COMPLETE

H

ENGINEERING CHANGE NOTICE

1. ECN № 624021

Proj. ECN

2. ECN Category (mark one)	3. Originator's Name, Organization, MSIN, and Telephone No.	3a. USQ Required?	4. Date
Supplemental [] Direct Revision [X] Change ECN [] Temporary [] Standby [] Supersedure [] Cancel/Void []	T.M. Brown, R2-12, 373-4437	[] Yes [X] No	06/24/96
	5. Project Title/No./Work Order No.	6. Bldg./Sys./Fac. No.	7. Approval Designator
	Supporting Document for the Historical Tank Content Estimate for B-Tank Farm	2750/200E	N/A
	8. Document Numbers Changed by this ECN (includes sheet no. and rev.)	9. Related ECN No(s).	10. Related PO No.
	WHC-SD-WM-ER-310, Rev. 10	N/A	N/A

11a. Modification Work	11b. Work Package No.	11c. Modification Work Complete	11d. Restored to Original Condition (Temp. or Standby ECN only)
[] Yes (fill out Blk. 11b) [X] No (NA Blks. 11b, 11c, 11d)	N/A	N/A Cog. Engineer Signature & Date	N/A Cog. Engineer Signature & Date

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)

Criteria Change	[]	Design Improvement	[X]	Environmental	[]	Facility Deactivation	[]
As-Found	[]	Facilitate Const	[]	Const. Error/Omission	[]	Design Error/Omission	[]

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.

RELEASE STAMP

DATE: JUN 28 1996

STA: 4   RELEASE   ID: 58

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
N/A		

20. Approvals

Signature	Date	Signature	Date
OPERATIONS AND ENGINEERING		ARCHITECT-ENGINEER	
Cog. Eng. T. M. Brown Todd Brown	6/27/96	PE	
Cog. Mgr. J. W. Cammann JW Cammann	6/27/96	QA	
QA		Safety	
Safety		Design R. L. Newell RLNewell	6/27/96
Environ.		Environ.	
Other		Other	
		Lead Engineer J. W. Funk J. W. Funk	6/27/96
		Project Mgr. C. H. Brevick CHBrevick	6/27/96
		DEPARTMENT OF ENERGY	
		Signature or a Control Number that tracks the Approval Signature	
		ADDITIONAL	

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

C. H. Brevick, R. L. Newell, J. W. Funk
ICF Kaiser Hanford Company, Richland, WA 99352
U.S. Department of Energy Contract DE-AC06-87RL10930

EDT/ECN:	624021	UC:	2070
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Key Words: Northeast quadrant, Historical Tank Content Estimate, tank farms, tank level, tank temperature, aerial photos, in-tank montages, TLM, SMM, waste temperature plots, inventory estimates, riser locations

Abstract: This Supporting Document provides historical in-depth characterization information on B-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.

V. L. Birkland 6/28/96
Release Approval Date

DATE JUN 28 1996
HANFORD
RELEASE
STA. 4 ID: 52
Release Stamp

Approved for Public Release

RECORD OF REVISION	(1) Document Number WHC-SD-WM-ER-310	Page 1

(2) Title
Supporting Document for the Historical Tank Content Estimate for B-Tank Farm

CHANGE CONTROL RECORD

(3) Revision	(4) Description of Change - Replace, Add, and Delete Pages	Authorized for Release (5) Cog. Engr.	(6) Cog. Mgr. Date
0	(7) Initial issue, EDT 609104, 9/30/94	T.M. Brown	C.S. Haller
RS 1	1. Complete rewrite and update of 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. 6. Removed drywell data tables and plots. 7. Removed sample data and reports. 8. Removed unknown tank transfer plots. 9. Added more extensive tank waste inventory tables. Incorporates ECN 624021	T.M. Brown Todd Brown 6/27/96	J.W. Cammann JW Cammann 6/27/96

SUPPORTING DOCUMENT FOR THE HISTORICAL TANK CONTENT ESTIMATE FOR

B TANK FARM

WORK ORDER E44205

Prepared for

Westinghouse Hanford Company

May 1996

Prepared by

S.D. Consort
K.L. Ewer
J.W. Funk
R.G. Hale
G.A. Lisle
C.V. Salois

ICF Kaiser Hanford Company
Richland, Washington

SUPPORTING DOCUMENT FOR THE HISTORICAL TANK CONTENT ESTIMATE FOR

B TANK FARM

WORK ORDER E44205

Prepared by

ICF Kaiser Hanford Company
Richland, Washington

for

Westinghouse Hanford Company

John W. Fiel	6/27/96	Brenda E. Sartoris	6/27/96
Lead Engineer	Date	Technical Documents	Date
Robert L. Newell	6/27/96	Chris H. Brevick	6/27/96
Design Agent	Date	Project Manager	Date

Westinghouse Hanford Company

Jerry W. Cammann — 6/27/96
Technical Lead, TWRS DQO, Models and Inventory — Date

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INFORMATION FEEDBACK CARD

SUPPORTING DOCUMENT FOR THE HISTORICAL TANK CONTENT ESTIMATE FOR B 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
TWRS Technical Baseline Integration
P.O. Box 1970, MSIN R2-12
Richland, WA 99352

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APPENDICES

TRADEMARKS

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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 B 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

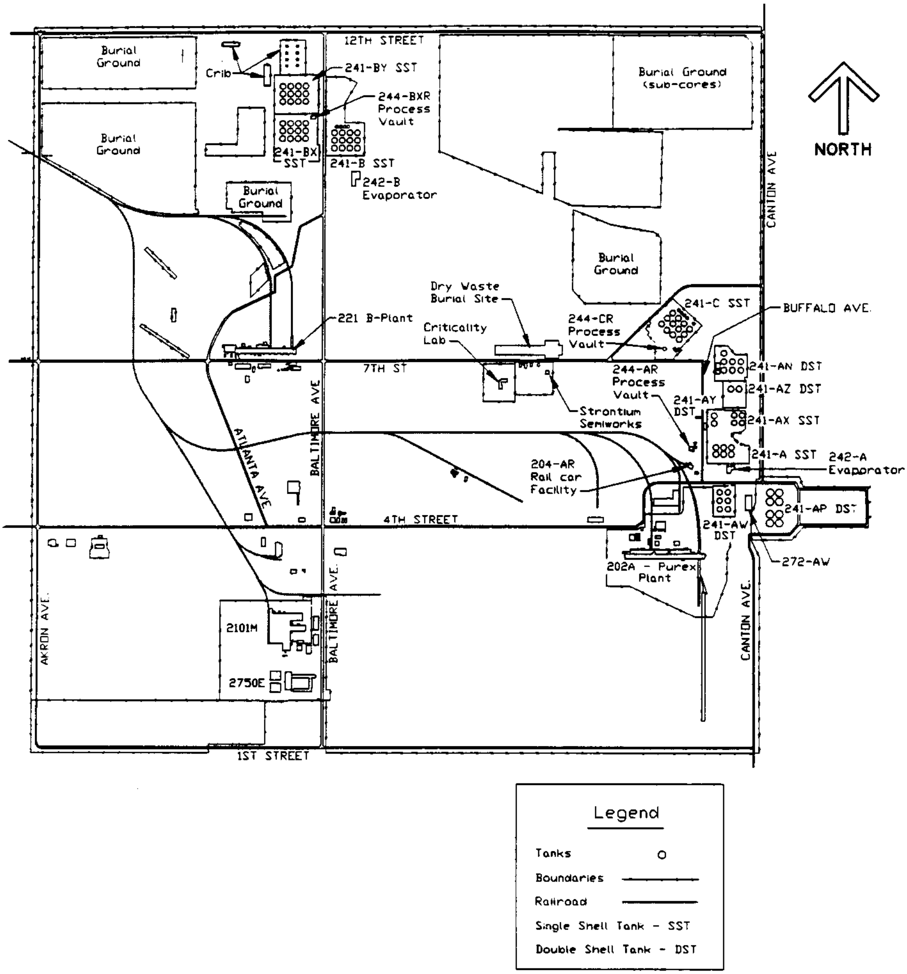

FIGURE 1: 200 EAST AREA

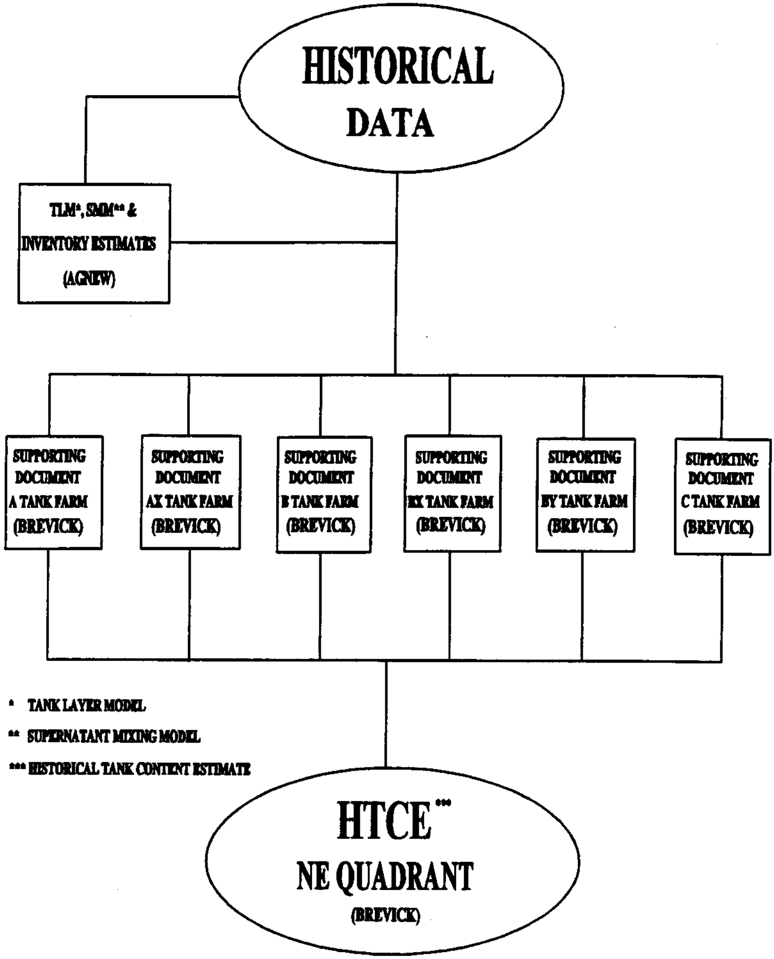

Figure 2 HTCE and Supporting Document Flow Diagram

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 B 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 Site 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 waste stream 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 et al., 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 sodium aluminate." (Wilson and Reep, 1991, p. B-5). The evaporator began operating on November 1, 1973 (Anderson, 1990) 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 were shut down on June 30, 1974 (Anderson, 1990).

1.2.3 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 accidentally 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

