple
Ref: WHC-SD-RE-TI-053, Rev. 9
WHC-SD-WM-TI-553, Rev. 0
H-2-73347, Rev. 3
H-2-37007, Rev. 1

TANK RISER LOCATION



Ref: H-2-1744, Rev. 3
CVI 73550, dwg D-2

NOT TO SCALE

241-C-107			
NO.	DIA.	SAMPLING*	DESCRIPTION AND COMMENTS
1	4"		LIQUID LEVEL WELL "B"
2	12"	X	FLANGE [BM CEO-37761 12/11/86]
3	12"	X	B-221 OVSV PORT [HEATED VAPOR ASSEMBLY ON 12" TO 4" ADAPTER ECN-613544 09/23/94] [12" BLIND FLANGE ECN-618245 02/08/95] [MULTI-PORT ADAPTER W/ VAPOR PROBE ECN-626623 12/11/95]
4	4"	X	BREATHER FILTER [BREATHER FILTER W/ OFFSET ADAPTER ECN-613544 09/23/94]
5	4"		TEMPERATURE PROBE
6**	12"		LIQUID LEVEL WELL "A"
7**	12"	X	SPARE
8	4"		FIC
13	12"		SALTWELL SCREEN
A	3"		OVERFLOW OUTLET
C1	3"		FILL LINE, SEALED IN DIVERSION BOX 241-C-153
C2	3"		FILL LINE, SEALED IN DIVERSION BOX 241-C-153
C3	3"		FILL LINE, SEALED IN DIVERSION BOX 241-C-153
C4	3"		SPARE, PLUGGED

Ref: WHC-SD-RE-TI-053, Rev.9 *WHC-SD-WM-TI-710, Rev.2
WHC-SD-WM-TI-553, Rev.0 H-2-73347, Rev. 3

If there was a discrepancy between the documents and the drawings, the drawings shall take precedence.

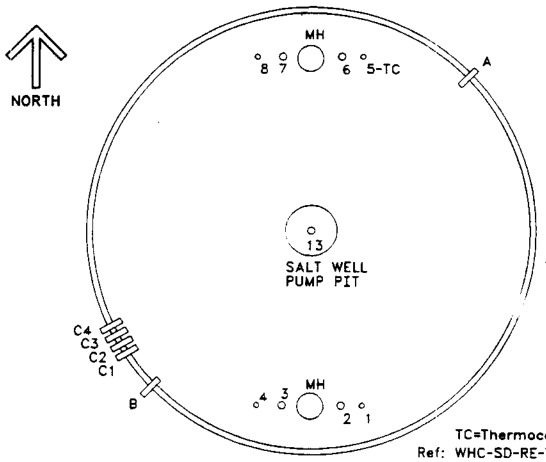
Comments placed in [] denote Engineering Change Notices (ECN) made against the reference drawings.

* Denotes risers tentatively available for sampling (Lipnicki 1995)

** Figure on H-2-73347 Rev. 3 shows riser 7 as Liquid Level Well "A" & table shows riser 6 as Liquid Level Well "A" and riser 7 as spare. For this document, the table was chosen as the discription for risers 6 and 7. The table is from revision 2 and the figure from revision 1.

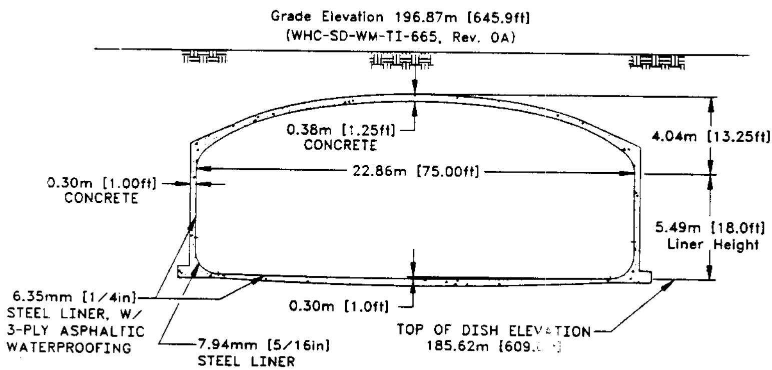
241-C-108

2,006,300 Liters
[530,000 Gallons]



TC=Thermocouple
Ref: WHC-SD-RE-TI-053, Rev. 9
WHC-SD-WM-TI-553, Rev. 0
H-2-73348, Rev. 2
H-2-37008, Rev. 1

TANK RISER LOCATION



Ref: H-2-1744, Rev. 3
CVI 73550, dwg D-2

NOT TO SCALE

241-C-108			
NO.	DIA.	SAMPLING*	DESCRIPTION AND COMMENTS
1	4"		LIQUID LEVEL REEL [THERMOCOUPLE ECN-190138 03/29/93]
2	12"	X	BLANK [BM CEO-40213 12/08/86 & ECN-614184 10/31/94]
3	12"	X	SPARE
4	4"	X	BREATHER FILTER [VAPOR ASSEMBLY/BREATHER FILTER OFFSET ADAPTER ECN-618483 01/10/95] [BREATHER FILTER W/ OFFSET ADAPTER ECN-620822 05/02/95]
5	4"		TEMPERATURE PROBE
6	12"	X	SPARE
7	12"	X	B-222 OBSV PORT
8	4"		FLOW INDICATOR [LIQUID LEVEL REEL ECN-190138 03/29/93] [BM ECN-614184 10/31/94]
13	12"		SALTWELL SCREEN, WC
A	3"		OVERFLOW OUTLET
B	3"		OVERFLOW INLET
C1	3"		SPARE, CAPPED
C2	3"		SPARE, CAPPED
C3	3"		SPARE, CAPPED
C4	3"		SPARE, CAPPED

Ref: WHC-SD-RE-TI-053, Rev.9 *WHC-SD-WM-TI-710, Rev.2
WHC-SD-WM-TI-553, Rev.0 H-2-73348, Rev. 2

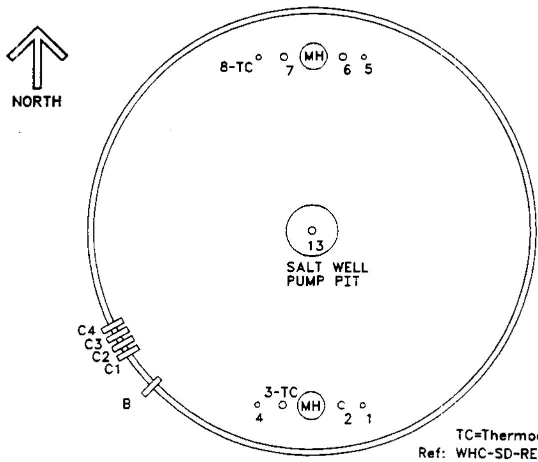
If there was a discrepancy between the documents and the drawings, the drawings shall take precedence.

Comments placed in [] denote Engineering Change Notices (ECN) made against the reference drawings.

* Denotes risers tentatively available for sampling (Lipnicki 1995)

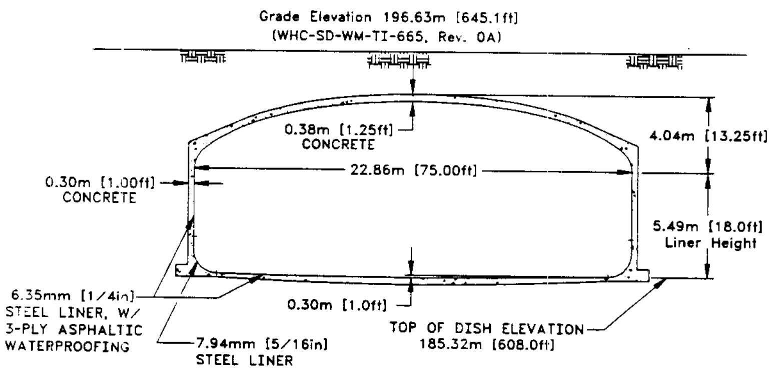
241-C-109

2,006,300 Liters
[530,000 Gallons]



TC=Thermocouple
Ref: WHC-SD-RE-TI-053, Rev. 9
WHC-SD-WM-TI-553, Rev. 0
H-2-73349, Rev. 2
H-2-37009, Rev. 1

TANK RISER LOCATION



Ref: H-2-1744, Rev. 3
CVI 73550, dwg D-2

NOT TO SCALE

241-C-109			
NO.	DIA.	SAMPLING*	DESCRIPTION AND COMMENTS
1	4"		LIQUID LEVEL REEL
2	12"	X	BLANK [BM CEO-37763 12/08/86]
3	12"	X	BLANK
4	4"	X	BREATHER FILTER [VAPOR ASSEMBLY/BREATHER FILTER OFFSET ADAPTER ECN-618483 01/10/95] [BLIND FLANGE ECN-618481 06/09/95]
5	4"		DRY WELL
6	12"	X	SPARE
7	12"	X	B-222 OBSV PORT
8	4"		TEMPERATURE PROBE
13	12"		SALTWELL PUMP, WC
B	3"		OVERFLOW INLET
C1	3"		SPARE, CAPPED
C2	3"		SPARE, CAPPED
C3	3"		SPARE, CAPPED
C4	3"		SPARE, CAPPED

Ref: WHC-SD-RE-TI-053, Rev.9 *WHC-SD-WM-TI-710, Rev.2
WHC-SD-WM-TI-553, Rev.0 H-2-73349, Rev. 2

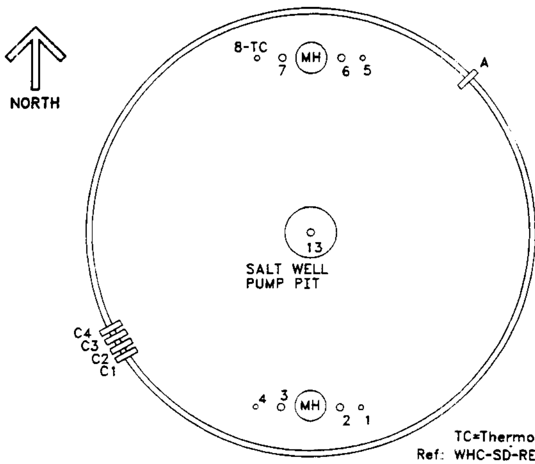
If there was a discrepancy between the documents and the drawings, the drawings shall take precedence.

Comments placed in [] denote Engineering Change Notices (ECN) made against the reference drawings.

- Denotes risers tentatively available for sampling (Lipnicki 1995)

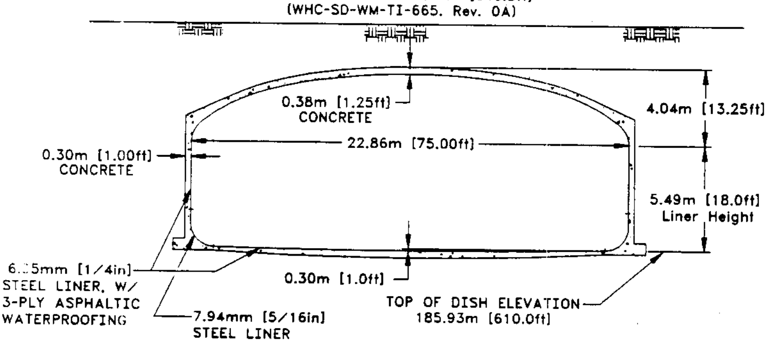
241-C-110

2,006,300 Liters
[530,000 Gallons]



TC=Thermocouple
Ref: WHC-SD-RE-TI-053, Rev. 9
WHC-SD-WM-TI-553, Rev. 0
H-2-73350, Rev. 4
H-2-37010, Rev. 1

TANK RISER LOCATION



Ref: H-2-1744, Rev. 3
CVI 73550, dwg D-2

NOT TO SCALE

241-C-110			
NO.	DIA.	SAMPLING*	DESCRIPTION AND COMMENTS
1	4"	X	SPARE [THIS SHOULD BE VAPOR ASSEMBLY/ NOW IS BLIND FLANGE ECN-618484 06/09/95]
2	12"	X	BLANK [BM CEO-40212 12/11/86] [BM ECN-614184 10/31/94]
3	12"	X	BREATHER FILTER [VAPOR ASSEMBLY ECN-618483 01/10/95]
4	4"		LIQUID LEVEL REEL
5	4"	X	FLANGE [BM ECN-614184 10/31/94]
6	12"	X	BLANK
7	12"	X	B-222 OBSV PORT
8	4"		TEMPERATURE PROBE
13	12"		SALTWELL PUMP PIT, WC
A	3"		OVERFLOW OUTLET
C1	3"		FILL LINE, SEALED IN DIVERSION BOX 241-C-153
C2	3"		FILL LINE, SEALED IN DIVERSION BOX 241-C-153
C3	3"		FILL LINE, SEALED IN DIVERSION BOX 241-C-153
C4	3"		SPARE, CAPPED

Ref: WHC-SD-RE-TI-053, Rev.9 *WHC-SD-WM-TI-710, Rev.2
WHC-SD-WM-TI-553, Rev.0 H-2-73350, Rev. 4

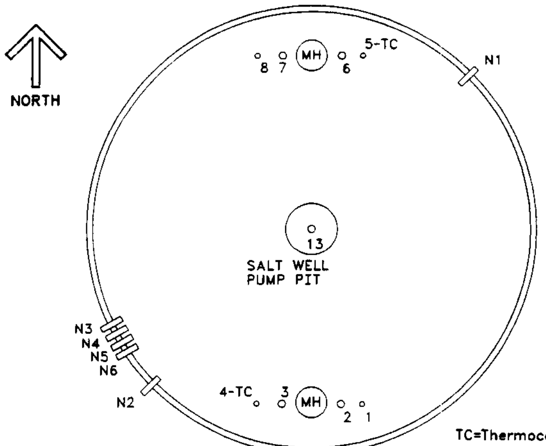
If there was a discrepancy between the documents and the drawings, the drawings shall take precedence.

Comments placed in [] denote Engineering Change Notices (ECN) made against the reference drawings.

* Denotes risers tentatively available for sampling (Lipnicki 1995)

241-C-111

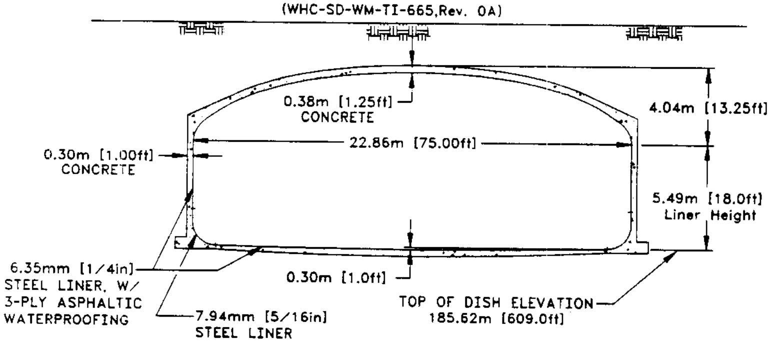
2,006,300 Liters
[530,000 Gallons]



TC=Thermocouple
Ref: WHC-SD-RE-TI-053, Rev. 9
WHC-SD-WM-TI-553, Rev. 0
H-2-73341, Rev. 2
H-2-37011, Rev. 1

TANK RISER LOCATION

Grade Elevation 196.90m [646.0ft]
(WHC-SD-WM-TI-665,Rev. 0A)



Ref: H-2-1744, Rev. 3
CVI 73550, dwg D-2

NOT TO SCALE

241-C-111			
NO.	DIA.	SAMPLING*	DESCRIPTION AND COMMENTS
1	4"	X	BREATHER FILTER [BLIND FLANGE ECN-620824 05/02/95]
2	12"	X	BLIND FLANGE [BM CEO-37762 12/08/86]
3	12"	X	SPARE [BREATHER FILTER CEO-41103 07/20/87] [SPARE/BREATHER FILTER W/ OFFSET ADAPTER ECN-620766 07/25/95]
4	4"	X	FLANGE
5	4"		TEMPERATURE PROBE
6	12"	X	B-222 OBSV PORT [TEMPERATURE VAPOR PROBE W/ ADAPTER ECN-620766 07/25/95] [SPARE/BREATHER FILTER W/ DUAL PORT ADAPTER ECN-620824 05/02/95]
7	12"	X	EXHAUSTER INLET [PORTABLE EXHAUSTER CEO-41103 07/20/87]
8	4"		LIQUID LEVEL REEL
13	12"		PUMP PIT, WC
N1	3"		OVERFLOW OUTLET
N2	3"		OVERFLOW INLET
N3	3"		SPARE NOZZLE, CAPPED
N4	3"		SPARE NOZZLE, CAPPED
N5	3"		SPARE NOZZLE, CAPPED
N6	3"		FILL LINE V137, SEALED IN DIVERSION BOX 241-C-153

Ref: WHC-SD-RE-TI-053, Rev.9 *WHC-SD-WM-TI-710, Rev.2
WHC-SD-WM-TI-553, Rev.0 H-2-73341, Rev. 2

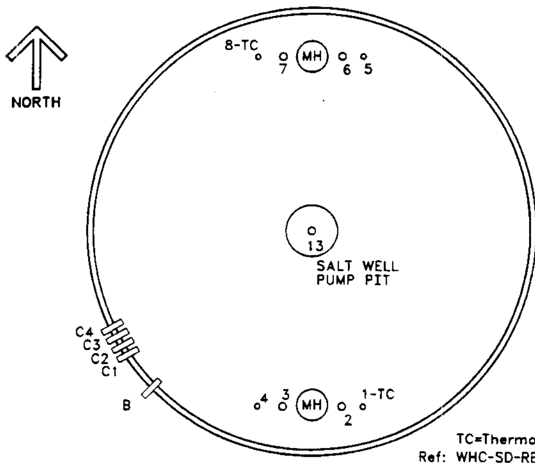
If there was a discrepancy between the documents and the drawings, the drawings shall take precedence.

Comments placed in [] denote Engineering Change Notices (ECN) made against the reference drawings.

* Denotes risers tentatively available for sampling (Lipnicki 1995)

241-C-112

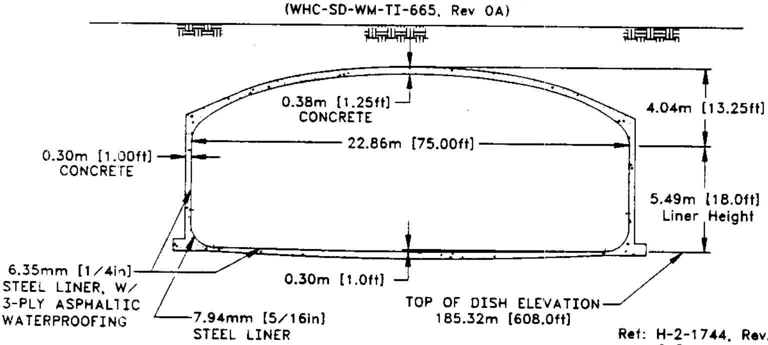
2,006,300 Liters
[530,000 Gallons]



TC=Thermocouple
Ref: WHC-SD-RE-TI-053, Rev. 9
WHC-SD-WM-TI-553, Rev. 0
H-2-73351, Rev. 4
H-2-37012, Rev. 1

TANK RISER LOCATION

Grade Elevation 196.60m [645.0ft]
(WHC-SD-WM-TI-665, Rev 0A)



Ref: H-2-1744, Rev. 3
CVI 73550, dwg D-2

NOT TO SCALE

241-C-112			
NO.	DIA.	SAMPLING*	DESCRIPTION AND COMMENTS
1	4"		TEMPERATURE PROBE
2	12"	X	BLANK [BM CEO-37538 12/11/86]
3	12"	X	BLANK
4	4"	X	BREATHER FILTER [VAPOR ASSEMBLY/BREATHER FILTER OFFSET ADAPTER ECN-618483 01/10/95] [VAPOR PROBE REMOVED AND REPLACED W/ BLIND FLANGE ECN-618481 06/09/95]
5	4"		FIC [THERMOCOUPLE ECN-169038 09/10/92] [MANUAL TAPE ECN-175521 10/30/92] [ENRAF 854 ECN-623211 06/08/95]
6	12"	X	SPARE
7	12"	X	B-222 OBSV PORT
8	4"		LIQUID LEVEL REEL [INSTRUMENT TREE ECN-175521 10/30/92]
13	12"		SALTWELL PUMP PIT, WC
B	3"		OVERFLOW INLET
C1	3"		SPARE, CAPPED
C2	3"		SPARE, CAPPED
C3	3"		SPARE, CAPPED
C4	3"		SPARE, CAPPED

Ref: WHC-SD-RE-TI-053, Rev.9 *WHC-SD-WM-TI-710, Rev.2
WHC-SD-WM-TI-553, Rev.0 H-2-73351, Rev.4

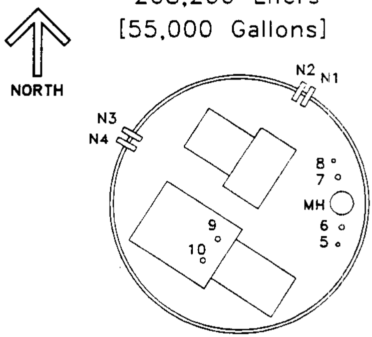
If there was a discrepancy between the documents and the drawings, the drawings shall take precedence.

Comments placed in [] denote Engineering Change Notices (ECN) made against the reference drawings.

* Denotes risers tentatively available for sampling (Lipnicki 1995)

241-C-201

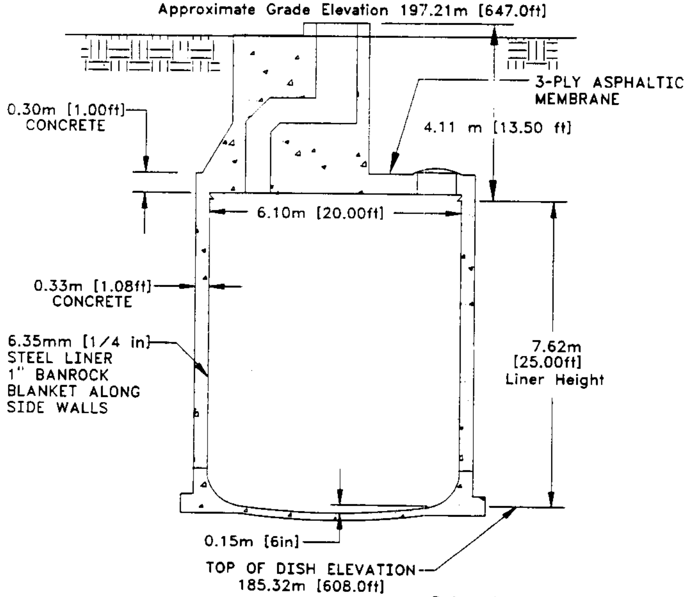
208,200 Liters
[55,000 Gallons]



Ref: WHC-SD-RE-TI-053, Rev. 9
WHC-SD-WM-TI-553, Rev. 0
H-2-73352, Rev. 2

TANK RISER LOCATION

Approximate Grade Elevation 197.21m [647.0ft]



Ref: H-2-1744, Rev. 3
CVI-73550, dwg D-20

NOT TO SCALE

241-C-201			
NO.	DIA.	SAMPLING*	DESCRIPTION AND COMMENTS
5	4"		LIQUID LEVEL REEL
6	12"		TEMPERATURE
7	12"	X	B-222 OBSV PORT
8	4"	X	BREATHER FILTER
9	12"		WC
10	12"		WC
N1	3"		SPARE INLET, CAPPED
N2	3"		SPARE INLET, CAPPED
N3	3"		INLET LINE V157, SEALED IN DIVERSION BOX 241-C-252
N4	3"		INLET LINE V156, SEALED IN DIVERSION BOX 241-C-252

Ref: WHC-SD-RE-TI-053, Rev.9 *WHC-SD-WM-TI-710, Rev.2
WHC-SD-WM-TI-553, Rev.0 H-2-73352, Rev. 2

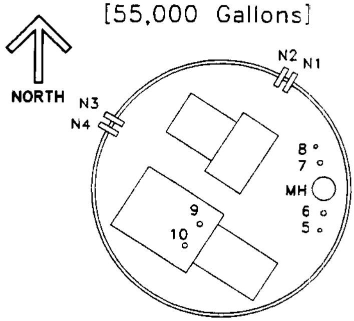
If there was a discrepancy between the documents and the drawings, the drawings shall take precedence.

Comments placed in [] denote Engineering Change Notices (ECN) made against the reference drawings.

- Denotes risers tentatively available for sampling (Lipnicki 1995)

241-C-202

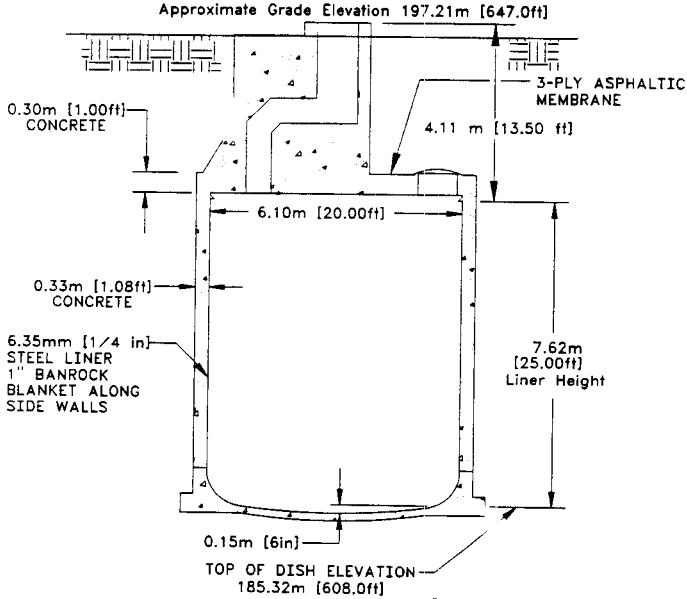
208,200 Liters
[55,000 Gallons]



Ref: WHC-SD-RE-TI-053, Rev. 9
WHC-SD-WM-TI-553, Rev. 0
H-2-73353, Rev. 2

TANK RISER LOCATION

Approximate Grade Elevation 197.21m [647.0ft]



Ref: H-2-1744, Rev. 3
CVI-73550, dwg D-20

NOT TO SCALE

241-C-202			
NO.	DIA.	SAMPLING*	DESCRIPTION AND COMMENTS
5	4"		LIQUID LEVEL REEL
6	12"		TEMPERATURE
7	12"	X	B-222 OBSV PORT
8	4"	X	BREATHER FILTER
9	12"		SLUDGE JET ACCESS, WC
10	12"		SLUDGE JET ACCESS, WC
N1	3"		SPARE INLET, CAPPED
N2	3"		SPARE INLET, CAPPED
N3	3"		INLET LINE V159, SEALED IN DIVERSION BOX 241-C-252
N4	3"		INLET LINE V158, SEALED IN DIVERSION BOX 241-C-252

Ref: WHC-SD-RE-TI-053, Rev.9 *WHC-SD-WM-TI-710, Rev.2
WHC-SD-WM-TI-553, Rev.0 H-2-73353, Rev. 2

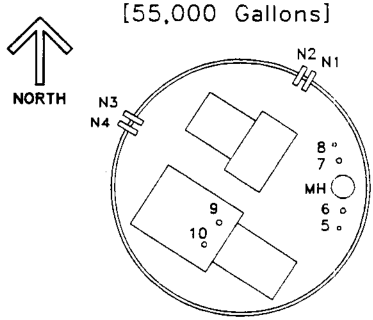
If there was a discrepancy between the documents and the drawings, the drawings shall take precedence.

Comments placed in [] denote Engineering Change Notices (ECN) made against the reference drawings.

- Denotes risers tentatively available for sampling (Lipnicki 1995)

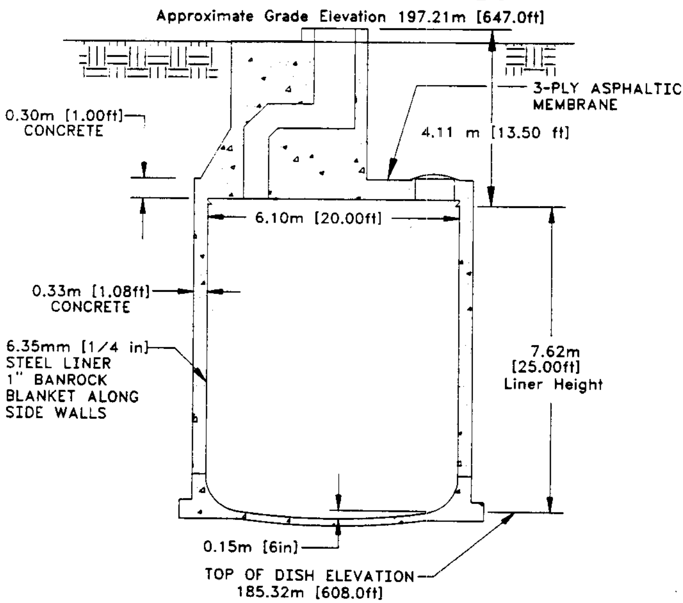
241-C-203

208,200 Liters
[55,000 Gallons]



Ref: WHC-SD-RE-TI-053, Rev. 9
WHC-SD-WM-TI-553, Rev. 0
H-2-73354, Rev. 2

TANK RISER LOCATION



Ref: H-2-1744, Rev. 3
CVI-73550, dwg D-20

NOT TO SCALE

241-C-203			
NO.	DIA.	SAMPLING*	DESCRIPTION AND COMMENTS
5	4"		LIQUID LEVEL REEL
6	12"		TEMPERATURE
7	12"	X	B-222 OBSV PORT
8	4"	X	BREATHER FILTER
9	12"		SLUDGE JET ACCESS, WC
10	12"		SLUICING ACCESS, WC
N1	3"		SPARE INLET, CAPPED
N2	3"		SPARE INLET, CAPPED
N3	3"		INLET LINE V161, SEALED IN DIVERSION BOX 241-C-252
N4	3"		INLET LINE V160, SEALED IN DIVERSION BOX 241-C-252

Ref: WHC-SD-RE-TI-053, Rev.9 *WHC-SD-WM-TI-710, Rev.2
WHC-SD-WM-TI-553, Rev.0 H-2-73354, Rev. 2

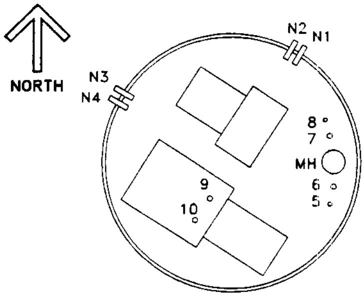
If there was a discrepancy between the documents and the drawings, the drawings shall take precedence.

Comments placed in [] denote Engineering Change Notices (ECN) made against the reference drawings.

* Denotes risers tentatively available for sampling (Lipnicki 1995)

241-C-204

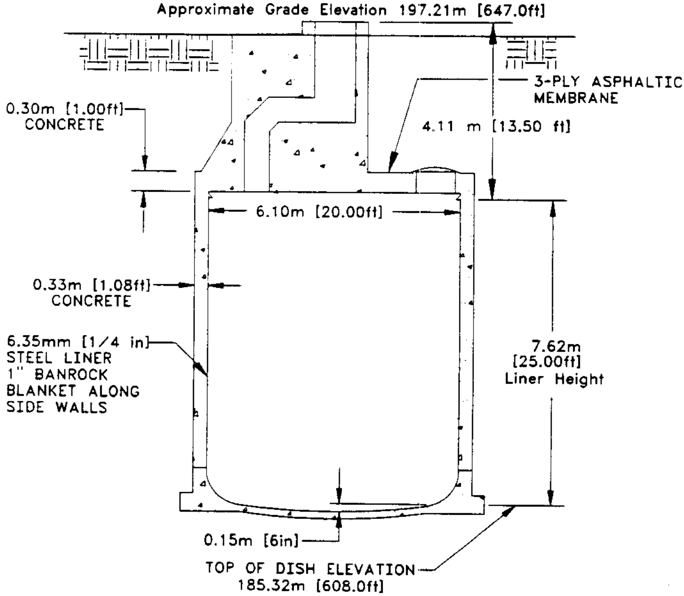
208,200 Liters
[55,000 Gallons]



Ref: WHC-SD-RE-TI-053, Rev. 9
WHC-SD-WM-TI-553, Rev. 0
H-2-73355, Rev. 2

TANK RISER LOCATION

Approximate Grade Elevation 197.21m [647.0ft]



Ref: H-2-1744, Rev. 3
CVI-73550, dwg D-20

NOT TO SCALE

241-C-204			
NO.	DIA.	SAMPLING*	DESCRIPTION AND COMMENTS
5	4"		LIQUID LEVEL REEL
6	12"		TEMPERATURE
7	12"	X	B-222 OBSV PORT
8	4"	X	BREATHER FILTER
9	12"		SLUDGE JET ACCESS, WC
10	12"		SLUICING ACCESS, WC
N1	3"		SPARE INLET, CAPPED
N2	3"		SPARE INLET, CAPPED
N3	3"		INLET LINE V163, SEALED IN DIVERSION BOX 241-C-252
N4	3"		INLET LINE V162, SEALED IN DIVERSION BOX 241-C-252

Ref: WHC-SD-RE-TI-053, Rev.9 *WHC-SD-WM-TI-710, Rev.2
WHC-SD-WM-TI-553, Rev.0 H-2-73355, Rev. 2

If there was a discrepancy between the documents and the drawings, the drawings shall take precedence.

Comments placed in [] denote Engineering Change Notices (ECN) made against the reference drawings.

* Denotes risers tentatively available for sampling (Lipnicki 1995)

C TANK FARM PHOTOS

TANK #	MONTAGE #	ORIGINAL PHOTO SET #	DATE
C Farm Aerial Photo	N/A	93030994-292CN	N/A
241-C-101	94011379-40CN	87-06971	11/17/87
241-C-102	94011379-39CN	76-4705	5/18/76
241-C-103	94011379-38CN	87-04421	7/28/87
241-C-104	94011379-37CN	90-071805	7/25/90
241-C-105	94011379-36CN	88-01714	4/1/88
241-C-106	94011379-15CN	86242	4/5/79
241-C-107	No Photos Available.	No Photos Available.	
241-C-108	No Photos Available.	No Photos Available.	
241-C-109	94011379-16CN	74-7641	12/9/74
241-C-110	94011379-17CN	86-05264	8/12/86
241-C-111	94011379-18CN	70-0906	2/25/70
241-C-112	94011379-19CN	90-091810	9/18/90
241-C-201	94011379-58CN	86-07869	12/2/86
241-C-202	94011379-57CN	86-08029	12/9/86
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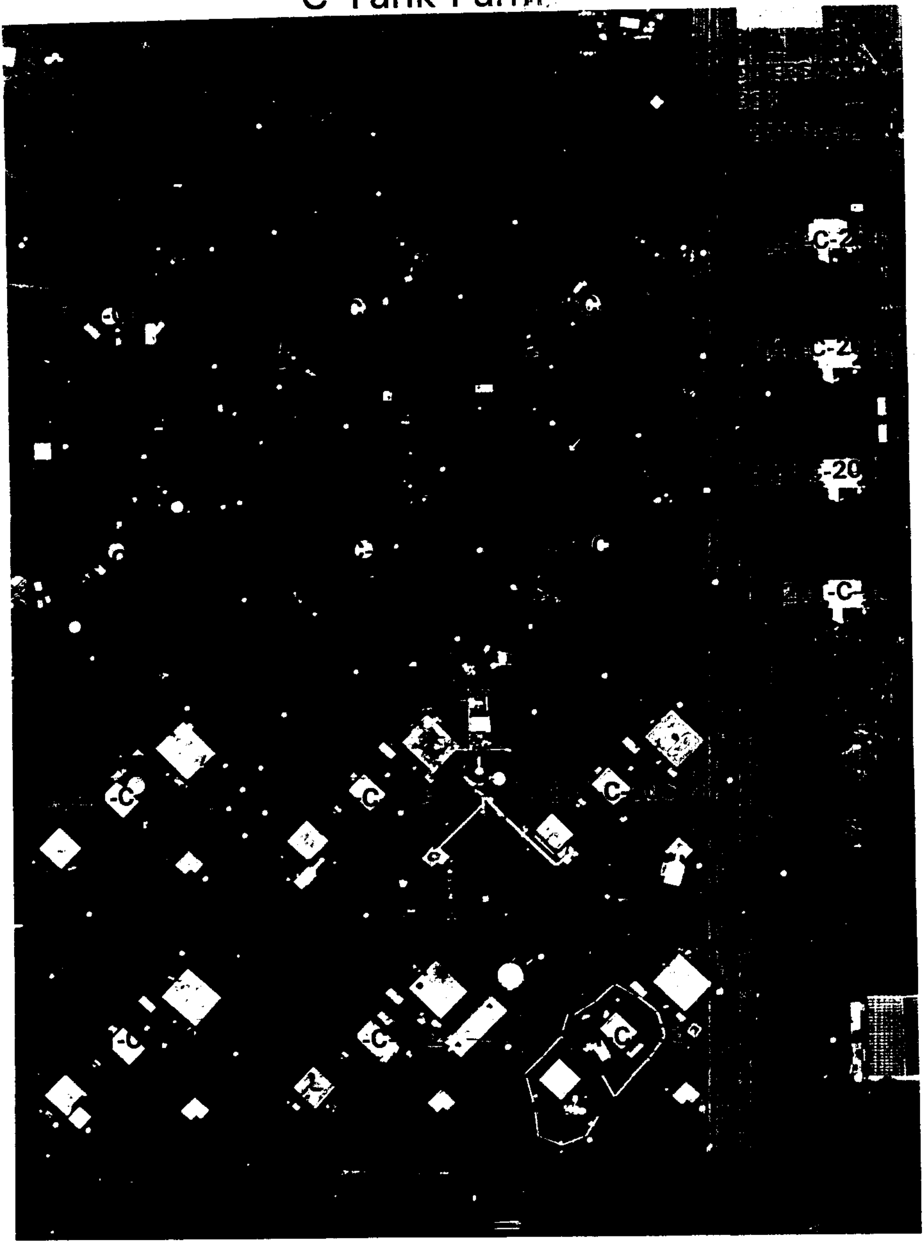
241-C-204	94011379-55CN	86-08031	12/9/86

C Tank Farm



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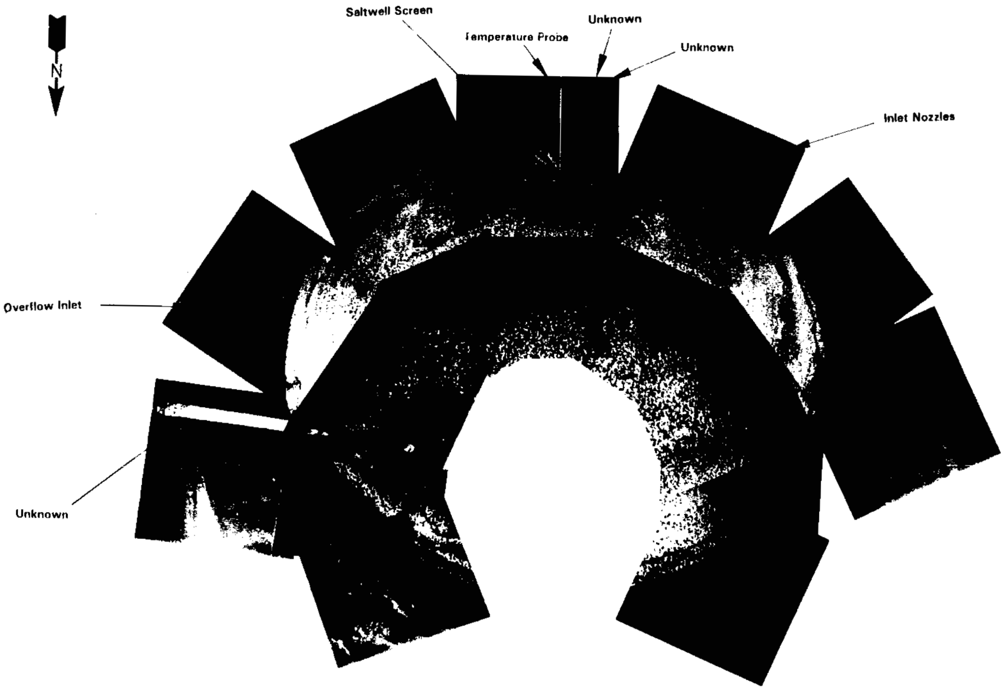

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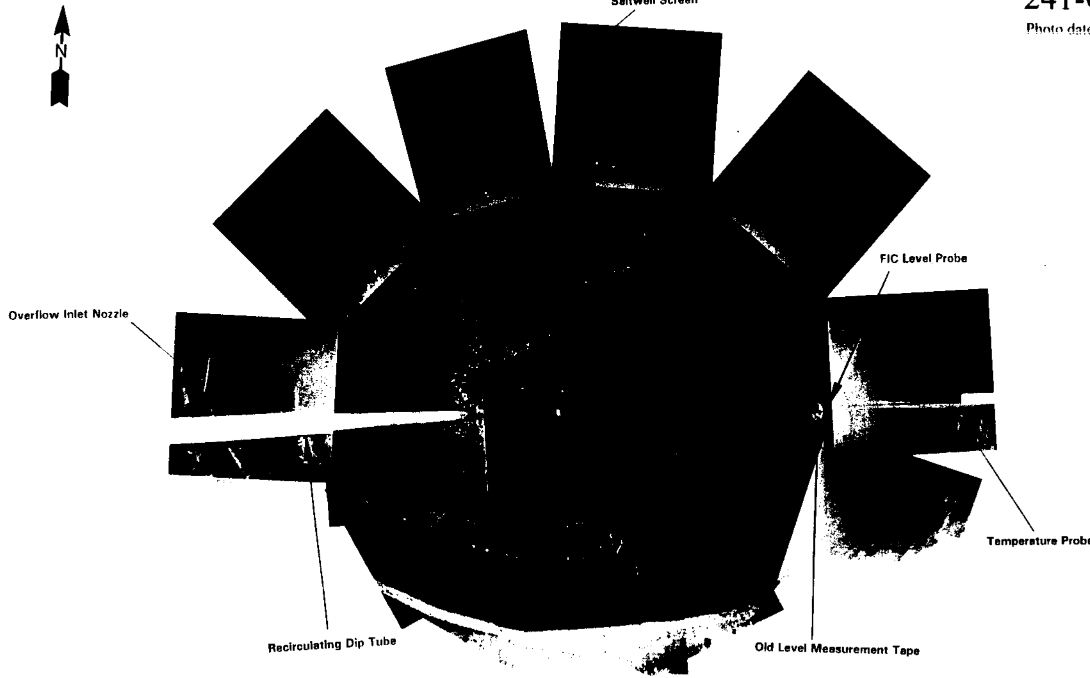