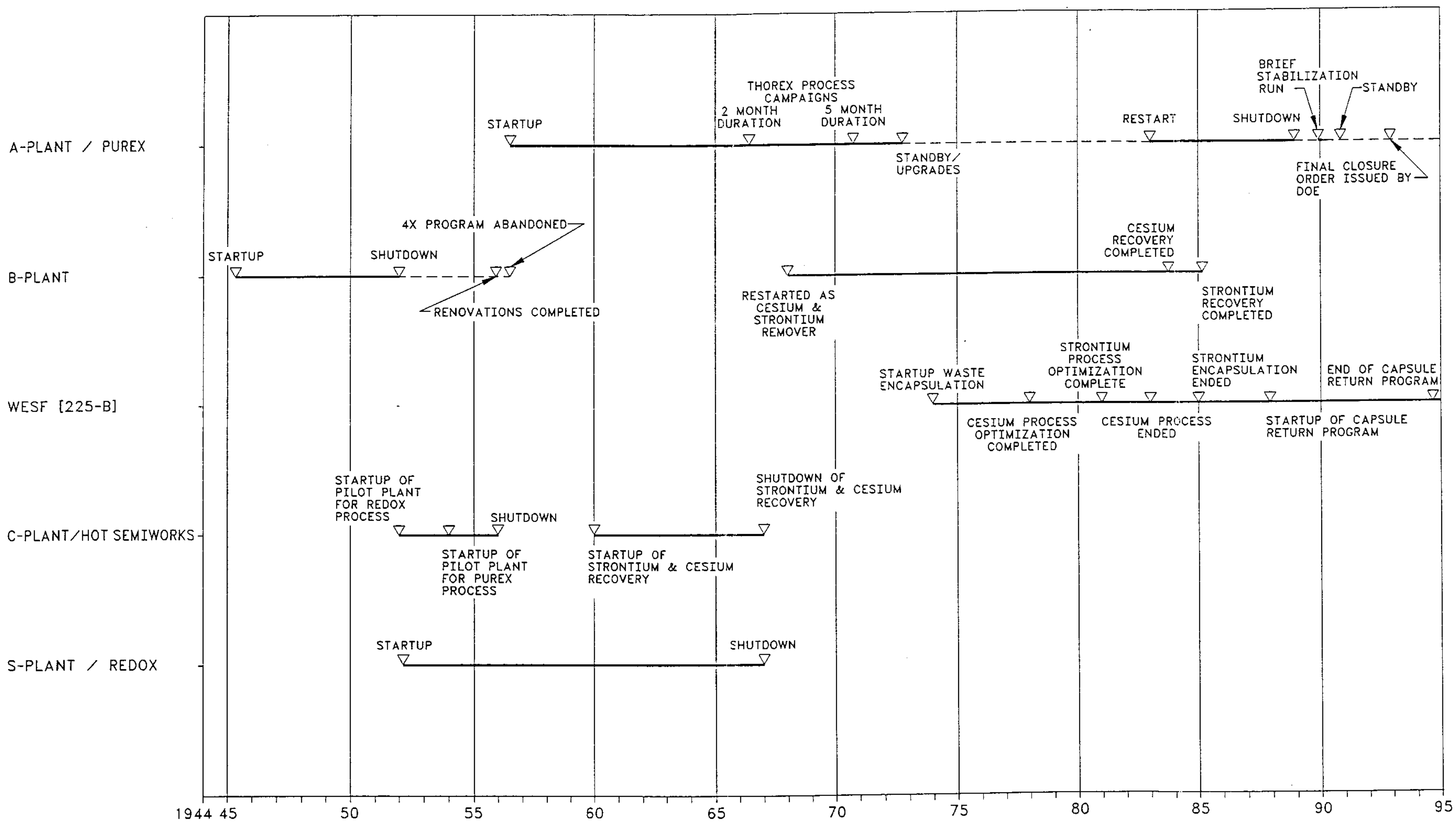

FIGURE 3

PLANTS / PROCESS - TIME LINE

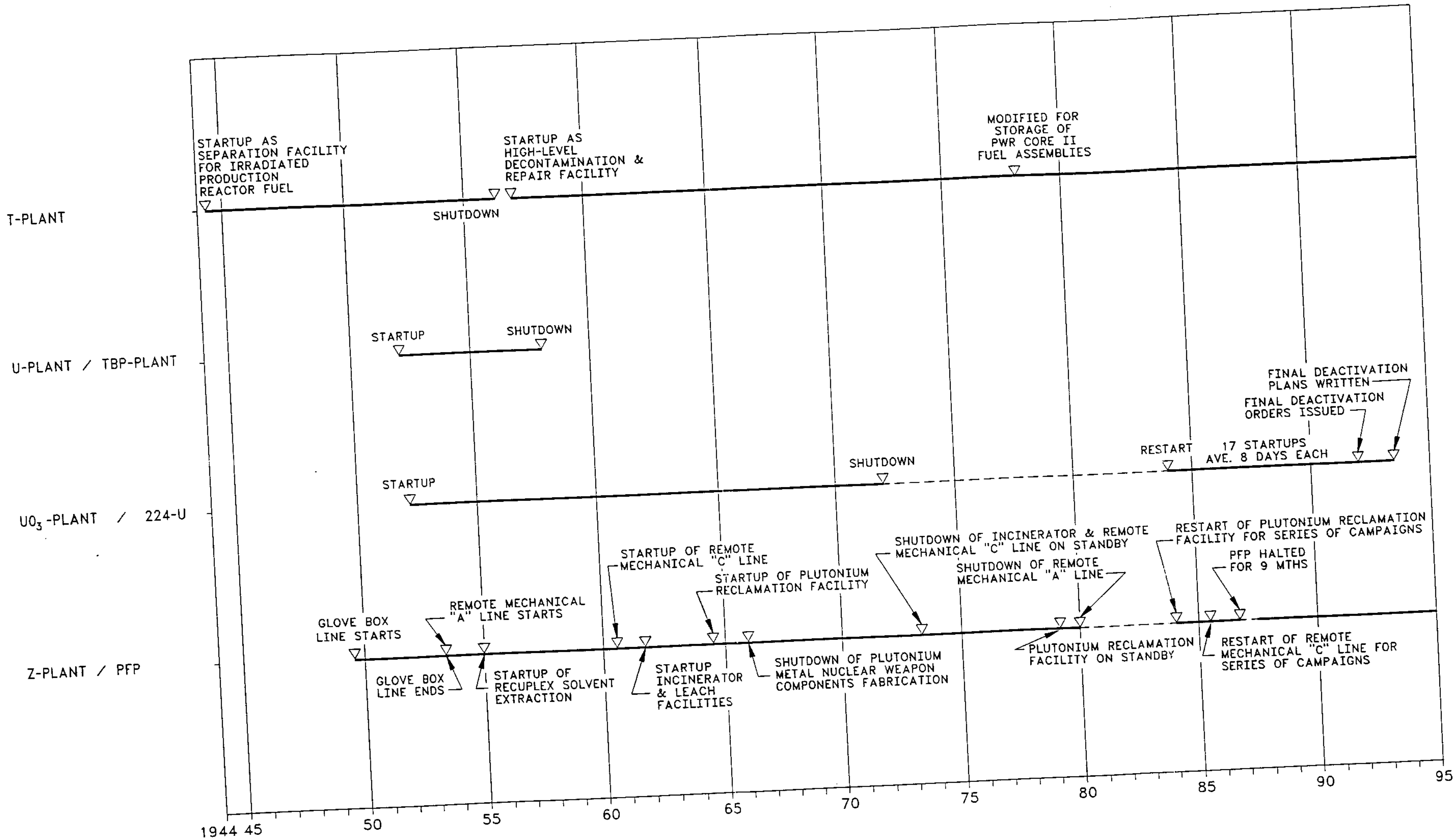

FIGURE 4

WASTE MANAGEMENT - TIME LINE

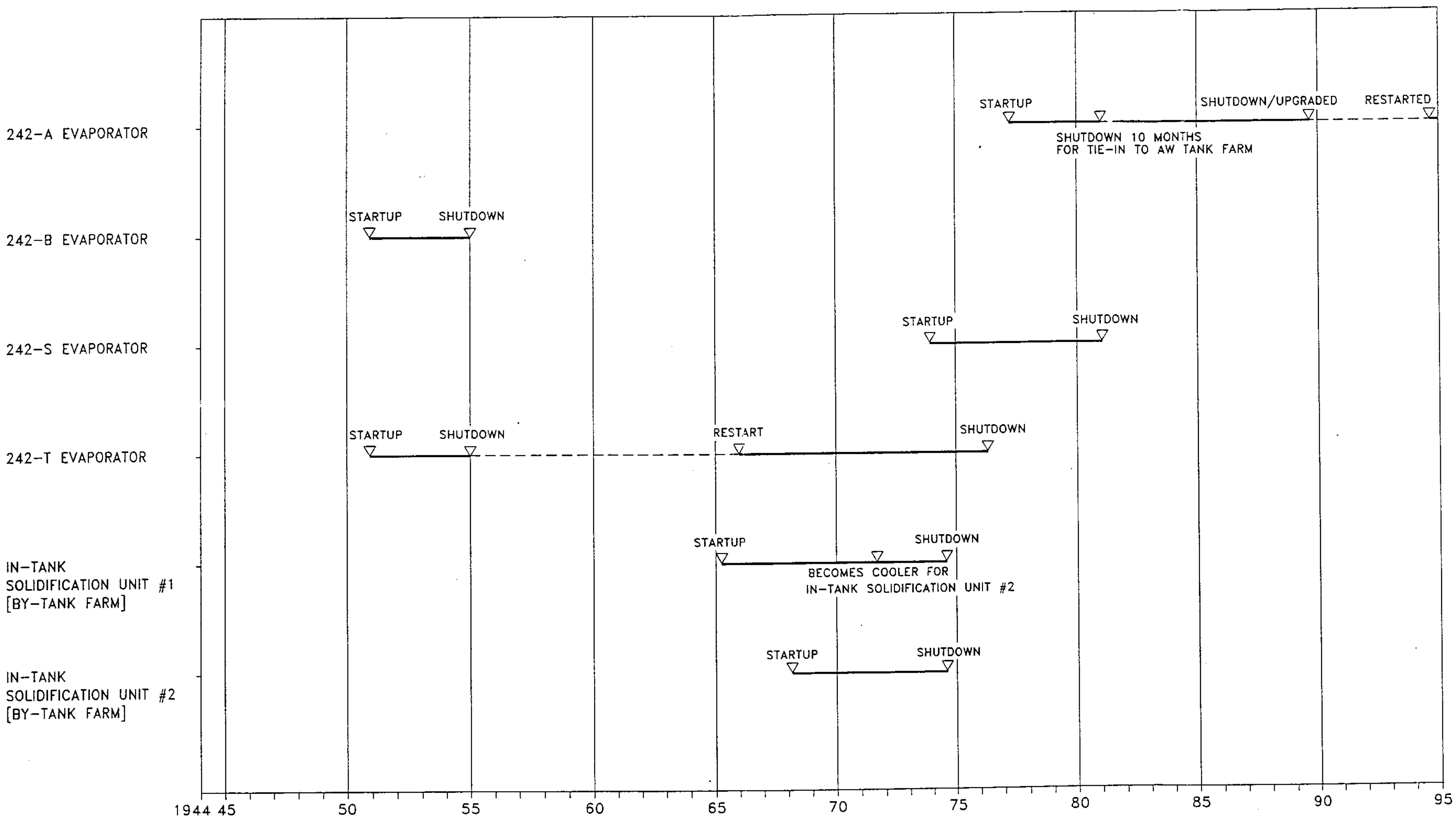

FIGURE 5

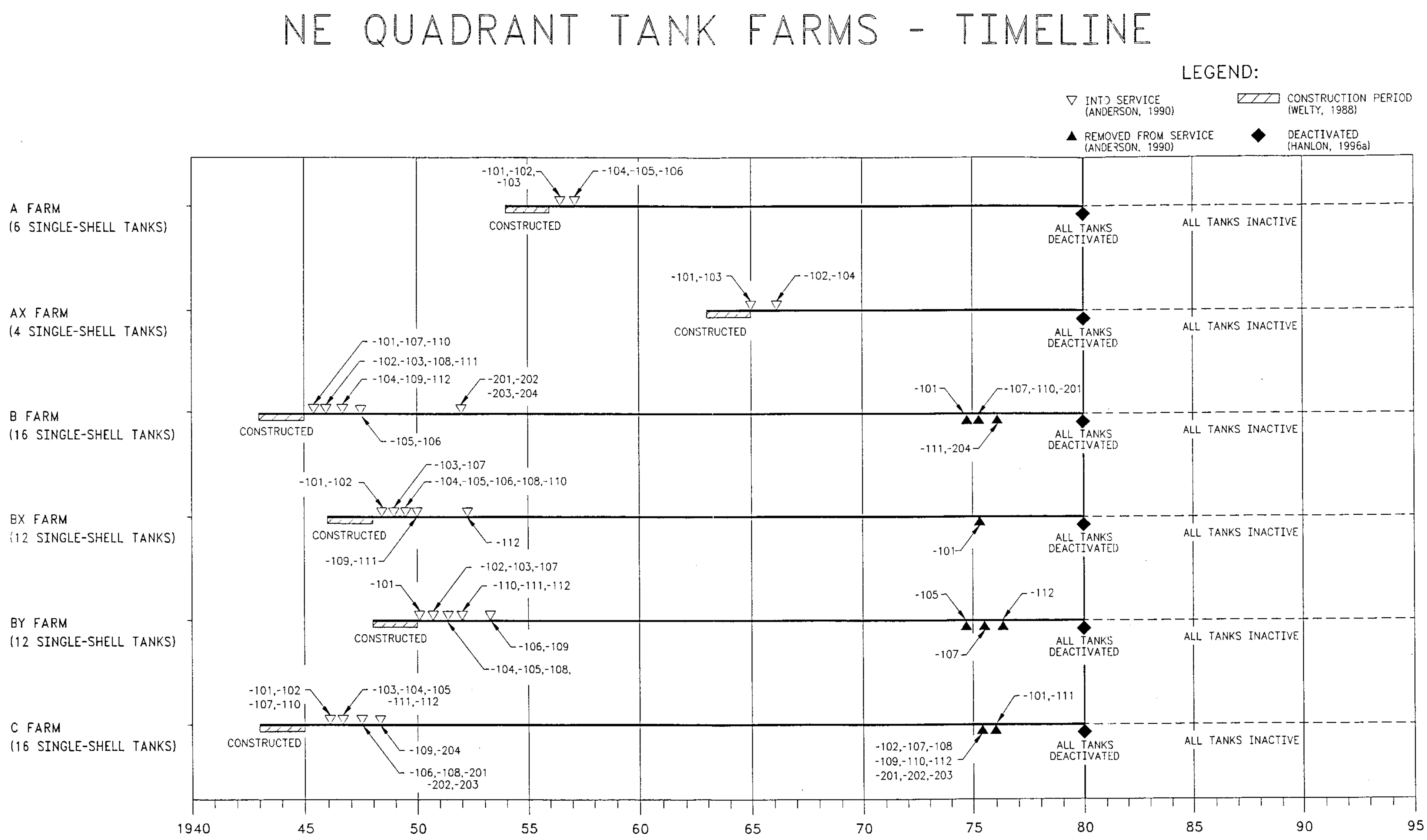
NE QUADRANT TANK FARMS - TIMELINE
LEGEND:
INTO SERVICE (ANDERSON, 1990)
CONSTRUCTION PERIOD (WELTY, 1988)
REMOVED FROM SERVICE (ANDERSON, 1990)
DEACTIVATED (HANLON, 1996a)
A FARM (6 SINGLE-SHELL TANKS)
AX FARM (4 SINGLE-SHELL TANKS)
B FARM (16 SINGLE-SHELL TANKS)
BX FARM (12 SINGLE-SHELL TANKS)
BY FARM (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
-105,-106
-201,-202
-203,-204
-101
-107,-110,-201
-111,-204
-101,-102
-103,-107
-104,-105,-106,-108,-110
-109,-111
-112
-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, solid waste level, and when available the interstitial liquid level. The waste level graphs also include information on transfers, stabilization, intrusion prevention (isolation), salt-well pumping, jet pumping, supernate pumping, 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 interstitial liquid level (ILL) graph for the applicable level history graphs is from the Westinghouse Hanford Company's Surveillance Analysis Computer System (SACS). SACS is a database that stores ILL 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 ILL data.

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 reference information is 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 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-B-101 through -112:

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

Tanks 241-B-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 are at the bottom knuckle inside of the tank. This places the "0" reference point 12 inches above the bottom 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 interstitial liquid level (ILL) graphs were developed from ILL data retrieved from SACS. The ILL data from SACS were imported into Microsoft Excel® spreadsheets. The SACS database custodians labeled the ILL data as either good or suspect. Only the data labeled as good were used for the ILL graphs. The SACS data that were labeled as good were reviewed for data on a quarterly basis. The quarters were set to match the quarterly system set up for the "monthly waste status reports" (i.e., the last month for each quarter was March, June, September, and December). The last data reading available from each quarter was the data reading used for the ILL graphs. The data from SACS have been rounded off to the nearest whole number. The "0" reference point for the SACS ILL data is the bottom inside of the tank. The reviewed quarterly ILL data were added to the appropriate quarter in the Level History tables presented in Appendix C.

The total waste level graphs, the solids waste level graphs, and the interstitial liquid 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). An adjustment of 12 inches had to be taken off of the interstitial liquid level data in order to account for the different "0" reference points. 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 solids 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. In other tanks, solids were assumed to begin accumulating after a tank was sluiced or when waste was sent to a crib.

The interstitial liquid within the tanks is the liquid that fills the interstitial spaces of the solid waste. The supernatant liquid within the tanks is located above the solid waste. Once the supernatant liquid has been removed from the tanks, the liquid that remains is the interstitial liquid. The interstitial liquid level (ILL) in most tanks is unknown unless a liquid observation well (LOW) was installed. The LOW allows access for instrumentation to record ILL. Unfortunately in many tanks, the LOW's were not installed and the ILL's were not recorded until sometime after the supernatant liquid was removed. Therefore, the ILL graphs required some assumptions in order to define the ILL graph from the point where the supernatant liquid was removed from the tank to the point where ILL data were started. One assumption was that the ILL followed a decreasing linear trend from the point where the supernatant liquid was removed from the tank to the point where salt-well pumping or jet pumping was completed. Another assumption was that the ILL followed a horizontal linear trend from the point where salt-well or jet pumping was completed to the point where the first ILL data were recorded on SACS.

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.

The interstitial liquid level (ILL) graphs were developed from data contained within the SACS database. The SACS custodians have qualified the data as either good or suspect. Only the data labeled as good have been plotted. However, on many tanks, the ILL data plotted exceeded the total waste level data. This situation is a contradiction to the definition of interstitial liquid. Even though the SACS custodians have labeled the data as good, the data quality seems questionable. The questionable data were graphed anyway. It was not the function of this document to judge or qualify the ILL data nor to discuss in detail this situation.

1.4 Temperatures

1.4.1 Surveillance Techniques

Interior tank temperatures of the single-shell tanks in B 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 presented in this document 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. Manual ENRAF® readings, the only ENRAF® readings available for this farm, 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, 1995a).

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, 1995a). 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, 1995a). 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 B 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 B 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 B 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 et al., 1996, Appendix C) was included for only B Tank Farm. The SMM and TLM Volume Tables(Agnew et al., 1996, Appendix D) was included for all tanks. The Inventory Estimates(Agnew et al., 1996, Appendix E) was included for only B Tank Farm.

2.0 B Tank Farm

2.0.1 B Tank Farm Information

The B Tank Farm is located east of Baltimore Avenue and north of the 242-B Evaporator 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 B Tank Farm. One cascade is from Tank 241-B-101 through -102 to -103. The second is from Tank 241-B-104 through -105 to -106. The third cascade is from Tank 241-B-107 through -108 to -109, and the fourth is from Tank 241-B-110 through -111 to -112.

2.0.2 B Tank Farm Waste and Level History

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

2.0.3 B Tank Farm Temperature History

Interior tank temperature data for B 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 B Tank Farm Occurrences

The occurrences presented are quite limited compared to the life of the tank farm. Only the occurrences determined as significant are included. The reports presented are incomplete because not all of the documentation on occurrences for B Tank Farm could be located.

2.0.5 B Tank Farm Current Status

The tanks in B Tank Farm entered service from 1945 to 1952 (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 2,057,000 gallons as of November 30, 1995 (Hanlon, 1996b). All tanks are out of service. Tanks 241-B-102, -104, -106,

-108, -109, and -202 are categorized as sound and Tanks 241-B-101, -103, -105, -107, -110, -111, -112, -201, -203, and -204 are assumed leakers. Tank 241-B-103 is the only tank on a watch list. See Appendix E for waste surface level graphs. The risers tentatively available for sampling are listed in Appendix F.

2.0.6 B Tank Farm Photograph and Tank Montages

The photographs for B 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 B 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 B Tank Farm are presented in Appendix H along with their introduction sections.

2.1 Tank 241-B-101

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

The Waste and Level History sketch in Appendix C presents the waste history and level history of Tank 241-B-101. The level history data for the second and third quarter of 1959 are questionable because the solids waste is greater than the total waste.

2.1.2 Temperature History of Tank 241-B-101

Interior tank temperature data presented within this document for Tank 241-B-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 9. Drawing H-2-73276, Rev. 3, 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.

The temperature data were obtained from the SACS database on October 23, 1995. The SACS database contained two file types for temperature data: a historical file and a file with temperature data tied to riser 9. 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 file that tied the temperature data to riser 9 were used in this document. The earliest data retrieved from SACS were from early July 1994.

Graphs of individual thermocouple data were not created due to a lack of data. The following statistical information was taken from all 11 thermocouples. The maximum temperature was 107°F taken by thermocouple No. 1 on July 1, 1994. The minimum temperature was 82.6°F taken by thermocouple No. 11 on January 24, 1995. The maximum and minimum temperatures are labeled as good data points within SACS. The average temperature for all the thermocouples is 92°F.

2.1.3 Occurrences for Tank 241-B-101

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

2.1.4 Current Status of Tank 241-B-101

Tank 241-B-101 entered service during the second quarter of 1945 (Anderson, 1990) and as of November 30, 1995 stores approximately 113,000 gallons of waste (Hanlon, 1996b). The waste surface level in the tank is measured with a manual FIC level gauge as of July 1995. The minimum waste surface level was 34 inches on October 6, 1992. The maximum waste surface level was 36.1 inches on September 10, 1992. 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 December 5, 1995. Tank 241-B-101 has 12 risers with three tentatively available for sampling: one 4-inch riser (No. 1) and two 12-inch risers (Nos. 2 and 7) (Lipnicki, 1995a).

2.1.5 Interior Montage of Tank 241-B-101

The clearest and most recent set of interior tank photographs was taken on February 27, 1975. 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-B-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-B-101 are presented in Appendix H along with their introduction sections.

2.2 Tank 241-B-102

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

The Waste and Level History sketch in Appendix C presents the waste history and level history of Tank 241-B-102.

2.2.2 Temperature History of Tank 241-B-102

Interior tank temperature data presented within this document for Tank 241-B-102 were recorded by 12 thermocouples attached to one thermocouple tree. Drawing H-2-36301, Rev. 1, indicates that the thermocouple tree is designed as shown on Drawing H-2-34304, Sht. 1 Rev. 6, with 14 thermocouples. However, temperature data were only available from thermocouples Nos. 1 through 12. The Surveillance Analysis Computer System (SACS) indicates that the thermocouple tree is located in riser 4. In the past, there may have been other risers and equipment used to monitor the temperature in the tank. However, the thermocouple tree located at riser 4 is the only source of temperature data for this document. The temperature data were obtained from the SACS database on October 23, 1995. The earliest data retrieved from SACS were from mid September 1974.

Graphs of individual thermocouple data are presented in Appendix D. A graph was plotted for each thermocouple. The following statistical information was taken from all 12 thermocouples. The maximum temperature was 107.1°F taken by thermocouple No. 7 on July 5, 1989. The minimum temperature was 50°F taken by thermocouple No. 11 on January 16, 1978. The maximum and minimum temperatures are labeled as transcribed data points within SACS. The average temperature for all of the thermocouples is 69°F.

2.2.3 Occurrences for Tank 241-B-102

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

2.2.4 Current Status of Tank 241-B-102

Tank 241-B-102 entered service during the fourth quarter of 1945 (Anderson, 1990) and as of November 30, 1995 stores approximately 32,000 gallons of waste (Hanlon, 1996b). The waste surface level in the tank is measured with a manual ENRAF® level gauge as of November 1995. The minimum waste surface level was 7 inches on numerous dates from January 13, 1991 through June 9, 1994. The maximum waste surface level was 7.8 inches on numerous dates from October 17, 1994 through November 1, 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 sound and is passively ventilated. A plan view in Appendix F depicts the approximate riser locations as of December 5, 1995. Tank 241-B-102 has 10 risers with two tentatively available for sampling: one 4-inch riser (No. 8) and one 12-inch riser (No. 7) (Lipnicki, 1995a).

2.2.5 Interior Montage of Tank 241-B-102

The clearest and most recent set of interior tank photographs was taken on August 22, 1985. 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-B-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-B-102 are presented in Appendix H along with their introduction sections.

2.3 Tank 241-B-103

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

The Waste and Level History sketch in Appendix C presents the waste history and level history of Tank 241-B-103. The level history data for the second quarter of 1962 are questionable because the solids waste is greater than the total waste.

2.3.2 Temperature History of Tank 241-B-103

Interior tank temperature data for Tank 241-B-103 were recorded by 13 thermocouples attached to one thermocouple tree. Drawing H-2-36301, Rev. 1, indicates that the thermocouple tree is designed as shown on Drawing H-2-34304, Sht. 1 Rev. 6, with 14 thermocouples. However, temperature data were only available from thermocouples 1 through 13. The Surveillance Analysis Computer System (SACS) indicates that the thermocouple tree is located in riser 4. There may have been other risers and equipment used to monitor the temperature in the tank in the past. However, the thermocouple tree located at riser 4 is the only source of temperature data for this document. The temperature data were obtained from the SACS database on October 23, 1995. The earliest data retrieved from SACS were from mid September 1974.

Graphs of individual thermocouple data are presented in Appendix D. A graph was created for each thermocouple, except for No. 13 which was not graphed due to a lack of data. The following statistical information was taken from all 13 thermocouples. The maximum temperature was 83°F taken by thermocouple No. 1 on January 7, 1976. The minimum temperature was 33.6°F taken by thermocouple No. 2 on February 2, 1995. The maximum and minimum temperatures are labeled as a good data points within SACS. The average temperature for all the thermocouples is 61°F.

2.3.3 Occurrences for Tank 241-B-103

No significant occurrences are associated only with Tank 241-B-103.

2.3.4 Current Status of Tank 241-B-103

Tank 241-B-103 entered service during the fourth quarter of 1945 (Anderson, 1990) and as of November 30, 1995 stores approximately 59,000 gallons of waste (Hanlon, 1996b). The waste surface level in the tank is measured with a manual FIC level gauge as of September 1995. The minimum waste surface level was 13.8 inches on July 2, 1995. The maximum waste surface level was 17.4 inches on January 4, 1993. See Appendix E for details on waste surface level. Tank 241-B-103 was added to the Organics 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 December 5, 1995. Tank 241-B-103 has 10 risers with three tentatively available for sampling: one 4-inch riser (No. 8) and two 12-inch risers (Nos. 2 and 7) (Lipnicki, 1995a).

2.3.5 Interior Montage of Tank 241-B-103

The clearest and most recent set of interior tank photographs was taken on October 13, 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.

2.3.6 Tank Layer Model, Supernatant Mixing Model, and Inventory Estimate of Tank 241-B-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-B-103 are presented in Appendix H along with their introduction sections.

2.4 Tank 241-B-104

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

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

2.4.2 Temperature History of Tank 241-B-104

Interior tank temperature data presented within this document for Tank 241-B-104 were recorded by 12 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, there may have been other risers and equipment 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 October 23, 1995. The earliest data retrieved from SACS were from early April 1975.