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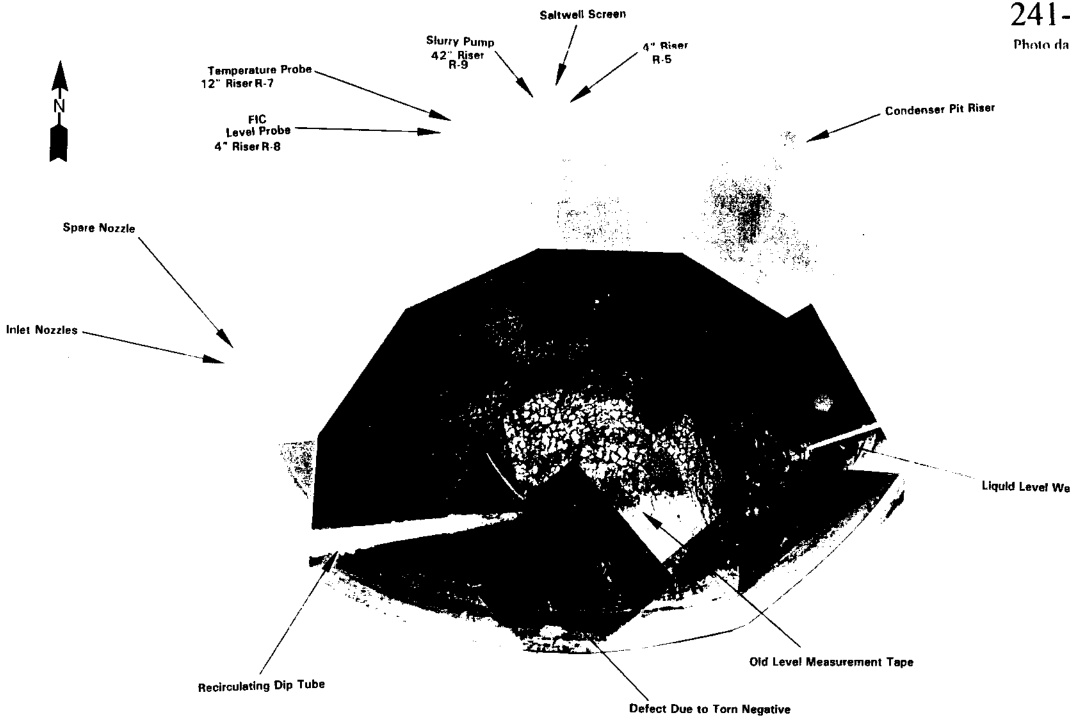

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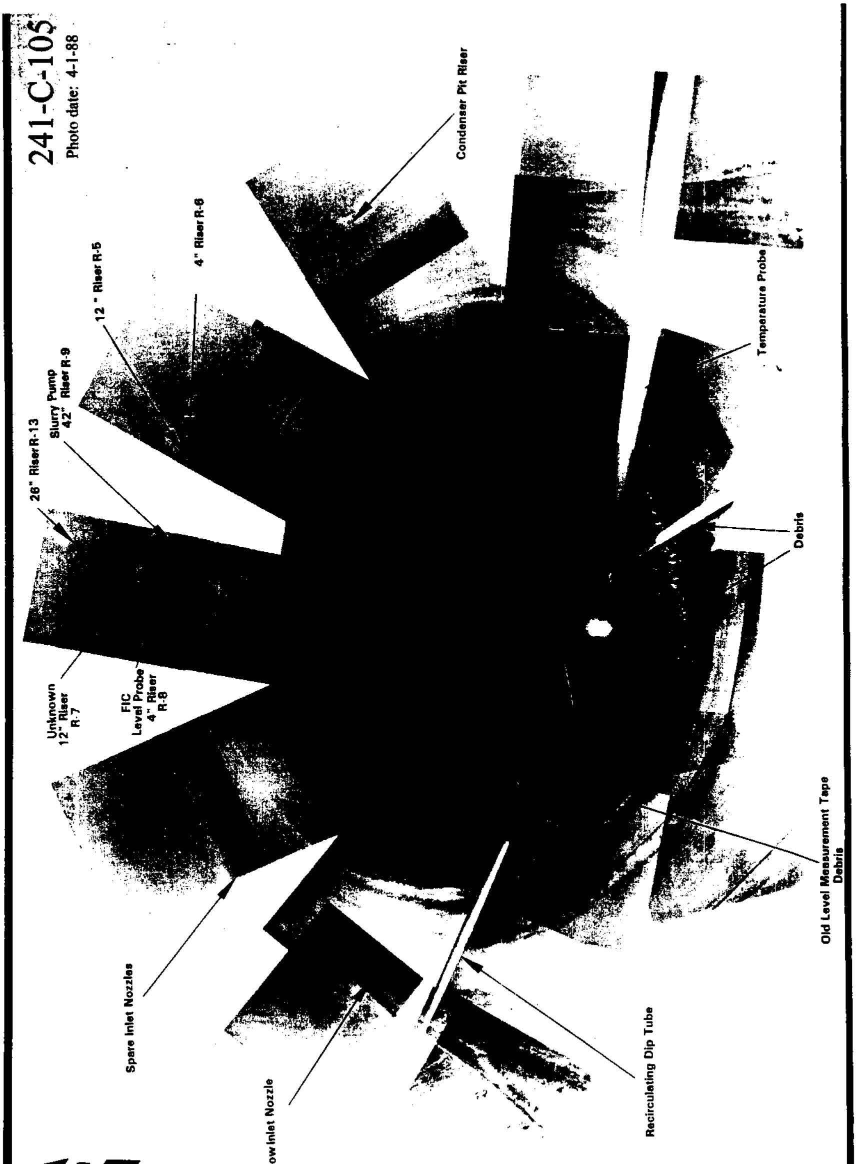

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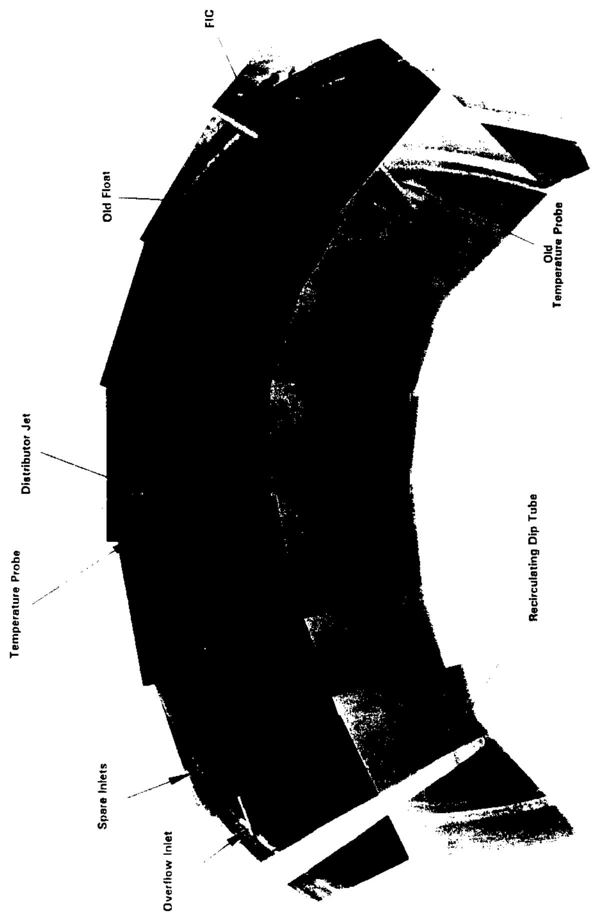

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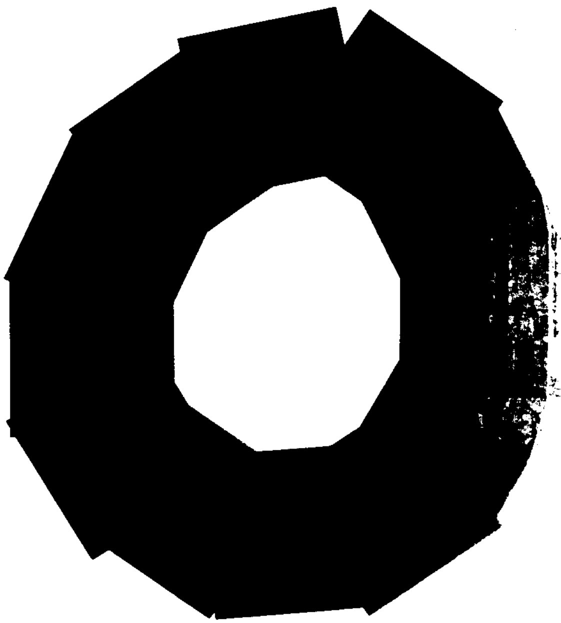

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241-C-110

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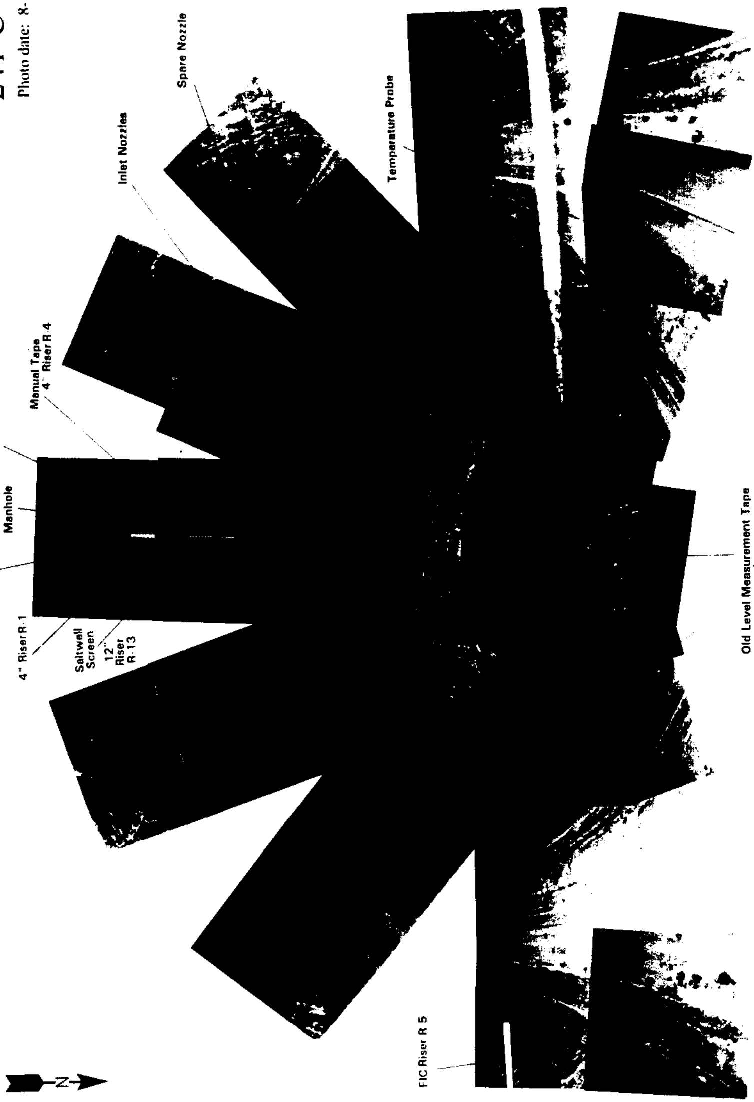

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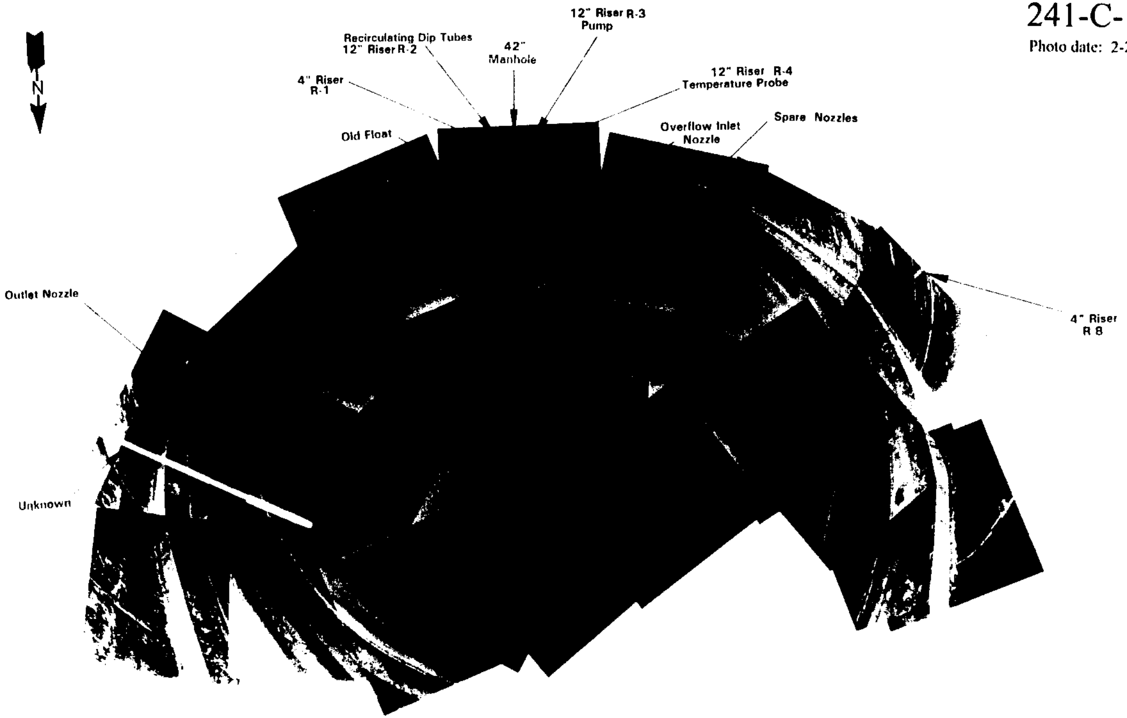

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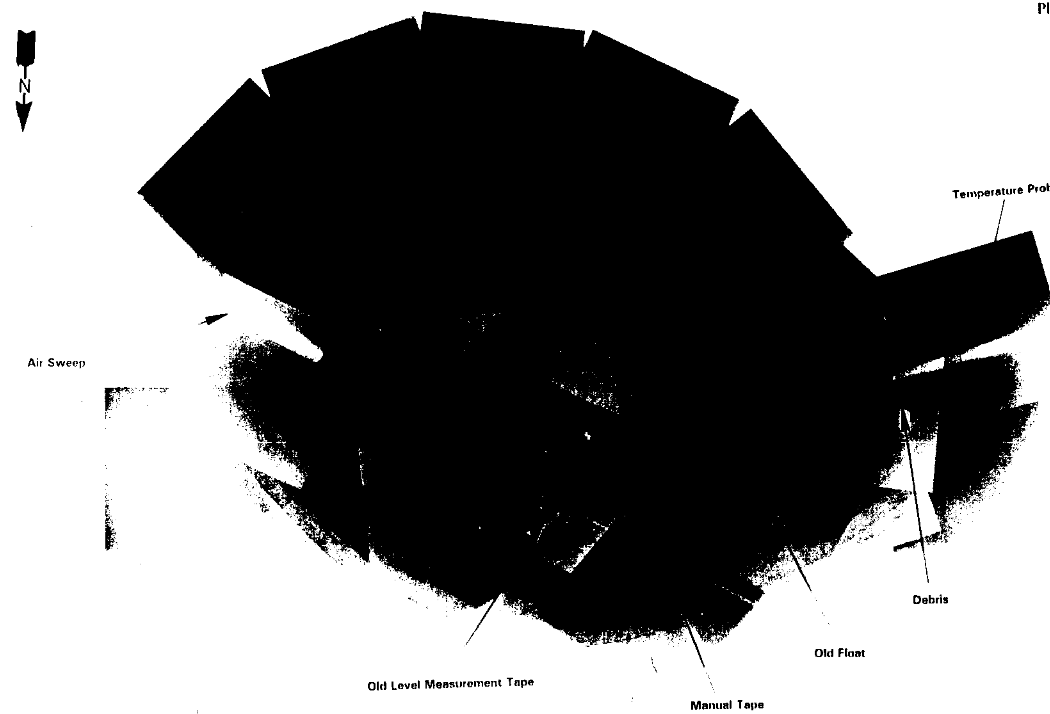

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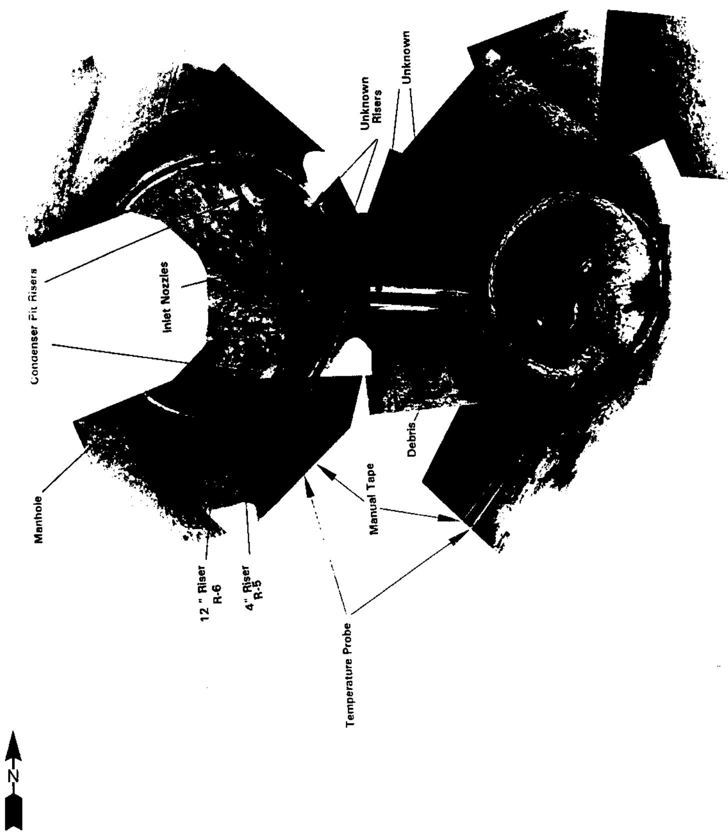

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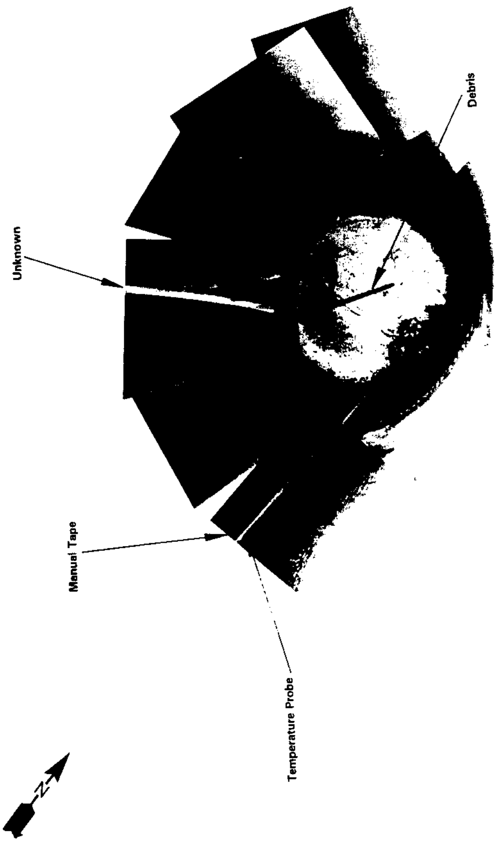

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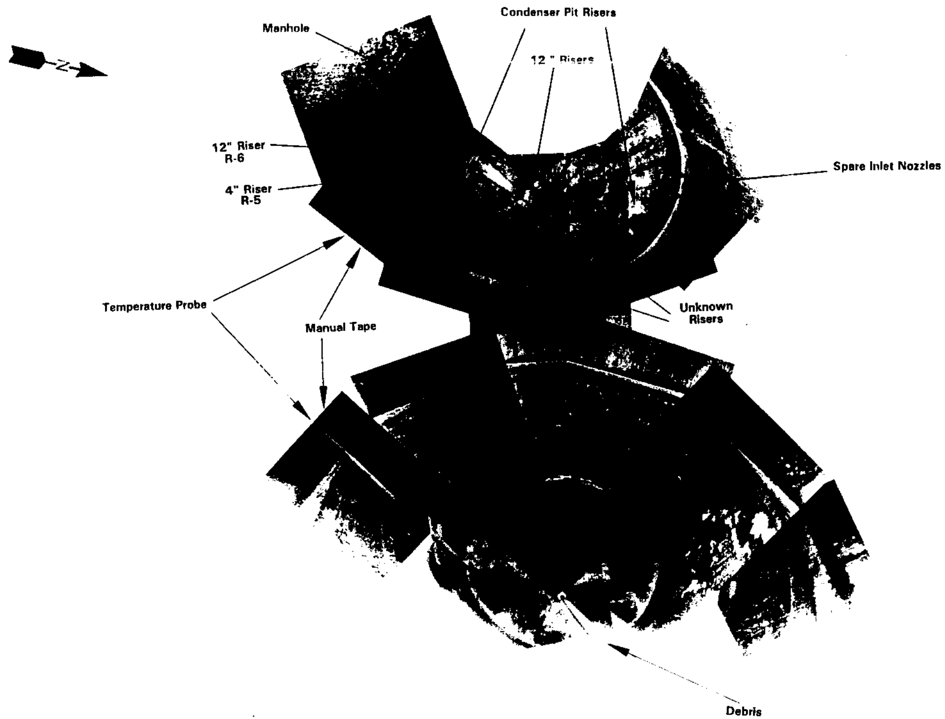

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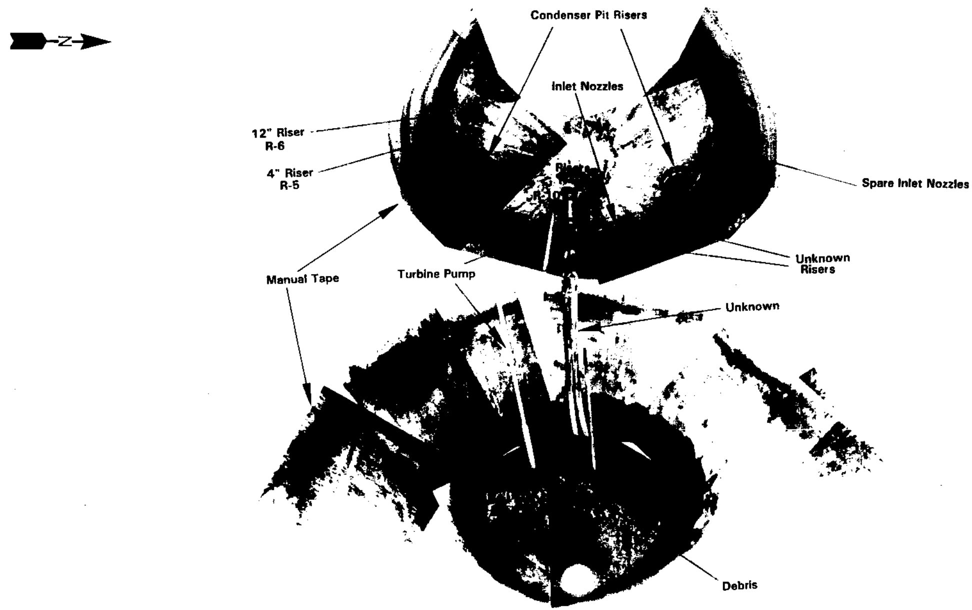

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Hanford Tank Chemical and Radionuclide Inventories: HDW Model Rev. 3

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Executive Summary

This estimate for the chemical and radionuclide compositions of the 177 Hanford High Level Waste storage tanks is the third major revision in a developing model called the Hanford Defined Waste (HDW) model. This model is composed of four parts:

1) a compilation of transaction records for all the tanks called the Waste Status and Transaction Record Summary (WSTRS);
2) a derivation called the Tank Layer Model (TLM) of solids histories for each tank based on primary additions of waste;
3) a calculation of supernatant blending and concentration with the Supernatant Mixing Model (SMM); and
4) a combination of process information along with some transaction information to derive compositions for about fifty Hanford Defined Wastes (HDW's), each of which has both sludge and supernatant layers.

All of this information is combined together in a spreadsheet to produce total chemical and radionuclide compositions for each tank's waste as well a composition for its TLM and SMM blends. Furthermore, each tank's inventory is also represented by a linear combination of TLM sludges and SMM supernatants, each expressed in kgal of original waste. Thus, the genealogy of each tank's waste can be traced back to the plant and process from which it derived. These estimates comprise some 33 non-radioactive species and 4 radionuclides, *Pu-239, U-238, Cs-137*, and Sr-90. The 33 non-radioactive species in the model are Na, Al, Fe, Cr, Bi, La, Hg, Zr, Pb, Ni, Sr(stable), Mn, Ca, K, OH, nitrate, nitrite, carbonate, phosphate, sulfate, silicate, F, Cl, citrate, EDTA, HEDTA, glycolate, acetate, oxalate, DBP, butanol, ammonia, and ferrocyanide.

Also reported are total site inventories for DST's, SST's, as well as the total inventory of waste placed into cribs and trenches from the waste tanks during the history of Hanford. These estimates do not cover all waste additions to cribs since many streams went into the cribs directly from the plants. Such streams as stack scrubbing and process condensates were often sent directly to cribs from the plants.

Tank leaks represent a very small amount of the total waste. Many "leaks" are not actually measured volumes and are only assumed to have occurred at some nominal value. This is because ground activity occurred in the vicinity of a tank even though there was no measurable change in its inventory. HDW estimated leak inventory, then, does not provide for leaks that did not have a measurable effect on inventory. Only those leaks that actually resulted in a measurable volume loss from a tank are included in the leak estimate.

I. Background

One of the most important tasks involving the Hanford waste tanks is the estimation of those tank's contents. Such estimates are very important for three reasons: first, to establish safety limits during intrusive activities associated with these tanks; second, to establish a planning basis for future disposal; and third, to allow assays from one tank's waste to be used to validate, compare, and assess hazards among other tank's with similar waste inventories.

It is clear that direct assays of tank wastes will always be an important and ongoing need for the Hanford tanks. However, it is equally clear that it will be very difficult if not impossible to adequately address all issues with respect to waste tanks by sampling and assay alone. Representative sampling is undoubtedly the most difficult aspect of deriving tank inventories from assays alone. Both the extremely heterogeneous nature of tank waste and the limited access provided by riser pathways to waste in these seventy-five foot diameter underground tanks contribute to difficulties in using assays alone to derive tank inventories. Furthermore, there are safety issues, such as elevated amounts of soluble organic in dry nitrate waste, that are difficult to address by sampling alone since they could involve relatively small inaccessible regions of waste within a tank.

Finally, in order to make sense out of the highly variable results that often come from a tank's waste assays, it is necessary to couch those results in terms of the particular process and storage history of that tank. The HDW model estimates provide just such a needed sitewide framework for each of the 177 Hanford tanks.

II. Approach

The HDW model is described schematically in Fig. 1. The model begins with a process and transaction dataset that derives from a variety of sources. From this dataset, a balanced tank-by-tank quarterly summary transaction spreadsheet is derived called the Waste Status and Transaction Record Summary (WSTRS). At the end of each quarter, all tanks' volumes are reconciled with their reported status at that time and in the process, unknown transactions are recorded to accommodate otherwise unexplained gains or losses at the end of each quarter.

Using these fill records, the Tank Layer Model (TLM) provides a definition of the sludge and salt cake layers within each tank. The TLM is a volumetric and chronological description of tank inventory based on a defined set of waste solids layers. Each solids layer is attributed to a particular waste addition or process, and any solids layers that have unknown origin are assigned as such and contribute to the uncertainty of that tank's inventory. The TLM simply associates each layer of sludge within a tank with a process waste addition. As indicated in Fig. 1, the TLM analysis depends only on information from WSTRS.

The Supernatant Mixing Model (SMM) is an algorithm written in C++ and installed as a spreadsheet macro that describes the supernatant and concentrates within each of the tanks. The SMM uses information from both WSTRS and the TLM and describes supernatants and concentrates in terms of kgal (1 kgal = 1,000 gal) of each of the process waste additions.

Together the WSTRS, TLM, and SMM define each tank's waste in terms of a linear combination of HDW sludges and supernatants. In order to provide information on the elemental composition of each tank, the Hanford Defined Wastes (HDW's) compositions describes each of the HDW's based on process historical information. Each HDW has both supernatant and sludge layers, its total amount of waste set by WSTRS, and its sludge volume determined by the TLM. Thus, the HDW compositions depend on all prior model components—process/transaction dataset, WSTRS, TLM, and SMM.

Each tank's total inventory is calculated as

$$\mathbf{tank}_i = \frac{\sum_j \mathrm{tlm}_{ij}\,\mathbf{hdw}_j^{sl}}{\mathrm{slVol}_i} + \frac{\sum_j \mathrm{smm}_{ij}\,\mathbf{hdw}_j^{su}}{\mathrm{suVol}_i}$$

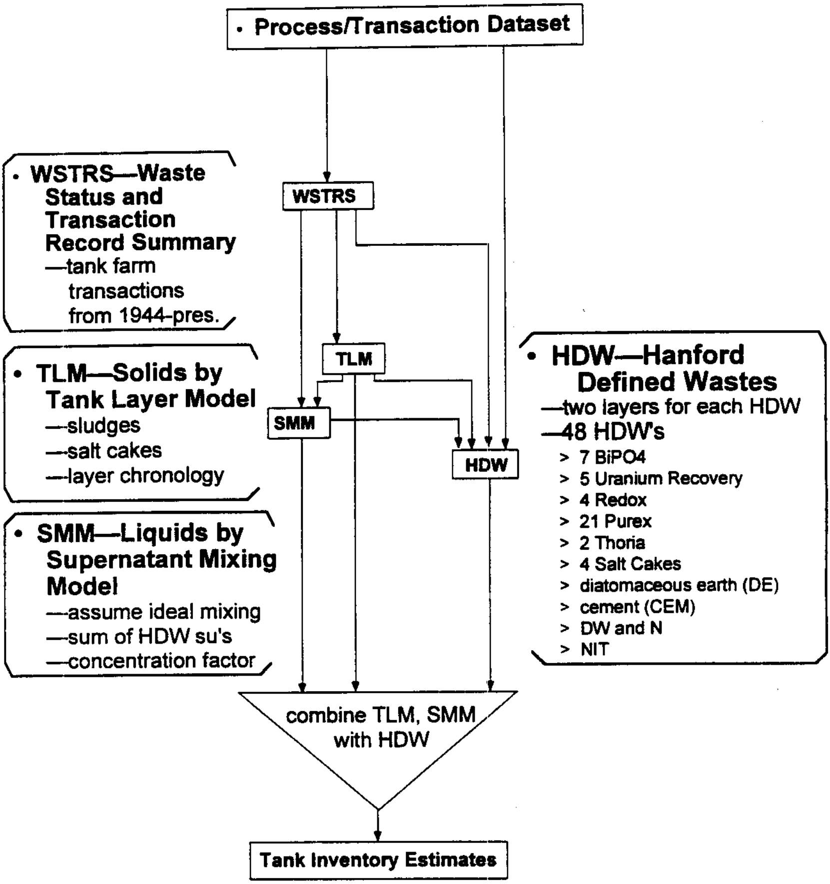

Fig. 1. Schematic of overall strategy.

where

$tank_i$	=	composition vector for tank i
hdw_j^{sl}	=	composition vector for HDW sludge j
hdw_j^{su}	=	composition vector for HDW supernatant j
tlm_{ij}	=	kgal of hdw sludge j for tank i
smm_{ij}	=	kgal of hdw supernatant j for tank i
$slVol_i$	=	sludge kgal for tank i
$suVol_i$	=	supernatant concentrate kgal for tank i.

The first term is the TLM solids inventory and is reported as

$$\mathbf{tank}_i^{sl} = \frac{\sum_j \mathrm{tlm}_{ij}\,\mathbf{hdw}_j^{sl}}{\mathrm{slVol}_i}$$

while the second term is the SMM inventory reported as

$$\mathbf{tank}_i^{su} = \frac{\sum_j \mathrm{smm}_{ij}\,\mathbf{hdw}_j^{su}}{\mathrm{suVol}_i}.$$

These inventory estimates for each tank also appear in the Historical Tank Content Estimate reports for each of four quadrants.[1]

IIa. Approach—Waste Status and Transaction Record Summary

The WSTRS is a spreadsheet of qualified fill records[2] with information extracted from Jungfleisch-83[3] and Anderson-91[4], and checked by Ogden Environmental and LANL against quarterly summary reports. The WSTRS reports, although largely representative of the waste histories of the tanks, are nevertheless incomplete in that there are a number of unrecorded transactions that have occurred for many tanks. Included within the WSTRS report, then, is a comparison of the tank volume that is calculated based on the fill records that are present in WSTRS with the measured volume of each tank. This comparison is made for each quarter to record any unknown waste additions or removals that may have occurred during that quarter.

The Rev. 3 estimates include new information from the Logbook Dataset[5] and have extensive revisions in the latter four evaporator campaigns: 242-S (S1 and S2) and 242-A (A1 and A2). The Logbook Dataset contains extremely detailed tank level information from about 1975 to 1992 and has allowed Rev. 3 to accomodate the blending that occurred during these campaigns. In Rev. 1, each campaign's waste was blended over many years of operation, then concentrated in one single step and distributed over all the bottoms receivers. In contrast, Rev. 3 blends the evaporator concentrates on about a quarterly basis thereby providing much better representation of these evaporator campaigns.

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[1]Brevick, C. H., et al., "Historical Tank Content Estimate of the Northeast (Southwest, Northwest, Southeast) Quadrant of the Hanford 200 East Area," WHC-SD-WM-ER-349 thru 352, Rev. 0, June 1994.

[2] (a) Agnew, S. F., et al., "Waste Status and Transaction Record Summary for the NE Quadrant" WHC-SD-WM-TI-615, Rev. 1, October 1994. (b) Agnew, S. F., et al. "Waste Status and Transaction Record Summary for the SW Quadrant, " WHC-SD-WM-TI-614, Rev. 1, October 1994. (c) Agnew, S. F., et al. "Waste Status and Transaction Record Summary for the NW Quadrant, " WHC-SD-WM-TI-669, Rev. 1, October 1994.

[3](a) Jungfleisch, F. M. "Hanford High-Level Defense Waste Characterization—A Status Report," RH-CD-1019, July 1980. (b) Jungfleisch, F. M. "Supplementary Information for the Preliminary Estimation of Waste Tank Inventories in Hanford Tanks through 1980," SD-WM-TI-058, June 1983. (c) Jungfleisch, F. M. "Preliminary Estimation of Waste Tank Inventories in Hanford Tanks through 1980," SD-WM-TI-057, March 1984.

[4]Anderson, J. D. "A History of the 200 Area Tank Farms," WHC-MR-0132, June 1990.

[5]Brevick and Gaddis, "Tank Farm Logbook Dataset," in preparation.

Transactions were added to WSTRS to resolve the many unknown level changes for each quarter according to a set of rules resulting in an updated WSTRS that is known as Rev. 3. This unknown transaction resolution was only completed for all unknowns larger than 50 kgal, although many smaller transaction unknowns were accommodated as well. The following rules were used for unknown transaction resolution for the various tank categories.

Evaporator feed and bottoms receivers:
During an evaporator campaign, unknown waste transfers at the end of each quarter are resolved by sending wastes to or receiving wastes from an evaporator feed tank for tanks identified as either bottoms receivers or feed tanks for those campaigns.

Self-concentrating tanks:
Certain tanks in S, SX, A, and AX farms were allowed to self concentrate. Any losses or additions to these tanks are assigned to condensate or water, respectively.

Sluicing receivers:
For tanks associated with a sluicing campaign (either UR or SRR), unknown transactions are resolved by either sending or receiving from the sluicing receiver tank for that campaign. Unassigned losses from the sluicing receivers, then, are sent directly to the process.

Salt-well pumping and stabilization:
If an unknown loss occurs during salt well pumping stabilization of a tank, then the unknown is resolved by sending waste to the active salt well receiver at that time.

Historical use of tank:
If none of the above rules apply, then the historical use of the tank is used to assign the transaction. For example, C-105 was used as a supernatant feed tank for the CSR campaign and supplied ~1,500 kgal per quarter for several years. However, there is one quarter (1971q2) where C-105 loses 1,748 kgal without an assigned transaction. Because of C-105's process history, this transaction is assigned to CSR feed. Likewise, there are a number of large supernatant losses in A and AX Farms during sluicing for sludge recovery. These supernatant losses are assigned as feed to AR, which are the slurries transferred to AR Vault for solids separation, washing, dissolution, and feed to SRR.

The transaction data set has sometimes an arbitrary and non-unique order for transactions within each quarter. This transaction order has been largely resolved for the period 1975-present, but not for all of the remaining tanks for this estimate. Thus, a certain "historical" error is present in these DST estimates that is largely related to transaction ordering errors from 1945-1975. These errors are not very serious for the DST's, since much blending has occurred since 1981, butthis transaction ordering should be completed for the entire history of Hanford in order to determine how it will affect tank inventories.

IIb. Approach—Tank Layer Model (TLM)

The TLM a solids layer model that uses the past fill history of each tank to derive an estimate of the types of solids that reside within those tanks. The TLM[6,7] is generated by reconciling the reported solids levels from WSTRS

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[6](a) Brevick, C. H., et al., "Supporting Document for the Historical Tank Content Estimate for A Tank Farm," WHC-SD-WM-ER-308, Rev. 0, June 1994. Likewise, reports and numbers for each farm are as follows: AX is 309, B is 310, BX is 311, BY is 312, C is 313, S is 323, SX is 324, and U is 325. These supporting documents contain much of the detailed information for each tank farm in a concise format, all released as Rev. 0 in June 1994.

[7]Agnew, S. F., et al. "Tank Layer Model (TLM) for Northeast, Southwest, and Northwest Quadrants," LA-UR-94-4269, February 1995.

for each tank (as shown in App. C) with the solids volume per cent expected for each primary waste addition (see App. A). Note that a solid's model has already been extensively used at Hanford to estimate sludge and salt cake accumulation, the results of which are reported[8] monthly.

There are some tanks that the HDW model assumes a different waste inventory than that reported in Hanlon. This differences come aboutbecause of the difficulties that are often encountered in determining the remaining inventory in tanks with large surface heterogeneities. Also shown in App. C, then, are a list of tanks for with their Hanlon volumes and their adjusted volumes used for the HDW estimates. The sources of these discrepancies are a series of reports about stabilized tanks.[9]

The TLM is a volumetric and chronological description of tank inventory based on the HDW sludges and salt cakes. Each solids layer is attributed to a particular waste addition or process, and any solids layers that have unknown origin are assigned as such and contribute to the uncertainty of that tank's inventory. The TLM simply associates layers of solids within each tank with a waste addition or a process campaign.

The TLM uses the information obtained from the transaction history for each tank to predict solids accumulations. These predictions are made for three categories of waste tanks. The first category involves primary waste additions, which are the waste additions from process plants directly into a waste tank. The primary waste transactions are used along with solids volume reports for each tank to derive an average volume per cent solids for each HDW type. The solids accumulations are, then, also assigned to a particular HDW for the tanks where the solids information is missing or inconsistent.

A second category of waste is that where solids accumulate as a result of evaporative concentration of supernatants. All solids that accumulate in such tanks occur after they have been designated as "bottoms" receivers. These solids are assigned to one of four salt cakes, which are defined as blends over entire evaporator campaigns. The four salt cakes are BSltCk, T1SltCk, BYSltCk and RSltCk, are all defined as HDW's. The latter five evaporator campaigns T2, S1, S2, A1, and A2 all result in waste concentrates that are defined differently for each tank within the SMM.

The third category of waste is that where solids accumulate due to tank to tank transfers of solids. This category allows solids to cascade from tank to tank, for example, or accounts for solids lost during routine transfers, as was common with decladding wastes CWR and CWP, 1C , or FeCN sludges.

The results of the TLM analysis are a description of each tank's solids in terms of sludge and salt cake layers. Although interstitial liquid is incorporated within the composition for sludges and salt cakes, any residual supernatants that reside in these tanks above the solids are described by the SMM. The output of the TLM, then, can only be used to predict the inventory of the sludges and each of four salt cakes that reside within waste tanks. These TLM results are inserted into the WSTRS record and are used by the SMM in considering excluded volumes for mixing of waste supernatants.

Not all of the transactions that have occurred in the past are faithfully recorded by the WSTRS data set. Therefore, WSTRS is an incomplete document with many missing transactions. However, the two critical pieces of information that are used in the TLM analysis are the primary waste additions and the solids level measurements, both of which are well represented in WSTRS.

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[8]Hanlon, B. M. "Tank Farm Surveillance and Waste Status and Summary Report for November 1993, "WHC-EP-0182-68, February 1994, published monthly.

[9] (a) Swaney, S. L. "Waste Level Discrepancies between Manual Level Readings and Current Waste Inventory for Single-Shell Tanks," Internal Memo 7C242-93-038, Dec. 10, 1993. (b) Boyles, V. C. Boyles "Single Shell Tank Stabilization Record," SD-RE-TI-178 Rev. 3, July 1992. (c) Welty, R. K. "Waste Storage Tank Status and Leak Detection Criteria," SD-WM-TI-356, September 1988.

The missing transactions largely involve tank-to-tank transfers within WSTRS. These missing transactions, which are salt cake, salt slurry, and supernatant, do lead to a larger uncertainty for the compositions of the concentrated products from evaporator operations. As many as 25% of all transactions may be missing from this data set, perhaps as many as 60-80% of these missing transactions are associated with the evaporator operations. Although this information might be recovered in the future, the HDW model strategy at this time resolves as many of these unknown transactions as possible with the rules stated above.

Sludge Accumulation from Primary Waste

The TLM analysis associates a solids volume percent (vol%) with each primary waste stream. These solids vol% are those that are consistent with the solids volumes reported in Anderson-91 by comparing those solids accumulations with the primary waste additions that are recorded in WSTRS. The result of this analysis is a solids volume percent for each waste type with a range of uncertainty associated with the inherent variability of the process.