Graphs of individual thermocouple data are presented in Appendix D. A graph was created for each thermocouple, except for No. 12 which was not graphed due to a lack of data. The following statistical information was taken from all 12 thermocouples. The maximum temperature was 121.9°F taken by thermocouple No. 11 on July 5, 1989. The minimum temperature was 52°F taken by thermocouples 1 and 2 on March 12, 1980. The maximum and minimum temperatures are labeled as a transcribed data points within SACS. The average temperature for all the thermocouples is 68°F.

2.4.3 Occurrences for Tank 241-B-104

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

2.4.4 Current Status of Tank 241-B-104

Tank 241-B-104 entered service during the third quarter of 1946 (Anderson, 1990) and as of November 30, 1995 stores approximately 371,000 gallons of waste (Hanlon, 1996b). The waste surface level in the tank is measured with a manual tape as of October 1995. The minimum waste surface level was 131.25 inches on June 4, 1993 and October 1, 1995. The maximum waste surface level was 133 inches on July 2, 1995. 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 passively ventilated. A plan view in Appendix F depicts the approximate riser locations as of December 5, 1995. Tank 241-B-104 has 10 risers with three tentatively available for sampling: three 12-inch risers (Nos. 2, 3, and 7) (Lipnicki, 1995a).

2.4.5 Interior Montage of Tank 241-B-104

The clearest and most recent set of interior tank photographs was taken on October 13, 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.

2.4.6 Tank Layer Model, Supernatant Mixing Model, and Inventory Estimate of Tank 241-B-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-B-104 are presented in Appendix H along with their introduction sections.

2.5 Tank 241-B-105

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

The Waste and Level History sketch in Appendix C presents the waste history and level history of Tank 241-B-105. The level history data for the second and third quarter of 1953 are questionable because the solids waste is greater than the total waste.

2.5.2 Temperature History of Tank 241-B-105

Interior tank temperature data for Tank 241-B-105 were recorded by 12 thermocouples attached to one thermocouple tree. Documentation of the design of the thermocouple tree was not located. The design configuration 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 15. In the past, there may have been other risers and equipment used to monitor the temperature in the tank. However, the thermocouple tree located at riser 15 is the only source of temperature data for this document. The temperature data were obtained from the SACS database on October 23, 1995. The earliest data retrieved from SACS was from early April 1975.

Graphs of individual thermocouple data are presented in Appendix D. A graph was created for each thermocouple, except for No. 12 which was not graphed due to a lack of data. The following statistical information was taken from all 12 thermocouples. The maximum temperature was 106.6°F taken by thermocouples 7, 8, and 9 on July 5, 1989. The minimum temperature was 51°F taken by thermocouples 5, 6, 7, and 8 on April 26, 1977 and by thermocouples 5 through 11 on April 16, 1982. The maximum and minimum temperatures are labeled as transcribed data points within SACS. The average temperature for all the thermocouples is 67°F.

2.5.3 Occurrences for Tank 241-B-105

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

2.5.4 Current Status of Tank 241-B-105

Tank 241-B-105 entered service during the first quarter of 1947 (Anderson, 1990) and as of November 30, 1995 stores approximately 306,000 gallons of waste (Hanlon, 1996b). The waste surface level in the tank is measured with a manual tape as of October 1995. The minimum waste surface level was 38 inches on January 1, 1995 and April 2, 1995. The maximum waste surface level was 44 inches on numerous dates from October 1, 1995 through October 31, 1995. 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 December 5, 1995. Tank 241-B-105 has 12 risers with five tentatively available for sampling: one 4-inch riser (No. 8) and four 12-inch risers (Nos. 2, 3, 6, and 7) (Lipnicki, 1995a).

2.5.5 Interior Montage of Tank 241-B-105

The clearest and most recent set of interior tank photographs was taken on May 19, 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 snown in Appendix G.

2.5.6 Tank Layer Model, Supernatant Mixing Model, and Inventory Estimate of Tank 241-B-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-B-105 are presented in Appendix H along with their introduction sections.

2.6 Tank 241-B-106

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

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

2.6.2 Temperature History of Tank 241-B-106

Interior tank temperature data for Tank 241-B-106 were recorded by 13 thermocouples attached to one thermocouple tree. Drawing H-2-36301, Rev. 1, indicates that the thermocouple tree is designed as shown on Drawing H-2-34304, Sht. 1 Rev. 6, with 14 thermocouples. However, temperature data were available for only thermocouples 1 through 13. The Surveillance Analysis Computer System (SACS) indicates that the thermocouple tree is located in riser 4. In the past, there may have been other risers and equipment used to monitor the temperature in the tank. However, the thermocouple tree located at riser 4 is the only source of temperature data for this document. The temperature data were obtained from the SACS database on October 23, 1995. The earliest data retrieved from SACS were from late September 1974.

Graphs of individual thermocouple data are presented in Appendix D. A graph was created for each thermocouple, except for No. 13 which was not graphed due to a lack of data. The following statistical information was taken from all 13 thermocouples. The maximum temperature was 106.7°F taken by thermocouple No. 4 on July 5, 1989. The minimum temperature was 43°F taken by thermocouple No. 5 on April 16, 1982. The maximum and minimum temperatures are labeled as a transcribed data points within SACS. The average temperature for all the thermocouples is 66°F.

2.6.3 Occurrences for Tank 241-B-106

An occurrence report was issued in 1978 when a drop in liquid level exceeded the criterion for a decrease.

2.6.4 Current Status of Tank 241-B-106

Tank 241-B-106 entered service during the third quarter of 1947 (Anderson, 1990) and as of November 30, 1995 stores approximately 117,000 gallons of waste (Hanlon, 1996b). The waste surface level in the tank is measured with an automatic FIC level gauge as of November 1995. The minimum waste surface level was 38 inches on numerous dates from January 22, 1993 through April 23, 1993. The maximum waste surface level was 39.6 inches on September 1, 1992. 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 passively ventilated. A plan view in Appendix F depicts the approximate riser locations as of December 5, 1995. Tank 241-B-106 has 10 risers with four tentatively available for sampling: one 4-inch riser (No. 8) and three 12-inch risers (No. 2, 3, and 7) (Lipnicki, 1995a).

2.6.5 Interior Montage of Tank 241-B-106

The clearest and most recent set of interior tank photographs was taken on February 28, 1985. 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-B-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-B-106 are presented in Appendix H along with their introduction sections.

2.7 Tank 241-B-107

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

The Waste and Level History sketch in Appendix C presents the waste history and level history of Tank 241-B-107. The level history data for the fourth quarter of 1960 are questionable because the solids waste is greater than the total waste.

2.7.2 Temperature History of Tank 241-B-107

Interior tank temperature data for Tank 241-B-107 were recorded by 12 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 3. Drawing H-2-73278, Rev. 4, indicates that riser 4 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, there may have been other risers and equipment used to monitor the temperature in the tank. However, the thermocouple tree located at riser 3 is the only source of temperature data for this document. The temperature data were obtained from the SACS database on October 23, 1995. The earliest data retrieved from SACS were from mid May 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 12 thermocouples. The maximum temperature was 123.5°F taken by thermocouple No. 11 on July 5, 1989. The minimum temperature was 50°F taken by thermocouple No. 1 on September 12, 1977. The maximum and minimum temperatures are labeled as a transcribed data points within SACS. The average temperature for all the thermocouples is 66°F.

2.7.3 Occurrences for Tank 241-B-107

No significant occurrences are associated only with Tank 241-B-107.

2.7.4 Current Status of Tank 241-B-107

Tank 241-B-107 entered service during the second quarter of 1945 (Anderson, 1990) and as of November 30, 1995 stores approximately 165,000 gallons of waste (Hanlon, 1996b). The waste surface level in the tank is measured with a manual tape as of October 1995. The minimum waste surface level was 54.25 inches on July 2, 1992 and January 4, 1993. The maximum waste surface level was 55 inches on numerous dates from April 1, 1991 through October 1, 1995. See Appendix E for details on waste surface level. Tank 241-B-107 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 December 5, 1995. Tank 241-B-107 has 11 risers with six tentatively available for sampling: three 4-inch risers (Nos. 1, 4, and 5) and three 12-inch risers (Nos. 2, 6, and 7) (Lipnicki, 1995a).

2.7.5 Interior Montage of Tank 241-B-107

The clearest and most recent set of interior tank photographs was taken on February 28, 1985. 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.

2.7.6 Tank Layer Model, Supernatant Mixing Model, and Inventory Estimate of Tank 241-B-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-B-107 are presented in Appendix H along with their introduction sections.

2.8 Tank 241-B-108

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

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

2.8.2 Temperature History of Tank 241-B-108

Interior tank temperature data for Tank 241-B-108 were recorded by 12 thermocouples attached to one thermocouple tree. Drawing H-2-36301, Rev. 1, indicates that the thermocouple tree is designed as shown on Drawing H-2-34304, Sht. 1 Rev. 6, with 14 thermocouples. However, temperature data were available for only thermocouples 1 through 12. The Surveillance Analysis Computer System (SACS) indicates that the thermocouple tree is located in riser 5. In the past, there may have been other risers and equipment 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 October 23, 1995. The earliest data retrieved from SACS were from late September 1974.

Graphs of individual thermocouple data are presented in Appendix D. A graph was created for each thermocouple, except for No. 2 which was not graphed due to a lack of data. The following statistical information was taken from all 12 thermocouples. The maximum temperature was 101.9°F taken by thermocouples 9 and 10 on July 5, 1989. The minimum temperature was 50°F taken by thermocouple No. 9 on January 9, 1979. The maximum and minimum temperatures are labeled as transcribed data points within SACS. The average temperature for all the thermocouples is 68°F.

2.8.3 Occurrences for Tank 241-B-108

No significant occurrences are associated only with Tank 241-B-108.

2.8.4 Current Status of Tank 241-B-108

Tank 241-B-108 entered service during the fourth quarter of 1945 (Anderson, 1990) and as of November 30, 1995 stores approximately 94,000 gallons of waste (Hanlon, 1996b). The waste surface level in the tank is measured with a manual FIC level gauge as of October 1995. The minimum waste surface level was 27.1 inches on January 2, 1991. The maximum waste surface level was 29.1 inches on numerous dates from July 27, 1992 through December 1, 1992. See Appendix E for details on waste surface level. Tank 241-B-108 is out of service with interim stabilization and intrusion prevention completed. The tank is listed as sound and passively ventilated. A plan view in Appendix F depicts the approximate riser locations as of December 5, 1995. Tank 241-B-108 has 11 risers with four tentatively available for sampling: one 4-inch riser (No. 4) and three 12-inch risers (Nos. 3, 6, and 7) (Lipnicki, 1995a).

2.8.5 Interior Montage of Tank 241-B-108

The clearest and most recent set of interior tank photographs was taken on May 10, 1985. 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.

2.8.6 Tank Layer Model, Supernatant Mixing Model, and Inventory Estimate of Tank 241-B-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-B-108 are presented in Appendix H along with their introduction sections.

2.9 Tank 241-B-109

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

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

2.9.2 Temperature History of Tank 241-B-109

Interior tank temperature data for Tank 241-B-109 were recorded by 12 thermocouples attached to one thermocouple tree. Drawing H-2-36301, Rev. 1, indicates that the thermocouple tree is designed as shown on Drawing H-2-34304, Sht. 1 Rev. 6, with 14 thermocouples. However, temperature data were available for only thermocouples Nos. 1 through 12. The Surveillance Analysis Computer System (SACS) indicates that the thermocouple tree is located in riser 1. In the past, there may have been other risers and equipment 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 was obtained from the SACS database on October 23, 1995. The earliest data retrieved from SACS were from late April 1974.

Graphs of individual thermocouple data are presented in Appendix D. A graph was plotted for each thermocouple. The following statistical information was taken from all 12 thermocouples. The maximum temperature was 103.9°F taken by thermocouple No. 1 on July 5, 1989. The minimum temperature was 53°F taken by thermocouple No. 5 on March 12, 1980. The maximum and minimum temperatures are labeled as a transcribed data points within SACS. The average temperature for all the thermocouples is 69°F.

2.9.3 Occurrences for Tank 241-B-109

No significant occurrences are associated only with Tank 241-B-109.

2.9.4 Current Status of Tank 241-B-109

Tank 241-B-109 entered service during the first quarter of 1946 (Anderson, 1990) and as of November 30, 1995 stores approximately 127,000 gallons of waste (Hanlon, 1996b). The waste surface level in the tank is measured with a manual tape as of October 1995. The minimum waste surface level was 40.25 inches on June 7, 1993. The maximum waste surface level was 42 inches on January 3, 1994. See Appendix E for details on waste surface level. Tank 241-B-109 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 December 5, 1995. Tank 241-B-109 has 11 risers with three tentatively available for sampling: one 4-inch riser (No. 4) and two 12-inch risers (Nos. 2 and 7) (Lipnicki, 1995a).

2.9.5 Interior Montage of Tank 241-B-109

The clearest and most recent set of interior tank photographs was taken on April 2, 1985. 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-B-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-B-109 are presented in Appendix H along with their introduction sections.

2.10 Tank 241-B-110

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

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

2.10.2 Temperature History of Tank 241-B-110

Interior tank temperature data for Tank 241-B-110 were recorded by 12 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. Drawing H-2-73279, Rev. 4, indicates that riser 6 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, there may have been other risers and equipment 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 October 23, 1995. The earliest data retrieved from SACS were from early May 1975.

Graphs of individual thermocouple data are presented in Appendix D. A graph was created for each thermocouple, except for No. 12 which was not graphed due to a lack of data. The following statistical information was taken from all 12 thermocouples. The maximum temperature was 121.2°F taken by thermocouple No. 11 on July 5, 1989. The minimum temperature was 55°F taken by thermocouple No. 7 on May 21, 1975 and by thermocouple No. 12 on May 14, 1975. The maximum and minimum temperatures are labeled as a transcribed data points within SACS. The average temperature for all the thermocouples is 75°F.

2.10.3 Occurrences for Tank 241-B-110

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

2.10.4 Current Status of Tank 241-B-110

Tank 241-B-110 entered service during the second quarter of 1945 (Anderson, 1990) and as of November 30, 1995 stores approximately 246,000 gallons of waste (Hanlon, 1996b). The waste surface level in the tank is measured with a manual tape as of October 1995. The minimum waste surface level was 84.5 inches on July 2, 1991. The maximum waste surface level was 87.25 inches on January 15, 1992. See Appendix E for details on waste surface level. Tank 241-B-110 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 December 5, 1995. Tank 241-B-110 has 12 risers with five tentatively available for sampling: two 4-inch risers (Nos. 1 and 4) and three 12-inch risers (Nos. 3, 6, and 7) (Lipnicki, 1995a).

2.10.5 Interior Montage of Tank 241-B-110

The clearest and most recent set of interior tank photographs was taken on March 17, 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.

2.10.6 Tank Layer Model, Supernatant Mixing Model, and Inventory Estimate of Tank 241-B-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-B-110 are presented in Appendix H along with their introduction sections.

2.11 Tank 241-B-111

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

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

2.11.2 Temperature History of Tank 241-B-111

Interior tank temperature data for Tank 241-B-111 were recorded by 12 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, there may have been other risers and equipment 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 October 23, 1995. The earliest data retrieved from SACS were from early April 1975.

Graphs of individual thermocouple data are presented in Appendix D. A graph was plotted for each thermocouple. The following statistical information was taken from all 12 thermocouples. The maximum temperature was 98°F taken by thermocouples 1 and 2 on April 8, 1979. The minimum temperature was 54.5°F taken by thermocouple No. 9 on January 1, 1990. The maximum and minimum temperatures are labeled as a transcribed data points within SACS. The average temperature for all the thermocouples is 79°F.

2.11.3 Occurrences for Tank 241-B-111

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

2.11.4 Current Status of Tank 241-B-111

Tank 241-B-111 entered service during the fourth quarter of 1945 (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 a manual FIC level gauge as of October 1995. The minimum waste surface level was 83.1 inches on numerous dates from January 2, 1991 through July 1, 1994. The maximum waste surface level was 83.6 inches on July 2, 1995. See Appendix E for details on waste surface level. Tank 241-B-111 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 December 5, 1995. Tank 241-B-111 has 11 risers with six tentatively available for sampling: two 4-inch risers (Nos. 4 and 5) and four 12-inch risers (Nos. 2, 3, 6, and 7) (Lipnicki, 1995a).

2.11.5 Interior Montage of Tank 241-B-111

The clearest and most recent set of interior tank photographs was taken on June 26, 1985. 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-B-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-B-111 are presented in Appendix H along with their introduction sections.

2.12 Tank 241-B-112

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

The Waste and Level History sketch in Appendix C presents the waste history and level history of Tank 241-B-112. The level history data for the fourth quarter of 1960 are questionable because the solids waste is greater than the total waste.

2.12.2 Temperature History of Tank 241-B-112

Interior tank temperature data for Tank 241-B-112 were recorded by 12 thermocouples attached to one thermocouple tree. Drawing H-2-36301, Rev. 1, indicates that the thermocouple tree is designed as shown on Drawing H-2-34304, Sht. 1 Rev. 6, with 14 thermocouples. However, temperature data were only available for thermocouples 1 through 12. The surveillance analysis computer system (SACS) indicates that the thermocouple tree is located in riser 1. In the past, there may have been other risers and equipment 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 October 23, 1995. The earliest data retrieved from SACS were from late September 1974.

Graphs of individual thermocouple data are presented in Appendix D. A graph was created for each thermocouple, except for No. 2 which was not graphed due to a lack of data. The following statistical information was taken from all 12 thermocouples. The maximum temperature was 101.3°F taken by thermocouple No. 9 and 10 on July 5, 1989. The minimum temperature was 56°F taken by thermocouples Nos. 10, 11, and 12 on March 12, 1980. The maximum and minimum temperatures are labeled as transcribed data points within SACS. The average temperature for all the thermocouples is 74°F.

2.12.3 Occurrences for Tank 241-B-112

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

2.12.4 Current Status of Tank 241-B-112

Tank 241-B-112 entered service during the second quarter of 1946 (Anderson, 1990) and as of November 30, 1995 stores approximately 33,000 gallons of waste (Hanlon, 1996b). The waste surface level in the tank is measured with a manual ENRAF® level gauge as of November 1995. The minimum waste surface level was 7.3 inches on January 30, 1991. The maximum waste surface level was 8.5 inches on numerous dates from January 17, 1995 through March 13, 1995. See Appendix E for details on waste surface level. Tank 241-B-112 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 December 5, 1995. Tank 241-B-112 has 11 risers with five tentatively available for sampling: one 4-inch riser (No. 8) and four 12-inch risers (Nos. 2, 3, 7, and 13) (Lipnicki, 1995a).

2.12.5 Interior Montage of Tank 241-B-112

The clearest and most recent set of interior tank photographs was taken on May 29, 1985. 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-B-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-B-112 are presented in Appendix H along with their introduction sections.

2.13 Tank 241-B-201

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

The Waste and Level History sketch in Appendix C presents the waste history and level history of Tank 241-B-201. The level history data for the first and second quarter of 1957 and between the fourth quarter of 1959 and the second quarter of 1962 are questionable because the solids waste are greater than the total waste.

2.13.2 Temperature History of Tank 241-B-201

Interior tank temperature data for Tank 241-B-201 were recorded by 12 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 1. In the past, there may have been other risers and equipment 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 October 23, 1995. The earliest data retrieved from SACS were from late May 1975.

Graphs of individual thermocouple data are presented in Appendix D. A graph was plotted for each thermocouple. The following statistical information was taken from all 12 thermocouples. The maximum temperature was 112.1°F taken by thermocouple No. 10 on July 5, 1989. The minimum temperature was 50.3°F taken by thermocouple No. 11 on January 2, 1994. The maximum and minimum temperatures are labeled as transcribed data points within SACS. The average temperature for all the thermocouples is 63°F.

2.13.3 Occurrences for Tank 241-B-201

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

2.13.4 Current Status of Tank 241-B-201

Tank 241-B-201 entered service during the first quarter of 1952 (Anderson, 1990) and as of November 30, 1995 stores approximately 29,000 gallons of waste (Hanlon, 1996b). The waste surface level in the tank is measured with a manual tape as of November 1995. The minimum waste surface level was 145 inches on numerous dates from January 4, 1993 through July 8, 1993. The maximum waste surface level was 157.25 inches on numerous dates from October 29, 1993 through November 13, 1993. See Appendix E for details on waste surface level. Tank 241-B-201 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 December 5, 1995. Tank 241-B-201 has 8 risers with four tentatively available for sampling: one 4-inch riser (No. 5) and three 12-inch risers (Nos. 2, 6, and 7) (Lipnicki, 1995a).

2.13.5 Interior Montage of Tank 241-B-201

The clearest and most recent set of interior tank photographs was taken on November 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.

2.13.6 Tank Layer Model, Supernatant Mixing Model, and Inventory Estimate of Tank 241-B-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-B-201 are presented in Appendix H along with their introduction sections.

2.14 Tank 241-B-202

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

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

2.14.2 Temperature History of Tank 241-B-202

Interior tank temperature data for Tank 241-B-202 were recorded by 12 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 1. Drawing H-2-73289, Rev. 2, indicates that riser 5 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, there may have been other risers and equipment 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 October 23, 1995. The earliest data retrieved from SACS were from late May 1975.

Graphs of individual thermocouple data are presented in Appendix D. A graph was plotted for each thermocouple. The following statistical information was taken from all 12 thermocouples. The maximum temperature was 74°F taken by thermocouples 1 through 6 on May 21, 1975, 6 and 7 on January 7, 1976, and No. 1 on January 3, 1977. The minimum temperature was 51°F taken by thermocouple No. 11 on April 26, 1977. The maximum and minimum temperatures are labeled as transcribed data points within SACS. The average temperature for all the thermocouples is 60°F.

2.14.3 Occurrences for Tank 241-B-202

An occurrence report was issued in February 1993 because the surface level of the liquid waste exceeded the maximum allowed increase from the baseline of 142.50 inches. The interior of the tank was videotaped in June 1995 and the tape compared with earlier photographs. The liquid level continues to increase.

2.14.4 Current Status of Tank 241-B-202

Tank 241-B-202 entered service during the first quarter of 1952 (Anderson, 1990) and as of November 30, 1995 stores approximately 27,000 gallons of waste (Hanlon, 1996b). The waste surface level in the tank is measured with a manual tape as of November 1995. The minimum waste surface level was 144 inches on numerous dates from January 2, 1991 through July 1, 1991. The maximum waste surface level was 146.5 inches on September 12, 1995. See Appendix E for details on waste surface level. Tank 241-B-202 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 December 5, 1995. Tank 241-B-202 has 9 risers with six tentatively available for sampling: two 4-inch risers (Nos. 4 and 5) and four 12-inch risers (Nos. 2, 3, 6, and 7) (Lipnicki, 1995a).

2.14.5 Interior Montage of Tank 241-B-202

The clearest and most recent set of interior tank photographs was taken on May 29, 1985. 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-B-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-B-202 are presented in Appendix H along with their introduction sections.

2.15 Tank 241-B-203

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

The Waste and Level History sketch in Appendix C presents the waste history and level history of Tank 241-B-203. The level history data between the second and fourth quarter of 1961 are questionable because the solids waste is greater than the total waste.

2.15.2 Temperature History of Tank 241-B-203

Interior tank temperature data presented within this document for Tank 241-B-203 were recorded by 12 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 1. Drawing H-2-73290, Rev. 2, indicates that riser 5 was once associated with temperature monitoring. In the past, there may have been other risers and equipment 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 October 23, 1995. The earliest data retrieved from SACS were from late May 1975.

Graphs of individual thermocouple data are presented in Appendix D. A graph was created for each thermocouple, except for No. 12 which was not graphed due to a lack of data. The following statistical information was taken from all 12 thermocouples. The maximum temperature was 110.3°F taken by thermocouple No. 9 on July 5, 1989. The minimum temperature was 48°F taken by thermocouple No. 12 on January 9, 1979. The maximum and minimum temperatures are labeled as transcribed data points within SACS. The average temperature for all the thermocouples is 63°F.

2.15.3 Occurrences for Tank 241-B-203

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

2.15.4 Current Status of Tank 241-B-203

Tank 241-B-203 entered service during the first quarter of 1952 (Anderson, 1990) and as of November 30, 1995 stores approximately 51,000 gallons of waste (Hanlon, 1996b). The waste surface level in the tank is measured with a manual tape as of November 1995. The minimum waste surface level was 251 inches on April 1, 1992. The maximum waste surface level was 260.75 inches on numerous dates from September 3, 1994 through September 9, 1994. See Appendix E for details on waste surface level. Tank 241-B-203 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 December 5, 1995. Tank 241-B-203 has 9 risers with six tentatively available for sampling: two 4-inch risers (Nos. 4 and 5) and four 12-inch risers (Nos. 2, 3, 6, and 7) (Lipnicki, 1995a).

2.15.5 Interior Montage of Tank 241-B-203

The clearest and most recent set of interior tank photographs was taken on November 13, 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-B-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-B-203 are presented in Appendix H along with their introduction sections.

2.16 Tank 241-B-204

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

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

2.16.2 Temperature History of Tank 241-B-204

Interior tank temperature data for Tank 241-B-204 were recorded by 12 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 1. Drawing H-2-73291, Rev. 2, indicates that riser 5 was once associated with temperature monitoring. In the past, there may have been other risers and equipment 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 was obtained from the SACS database on October 23, 1995. The earliest data retrieved from SACS were from late May 1975.