Not all of the waste types have adequate solids reports associated with them. For these waste types, a nominal value is assigned based on similarity to other waste types where there exists a solids vol%. For example, a total of 810 kgal of Hot Semi-Works waste (HS) was added to several tanks in C Farm, but these additions only constituted a small fraction of the total solids present in any of these tanks. Therefore, a nominal 5 vol% solids is assigned for that waste type.

Each TLM spreadsheet table shows the primary waste additions and the solids from those additions based on the characteristic vol% for that waste type. The TLM compares this prediction with the solids level reported for the tank and indicates either an unknown gain or loss for this tank. Once a layer is "set" in the tank, its volume appears in "Pred. layer" and type in "Layer type", thus comprising a chronological layer order from the bottom of a tank to the top, where each layer is described in terms of a volume and a type. Note that lateral variations are not accounted for in this model, and therefore this model only derives an average layer thickness. The TLM does not include any lateral distribution of those layers, which can in some cases can be quite extreme.

There are two main sources for variations in the solids vol% for each waste type. First, there is an inherent variability in each process stream, which is largely attributable to process variations. Second, solids can be added to or removed from tanks by inadvertent (or purposeful) entrainment during other supernatant transfers. In addition to these sources of variation, there are a number of other minor sources of solids changes such as compaction, subsidence following removal of salt well liquid, and dissolution of soluble salts by later dilute waste additions. Other solids variations may be due to metathesis and other chemical reactions within the tanks, such as degradation of organic complexants over time.

The TLM assigns solids changes to variability when they fall within the range established. If a change in solids falls outside of this range, the TLM associates the gain or loss of solids with a waste transfer to or from another tank or to dissolution of soluble salts in the upper existing solids layers.

Diatomaceous Earth/Cement

Diatomaceous Earth, an effective and efficient waste sorbent material, was added to the following waste storage tanks BX-102 (1971), SX-113 (1972), TX-116 (1970), TX-117 (1970), TY-106 (1972), and U-104 (1972). The additions of diatomaceous earth were used to immobilize residual supernatant liquid in tanks where the liquid removal by pumping was not feasible. The conversion factor in the TLM for Diatomaceous Earth (DE) is 0.16 kgal/ton and Cement (CEM) or (CON) is 0.12 kgal/ton. The CEM waste was only added to one tank, BY-105 (1977).

Salt Cake Accumulation

Once a tank becomes a "bottoms" receiver, the TLM assumes from that point on that any solids that accumulate are salt cake or salt slurry. Salt cake can be any one of four different types, depending on which evaporator campaign created it. These are B (242-B), T1 (early 242-T), BY (ITS #1 and #2 in BY Farm), and R (Redox self-concentrating tanks). **Table 2** describes the various evaporator campaigns that resulted in concentration of waste and precipitation of solids at Hanford. For salt cake accumulation, the TLM assumes that all of the solids reported are salt cake. Two other minor evaporation campaigns involved use of Redox and B Plant evaporators for tank wastes. These minor campaigns have been associated with T2 or S1 campaigns, respectively.

The HDW model assigns waste of the five later campaigns for 242-T, 242-S, and 242-A evaporators as concentrates within the SMM. These later concentrates correspond roughly to what is known as double-shell slurry (DSS) or double-shell slurry feed (DSSF), although their early concentrates are often referred to as salt cake as well.

IIc. Approach—Supernatant Mixing Model (SMM)

The third step is to describe the composition of supernatants and concentrates within each of the tanks (note that interstitial liquid is part of the TLM sludge and salt cake definitions, not the supernatant). To accomplish this, an ideal mixing model has been developed, called the Supernatant Mixing Model. This model describes supernatants in terms of original kgal (1 kgal = 1,000 gal) of each of the HDW supernatants. The SMM is a very critical part of the definition of waste in double-shell tanks (DST's) where a large fraction of the waste supernatants now reside. For single-shell tanks, the SMM contributes largely to the composition of concentrated wastes. A block diagram of the SMM approach is shown in Fig. 2. The fundamental assumptions used for this model are ideal mixing of each tank's free supernatant volume throughout its history. In particular, the volume of solids layers within each tank defined by the TLM are excluded from mixing with any supernatant additions. In addition, all evaporator feed to and from 242-A, 242-S, and the latter 242-T operations are treated as free supernatant in all tank transactions.

The SMM calculation reads transaction information from WSTRS, sorts it to a date order, and performs a transaction by transaction accounting of all of the tank waste transactions for the history of Hanford. This algorithm accounts for residual solids accumulation as per the TLM above.

The SMM provides a description of each tank's free supernatant and supernatant concentrate based on a linear combination of Hanford Defined Waste (HDW) supernatants. The HDW supernatants have been reported in the Waste Status and Transaction Record Summaries for that tank. This linear combination of HDW supernatants represents a total volume that is usually larger (sometimes smaller) than the actual volume of free supernatant within each tank. This is because active evaporation (or dilution) of the waste during its history.

Each tank's SMM waste vector is expressed in terms of a linear combination of HDW supernatants, which in turn are used to predict a chemical and radionuclide inventory with compositions provided by the HDW (or other sources). The SMM does not allow mixing with TLM solids that have precipitated from primary waste streams. However, those solids that resulted from the later concentrator operations 242-A, 242-S, and latter 242-T, are treated as supernatants within the SMM.

SMM and TLM Output Tables

The output of the Supernatant Mixing Model is a table whose column headings are the HDW's and auxiliary wastes and whose rows are the waste tanks and processes. The auxiliary wastes are water, unk, swliq, and gas and do not appear on the HDW waste list. These auxiliary wastes are used for tracking of unknowns, evaporator runs, and gas retention in waste concentrates. The SMM table's columns (see App. D) show the HDW distribution among the tanks and processes for a particular time. These are given in kgal of original HDW supernatant. The linear combination of HDW supernatants represent a total volume that is usually larger (but sometimes smaller) than the actual volume of free supernatant or concentrate within each tank. The reason that the SMM volume differs from the tank volume is because of active evaporation or dilution of a tank's waste.

The TLM tables are also shown in App. C and follow roughly the same format as the SMM tables. There is *no concentration effect with the* TLM solids and so the row sum of the TLM for each tank is equal to the TLM volume for that tank.

IId. Approach—Hanford Defined Wastes (HDW)

The fourth step in the strategy is to provide chemical and radionuclide concentrations for each of the Hanford Defined Wastes[10] (HDW's). The HDW's begin with inputs of radionuclide and stable chemicals, both of which are used to define the total species in each waste stream (see Fig. 3, campaign and chemicals added). These total species are then separated into two layers, a sludge and a supernatant, that result in different concentrations of species for the two layers.

Each species is precipitated according to a single point solubility and ions precipitated in more than one salt are simply successively precipitated. Thus, the solids that precipitate are merely representative of the actual *solids and are not meant to reflect* the actual solids distribution. Because the supernatant is also present in the interstices of the sludge layer, this "supernatant" is included within the sludge composition. The solubility of each species is set by a macro that, when run on the HDW spreadsheet, adjusts the fraction precipitated parameter so that the supernatant concentration is equal to or less than the target solubility.

The sludge and supernatant compositions are each expressed in mol/L for the stable chemicals, with water and TOC as wt% and radionuclides in µCi/g and Ci/L, respectively. Each waste is kept in ion balance according to the oxidation states assumed for that species. The sludge and supernatant layers are also expressed in terms of ppm composition, for which are kept a mass balance as well. However, the

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[10]Agnew, S. F., et al., "Hanford Defined Wastes: Chemical and Radionuclide Compositions," LA-UR-94-2657, Rev. 2, September 1995.

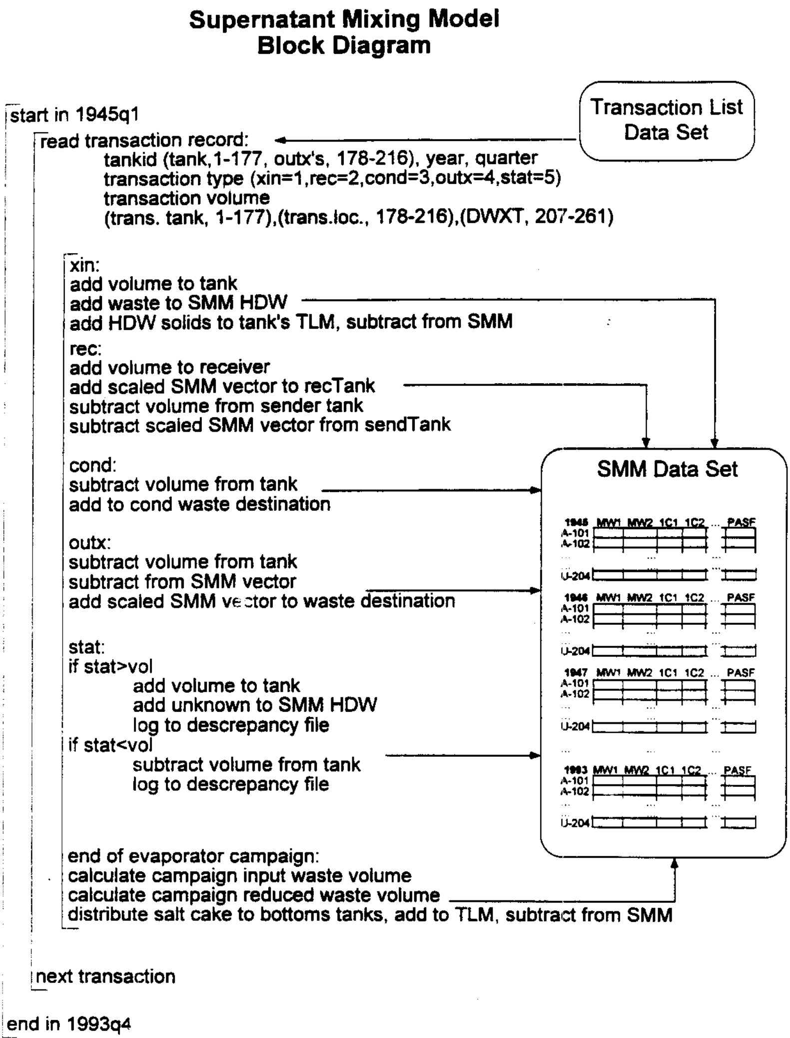

Fig. 2. Block Diagram of SMM algorithm.

mass balances are limited by differences among water, oxide, and hydroxide with the various solids to only within ±2%.

Block Diagram of HDW Spreadsheet

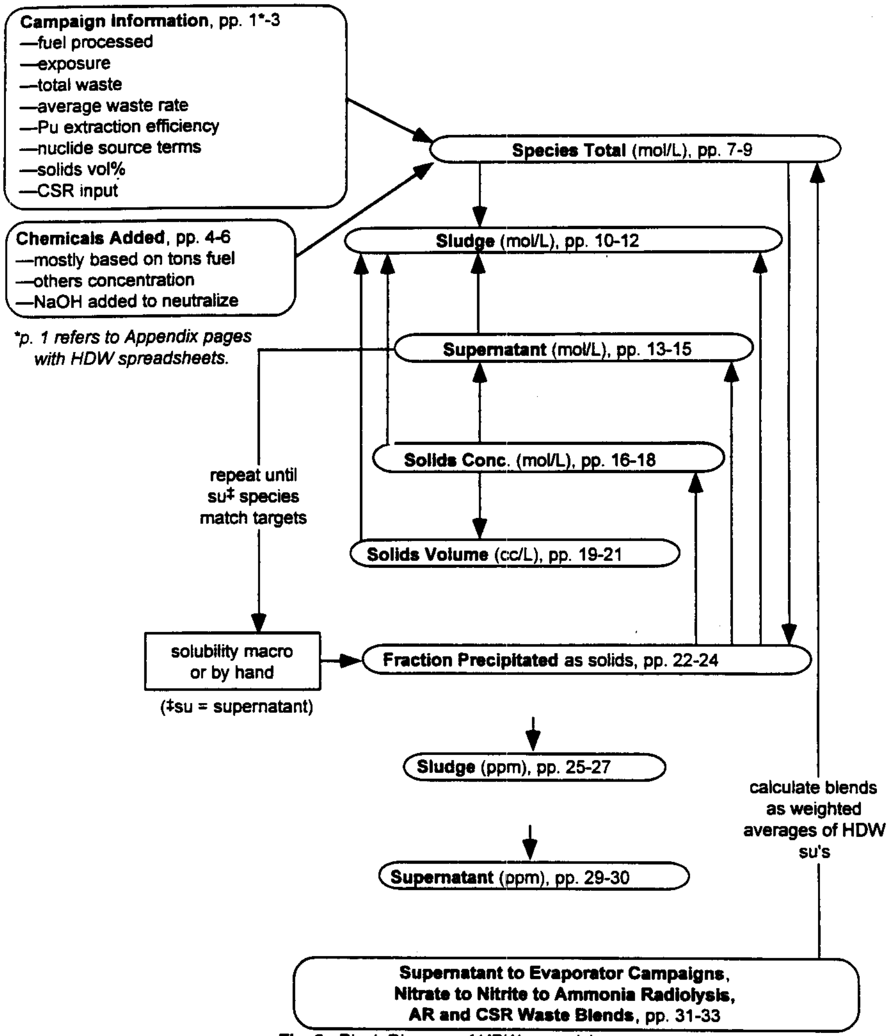

Fig. 3. Block Diagram of HDW spreadsheet.

III. Results and History of Revisions

Appendix E shows the composition and inventory for each of the 177 Hanford Waste tanks. Each tank is described by three tables and each table comprises three columns of information. Two columns describe the analyte concentrations as mol/L and ppm and the third column expresses the tank inventory in kg or MCi (1 MCi = 1e6 Ci). The three tables represent TLM solids blend, SMM liquids blend, and total composite tank concentrations and inventories. The TLM solids composition and inventory represents the volume average blend of all of the TLM solids layers. Note that among the TLM solids definitions are four salt cake concentrates: B, T1, R, and BY. Therefore, the TLM solids inventory definition includes sludges and some salt cake.

The second table for each tank represents the SMM composite inventory for liquids and concentrates. This table represents inventories from evaporator concentrates termed T2, S1, S2, A1, and A2. Note that these concentrates actually include a lot of solids but are treated nevertheless as homogeneous mixtures that can be pumped, blended, and moved to other tanks as though they were liquid.

The HDW model provided its first estimates in June of 1994 as Rev. 0 for the NE and SW quadrants. This early revision was based on single waste types for salt cake and salt slurry for the entire site. Revision 1 was actually the first complete site inventory and was completed in Fall of 1994 for the three SST quadrants, NE, SW, and NW, while Rev. 1 for the DST SE quadrant was completed in March 1995. These estimates included many bug fixes and other corrections and also included additions for process vessel corrosion source terms (adds Fe, Cr, and Ni) as well as a hard water Ca source term. However, the Cs-137 and Sr-90 inventories were calculated too high by about 20% and all evaporator campaigns were blended into multi-year composites. These evaporator blends were an improvement over the single waste types for salt cake and salt slurry in Rev. 0, but still represented an approximation for individual tanks. Essentially, these evaporator blends were excellent representations of the total waste into a campaign and its total volume reduction, but were distributed across perhaps ten or twenty different slurry receivers that were involved in each campaign.

The next step with the HDW Estimates, Rev. 2, was an attempt to express the five later evaporator campaigns on a tank by tank basis. The SMM provided the waste concentrate history step by step throughout each of the evaporator campaigns. Revision 2.1 represents a bug fix in the spreadsheet that incorrectly calculated water and TOC and another problem with miscalculation in SX Farm. This revision was based on the HDW Rev. 2 compositions, which had improved the Cs-137 and Sr-90 inventory calculation and had included chloride and potassium source terms that piggyback on the NaOH additions. Various other bug fixes and changes and additions were a mercury source term used in the decladding process, adjustments on the wastes from UR (Uranium Recovery), slight realignments of 1C and 2C waste campaigns, and other minor changes. Revision 2 also reduced the process vessel corrosion source term (Fe, Ni, Cr) for early BiPO4 wastes and decladding wastes consistent with the fact that these processes were much less corrosive than either Purex or Redox.

The Rev. 2.1 estimates nevertheless had some problems. The most significant problem was the incomplete transaction records for the later evaporator campaigns caused incorrect distribution of waste concentrates. In particular, some tanks were impossibly over concentrated (Na in excess of 16-17 mol/L), while other slurry receivers were more dilute than they should have been. It was clear that there were severe problems in waste misdirection with Rev. 2.

To correct these problems, the Rev. 3 estimates have extensively modified WSTRS by adjusting the evaporator transactions to blend on a per quarter basis and for some quarters, wastes have been blended on an even finer time scale. This improvement in the transaction record was largely accomplished by use of a draft version of the Logbook Dataset[5], constructed by ICF Kaiser for WHC and not yet published. Also used is an extensive set of reports from evaporator operations for 242-S and 242-T. Unfortunately, there was a lack of detailed information about the 242-T evaporator operation.

The overall inventories for the analytes have not changed significantly except for lead, manganese, and oxalate. Lead site inventories increased dramatically in Rev. 3 since these estimates included the lead coating that covered each fuel slug. This turns out to be a major source of lead in the waste tanks and the total lead inventory increased from 3 to 280 mT. There was also an error in the concentration of manganese in OWW2, which upon correction lowered the manganese site inventory from 219 to 39 mT. The oxalate inventory increased from 23 to 69 mT because of a decrease in its solubility limit. Since 224 waste supernatant was all cribbed, decreasing oxalate solubility retains more in the waste tanks and this was the only oxalate source term.

IV. Uses and Limitations of HDW Model Estimates

The HDW Model Rev. 3 estimates represent a Hanford site inventory based on process history that is compatible with the waste types, compositions, and processing history of the site. The total site estimates will not change appreciably in the future unless the wastse source terms for the various waste streams change, but it is still possible that changes in the transaction record will alter the inventory estimates of individual tanks. All estimates are valid as of 1-1-94 and Sr-90 and Cs-137 are both decayed to the same date. Therefore, these estimates do not account for the latest evaporator campaign in '95-'96, which moved and blended large amounts of waste supernatants in the DST's.

The HDW estimates are the first complete, total, ion and mass balanced inventory estimates yet provided on a per tank basis. As such, they have immediately shown that: site sodium inventory has been traditionally overestimated by about one third. Whereas previous site estimates for sodium were around 71,000 mT (mT = metric tonnes), the HDW estimate show only 40,000 mT are actually now in either the DST's or the SST's. This difference is largely due to the large amount of waste supernatant that was sent to crib, some 20,000 mT, but is also due to more subtle double counting of waste stream chemicals that has occurred in the past.

These estimates have also shown an increase in the iron inventory, which the HDW model now estimates at 1,830 mT (1,610 in the SST's and 220 in the DST's) as compared to previous estimates of 710-730 mT. These total site estimates are shown in App. E along with estimates for individual tanks.

The site inventory estimates include totals for waste sent to the cribs as well as totals for leaks with measurable volume losses. Note that the leaks from waste tanks are only a small fraction of the total inventory sent to the ground, constituting only 10% of the 2.2 MCi of Cs/Sr activity and only 2% of the 48 kg of Pu that was sent to the soil column. Thus, the amount of activity intentionally sent to the soil column dwarfs the activity inadvertently placed into the ground by leaks and spills.

There are still problems with these estimates. The evaporator blending and SMM approach naturally produce blending averages for waste supernatants that were processed during each quarter. The actual blending that occurred during these quarters may not be exactly represented in this approximation. This blending error then contributes to the overall variability in the waste predictions.

Another problem with the HDW model is that precipitated solids from waste concentration do not remain in the slurry receiver during evaporator runs. That is, liquid that is drawn from each bottoms tank following cooling is always removed as a blend of the total concentrate. This leads to an under concentration of the bottoms receiver and correspondingly an over concentration of tanks that receive and further blend and concentrate the recycled liquors. This effect systematically shifts concentrate from early receivers to later receivers and therefore increases the variability of the estimates by introducing a systematic bias in early versus late concentrates.

V. Uncertainty for the HDW Estimates

There are two main origins of variability within the HDW model—process variability (results in variability of hdw's) and transaction variability (results in variability in tlm and smm factors). Since process variability affects the HDW compositions and transaction variability affects the SMM/TLM factors, these two variabilities will be additive in the final inventory estimates.

Quantification of Process Variability

Starting with the hypothesis that the waste rate variability is the most direct measure of process variability and therefore of HDW compositional variability, the two sources of waste rate variability are:

1) Rework processing. For a given amount of fuel processed during a campaign, early batches needed to be reworked more often than later batches because the separations failed to achieve the necessary decontamination or separation factors. Note that for rework, the chemicals in the waste scale linearly with the waste volume but the radionuclides will be diluted by increasing rework;

2) Ancillary processing resulting in primary waste dilution. There are many ancillary waste streams that derive from various cell cleanup and vessel cleanout activities. These activities by and large add very little or no chemicals or radionuclides to the waste stream. Therefore, to a first approximation, this variability simply dilutes or concentrates the waste stream. This dilution or concentration simply changes the relative supernatant and sludge inventories of each component.

This approach completely neglects chemical source term variability, which derives from measurement errors during processing. This variability is in the range 3-5% and will therefore be bounded by the two main sources noted above.

The variability of every process waste rate will actually be a combination of rework and ancillary processing and there is little information about what this combination is. Assuming that the amount of chemicals used scales linearly with the volume of the waste produced for rework processing, the waste compositions within each tank will actually be independent of the amount of process rework (radionuclides, however, will be reduced in concentration by the increase in rework.)

This approach subtracts a linear trend from each waste rate due to rework over the period of a campaign and makes the assumption that the resultant variability of the waste composition is wholly attributable to ancillary processing. This results in waste composition variabilities that should be equal to or greater than the true waste composition variabilities. In principle, the HDW model would need more information to assign the correct fraction of waste rate variability to process rework.

With these assumptions in hand, an uncertainty for each HDW (Hanford Defined Waste) can be derived by resolving each HDW analyte for its upper and lower limits. An RSD (Relative Standard Deviation) for each HDW results in a set of upper and lower compositions for each component of each HDW. Note that these relative variabilities will be different in general from the overall RSD for each HDW. This is because of the fact that the solution concentrations of semi-soluble species are directly linked to their sludge inventories.

Finally, there is a fundamental correspondence that relates a tank's waste volume to a corresponding waste stream variability. That is, if a tank contains 75 kgal of a waste sludge, then the waste rate variability must be calculated for the time that it took to deposit that 75 kgal of sludge.

This is a very important point. A manifestation of waste heterogeneity within a tank is that the larger the waste sample taken from a tank, the more representative that sample will be to the mean value for that waste type. The waste rate variability quantitates that relationship. It means that the smaller the sample of waste in an assay, the less representative that assay will be for tha tank contents and therefore a larger margin will occur for comparison of that assay to the HDW estimates. Conversely, the larger the amount of waste sampled, the better it will represent the tank's waste and the smaller will be the margin for HDW estimate comparisons.

There are fourteen tanks in S and SX Farms that hold nearly all of the R1 sludge, averaging 75 kgal each. Thus, each tank's sludge represents about two quarters worth of accumulation, and the variability is 12%, ranging from 10-16% depending on exactly how much sludge is in a given tank.

Most of the R2 waste sludge is on average distributed 30 kgal each among 7 tanks. At 30 kgal, the variability will be 13%, and will range from 10-16% for that set of tanks as well. It is interesting to note that despite the very different Redox campaigns, the waste rate variabilities are very similar.

There are two basic parameters from this variability analysis; a waste rate variability and a waste rate trend. The waste rate variability represents a dilution of all species while the waste rate trend does not change the chemical composition at all, since chemicals added remain proportional to waste volume. On the other hand, there will be a bias in the radionuclide concentration through a campaign as a result of the waste rate trend. Radionuclides will be more dilute early in the campaign and more concentrated late in the campaign. Thus, there is an extra source of variability for radionuclides within each campaign that is tied to the waste rate trend parameter.

For example, the waste rate trend for R1 is ±73% of the mean over the campaign, which places an effective RSD for the radionuclides at ±50%. Thus, while the chemical composition variability for these tanks is within an RSD of ±12%, the radionuclides vary with an RSD of ±50%.

Quantification of Transaction Variability

There are three contributions to transaction variability; evaporator blending, concentrate carryover, and of course, inaccurate transaction information. As regards to inaccurate information, it is not possible to derive meaningful uncertainty estimates about what is not known. Therefore, variability estimates are only possible for the first two contributions.

Evaporator blending and concentrate carryover are now both approximations used within the HDW model. Evaporator blending assumes that all of the waste feed for a given time can be blended together and reduced in volume as a blend and then transferred to a bottoms receiver. In reality, this process was continuous feed and continuous volume reduction.

Concentrate carryover is an approximation within the HDW model whereby all liquids that are removed and recycled to the evaporator from a bottoms receiver are assumed to be homogeneous mixtures of the entire concentrate inventory of each tank. This approximation is valid for dilute wastes but increasingly invalid as wastes are concentrated. That is, waste concentrates are returned to the tanks from the evaporator and allowed to cool, sediment, and gel. Then, residual liquid is removed from these tanks and often reblended and further concentrated. The HDW model allows concentrated waste to be "carried over" into later receivers because of its assumptions and limitations. This represents a second major source of variability within the model, but it only affects concentrates.

Although these arguments provide a basis for transaction variability esimates, the task is not yet completed and therefore are not yet included in HDW Rev. 3 estimates.

VI. Summary

The HDW Rev. 3 estimates are the latest in a developing model of the tank waste inventories at Hanford. The HDW model variability estimates are not yet complete and the comparison of HDW estimates with analytical assays is also in progress. Both of these tasks are ongoing and represent the "bottom line" for the model validity.

Note, though, that comparison of HDW model results with assay data is more complex than just comparing one estimate with another. To derive a tank inventory from assay data for waste samples from within a tank is not a trivial task in and of itself. The extremely heterogeneous wastes within each tank make representative sampling problematic and this is compounded by limited access to the tank waste. Therefore, when comparing inventory estimates based on waste assays with the HDW model, one is actually comparing one model with another model and both models have significant uncertainties. Therefore, comparisons are often more effective if they are made among tank groups with similar process histories. Such grouping strategies can be very important in comparisons between assay data and HDW predictions.

Appendix C.

TLM Working Spreadsheet
May 1996

The TLM (Tank Layer Model) is a volumetric and chronological description of tank inventory based on the HDW sludges and salt cakes. Each solids layer is attributed to a particular waste addition or process, and any solids layers that have unknown origin are assigned as such and contribute to the uncertainty of that tank's inventory. Many of these unknown layers are assigned as per the history of each tank and such assignments are included in the TLM table in parentheses. The TLM for each tank simply associates layers of solids within each tank with a waste addition or a process campaign. Each tank's history is summarized by rows and its primary waste additions are all indicated.

The bolded entry in the Pred. layer column is the volume in kgal of each residual layer and the Layer Type column has information on the HDW assignment for that layer. This is the information that is used in WSTRS, which adds TLM solids layers to each tank accordingly. These result, then, also appear in the SMM/TLM tables in App. D. The TLM working spreadsheets are grouped by quadrant, which is a roughly geographical grouping of tanks that has been useful in the HDW model development.

The level discrepancies between the HDW Model-TLM and the Hanlon report are listed at the end of the appendix. These are given for volume differences greater than 10 kgals. Volume differences greater that 50 kgals were changed in the HDW Model and the new value is listed. This is further described in the Approach section (TLM) of the main text.

NE Quadrant (A, AX, B, BX, BY, C)

Table C1. TLM Working Spreadsheet Column Descriptions.

Column Headings	Descriptions
Tank	tank number
Year	year of transaction
Qtr	quarter of transaction
Meas. solids	reported solids from Anderson-91 in kgal
Solids change	calculated solids based on primary fill record or difference between solids records
Pred. layer	kgal predicted layer now in tank
Layer type	Defined Waste Type for that layer
Waste volume	summation of primary waste additions calculated for this time period
Comments	various details of each calculation

Tank	Year	Qtr	Meas. solids	Solids change	Pred layer	Layer type	Waste volume	comments
C-101	1946	4		190	3	MW	1590	12 vol %
C-101	1953	4		30	30	UR	1055	2.8 vol %
C-101	1957	4	0	-220				sluicing tank
C-101	1958	1	98		28	(CWP1)		ignore, unk assign to CWP1, tank drawn to 61
C-101	1960	4		2	2	CWP1	19	8.1 vol %
C-101	1962	2		19	19	CWP2	637	2.90 vol %
C-101	1963	2	109	88				unk gain
C-101	1965	2		0		DW	28	1 vol %
C-101	1965	2	51	-58				unk loss, sent to B farm
C-101	1969	3	106	55				washed out
C-101	1969	4	125	19				unk gain
C-101	1970	1	87	-38				unk loss
C-101	1970	3	81					
C-101	1974	4	62					ignore
C-101	1976	2	73					
C-101	1993	2	88					
C-101	1993	4	88	1	6	(CWP2)		unk gain, assign to CWP2
C-102	1952	4				MW	-530	SL C-103
C-102	1954	1		5	5	MW		small sludge heel
C-102	1954	1		16	16	UR	552	2.8 vol %
C-102	1958	1	98				552	ignore Questionable stat record
C-102	1960	4		33	33	CWP1	401	8.10 vol %
C-102	1965	2	238	184				unk gain, REC from C-105 and C-108
C-102	1966	1		200		CWP2	6892	2.9 vol %
C-102	1966	2		26	26	TH1	443	5.8 vol %
C-102	1968	3		125	252	CWP2	4320	2.9 vol %
C-102	1968	4	307					still settling
C-102	1969	1	332	-257				numerous xfers- wash out
C-102	1969	2		25		CWP2	872	2.9 vol %
C-102	1969	2	369	12				unk gain, REC from C-110 and C-104
C-102	1969	3		14		OWW3	2262	0.6 vol%
C-102	1969	3	351	-18				unk loss
C-102	1969	4		16		CWP/ZR	550	2.9 vol %
C-102	1969	4	345	-22	13	CWP/Zr		washed out
C-102	1970	1	326					
C-102	1970	2	312					
C-102	1970	3	299					
C-102	1974	4	332					
C-102	1976	1	62					ignore
C-102	1976	2	431					

Tank	Year	Qtr	Meas. solids	Solids change	Pred layer	Layer type	Waste volume	comments
C-102	1993	2	423					
C-102	1993	4	423	78	78	(CWP2)		unk gain. unk assign to CWP2. pic shows sludge w/ shallow pools liquid
C-103	1952	[illegible]					1060	SL C-102, C-101
C-103	1953	1					-1687	SL UR
C-103	1953	2						Prob MW left after sluicing
C-103	1953	3						UR from C-101
C-103	1960	4		39		CWP1	479	8.1 vol %
C-103	1967	3	35	-4	37	CWP1		Unk loss
C-103	1970	2	85	50				unk gain, REC from BX-101
C-103	1970	3	99	25	25	AR		secondary transfer of AR solids from C-106
C-103	1971	1	92	-7				unk loss to C-106
C-103	1971	3	90					
C-103	1971	4	102					ignore
C-103	1972	3	90					
C-103	1974	4	73	-19				some xfer to C-104 ?
C-103	1977	1	68	-5				washed out
C-103	1977	3	150					solids continue to increase
C-103	1977	4	153	85				unk gain, Evap B plant recovery
C-103	1978	1	164	11				unk gain, REC from C-107
C-103	1978	2	167					solids continue to increase
C-103	1978	3	175	11				unk gain
C-103	1993	2	62					
C-103	1993	4	62	-113				unk loss, Prob CWP1 or AR
								Note: unaccounted solids from core 30 kgal
C-104	1947	4		190	3	MW	1590	12 vol %
C-104	1953	2					-530	SL C-106
C-104	1955	2	0	-190				
C-104	1956	1	45					ignore
C-104	1957	3	46					ignore
C-104	1958	2		103	98	CWP1	1269	8.1 vol %
C-104	1963	2	101	-2				unknown loss
C-104	1965	2	90	-11				unknown loss
C-104	1970	1		16		CWP2	535	2.9 vol %
C-104	1970	1	96	-10				unknown loss
C-104	1970	2	149					ignore
C-104	1970	3		17		CWP2	581	2.9 vol %
C-104	1970	3		29		THL	499	5.8 vol %
C-[illegible]	1970	3	92	-50				washed [illegible] ignore
C-104	1970	4		8	3	CWP2	279	2.9 vol %

Tank	Year	Qtr	Meas. solids	Solids change	Pred layer	Layer type	Waste volume	comments
C-104	1970	4		4	4	PL	175	2.2 vol %
C-104	1970	4		24	24	TH70	413	5.8 vol %
C-104	1970	4	132	4				unk gian, probably CWP uncertainty
C-104	1971	1		5		CWP2	189	2.9 vol %
C-104	1971	1	153	16				unknown gain
C-104	1971	3		44		CWP2	1520	2.9 vol %
C-104	1971	4	175	-22				unknown loss
C-104	1972	1		11		CWP2	364	2.9 vol %
C-104	1972	1	188	2				CWP2
C-104	1972	2		8	66	CWP2	281	2.9 vol %
C-104	1972	2	198	2				CWP2
C-104	1972	3		31	31	OWW3	5163	0.6 vol%
C-104	1972	3		18	18	CWP/Zr	623	2.9 vol %
C-104	1972	4		9	9	CWP/Zr		secondary xfer from C-103
C-104	1973	4		1	1	P2	31	3.9 vol %
C-104	1973	4		15	15	(CWR2)	1504	unk assign to CWR2 from U-107
C-104	1973	4	274					
C-104	1974	1		1		P2	27	3.9 vol %
C-104	1974	1		1		DW	90	1 vol%
C-104	1974	4		1		PL	37	2.2 vol %
C-104	1974	4	235	-42				Unk loss
C-104	1975	2		1	1	P2	33	3.9 vol %
C-104	1976	2		6	6	PL	261	2.2 vol %
C-104	1976	2		7		SRR		SRR solids from A-101
C-104	1976	4	246					
C-104	1977	1	268					
C-104	1977	3	274					
C-104	1977	4	290	44	11	(SRR)		unk gain Purex Waste Storage??, unk assign to SRR
C-104	1978	1	304					
C-104	1980	1	293					
C-104	1993	2	295					
C-104	1993	4	295	5	5	SMMA1		CPLX, Solids from concentrate calculated by SMM.
C-105	1953	2					-530	SL C-106
C-105	1954	3		15	15	UR	546	2.8 vol %
C-105	1956	2	15	0				
C-105	1960	2		255	81	CWP1	3151	8.1 vol %
C-105	1965	2	109					
C-105	1966	4					250	SL A-103
C-105	1968	4	96	-174				unk loss
C-105	1969	1	109					

Tank	Year	Qtr	Meas. solids	Solids change	Pred layer	Layer type	Waste volume	comments
C-105	1969	2	99	3	3	(CWP1)		unk gain, assign to CWP1
C-105	1969	3	139					various rec eventually washed out
C-105	1969	4	233					various rec eventually washed out
C-105	1970	1	123					various rec eventually washed out
C-105	1970	2	136					various rec eventually washed out
C-105	1970	3	139					various rec eventually washed out
C-105	1970	4	156					various rec eventually washed out
C-105	1971	1	162					various rec eventually washed out
C-105	1971	2	164					various rec eventually washed out
C-105	1972	1	98					various rec eventually washed out
C-105	1973	2	112					unknown loss
C-105	1974	3					48	SL A-103, A-102
C-105	1974	4	139					
C-105	1977	1	167	68				unk gain
C-105	1977	3					39	SL AX-103, AX-101, AX-102
C-105	1979	3	150	-17				unk loss
C-105	1993	2	150					
C-105	1993	4	150		51	(CWP1)		unk assign to CWP1
C-106	1953	2					1060	SL C-104, C-1105
C-106	1954	1					-1906	SL UR
C-106	1954	3		15		UR	538	2.8 vol %
C-106	1955	1	12		15	UR		ignore
C-106	1957	4	29	14		P		xfer from A-101 and A-102
C-106	1960	2		34	34	CWP1	420	8.1 vol %
C-106	1963	2	24					ignore
C-106	1965	1		0		DW	36	1 vol%
C-106	1965	2	62	-1				
C-106	1969	4		11		AR	276	4.0 vol%
C-106	1969	4	57	-16				unk loss
C-106	1970	3		17		AR	432	4.0 vol%
C-106	1970	3	79	5				unk gain
C-106	1970	4		14		AR	311	4.0 vol %
C-106	1970	4	145	52				unk gain
C-106	1971	1	150					
C-106	1972	2		6		AR	151	4.0 vol%
C-106	1972	2	125	-26	64	AR		unk loss, more AR cascaded from C--103
C-106	1974	4		20		BL	789	2.50 vol %
C-106	1974	4	106	-39				unk loss
C-106	1976	2		54	20	BL	2148	2.50 vol %
C-106	1977	1	145					

Tank	Year	Qtr	Meas. solids	Solids change	Pred layer	Layer type	Waste volume	comments
C-106	1977	4	156					
C-106	1978	4	142	-18				unk loss
C-106	1979	1	197	55				unk gain
C-106	1993	2	197		32	(BL)		unk assign to BL
C-106	1993	4	197		32	(AR)		unk assign to AR
C-107	1948	3		218	218	1C1	1588	13.7 vol%
C-107	1952	1	399	181				unknown gain
C-107	1953	1					-29	SL C-108
C-107	1953	3		6		UR	211	2.8 vol %
C-107	1956	4	375	-30				unknown loss
C-107	1962	2		40	37	CWP2	1370	2.9 vol %
C-107	1963	2	321					
C-107	1965	2	225	-202				unk loss
C-107	1966	1	255					
C-107	1967	4		5		HS	242	2 vol%
C-107	1970	2	200					1C measurement problems
C-107	1970	3	195					1C measurement problems
C-107	1971	2	197					1C measurement problems
C-107	1972	3	206					1C measurement problems
C-107	1974	4	191					1C measurement problems
C-107	1977	4	296					1C measurement problems
C-107	1978	1	337	20	20	SRR	393	5 vol %, Sr solids reported in Welty,
C-107	1993	2	275					
C-107	1993	4	275	25				unk gain
C-108	1952	2		25	25	1C1		cascaded solids
C-108	1952	2	34	9	4	(1C1)		unk assign to 1C1
C-108	1953	2		25	25	UR	902	2.8 vol %
C-108	1957	4	79	16	12	TFeCN	1134	1.4 vol %
C-108	1961	2		15		CWP2	502	2.9 vol %
C-108	1965	2		3		HS	142	2 vol%, also known as HS
C-108	1965	2	98	5				unk gain
C-108	1970	2	95					
C-108	1970	3	69					
C-108	1972	3	76					
C-108	1974	4	65					
C-108	1993	2	66					
C-108	1993	4	66	-32				loss to C-102,C-103, and/or C-104
C-109	1952	2	10	10	10	1C1		Cascaded solids

Tank	Year	Qtr	Meas. solids	Solids change	Pred layer	Layer type	Waste volume	comments
C-109	1956	4		14		TFeCN	995	1.4 vol %
C-109	1957	1	35	11				unk gain
C-109	1957	2		9		TFeCN	586	1.4 vol %
C-109	1957	2	51	7				unk gain
C-109	1957	3		13		TFeCN	949	1.4 vol %
C-109	1957	3	35	-29				loss to CRIB
C-109	1957	3		6	42	TFeCN	448	1.4 vol%
C-109	1957	4	90	49				unk gain
C-109	1964	2		3	7	HS	133	2 vol %, also known as HS
C-109	1965	2	79	-14				unk loss
C-109	1970	2	106					
C-109	1970	3	95					
C-109	1974	4	79					
C-109	1975	4	62					
C-109	1993	2	62					
C-109	1993	4	62	-17	3	(TFeCN)		assign to TFeCN, solids loss to C-103
C-110	1947	2		218		1C1	1589	13.7 vol%
C-110	1952	2	231					ignore, 1C measurment probably
C-110	1952	4		9		UR	307	2.8 vol %
C-110	1956	4		2		OWW1	360	0.6 vol%
C-110	1963	2	230	-12				unk loss
C-110	1965	2	191					problems w/ 1C1 solids measurements
C-110	1970	2	211					
C-110	1970	3	189					
C-110	1972	3	183					
C-110	1974	1	200					
C-110	1974	4	211					Poss UR remnant
C-110	1993	2	187					
C-110	1993	4	187	-43	187	1C1		unk loss
C-111	1952	2	36	36	36	1C1		UR settled on bottom
C-111	1952	4				UR	990	2.8 vol % No solids from UR
C-111	1956	1		5	5	TFeCN	397	1.4 vol %
C-111	1956	4		0		OWW1	17	0.6 vol%
C-111	1957	1		27	16	CWP1	339	8.1 vol %
C-111	1957	2	13					ignore solids reading
C-111	1957	3	54					ignore solids readings
C-111	1957	4		36		TFeCN	2554	1.4 vol %
C-111	1960	4		1		CWP1	8	8.1 vol %,unknown solids loss
C-111	1960	4	95	-10				

Tank	Year	Qtr	Meas. solids	Solids change	Pred layer	Layer type	Waste volume	comments
C-111	1964	2		5		HS	228	2 vol%
C-111	1965	2	81					unknown loss
C-111	1970	2	96					
C-111	1970	3	92					washed out
C-111	1972	2	76					
C-111	1974	4	62					
C-111	1993	2	57					
C-111	1993	4	57	-43				solids loss to C-104 and C-103, lost 12HS,29TFeCN, and 11CWP
C-112	1952	2	15	15	15	1 C1		
C-112	1954	3				UR	321	5.0 vol %, No solids from UR ?
C-112	1955	2	17					ignore
C-112	1956	4		25		TFeCN	1811	1.4 vol %
C-112	1956	4	39	-1				unknown loss
C-112	1957	2	21					ignore
C-112	1957	3	39					ignore solids volume
C-112	1957	4		38	68	TFeCN	2728	1.4 vol %
C-112	1958	1	46					ignore
C-112	1960	4		13	13	CWP1	166	8.1 vol %
C-112	1961	2		3	3	CWP2	88	2.9 vol %
C-112	1962	2		1	1	HS	63	2 vol%
C-112	1965	2	128	34				unknown gain
C-112	1970	2	138					
C-112	1970	3	136					
C-112	1972	3	120					
C-112	1974	4	128					
C-112	1975	4	109					
C-112	1993	2	104					
C-112	1993	4	104	-24	4	(TFeCN)		Unk loss to C-103, unk assign to TFeCN
C-201	1948	1		26		MW	220	12 vol %
C-201	1954	1	0	-26				
C-201	1954	4					-53	SL C-204
C-201	1955	4		1	1	HS	57	2 vol%, also known as SSW
C-201	1970	1	1					
C-201	1974	4	0					
C-201	1993	2	2					
C-201	1993	4	2	2	1	MW		MW heel
C-202	1954	1	0	0				

Tank	Year	Qtr	Meas. solids	Solids change	Pred layer	Layer type	Waste volume	comments
C-202	1956	2		1	1	HS	55	2 vol%, also known as SSW
C-202	1980	3	1					
C-202	1993	2	1					
C-202	1993	4	1	1				
C-203	1954	1	0					
C-203	1956	4	1		1	HS	30	2 vol%, also known as SSW
C-203	1969	4	0	0				
C-203	1970	1	5					
C-203	1972	1	3		2	MW		MW heel
C-203	1977	4	4					
C-203	1980	3	5					
C-203	1993	2	5					
C-203	1993	4	5	5	2	(MW)		unk assign to MW heel
C-204	1948	1			2	MW		MW heel
C-204	1954	1	11	11				
C-204	1954	4					53	SL C-201
C-204	1954	4	11				-53	SL UR
C-204	1955	1	0					
C-204	1956	2		1	1	HS	34	2 vol%, also known as SSW
C-204	1961	4	0					
C-204	1962	2	11					
C-204	1970	1	2					
C-204	1972	1	1					
C-204	1974	4	0					
C-204	1980	3	1					
C-204	1993	2	3					
C-204	1993	4	3	-8				

Appendix D.