Graphs of individual thermocouple data are presented in Appendix D. A graph was created for each thermocouple, except for No. 12 which was not graphed due to a lack of data. The following statistical information was taken from all 12 thermocouples. The maximum temperature was 110.1 °F taken by thermocouple No. 9 on July 5, 1989. The minimum temperature was 45 °F taken by thermocouples 8 and 9 on July 23, 1979. The maximum and minimum temperatures are labeled as transcribed data points within SACS. The average temperature for all the thermocouples is 63 °F.

2.16.3 Occurrences for Tank 241-B-204

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

2.16.4 Current Status of Tank 241-B-204

Tank 241-B-204 entered service during the first quarter of 1952 (Anderson, 1990) and as of November 30, 1995 stores approximately 50,000 gallons of waste (Hanlon, 1995k). The waste surface level in the tank is measured with a manual tape as of November 1995. The minimum waste surface level was 239.75 inches on April 1, 1992. The maximum waste surface level was 256.75 inches on November 28, 1994. See Appendix E for details on waste surface level. Tank 241-B-204 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 December 5, 1995. Tank 241-B-204 has 9 risers with six tentatively available for sampling: two 4-inch risers (Nos. 4 and 5) and four 12-inch risers (Nos. 2, 3, 6, and 7) (Lipnicki, 1995a).

2.16.5 Interior Montage of Tank 241-B-204

The clearest and most recent set of interior tank photographs was taken on October 22, 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.

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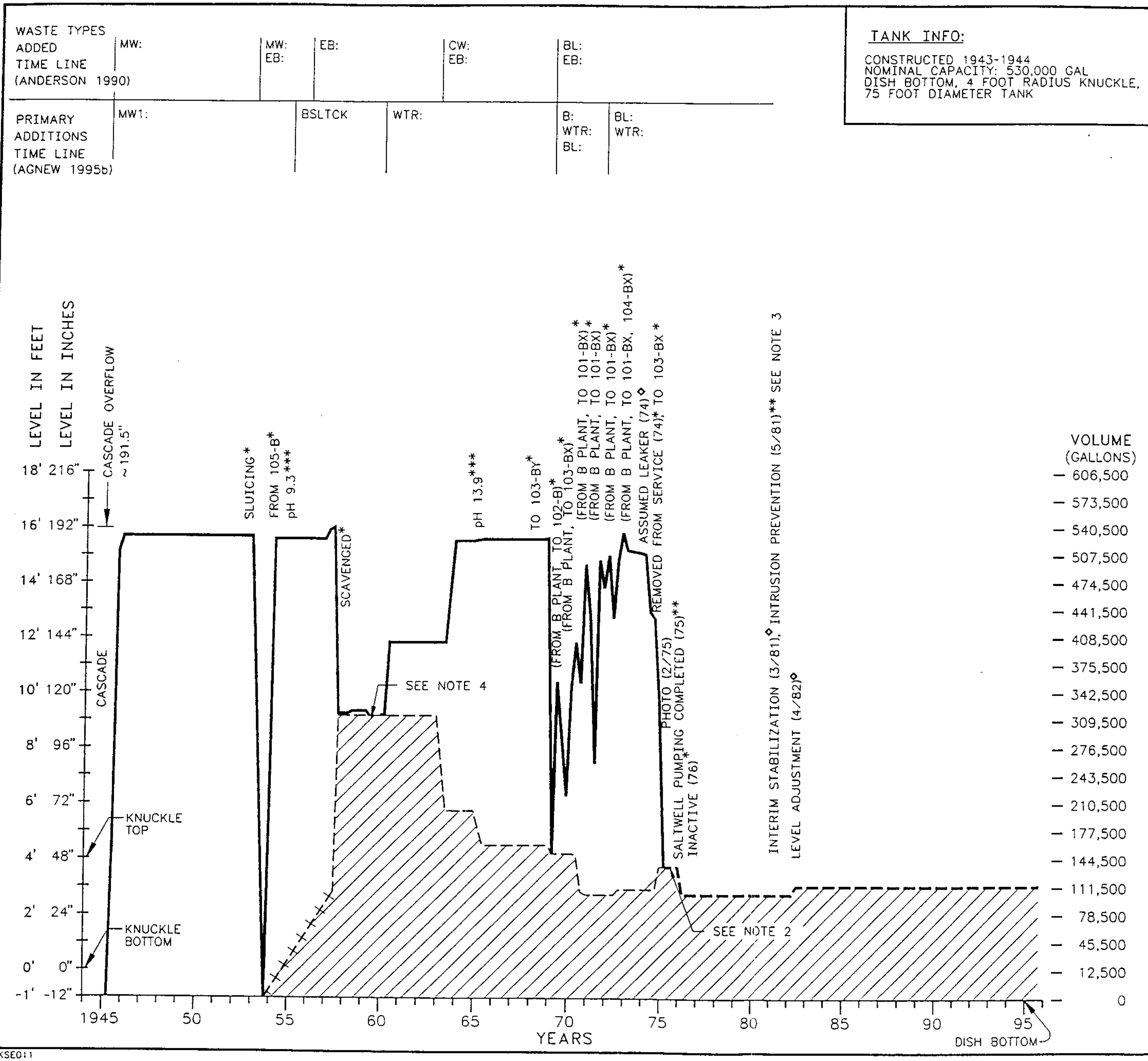

TANK INFO:

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

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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.

GLOSSARY OF WASTE TERMS:

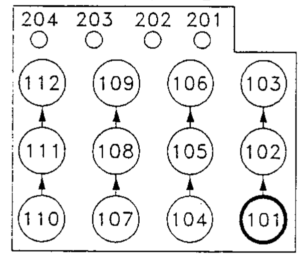
FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A

B: B-PLANT HIGH-LEVEL WASTE
BL: B-PLANT LOW-LEVEL WASTE
BSLTCK: SALT CAKE WASTE 1951-1955
CW: COATING (CLADDING) WASTE
EB: EVAPORATOR BOTTOMS
MW: METAL WASTE
MW1 METAL WASTE 1944-1951
WTR: WATER

LEGEND

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

B TANK FARM CASCADE

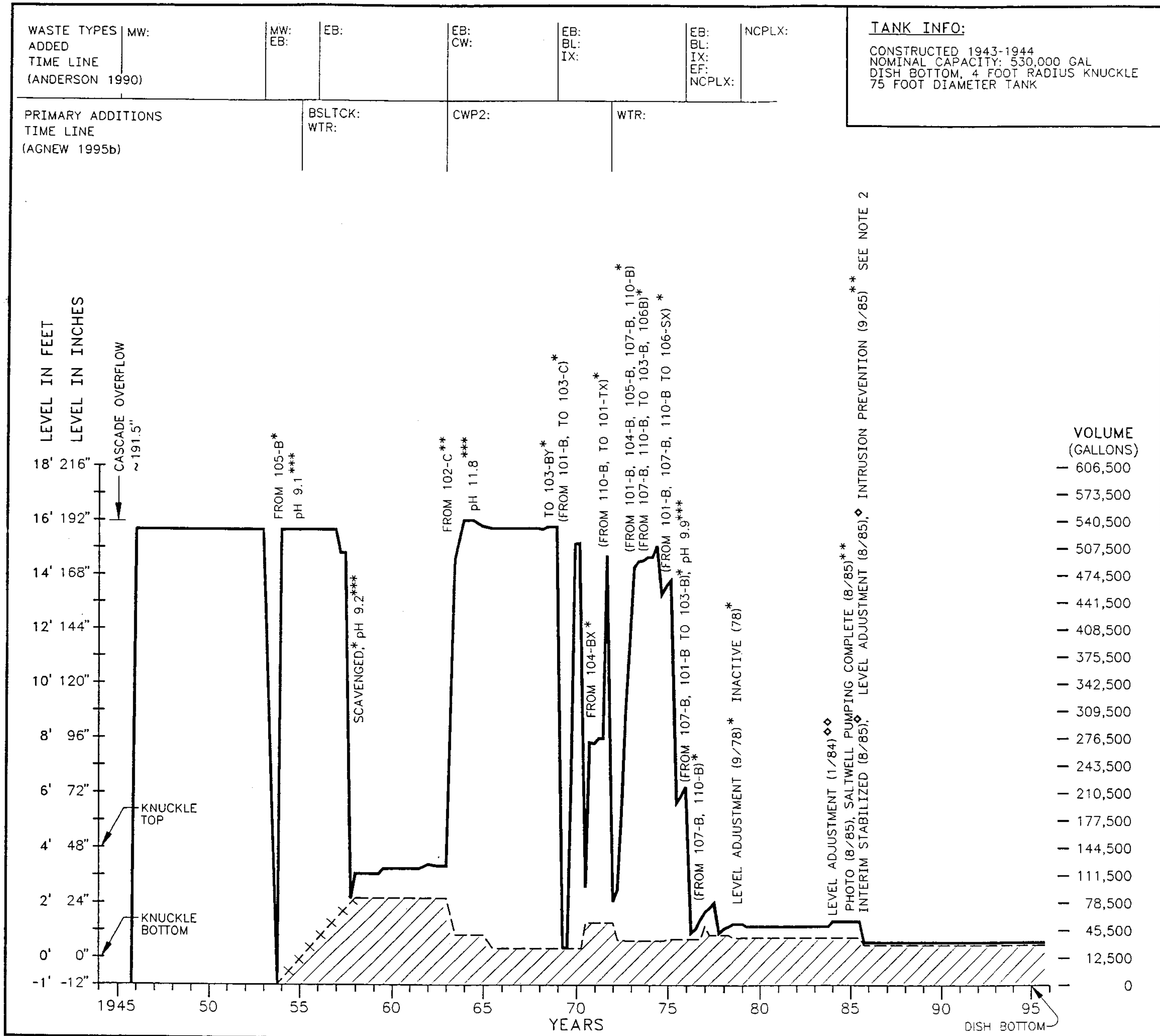


U.S. DEPARTMENT OF ENERGY
RICHLAND FIELD OFFICE
ICF KAISER HANFORD

241-B-101 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1945-1995
ASSUMED LEAKER/STABILIZED TANK
WATCH LIST: N/A

SIZE	BLDG NO.	DWG NO.	DATE
B	241	ES-TKS-E11	5/96
SCALE NONE		JOB NO.	SHEET 1 OF 1

ITKSE011



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) IN JUNE 1993, INTERIM ISOLATION WAS REPLACED BY INTRUSION PREVENTION.

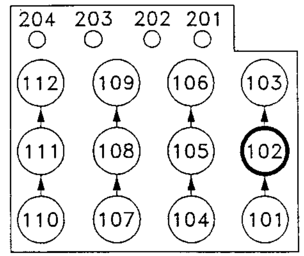
GLOSSARY OF WASTE TERMS:
FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A

BL:	B-PLANT LOW-LEVEL WASTE
BSLTCK:	SALT CAKE WASTE 1951-1955
CW:	COATING (CLADDING) WASTE
CWP2:	CLADDING (COATING) WASTE PUREX
EB:	EVAPORATOR BOTTOMS
EF:	EVAPORATOR FEED
IX:	ION EXCHANGE WASTE
MW:	METAL WASTE
NCPLX:	NON-COMPLEXED WASTE
WTR:	WATER

LEGEND

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

B TANK FARM CASCADE



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RICHLAND FIELD OFFICE
ICF KAISER HANFORD

241-B-102 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1945-1995
SOUND/STABILIZED TANK
WATCH LIST: N/A

SIZE	BLDG NO.	DWG NO.	DATE
B	241	ES-TKS-E12	5/96
SCALE NONE		JOB NO.	SHEET 1 OF 1

ITKSE012

WASTE TYPES ADDED TIME LINE (ANDERSON 1990)	MW:	EB:	EB: CW:	EB: CW: OWW: IX: BL:	WATER: IX: BNW: N: LW: R: CW: DW: TBP: EB:	BNW: N: LW: R: CW DW: IX: TBP: EB: 224:	NCPLX:
PRIMARY ADDITIONS TIME LINE (AGNEW 1995b)		WTR: BSLTCK:	CWP2:	WTR:			

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 1984a
- ◇◇◇ McCANN & VAIL 1985b

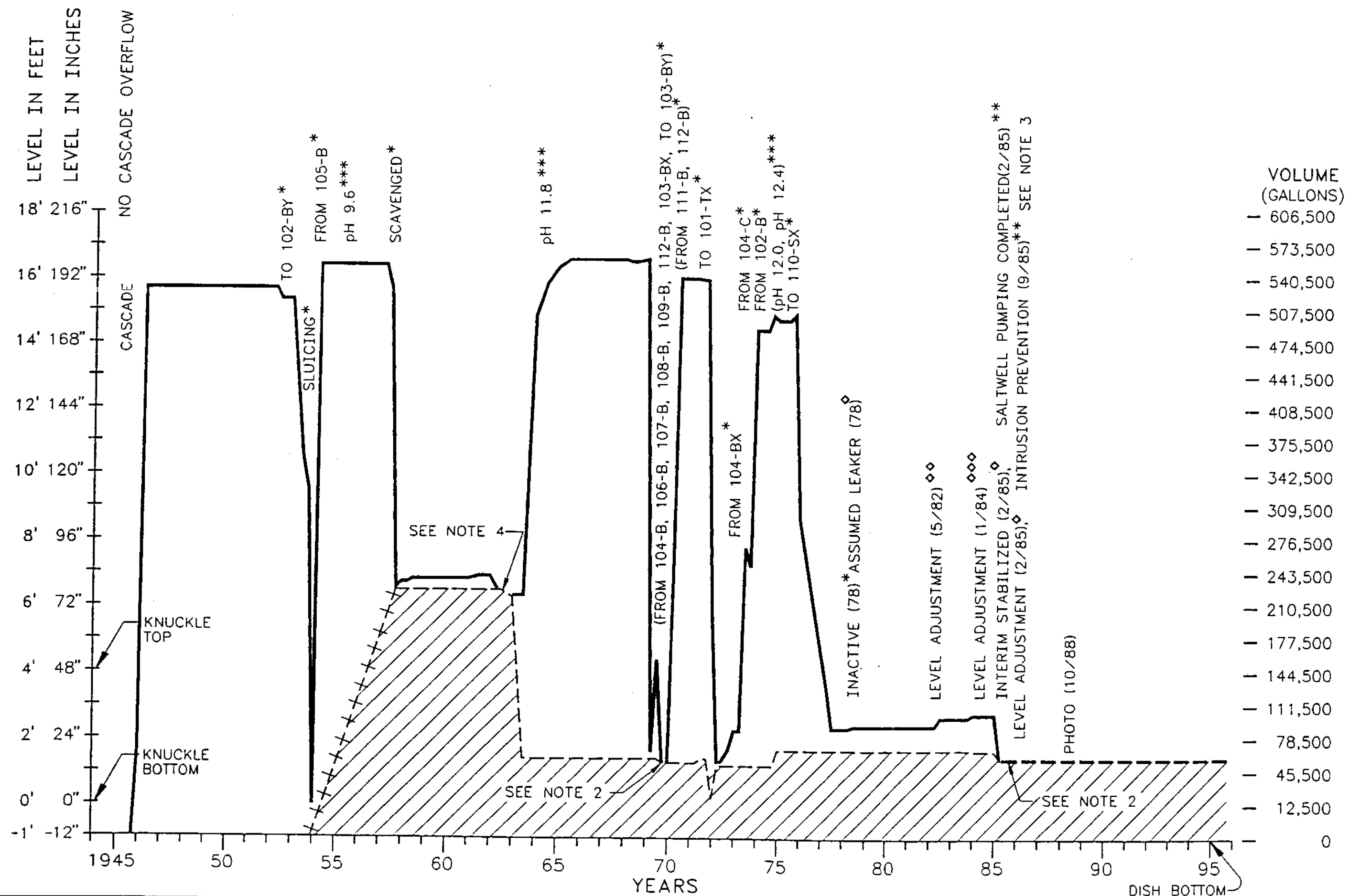
NOTES:

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.

GLOSSARY OF WASTE TERMS:

FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A

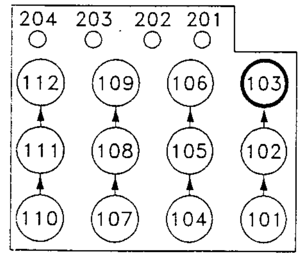
- BL: B-PLANT LOW-LEVEL WASTE
- BNW: BATTELLE NORTHWEST LABORATORY WASTE
- BSLTCK: SALT CAKE WASTE 1951-1955
- CW: COATING (CLADDING) WASTE
- CWP2: CLADDING (COATING) WASTE PUREX
- DW: DECONTAMINATION WASTE
- EB: EVAPORATOR BOTTOMS
- IX: ION EXCHANGE WASTE
- LW: LABORATORY WASTE
- MW: METAL WASTE
- N: N-REACTOR DECONTAMINATION WASTE
- NCPLX: NON-COMPLEXED WASTE
- OWW: ORGANIC WASH WASTE
- R: REDOX WASTE
- TBP: TRIBUTYL PHOSPHATE
- WTR: WATER
- 224: 224-U WASTE



LEGEND

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

B TANK FARM CASCADE



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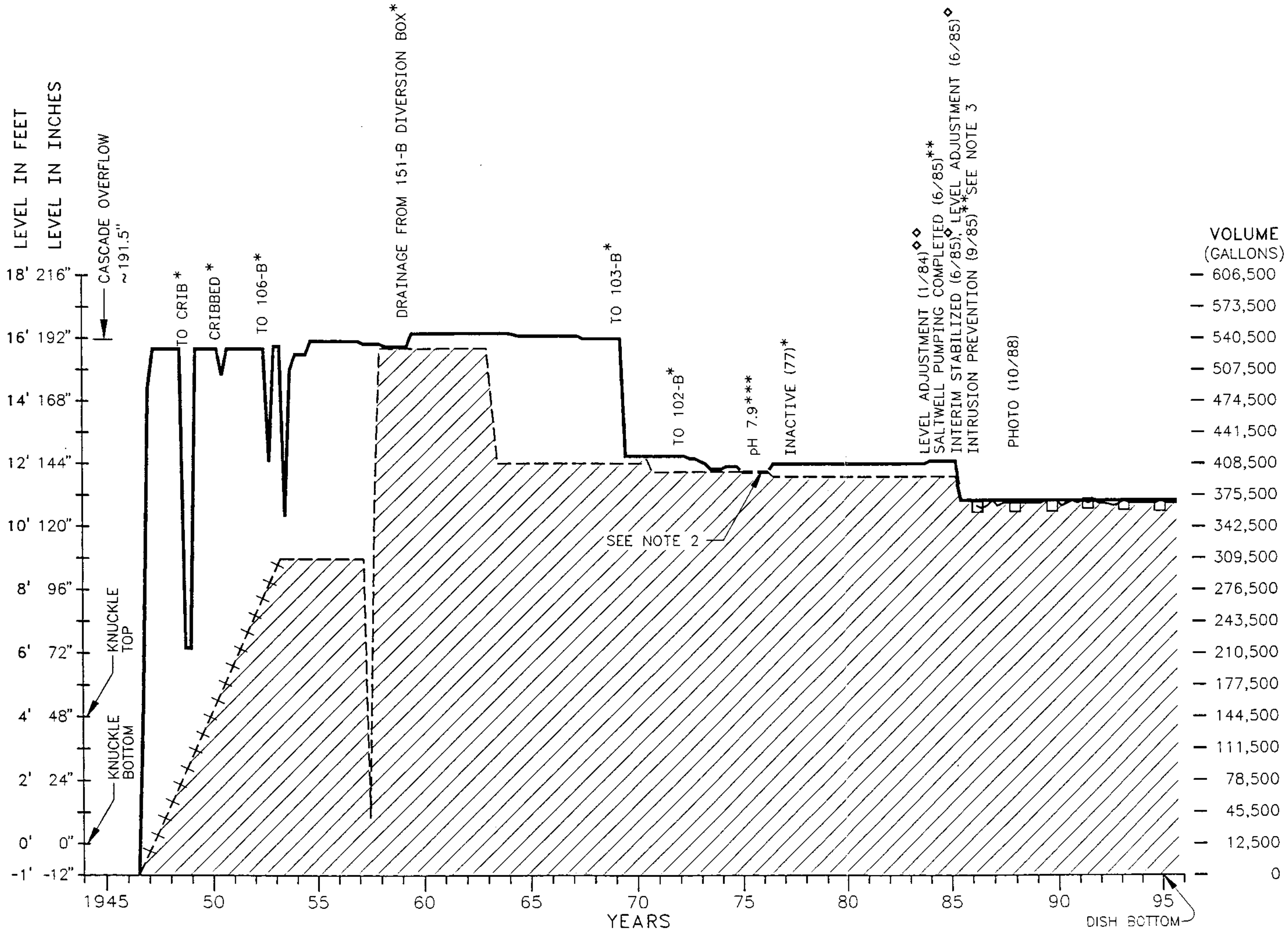
RICHLAND FIELD OFFICE
ICF KAISER HANFORD

241-B-103 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1945-1995
ASSUMED LEAKER/STABILIZED TANK
WATCH LIST: ORGANICS

SIZE	BLDG NO.	DWG NO.	DATE
B	241	ES-TKS-E13	5/96
SCALE NONE		JOB NO.	SHEET 1 OF 1

ITKSE013

WASTE TYPES ADDED TIME LINE (ANDERSON 1990)	2C:	EB: 1C:	EB:		NCPLX:
PRIMARY ADDITIONS TIME LINE (AGNEW 1995b)	2C1:	1C1:	BSLTCK: WTR:	WTR:	



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 1985c

NOTES:

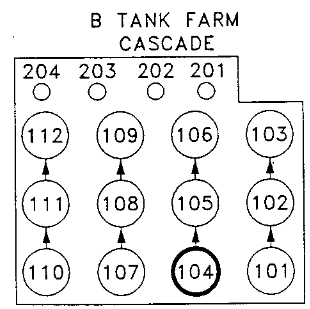
1) TRANSFER SOURCES AND DESTINATIONS ARE NOT AVAILABLE FOR ALL LEVEL CHANGES. FOR MORE DETAILS ABOUT TRANSFER INFORMATION SEE ANDERSON 1990.
2) INTERSTITIAL LIQUID LEVEL IS UNKNOWN.
3) IN JUNE 1993, INTERIM ISOLATION WAS REPLACED BY INTRUSION PREVENTION.

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

BSLTCK: SALTCAKE WASTE 1951-1955
EB: EVAPORATOR BOTTOMS
NCPLX: NON-COMPLEXED WASTE
WTR: WATER
1C: FIRST-CYCLE DECONTAMINATION WASTE
1C1: FIRST-CYCLE DECONTAMINATION WASTE 1944-51
2C: SECOND-CYCLE DECONTAMINATION WASTE
2C1: SECOND-CYCLE DECONTAMINATION WASTE 1944-51

LEGEND

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



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ICF KAISER HANFORD

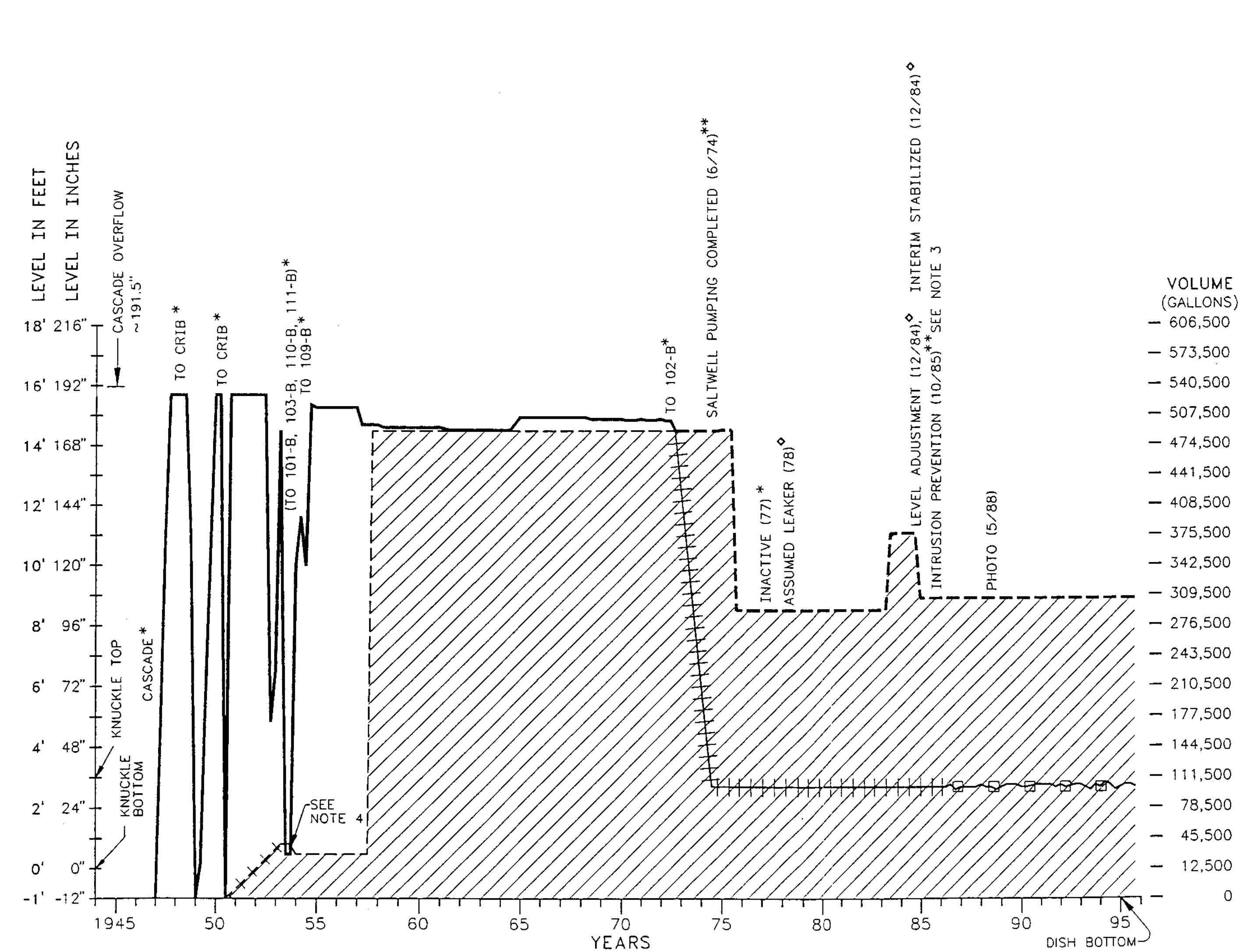
241-B-104 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1945-1995
SOUND/STABILIZED TANK
WATCH LIST: N/A

SIZE	BLDG NO.	DWG NO.	DATE
B	241	ES-TKS-E14	5/96
SCALE NONE		JOB NO.	SHEET 1 OF 1

17-SE014

WASTE TYPES ADDED TIME LINE (ANDERSON 1990)	2C:	1C: 2C: EB:	EB:

PRIMARY ADDITIONS TIME LINE (AGNEW 1995b)	BSLTCK:	WTR:



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.
4) DATA IS QUESTIONABLE BECAUSE ANDERSON 1990 INDICATES SOLIDS WASTE IS GREATER THAN TOTAL WASTE.