SMM / TLM Volumes Tables
March 1996

The SMM (Supernatant Mixing Model) provides a description of each tank's free supernatant and supernatant concentrate based on a linear combination of Hanford Defined Waste (HDW) supernatants. The output of the SMM is an table whose column are the HDW's and whose rows are the tanks and processes that hold HDW inventory. The fill of the array are composition row vectors for each tank or process and are all given in kgal (1 kgal = 1,000 gal) of original HDW. The row sum of this table represents a total volume that is usually greater than the actual volume of free supernatant or concentrate within each tank. This difference is because of active evaporation or dilution of waste sometime during its history.

The TLM table correspondingly provides composition row vectors for the TLM sludges for each tank. In contrast to the SMM, the row sum of a tank's HDW sludges does equal the total volume of the sludges predicted by the TLM. This value may be still be different from the actual solids level reported for a tank because the salt cakes from later evaporator campaigns are treated as concentrates and therefore predicted by the SMM.

The tank composition table provides a description of each tank's SMM composition in terms of per cent of HDW supernatants in rows that sum to 100%. The HDW distribution table gives per cent distribution of each HDW supernatant in columns summing to 100%.

SMM Rev. 3

TLM Rev. 3

Table D1. Descriptions of SMM Tables' Columns

Column Headings	Descriptions
Columns 2-67 (B-BO)	assigned to Defined Waste Columns
Columns 68-71 (BP-BS)	auxiliary waste definitions
assume	original concentration volume of waste from assumed transactions
smmvol	original concentration volume of HDW wastes in the tank or that went to a secondary process or crib
supvol	kgals of supernatant in the tank or that went to process or crib
tlmvol	kgals of TLM residual solids predicted in the tank
tankvol	total volume in kgals of waste in the tank
traffic	total traffic for a tank or process year to date
assume trfc	total traffic from assumed transactions for a tank or process year to date
Max. TOC wt%	maximum TOC wt% experienced by the tank for all of its history
date of Max. TOC	date when maximum TOC wt% occurred
TOC wt% now	present TOC wt% in the tank
Max. Haz. Index	maximum Hazard Index experienced by the tank for all of its history
Haz. Ind. now	present Hazard Index now

WSTRS3.45b	MW1	MW2	1C1	1C2	2C1	2C2	224	UR/TBP	PFeCN1	PFeCN2	TFeCN	1CFeCN	R1	R2	CWR1	CWR2	P1	P2	P2'	PL1	CWP1	CWP2
A-101	0.6	0.2	3.2	13.8	0.0	4.5	2.8	43.6	5.0	5.8	3.8	1.8	226.4	26.0	42.3	25.7	59.1	30.6		8.1	33.3	144.4
A-102	0.0	0.0	0.1	0.2	0.0	0.1	0.1	0.8	0.1	0.1	0.1	0.0	4.1	0.5	0.8	0.5	1.0	0.5		0.2	0.6	2.8
A-103	0.2	0.1	1.2	5.1	0.0	1.7	1.1	16.5	1.9	2.3	1.5	0.7	84.3	9.7	15.7	9.6	21.8	11.5		3.1	13.3	56.9
A-104																						
A-105	0.0		0.0	0.0	0.0	0.0		0.0	0.0		0.0						0.0	0.0		0.0	0.0	0.0
A-106	0.1	0.0	0.4	1.8	0.0	0.6	0.4	5.6	0.6	0.6	0.4	0.2	32.1	3.5	6.0	3.5	8.4	4.1		0.9	3.5	18.0
AX-101	0.5	0.1	2.5	10.7	0.0	3.5	2.2	34.4	3.9	4.8	3.1	1.4	176.2	20.2	32.8	20.0	45.6	23.9		6.5	27.6	118.3
AX-102	0.0	0.0	0.2	0.7	0.0	0.2	0.1	2.1	0.2	0.2	0.2	0.1	12.2	1.3	2.3	1.3	3.2	1.6		0.3	1.4	6.3
AX-103	0.1	0.0	0.3	1.4	0.0	0.5	0.3	4.4	0.5	0.6	0.4	0.2	23.0	2.6	4.4	2.6	6.3	3.2		0.7	3.4	14.5
AX-104																						
B-101																						
B-102	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.1	0.5
B-103	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.1	0.3
B-104			0.0	0.0	0.0	0.0		0.0														
B-105	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
B-106	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.2
B-107	0.0		0.0	0.0	0.0	0.0		0.0	0.0		0.0						0.0	0.0			0.0	0.2
B-108	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
B-109																						
B-110																						
B-111	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0						0.0	0.0			0.0	0.0
B-112	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
B-201																						
B-202							7.7															
B-203							0.0															
B-204							0.0															
BX-101																						
BX-102	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.2						0.0	0.0			1.7	4.9
BX-103	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.2
BX-104	0.1	0.0	0.3	1.3	0.0	0.4	0.3	4.0	0.5	0.4	0.3	0.2	21.9	2.8	4.0	2.5	4.2	2.2		0.8		10.8
BX-105	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	1.6	0.2	0.3	0.2	0.3	0.2		0.1		0.8
BX-106	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1		0.0	0.3	1.0
BX-107	0.0	0.0	0.0	0.0	0.0	0.0		0.2	0.0	0.0	0.0						0.0	0.0			0.0	0.0
BX-108																						
BX-109	0.0		0.0	0.0				0.0	0.0	0.0	0.0						0.0				0.0	0.0
BX-110	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
BX-111	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
BX-112	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.1	0.5
BY-101																						
BY-102	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1		0.0	0.2	0.5
BY-103																						
BY-104																						
BY-105																						
BY-106																						
BY-107	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
BY-108	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
BY-109																						
BY-110	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
BY-111																						
BY-112	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
C-101																						

WSTRS3.45b	MW1	MW2	1C1	1C2	2C1	2C2	224	UR/TBP	PFeCN1	PFeCN2	TFeCN	1CFeCN	R1	R2	CWR1	CWR2	P1	P2	P2'	PL1	CWP1	CWP2
C-102	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0						0.0	0.0			0.0	0.0
C-103	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.1	0.4	0.0	0.1	0.0	0.3	0.0	0.6	0.4		0.1	2.6	5.4
C-104	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	1.0	0.1	0.2	0.1	0.3	0.1		0.0	0.1	0.6
C-105	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
C-106	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0						0.0	0.0		0.0	0.0	0.0
C-107																						
C-108																						
C-109																						
C-110	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0						0.0	0.0		0.0	0.0	0.0
C-111			0.0					0.0			0.0										0.0	
C-112	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0						0.0	0.0		0.0	0.0	0.0
C-201																						
C-202																						
C-203																						
C-204																						
S-101	0.3	0.1	1.3	5.1	0.0	1.8	1.0	16.0	1.8	1.8	1.2	0.7	100.4	11.0	18.5	10.1	15.7	8.4		2.5	10.0	45.8
S-102	0.6	0.2	2.8	13.5	0.0	4.7	2.7	39.3	4.5	3.8	2.6	1.8	230.8	25.6	42.7	25.6	38.0	20.0		5.5	20.8	100.7
S-103	0.4	0.1	1.8	9.4	0.0	3.4	2.0	26.5	3.0	2.5	1.7	1.2	140.2	16.6	26.4	17.2	25.2	13.4		3.5	13.8	67.0
S-104													0.0		0.0	0.0						
S-105	0.3	0.1	1.3	6.4	0.0	4.8	0.0	21.5	2.7	1.1	1.0	1.2	506.8	18.6	66.7	18.6	19.1	10.8		1.6	6.7	41.7
S-106	0.3	0.1	1.2	5.6	0.0	4.7	0.0	19.7	2.5	1.2	1.0	1.1	459.4	24.2	56.5	17.6	24.5	10.6		5.0	7.4	46.6
S-107	0.1	0.0	0.5	2.4	0.0	0.7	0.5	7.0	0.8	0.7	0.5	0.3	36.7	4.5	6.8	4.4	7.5	3.9		1.4	4.1	19.2
S-108	0.4	0.1	1.7	8.1	0.0	6.5	0.0	28.0	3.5	1.4	1.3	1.6	632.2	31.7	85.7	25.5	24.7	14.7		3.1	8.8	55.4
S-109	0.4	0.1	1.6	7.7	0.0	6.2	0.0	26.7	3.3	1.5	1.3	1.5	585.5	32.2	80.3	24.3	23.7	14.2		4.1	9.1	56.6
S-110	0.2	0.1	1.0	4.1	0.0	2.2	0.4	14.4	1.9	2.4	1.3	0.7	182.1	12.9	24.9	10.2	18.0	9.0		3.5	12.8	58.4
S-111	0.4	0.1	1.9	8.1	0.0	5.2	1.1	28.0	3.4	2.5	1.8	1.4	464.7	29.0	62.2	22.1	32.4	15.4		6.5	16.0	76.7
S-112	0.4	0.1	1.8	8.5	0.0	6.8	0.0	29.6	3.7	1.5	1.4	1.7	664.6	33.5	90.1	26.9	26.2	15.5		3.3	9.6	59.4
SX-101	0.1	0.0	0.4	2.0	0.0	0.7	0.4	6.0	0.7	0.6	0.4	0.3	38.9	4.0	6.9	3.9	5.8	3.1		0.9	3.2	15.4
SX-102	0.8	0.2	3.9	18.4	0.0	5.5	4.8	57.0	6.5	6.5	4.3	2.5	276.1	36.6	51.3	34.8	54.4	30.1		6.9	36.1	165.2
SX-103	0.9	0.3	4.2	22.9	0.0	6.7	7.2	66.7	7.6	6.5	4.4	3.0	271.6	39.2	53.8	41.3	62.4	33.4		8.2	35.1	167.7
SX-104	0.7	0.2	3.4	14.2	0.0	4.7	2.9	44.0	5.1	4.9	3.3	2.0	258.7	29.3	47.6	27.5	42.9	23.1		7.3	27.7	126.6
SX-105	1.0	0.2	4.8	19.7	0.0	6.7	5.2	62.0	7.1	7.2	4.8	2.7	370.7	42.3	66.8	38.2	60.8	32.9		10.9	41.5	185.2
SX-106	0.8	0.2	3.6	19.3	0.0	6.9	4.0	54.0	6.2	5.2	3.6	2.5	281.6	33.7	53.4	35.0	51.4	27.3		7.1	28.0	136.2
SX-107													2.2	5.3	0.0							
SX-108													10.1	13.5	0.0							
SX-109													7.6	6.0								
SX-110																						
SX-111	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0		0.0	0.0	0.2
SX-112													0.5	47.2	0.0							
SX-113													13.4									
SX-114	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	2.0	0.0	0.0	0.0	0.0		0.0	0.0	0.4
SX-115																						
U-101																						
U-102	0.6	0.2	2.7	13.6	0.0	3.9	3.2	40.3	4.7	3.8	2.6	1.9	156.4	23.4	35.8	27.7	40.3	21.2		5.1	20.4	102.0
U-103	0.9	0.2	4.0	17.3	0.0	4.5	3.2	51.3	5.8	4.8	3.3	2.3	205.8	29.7	48.5	31.7	47.4	25.3		6.4	26.1	125.5
U-104	0.1	0.3	0.4	2.1	0.0	2.3	0.0	9.3	2.2	0.4	0.1	1.4	21.7	6.2	24.7	29.1	33.2	14.9			2.4	45.5
U-105	0.8	0.2	3.7	16.5	0.0	4.4	3.4	48.8	5.5	4.7	3.2	2.2	199.1	28.5	45.0	30.1	45.4	24.3		6.5	25.5	122.0
U-106	0.3	0.1	1.4	5.8	0.0	2.0	2.0	19.0	2.2	2.5	1.6	0.8	114.0	13.1	19.1	11.3	18.7	10.6		4.7	14.5	63.3
U-107	0.5	0.1	2.3	12.2	0.0	4.3	2.6	34.4	4.0	3.3	2.3	1.6	178.6	21.5	33.9	22.2	32.8	17.4		4.6	18.0	87.2
U-108	0.6	0.2	3.1	11.8	0.0	4.2	3.3	39.3	4.5	5.1	3.3	1.7	257.9	28.7	43.4	23.8	39.6	21.6		7.9	30.0	128.9
U-109	0.9	0.2	3.9	12.6	0.0	4.5	2.9	42.6	4.9	5.4	3.5	2.0	273.1	34.4	46.7	26.6	45.2	24.4		9.4	31.6	137.6

WSTRS3.45b	MW1	MW2	1C1	1C2	2C1	2C2	224	UR/TBP	PFeCN1	PFeCN2	TFeCN	1CFeCN	R1	R2	CWR1	CWR2	P1	P2	P2'	PL1	CWP1	CWP2
U-110																						
U-111	0.3	0.1	1.4	7.0	0.0	2.4	1.5	20.5	2.4	2.0	1.3	0.9	116.9	13.2	21.9	13.4	19.8	10.5		2.9	10.7	52.0
U-112																						
U-201	0.0		0.0										0.0		0.0							
U-202																						
U-203	0.0		0.1										1.5		1.0							
[illegible]																						
	0.0	0.0	0.1	1.4	0.0	0.9	3.1	2.6	0.3	0.2	0.1	0.1	4.0	1.3	1.4	1.6	2.2	1.1		0.2	0.8	4.7
[illegible]																						
T-103	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
T-104	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.6	0.1	0.1	0.1	0.1	0.1		0.0	0.1	0.3
T-105																						
T-106																						
T-107																						
T-108																						
T-109																						
T-110					0.0	1.7	0.0															
T-111					0.0	0.5	0.0															
T-112																						
T-201																						
T-202																						
T-203																						
T-204																						
TX-101	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.6	0.1	0.1	0.0	0.0	4.4	0.4	0.7	0.4	0.6	0.3		0.1	0.3	1.5
TX-102	0.3	0.1	1.6	11.4	0.0	1.9	0.0	32.1	3.6	2.1	1.6	1.4	43.3	14.2	16.1	19.9	26.2	14.1		1.6	10.0	56.6
TX-103	0.1	0.1	0.6	5.5	0.0	2.1	1.6	12.5	1.4	0.8	0.6	0.6	19.3	5.7	6.7	8.2	10.8	5.6		0.7	4.0	23.0
TX-104	0.1	0.0	0.3	2.3	0.0	0.4	0.0	6.5	0.7	0.4	0.3	0.3	10.3	2.9	3.3	4.0	5.6	2.9		0.5	2.0	11.5
TX-105	1.1	0.5	5.1	34.7	0.0	5.9	0.0	98.9	11.5	7.0	5.3	4.6	136.9	45.5	51.4	63.7	81.1	43.5		2.9	32.7	183.5
TX-106	0.5	0.2	2.5	17.7	0.0	3.0	0.0	50.1	5.6	3.3	2.5	2.3	74.9	22.4	25.4	31.3	42.2	21.9		2.8	15.6	88.6
TX-107	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.7	0.1	0.0	0.0	0.0	1.2	0.3	0.4	0.5	0.6	0.3		0.1	0.2	1.3
TX-108	0.2	0.1	0.8	5.3	0.0	0.9	0.0	15.1	1.7	1.0	0.8	0.7	22.3	6.8	7.8	9.7	12.8	6.6		0.6	4.7	27.1
TX-109	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
TX-110	0.7	0.3	3.2	23.0	0.0	3.8	0.0	64.9	7.2	4.3	3.3	2.9	93.6	28.8	32.8	40.5	53.5	28.2		3.3	20.3	115.1
TX-111	0.5	0.2	2.4	17.5	0.0	2.9	0.0	49.3	5.5	3.2	2.5	2.2	72.5	21.9	24.9	30.7	41.0	21.5		2.8	16.3	87.1
TX-112	1.2	0.5	5.7	36.5	0.0	6.4	0.0	102.5	12.6	8.4	6.5	5.0	144.5	46.0	57.5	70.9	88.6	48.5		2.6	39.2	214.7
TX-113	1.1	0.5	4.7	28.3	0.0	5.8	0.0	74.2	8.6	4.6	3.4	4.1	106.5	28.7	56.1	67.3	81.1	39.8		1.7	22.3	155.5
TX-114	1.2	0.5	5.4	34.4	0.0	5.8	0.0	89.4	9.7	5.9	4.5	4.3	119.4	34.3	53.8	65.2	79.7	40.5		2.1	28.2	172.2
TX-115	1.2	0.6	5.4	35.4	0.0	7.0	0.0	97.3	11.5	6.4	4.7	5.1	137.6	41.6	64.6	78.8	97.5	49.6		2.5	30.5	194.0
TX-116	0.2	0.3	1.0	7.9	0.0	7.4	0.0	29.3	5.1	0.6	0.1	4.2	45.9	16.0	35.5	38.8	45.2	20.4			3.2	51.7
TX-117	0.4	0.5	1.7	[illegible]	0.0	12.3	0.0	49.9	8.8	1.4	0.3	7.2	83.4	26.6	72.1	86.1	109.9	49.6		0.3	7.8	105.0
TX-118	0.2	0.1	0.9	6.7	0.0	2.7	0.7	15.4	1.8	1.1	0.8	0.7	47.3	8.0	11.4	10.4	13.8	7.2		1.2	5.7	31.4
TY-101	0.0		0.0	0.0	0.0			0.0	0.0			0.0	0.0	0.0	0.0	0.0						
TY-102	0.1	0.0	0.2	1.6	0.0	0.3	0.0	5.0	0.5	0.3	0.2	0.2	7.3	2.2	2.5	3.1	4.1	2.1		0.2	1.5	8.7
TY-103	0.1	0.0	0.4	2.2	0.0	0.4	0.0	6.3	0.8	0.4	0.3	0.3	8.9	2.8	3.7	4.5	5.5	2.9		0.2	2.0	12.1
TY-104																						
TY-105								97.3														
TY-106																						
AN-101	0.2	0.1	0.9	3.8	0.0	10.0	0.3	13.9	1.7	1.3	0.8	0.7	258.0	12.4	34.9	11.0	13.0	7.6		1.6	7.8	42.8
AN-102	1.0	0.3	5.0	22.3	0.0	15.5	4.1	71.4	8.3	8.9	5.8	3.3	380.3	42.8	73.1	46.4	94.9	49.1		12.1	50.9	229.7
AN-103	0.6	0.3	3.3	16.0	0.0	22.8	2.0	62.0	6.8	7.9	4.6	2.9	283.6	30.7	58.5	41.2	65.8	35.8		6.4	43.0	208.1
AN-104	0.7	0.2	3.2	16.8	0.0	8.5	2.1	51.3	6.0	5.4	3.6	2.5	219.7	28.5	47.2	35.4	60.7	31.3		6.4	29.5	142.0

WSTRS3.45b	MW1	MW2	1C1	1C2	2C1	2C2	224	UR/TBP	PFeCN1	PFeCN2	TFeCN	1CFeCN	R1	R2	CWR1	CWR2	P1	P2	P2'	PL1	CWP1	CWP2
AN-105	1.4	0.6	6.8	37.9	0.0	22.9	3.5	118.2	13.8	10.5	7.0	6.3	414.7	60.9	102.5	86.4	135.2	68.9		11.4	56.6	293.6
AN-106	0.0	0.0	0.1	0.3	0.0	0.1	0.1	1.0	0.1	0.1	0.1	0.0	5.5	0.6	1.1	0.7	1.5	0.7		0.2	0.6	2.9
AN-107	0.5	0.2	2.9	13.1	0.0	4.0	1.7	43.6	5.0	6.5	4.1	1.8	144.3	20.7	32.9	25.5	58.4	31.4		6.2	37.3	157.7
AP-101	0.0	0.0	0.2	0.7	0.0	0.4	0.2	3.1	0.3	0.3	0.2	0.1	10.0	1.2	2.0	1.3	2.4	1.3		0.3	1.9	8.4
AP-102	0.6	0.2	2.7	12.5	0.0	4.1	2.3	38.8	4.4	4.1	2.8	1.7	204.5	23.3	39.0	24.2	55.2	26.9		5.7	22.9	106.8
AP-103	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.7	0.1	0.1	0.0	0.0	2.5	0.3	0.5	0.3	0.6	0.3		0.1	0.4	1.9
AP-104																						
AP-105	0.3	0.1	1.5	6.7	0.0	4.0	1.8	31.3	2.6	3.4	2.0	1.0	102.7	11.8	20.3	13.8	24.0	13.4		2.9	18.9	84.7
AP-106	0.1	0.0	0.6	2.4	0.0	1.5	0.6	11.3	0.9	1.2	0.7	0.4	37.3	4.3	7.4	5.0	8.7	4.9		1.1	6.8	30.4
AP-107																						
AP-108	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.5	0.1	0.1	0.1	0.1	0.1		0.0	0.1	0.3
AW-101	0.7	0.3	3.9	17.7	0.0	14.6	2.7	82.6	7.5	10.6	6.1	2.8	292.2	32.5	58.5	40.4	69.7	39.6		7.8	56.0	263.6
AW-102	0.2	0.1	1.2	14.0	0.0	2.9	1.3	23.7	2.0	2.4	1.5	0.8	87.5	10.6	16.4	10.8	18.2	10.1		2.4	13.7	61.9
AW-103	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.1
AW-104	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.1
AW-105	0.1	0.0	0.5	2.2	0.0	1.5	0.4	11.5	0.9	1.1	0.7	0.3	33.9	3.9	6.8	4.6	8.1	4.5		0.9	6.4	28.6
AW-106	0.2	0.1	1.3	5.7	0.0	3.2	1.4	28.2	2.2	2.6	1.6	0.9	99.5	14.3	18.5	11.8	19.8	11.0		2.5	14.8	67.2
AY-101	0.0	0.0	0.3	1.0	0.0	0.5	0.5	8.0	0.5	1.0	0.5	0.3	16.1	7.3	3.2	2.2	4.6	3.3		0.5	5.1	21.6
AY-102	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.1
AZ-101	0.0	0.0	0.2	0.7	0.0	0.2	0.1	2.3	0.3	0.3	0.2	0.1	11.5	1.4	2.2	1.4	2.9	1.5		0.4	1.6	7.0
AZ-102	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.3	0.0	0.1	0.1	0.1	0.1		0.0	0.1	0.3
SY-101	2.1	0.6	9.9	47.9	0.0	14.7	11.2	141.6	16.2	14.7	9.9	6.3	672.7	87.7	132.4	88.1	137.0	73.5		21.6	80.4	377.7
SY-102	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
SY-103	1.0	0.3	4.6	23.1	0.0	8.0	4.7	66.6	7.6	6.9	4.6	3.0	352.2	41.7	66.2	42.4	66.9	35.5		9.9	37.7	178.2
COND																						
CRIB	343.2	1.2	5818.7	6365.9	8174.2	21083.5	1463.9	1684.0	11343.2	18165.3	10413.3	2531.8					32.8				276.1	
CSR	0.0	0.0	4.7	3.4	0.4	71.1	0.0	270.1	56.9	23.5	5.7	3.9	2736.9	1818.2	15.7	25.1	20289.0	5954.9		625.3	259.6	1431.0
GROUT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.4	0.0	0.1	0.1	0.1	0.0		0.0	0.1	0.3
LEAK	92.0	0.0	14.1	5.4	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	132.5	68.0	6.0	38.0	0.9	0.4		0.0	0.0	0.6
PCOND																						
R202S													364.5	236.3	4.5	15.3						
RCOND																						
SRR	0.0	0.0	0.2	0.0	0.0	1.8		3.8	0.8	2.0	0.3						440.9	146.8		9.7	4.9	51.9
TFeCN	41.9		313.8	152.0	8.5	413.3		5349.3	1142.8		576.7										102.0	
UNK	0.0		0.5	0.3	0.1	13.3		25.8	2.4		0.0						2753.5	1160.8		145.7	19.7	186.8
UR	22823.5	12048.5	165.7	656.7	7.5			1007.3	787.8	106.8												
VENT																						
A1COND																						
A2COND																						
BCOND																						
BYCOND																						
S1COND																						
S2COND																						
T1COND																						
T2COND																						
A1-in	21.4	6.6	166.7	629.4	0.2	181.8	81.7	2230.3	240.1	493.1	267.4	67.5	6085.8	852.4	1314.1	960.2	3485.7	1942.4		383.5	2702.2	10849.5
A2-in																						
B-in			23872.7	9449.4	1112.5	1317.3		9560.0														
BY-in	4.7	1.1	235.7	52.5	0.4	44.6	3.3	1187.4	444.8	2152.9	1527.0	0.8	18.9	8.8	10.9	13.3	1952.2	1546.0		75.4	8071.9	28008.0
S1-in	154.3	45.7	708.0	3125.3	0.6	1830.5	338.4	10549.2	1282.8	943.5	676.1	541.4	189954.1	9695.0	24305.1	8555.9	10884.4	5759.5		1760.6	5583.4	28012.5
S2-in	84.1	21.9	375.3	1764.6	0.3	515.8	347.4	5150.9	586.0	485.3	334.9	231.6	23425.6	3075.8	4949.8	3246.9	4821.1	2568.6		672.6	2615.9	12686.5

WSTRS3.45b	MW1	MW2	1C1	1C2	2C1	2C2	224	UR/TBP	PFeCN1	PFeCN2	TFeCN	1CFeCN	R1	R2	CWR1	CWR2	P1	P2	P2'	PL1	CWP1	CWP2
T1-in	1434.8		20847.2	10846.9	962.5			9005.8				160.5										
T2-in	613.1	294.7	2813.3	19138.2	2.2	5259.5	2.2	57788.1	8049.4	3451.0	2500.0	3608.1	86582.6	27489.5	39863.7	49900.5	66816.5	33258.9		1249.0	16559.5	104431.9
STATLOSS																						
B-bot	8.7		1848.1	1143.9	76.5	384.3		4481.8	172.2													
BY-bot	1.6	0.5	73.9	38.0	0.2	19.8	5.5	513.2	145.4	711.0	417.5	2.4	123.9	29.7	38.5	37.1	679.8	712.4		159.8	3714.8	13313.3
S1-bot																						
S2-bot																						
T1-bot	319.3		1846.8	2246.0	78.7			6473.1				1033.4										
T2-bot																						
A1-bot																						
R-bot	0.0	0.0	0.7	0.6	0.0	0.1		5.7	1.8	6.2	6.2	0.1	8534.6	6712.3	460.1	435.3	7.6	3.7		1.8	30.4	243.6
swpump	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0

WSTRS3.45b	CWZr1	OWW1	OWW2	OWW3	Z	HS	TH1	TH2	AR	B	BL	SRR	SRR'	CSR	DE	CEM	NIT	Salt Slurry	DW	N	B'	B-SltCk	BL'	T1-SltCk
A-101	8.5	12.4	24.9	52.4	37.1	8.8	2.5	5.6	93.8	33.0	217.7	163.3		426.3			14.7		127.3	44.2		13.5		79.2
A-102	0.2	0.2	0.4	1.0	0.7	0.2	0.0	0.1	2.0	0.6	4.2	3.4		8.0			0.3		2.3	0.8		0.3		1.4
A-103	3.2	4.7	9.1	20.7	13.8	3.6	1.0	2.2	40.6	13.2	86.9	69.7		165.3			5.5		47.4	16.6		5.3		29.4
A-104																								
A-105		0.0	0.0	0.0						0.0	0.0			0.0					0.0			0.0		
A-106	1.2	1.7	3.6	5.8	4.8	0.9	0.3	0.6	5.5	3.0	21.8	12.0		50.8			2.3		16.5	5.5		1.4		10.7
AX-101	6.6	9.7	19.0	43.0	28.8	7.3	2.0	4.6	85.0	25.3	178.8	142.2		342.8			11.5		99.3	34.7		11.0		61.5
AX-102	0.4	0.6	1.4	2.3	1.8	0.4	0.1	0.2	2.5	2.7	8.8	5.3		19.8			0.9		6.3	2.1		0.6		4.0
AX-103	0.9	1.3	2.7	5.3	3.7	0.9	0.2	0.6	8.1	2.5	28.2	15.5		43.4			1.6		12.6	4.2		1.3		8.1
AX-104																								
B-101																								
B-102	0.0	0.0	0.0	0.2		0.0	0.0	0.0	0.0	0.0	0.0			0.3					0.0	0.0		0.4		0.0
B-103	0.0	0.0	0.0	0.1		0.0	0.0	0.0	0.0	0.0	0.1			0.3					0.0	0.0		0.2		0.0
B-104																						5.2		
B-105	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0					0.0	0.0		0.0		0.0
B-106	0.0	0.0	0.0	0.1		0.0	0.0	0.0	0.0	0.0	0.0			0.1					0.0	0.0		0.3		0.0
B-107		0.0																				0.0		
B-108	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0					0.0	0.0		0.0		0.0
B-109																								
B-110																								
B-111		0.0	0.0	0.0		0.0	0.0			0.0	0.0			0.0					0.0			0.0		
B-112	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0					0.0	0.0		0.0		0.0
B-201																								
B-202										7.2									21.3					
B-203																			0.0					
B-204																			0.9					
BX-101																								
BX-102		0.0	0.0	3.8		1.0	0.0			1.7	0.2			2.3					0.0			0.0		
BX-103	0.0	0.0	0.0	0.1		0.0	0.0	0.0	0.2	0.0	0.2	0.1		1.1					0.0	0.0		0.0		0.0
BX-104	0.8	0.9	1.6	3.8	3.8	0.5	0.2	0.4	4.6	0.9	15.0	8.4		35.7			1.3		12.7	4.5		1.1		7.8
BX-105	0.1	0.1	0.1	0.3	0.3	0.0	0.0	0.0	0.4	0.1	1.1	0.7		2.6			0.1		0.9	0.3		0.1		0.5
BX-106	0.0	0.0	0.1	0.4		0.1	0.0	0.0	0.8	0.1	0.6	0.4		0.6					0.0	0.0		0.1		0.0
BX-107		0.0	0.0			0.0	0.0							0.7					0.0			0.0		
BX-108																								
BX-109		0.0												0.0										
BX-110	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0					0.0	0.0		0.0		0.0
BX-111	0.0	0.0	0.0	0.2		0.0	0.0	0.0	0.1	0.0	0.1	0.1		0.3					0.0	0.0		0.0		0.0
BX-112	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.1	0.0	0.1	0.1		0.1					0.0	0.0		0.0		0.0
BY-101																								
BY-102	0.0	0.0	0.1	0.2		0.0	0.0	0.0	0.9	0.1	0.7	1.1		0.9					0.0	0.0		0.0		0.0
BY-103																								
BY-104																								
BY-105																								
BY-106																								
BY-107	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0					0.0	0.0		0.0		0.0
BY-108	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0					0.0	0.0		0.0		0.0
BY-109																								
BY-110	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0		0.0	0.0		0.0		0.0
BY-111																								
BY-112	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0					0.0	0.0		0.0		0.0
C-101																								

WSTRS3.45b	CW2r1	OWW1	OWW2	OWW3	Z	HS	TH1	TH2	AR	B	BL	SRR	SRR'	CSR	DE	CEM	NIT	Salt Slurry	DW	N	B'	B-SltCk	BL'	T1-SltCk
C-102		0.0	0.0	0.0		0.0	0.0			0.0				0.0					0.0			0.0		
C-103	0.0	0.2	0.3	2.8	0.0	2.2	0.1	0.1	3.9	0.4	4.5	37.0		9.2			0.0		0.5	0.8		0.2		0.1
C-104	0.0	0.1	0.1	0.2	0.2	0.1	0.0	0.0	0.2	0.1	0.8	0.8		1.7			0.1		0.5	0.2		0.0		0.3
C-105	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0		0.0	0.0		0.0		0.0
C-106		0.0	0.0	0.0		0.0	0.0		0.0	0.0	5.0			0.0					0.0			0.0		
C-107												1.1												
C-108																								
C-109																								
C-110		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0			0.0					0.0			0.0		
C-111		0.0				0.0																		
C-112		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0			0.0					0.0			0.0		
C-201																								
C-202																								
C-203						0.9																		
C-204						38.5																		
S-101	3.3	3.5	5.6	16.2	13.4	2.5	0.7	1.7	3.8	2.5	52.8	16.5		160.3			6.0		49.6	20.7		5.0		30.7
S-102	8.5	8.1	14.1	36.4	35.4	4.7	1.6	3.9	11.3	5.8	115.5	39.1		336.7			68.4		118.8	39.3		9.1		78.1
S-103	5.7	5.4	9.5	24.2	24.9	3.0	1.0	2.6	6.8	3.8	75.1	25.1		215.2			34.4		78.5	24.3		6.1		52.8
S-104																								
S-105	5.6	3.5	8.7	15.3	0.6	1.9	0.4	1.8	0.1	1.8	41.1	3.4		222.8					76.8	32.2		0.6		46.1
S-106	5.0	4.5	8.1	18.0	0.5	2.1	0.5	1.7	0.7	2.1	82.9	4.0		323.5					92.1	50.9		0.7		42.2
S-107	1.5	1.6	2.9	6.8	6.8	1.0	0.3	0.7	9.1	1.6	27.5	16.1		62.8			2.2		22.6	7.9		2.0		13.7
S-108	7.2	4.6	11.2	20.8	0.8	2.6	0.6	2.3	0.2	2.6	65.8	5.3		349.6					113.5	58.5		0.8		60.0
S-109	6.8	4.4	10.7	21.8	0.7	2.6	0.6	2.3	0.2	2.6	75.1	5.0		365.7					116.0	64.7		0.8		57.1
S-110	3.1	4.0	5.3	21.1	6.4	2.6	1.0	2.2	1.8	2.9	70.8	12.8		235.6					53.2	25.3		7.4		27.1
S-111	6.5	6.6	10.8	28.4	8.3	4.1	1.0	2.8	4.9	3.8	117.0	17.7		415.6					117.0	62.7		6.2		56.4
S-112	7.6	4.9	11.8	22.3	0.9	2.9	0.6	2.4	0.2	2.7	70.3	5.8		372.4					119.9	62.3		1.0		63.2
SX-101	1.3	1.2	2.2	5.6	5.2	0.7	0.2	0.6	1.6	0.9	18.1	5.9		53.4			2.7		18.5	6.4		1.4		11.9
SX-102	11.7	12.3	19.7	58.3	51.3	8.5	2.7	6.2	16.2	9.4	187.6	63.3		542.9			0.1		171.2	64.4		22.2		106.6
SX-103	14.0	13.5	23.4	60.2	66.2	7.7	2.7	6.5	19.6	9.9	196.5	73.4		509.8			1.5		193.1	57.0		16.0		131.9
SX-104	9.1	9.6	15.4	44.4	38.1	6.9	2.0	4.7	11.1	6.9	152.4	49.2		433.1			5.5		136.0	56.8		14.1		84.3
SX-105	12.6	13.9	21.4	64.7	51.6	10.8	3.0	6.9	15.9	10.0	228.3	72.6		653.6			4.6		198.0	90.0		21.7		116.7
SX-106	11.6	11.0	19.3	49.3	51.2	6.1	2.1	5.3	13.8	7.8	152.3	51.0		436.0			73.8		159.7	48.7		12.4		107.9
SX-107																								
SX-108																								
SX-109																								
SX-110																								
SX-111	0.0	0.0	0.0	0.2		0.0	0.0	0.0		0.0	0.2			5.5					0.0			0.0		0.0
SX-112																								
SX-113																								
SX-114	0.0	0.0	0.0	0.3		0.0	0.0	0.0		0.0	3.5			27.2					0.0			0.0		0.0
SX-115																								
U-101																								
U-102	9.1	8.5	15.6	36.9	39.7	4.4	1.6	3.8	10.9	5.7	109.5	41.4		283.9			14.3		118.0	30.9		8.0		82.2
U-103	10.8	10.2	17.9	45.3	52.6	5.6	2.0	4.9	11.6	7.2	137.5	51.4		363.3			17.9		142.9	39.5		11.2		101.9
U-104	7.1	5.6	15.8	17.6		0.2	0.3			0.1				0.0					62.4			0.2		37.2
U-105	10.3	9.8	17.0	43.9	49.9	5.6	1.9	4.8	12.0	7.1	138.5	52.0		358.6			2.6		137.7	39.6		11.6		96.6
U-106	3.7	4.5	6.4	21.9	16.1	3.8	1.1	2.3	6.1	3.5	93.5	29.9		223.1					61.8	30.0		9.7		34.5
U-107	7.4	7.0	12.3	31.5	32.6	4.0	1.4	3.4	9.0	5.0	97.8	33.0		278.9			39.3		101.8	31.4		8.1		68.6
U-108	7.8	9.4	13.5	44.2	28.6	8.4	2.1	4.6	12.5	6.8	163.2	51.4		483.9					155.6			16.6		71.1
U-109	9.0	10.6	15.9	47.0	31.6	9.0	2.2	4.8	14.0	7.2	191.1	62.9		508.8					136.4			17.1		78.4

WSTRS3.45b	CWZr1	OWW1	OWW2	OWW3	Z	HS	TH1	TH2	AR	B	BL	SRR	SRR'	CSR	DE	CEM	NIT	Salt Slurry	DW	N	B'	B-SltCk	BL'	T1-SltCk
U-110																								
U-111	4.4	4.2	7.4	18.8	18.7	2.4	0.8	2.0	6.0	3.0	59.8	20.7		171.3			13.8		61.9	20.0		4.6		40.9
U-112																								
U-201																								
U-202																								
U-203																								
U-204																								
T-101	0.6	0.4	0.9	1.7	3.0	0.1	0.1	0.2	0.3	0.3	7.1	2.0		16.5					5.8	0.0		0.1		8.7
T-102																								
T-103	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.2			0.5					0.0			0.0		0.0
T-104	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.5	0.2		1.1					0.3	0.2		0.0		0.2
T-105																								
T-106																								
T-107																								
T-108																								
T-109																								
T-110																								
T-111																								
T-112																								
T-201																								
T-202																								
T-203																								
T-204																								
TX-101	0.1	0.1	0.2	0.5	0.5	0.1	0.0	0.1	0.2	0.1	1.8	0.6		5.4			0.2		1.9	0.7		0.1		1.2
TX-102	7.1	5.1	11.1	21.8	35.1	1.1	0.8	2.5	4.0	3.6	37.8	29.3		93.1					73.2	0.2		1.2		68.0
TX-103	2.8	2.1	4.4	8.8	15.3	0.4	0.3	1.0	0.6	1.3	19.1	6.0		43.9					30.6	0.3		0.5		28.8
TX-104	1.4	1.1	2.3	4.4	8.5	0.2	0.2	0.6	0.9	0.7	11.1	6.9		18.7					14.8	0.1		0.2		13.7
TX-105	22.7	16.1	34.6	70.2	84.8	3.5	2.7	8.2	0.7	10.8	103.7	5.5		305.8					236.9	0.3		4.0		216.8
TX-106	11.0	8.2	17.3	34.1	59.9	1.7	1.3	4.0	3.1	5.3	69.7	24.7		144.1					114.6	0.4		1.9		105.7
TX-107	0.2	0.1	0.3	0.5	1.0	0.0	0.0	0.1	0.1	0.1	1.2	0.8		2.1					1.7	0.0		0.0		1.5
TX-108	3.4	2.5	5.3	10.5	14.7	0.5	0.4	1.3	0.2	1.6	18.2	2.2		44.3					35.4	0.1		0.6		32.9
TX-109	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0					0.0	0.0		0.0		0.0
TX-110	14.3	10.5	22.3	44.3	73.6	2.2	1.7	5.2	4.0	6.9	87.3	29.7		188.0					148.6	0.4		2.5		137.4
TX-111	10.8	8.0	16.9	33.5	57.2	1.7	1.3	3.9	3.8	5.3	70.3	28.5		142.5					112.6	0.3		1.9		104.2
TX-112	24.7	17.9	38.3	80.9	39.3	4.1	3.2	9.1	0.4	12.3	92.2	2.1		312.5					262.2	0.2		4.7		233.0
TX-113	20.3	15.1	38.7	63.6	17.8	2.4	1.9	6.2		6.5	47.8			163.4					206.9			2.6		152.1
TX-114	21.0	15.4	35.4	68.7	32.3	3.0	2.3	7.8		8.4	61.8			209.2					222.5			3.3		185.3
TX-115	25.2	18.5	43.3	76.9	51.4	3.2	2.5	7.4	1.2	9.1	82.5	7.1		240.2					255.8	0.2		3.6		208.8
TX-116	11.7	7.6	21.5	25.4		0.2	0.3			0.1				0.0					102.4			0.3		85.3
TX-117	24.0	18.4	52.2	56.0		0.5	0.7	1.0		0.8	6.1			9.5					190.9			0.8		139.5
TX-118	3.5	2.8	5.6	11.8	18.0	0.9	0.5	1.3	1.9	1.8	28.5	10.1		75.1			1.1		41.4	4.8		1.3		32.4
TY-101	0.0																		0.0					0.0
TY-102	1.1	0.8	1.7	3.4	5.3	0.2	0.1	0.4	0.1	0.5	6.3	0.8		14.3					11.3	0.0		0.2		10.5
TY-103	1.6	1.1	2.4	4.8	3.4	0.2	0.2	0.6		0.7	8.1			19.9					16.4			0.2		15.5
TY-104																								
TY-105																								
TY-106																								
AN-101	3.2	2.7	5.6	13.6	7.5	1.9	0.5	1.5	7.8	9.1	50.8	12.6		175.7			0.3		57.8	23.5		41.7		26.4
AN-102	15.0	19.7	40.0	84.6	86.3	13.3	3.8	8.6	139.8	57.1	494.5	242.4		982.0			22.3		281.0	89.1		19.9		134.4
AN-103	12.7	14.2	27.5	83.0	162.3	8.7	3.4	7.7	50.9	21.2	741.8	99.6		402.7			10.7		406.7	97.1		27.1		106.1
AN-104	11.5	12.4	25.5	53.4	95.5	6.8	2.2	5.4	63.4	22.5	509.5	132.3		374.5			15.9		328.1	50.0		10.1		101.6

WSTRS3.45b	CW7-1	OWW1	OWW2	OWW3	Z	HS	TH1	TH2	AR	B	[illegible]	SRR	SRR'	CSR	DE	CEM	NIT	Salt Slurry	DW	N	B'	B-SltCk	BL'	T1-SltCk
AN-105	6	26.8	58.1	113.1	357.1	12.1	4.4	10.9	102.2	56.1	1079.6	200.3		676.2			28.8		961.6	87.4		17.5		236.4
AN-106	0.2	0.3	0.6	1.1	1.3	0.2	0.0	0.1	1.0	0.6	4.9	2.1		[illegible]8			0.4		4.3	17.6		0.2		2.0
AN-107	8.4	12.4	25.6	59.1	67.9	9.9	2.8	6.3	135.3	46.3	337.0	222.0		362.1			12.3		252.6	26.2		11.9		75.3
AP-101	0.4	0.5	0.9	3.2	13.5	0.4	0.1	0.3	2.2	0.9	75.1	4.4		17.8			0.9		29.7	2.7		1.2		3.8
AP-102	8.0	10.9	23.9	39.0	46.7	5.6	1.7	4.1	36.5	20.8	182.4	79.2		326.6			14.7		159.3	703.9		8.9		73.6
AP-103	0.1	0.1	0.2	0.7	68.1	0.1	0.0	0.1	0.6	0.2	371.9	1.2		4.1			0.2		221.3	0.6		0.3		1.0
AP-104																				15.6				
AP-105	4.4	5.4	9.6	32.3	140.1	4.3	1.5	3.2	22.5	8.8	768.3	45.3		179.9			8.9		310.2	27.2		12.4		39.2
AP-106	1.6	2.0	3.6	11.6	71.7	1.5	0.5	1.2	8.1	3.2	519.2	16.4		64.8			3.3		182.0	9.9		4.4		14.3
AP-107																								
AP-108	0.0	0.0	0.0	0.1	8.1	0.0	0.0	0.0	0.1	0.0	457.6	0.2		0.8			0.0		90.9	0.1		0.0		0.2
AW-101	12.7	16.0	28.5	105.1	304.4	13.3	4.6	10.2	64.8	26.9	961.9	126.9		474.5			13.1		579.4	81.5		39.9		110.1
AW-102	3.5	4.1	7.2	23.4	90.6	3.2	1.0	2.4	15.1	6.0	513.2	32.7		143.4			5.7		204.4	20.9		8.6		31.3
AW-103	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0		0.1			0.0		0.1	0.0		0.0		0.0
AW-104	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.1		0.2			0.0		0.2	0.0		0.0		0.0
AW-105	1.5	1.8	3.3	11.2	50.9	1.5	0.5	1.1	7.9	3.1	221.0	15.8		57.2			2.1		99.9	9.7		4.1		13.0
AW-106	3.8	4.4	7.9	25.5	102.9	3.4	1.1	2.6	16.8	6.7	647.8	34.7		153.0			7.8		232.7	22.7		9.4		34.5
AY-101	0.7	1.2	1.9	7.8	6.4	1.1	0.4	0.8	7.5	4.6	42.6	153.9		369.5			0.9		19.6	3.6		6.4		7.5
AY-102	0.0	0.0	0.0	0.0	2.3	0.0	0.0	0.0	0.0	0.0	260.8	0.1		0.2			0.0		79.8	0.0		0.0		0.0
AZ-101	0.[illegible]	0.6	1.2	2.5	2.2	0.4	0.1	0.3	4.0	1.6	20.8	7.1		20.8			0.8		7.2	2.2		0.6		4.2
AZ-102	0.0	0.0	0.0	0.1	2.2	0.0	[illegible]	0.0	0.2	0.0	25.4	0.2		0.6			0.0		2.5	0.2		0.0		0.2
SY-101	29.7	29.9	51.0	134.6	134.8	18.5	6.0	14.4	65.2	23.6	450.9	181.6		1201.1			114.8		423.7	142.1		40.4		276.4
SY-102	0.0	0.0	0.0	0.0	100.6	0.0	0.0	0.0	0.0	0.0	0.2	0.0		0.1			0.0		317.0	0.0		0.0		0.0
SY-103	14.1	14.4	25.5	64.2	61.9	8.7	2.8	6.9	39.6	14.8	216.9	96.3		568.2			63.3		200.4	65.1		16.9		130.6
COND																								
CRIB		12.9																	280.6					417.3
CSR	7.4	3094.4	7862.0	552.2	0.0	3.4	11.3	0.4	4100.8	5435.2	586.7	68.4		892.9			0.0		697.2	0.2		124.9		228.6
GROUT	0.0	0.0	0.0	0.1	0.5	0.0	0.0	0.0	0.1	0.0	2.6	0.2		0.7			0.0		1.7[illegible]	[illegible]6.0		0.0		0.1
LEAK	0.6	0.1	0.4	0.0		0.0	0.0	0.0		0.0	20.2			67.3								0.0		0.5
PCOND																								
R202S																								
RCOND																								
SRR		86.7	263.3	20.9		0.1	0.7		94.6	260.7	1.1	35.6		62.8					12.8			2.5		
TFeCN																			7.5			2290.7		
UNK		461.6	1685.7	154.0					159.1	4715.3	1.2	42.0		58.1					95.2			18.2		
UR																			108.2					
VENT																								
A1COND																								
A2COND																								
BCOND																								
BYCOND																								
S1COND																								
S2COND																								
T1COND																								
T2COND																								
A1-In	321.0	776.4	1575.4	3956.2	1551.8	634.1	215.5	457.4	12217.4	2533.5	13236.4	15709.1		21710.6			433.4		4470.2	1207.6		846.6		2966.9
A2-In																								
B-In																								
BY-In	3.9	975.8	91.8	4772.8		815.0	930.6	375.8	11.1	392.9	331.9			4879.2					536.4	115.4		1107.6		29.1
S1-In	2475.0	2269.9	4138.7	10160.8	3417.9	1529.5	393.8	1059.4	2421.5	1481.7	36575.0	8067.3		135272.5					40143.5	21821.3		2083.1		21185.4
S2-In	1097.9	1029.6	1818.0	4587.4	5107.3	563.4	198.1	496.3	1312.9	739.1	14291.4	[illegible]3.1		38360.6			1319.3		14748.5	4219.1		1140.4		10265.5

WSTRS3.45b	CWZr1	OWW1	OWW2	OWW3	Z	HS	TH1	TH2	AR	B	BL	SRR	SRR'	CSR	DE	CEM	NIT	Salt Slurry	DW	N	B'	B-SltCk	BL'	T1-SltCk
T1-in																						426.0		70.0
T2-in	16035.0	12292.2	30170.8	43135.1	25279.4	1650.2	1380.7	3761.2	355.2	4874.0	36287.3	2988.1		117057.8					160496.3	69.5		2030.2		134318.8
STATLOSS																								
B-bot																			23.7					
BY-bot	11.1	385.9	54.0	4741.4	1.3	658.4	303.6	632.2	21.0	471.5	604.1	4.4		8798.7					491.7	325.5		701.9		82.9
S1-bot																								
S2-bot																								
T1-bot																								
T2-bot																								
A1-bot																								
R-bot	0.5	3.9	0.2	180.9		3.2	2.1	6.9		4.9	69.5			369.8					3.3			3.5		9.2
swpump	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0					0.0	0.0		0.0		0.0

WSTRS3.45b	R in	RSltCk	T2 in	T2-SltCk	BY In	BY-SltCk	S1 in	S1-SltCk	S2 in	S2-SltSlr	A1 in	A1-SltCk	A2 in	A2-SltSlr	P3	PL2	CWZr2	BP /Cplx	BP /NCplx	PASF	WTR	GAS
A-101		70.5				317.4															1266.0	5.1
A-102		1.3				7.1															23.3	0.1
A-103		26.3				146.1															497.2	2.0
A-104																						
A-105																					0.0	
A-106		9.9				19.4															150.8	0.0
AX-101		55.0				300.2															1003.9	4.4
AX-102		3.7				9.6															60.8	0.0
AX-103		7.0				33.3															160.5	0.0
AX-104																						
B-101																						
B-102		0.0				0.1															0.2	
B-103		0.0																			0.2	
B-104																					0.8	
B-105		0.0																			0.0	
B-106		0.0																			0.6	
B-107																					0.1	
B-108		0.0																			0.0	
B-109						35.2																
B-110						0.0																
B-111						1.0															0.0	
B-112		0.0				2.3															0.0	
B-201																						
B-202																						
B-203																						
B-204																						
BX-101						0.8																
BX-102																					0.5	
BX-103		0.0				1.6															0.9	
BX-104		7.0				0.5															75.8	[illegible]
BX-105		0.5				0.7															6.3	0.1
BX-106		0.0				7.0															3.3	
BX-107																					0.0	
BX-108																						
BX-109																					0.0	
BX-110		0.0				0.0															0.0	
BX-111		0.0				0.9															0.8	
BX-112		0.0				0.7															0.4	
BY-101																						
BY-102		0.0				6.8															3.1	
BY-103						0.0																
BY-104																						
BY-105						0.0																
BY-106																						
BY-107		0.0				0.0															0.0	
BY-108		0.0				0.0															0.0	
BY-109																						
BY-110		0.0				0.0															0.0	
BY-111																						
BY-112		0.0				0.0															0.0	
C-101																						

WSTRS3.45b	R in	RShCk	T2 in	T2-ShCk	BY in	BY-ShCk	S1 in	S1-ShCk	S2 in	S2-ShSlr	A1 in	A1-ShCk	A2 in	A2-ShSlr	P3	PL2	CWZr2	BP /Cplx	BP /NCplx	PASF	WTR	GAS
C-102						0.0															0.0	
C-103		0.0				18.2															54.8	
C-104		0.3				0.9															5.5	
C-105		0.0				0.0															0.0	
C-106																					0.0	
C-107																						
C-108																						
C-109																						
C-110																					0.0	
C-111																					0.0	
C-112																					0.0	
C-201																						
C-202																						
C-203																						
C-204																						
S-101		32.4				1.3															340.7	0.0
S-102		70.7				2.7															734.2	0.1
S-103		42.9				2.2															504.7	0.3
S-104		0.6																			0.0	
S-105		54.1																			375.3	
S-106		129.4																			652.8	
S-107		11.8				0.7															124.9	2.4
S-108		80.8																			646.7	
S-109		79.4																			745.6	
S-110		62.3				0.4															355.3	
S-111		136.0				2.7															778.4	
S-112		85.7																			686.7	
SX-101		11.6				0.4															129.2	
SX-102		94.5				13.8															809.9	
SX-103		90.9				6.1															828.9	
SX-104		83.1				4.7															806.4	
SX-105		123.3				5.7															1167.8	
SX-106		86.3				4.5															1070.8	0.5
SX-107		42.4																			50.5	
SX-108		131.9																			24.0	
SX-109		38.8																			7.4	
SX-110																					30.0	
SX-111		0.3																			0.4	
SX-112		12.8																			27.8	
SX-113																					32.9	
SX-114		4.2																			15.8	
SX-115																						
U-101																						
U-102		50.7				3.3															490.0	
U-103		65.3				3.5															604.2	
U-104		3.0																			38.8	
U-105		63.8				4.4															582.3	
U-106		38.5				6.0															354.0	
U-107		55.1				3.0															638.8	0.4
U-108		89.5				3.9															796.6	
U-109		94.7				1.5															817.5	

WSTRS3.45b	R in	RSltCk	T2 in	T2-SltCk	BY in	BY-SltCk	S1 in	S1-SltCk	S2 in	S2-SltSlr	A1 in	A1-SltCk	A2 in	A2-SltSlr	P3	PL2	CWZr2	BP /Cplx	BP /NCplx	PASF	WTR	GAS
U-110																						
U-111		35.6				1.5															398.1	0.1
U-112																						
U-201																					0.0	
U-202																						
U-203																					0.8	
U-204																						
T-101		1.4																			13.6	
T-102																						
T-103		0.0																			0.2	
T-104		0.2																			1.8	
T-105																						
T-106																						
T-107																						
T-108																						
T-109																						
T-110																					0.9	
T-111																					0.2	
T-112																						
T-201																						
T-202																						
T-203																						
T-204																						
TX-101		1.2				0.0															12.7	
TX-102		14.3																			121.2	
TX-103		6.1																			64.9	
TX-104		2.9																			25.6	
TX-105		45.1																			354.1	
TX-106		22.6																			192.8	
TX-107		0.3																			2.8	
[illegible]08		6.9																			55.0	
TX-109		0.0																			0.0	
TX-110		29.2																			244.2	
TX-111		22.2																			186.3	
TX-112		46.8																			314.2	
TX-113		32.2																			183.5	
TX-114		39.6																			228.1	
TX-115		43.2																			295.0	
TX-116		8.0																			78.8	
TX-117		14.0																			144.0	
TX-118		14.1				0.2															168.5	
TY-101		0.0																			0.0	
TY-102		2.3																			18.5	
TY-103		3.0																			20.6	
TY-104																						
TY-105																						
TY-106																						
AN-101		36.4				46.1									0.0	47.6	22.6				610.6	0.1
AN-102		113.0				502.3									0.5	161.4	4.5				2393.5	2.6
AN 103		72.8				242.0									1.3	956.5	498.0				2705.4	6.0
[illegible]04		65.2				293.3									1.0	656.5	217.3				2003.7	5.0

WSTRS3.45b	R in	RShCk	T2 in	T2-ShCk	BY in	BY-ShCk	S1 in	S1-ShCk	S2 in	S2-ShSlr	A1 in	A1-ShCk	A2 in	A2-ShSlr	P3	PL2	CWZr2	BP /Cplx	BP /NCplx	PASF	WTR	GAS
AN-105		120.2				560.9									2.4	786.3	42.3				3933.9	13.0
AN-106		1.7				3.7									0.0	0.1	0.1				37.7	0.0
AN-107		44.7				662.4									0.5	71.4	1.1				1555.7	
AP-101		2.9				8.8									0.0	129.0	70.6			993.7	491.8	0.0
AP-102		62.9				135.4									0.1	4.5	3.3			5.0	1475.4	0.1
AP-103		0.7				2.2									25.4	32.0	15.4			41.0	619.2	0.0
AP-104																					5.1	
AP-105		29.2				89.5									0.2	1512.5	797.0			643.1	4280.4	0.4
AP-106		10.6				32.3									2.5	549.7	283.0			281.4	2052.2	0.1
AP-107																				1115.0	18.0	
AP-108		0.1				0.4									14.4	96.0	1.8			112.6	423.4	0.0
AW-101		78.7				294.9									1.0	2261.2	1137.8				4101.7	29.0
AW-102		25.7				56.3									0.1	1132.1	542.2			424.5	3032.1	0.4
AW-103		0.0				0.0									0.0	10.3	220.5				71.2	0.0
AW-104		0.0				0.1									0.0	934.5	0.3				57.4	0.0
AW-105		9.5				34.0									0.1	543.7	514.0			80.9	1363.2	0.2
AW-106		33.0				68.3									0.2	1227.5	597.3			528.5	3491.7	0.2
AY-101		13.4				36.1									0.0	21.6	0.6				512.4	0.0
AY-102		0.0				0.1									4.2	1.1	0.5			0.7	359.0	0.0
AZ-101		3.6				12.4									663.4	10.8	0.0				1560.8	0.1
AZ-102		0.1				0.8									378.4	12.1	0.0				1815.2	0.0
SY-101		219.1				17.4															2221.5	9.0
SY-102		0.0				0.1									0.0	0.3	0.0				347.8	0.0
SY-103		109.0				66.8															1490.4	
COND																						
CRIB																					31929.2	
CSR		2589.9				41.9															13263.8	
GROUT		0.1				0.3									0.0	4.5	2.7			0.5	271.8	0.0
LEAK		19.0																			63.0	
PCOND																						
R202S		271.5																			283.3	
RCOND																						
SRR																					438.7	
TFeCN																					1176.3	
UNK																					2212.4	
UR																					33346.6	
VENT																						
A1COND																						
A2COND																						
BCOND																						
BYCOND																						
S1COND																						
S2COND																						
T1COND																						
T2COND																						
A1-in		1897.1				55869.2															81414.9	41.0
A2-in																					20.1	
B-in																					429.5	
BY-in		7.1				1683.0															5888.2	
S1-in		36474.7				718.7															306345.1	
S2-in		7247.5				414.8				41.0											82868.5	1.7

WSTRS3.45b	R in	RSltCk	T2 in	T2-SltCk	BY in	BY-SltCk	S1 in	S1-SltCk	S2 in	S2-SltSlr	A1 in	A1-SltCk	A2 in	A2-SltSlr	P3	PL2	CWZr2	BP /Cplx	BP /NCplx	PASF	WTR	GAS
T1-in																					3245.5	
T2-in		23672.0																			174025.2	
STATLOSS																						
B-bot																					198.8	
BY-bot		45.8																			3462.9	
S1-bot																						
S2-bot																						
T1-bot																					1017.7	
T2-bot																						
A1-bot																						
R-bot		88.7																			2981.8	
swpump		0.0				7.6															0.0	

WSTRS3.45b	SWLIQ	UNK	assume	smmVol	supVol	tlmVol	tankVol	traffic	assum trf.	Max. TOC wt%	date of Max. TOC	TOC wt% now	Max. Haz. Index	Haz. Ind. Now
A-101		188.3	928.4	3895.2	950.0	3	953	16572	4654	5.40	1975.50	1.24	17.81	1.10
A-102		29.3	19.2	99.5	38.0	3	41	70415	57681	4.81	1976.60	0.75	14.35	1.14
A-103		69.5	366.9	1538.1	366.0	3	371	16485	4151	4.34	1976.60	1.33	12.05	1.14
A-104		0.0		0.0	0.0	28	28	18472		2.07	1962.83		2.70	
A-105		0.0	0.0	0.1	0.0	19	19	5978	642	1.40	1969.95		2.28	
A-106		19.4	78.6	436.2	75.0	50	125	36599	9052	5.30	1974.50	1.17	17.75	0.90
AX-101		137.5	735.5	3154.0	735.0	13	748	14694	4456	5.06	1976.28	1.35	17.48	1.13
AX-102		7.3	33.0	175.7	33.0	6	39	11257	4332	1.47	1978.63	1.18	7.92	0.94
AX-103		17.8	97.8	429.0	98.0	14	112	13838	4198	2.73	1976.08	1.20	10.05	1.06
AX-104		0.0		0.0	0.0	7	7	5895	929	2.18	1978.45		1.45	
B-101		0.0		0.0	0.0	113	113	8199	599	0.55	1974.60		0.98	
B-102		5.9	0.6	8.0	4.0	28	32	4153	1792	0.30	1972.20	0.09	0.66	0.36
B-103		0.3	0.3	2.0	0.0	59	59	11641	1782	0.43	1973.70		0.83	
B-104		2.0	5.2	8.0	5.0	366	371	3902	232	0.00	1974.85	0.00	0.00	0.00
B-105		0.0	0.0	0.1	0.0	158	158	6985	3241	0.61	1973.10		0.41	
B-106		0.3	0.5	1.8	1.0	116	117	17459	1600	0.11	1978.20	0.11	0.29	0.29
B-107		0.7	0.0	1.0	1.0	164	165	4254	366	0.02	1963.53	0.00	0.05	0.03
B-108		0.0	0.0	0.0	0.0	94	94	4969	2686	0.64	1973.45		0.72	
B-109		4.0	35.2	39.2	30.0	97	127	4911	2425	0.79	1980.95	0.73	0.64	0.55
B-110		0.0	0.0	0.0	0.0	246	246	8366	602	0.66	1976.28		0.55	
B-111		0.0	1.0	1.0	1.0	236	237	8555	5658	0.65	1976.20	0.65	0.77	0.55
B-112		0.7	2.3	3.0	3.0	30	33	8787	5693	0.71	1973.10	0.53	0.61	0.55
B-201		1.0		1.0	1.0	28	29	59	55	0.00	1961.46		0.02	
B-202		5.7	24.9	41.9	0.0	27	27	243	262	0.30	1980.71		0.22	
B-203		1.0	0.0	1.0	1.0	50	51	267	317	0.01	1952.53	0.00	0.02	0.01
B-204		2.0		2.9	1.0	49	50	372		0.01	1952.53	0.00	0.02	0.00
BX-101		0.3	0.8	1.0	1.0	42	43	27738	760	0.65	1976.20	0.53	0.98	0.55
BX-102		0.4	0.3	16.6	0.0	96	96	10179	3813	0.40	1969.78		1.03	
BX-103		0.2	3.0	4.7	4.0	62	66	35964	2734	0.58	1977.10	0.58	1.33	0.77
BX-104		11.2	56.3	258.9	58.0	41	99	24799	1555	2.05	1978.03	1.01	4.44	0.98
BX-105		1.3	5.0	21.0	5.0	46	51	11350	4264	1.08	1980.60	1.03	1.01	0.99
BX-106		3.5	12.1	18.7	15.0	31	46	16216	3782	0.66	1976.85	0.53	0.83	0.72
BX-107		0.1	0.0	1.1	1.0	344	345	2368		0.31	1973.21	0.30	0.65	0.65
BX-108		0.0		0.0	0.0	26	26	2714	1834	0.40	1973.96		0.70	
BX-109		0.0	0.0	0.0	0.0	193	193	7565	723	0.55	1974.96		0.61	
BX-110		1.0	0.0	1.0	0.0	198	198	3014	431	0.65	1976.20		0.60	
BX-111		17.1	2.0	20.6	0.0	211	211	3288	1682	0.95	1971.85		0.78	
BX-112		0.2	0.9	1.9	1.0	164	165	1226	334	1.06	1978.82	1.06	1.04	1.04
BY-101						387	387	8640	3513	0.67	1976.85		0.83	
BY-102		2.3	9.3	17.4	11.0	330	341	21863	9971	1.11	1978.53	0.98	1.06	1.06
BY-103		0.0	0.0	0.0	0.0	400	400	26540	1593	0.65	1976.20		2.42	
BY-104		0.0		0.0	0.0	326	326	6795	3068	0.67	1976.85		0.95	
BY-105		0.0	0.0	0.0	0.0	503	503	7401	2438	0.76	1973.10		0.67	
BY-106		0.0		0.0	0.0	642	642	10928	1587	1.33	1977.60		1.29	
BY-107		0.0	0.0	0.0	0.0	266	266	13791	1223	0.65	1976.20		0.55	
BY-108		0.0	0.0	0.0	0.0	228	228	13354	2398	0.66	1971.60		0.55	
BY-109						423	423	33308	6813	0.83	1972.60		0.92	
BY-110		0.0	0.0	0.0	0.0	398	398	12665	1842	1.53	1976.60		1.47	
BY-111						459	459	10904	1731	0.83	1978.63		1.07	
BY-112		0.0	0.0	0.0	0.0	291	291	38968	31010	1.00	1972.33		0.55	
C-101		0.0		0.0	0.0	88	88	4610	3	0.92	1972.96		1.25	

WSTRS3.45b	SWLIQ	UNK	assume	smmVol	supVol	tlmVol	tankVol	traffic	assum trf.	Max. TOC wt%	date of Max. TOC	TOC wt% now	Max. Haz. Index	Haz. Ind. Now
C-102		0.0	0.0	0.0	0.0	423	423	19619	1790	0.65	1976.20		1.65	
C-103		23.4	103.9	169.4	133.0	62	195	10292	1113	2.48	1975.28	1.72	6.32	4.36
C-104		1.8	3.8	16.8	5.0	290	295	25290	1484	6.68	1975.71	1.08	16.65	1.27
C-105		0.0	0.0	0.0	0.0	150	150	26291	1758	0.98	1969.28		2.40	
C-106		27.0	4.9	32.0	32.0	197	229	11045	2998	0.70	1976.08	0.09	2.23	0.98
C-107			1.1	1.1	0.0	275	275	4374	393	5.74	1984.03		18.05	
C-108		0.0		0.0	0.0	66	66	6799	2104	0.77	1966.28		2.07	
C-109		6.0		6.0	4.0	62	66	4970	1041	0.97	1970.03		2.34	
C-110		0.0	0.0	0.0	0.0	187	187	3730		0.71	1956.72		3.88	
C-111		0.0	0.0	0.0	0.0	57	57	6059	1207	1.15	1970.47		2.47	
C-112		0.0	0.0	0.0	0.0	104	104	6776	1051	0.35	1974.22		0.84	
C-201		2.0		2.0	0.0	2	2	277	57	2.54	1965.97		11.16	
C-202						1	1	265	265	2.31	1956.47		11.16	
C-203		4.3	0.9	5.2	0.0	5	5	204	202	9.56	1955.97		11.16	
C-204		22.7	38.5	61.3	0.0	3	3	255	202	3.69	1955.97		11.16	
S-101		46.8	210.7	1069.6	216.0	211	427	7039	3197	0.89	1979.07	0.73	0.65	0.65
S-102		98.6	395.0	2428.0	545.0	4	549	90240	76998	2.28	1976.81	0.67	6.37	0.65
S-103		76.3	234.4	1600.0	239.0	9	248	9191	8527	1.61	1976.82	0.87	1.45	0.66
S-104		1.1	0.6	1.7	1.0	293	294	3497	652	0.01	1974.97	0.01	0.01	0.01
S-105		79.2	399.0	1703.2	405.0	2	407	2966	2922	0.29	1974.97	0.29	0.25	0.25
S-106		96.9	437.3	2209.4	447.0	32	479	3779	3596	0.38	1975.72	0.37	0.30	0.29
S-107		46.5	91.9	476.5	122.1	254	376	18355	8772	1.19	1980.53	0.94	1.21	1.04
S-108		112.6	477.6	2480.5	497.0	5	502	3485	3490	0.36	1974.60	0.35	0.28	0.28
S-109		98.9	483.0	2541.7	494.0	13	507	2924	2937	0.37	1974.85	0.37	0.30	0.30
S-110		42.6	276.7	1303.6	277.0	113	390	12699	1666	0.61	1977.35	0.61	0.60	0.50
S-111		95.0	453.9	2660.1	460.0	78	538	4072	4144	0.56	1985.57	0.56	0.41	0.41
S-112		114.0	504.1	2622.3	517.0	6	523	2550	2548	0.36	1975.85	0.36	0.28	0.28
SX-101		78.5	128.8	451.5	146.0	310	456	7141	1417	0.67	1980.34	0.44	0.64	0.63
SX-102		133.6	430.4	3212.1	484.0	59	543	15067	5491	1.05	1978.97	1.03	0.72	0.72
SX-103		119.1	538.5	3291.6	540.0	112	652	9691	4935	1.07	1978.47	1.01	0.76	0.75
SX-104		116.8	435.3	2765.9	445.0	169	614	6276	3236	1.08	1976.85	0.92	0.72	0.69
SX-105		155.7	617.1	4026.2	628.0	55	683	11309	4470	1.07	1976.85	0.96	0.78	0.70
SX-106		156.4	525.2	3296.8	537.0	1	538	33517	10318	2.32	1976.47	0.81	7.25	0.66
SX-107		0.0	67.8	100.4	0.0	104	104	4387	737	0.02	1974.83		0.01	
SX-108		8.2	153.9	187.7	0.0	87	87	4696	742	0.02	1968.72		0.01	
SX-109		2.9	45.7	62.7	0.0	250	250	2894	668	0.02	1973.97		0.01	
SX-110			30.0	30.0	0.0	62	62	7146	505	0.37	1976.28		0.63	
SX-111		0.2	0.5	7.2	0.0	125	125	6219	991	0.69	1974.47		0.68	
SX-112		26.3	17.3	114.4	0.0	92	92	3792	606	0.01	1965.95		0.01	
SX-113		28.1	3.3	74.3	0.0	31	31	724						
SX-114		0.7	13.7	54.3	0.0	181	181	7926	881	0.59	1973.22		0.57	
SX-115		0.0		0.0	0.0	12	12	2044	279					
U-101		3.0		3.0	3.0	22	25	5260	806	0.38	1980.22		0.13	
U-102		73.5	329.3	1952.4	331.0	43	374	6989	5174	1.18	1976.04	0.95	1.82	0.73
U-103		132.0	389.6	2482.9	436.0	32	468	10152	5905	1.18	1975.60	0.92	1.34	0.72
U 104		25.5	85.1	410.0	43.0	79	122	3584	661	0.24	1978.72	0.20	0.13	0.13
U [illegible]		100.7	374.0	2370.5	386.0	32	418	6044	4905	1.35	1975.60	1.00	1.47	0.74
U-106		62.6	198.0	1319.8	200.0	26	226	4948	2857	1.28	1976.10	1.13	1.83	0.80
U-107		114.5	309.0	2067.9	330.0	76	406	16446	4619	1.01	1978.48	0.84	0.78	0.66
U-108		132.6	361.2	2841.5	439.0	29	468	9257	4189	1.02	1977.48	0.98	0.71	0.71
U-109		136.1	395.6	2980.1	415.0	48	463	6615	3666	1.18	1976.10	1.13	0.76	0.76

WSTRS3.45b	SWLIQ	UNK	assume	smmVol	supVol	tlmVol	tankVol	traffic	assum trf.	Max. TOC wt%	date of Max. TOC	TOC wt% now	Max. Haz. Index	Haz. Ind. Now
U-110		0.0		0.0	0.0	186	186	4112	100					
U-111		69.1	283.0	1266.2	303.0	26	329	8525	4334	1.33	1976.10	0.64	1.23	0.66
U-112		4.0		4.0	4.0	45	49	959	964					
U-201		1.0	0.0	1.0	1.0	4	5	45						
U-202		1.0		1.0	1.0	4	5	47						
U-203		0.5	0.4	4.0	1.0	2	3	44						
U-204		1.0		1.0	1.0	2	3	13						
T-101		35.1	23.2	120.9	65.0	37	102	6240	201	0.56	1977.73	0.35	0.78	0.78
T-102		13.0		13.0	13.0	19	32	3113	2196	0.34	1972.73		0.66	
T-103		8.1	0.2	9.1	9.0	18	27	5174	1071	0.32	1973.23	0.04	0.63	0.62
T-104		1.7	1.0	8.8	3.0	442	445	3496	36	0.76	1976.60	0.57	0.85	0.85
T-105		0.0		0.0	0.0	98	98	6087	3137	1.76	1980.48		0.72	
T-106		7.0		7.0	2.0	19	21	3173	2205	0.36	1974.53		0.64	
T-107		9.0		9.0	9.0	171	180	5011	282	0.58	1976.48		0.82	
T-108		0.0		0.0	0.0	44	44	4285	3026	0.29	1974.48		0.61	
T-109						58	58	2465	1596	0.24	1973.73		0.51	
T-110		0.7		3.4	3.1	376	379	22535		0.00	1953.01	0.00	0.02	0.00
T-111		2.2	0.7	2.9	2.1	456	458	21507	21963	0.00	1953.03	0.00	0.01	0.00
T-112		8.0		8.0	7.0	60	67	28432	23894	0.75	1977.98		0.53	
T-201		1.0		1.0	1.0	28	29	55		0.01	1976.73		0.02	
T-202		0.0		0.0	0.0	21	21	97	118	0.00	1968.23		0.02	
T-203						35	35	173		0.03	1977.73		0.02	
T-204		0.0		0.0	0.0	38	38	55		0.00	1973.48		0.02	
TX-101		2.3	10.1	39.6	11.0	76	87	26338	8623	2.55	1975.63	0.52	4.42	0.60
TX-102		23.6	211.5	812.4	215.0	2	217	11755	9003	0.89	1975.60	0.88	0.90	0.89
TX-103		55.6	139.5	400.0	154.0	3	157	13066	10102	0.43	1975.35	0.37	0.56	0.56
TX-104		27.8	47.4	196.4	47.0	18	65	5457	3654	1.27	1979.23	0.94	0.98	0.96
TX-105		79.9	585.0	2421.1	601.0	8	609	9957	5136	0.37	1973.10	0.35	0.41	0.34
TX-106		38.7	334.4	1273.6	336.0	5	341	14608	10883	0.65	1976.49	0.62	0.65	0.62
TX-107		27.2	5.4	46.3	28.0	8	36	6221	2584	0.98	1975.85	0.23	1.01	0.94
TX-108		46.5	102.3	407.6	128.0	6	134	10289	8472	0.43	1976.88	0.32	0.42	0.39
TX-109		0.0	0.0	0.2	0.0	384	384	7831	1947	1.42	1982.26		1.38	
TX-110		71.4	410.6	1653.5	425.0	37	462	11824	11514	0.62	1979.73	0.61	0.60	0.60
TX-111		41.3	320.3	1256.6	327.0	43	370	10000	9416	0.69	1976.10	0.68	0.68	0.68
TX-112		94.1	595.0	2490.0	625.0	24	649	4287	3501	0.33	1975.98	0.32	0.31	0.31
TX-113		68.7	407.0	1712.0	424.0	183	607	7609	4415	0.27	1974.35	0.26	0.25	0.25
TX-114		59.7	467.7	1960.5	473.0	62	535	10814	9539	0.29	1974.79	0.28	0.27	0.27
TX-115		75.7	549.5	2321.9	560.0	8	568	10352	8111	0.34	1982.26	0.34	0.32	0.32
TX-116		23.9	170.0	675.5	172.0	391	563	6172	3464	0.09	1970.10	0.09	0.10	0.10
TX-117		41.0	306.2	1335.2	306.0	226	532	11137	5435	0.14	1971.10	0.14	0.14	0.14
TX-118		67.4	215.3	660.4	240.0	45	285	149662	123580	1.54	1975.59	0.42	1.69	0.62
TY-101		0.0	0.0	0.0	0.0	118	118	4130	552	0.00	1974.07		0.00	
TY-102		6.0	30.4	126.2	35.0	29	64	5106	4152	0.42	1975.35	0.38	0.41	0.41
TY-103		21.7	37.6	172.4	54.0	108	162	16451	4261	0.75	1968.32	0.24	1.05	0.30
TY-104		6.0		6.0	3.0	43	46	3915	1436	0.15	1974.53		0.17	
TY-105		7.6		104.8	73.0	158	231	6237		0.00	1976.99	0.00	0.00	0.00
TY-106						21	21	5052	5033	0.00	1971.49		0.00	
AN-101	0.4	271.0	437.5	1899.8	740.0		740	7076	1179	3.65	1984.04	0.28	11.80	0.45
AN-102		365.2	1554.2	7409.0	1090.0		1090	3684		1.53	1994.24	1.53	1.02	1.02
AN-103	20.6	402.4	1804.5	8111.4	951.0	2	953	4736	377	1.09	1986.09	1.06	0.92	0.80
AN-104		338.8	1496.7	6147.9	1056.0		1056	2381		1.44	1983.99	1.08	0.97	0.96

WSTRS3.45b	SWLIQ	UNK	assume	smmVol	supVol	tlmVol	tankVol	traffic	assum trf.	Max. TOC wt%	date of Max. TOC	TOC wt% now	Max. Haz. Index	Haz. Ind. Now
AN-105		711.0	3484.0	11702.1	1130.0		1130	2169		1.39	1985.50	1.38	0.94	0.84
AN-106		6.2	17.5	110.9	21.0		21	1067		1.00	1983.02	0.86	0.89	0.86
AN-107		295.6	1551.2	4904.5	1063.0		1063	1157		1.48	1994.24	1.48	1.15	1.15
AP-101	0.7	38.8	93.6	1929.1	1060.0		1060	2710	104	0.24	1989.25	0.09	0.82	0.79
AP-102		212.8	647.4	4228.4	1103.0		1103	3088		0.66	1994.24	0.66	0.85	0.85
AP-103	0.1	10.2	471.7	1425.8	1131.0		1131	2951	99	0.19	1993.99	0.19	0.80	0.80
[illegible]		6.9		27.6	18.0		18	1080						
[illegible]	7.0	266.5	1475.5	9602.4	820.0		820	1683		1.03	1989.15	0.86	0.83	0.83
AP-106	2.5	98.2	638.7	4359.6	1127.0		1127	2083		0.89	1988.64	0.39	0.86	0.85
AP-107		22.0		1155.0	1110.0		1110	1153						
AP-108	0.0	32.0	295.4	1240.6	1131.0		1131	1152	233	0.24	1981.88	0.23	0.93	0.93
AW-101	33.4	431.0	2401.8	12396.1	1078.0	61	1139	10301	417	1.81	1981.75	1.14	1.08	0.81
AW-102	218.9	241.3	989.4	7075.8	979.0		979	101581	5075	1.81	1981.75	0.57	1.82	0.81
AW-103	0.0	26.2	7.6	329.2	283.0	363	646	5232	74	1.32	1981.99	0.00	1.12	0.07
AW-104	0.0	69.3	43.6	1063.0	1020.0	103	1123	15343	247	1.43	1985.24	0.04	1.04	0.77
AW-105	2.9	90.8	422.2	3262.9	800.0	240	1040	7099	1270	1.36	1982.49	0.35	1.06	0.80
AW-106	143.6	272.4	1118.1	7991.5	1107.0	1	1108	28762	571	1.18	1983.99	0.58	1.11	0.80
AY-101	15.0	98.7	149.9	1410.8	848.0	33	881	6702	1392	1.36	1986.50	1.22	2.96	2.66
[illegible] 102	0.0	5.5	19.9	715.1	679.1	32	711	20996	2878	1.58	1978.60	0.21	1.41	0.95
AZ-101		72.3	928.9	2435.1	931.0	29	960	6323	3654	1.64	1979.24	0.08	1.69	0.22
AZ-102		8.8	176.6	2048.6	920.0	43	963	8812	3397	1.63	1978.60	0.02	5.93	0.10
SY-101		405.0	1801.3	8706.4	1100.0		1100	1806	1630	1.17	1978.38	1.14	0.83	0.78
SY-102		60.1	825.0	826.2	676.1	71	747	35493	34787	1.18	1977.31	0.00	0.90	0.01
SY-103		247.5	959.6	4605.7	744.0		744	2433	2021	1.61	1978.24	0.98	1.42	0.79
COND				616.0	616.0		616							
CRIB		872.4	40743.4	121209.5	111701.0		111701							
CSR		2136.5	13240.3	75393.5	25638.0		25638							
GROUT	0.0	46.9	4.1	1060.0	1001.0		1001							
LEAK		11.1	91.7	548.1	428.0		428							
PCOND				57995.0	57995.0		57995							
R202S		[illegible].6	410.3	1182.0	733.0		733							
RCOND				23261.0	23261.0		23261							
SRR		77.1	592.1	2020.8	895.0		895							
TFeCN		296.7	5310.4	11869.5	11193.0		11193							
UNK		156.2	6587.1	14067.7	7269.0		7269							
UR		642.7	56049.2	71700.3	70690.0		70690							
VENT				1113.0	1113.0		1113							
A1COND				8272.0	8272.0		8272							
A2COND				47867.0	47867.0		47867							
BCOND				7920.0	7920.0		7920							
BYCOND				38738.0	38738.0		38738							
S1COND				41997.0	41997.0		41997							
S2COND				4631.0	4631.0		4631							
T1COND				10560.0	10560.0		10560							
T2COND				29650.0	29650.0		29650							
A1-In		10183.3	165565.0	267201.5	35750.0		35750							
A2-In			0.0	20.1	80.0		80							
B-In		903.3	26247.7	46644.7	15574.0		15574							
BY-In		3228.3	-866.1	71536.8	57987.0		57987							
S1-In		32323.2	424769.8	875084.4	87393.0		87393							
S2-In		10650.0	69776.9	275697.7	26327.0		26327							

WSTRS3.45b	SWLIQ	UNK	assume	smmVol	supVol	tlmVol	tankVol	traffic	assum trf.	Max. TOC wt%	date of Max. TOC	TOC wt% now	Max. Haz. Index	Haz. Ind. Now
T1-in		593.5	39354.5	47592.7	20393.0		20393							
T2-in		38434.6	559510.9	1357986.3	127010.0		127010							
STATLOSS														
B-bot		188.2	3393.0	8527.3	4359.0		4359							
BY-bot		1884.1	3795.1	42318.7	8124.0		8124							
S1-bot														
S2-bot														
T1-bot		185.9	9508.7	13200.9	6610.0		6610							
T2-bot														
A1-bot														
R-bot		491.4	1484.0	20661.0	7669.0		7669							
swpump		2.4	7.6	10.0	10.0		10							

WSTRS3.45b	MW1	MW2	1C1	1C2	2C1	2C2	224	UR/TBP	PFeCN1	PFeCN2	TFeCN	1CFeCN	R1	R2	CWR1	CWR2	P1	P2	P2'	PL1	CWP1	CWP2	CWZr1	OWW1	OWW2	OWW3	Z
A-101																	3.0										
A-102																											
A-103																											
A-104																	1.0										
A-105																		19.0									
A-106																											
AX-101																		10.0									
AX-102																				1.0							
AX-103																		14.0									
AX-104																		7.0									
B-101	3.0																										
B-102	3.0																					1.0					
B-103	3.0																										
B-104				121.0	173.0	11.0																					
B-105				12.0	16.0																						
B-106																											
B-107			164.0																								
B-108			34.0																								
B-109																						13.0					
B-110					143.0	100.0												3.0									
B-111						209.0												26.0									
B-112						14.0																					
B-201							28.0																				
B-202							27.0																				
B-203							50.0																				
B-204							49.0																				
BX-101	29.0																										
BX-102	23.0																					5.0					
BX-103	54.0																					8.0					
BX-104	41.0																										
BX-105	46.0																										
BX-106	3.0																										
BX-107			213.0	131.0																							
BX-108			13.0	13.0																							
BX-109				34.0				159.0																			
BX-110			58.0	98.0																							
BX-111				32.0																							
BX-112				132.0																							
BY-101	37.0																										
BY-102	[illegible]																										
BY-103																						8.0					
BY-104										150.0																	
BY-105										142.0																	
BY-106									54.0	44.0																	
BY-107				24.0				20.0	43.0	30.0																	
BY-108									133.0	32.0																	
BY-109	36.0																										
BY-110				37.0					111.0	42.0																	
BY-111	26.0																										
BY-112	2.0									6.0																	
C-101	3.0							30.0													30.0	25.0					
C-102	5.0							16.0													33.0	330.0	13.0				
C-103																					37.0						

WSTRS3.45b	MW1	MW2	1C1	1C2	2C1	2C2	224	UR/TBP	PFeCN1	PFeCN2	TFeCN	1CFeCN	R1	R2	CWR1	CWR2	P1	P2	P2'	PL1	CWP1	CWP2	CWZr1	OWW1	OWW2	OWW3	Z
C-104	3.0															15.0		2.0		10.0	98.0	69.0	27.0			31.0	
C-105								15.0													135.0						
C-106								15.0													34.0						
C-107			218.0																			37.0					
C-108			29.0					25.0			12.0																
C-109			10.0								45.0																
C-110			187.0																								
C-111			36.0								5.0										16.0						
C-112			15.0								72.0										13.0	3.0					
C-201	1.0																										
C-202																											
C-203	4.0																										
C-204	2.0																										
S-101													92.0		29.0												
S-102													4.0														
S-103													9.0														
S-104													108.0		24.0												
S-105													2.0														
S-106															32.0												
S-107													92.0		89.0	42.0							18.0				
S-108													5.0														
S-109															13.0												
S-110													89.0		24.0												
S-111													66.0		12.0												
S-112													3.0		3.0												
SX-101													154.0														
SX-102													59.0														
SX-103													10.0														
SX-104													99.0														
SX-105													15.0	9.0													
SX-106																											
SX-107													63.0	24.0													
SX-108													69.0	18.0													
SX-109													44.0	16.0													
SX-110														32.0													
SX-111													42.0	41.0													
SX-112													44.0	25.0													
SX-113													2.0														
SX-114													11.0	37.0													
SX-115													6.0														
U-101	22.0																										
U-102	43.0																										
U-103	32.0																										
U-104	40.0																										
U-105	32.0																										
U-106	26.0																										
U-107															76.0												
U-108	3.0															26.0											
U-109	24.0														24.0												
U-110	24.0		162.0																								
U-111			13.0										13.0														
U-112			32.0										7.0		6.0												
U-201															4.0												

WSTRS3.45b	MW1	MW2	1C1	1C2	2C1	2C2	224	UR/TBP	PFeCN1	PFeCN2	TFeCN	1CFeCN	R1	R2	CWR1	CWR2	P1	P2	P2'	PL1	CWP1	CWP2	CWZr1	OWW1	OWW2	OWW3	Z
U-202															4.0												
U-203															2.0												
U-204															2.0												
T-101	2.0															35.0											
T-102	2.0																					17.0					
T-103	1.0																					17.0					
T-104			186.0	256.0																							
T-105				26.0	72.0																						
T-106				10.0											7.0	2.0											
T-107			171.0																								
T-108			21.0																								
T-109																											
T-110					222.0	144.0	10.0																				
T-111					139.0	281.0	36.0																				
T-112						60.0																					
T-201							28.0																				
T-202							21.0																				
T-203							35.0																				
T-204							38.0																				
TX-101	3.0												70.0														3.0
TX-102	2.0																										
TX-103																											
TX-104	18.0																										
TX-105	8.0																										
TX-106	1.0												4.0														
TX-107	8.0																										
TX-108	2.0							4.0																			
TX-109			161.0	223.0																							
TX-110			9.0	28.0																							
TX-111				43.0																							
TX-112																											
TX-113				183.0																							
TX-114				4.0																							
TX-115								8.0																			
TX-116																											
TX-117																											
TX-118																											39.0
TY-101												72.0															
TY-102																											
TY-103								61.0				47.0															
TY-104								43.0																			
TY-105								158.0																			
TY-106								1.0																			
AN-101																											
AN-102																											
AN-103																											
AN-104																											
AN-105																											
AN-106																											
AN-107																											
AP-101																											
AP-102																											
AP-103																											

WSTRS3.45b	MW1	MW2	1C1	1C2	2C1	2C2	224	UR/TBP	PFeCN1	PFeCN2	TFeCN	1CFeCN	R1	R2	CWR1	CWR2	P1	P2	P2'	PL1	CWP1	CWP2	CWZr1	OWW1	OWW2	OWW3	Z
AP-104																											
AP-105																											
AP-106																											
AP-107																											
AP-108																											
AW-101																											
AW-102																											
AW-103																											
AW-104																											
AW-105																											
AW-106																											
AY-101																											
AY-102																											
AZ-101																											
AZ-102																											1.0
SY-101																											
SY-102																											25.0
SY-103																											

WSTRS3.45b	HS	TH1	TH2	AR	B	BL	SRR	CSR ln	CSR	DE	CEM	NIT	Salt Slurry	DW	N	B ln	B-SltCk	T1 ln	T1-SltCk	R ln	RSltCk	T2 ln	T2-SltCk	BY ln	BY-SltCk	S1 ln	S1-SltCk	S2 ln
A-101																												
A-102							3.0																					
A-103				3.0																								
A-104				27.0																								
A-105																												
A-106				21.0			29.0																					
AX-101							3.0																					
AX-102					5.0																							
AX-103																												
AX-104																												
B-101					5.0	20.0											85.0											
B-102																	24.0											
B-103																	58.0											
B-104																	61.0											
B-105																	130.0											
B-106																	118.0											
B-107																												
B-108																	60.0											
B-109																	84.0											
B-110																												
B-111														1.0														
B-112																									16.0			
B-201																												
B-202																												
B-203																												
B-204																												
BX-101						13.0																						
BX-102										68.0																		
BX-103																												
BX-104																												
BX-105																												
BX-106																									28.0			
BX-107																												
BX-108																												
BX-109																												
BX-110																									42.0			
BX-111																									179.0			
BX-112																	32.0											
BY-101																									350.0			
BY-102																									312.0			
BY-103																									391.0			
BY-104																									176.0			
BY-105											8.0														337.0			
BY-106																									544.0			
BY-107																									149.0			
BY-108																									63.0			
BY-109																									387.0			
BY-110																									208.0			
BY-111																									433.0			
BY-112																									283.0			
C-101																												
C-102		26.0																										
C-103				25.0																								

WSTRS3.45b	HS	TH1	TH2	AR	B	BL	SRR	CSR in	CSR	DE	CEM	NIT	Salt Slurry	DW	N	B in	B-SltCk	T1 in	T1-SltCk	R in	RSltCk	T2 in	T2-SltCk	BY in	BY-SltCk	S1 in	S1-SltCk	S2 in
C-104			24.0				11.0																					
C-105																												
C-106				96.0		52.0																						
C-107							20.0																					
C-108																												
C-109	7.0																											
C-110																												
C-111																												
C-112	1.0																											
C-201	1.0																											
C-202	1.0																											
C-203	1.0																											
C-204	1.0																											
S-101																					90.0							
S-102																												
S-103																												
S-104																					161.0							
S-105																												
S-106																												
S-107																					13.0							
S-108																												
S-109																												
S-110																												
S-111																												
S-112																												
SX-101																					156.0							
SX-102																												
SX-103																					102.0							
SX-104																					70.0							
SX-105																					31.0							
SX-106																					1.0							
SX-107																					17.0							
SX-108																												
SX-109																					190.0							
SX-110																					30.0							
SX-111																					42.0							
SX-112																					23.0							
SX-113										29.0																		
SX-114																					133.0							
SX-115																					6.0							
U-101																												
U-102																												
U-103																												
U-104										39.0																		
U-105																												
U-106																												
U-107																												
U-108																												
U-109																												
U-110																												
U-111																												
U-112																												
U-201																												

WSTRS3.45b	HS	TH1	TH2	AR	B	BL	SRR	CSR in	CSR	DE	CEM	NIT	Salt Slurry	DW	N	B in	B-SltCk	T1 in	T1-SltCk	R in	RSltCk	T2 in	T2-SltCk	BY in	BY-SltCk	S1 in	S1-SltCk	S2 in
U-202																												
U-203																												
U-204																												
T-101																												
T-102																												
T-103																												
T-104																												
T-105																												
T-106																												
T-107																												
T-108																			23.0									
T-109																			58.0									
T-110																												
T-111																												
T-112																												
T-201																												
T-202																												
T-203																												
T-204																												
TX-101																												
TX-102																												
TX-103																			3.0									
TX-104																												
TX-105																												
TX-106																												
TX-107																												
TX-108																												
TX-109																												
TX-110																												
TX-111																												
TX-112																			24.0									
TX-113																												
TX-114																			58.0									
TX-115																												
TX-116										68.0									323.0									
TX-117										29.0									197.0									
TX-118																			6.0									
TY-101																			46.0									
TY-102																			29.0									
TY-103																												
TY-104																												
TY-105																												
TY-106										20.0																		
AN-101																												
AN-102																												
AN-103						2.0																						
AN-104																												
AN-105																												
AN-106																												
AN-107																												
AP-101																												
AP-102																												
AP-103																												

WSTRS3.45b	HS	TH1	TH2	AR	B	BL	SRR	CSR In	CSR	DE	CEM	NIT	Salt Slurry	DW	N	B In	B-SltCk	T1 In	T1-SltCk	R In	RSltCk	T2 In	T2-SltCk	BY In	BY-SltCk	S1 In	S1-SltCk	S2 In
AP-104																												
AP-105																												
AP-106																												
AP-107																												
AP-108																												
AW-101																												
AW-102																												
AW-103																												
AW-104																												
AW-105																												
AW-106						1.0																						
AY-101					13.0	5.0	8.0		7.0																			
AY-102						27.9																						
AZ-101						1.0																						
AZ-102							26.0																					
SY-101																												
SY-102														4.9														
SY-103																												

WSTRS3.45b	S2-SltSlr	A1 in	A1-SltCk	A2 in	A2-SltSlr	P3	PL2	CWZr2	BP /Cplx	BP /NCplx	PASF	WTR	GAS	SWLIQ	UNK	assume	tlmVol	tankVol
A-101																	3.0	953
A-102																	3.0	41
A-103																	3.0	371
A-104																	28.0	28
A-105																	19.0	19
A-106																	50.0	125
AX-101																	13.0	748
AX-102																	6.0	39
AX-103																	14.0	112
AX-104																	7.0	7
B-101																	113.0	113
B-102																	28.0	32
B-103																	59.0	59
B-104																	366.0	371
B-105																	158.0	158
B-106																	116.0	117
B-107																	164.0	165
B-108																	94.0	94
B-109																	97.0	127
B-110																	246.0	246
B-111																	236.0	237
B-112																	30.0	33
B-201																	28.0	29
B-202																	27.0	27
B-203																	50.0	51
B-204																	49.0	50
BX-101																	42.0	43
BX-102																	96.0	98
BX-103																	62.0	66
BX-104																	41.0	99
BX-[illegible]																	46.0	51
BX-106																	31.0	46
BX-107																	344.0	345
BX-108																	[illegible]	26
BX-109																		193
BX-11[illegible]																	198.0	198
BX-111																	211.0	211
BX-112																	164.0	165
BY-101																	387.0	387
BY-102																	330.0	341
BY-103																	400.0	400
BY-104																	326.0	326
BY-105																	503.0	503
BY-106																	642.0	642
[illegible]-107																	266.0	266
BY-108																	228.0	228
BY-109																	423.0	423
BY-110																	398.0	398
BY-111																	459.0	459
BY-112																	291.0	291
C-101																	88.0	88
C-102																	423.0	423
C-103																	62.0	195

WSTRS3.45b	S2-SltSlr	A1 in	A1-SltCk	A2 in	A2-SltSlr	P3	PL2	CWZr2	BP /Cplx	BP /NCplx	PASF	WTR	GAS	SWLIQ	UNK	assume	tlmVol	tankVol
C-104																	290.0	295
C-105																	150.0	150
C-106																	197.0	229
C-107																	275.0	275
C-108																	66.0	66
C-109																	62.0	66
C-110																	187.0	187
C-111																	57.0	57
C-112																	104.0	104
C-201																	2.0	2
C-202																	1.0	1
C-203																	5.0	5
C-204																	3.0	3
S-101																	211.0	427
S-102																	4.0	549
S-103																	9.0	248
S-104																	293.0	294
S-105																	2.0	407
S-106																	32.0	479
S-107																	253.9	376
S-108																	5.0	502
S-109																	13.0	507
S-110																	113.0	390
S-111																	78.0	538
S-112																	6.0	523
SX-101																	310.0	456
SX-102																	59.0	543
SX-103																	112.0	652
SX-104																	169.0	614
SX-105																	55.0	683
SX-106																	1.0	538
SX-107																	104.0	104
SX-108																	87.0	87
SX-109																	250.0	250
SX-110																	62.0	62
SX-111																	125.0	125
SX-112																	92.0	92
SX-113																	31.0	31
SX-114																	181.0	181
SX-115																	12.0	12
U-101																	22.0	25
U-102																	43.0	374
U-103																	32.0	468
U-104																	79.0	122
U-105																	32.0	418
U-106																	26.0	226
U-107																	76.0	406
U-108																	29.0	468
U-109																	48.0	463
U-110																	186.0	186
U-111																	26.0	329
U-112																	45.0	49
U-201																	4.0	5

WSTRS3.45b	S2-SltSlr	A1 in	A1-SltCk	A2 in	A2-SltSlr	P3	PL2	CWZr2	BP /Cplx	BP /NCplx	PASF	WTR	GAS	SWLIQ	UNK	assume	tlmVol	tankVol
U-202																	4.0	5
U-203																	2.0	3
U-204																	2.0	3
T-101																	37.0	102
T-102																	19.0	32
T-103																	18.0	27
T-104																	442.0	445
T-105																	98.0	98
T-106																	19.0	21
T-107																	171.0	180
T-108																	44.0	44
T-109																	58.0	58
T-110																	375.9	379
T-111																	455.9	458
T-112																	60.0	67
T-201																	28.0	29
T-202																	21.0	21
T-203																	35.0	35
T-204																	38.0	38
TX-101																	76.0	87
TX-102																	7.0	217
TX-103																	3.0	157
TX-104																	18.0	65
TX-105																	8.0	609
TX-106																	5.0	341
TX-107																	8.0	36
TX-108																	6.0	134
TX-109																	384.0	384
TX-110																	37.0	462
TX-111																	43.0	370
TX-112																	[illegible]	649
TX-113																	183.0	607
TX-114																	62.0	535
TX-115																	8.0	568
TX-116																	391.0	563
TX-117																	226.0	532
TX-118																	45.0	285
TY-101																	118.0	118
TY-102																	29.0	64
TY-103																	108.0	162
TY-104																	43.0	46
TY-105																	158.0	231
TY-106																	21.0	21
AN-101																		740
AN-102																		1090
AN-103																	2.0	953
AN-104																		1056
AN-105																		1130
AN-106																		21
AN-107																		1063
AP-101																		1060
AP-102																		1103
AP-103																		1131

WSTRS3.45b	S2-SltSlr	A1 in	A1-SltCk	A2 in	A2-SltSlr	P3	PL2	CWZr2	BP /Cplx	BP /NCplx	PASF	WTR	GAS	SWLIQ	UNK	assume	tlmVol	tankVol
AP-104																		18
AP-105																		820
AP-106																		1127
AP-107																		1110
AP-108																		1131
AW-101							61.0										61.0	1139
AW-102																		979
AW-103								363.0									363.0	646
AW-104							98.0	5.0									103.0	1123
AW-105							25.0	215.0									240.0	1040
AW-106																	1.0	1108
AY-101																	33.0	881
AY-102							4.0										31.9	711
AZ-101						27.0	1.0										29.0	960
AZ-102						13.0	3.0										43.0	963
SY-101																		1100
SY-102	41.0																70.9	747
SY-103																		744

Appendix E.

Inventory Estimates
May 1996

Each tank's inventory estimate is given in three tables: TLM Solids Composite. SMM Composite, and Total Inventory Estimates. Furthermore, each table expresses analyte average concentration as mol/L or ppm as well as kg or MCi inventories. Total site inventories in Mmols and kg are also shown for Rev. 3 as well as for previous revisions, Rev. 1 and Rev. 2. These site inventories are further broken down into DST, SST, Crib, and Leak destinations.

NE Quadrant

Single-Shell Tank 241-C-101			
TLM Solids Composite Inventory Estimate*			
Physical Properties			
Total Solid Waste	4.74E+05 kg	(88.0 kgal)	
Heat Load	2.26E-02 kW	(77.1 BTU/hr)	
Bulk Density	1.42 (g/cc)		
Void Fraction	0.825		
Water wt%	55.9		
TOC wt% C (wet)	9.59E-05		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	2.41	3.89E+04	1.85E+04
Al^{3+}	3.42	6.48E+04	3.07E+04
Fe^{3+} (total Fe)	0.727	2.85E+04	1.35E+04
Cr^{3+}	2.58E-03	94.3	44.7
Bi^{3+}	0	0	0
La^{3+}	0	0	0
Hg^{2+}	2.54E-03	358	170
Zr (as $ZrO(OH)_2$)	0	0	0
Pb^{2+}	0.133	1.93E+04	9.15E+03
Ni^{2+}	1.29E-03	53.2	25.2
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	0.253	7.11E+03	3.37E+03
K^{+}	6.32E-03	174	82.4
OH^{-}	14.3	1.71E+05	8.11E+04
$NO3^{-}$	1.09	4.73E+04	2.25E+04
$NO2^{-}$	0.420	1.36E+04	6.43E+03
$CO3^{2-}$	0.371	1.56E+04	7.41E+03
$PO4^{3-}$	5.42E-02	3.62E+03	1.72E+03
$SO4^{2-}$	5.34E-02	3.60E+03	1.71E+03
Si (as SiO_3^{2-})	5.82E-03	115	54.4
F^{-}	0	0	0
Cl^{-}	3.63E-02	902	428
$C_6H_5O_7^{3-}$	0	0	0
$EDTA^{4-}$	0	0	0
$HEDTA^{3-}$	0	0	0
glycolate^{-}	0	0	0
acetate^{-}	0	0	0
oxalate^{2-}	0	0	0
DBP	9.48E-06	1.77	0.840
butanol	9.48E-06	0.494	0.234
NH_3	3.57E-04	4.26	2.02
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		0.566 (µCi/g)	4.47 (kg)
U	0.208 (M)	3.47E+04 (µg/g)	1.65E+04 (kg)
Cs	1.79E-03 (Ci/L)	1.26 (µCi/g)	596 (Ci)
Sr	8.82E-03 (Ci/L)	6.19 (µCi/g)	2.94E+03 (Ci)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

Single-Shell Tank 241-C-101			
SMM Composite Inventory Estimate			
Physical Properties			
Total Supernatant Wa	0 kg		(0 kgal)
Heat Load	0 kW		(0 BTU/hr)
Bulk Density*	0 (g/cc)		
Water wt%†	0		
TOC wt% C (wet)	0		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	0	0	0
Al^{3+}	0	0	0
Fe^{3+} (total Fe)	0	0	0
Cr^{3+}	0	0	0
Bi^{3+}	0	0	0
La^{3+}	0	0	0
Hg^{2+}	0	0	0
Zr (as $ZrO(OH)_2$)	0	0	0
Pb^{2+}	0	0	0
Ni^{2+}	0	0	0
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	0	0	0
K^{+}	0	0	0
OH^{-}	0	0	0
$NO3^{-}$	0	0	0
$NO2^{-}$	0	0	0
$CO3^{2-}$	0	0	0
$PO4^{3-}$	0	0	0
$SO4^{2-}$	0	0	0
Si (as SiO_3^{2-})	0	0	0
F^{-}	0	0	0
Cl^{-}	0	0	0
$C_6H_5O_7^{3-}$	0	0	0
$EDTA^{4-}$	0	0	0
$HEDTA^{3-}$	0	0	0
glycolate^{-}	0	0	0
acetate^{-}	0	0	0
oxalate^{2-}	0	0	0
DBP	0		0
butanol	0		0
NH_3	0	0	0
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu	0 (μCi/L)		0 (kg)
U	0 (M)	0 (μg/g)	0 (kg)
Cs	0 (Ci/L)	0 (μCi/g)	0 (Ci)
Sr	0 (Ci/L)	0 (μCi/g)	0 (Ci)

*Density is calculated based on Na, OH^{-}, and AlO_2^{-}.

†Water wt% derived from the difference of density and total dissolved species.

Single-Shell Tank 241-C-101			
Total Inventory Estimate*			
Physical Properties			
Total Waste	4.74E+05 kg	(88.0 kgal)	
Heat Load	2.26E-02 kW	(77.1 BTU/hr)	
Bulk Density†	1.42 (g/cc)		
Water wt%†	55.9		
TOC wt% C (wet)†	9.59E-05		
Chemical Constituents	mole/L	ppm	kg
Na^{+}	2.41	3.89E+04	1.85E+04
Al^{3+}	3.42	6.48E+04	3.07E+04
Fe^{3+} (total Fe)	0.727	2.85E+04	1.35E+04
Cr^{3+}	2.58E-03	94.3	44.7
Bi^{3+}	0	0	0
La^{3+}	0	0	0
Hg^{2+}	2.54E-03	358	170
Zr (as $ZrO(OH)_2$)	0	0	0
Pb^{2+}	0.133	1.93E+04	9.15E+03
Ni^{2+}	1.29E-03	53.2	25.2
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	0.253	7.11E+03	3.37E+03
K^{+}	6.32E-03	174	82.4
OH^{-}	14.3	1.71E+05	8.11E+04
$NO3^{-}$	1.09	4.73E+04	2.25E+04
$NO2^{-}$	0.420	1.36E+04	6.43E+03
$CO3^{2-}$	0.371	1.56E+04	7.41E+03
$PO4^{3-}$	5.42E-02	3.62E+03	1.72E+03
$SO4^{2-}$	5.34E-02	3.60E+03	1.71E+03
Si (as SiO_3^{2-})	5.82E-03	115	54.4
F^{-}	0	0	0
Cl^{-}	3.63E-02	902	428
$C_6H_5O_7^{3-}$	0	0	0
$EDTA^{4-}$	0	0	0
$HEDTA^{3-}$	0	0	0
glycolate^{-}	0	0	0
acetate^{-}	0	0	0
oxalate^{2-}	0	0	0
DBP	9.48E-06	1.77	0.840
butanol	9.48E-06	0.494	0.234
NH_3	3.57E-04	4.26	2.02
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		0.566 (μCi/g)	4.47 (kg)
U	0.208 (M)	3.47E+04 (μg/g)	1.65E+04 (kg)
Cs	1.79E-03 (Ci/L)	1.26 (μCi/g)	596 (Ci)
Sr	8.82E-03 (Ci/L)	6.19 (μCi/g)	2.94E+03 (Ci)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).
†Volume average for density, mass average Water wt% and TOC wt% C.

Single-Shell Tank 241-C-102			
TLM Solids Composite Inventory Estimate*			
Physical Properties			
Total Solid Waste	2.39E+06 kg	(423 kgal)	
Heat Load	3.93E-02 kW	(134 BTU/hr)	
Bulk Density	1.49 (g/cc)		
Void Fraction	0.783		
Water wt%	52.8		
TOC wt% C (wet)	1.06E-03		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	1.68	2.59E+04	6.18E+04
Al^{3+}	5.02	9.08E+04	2.17E+05
Fe^{3+} (total Fe)	0.501	1.88E+04	4.48E+04
Cr^{3+}	2.69E-03	93.8	224
Bi^{3+}	0	0	0
La^{3+}	0	0	0
Hg^{2+}	4.87E-03	655	1.56E+03
Zr (as $ZrO(OH)_2$)	2.85E-02	1.74E+03	4.16E+03
Pb^{2+}	0.263	3.66E+04	8.73E+04
Ni^{2+}	3.56E-03	140	334
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	0.287	7.72E+03	1.84E+04
K^{+}	9.65E-03	253	[illegible]04
OH^{-}	18.8	2.15E+05	5.1[illegible]5
$NO3^{-}$	0.697	2.90E+04	6.92[illegible]4
$NO2^{-}$	0.243	7.49E+03	1.79[illegible]04
$CO3^{2-}$	0.315	1.27E+04	3.02E+04
$PO4^{3-}$	1.44E-02	918	2.19E+03
$SO4^{2-}$	1.74E-02	1.12E+03	2.67E+03
Si (as SiO_3^{2-})	1.34E-03	25.2	60.1
F^{-}	0.169	2.16E+03	5.15E+03
Cl^{-}	1.44E-02	342	817
$C_6H_5O_7^{3-}$	0	0	0
$EDTA^{4-}$	0	0	0
$HEDTA^{3-}$		0	0
$glycolate^{-}$		0	0
$acetate^{-}$	0	0	0
$oxalate^{2-}$	0	0	0
DBP	1.09E-04	19.5	46.6
butanol	1.09E-04	5.43	13.0
NH_3	2.04E-02	232	554
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		1.02 (μCi/g)	40.[illegible] (kg)
U	0.198 (M)	3.16E+04 (μg/g)	7.55E+04 (kg)
Cs	1.83E-03 (Ci/L)	1.23 (μCi/g)	2.93E+03 (Ci)
Sr	2.37E-03 (Ci/L)	1.59 (μCi/g)	3.79E+03 (Ci)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

Single-Shell Tank 241-C-102			
SMM Composite Inventory Estimate			
Physical Properties			
Total Supernatant Wa	0 kg	(0 kgal)	
Heat Load	0 kW	(0 BTU/hr)	
Bulk Density*	0 (g/cc)		
Water wt%†	0		
TOC wt% C (wet)	0		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^+	0	0	0
Al^{3+}	0	0	0
Fe^{3+} (total Fe)	0	0	0
Cr^{3+}	0	0	0
Bi^{3+}	0	0	0
La^{3+}	0	0	0
Hg^{2+}	0	0	0
Zr (as $ZrO(OH)_2$)	0	0	0
Pb^{2+}	0	0	0
Ni^{2+}	0	0	0
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	0	0	0
K^+	0	0	0
OH^-	0	0	0
$NO3^-$	0	0	0
$NO2^-$	0	0	0
$CO3^{2-}$	0	0	0
$PO4^{3-}$	0	0	0
$SO4^{2-}$	0	0	0
Si (as SiO_3^{2-})	0	0	0
F^-	0	0	0
Cl^-	0	0	0
$C_6H_5O_7^{3-}$	0	0	0
$EDTA^{4-}$	0	0	0
$HEDTA^{3-}$	0	0	0
$glycolate^-$	0	0	0
$acetate^-$	0	0	0
$oxalate^{2-}$	0	0	0
DBP	0	0	0
butanol	0	0	0
NH_3	0	0	0
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu	0 (μCi/L)		0 (kg)
U	0 (M)	0 (μg/g)	0 (kg)
Cs	0 (Ci/L)	0 (μCi/g)	0 (Ci)
Sr	0 (Ci/L)	0 (μCi/g)	0 (Ci)

*Density is calculated based on Na, OH^-, and AlO_2^-.

†Water wt% derived from the difference of density and total dissolved species.

Single-Shell Tank 241-C-102			
Total Inventory Estimate*			
Physical Properties			
Total Waste	2.39E+06 kg	(423 kgal)	
Heat Load	3.93E-02 kW	(134 BTU/hr)	
Bulk Density†	1.49 (g/cc)		
Water wt%†	52.8		
TOC wt% C (wet)†	1.06E-03		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	1.68	2.59E+04	6.18E+04
Al^{3+}	5.02	9.08E+04	2.17E+05
Fe^{3+} (total Fe)	0.501	1.88E+04	4.48E+04
Cr^{3+}	2.69E-03	93.8	224
Bi^{3+}	0	0	0
La^{3+}	0	0	0
Hg^{2+}	4.87E-03	655	1.56E+03
Zr (as $ZrO(OH)_2$)	2.85E-02	1.74E+03	4.16E+03
Pb^{2+}	0.263	3.66E+04	8.73E+04
Ni^{2+}	3.56E-03	140	334
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	0.287	7.72E[illegible]	1.84E+04
K^{+}	9.65E-03	253	604
OH^{-}	18.8	2.15E+05	5.13E+05
$NO3^{-}$	0.697	2.90E+04	6.92E+04
$NO2^{-}$	0.243	7.49E+03	1.79E+04
$CO3^{2-}$	0.315	1.27E+04	3.02E+04
$PO4^{3-}$	1.44E-02	918	2.19E+03
$SO4^{2-}$	1.74E-02	1.12E+03	2.67E+03
Si (as SiO_3^{2-})	1.34E-03	25.2	60.1
F^{-}	0.169	2.16E+03	5.15E+03
Cl^{-}	1.44E-02	342	817
$C_6H_5O_7^{3-}$	0	0	0
$EDTA^{4-}$	0	0	0
$HEDTA^{3-}$	0	0	0
glycolate^{-}	0	0	0
acetate^{-}	0	0	0
oxalate^{2-}	0	0	0
DBP	1.09E-04	19.5	46.6
butanol	1.09E-04	5.43	13.0
NH_3	2.04E-02	232	554
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		1.02 (μCi/g)	40.7 (kg)
U	0.198 (M)	3.16E+04 (μg/g)	7.55E+04 (kg)
Cs	1.83E-03 (Ci/L)	1.23 (μCi/g)	2.93E+03 (Ci)
Sr	2.37E-03 (Ci/L)	1.59 (μCi/g)	3.79E+03 (Ci)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).
†Volume average for density, mass average Water wt% and TOC wt% C.

Single-Shell Tank 241-C-103			
TLM Solids Composite Inventory Estimate*			
Physical Properties			
Total Solid Waste	3.21E+05 kg	(62.0 kgal)	
Heat Load	7.64 kW	(2.61E+04 BTU/hr)	
Bulk Density	1.37 (g/cc)		
Void Fraction	0.833		
Water wt%	62.2		
TOC wt% C (wet)	0		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	3.44	5.79E+04	1.86E+04
Al^{3+}	3.10	6.13E+04	1.97E+04
Fe^{3+} (total Fe)	0.623	2.55E+04	8.17E+03
Cr^{3+}	7.26E-03	276	88.6
Bi^{3+}	3.89E-06	0.594	0.191
La^{3+}	0	0	0
Hg^{2+}	1.51E-03	221	71.0
Zr (as $ZrO(OH)_2$)	1.38E-07	9.24E-03	2.96E-03
Pb^{2+}	7.02E-02	1.06E+04	3.41E+03
Ni^{2+}	5.68E-02	2.44E+03	783
Sr^{2+}	0	0	0
Mn^{4+}	8.92E-04	35.9	11.5
Ca^{2+}	0.116	3.40E+03	1.09E+03
K^{+}	3.19E-03	91.2	29.2
OH^{-}	12.2	1.52E+05	4.88E+04
$NO3^{-}$	0.336	1.53E+04	4.89E+03
$NO2^{-}$	0.660	2.22E+04	7.12E+03
$CO3^{2-}$	0.162	7.11E+03	2.28E+03
$PO4^{3-}$	7.86E-03	546	175
$SO4^{2-}$	3.37E-02	2.37E+03	760
Si (as SiO_3^{2-})	0.924	1.90E+04	6.09E+03
F^{-}	1.32E-04	1.84	0.589
Cl^{-}	9.22E-03	239	76.6
$C_6H_5O_7^{3-}$	0	0	0
$EDTA^{4-}$	0	0	0
$HEDTA^{3-}$	0	0	0
$glycolate^{-}$	0	0	0
$acetate^{-}$	0	0	0
$oxalate^{2-}$	0	0	0
DBP	0	0	0
butanol	0	0	0
NH_3	7.79E-02	969	311
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		3.15 (μCi/g)	16.8 (kg)
U	5.98E-02 (M)	1.04E+04 (μg/g)	3.34E+03 (kg)
Cs	9.38E-02 (Ci/L)	68.7 (μCi/g)	2.20E+04 (Ci)
Sr	4.77 (Ci/L)	3.49E+03 (μCi/g)	1.12E+06 (Ci)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

Single-Shell Tank 241-C-103			
SMM Composite Inventory Estimate			
Physical Properties			
Total Supernatant Wa	5.68E+05 kg	(133 kgal)	
Heat Load	0.258 kW	(880 BTU/hr)	
Bulk Density*	1.13 (g/cc)		
Water wt%†	78.7		
TOC wt% C (wet)	1.72		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	2.86	5.82E+04	3.31E+04
Al^{3+}	0.315	7.52E+03	4.27E+03
Fe^{3+} (total Fe)	1.36E-03	67.6	38.4
Cr^{3+}	7.33E-03	338	192
Bi^{3+}	1.83E-04	33.8	19.2
La^{3+}	7.31E-07	9.00E-02	5.11E-02
Hg^{2+}	2.13E-06	0.378	0.215
Zr (as $ZrO(OH)_2$)	6.48E-05	5.24	2.98
Pb^{2+}	3.60E-04	66.1	37.6
Ni^{2+}	7.16E-04	37.2	21.2
Sr^{2+}	2.44E-07	1.89E-02	1.07E-02
Mn^{4+}	9.55E-04	46.5	26.4
Ca^{2+}	6.13E-03	218	124
K^{+}	1.46E-02	505	287
OH^{-}	1.41	2.13E+04	1.21E+04
$NO3^{-}$	0.811	4.45E+04	2.53E+04
$NO2^{-}$	0.470	1.92E+04	1.09E+04
$CO3^{2-}$	0.158	8.40E+03	4.77E+03
$PO4^{3-}$	1.64E-02	1.38E+03	785
$SO4^{2-}$	7.89E-02	6.72E+03	3.82E+03
Si (as SiO_3^{2-})	1.97E-02	490	278
F^{-}	1.19E-02	201	114
Cl^{-}	5.06E-02	1.59E+03	902
$C_6H_5O_7^{3-}$	7.36E-03	1.23E+03	701
$EDTA^{4-}$	4.42E-02	1.13E+04	6.40E+03
$HEDTA^{3-}$	8.39E-02	2.04E+04	1.16E+04
glycolate^{-}	9.39E-02	6.25E+03	3.55E+03
acetate^{-}	1.40E-02	734	417
oxalate^{2-}	6.25E-07	4.88E-02	2.77E-02
DBP	6.28E-03	1.48E+03	841
butanol	6.28E-03	412	234
NH_3	4.57E-03	68.8	39.1
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu	18.8 (μCi/L)		0.158 (kg)
U	2.51E-03 (M)	530 (μg/g)	301 (kg)
Cs	5.41E-02 (Ci/L)	47.9 (μCi/g)	2.72E+04 (Ci)
Sr	3.84E-02 (Ci/L)	34.0 (μCi/g)	1.93E+04 (Ci)

*Density is calculated based on Na, OH^{-}, and AlO_2^{-}.

†Water wt% derived from the difference of density and total dissolved species.

Single-Shell Tank 241-C-103			
Total Inventory Estimate*			
Physical Properties			
Total Waste	8.89E+05 kg	(195 kgal)	
Heat Load	7.90 kW	(2.70E+04 BTU/hr)	
Bulk Density†	1.20 (g/cc)		
Water wt%†	72.8		
TOC wt% C (wet)†	1.10		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	3.04	5.81E+04	5.16E+04
Al^{3+}	1.20	2.69E+04	2.39E+04
Fe^{3+} (total Fe)	0.199	9.23E+03	8.21E+03
Cr^{3+}	7.31E-03	316	281
Bi^{3+}	1.26E-04	21.8	19.4
La^{3+}	4.99E-07	5.75E-02	5.11E-02
Hg^{2+}	4.81E-04	80.1	71.2
Zr (as $ZrO(OH)_2$)	4.43E-05	3.35	2.98
Pb^{2+}	2.26E-02	3.88E+03	3.45E+03
Ni^{2+}	1.85E-02	904	804
Sr^{2+}	1.66E-07	1.21E-02	1.07E-02
Mn^{4+}	9.35E-04	42.7	37.9
Ca^{2+}	4.11E-02	1.37E+03	1.22E+03
K^{+}	1.10E-02	356	316
OH^{-}	4.85	6.85E+04	6.09E+04
$NO3^{-}$	0.660	3.40E+04	3.02E+04
$NO2^{-}$	0.530	2.03E+04	1.80E+04
$CO3^{2-}$	0.159	7.93E+03	7.05E+03
$PO4^{3-}$	1.37E-02	1.08E+03	960
$SO4^{2-}$	6.45E-02	5.15E+03	4.58E+03
Si (as SiO_3^{2-})	0.307	7.17E+03	6.37E+03
F^{-}	8.17E-03	129	115
Cl^{-}	3.74E-02	1.10E+03	979
$C_6H_5O_7^{3-}$	5.02E-03	789	701
$EDTA^{4-}$	3.01E-02	7.21E+03	6.40E+03
$HEDTA^{3-}$	5.72E-02	1.30E+04	1.16E+04
$glycolate^{-}$	6.41E-02	3.99E+03	3.55E+03
$acetate^{-}$	9.57E-03	469	417
$oxalate^{2-}$	4.27E-07	3.12E-02	2.77E-02
DBP	4.28E-03	946	841
butanol	4.28E-03	264	234
NH_3	2.79E-02	394	350
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		1.15 (μCi/g)	17.0 (kg)
U	2.07E-02 (M)	4.10E+03 (μg/g)	3.64E+03 (kg)
Cs	6.67E-02 (Ci/L)	55.4 (μCi/g)	4.93E+04 (Ci)
Sr	1.54 (Ci/L)	1.28E+03 (μCi/g)	1.14E+06 (Ci)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).
†Volume average for density, mass average Water wt% and TOC wt% C.

Single-Shell Tank 241-C-104			
TLM Solids Composite Inventory Estimate*			
Physical Properties			
Total Solid Waste	1.60E+06 kg	(290 kgal)	
Heat Load	8.49 kW	(2.90E+04 BTU/hr)	
Bulk Density	1.46 (g/cc)		
Void Fraction	0.798		
Water wt%	54.1		
TOC wt% C (wet)	0.154		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^+	2.36	3.71E+04	5.94E+04
Al^{3+}	3.50	6.47E+04	1.04E+05
Fe^{3+} (total Fe)	1.15	4.39E+04	7.03E+04
Cr^{3+}	3.24E-03	116	185
Bi^{3+}	0	0	0
La^{3+}	0	0	0
Hg^{2+}	3.02E-03	415	664
Zr (as $ZrO(OH)_2$)	8.63E-02	5.39E+03	8.64E+03
Pb^{2+}	0.134	1.90E+04	3.05E+04
Ni^{2+}	4.75E-02	1.91E+03	3.06E+03
Sr^{2+}	0	0	0
Mn^{4+}	5.91E-05	2.23	3.56
Ca^{2+}	0.343	9.41E+03	1.51E+04
K^+	2.23E-02	599	959
OH^-	16.1	1.88E+05	3.01E+05
$NO3^-$	0.504	2.14E+04	3.43E+04
$NO2^-$	0.550	1.73E+04	2.78E+04
$CO3^{2-}$	0.388	1.60E+04	2.56E+04
$PO4^{3-}$	1.40E-02	910	1.46E+03
$SO4^{2-}$	1.77E-02	1.16E+03	1.86E+03
Si (as SiO_3^{2-})	8.46E-02	1.63E+03	2.61E+03
F^-	0.502	6.53E+03	1.05E+04
Cl^-	1.55E-02	376	602
$C_6H_5O_7^{3-}$	0	0	0
$EDTA^{4-}$	4.86E-03	959	1.54E+03
$HEDTA^{3-}$	9.71E-03	1.82E+03	2.92E+03
$glycolate^-$	9.71E-03	499	800
$acetate^-$	0	0	0
$oxalate^{2-}$	0	0	0
DBP	1.89E-03	344	551
butanol	1.89E-03	95.8	153
NH_3	0.127	1.48E+03	2.37E+03
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		0.955 (µCi/g)	25.5 (kg)
U	0.176 (M)	2.87E+04 (µg/g)	4.59E+04 (kg)
Cs	5.80E-02 (Ci/L)	39.8 (µCi/g)	6.37E+04 (Ci)
Sr	1.11 (Ci/L)	760 (µCi/g)	1.22E+06 (Ci)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

Single-Shell Tank 241-C-104			
SMM Composite Inventory Estimate			
Physical Properties			
Total Supernatant Wa	2.50E+04 kg	(5.04 kgal)	
Heat Load	2.25E-02 kW	(76.9 BTU/hr)	
Bulk Density*	1.31 (g/cc)		
Water wt%†	58.1		
TOC wt% C (wet)	1.08		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	6.62	1.16E+05	2.90E+03
Al^{3+}	0.907	1.87E+04	466
Fe^{3+} (total Fe)	3.75E-03	160	3.99
Cr^{3+}	2.87E-02	1.14E+03	28.4
Bi^{3+}	6.73E-04	107	2.68
La^{3+}	1.48E-05	1.57	3.91E-02
Hg^{2+}	5.28E-06	0.809	2.02E-02
Zr (as $ZrO(OH)_2$)	3.90E-04	27.2	0.678
Pb^{2+}	6.93E-04	110	2.73
Ni^{2+}	3.04E-03	136	3.40
Sr^{2+}	4.93E-06	0.329	8.23E-03
Mn^{4+}	2.46E-03	103	2.57
Ca^{2+}	1.70E-02	520	13.0
K^{+}	3.24E-02	968	24.2
OH^{-}	3.96	5.14E+04	1.28E+03
$NO3^{-}$	2.60	1.23E+05	3.07E+03
$NO2^{-}$	1.34	4.70E+04	1.17E+03
$CO3^{2-}$	0.286	1.31E+04	327
$PO4^{3-}$	5.00E-02	3.63E+03	90.6
$SO4^{2-}$	0.155	1.14E+04	284
Si (as SiO_3^{2-})	4.42E-02	949	23.7
F^{-}	4.00E-02	580	14.5
Cl^{-}	0.118	3.18E+03	79.3
$C_6H_5O_7^{3-}$	1.79E-02	2.58E+03	64.5
$EDTA^{4-}$	2.52E-02	5.54E+03	138
$HEDTA^{3-}$	4.66E-02	9.74E+03	243
glycolate^{-}	8.23E-02	4.71E+03	118
acetate^{-}	1.23E-02	554	13.8
oxalate^{2-}	1.26E-05	0.850	2.12E-02
DBP	1.39E-02	2.83E+03	70.6
butanol	1.39E-02	788	19.7
NH_3	2.50E-02	324	8.10
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu	44.1 (μCi/L)		1.40E-02 (kg)
U	6.38E-03 (M)	1.16E+03 (μg/g)	28.9 (kg)
Cs	0.155 (Ci/L)	118 (μCi/g)	2.95E+03 (Ci)
Sr	6.76E-02 (Ci/L)	51.6 (μCi/g)	1.29E+03 (Ci)

*Density is calculated based on Na, OH^{-}, and AlO_2^{-}.

†Water wt% derived from the difference of density and total dissolved species.

Single-Shell Tank 241-C-104			
Total Inventory Estimate*			
Physical Properties			
Total Waste	1.63E+06 kg	(295 kgal)	
Heat Load	8.52 kW	(2.91E+04 BTU/hr)	
Bulk Density†	1.46 (g/cc)		
Water wt%†	54.2		
TOC wt% C (wet)†	0.169		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	2.43	3.83E+04	6.23E+04
Al^{3+}	3.45	6.40E+04	1.04E+05
Fe^{3+} (total Fe)	1.13	4.32E+04	7.03E+04
Cr^{3+}	3.68E-03	131	214
Bi^{3+}	1.15E-05	1.65	2.68
La^{3+}	2.52E-07	2.41E-02	3.91E-02
Hg^{2+}	2.97E-03	408	664
Zr (as $ZrO(OH)_2$)	8.48E-02	5.31E+03	8.64E+03
Pb^{2+}	0.132	1.88E+04	3.05E+04
Ni^{2+}	4.67E-02	1.88E+03	3.06E+03
Sr^{2+}	8.41E-08	5.06E-03	8.23E-03
Mn^{4+}	1.00E-04	3.77	6.14
Ca^{2+}	0.337	9.27E+03	1.51E+04
K^{+}	2.25E-02	604	983
OH^{-}	15.9	1.86E+05	3.02E+05
$NO3^{-}$	0.540	2.30E+04	3.74E+04
$NO2^{-}$	0.564	1.78E+04	2.89E+04
$CO3^{2-}$	0.386	1.59E+04	2.59E+04
$PO4^{3-}$	1.46E-02	952	1.55E+03
$SO4^{2-}$	2.00E-02	1.32E+03	2.15E+03
Si (as SiO_3^{2-})	8.39E-02	1.62E+03	2.63E+03
F^{-}	0.494	6.44E+03	1.05E+04
Cl^{-}	1.72E-02	419	681
$C_6H_5O_7^{3-}$	3.06E-04	39.7	64.5
$EDTA^{4-}$	5.20E-03	1.03E+03	1.67E+03
$HEDTA^{3-}$	1.03E-02	1.95E+03	3.17E+03
$glycolate^{-}$	1.10E-02	564	917
$acetate^{-}$	2.10E-04	8.50	13.8
$oxalate^{2-}$	2.16E-07	1.30E-02	2.12E-02
DBP	2.09E-03	82	621
butanol	2.09E-03	106	173
NH_3	0.125	1.46E+03	2.38E+03
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		0.941 (μCi/g)	25.5 (kg)
U	0.173 (M)	2.82E+04 (μg/g)	4.59E+04 (kg)
Cs	5.97E-02 (Ci/L)	41.0 (μCi/g)	6.67E+04 (Ci)
Sr	1.09 (Ci/L)	749 (μCi/g)	1.22E+06 (Ci)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).
†Volume average for density, mass average Water wt% and TOC wt% C.

Single-Shell Tank 241-C-105			
TLM Solids Composite Inventory Estimate*			
Physical Properties			
Total Solid Waste	7.96E+05 kg	(150 kgal)	
Heat Load	2.00E-02 kW	(68.4 BTU/hr)	
Bulk Density	1.40 (g/cc)		
Void Fraction	0.842		
Water wt%	58.1		
TOC wt% C (wet)	2.86E-05		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	2.14	3.51E+04	2.79E+04
Al^{3+}	4.64	8.93E+04	7.11E+04
Fe^{3+} (total Fe)	0.306	1.22E+04	9.69E+03
Cr^{3+}	2.61E-03	96.7	76.9
Bi^{3+}	0	0	0
La^{3+}	0	0	0
Hg^{2+}	2.27E-03	325	259
Zr (as $ZrO(OH)_2$)	0	0	0
Pb^{2+}	0.106	1.57E+04	1.25E+04
Ni^{2+}	1.30E-03	54.6	43.4
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	0.143	4.09E+03	3.25E+03
K^{+}	2.64E-03	73.7	58.6
OH^{-}	16.3	1.98E+05	1.57E+05
$NO3^{-}$	0.726	3.21E+04	2.56E+04
$NO2^{-}$	0.643	2.11E+04	1.68E+04
$CO3^{2-}$	0.160	6.83E+03	5.43E+03
$PO4^{3-}$	1.19E-02	807	642
$SO4^{2-}$	2.25E-02	1.54E+03	1.23E+03
Si (as SiO_3^{2-})	1.52E-02	305	243
F^{-}	0	0	0
Cl^{-}	1.43E-02	360	287
$C_6H_5O_7^{3-}$	0	0	0
$EDTA^{4-}$	0	0	0
$HEDTA^{3-}$	0	0	0
glycolate^{-}	0	0	0
acetate^{-}	0	0	0
oxalate^{2-}	0	0	0
DBP	2.78E-06	0.528	0.420
butanol	2.78E-06	0.147	0.117
NH_3	2.24E-04	2.71	2.16
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		0.527 (μCi/g)	6.99 (kg)
U	0.103 (M)	1.74E+04 (μg/g)	1.39E+04 (kg)
Cs	2.09E-03 (Ci/L)	1.49 (μCi/g)	1.18E+03 (Ci)
Sr	3.79E-03 (Ci/L)	2.70 (μCi/g)	2.15E+03 (Ci)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

Single-Shell Tank 241-C-105			
SMM Composite Inventory Estimate			
Physical Properties			
Total Supernatant Wa	0 kg	(0 kgal)	
Heat Load	0 kW	(0 BTU/hr)	
Bulk Density*	0 (g/cc)		
Water wt%†	0		
TOC wt% C (wet)	0		
Chemical Constituents	mole/L	ppm	kg
Na^{+}	0	0	0
Al^{3+}	0	0	0
Fe^{3+} (total Fe)	0	0	0
Cr^{3+}	0	0	0
Bi^{3+}	0	0	0
La^{3+}	0	0	0
Hg^{2+}	0	0	0
Zr (as $ZrO(OH)_2$)	0	0	0
Pb^{2+}	0	0	0
Ni^{2+}	0	0	0
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	0	0	0
K^{+}	0	0	0
OH^{-}	0	0	0
$NO3^{-}$	0	0	0
$NO2^{-}$	0	0	0
$CO3^{2-}$	0	0	0
$PO4^{3-}$	0	0	0
$SO4^{2-}$	0	0	0
Si (as SiO_3^{2-})	0	0	0
F^{-}	0	0	0
Cl^{-}	0	0	0
$C_6H_5O_7^{3-}$	0	0	0
$EDTA^{4-}$	0	0	0
$HEDTA^{3-}$	0	0	0
$glycolate^{-}$	0	0	0
$acetate^{-}$	0	0	0
$oxalate^{2-}$	0	0	0
DBP	0	0	0
butanol	0	0	0
NH_3	0	0	0
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu	0 (μCi/L)		0 (kg)
U	0 (M)	0 (μg/g)	0 (kg)
Cs	0 (Ci/L)	0 (μCi/g)	0 (Ci)
Sr	0 (Ci/L)	0 (μCi/g)	0 (Ci)

*Density is calculated based on Na, OH^{-}, and AlO

†Water wt% derived from the difference of density and total dissolved species.

Single-Shell Tank 241-C-105			
Total Inventory Estimate*			
Physical Properties			
Total Waste	7.96E+05 kg	(150 kgal)	
Heat Load	2.00E-02 kW	(68.4 BTU/hr)	
Bulk Density†	1.40 (g/cc)		
Water wt%†	58.1		
TOC wt% C (wet)†	2.86E-05		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	2.14	3.51E+04	2.79E+04
Al^{3+}	4.64	8.93E+04	7.11E+04
Fe^{3+} (total Fe)	0.306	1.22E+04	9.69E+03
Cr^{3+}	2.61E-03	96.7	76.9
Bi^{3+}	0	0	0
La^{3+}	0	0	0
Hg^{2+}	2.27E-03	325	259
Zr (as $ZrO(OH)_2$)	0	0	0
Pb^{2+}	0.106	1.57E+04	1.25E+04
Ni^{2+}	1.30E-03	54.6	43.4
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	0.143	4.09E+03	3.25E+03
K^{+}	2.64E-03	73.7	58.6
OH^{-}	16.3	1.98E+05	1.57E+05
$NO3^{-}$	0.726	3.21E+04	2.56E+04
$NO2^{-}$	0.643	2.11E+04	1.68E+04
$CO3^{2-}$	0.160	6.83E+03	5.43E+03
$PO4^{3-}$	1.19E-02	807	642
$SO4^{2-}$	2.25E-02	1.54E+03	1.23E+03
Si (as SiO_3^{2-})	1.52E-02	305	243
F^{-}	0	0	0
Cl^{-}	1.43E-02	360	287
$C_6H_5O_7^{3-}$	0	0	0
$EDTA^{4-}$	0	0	0
$HEDTA^{3-}$	0	0	0
glycolate^{-}	0	0	0
acetate^{-}	0	0	0
oxalate^{2-}	0	0	0
DBP	2.78E-06	0.528	0.420
butanol	2.78E-06	0.147	0.117
NH_3	2.24E-04	2.71	2.16
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		0.527 (μCi/g)	6.99 (kg)
U	0.103 (M)	1.74E+04 (μg/g)	1.39E+04 (kg)
Cs	2.09E-03 (Ci/L)	1.49 (μCi/g)	1.18E+03 (Ci)
Sr	3.79E-03 (Ci/L)	2.70 (μCi/g)	2.15E+03 (Ci)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

†Volume average for density, mass average Water wt% and TOC wt% C.

Single-Shell Tank 241-C-106			
TLM Solids Composite Inventory Estimate*			
Physical Properties			
Total Solid Waste	1.12E+06 kg	(197 kgal)	
Heat Load	35.6 kW	(1.22E+05 BT[illegible]hr)	
Bulk Density	1.50 (g/cc)		
Void Fraction	0.77[illegible]		
Water wt%	54.4		
TOC wt% C (wet)	5.96E-02		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	5.11	7.82E+04	8.76E+04
Al^{3+}	2.53	4.54E+04	5.08E+04
Fe^{3+} (total Fe)	1.37	5.08E+04	5.69E+04
Cr^{3+}	7.59E-03	263	294
Bi^{3+}	4.70E-06	0.654	0.732
La^{3+}	0	0	0
Hg^{2+}	4.36E-04	58.3	65.2
Zr (as $ZrO(OH)_2$)	1.67E-07	1.02E-02	1.14E-02
Pb^{2+}	2.03E-02	2.80E+03	3.14E+03
Ni^{2+}	0.387	1.51E+04	1.69E+04
Sr^{2+}	0	0	0
Mn^{4+}	1.08E-03	39.5	44.2
Ca^{2+}	0.154	4.11E+03	4.61E+03
K^{+}	6.46E-03	168	[illegible]88
OH^{-}	13.8	1.56E+05	1.75[illegible]
$NO3^{-}$	0.264	1.09E+04	1.22E+04
$NO2^{-}$	0.718	2.20E+04	2.46E+04
$CO3^{2-}$	0.262	1.05E+04	1.17E+04
$PO4^{3-}$	2.01E-02	1.27E+03	1.42E+03
$SO4^{2-}$	5.15E-02	3.29E+03	3.69E+03
Si (as SiO_3^{2-})	1.74	3.25E+04	3.64E+04
F^{-}	1.60E-04	2.02	2.26
Cl^{-}	2.47E-02	584	654
$C_6H_5O_7^{3-}$	2.28E-03	287	322
$EDTA^{4-}$	0	0	0
$HEDTA^{3-}$	0	0	0
glycolate^{-}	3.04E-02	1.52E+03	1.70E+03
acetate^{-}	0	0	0
oxalate^{2-}	0	0	0
DBP	2.12E-06	0.375	0.420
butanol	2.12E-06	0.105	0.117
NH_3	0.117	1.33E+03	1.49E+03
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		4.08 (µCi/g)	76.1 (kg)
U	0.177 (M)	2.80E+04 (µg/g)	3.14E+04 (kg)
Cs	0.112 (Ci/L)	[illegible] (µCi/g)	8.37E+04 (Ci)
Sr	7.01 (Ci/L)	4.67E+03 (µCi/g)	5.22E+06 (Ci)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

Single-Shell Tank 241-C-106			
SMM Composite Inventory Estimate			
Physical Properties			
Total Supernatant Wa	1.24E+05 kg	(32.0 kgal)	
Heat Load	4.37E-03 kW	(14.9 BTU/hr)	
Bulk Density*	1.03 (g/cc)		
Water wt%†	95.7		
TOC wt% C (wet)	9.05E-02		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	0.537	1.20E+04	1.50E+03
Al^{3+}	8.22E-02	2.16E+03	269
Fe^{3+} (total Fe)	3.15E-04	17.1	2.13
Cr^{3+}	4.66E-08	2.36E-03	2.94E-04
Bi^{3+}	2.40E-11	4.88E-06	6.07E-07
La^{3+}	6.96E-18	9.42E-13	1.17E-13
Hg^{2+}	4.97E-13	9.72E-08	1.21E-08
Zr (as $ZrO(OH)_2$)	7.37E-12	6.55E-07	8.15E-08
Pb^{2+}	7.70E-11	1.56E-05	1.93E-06
Ni^{2+}	2.83E-04	16.2	2.02
Sr^{2+}	2.32E-18	1.98E-13	2.46E-14
Mn^{4+}	2.68E-09	1.44E-04	1.79E-05
Ca^{2+}	1.42E-03	55.3	6.88
K^{+}	2.13E-03	81.0	10.1
OH^{-}	0.359	5.96E+03	740
$NO3^{-}$	0.257	1.55E+04	1.93E+03
$NO2^{-}$	1.49E-02	669	83.2
$CO3^{2-}$	4.24E-02	2.48E+03	308
$PO4^{3-}$	1.58E-03	146	18.2
$SO4^{2-}$	6.94E-03	650	80.8
Si (as SiO_3^{2-})	5.35E-03	147	18.2
F^{-}	1.08E-09	2.00E-05	2.49E-06
Cl^{-}	9.78E-03	338	42.0
$C_6H_5O_7^{3-}$	2.37E-03	436	54.2
$EDTA^{4-}$	3.66E-12	1.03E-06	1.28E-07
$HEDTA^{3-}$	3.10E-12	8.28E-07	1.03E-07
glycolate^{-}	3.16E-02	2.31E+03	287
acetate^{-}	1.36E-11	7.81E-07	9.71E-08
oxalate^{2-}	5.95E-18	5.11E-13	6.35E-14
DBP	4.03E-09	1.05E-03	1.30E-04
butanol	4.03E-09	2.91E-04	3.62E-05
NH_3	3.36E-05	0.557	6.92E-02
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu	4.72 (μCi/L)		9.54E-03 (kg)
U	6.30E-04 (M)	146 (μg/g)	18.2 (kg)
Cs	3.02E-07 (Ci/L)	2.95E-04 (μCi/g)	3.66E-02 (Ci)
Sr	5.35E-03 (Ci/L)	5.22 (μCi/g)	648 (Ci)

*Density is calculated based on Na, OH^{-}, and AlO_2^{-}.

†Water wt% derived from the difference of density and total dissolved species.

Single-Shell Tank 241-C-106			
Total Inventory Estimate*			
Physical Properties			
Total Waste	1.24E+06 kg	(229 kgal)	
Heat Load	35.6 kW	(1.22E+05 BTU/hr)	
Bulk Density†	1.44 (g/cc)		
Water wt%†	58.5		
TOC wt% C (wet)†	6.27E-02		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	4.47	7.16E+04	8.91E+04
Al^{3+}	2.18	4.10E+04	5.11E+04
Fe^{3+} (total Fe)	1.17	4.57E+04	5.69E+04
Cr^{3+}	6.52E-03	236	294
Bi^{3+}	4.04E-06	0.588	0.732
La^{3+}	9.73E-19	9.41E-14	1.17E-13
Hg^{2+}	3.75E-04	52.4	65.2
Zr (as $ZrO(OH)_2$)	1.44E-07	9.15E-03	1.14E-02
Pb^{2+}	1.75E-02	2.52E+03	3.14E+03
Ni^{2+}	0.333	1.36E+04	1.69E+04
Sr^{2+}	3.24E-19	1.98E-14	2.46E-14
Mn^{4+}	9.28E-04	35.5	44.2
Ca^{2+}	0.133	3.71E+03	4.61E+03
K^{+}	5.85E-03	159	198
OH^{-}	11.9	1.41E+05	1.76E-05
$NO3^{-}$	0.263	1.14E+04	1.41E+04
$NO2^{-}$	0.620	1.99E+04	2.47E+04
$CO3^{2-}$	0.231	9.66E+03	1.20E+04
$PO4^{3-}$	1.75E-02	1.16E+03	1.44E+03
$SO4^{2-}$	4.53E-02	3.03E+03	3.77E+03
Si (as SiO_3^{2-})	1.50	2.93E+04	3.64E+04
F^{-}	1.37E-04	1.82	2.26
Cl^{-}	2.27E-02	559	696
$C_6H_5O_7^{3-}$	2.29E-03	302	376
$EDTA^{4-}$	5.12E-13	1.03E-07	1.28E-07
$HEDTA^{3-}$	4.33E-13	8.27E-08	1.03E-07
glycolate^{-}	3.06E-02	1.60E+03	1.99E+03
acetate^{-}	1.90E-12	7.81E-08	9.71E-08
oxalate^{2-}	8.32E-19	5.10E-14	6.35E-14
DBP	1.82E-06	0.338	0.420
butanol	1.82E-06	9.41E-02	0.117
NH_3	0.101	1.20E+03	1.49E+03
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		3.67 (μCi/g)	76.1 (kg)
U	0.152 (M)	2.52E+04 (μg/g)	3.14E+04 (kg)
Cs	9.66E-02 (Ci/L)	67.3 (μCi/g)	8.37E+04 (Ci)
Sr	6.03 (Ci/L)	4.20E+03 (μCi/g)	5.23E+06 (Ci)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).
†Volume average for density, mass average Water wt% and TOC wt% C.

Single-Shell Tank 241-C-107			
TLM Solids Composite Inventory Estimate*			
Physical Properties			
Total Solid Waste	1.41E+06 kg	(275 kgal)	
Heat Load	4.27 kW	(1.46E+04 BTU/hr)	
Bulk Density	1.36 (g/cc)		
Void Fraction	0.715		
Water wt%	65.8		
TOC wt% C (wet)	0.280		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	4.50	7.62E+04	1.08E+05
Al^{3+}	1.17	2.32E+04	3.27E+04
Fe^{3+} (total Fe)	0.427	1.76E+04	2.48E+04
Cr^{3+}	3.30E-03	127	179
Bi^{3+}	6.10E-02	9.40E+03	1.33E+04
La^{3+}	0	0	0
Hg^{2+}	8.79E-04	130	184
Zr (as $ZrO(OH)_2$)	8.16E-03	549	775
Pb^{2+}	4.38E-02	6.69E+03	9.45E+03
Ni^{2+}	1.08E-03	46.6	65.8
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	0.113	3.34E+03	4.71E+03
K^{+}	3.65E-03	105	148
OH^{-}	5.72	7.17E+04	1.01E+05
$NO3^{-}$	0.366	1.67E+04	2.36E+04
$NO2^{-}$	0.212	7.20E+03	1.02E+04
$CO3^{2-}$	0.128	5.65E+03	7.98E+03
$PO4^{3-}$	1.06	7.39E+04	1.04E+05
$SO4^{2-}$	4.30E-02	3.05E+03	4.30E+03
Si (as SiO_3^{2-})	0.181	3.75E+03	5.30E+03
F^{-}	0.131	1.84E+03	2.59E+03
Cl^{-}	1.68E-02	438	619
$C_6H_5O_7^{3-}$	0	0	0
$EDTA^{4-}$	9.31E-03	1.98E+03	2.79E+03
$HEDTA^{3-}$	1.86E-02	3.76E+03	5.31E+03
glycolate^{-}	1.86E-02	1.03E+03	1.45E+03
acetate^{-}	0	0	0
oxalate^{2-}	0	0	0
DBP	1.89E-06	0.370	0.522
butanol	1.89E-06	0.103	0.145
NH_3	8.49E-03	106	150
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		0.392 (µCi/g)	9.22 (kg)
U	0.101 (M)	1.78E+04 (µg/g)	2.51E+04 (kg)
Cs	1.30E-02 (Ci/L)	9.55 (µCi/g)	1.35E+04 (Ci)
Sr	0.601 (Ci/L)	443 (µCi/g)	6.25E+05 (Ci)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

Single-Shell Tank 241-C-107			
SMM Composite Inventory Estimate			
Physical Properties			
Total Supernatant Wa	0 kg		(0 kgal)
Heat Load	0 kW		(0 BTU/hr)
Bulk Density*	0 (g/cc)		
Water wt%†	0		
TOC wt% C (wet)	0		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	0	0	0
Al^{3+}	0	0	0
Fe^{3+} (total Fe)	0	0	0
Cr^{3+}	0	0	0
Bi^{3+}	0	0	0
La^{3+}	0	0	0
Hg^{2+}	0	0	0
Zr (as $ZrO(OH)_2$)	0	0	0
Pb^{2+}	0	0	0
Ni^{2+}	0	0	0
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	0	0	0
K^{+}	0	0	0
OH^{-}	0	0	0
$NO3^{-}$	0	0	0
$NO2^{-}$	0	0	0
$CO3^{2-}$	0	0	0
$PO4^{3-}$	0	0	0
$SO4^{2-}$	0	0	0
Si (as SiO_3^{2-})	0	0	0
F^{-}	0	0	0
Cl^{-}	0	0	0
$C_6H_5O_7^{3-}$	0	0	0
$EDTA^{4-}$	0	0	0
$HEDTA^{3-}$	0	0	0
$glycolate^{-}$	0	0	0
$acetate^{-}$	0	0	0
$oxalate^{2-}$	0	0	0
DBP	0	0	0
butanol	0	0	0
NH_3	0	0	0
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu	0 (μCi/L)		0 (kg)
U	0 (M)	0 (μg/g)	0 (kg)
Cs	0 (Ci/L)	0 (μCi/g)	0 (Ci)
Sr	0 (Ci/L)	0 (μCi/g)	0 (Ci)

*Density is calculated based on Na, OH^{-}, and AlO_2^{-}.

†Water wt% derived from the difference of density and total dissolved species.

Single-Shell Tank 241-C-107			
Total Inventory Estimate*			
Physical Properties			
Total Waste	1.41E+06 kg	(275 kgal)	
Heat Load	4.27 kW	(1.46E+04 BTU/hr)	
Bulk Density†	1.36 (g/cc)		
Water wt%†	65.8		
TOC wt% C (wet)†	0.280		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	4.50	7.62E+04	1.08E+05
Al^{3+}	1.17	2.32E+04	3.27E+04
Fe^{3+} (total Fe)	0.427	1.76E+04	2.48E+04
Cr^{3+}	3.30E-03	127	179
Bi^{3+}	6.10E-02	9.40E+03	1.33E+04
La^{3+}	0	0	0
Hg^{2+}	8.79E-04	130	184
Zr (as $ZrO(OH)_2$)	8.16E-03	549	775
Pb^{2+}	4.38E-02	6.69E+03	9.45E+03
Ni^{2+}	1.08E-03	46.6	65.8
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	0.113	3.34E+03	4.71E+03
K^{+}	3.65E-03	105	148
OH^{-}	5.72	7.17E+04	1.01E+05
$NO3^{-}$	0.366	1.67E+04	2.36E+04
$NO2^{-}$	0.212	7.20E+03	1.02E+04
$CO3^{2-}$	0.128	5.65E+03	7.98E+03
$PO4^{3-}$	1.06	7.39E+04	1.04E+05
$SO4^{2-}$	4.30E-02	3.05E+03	4.30E+03
Si (as SiO_3^{2-})	0.181	3.75E+03	5.30E+03
F^{-}	0.131	1.84E+03	2.59E+03
Cl^{-}	1.68E-02	438	619
$C_6H_5O_7^{3-}$	0	0	0
$EDTA^{4-}$	9.31E-03	1.98E+03	2.79E+03
$HEDTA^{3-}$	1.86E-02	3.76E+03	5.31E+03
$glycolate^{-}$	1.86E-02	1.03E+03	1.45E+03
$acetate^{-}$	0	0	0
$oxalate^{2-}$	0	0	0
DBP	1.89E-06	0.370	0.522
butanol	1.89E-06	0.103	0.145
NH_3	8.49E-03	106	150
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		0.392 (µCi/g)	9.22 (kg)
U	0.101 (M)	1.78E+04 (µg/g)	2.51E+04 (kg)
Cs	1.30E-02 (Ci/L)	9.55 (µCi/g)	1.35E+04 (Ci)
Sr	0.601 (Ci/L)	443 (µCi/g)	6.25E+05 (Ci)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).
†Volume average for density, mass average Water wt% and TOC wt% C.

Single-Shell Tank 241-C-108			
TLM Solids Composite Inventory Estimate*			
Physical Properties			
Total Solid Waste	3.33E+05 kg	(66.0 kgal)	
Heat Load	0.401 kW	(1.37E+03 BTU/hr)	
Bulk Density	1.33 (g/cc)		
Void Fraction	0.814		
Water wt%	65.3		
TOC wt% C (wet)	0.351		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	4.12	7.11E+04	2.37E+04
Al^{3+}	0.239	4.84E+03	1.61E+03
Fe^{3+} (total Fe)	0.803	3.37E+04	1.12E+04
Cr^{3+}	2.77E-03	108	36.0
Bi^{3+}	3.38E-02	5.31E+03	1.77E+03
La^{3+}	0	0	0
Hg^{2+}	4.64E-05	6.99	2.33
Zr (as $ZrO(OH)_2$)	4.53E-03	310	103
Pb^{2+}	0	0	0
Ni^{2+}	0.120	5.27E+03	1.75E+03
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	0.308	9.28E+03	3.09E+03
K^{+}	9.32E-03	273	91.0
OH^{-}	3.76	4.80E+04	1.60E+04
$NO3^{-}$	0.996	4.64E+04	1.54E+04
$NO2^{-}$	0.628	2.17E+04	7.22E+03
$CO3^{2-}$	0.371	1.67E+04	5.57E+03
$PO4^{3-}$	0.652	4.65E+04	1.55E+04
$SO4^{2-}$	7.14E-02	5.15E+03	1.71E+03
Si (as SiO_3^{2-})	2.78E-02	586	195
F^{-}	7.26E-02	1.04E+03	345
Cl^{-}	5.08E-02	1.35E+03	450
$C_6H_5O_7^{3-}$	0	0	0
$EDTA^{4-}$	0	0	0
$HEDTA^{3-}$	0	0	0
$glycolate^{-}$	0	0	0
$acetate^{-}$	0	0	0
$oxalate^{2-}$	0	0	0
DBP	1.05E-05	2.11	0.700
butanol	1.05E-05	0.586	0.195
NH_3	4.52E-02	577	192
$Fe(CN)_6^{4-}$	6.49E-02	1.32E+04	4.39E+03
Radiological Constituents			
Pu		3.72E-03 (μCi/g)	2.06E-02 (kg)
U	0.103 (M)	1.84E+04 (μg/g)	6.14E+03 (kg)
Cs	0.330 (Ci/L)	248 (μCi/g)	8.26E+04 (Ci)
Sr	8.39E-03 (Ci/L)	6.30 (μCi/g)	2.10E+03 (Ci)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

Single-Shell Tank 241-C-108			
SMM Composite Inventory Estimate			
Physical Properties			
Total Supernatant Wa	0 kg	(0 kgal)	
Heat Load	0 kW	(0 BTU/hr)	
Bulk Density*	0 (g/cc)		
Water wt%†	0		
TOC wt% C (wet)	0		
Chemical Constituents	mole/L	ppm	kg
Na^{+}	0	0	0
Al^{3+}	0	0	0
Fe^{3+} (total Fe)	0	0	0
Cr^{3+}	0	0	0
Bi^{3+}	0	0	0
La^{3+}	0	0	0
Hg^{2+}	0	0	0
Zr (as $ZrO(OH)_2$)	0	0	0
Pb^{2+}	0	0	0
Ni^{2+}	0	0	0
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	0	0	0
K^{+}	0	0	0
OH^{-}	0	0	0
$NO3^{-}$	0	0	0
$NO2^{-}$	0	0	0
$CO3^{2-}$	0	0	0
$PO4^{3-}$	0	0	0
$SO4^{2-}$	0	0	0
Si (as SiO_3^{2-})	0	0	0
F^{-}	0	0	0
Cl^{-}	0	0	0
$C_6H_5O_7^{3-}$	0	0	0
$EDTA^{4-}$	0	0	0
$HEDTA^{3-}$	0	0	0
$glycolate^{-}$	0	0	0
$acetate^{-}$	0	0	0
$oxalate^{2-}$	0	0	0
DBP	0	0	0
butanol	0	0	0
NH_3	0	0	0
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu	0 (μCi/L)		0 (kg)
U	0 (M)	0 (μg/g)	0 (kg)
Cs	0 (Ci/L)	0 (μCi/g)	0 (Ci)
Sr	0 (Ci/L)	0 (μCi/g)	0 (Ci)

*Density is calculated based on Na, OH^{-}, and AlO_2^{-}.

†Water wt% derived from the difference of density and total dissolved species.

Single-Shell Tank 241-C-108			
Total Inventory Estimate*			
Physical Properties			
Total Waste	3.33E+05 kg	(66.0 kgal)	
Heat Load	0.401 kW	(1.37E+03 BTU/hr)	
Bulk Density†	1.33 (g/cc)		
Water wt%†	65.3		
TOC wt% C (wet)†	0.351		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^+	4.12	7.11E+04	2.37E+04
Al^{3+}	0.239	4.84E+03	1.61E+03
Fe^{3+} (total Fe	0.803	3.37E+04	1.12E+04
Cr^{3+}	2.77E-03	108	36.0
Bi^{3+}	3.38E-02	5.31E+03	1.77E+03
La^{3+}	0	0	0
Hg^{2+}	4.64E-05	6.99	2.33
Zr (as $ZrO(OH)_2$)	4.53E-03	310	103
Pb^{2+}	0	0	0
Ni^{2+}	0.120	5.27E+03	1.75E+03
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	0.308	9.28E+03	3.09E+03
K^+	9.32E-03	273	91.0
OH^-	3.76	4.80E+04	1.60E+04
$NO3^-$	0.996	4.64E+04	1.54E+04
$NO2^-$	0.628	2.17E+[illegible]	7.22E+03
$CO3^{2-}$	0.371	1.67E+04	5.57E+03
$PO4^{3-}$	0.652	4.65E+04	1.55E+04
$SO4^{2-}$	7.14E-02	5.15E+03	1.71E+03
Si (as SiO_3^{2-})	2.78E-02	586	195
F^-	7.26E-02	1.04E+03	345
Cl^-	5.08E-02	1.35E+03	450
$C_6H_5O_7^{3-}$	0	0	0
$EDTA^{4-}$	0	0	0
$HEDTA^{3-}$	0	0	0
glycolate$^-$	0	0	0
acetate$^-$	0	0	0
oxalate^{2-}	0	0	0
DBP	1.05E-05	2.11	0.700
butanol	1.05E-05	0.586	0.195
NH_3	4.52E-02	577	192
$Fe(CN)_6^{4-}$	6.49E-02	1.32E+04	4.39E+03
Radiological Constituents			
Pu		3.72E-03 (μCi/g)	2.06E-02 (kg)
U	0.103 (M)	1.84E+04 (μg/g)	6.14E+03 (kg)
Cs	0.330 (Ci/L)	248 (μCi/g)	8.26E+04 (Ci)
Sr	8.39E-03 (Ci/L)	6.30 (μCi/g)	2.10E+03 (Ci)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

†Volume average for density, mass average Water wt% and TOC wt% C.

Single-Shell Tank 241-C-109			
TLM Solids Composite Inventory Estimate*			
Physical Properties			
Total Solid Waste	3.37E+05 kg	(62.0 kgal)	
Heat Load	4.64 kW	(1.59E+04 BTU/hr)	
Bulk Density	1.44 (g/cc)		
Void Fraction	0.855		
Water wt%	62.2		
TOC wt% C (wet)	1.46		
Chemical Constituents	mole/L	ppm	kg
Na^{+}	3.49	5.59E+04	1.88E+04
Al^{3+}	0.196	3.69E+03	1.24E+03
Fe^{3+} (total Fe)	0.951	3.70E+04	1.25E+04
Cr^{3+}	1.35E-03	49.0	16.5
Bi^{3+}	1.24E-02	1.81E+03	609
La^{3+}	0	0	0
Hg^{2+}	1.70E-05	2.38	0.802
Zr (as $ZrO(OH)_2$)	1.66E-03	106	35.5
Pb^{2+}	1.71E-02	2.47E+03	832
Ni^{2+}	0.494	2.02E+04	6.81E+03
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	0.589	1.65E+04	5.54E+03
K^{+}	1.64E-02	447	150
OH^{-}	4.45	5.27E+04	1.77E+04
$NO3^{-}$	6.72E-02	2.90E+03	978
$NO2^{-}$	1.76	5.66E+04	1.90E+04
$CO3^{2-}$	0.590	2.47E+04	8.30E+03
$PO4^{3-}$	0.299	1.98E+04	6.67E+03
$SO4^{2-}$	2.39E-02	1.60E+03	538
Si (as SiO_3^{2-})	1.02E-02	199	67.2
F^{-}	2.67E-02	353	119
Cl^{-}	4.20E-02	1.04E+03	349
$C_6H_5O_7^{3-}$	3.72E-03	490	165
$EDTA^{4-}$	7.45E-03	1.49E+03	503
$HEDTA^{3-}$	0	0	0
glycolate^{-}	0	0	0
acetate^{-}	4.75E-02	1.95E+03	657
oxalate^{2-}	0	0	0
DBP	0	0	0
butanol	0	0	0
NH_3	0.229	2.71E+03	914
$Fe(CN)_6^{4-}$	0.259	4.89E+04	1.65E+04
Radiological Constituents			
Pu		8.60E-04 (μCi/g)	4.83E-03 (kg)
U	0.200 (M)	3.31E+04 (μg/g)	1.12E+04 (kg)
Cs	1.30 (Ci/L)	904 (μCi/g)	3.05E+05 (Ci)
Sr	2.04 (Ci/L)	1.42E+03 (μCi/g)	4.78E+05 (Ci)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

Single-Shell Tank 241-C-109			
SMM Composite Inventory Estimate			
Physical Properties			
Total Supernatant Wa	1.52E+04 kg	(4.01 kgal)	
Heat Load	0 kW	(0 BTU/hr)	
Bulk Density*	1.00 (g/cc)		
Water wt%†	100		
TOC wt% C (wet)	0		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	0	0	0
Al^{3+}	0	0	0
Fe^{3+} (total Fe)	0	0	0
Cr^{3+}	0	0	0
Bi^{3+}	0	0	0
La^{3+}	0	0	0
Hg^{2+}	0	0	0
Zr (as $ZrO(OH)_2$)	0	0	0
Pb^{2+}	0	0	0
Ni^{2+}	0	0	0
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	0	0	0
K^{+}	0	0	0
OH^{-}	0	0	0
$NO3^{-}$	0	0	0
$NO2^{-}$	0	0	0
$CO3^{2-}$	0	0	0
$PO4^{3-}$	0	0	0
$SO4^{2-}$	0	0	0
Si (as SiO_3^{2-})	0	0	0
F^{-}	0	0	0
Cl^{-}	0	0	0
$C_6H_5O_7^{3-}$	0	0	0
$EDTA^{4-}$	0	0	0
$HEDTA^{3-}$	0	0	0
glycolate^{-}	0	0	0
acetate^{-}	0	0	0
oxalate^{2-}	0	0	0
DBP	0	0	0
butanol	0	0	0
NH_3	0	0	0
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu	0 (µCi/L)		0 (kg)
U	0 (M)	0 (µg/g)	0 (kg)
Cs	0 (Ci/L)	0 (µCi/g)	0 (Ci)
Sr	0 (Ci/L)	0 (µCi/g)	0 (Ci)

*Density is calculated based on Na, OH^{-}, and AlO_2^{-}

†Water wt% derived from the difference of density and total dissolved species.

Single-Shell Tank 241-C-109			
Total Inventory Estimate*			
Physical Properties			
Total Waste	3.52E+05 kg	(66.0 kgal)	
Heat Load	4.64 kW	(1.59E+04 BTU/hr)	
Bulk Density†	1.41 (g/cc)		
Water wt%†	63.8		
TOC wt% C (wet)†	1.40		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	3.28	5.35E+04	1.88E+04
Al^{3+}	0.184	3.53E+03	1.24E+03
Fe^{3+} (total Fe)	0.894	3.54E+04	1.25E+04
Cr^{3+}	1.27E-03	46.9	16.5
Bi^{3+}	1.17E-02	1.73E+03	609
La^{3+}	0	0	0
Hg^{2+}	1.60E-05	2.28	0.802
Zr (as $ZrO(OH)_2$)	1.56E-03	101	35.5
Pb^{2+}	1.61E-02	2.36E+03	832
Ni^{2+}	0.464	1.93E+04	6.81E+03
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	0.553	1.57E+04	5.54E+03
K^{+}	1.54E-02	427	150
OH^{-}	4.18	5.04E+04	1.77E+04
$NO3^{-}$	6.31E-02	2.78E+03	978
$NO2^{-}$	1.66	5.41E+04	1.90E+04
$CO3^{2-}$	0.554	2.36E+04	8.30E+03
$PO4^{3-}$	0.281	1.90E+04	6.67E+03
$SO4^{2-}$	2.24E-02	1.53E+03	538
Si (as SiO_3^{2-})	9.57E-03	191	67.2
F^{-}	2.50E-02	338	119
Cl^{-}	3.95E-02	992	349
$C_6H_5O_7^{3-}$	3.50E-03	469	165
$EDTA^{4-}$	6.99E-03	1.43E+03	503
$HEDTA^{3-}$	0	0	0
$glycolate^{-}$	0	0	0
$acetate^{-}$	4.46E-02	1.87E+03	657
$oxalate^{2-}$	0	0	0
DBP	0	0	0
butanol	0	0	0
NH_3	0.215	2.60E+03	914
$Fe(CN)_6^{4-}$	0.243	4.68E+04	1.65E+04
Radiological Constituents			
Pu		8.23E-04 (μCi/g)	4.83E-03 (kg)
U	0.188 (M)	3.17E+04 (μg/g)	1.12E+04 (kg)
Cs	1.22 (Ci/L)	865 (μCi/g)	3.05E+05 (Ci)
Sr	1.91 (Ci/L)	1.36E+03 (μCi/g)	4.78E+05 (Ci)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

†Volume average for density, mass average Water wt% and TOC wt% C.

Single-Shell Tank 241-C-110			
TLM Solids Composite Inventory Estimate*			
Physical Properties			
Total Solid Waste	9.14E+05 kg	(187 kgal)	
Heat Load	4.09E-02 kW	(140 BTU/hr)	
Bulk Density	1.29 (g/cc)		
Void Fraction	0.695		
Water wt%	70.9		
TOC wt% C (wet)	0		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	4.88	8.69E+04	7.93E+04
Al^{3+}	0.475	9.93E+03	9.08E+03
Fe^{3+} (total Fe)	0.323	1.40E+04	1.28E+04
Cr^{3+}	3.77E-03	152	139
Bi^{3+}	7.70E-02	1.25E+04	1.14E+04
La^{3+}	0	0	0
Hg^{2+}	1.06E-04	16.4	15.0
Zr (as $ZrO(OH)_2$)	1.03E-02	728	665
Pb^{2+}	0	0	0
Ni^{2+}	1.16E-03	52.8	48.2
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	7.55E-02	2.34E+03	2.14E+03
K^{+}	3.23E-03	97.7	89.3
OH^{-}	2.62	3.45E+04	3.15E+04
$NO3^{-}$	0.374	1.80E+04	1.64E+04
$NO2^{-}$	0.179	6.38E+03	5.83E+03
$CO3^{2-}$	7.55E-02	3.51E+03	3.21E+03
$PO4^{3-}$	1.33	9.80E+04	8.95E+04
$SO4^{2-}$	4.47E-02	3.32E+03	3.04E+03
Si (as SiO_3^{2-})	6.32E-02	1.38E+03	1.26E+03
F^{-}	0.165	2.43E+03	2.22E+03
Cl^{-}	1.48E-02	407	372
$C_6H_5O_7^{3-}$	0	0	0
$EDTA^{4-}$	0	0	0
$HEDTA^{3-}$	0	0	0
$glycolate^{-}$	0	0	0
$acetate^{-}$	0	0	0
$oxalate^{2-}$	0	0	0
DBP	0	0	0
butanol	0	0	0
NH_3	1.79E-04	2.36	2.16
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		5.93E-03 (μCi/g)	9.03E-02 (kg)
U	5.72E-04 (M)	105 (μg/g)	96.3 (kg)
Cs	1.22E-02 (Ci/L)	9.44 (μCi/g)	8.63E+03 (Ci)
Sr	1.08E-04 (Ci/L)	8.35E-02 (μCi/g)	76.3 (Ci)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

Single-Shell Tank 241-C-110			
SMM Composite Inventory Estimate			
Physical Properties			
Total Supernatant Wa	0 kg	(0 kgal)	
Heat Load	0 kW	(0 BTU/hr)	
Bulk Density*	0 (g/cc)		
Water wt%†	0		
TOC wt% C (wet)	0		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	0	0	0
Al^{3+}	0	0	0
Fe^{3+} (total Fe)	0	0	0
Cr^{3+}	0	0	0
Bi^{3+}	0	0	0
La^{3+}	0	0	0
Hg^{2+}	0	0	0
Zr (as $ZrO(OH)_2$)	0	0	0
Pb^{2+}	0	0	0
Ni^{2+}	0	0	0
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	0	0	0
K^{+}	0	0	0
OH^{-}	0	0	0
$NO3^{-}$	0	0	0
$NO2^{-}$	0	0	0
$CO3^{2-}$	0	0	0
$PO4^{3-}$	0	0	0
$SO4^{2-}$	0	0	0
Si (as SiO_3^{2-})	0	0	0
F^{-}	0	0	0
Cl^{-}	0	0	0
$C_6H_5O_7^{3-}$	0	0	0
$EDTA^{4-}$	0	0	0
$HEDTA^{3-}$	0	0	0
glycolate^{-}	0	0	0
acetate^{-}	0	0	0
oxalate^{2-}	0	0	0
DBP	0	0	0
butanol	0	0	0
NH_3	0	0	0
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu	0 (μCi/L)		0 (kg)
U	0 (M)	0 (μg/g)	0 (kg)
Cs	0 (Ci/L)	0 (μCi/g)	0 (Ci)
Sr	0 (Ci/L)	0 (μCi/g)	0 (Ci)

*Density is calculated based on Na, OH^{-}, and AlO_2^{-}.

†Water wt% derived from the difference of density and total dissolved species.

Single-Shell Tank 241-C-110			
Total Inventory Estimate*			
Physical Properties			
Total Waste	9.14E+05 kg	(187 kgal)	
Heat Load	4.09E-02 kW	(140 BTU/hr)	
Bulk Density†	1.29 (g/cc)		
Water wt%†	70.9		
TOC wt% C (wet)†	0		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	4.88	8.69E+04	7.93E+04
Al^{3+}	0.475	9.93E+03	9.08E+03
Fe^{3+} (total Fe)	0.323	1.40E+04	1.28E+04
Cr^{3+}	3.77E-03	152	139
Bi^{3+}	7.[illegible]-02	1.25E+04	1.14E+04
La^{3+}	0	0	0
Hg^{2+}	1.06E-04	16.4	15.0
Zr (as $ZrO(OH)_2$)	1.03E-02	728	665
Pb^{2+}	0	0	0
Ni^{2+}	1.16E-03	52.8	48.2
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	7.55E-02	2.34E+03	2.14E+03
K^{+}	3.23E-03	97.7	89.3
OH^{-}	2.62	3.45E+04	3.15E+04
$NO3^{-}$	0.374	1.80E+04	1.64E+04
$NO2^{-}$	0.179	6.38E+03	5.83E+03
$CO3^{2-}$	7.55E-02	3.51E+03	3.21E+03
$PO4^{3-}$	1.33	9.80E+04	8.95E+04
$SO4^{2-}$	4.47E-02	3.32E+03	3.04E+03
Si (as SiO_3^{2-})	6.32E-02	1.38E+03	1.26E+03
F^{-}	0.165	2.43E+03	2.22E+03
Cl^{-}	1.48E-02	407	372
$C_6H_5O_7^{3-}$	0	0	0
$EDTA^{4-}$	0	0	0
$HEDTA^{3-}$	0	0	0
$glycolate^{-}$	0	0	0
$acetate^{-}$	0	0	0
$oxalate^{2-}$	0	0	0
DBP	0	0	0
butanol	0	0	0
NH_3	1.79E-04	2.36	2.16
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		5.93E-03 (μCi/g)	9.03E-02 (kg)
U	5.72E-04 (M)	105 (μg/g)	96.3 (kg)
Cs	1.22E-02 (Ci/L)	9.44 (μCi/g)	8.63E+03 (Ci)
Sr	1.08E-04 (Ci/L)	8.35E-02 (μCi/g)	76.3 (Ci)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

†Volume average for density, mass average Water wt% and TOC wt% C.

Single-Shell Tank 241-C-111			
TLM Solids Composite Inventory Estimate*			
Physical Properties			
Total Solid Waste	2.89E+05 kg	(57.0 kgal)	
Heat Load	0.167 kW	(572 BTU/hr)	
Bulk Density	1.34 (g/cc)		
Void Fraction	0.751		
Water wt%	66.3		
TOC wt% C (wet)	0.168		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	3.94	6.76E+04	1.95E+04
Al^{3+}	1.76	3.55E+04	1.03E+04
Fe^{3+} (total Fe)	0.282	1.17E+04	3.39E+03
Cr^{3+}	3.10E-03	120	34.8
Bi^{3+}	4.86E-02	7.58E+03	2.19E+03
La^{3+}	0	0	0
Hg^{2+}	7.76E-04	116	33.6
Zr (as $ZrO(OH)_2$)	6.51E-03	443	128
Pb^{2+}	3.30E-02	5.11E+03	1.48E+03
Ni^{2+}	5.82E-02	2.55E+03	737
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	0.151	4.52E+03	1.31E+03
K^{+}	3.29E-03	96.0	27.7
OH^{-}	6.81	8.64E+04	2.50E+04
$NO3^{-}$	0.395	1.83E+04	5.29E+03
$NO2^{-}$	0.499	1.71E+04	4.96E+03
$CO3^{2-}$	0.151	6.77E+03	1.96E+03
$PO4^{3-}$	0.852	6.04E+04	1.74E+04
$SO4^{2-}$	3.24E-02	2.33E+03	672
Si (as SiO_3^{2-})	4.47E-02	936	271
F^{-}	0.104	1.48E+03	428
Cl^{-}	1.51E-02	400	116
$C_6H_5O_7^{3-}$	0	0	0
$EDTA^{4-}$	0	0	0
$HEDTA^{3-}$	0	0	0
$glycolate^{-}$	0	0	0
$acetate^{-}$	0	0	0
$oxalate^{2-}$	0	0	0
DBP	0	0	0
butanol	0	0	0
NH_3	2.17E-02	276	79.7
$Fe(CN)_6^{4-}$	3.13E-02	6.32E+03	1.83E+03
Radiological Constituents			
Pu		0.176 (µCi/g)	0.846 (kg)
U	5.22E-02 (M)	9.27E+03 (µg/g)	2.68E+03 (kg)
Cs	0.165 (Ci/L)	123 (µCi/g)	3.55E+04 (Ci)
Sr	5.62E-04 (Ci/L)	0.420 (µCi/g)	121 (Ci)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

Single-Shell Tank 241-C-111			
SMM Composite Inventory Estimate			
Physical Properties			
Total Supernatant Wa	0 kg	(0 kgal)	
Heat Load	0 kW	(0 BTU/hr)	
Bulk Density*	0 (g/cc)		
Water wt%†	0		
TOC wt% C (wet)	0		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	0	0	0
Al^{3+}	0	0	0
Fe^{3+} (total Fe)	0	0	0
Cr^{3+}	0	0	0
Bi^{3+}	0	0	0
La^{3+}	0	0	0
Hg^{2+}	0	0	0
Zr (as $ZrO(OH)_2$)	0	0	0
Pb^{2+}	0	0	0
Ni^{2+}	0	0	0
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	0	0	0
K^{+}	0	0	0
OH^{-}	0	0	0
$NO3^{-}$	0	0	0
$NO2^{-}$	0	0	0
$CO3^{2-}$	0	0	0
$PO4^{3-}$	0	0	0
$SO4^{2-}$	0	0	0
Si (as SiO_3^{2-})	0	0	0
F^{-}	0	0	0
Cl^{-}	0	0	0
$C_6H_5O_7^{3-}$	0	0	0
$EDTA^{4-}$	0	0	0
$HEDTA^{3-}$	0	0	0
glycolate^{-}	0	0	0
acetate^{-}	0	0	0
oxalate^{2-}	0	0	0
DBP	0	0	0
butanol	0	0	0
NH_3	0	0	0
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu	0 (µCi/L)		0 (kg)
U	0 (M)	0 (µg/g)	0 (kg)
Cs	0 (Ci/L)	0 (µCi/g)	0 (Ci)
Sr	0 (Ci/L)	0 (µCi/g)	0 (Ci)

*Density is calculated based on Na, OH^{-}, and AlO_2^{-}.

†Water wt% derived from the difference of density and total dissolved species.

Single-Shell Tank 241-C-111			
Total Inventory Estimate*			
Physical Properties			
Total Waste	2.89E+05 kg	(57.0 kgal)	
Heat Load	0.167 kW	(572 BTU/hr)	
Bulk Density†	1.34 (g/cc)		
Water wt%†	66.3		
TOC wt% C (wet)†	0.168		
Chemical Constituents	mole/L	ppm	kg
Na^{+}	3.94	6.76E+04	1.95E+04
Al^{3+}	1.76	3.55E+04	1.03E+04
Fe^{3+} (total Fe)	0.282	1.17E+04	3.39E+03
Cr^{3+}	3.10E-03	120	34.8
Bi^{3+}	4.86E-02	7.58E+03	2.19E+03
La^{3+}	0	0	0
Hg^{2+}	7.76E-04	116	33.6
Zr (as $ZrO(OH)_2$)	6.51E-03	443	128
Pb^{2+}	3.30E-02	5.11E+03	1.48E+03
Ni^{2+}	5.82E-02	2.55E+03	737
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	0.151	4.52E+03	1.31E+03
K^{+}	3.29E-03	96.0	27.7
OH^{-}	6.81	8.64E+04	2.50E+04
$NO3^{-}$	0.395	1.83E+04	5.29E+03
$NO2^{-}$	0.499	1.71E+04	4.96E+03
$CO3^{2-}$	0.151	6.77E+03	1.96E+03
$PO4^{3-}$	0.852	6.04E+04	1.74E+04
$SO4^{2-}$	3.24E-02	2.33E+03	672
Si (as SiO_3^{2-})	4.47E-02	936	271
F^{-}	0.104	1.48E+03	428
Cl^{-}	1.51E-02	400	116
$C_6H_5O_7^{3-}$	0	0	0
$EDTA^{4-}$	0	0	0
$HEDTA^{3-}$	0	0	0
glycolate^{-}	0	0	0
acetate^{-}	0	0	0
oxalate^{2-}	0	0	0
DBP	0	0	0
butanol	0	0	0
NH_3	2.17E-02	276	79.7
$Fe(CN)_6^{4-}$	3.13E-02	6.32E+03	1.83E+03
Radiological Constituents			
Pu		0.176 (μCi/g)	0.846 (kg)
U	5.22E-02 (M)	9.27E-03 (μg/g)	2.68E+03 (kg)
Cs	0.165 (Ci/L)	123 (μCi/g)	3.55E+04 (Ci)
Sr	5.62E-04 (Ci/L)	0.420 (μCi/g)	121 (Ci)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).
†Volume average for density, mass average Water wt% and TOC wt% C.

Single-Shell Tank 241-C-112			
TLM Solids Composite Inventory Estimate*			
Physical Properties			
Total Solid Waste	5.65E+05 kg	(104 kgal)	
Heat Load	2.74 kW	(9.37E+03 BTU/hr)	
Bulk Density	1.44 (g/cc)		
Void Fraction	0.854		
Water wt%	63.1		
TOC wt% C (wet)	1.25		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	3.38	5.42E+04	3.06E+04
Al^{3+}	0.996	1.87E+04	1.06E+04
Fe^{3+} (total Fe)	0.382	1.49E+04	8.40E+03
Cr^{3+}	9.96E-04	36.1	20.4
Bi^{3+}	1.11E-02	1.62E+03	913
La^{3+}	0	0	0
Hg^{2+}	5.02E-04	70.1	39.6
Zr (as $ZrO(OH)_2$)	1.49E-03	94.4	53.3
Pb^{2+}	2.56E-02	3.69E+03	2.08E+03
Ni^{2+}	0.453	1.85E+04	1.05E+04
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	0.585	1.63E+04	9.23E+03
K^{+}	8.63E-03	235	133
OH^{-}	5.27	6.25E+04	3.53E+04
$NO3^{-}$	0.146	6.30E+03	3.56E+03
$NO2^{-}$	1.68	5.40E+04	3.05E+04
$CO3^{2-}$	0.586	2.45E+04	1.38E+04
$PO4^{3-}$	0.273	1.81E+04	1.02E+04
$SO4^{2-}$	1.85E-02	1.24E+03	700
Si (as SiO_3^{2-})	1.12E-02	220	124
F^{-}	2.38E-02	316	178
Cl^{-}	3.69E-02	910	514
$C_6H_5O_7^{3-}$	3.17E-04	41.7	23.6
$EDTA^{4-}$	6.34E-04	127	71.8
$HEDTA^{3-}$	0	0	0
glycolate^{-}	0	0	0
acetate^{-}	4.04E-03	166	93.8
oxalate^{2-}	0	0	0
DBP	0	0	0
butanol	0	0	0
NH_3	0.175	2.07E+03	1.17E+03
$Fe(CN)_6^{4-}$	0.247	4.66E+04	2.63E+04
Radiological Constituents			
Pu		0.109 (μCi/g)	1.03 (kg)
U	0.209 (M)	3.47E+04 (μg/g)	1.96E+04 (kg)
Cs	1.24 (Ci/L)	863 (μCi/g)	4.87E+05 (Ci)
Sr	0.174 (Ci/L)	121 (μCi/g)	6.83E+04 (Ci)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

Single-Shell Tank 241-C-112			
SMM Composite Inventory Estimate			
Physical Properties			
Total Supernatant Wa	0 kg	(0 kgal)	
Heat Load	0 kW	(0 BTU/hr)	
Bulk Density*	0 (g/cc)		
Water wt%†	0		
TOC wt% C (wet)	0		
Chemical Constituents	mole/L	ppm	kg
Na^{+}	0	0	0
Al^{3+}	0	0	0
Fe^{3+} (total Fe)	0	0	0
Cr^{3+}	0	0	0
Bi^{3+}	0	0	0
La^{3+}	0	0	0
Hg^{2+}	0	0	0
Zr (as $ZrO(OH)_2$)	0	0	0
Pb^{2+}	0	0	0
Ni^{2+}	0	0	0
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	0	0	0
K^{+}	0	0	0
OH^{-}	0	0	0
$NO3^{-}$	0	0	0
$NO2^{-}$	0	0	0
$CO3^{2-}$	0	0	0
$PO4^{3-}$	0	0	0
$SO4^{2-}$	0	0	0
Si (as SiO_3^{2-})	0	0	0
F^{-}	0	0	0
Cl^{-}	0	0	0
$C_6H_5O_7^{3-}$	0	0	0
$EDTA^{4-}$	0	0	0
$HEDTA^{3-}$	0	0	0
$glycolate^{-}$	0	0	0
$acetate^{-}$	0	0	0
$oxalate^{2-}$	0	0	0
DBP	0	0	0
butanol	0	0	0
NH_3	0	0	0
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu	0 (μCi/L)		0 (kg)
U	0 (M)	0 (μg/g)	0 (kg)
Cs	0 (Ci/L)	0 (μCi/g)	0 (Ci)
Sr	0 (Ci/L)	0 (μCi/g)	0 (Ci)

*Density is calculated based on Na, OH^{-}, and AlO_2^{-}.

†Water wt% derived from the difference of density and total dissolved species.

Single-Shell Tank 241-C-112			
Total Inventory Estimate*			
Physical Properties			
Total Waste	5.65E+05 kg	(104 kgal)	
Heat Load	2.74 kW	(9.37E+03 BTU/hr)	
Bulk Density†	1.44 (g/cc)		
Water wt%†	63.1		
TOC wt% C (wet)†	1.25		
Chemical Constituents	mole/L	ppm	kg
Na^{+}	3.38	5.42E+04	3.06E+04
Al^{3+}	0.996	1.87E+04	1.06E+04
Fe^{3+} (total Fe)	0.382	1.49E+04	8.40E+03
Cr^{3+}	9.96E-04	36.1	20.4
Bi^{3+}	1.11E-02	1.62E+03	913
La^{3+}	0	0	0
Hg^{2+}	5.02E-04	70.1	39.6
Zr (as $ZrO(OH)_2$)	1.49E-03	94.4	53.3
Pb^{2+}	2.56E-02	3.69E+03	2.08E+03
Ni^{2+}	0.453	1.85E+04	1.05E+04
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	0.585	1.63E+04	9.23E+03
K^{+}	8.63E-03	235	133
OH^{-}	5.27	6.25E+04	3.53E+04
$NO3^{-}$	0.146	6.30E+03	3.56E+03
$NO2^{-}$	1.68	5.40E+04	3.05E+04
$CO3^{2-}$	0.586	2.45E+04	1.38E+04
$PO4^{3-}$	0.273	1.81E+04	1.02E+04
$SO4^{2-}$	1.85E-02	1.24E+03	700
Si (as SiO_3^{2-})	1.12E-02	220	124
F^{-}	2.38E-02	316	178
Cl^{-}	3.69E-02	910	514
$C_6H_5O_7^{3-}$	3.17E-04	41.7	23.6
$EDTA^{4-}$	6.34E-04	127	71.8
$HEDTA^{3-}$	0	0	0
glycolate^{-}	0	0	0
acetate^{-}	4.04E-03	166	93.8
oxalate^{2-}	0	0	0
DBP	0	0	0
butanol	0	0	0
NH_3	0.175	2.07E+03	1.17E+03
$Fe(CN)_6^{4-}$	0.247	4.66E+04	2.63E+04
Radiological Constituents			
Pu		0.109 (μCi/g)	1.03 (kg)
U	0.209 (M)	3.47E+04 (μg/g)	1.96E+04 (kg)
Cs	1.24 (Ci/L)	863 (μCi/g)	4.87E+05 (Ci)
Sr	0.174 (Ci/L)	121 (μCi/g)	6.83E+04 (Ci)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).
†Volume average for density, mass average Water wt% and TOC wt% C.

Single-Shell Tank 241-C-201			
TLM Solids Composite Inventory Estimate*			
Physical Properties			
Total Solid Waste	1.21E+04 kg	(2.00 kgal)	
Heat Load	0.459 kW	(1.57E+03 BTU/hr)	
Bulk Density	1.60 (g/cc)		
Void Fraction	0.590		
Water wt%	44.0		
TOC wt% C (wet)	0.638		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	3.43	4.94E+04	597
Al^{3+}	0	0	0
Fe^{3+} (total Fe)	2.89	1.01E+05	1.22E+03
Cr^{3+}	3.92E-03	128	1.54
Bi^{3+}	0	0	0
La^{3+}	0	0	0
Hg^{2+}	0	0	0
Zr (as $ZrO(OH)_2$)	0	0	0
Pb^{2+}	7.58E-02	9.83E+03	119
Ni^{2+}	9.29E-02	3.41E+03	41.2
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	4.41E-02	1.11E+03	13.4
K^{+}	3.67E-02	898	10.8
OH^{-}	15.0	1.60E+05	1.93E+03
$NO3^{-}$	3.12E-02	1.21E+03	14.6
$NO2^{-}$	0.453	1.31E+04	158
$CO3^{2-}$	0.945	3.55E+04	429
$PO4^{3-}$	0.200	1.19E+04	144
$SO4^{2-}$	6.88E-02	4.14E+03	50.0
Si (as SiO_3^{2-})	7.75E-04	13.6	0.165
F^{-}	0	0	0
Cl^{-}	2.09E-02	464	5.60
$C_6H_5O_7^{3-}$	1.65E-02	1.95E+03	23.6
$EDTA^{4-}$	3.30E-02	5.95E+03	71.8
$HEDTA^{3-}$	0	0	0
glycolate^{-}	0	0	0
acetate^{-}	0.210	7.77E+03	93.8
oxalate^{2-}	0	0	0
DBP	0	0	0
butanol	0	0	0
NH_3	0.223	2.37E+03	28.6
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		2.03E-03 (μCi/g)	4.09E-04 (kg)
U	0.994 (M)	1.48E+05 (μg/g)	1.79E+03 (kg)
Cs	4.20E-04 (Ci/L)	0.263 (μCi/g)	3.18 (Ci)
Sr	9.02 (Ci/L)	5.65E+03 (μCi/g)	6.82E+04 (Ci)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

Single-Shell Tank 241-C-201			
SMM Composite Inventory Estimate			
Physical Properties			
Total Supernatant Wa	0 kg	(0 kgal)	
Heat Load	0 kW	(0 BTU/hr)	
Bulk Density*	0 (g/cc)		
Water wt%†	0		
TOC wt% C (wet)	0		
Chemical Constituents	mole/L	ppm	kg
Na^+	0	0	0
Al^{3+}	0	0	0
Fe^{3+} (total Fe)	0	0	0
Cr^{3+}	0	0	0
Bi^{3+}	0	0	0
La^{3+}	0	0	0
Hg^{2+}	0	0	0
Zr (as $ZrO(OH)_2$)	0	0	0
Pb^{2+}	0	0	0
Ni^{2+}	0	0	0
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	0	0	0
K^+	0	0	0
OH^-	0	0	0
$NO3^-$	0	0	0
$NO2^-$	0	0	0
$CO3^{2-}$	0	0	0
$PO4^{3-}$	0	0	0
$SO4^{2-}$	0	0	0
Si (as SiO_3^{2-})	0	0	0
F^-	0	0	0
Cl^-	0	0	0
$C_6H_5O_7^{3-}$	0	0	0
$EDTA^{4-}$	0	0	0
$HEDTA^{3-}$	0	0	0
glycolate$^-$	0	0	0
acetate$^-$	0	0	0
oxalate^{2-}	0	0	0
DBP	0	0	0
butanol	0	0	0
NH_3	0	0	0
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu	0 (μCi/L)		0 (kg)
U	0 (M)	0 (μg/g)	0 (kg)
Cs	0 (Ci/L)	0 (μCi/g)	0 (Ci)
Sr	0 (Ci/L)	0 (μCi/g)	0 (Ci)

*Density is calculated based on Na, OH^-, and AlO_2^-.

†Water wt% derived from the difference of density and total dissolved species.

Single-Shell Tank 241-C-201			
Total Inventory Estimate*			
Physical Properties			
Total Waste	1.21E+04 kg	(2.00 kgal)	
Heat Load	0.459 kW	(1.57E+03 BTU/hr)	
Bulk Density†	1.60 (g/cc)		
Water wt%†	44.0		
TOC wt% C (wet)†	0.638		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^+	3.43	4.94E+04	597
Al^{3+}	0	0	0
Fe^{3+} (total Fe)	2.89	1.01E+05	1.22E+03
Cr^{3+}	3.92E-03	128	1.54
Bi^{3+}	0	0	0
La^{3+}	0	0	0
Hg^{2+}	0	0	0
Zr (as $ZrO(OH)_2$)	0	0	0
Pb^{2+}	7.58E-02	9.83E+03	119
Ni^{2+}	9.29E-02	3.41E+03	41.2
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	4.41E-02	1.11E+03	13.4
K^+	3.67E-02	898	10.8
OH^-	15.0	1.60E+05	1.93E+03
$NO3^-$	3.12E-02	1.21E+03	14.6
$NO2^-$	0.453	1.31E+04	158
$CO3^{2-}$	0.945	3.55E+04	429
$PO4^{3-}$	0.200	1.19E+04	144
$SO4^{2-}$	6.88E-02	4.14E+03	50.0
Si (as SiO_3^{2-})	7.75E-04	13.6	0.165
F^-	0	0	0
Cl^-	2.09E-02	464	5.60
$C_6H_5O_7^{3-}$	1.65E-02	1.95E+03	23.6
$EDTA^{4-}$	3.30E-02	5.95E+03	71.8
$HEDTA^{3-}$	0	0	0
$glycolate^-$	0	0	0
$acetate^-$	0.210	7.77E+03	93.8
$oxalate^{2-}$	0	0	0
DBP	0	0	0
butanol	0	0	0
NH_3	0.223	2.37E+03	28.6
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		2.03E-03 (μCi/g)	4.09E-04 (kg)
U	0.994 (M)	1.48E+05 (μg/g)	1.79E+03 (kg)
Cs	4.20E-04 (Ci/L)	0.263 (μCi/g)	3.18 (Ci)
Sr	9.02 (Ci/L)	5.65E+03 (μCi/g)	6.82E+04 (Ci)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).
†Volume average for density, mass average Water wt% and TOC wt% C.

Single-Shell Tank 241-C-202			
TLM Solids Composite Inventory Estimate*			
Physical Properties			
Total Solid Waste	5.48E+03 kg	(1.00 kgal)	
Heat Load	0.460 kW	(1.57E+03 BTU/hr)	
Bulk Density	1.45 (g/cc)		
Void Fraction	0.823		
Water wt%	43.6		
TOC wt% C (wet)	1.41		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	1.83	2.90E+04	159
Al^{3+}	0	0	0
Fe^{3+} (total Fe)	5.67	2.19E+05	1.20E+03
Cr^{3+}	6.59E-03	237	1.30
Bi^{3+}	0	0	0
La^{3+}	0	0	0
Hg^{2+}	0	0	0
Zr (as $ZrO(OH)_2$)	0	0	0
Pb^{2+}	0.152	2.17E+04	119
Ni^{2+}	0.185	7.51E+03	41.1
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	4.04E-03	112	0.613
K^{+}	7.31E-02	1.98E+03	10.8
OH^{-}	17.8	2.09E+05	1.14E+03
$NO3^{-}$	1.49E-17	6.38E-13	3.49E-15
$NO2^{-}$	0.897	2.85E+04	156
$CO3^{2-}$	4.04E-03	167	0.917
$PO4^{3-}$	0	0	0
$SO4^{2-}$	5.56E-02	3.69E+03	20.2
Si (as SiO_3^{2-})	0	0	0
F^{-}	0	0	0
Cl^{-}	4.05E-02	992	5.44
$C_6H_5O_7^{3-}$	3.30E-02	4.31E+03	23.6
$EDTA^{4-}$	6.59E-02	1.31E+04	71.9
$HEDTA^{3-}$	0	0	0
$glycolate^{-}$	0	0	0
$acetate^{-}$	0.420	1.71E+04	93.9
$oxalate^{2-}$	0	0	0
DBP	0	0	0
butanol	0	0	0
NH_3	0.445	5.23E+03	28.7
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		0 (μCi/g)	0 (kg)
U	0 (M)	0 (μg/g)	0 (kg)
Cs	0 (Ci/L)	0 (μCi/g)	0 (Ci)
Sr	18.0 (Ci/L)	1.25E+04 (μCi/g)	6.83E+04 (Ci)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

Single-Shell Tank 241-C-202			
SMM Composite Inventory Estimate			
Physical Properties			
Total Supernatant Wa	0 kg	(0 kgal)	
Heat Load	0 kW	(0 BTU/hr)	
Bulk Density*	0 (g/cc)		
Water wt%†	0		
TOC wt% C (wet)	0		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	0	0	0
Al^{3+}	0	0	0
Fe^{3+} (total Fe)	0	0	0
Cr^{3+}	0	0	0
Bi^{3+}	0	0	0
La^{3+}	0	0	0
Hg^{2+}	0	0	0
Zr (as $ZrO(OH)_2$)	0	0	0
Pb^{2+}	0	0	0
Ni^{2+}	0	0	0
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	0	0	0
K^{+}	0	0	0
OH^{-}	0	0	0
$NO3^{-}$	0	0	0
$NO2^{-}$	0	0	0
$CO3^{2-}$	0	0	0
$PO4^{3-}$	0	0	0
$SO4^{2-}$	0	0	0
Si (as SiO_3^{2-})	0	0	0
F^{-}	0	0	0
Cl^{-}	0	0	0
$C_6H_5O_7^{3-}$	0	0	0
$EDTA^{4-}$	0	0	0
$HEDTA^{3-}$	0	0	0
$glycolate^{-}$	0	0	0
$acetate^{-}$	0	0	0
$oxalate^{2-}$	0	0	0
DBP	0	0	0
butanol	0	0	0
NH_3	0	0	0
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu	0 (μCi/L)		0 (kg)
U	0 (M)	0 (μg/g)	0 (kg)
Cs	0 (Ci/L)	0 (μCi/g)	0 (Ci)
Sr	0 (Ci/L)	0 (μCi/g)	0 (Ci)

*Density is calculated based on Na, OH^{-}, and AlO_2^{-}.

†Water wt% derived from the difference of density and total dissolved species.

Single-Shell Tank 241-C-202			
Total Inventory Estimate*			
Physical Properties			
Total Waste	5.48E+03 kg	(1.00 kgal)	
Heat Load	0.460 kW	(1.57E+03 BTU/hr)	
Bulk Density†	1.45 (g/cc)		
Water wt%†	43.6		
TOC wt% C (wet)†	1.41		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^+	1.83	2.90E+04	159
Al^{3+}	0	0	0
Fe^{3+} (total Fe)	5.67	2.19E+05	1.20E+03
Cr^{3+}	6.59E-03	237	1.30
Bi^{3+}	0	0	0
La^{3+}	0	0	0
Hg^{2+}	0	0	0
Zr (as $ZrO(OH)_2$	0	0	0
Pb^{2+}	0.152	2.17E+04	119
Ni^{2+}	0.185	7.51E+03	41.1
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	4.04E-03	112	0.613
K^+	7.31E-02	1.98E+03	10.8
OH^-	17.8	2.09E+05	1.14E+03
$NO3^-$	1.49E-17	6.38E-13	3.49E-15
$NO2^-$	0.897	2.85E+04	156
$CO3^{2-}$	4.04E-03	167	0.917
$PO4^{3-}$	0	0	0
$SO4^{2-}$	5.56E-02	3.69E+03	20.2
Si (as SiO_3^{2-})	0	0	0
F^-	0	0	0
Cl^-	4.05E-02	992	5.44
$C_6H_5O_7^{3-}$	3.30E-02	4.31E+03	23.6
$EDTA^{4-}$	6.59E-02	1.31E+04	71.9
$HEDTA^{3-}$	0	0	0
glycolate$^-$	0	0	0
acetate$^-$	0.420	1.71E+04	93.9
oxalate^{2-}	0	0	0
DBP	0	0	0
butanol	0	0	0
NH_3	0.445	5.23E+03	28.7
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		0 (μCi/g)	0 (kg)
U	0 (M)	0 (μg/g)	0 (kg)
Cs	0 (Ci/L)	0 (μCi/g)	0 (Ci)
Sr	18.0 (Ci/L)	1.25E+04 (μCi/g)	6.83E+04 (Ci)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).
†Volume average for density, mass average Water wt% and TOC wt% C.

Single-Shell Tank 241-C-203			
TLM Solids Composite Inventory Estimate*			
Physical Properties			
Total Solid Waste	3.19E+04 kg	(5.00 kgal)	
Heat Load	0.460 kW	(1.57E+03 BTU/hr)	
Bulk Density	1.69 (g/cc)		
Void Fraction	0.451		
Water wt%	44.2		
TOC wt% C (wet)	0.241		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	4.40	5.99E+04	1.91E+03
Al^{3+}	0	0	0
Fe^{3+} (total Fe)	1.23	4.06E+04	1.30E+03
Cr^{3+}	2.31E-03	71.2	2.27
Bi^{3+}	0	0	0
La^{3+}	0	0	0
Hg^{2+}	0	0	0
Zr (as $ZrO(OH)_2$)	0	0	0
Pb^{2+}	3.03E-02	3.72E+03	119
Ni^{2+}	3.75E-02	1.30E+03	41.6
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	6.81E-02	1.62E+03	51.7
K^{+}	1.48E-02	343	11.0
OH^{-}	13.4	1.35E+05	4.30E+03
$NO3^{-}$	5.00E-02	1.84E+03	58.6
$NO2^{-}$	0.186	5.09E+03	162
$CO3^{2-}$	1.51	5.37E+04	1.71E+03
$PO4^{3-}$	0.320	1.80E+04	575
$SO4^{2-}$	7.67E-02	4.37E+03	139
Si (as SiO_3^{2-})	1.24E-03	20.7	0.659
F^{-}	0	0	0
Cl^{-}	9.10E-03	191	6.10
$C_6H_5O_7^{3-}$	6.58E-03	738	23.5
$EDTA^{4-}$	1.32E-02	2.25E+03	71.8
$HEDTA^{3-}$	0	0	0
glycolate^{-}	0	0	0
acetate^{-}	8.39E-02	2.94E+03	93.7
oxalate^{2-}	0	0	0
DBP	0	0	0
butanol	0	0	0
NH_3	8.90E-02	897	28.6
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		3.08E-03 (μCi/g)	1.64E-03 (kg)
U	1.59 (M)	2.24E+05 (μg/g)	7.16E+03 (kg)
Cs	6.72E-04 (Ci/L)	0.399 (μCi/g)	12.7 (Ci)
Sr	3.61 (Ci/L)	2.14E+03 (μCi/g)	6.82E+04 (Ci)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

Single-Shell Tank 241-C-203			
SMM Composite Inventory Estimate			
Physical Properties			
Total Supernatant Wa	0 kg	(0 kgal)	
Heat Load	0 [illegible]	(0 BTU/hr)	
Bulk Density*	0 (g/cc)		
Water wt%†	0		
TOC wt% C (wet)	0		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	0	0	0
Al^{3+}	0	0	0
Fe^{3+} (total Fe)	0	0	0
Cr^{3+}	0	0	0
Bi^{3+}	0	0	0
La^{3+}	0	0	0
Hg^{2+}	0	0	0
Zr (as $ZrO(OH)_2$)	0	0	0
Pb^{2+}	0	0	0
Ni^{2+}	0	0	0
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	0	0	0
K^{+}	0	0	0
OH^{-}	0	0	0
$NO3^{-}$	0	0	0
$NO2^{-}$	0	0	[illegible]
$CO3^{2-}$	0	0	[illegible]
$PO4^{3-}$	0	0	0
$SO4^{2-}$	0	0	0
Si (as SiO_3^{2-})	0	0	0
F^{-}	0	0	0
Cl^{-}	0	0	0
$C_6H_5O_7^{3-}$	0	0	0
$EDTA^{4-}$	0	0	0
$HEDTA^{3-}$	0	0	0
glycolate^{-}	0	0	0
acetate^{-}	0	0	0
oxalate^{2-}	0	0	0
DBP		0	0
butanol		0	0
NH_3	0	0	
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu	0 (μCi/L)		0 (kg)
U	0 (M)	0 (μg/g)	0 (kg)
Cs	0 (Ci/L)	0 (μCi/g)	0 (Ci)
Sr	0 (Ci/L)	0 (μCi/g)	0 (Ci)

*Density is calculated based on Na, OH^{-}, and AlO_2^{-}.

†Water wt% derived from the difference of density and total dissolved species.

Single-Shell Tank 241-C-203			
Total Inventory Estimate*			
Physical Properties			
Total Waste	3.19E+04 kg	(5.00 kgal)	
Heat Load	0.460 kW	(1.57E+03 BTU/hr)	
Bulk Density†	1.69 (g/cc)		
Water wt%†	44.2		
TOC wt% C (wet)†	0.241		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	4.40	5.99E+04	1.91E+03
Al^{3+}	0	0	0
Fe^{3+} (total Fe)	1.23	4.06E+04	1.30E+03
Cr^{3+}	2.31E-03	71.2	2.27
Bi^{3+}	0	0	0
La^{3+}	0	0	0
Hg^{2+}	0	0	0
Zr (as $ZrO(OH)_2$)	0	0	0
Pb^{2+}	3.03E-02	3.72E+03	119
Ni^{2+}	3.75E-02	1.30E+03	41.6
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	6.81E-02	1.62E+03	51.7
K^{+}	1.48E-02	343	11.0
OH^{-}	13.4	1.35E+05	4.30E+03
$NO3^{-}$	5.00E-02	1.84E+03	58.6
$NO2^{-}$	0.186	5.09E+03	162
$CO3^{2-}$	1.51	5.37E+04	1.71E+03
$PO4^{3-}$	0.320	1.80E+04	575
$SO4^{2-}$	7.67E-02	4.37E+03	139
Si (as SiO_3^{2-})	1.24E-03	20.7	0.659
F^{-}	0	0	0
Cl^{-}	9.10E-03	191	6.10
$C_6H_5O_7^{3-}$	6.58E-03	738	23.5
$EDTA^{4-}$	1.32E-02	2.25E+03	71.8
$HEDTA^{3-}$	0	0	0
glycolate^{-}	0	0	0
acetate^{-}	8.39E-02	2.94E+03	93.7
oxalate^{2-}	0	0	0
DBP	0	0	0
butanol	0	0	0
NH_3	8.90E-02	897	28.6
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		3.08E-03 (μCi/g)	1.64E-03 (kg)
U	1.59 (M)	2.24E+05 (μg/g)	7.16E+03 (kg)
Cs	6.72E-04 (Ci/L)	0.399 (μCi/g)	12.7 (Ci)
Sr	3.61 (Ci/L)	2.14E+03 (μCi/g)	6.82E+04 (Ci)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).
†Volume average for density, mass average Water wt% and TOC wt% C.

Single-Shell Tank 241-C-204			
TLM Solids Composite Inventory Estimate*			
Physical Properties			
Total Solid Waste	1.87E+04 kg	(3.00 kgal)	
Heat Load	0.460 kW	(1.57E+03 BTU/hr)	
Bulk Density	1.65 (g/cc)		
Void Fraction	0.513		
Water wt%	44.1		
TOC wt% C (wet)	[illegible]		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	3.97	5.54E+04	1.04E+03
Al^{3+}	0	0	0
Fe^{3+} (total Fe)	1.97	6.67E+04	1.25E+03
Cr^{3+}	3.02E-03	95.5	1.78
Bi^{3+}	0	0	0
La^{3+}	0	0	0
Hg^{2+}	0	0	0
Zr (as $ZrO(OH)_2$)	0	0	0
Pb^{2+}	5.05E-02	6.35E+03	119
Ni^{2+}	6.21E-02	2.21E+03	41.4
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	5.74E-02	1.40E+03	26.1
K^{+}	2.45E-02	583	10.9
OH^{-}	14.1	1.46E+05	2.72E+03
$NO3^{-}$	4.16E-02	1.57E+03	29.3
$NO2^{-}$	0.305	8.52E+03	159
$CO3^{2-}$	1.26	4.59E+04	858
$PO4^{3-}$	0.267	1.54E+04	287
$SO4^{2-}$	7.32E-02	4.27E+03	79.8
Si (as SiO_3^{2-})	1.03E-03	17.6	0.330
F^{-}	0	0	0
Cl^{-}	1.43E-02	309	5.77
$C_6H_5O_7^{3-}$	1.10E-02	1.26E+03	23.6
$EDTA^{4-}$	2.20E-02	3.84E+03	71.8
$HEDTA^{3-}$	0	0	0
$glycolate^{-}$	0	0	0
$acetate^{-}$	0.140	[illegible].02E+03	93.8
$oxalate^{2-}$	0	0	0
DBP	0	0	0
butanol	0	0	0
NH_3	0.148	1.53E+03	28.6
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
[illegible]		2.63E-03 (µCi/g)	8.18E-04 (kg)
U	1.33 (M)	1.92E+05 (µg/g)	3.58E+03 (kg)
Cs	5.60E-04 (Ci/L)	0.340 (µCi/g)	6.36 (Ci)
Sr	6.01 (Ci/L)	3.65E+03 (µCi/g	6.82E+04 (Ci)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

Single-Shell Tank 241-C-204			
SMM Composite Inventory Estimate			
Physical Properties			
Total Supernatant Wa	0 kg	(0 kgal)	
Heat Load	0 kW	(0 BTU/hr)	
Bulk Density*	0 (g/cc)		
Water wt%†	0		
TOC wt% C (wet)	0		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	0	0	0
Al^{3+}	0	0	0
Fe^{3+} (total Fe)	0	0	0
Cr^{3+}	0	0	0
Bi^{3+}	0	0	0
La^{3+}	0	0	0
Hg^{2+}	0	0	0
Zr (as $ZrO(OH)_2$)	0	0	0
Pb^{2+}	0	0	0
Ni^{2+}	0	0	0
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	0	0	0
K^{+}	0	0	0
OH^{-}	0	0	0
$NO3^{-}$	0	0	0
$NO2^{-}$	0	0	0
$CO3^{2-}$	0	0	0
$PO4^{3-}$	0	0	0
$SO4^{2-}$	0	0	0
Si (as SiO_3^{2-})	0	0	0
F^{-}	0	0	0
Cl^{-}	0	0	0
$C_6H_5O_7^{3-}$	0	0	0
$EDTA^{4-}$	0	0	0
$HEDTA^{3-}$	0	0	0
$glycolate^{-}$	0	0	0
$acetate^{-}$	0	0	0
$oxalate^{2-}$	0	0	0
DBP	0	0	0
butanol	0	0	0
NH_3	0	0	0
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu	0 (μCi/L)		0 (kg)
U	0 (M)	0 (μg/g)	0 (kg)
Cs	0 (Ci/L)	0 (μCi/g)	0 (Ci)
Sr	0 (Ci/L)	0 (μCi/g)	0 (Ci)

*Density is calculated based on Na, OH^{-}, and AlO_2^{-}.

†Water wt% derived from the difference of density and total dissolved species.

Single-Shell Tank 241-C-204			
Total Inventory Estimate*			
Physical Properties			
Total Waste	1.87E+04 kg	(3.00 kgal)	
Heat Load	0.460 kW	(1.57E+03 BTU/hr)	
Bulk Density†	1.65 (g/cc)		
Water wt%†	44.1		
TOC wt% C (wet)†	0.412		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	3.97	5.54E+04	1.04E+03
Al^{3+}	0	0	0
Fe^{3+} (total Fe)	1.97	6.67E+04	1.25E+03
Cr^{3+}	3.02E-03	95.5	1.78
Bi^{3+}	0	0	0
La^{3+}	0	0	0
Hg^{2+}	0	0	0
Zr (as $ZrO(OH)_2$)	0	0	0
Pb^{2+}	5.05E-02	6.35E+03	119
Ni^{2+}	6.21E-02	2.21E+03	41.4
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	5.74E-02	1.40E+03	26.1
K^{+}	2.45E-02	583	10.9
OH^{-}	14.1	1.46E+05	2.72E+03
$NO3^{-}$	4.16E-02	1.57E+03	29.3
$NO2^{-}$	0.305	8.52E+03	159
$CO3^{2-}$	1.26	4.59E+04	858
$PO4^{3-}$	0.267	1.54E+04	287
$SO4^{2-}$	7.32E-02	4.27E+03	79.8
Si (as SiO_3^{2-})	1.03E-03	17.6	0.330
F^{-}	0	0	0
Cl^{-}	1.43E-02	309	5.77
$C_6H_5O_7^{3-}$	1.10E-02	1.26E+03	23.6
$EDTA^{4-}$	2.20E-02	3.84E+03	71.8
$HEDTA^{3-}$	0	0	0
glycolate^{-}	0		0
acetate^{-}	0.140	5.02E+03	93.8
oxalate^{2-}	0	0	0
DBP	0	0	0
butanol	0	0	0
NH_3	0.148	1.53E+03	28.6
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		2.63E-03 (μCi/g)	8.18E-04 (kg)
U	1.33 (M)	1.92E+05 (μg/g)	3.58E+03 (kg)
Cs	5.60E-04 (Ci/L)	0.340 (μCi/g)	6.36 (Ci)
Sr	6.01 (Ci/L)	3.65E+03 (μCi/g)	6.82E+04 (Ci)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).
†Volume average for density, mass average Water wt% and TOC wt% C.

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