GLOSSARY OF WASTE TERMS:

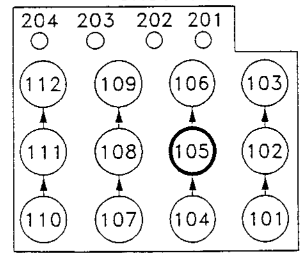
FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A

BSLTCK:	SALTCAKE WASTE 1951-1955
EB:	EVAPORATOR BOTTOMS
WTR:	WASTE WATER
1C:	FIRST CYCLE WASTE
2C:	SECOND CYCLE WASTE

LEGEND

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

B TANK FARM CASCADE



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ICF KAISER HANFORD

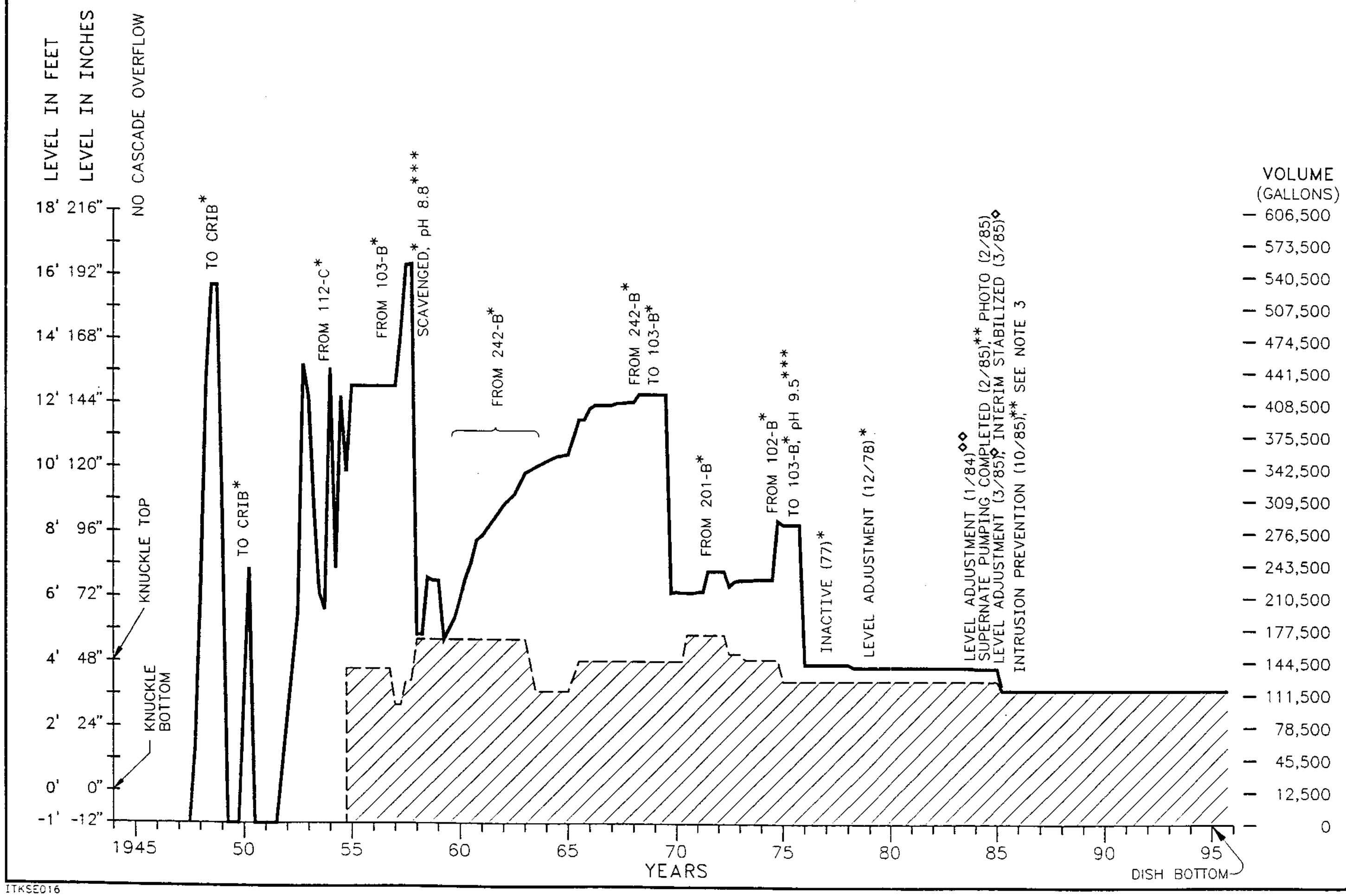
241-B-105 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1945-1995
ASSUMED LEAKER/STABILIZED TANK
WATCH LIST: N/A

SIZE	BLDG NO.	DWG NO.	DATE
B	241	ES-TKS-E15	5/96
SCALE NONE		JOB NO	SHEET 1 OF 1

ITKSE015

WASTE TYPES ADDED TIME LINE (ANDERSON 1990)	2C:	1C: EB: TBP:	TBP:	TBP: HLO:	HLO: BNW:	BNW: 224:	224: BNW: EB: BL: IX:	NCPLX:

PRIMARY ADDITIONS TIME LINE (AGNEW 1995b)	WTR: BSLTCK:	WTR:



TANK INFO:

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

REFERENCES

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

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:

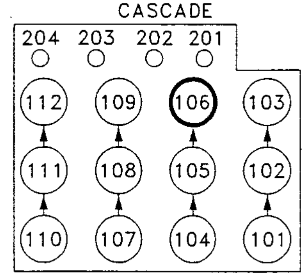
FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A

- BL: B-PLANT LOW-LEVEL WASTE
- BNW: BATTELLE NORTHWEST LABORATORY WASTE
- BSLTCK: SALTCAKE WASTE 1951-1955
- EB: EVAPORATOR BOTTOMS
- HLO: HANFORD LABORATORY OPERATIONS
- IX: ION EXCHANGE WASTE
- NCPLX: NON-COMPLEXED WASTE
- TBP: TRIBUTYL PHOSPHATE
- WTR: WATER
- 1C: FIRST CYCLE WASTE
- 2C: SECOND CYCLE WASTE
- 224: 224-U WASTE

LEGEND

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

B TANK FARM
CASCADE



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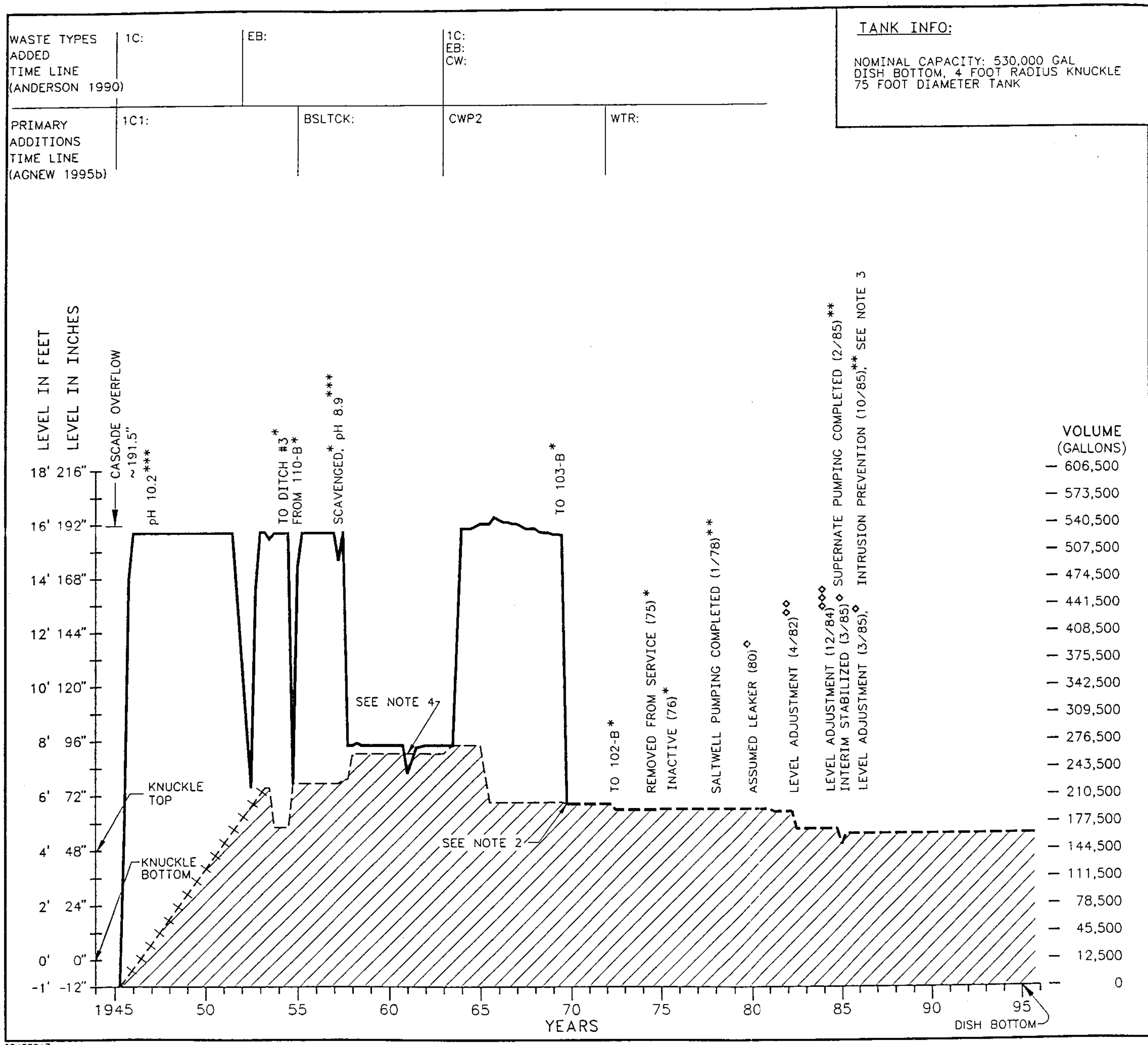
ICF KAISER HANFORD

241-B-106 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1945-1995
SOUND/STABILIZED TANK
WATCH LIST: N/A

SIZE	BLDG NO.	DWG NO.	DATE
B	241	ES-TKS-E16	5/96
SCALE NONE		JOB NO.	SHEET 1 OF 1

ITKSE016



TANK INFO:

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 & VAIL 1984(l)
- ◇◇◇ McCANN & VAIL 1985c

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.

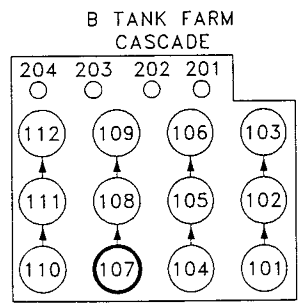
GLOSSARY OF WASTE TERMS:

FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A

BSLTCK:	SALTCAKE WASTE 1951-1955
CW:	COATING (CLADDING) WASTE
CWP2:	CLADDING (COATING) WASTE PUREX
EB:	EVAPORATOR BOTTOMS
WTR:	WATER
1C:	FIRST-CYCLE WASTE
1C1:	FIRST-CYCLE DECONTAMINATION WASTE 1944-1951

LEGEND

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



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ICF KAISER HANFORD

241-B-107 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1945-1995
ASSUMED LEAKER/STABILIZED TANK
WATCH LIST: N/A

SIZE	BLDG NO.	DWG NO.	DATE
B	241	ES-TKS-E17	5/96
SCALE NONE		JOB NO.	SHEET 1 OF 1

ITKSE017

WASTE TYPES ADDED TIME LINE (ANDERSON 1990)	1C:	EB:	EB: CW:	IX: EB: CW:	IX: EB:	EB:	NCPLX:
PRIMARY ADDITIONS TIME LINE (AGNEW 1995b)		BSLTCK:	CWP2:				

TANK INFO:

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

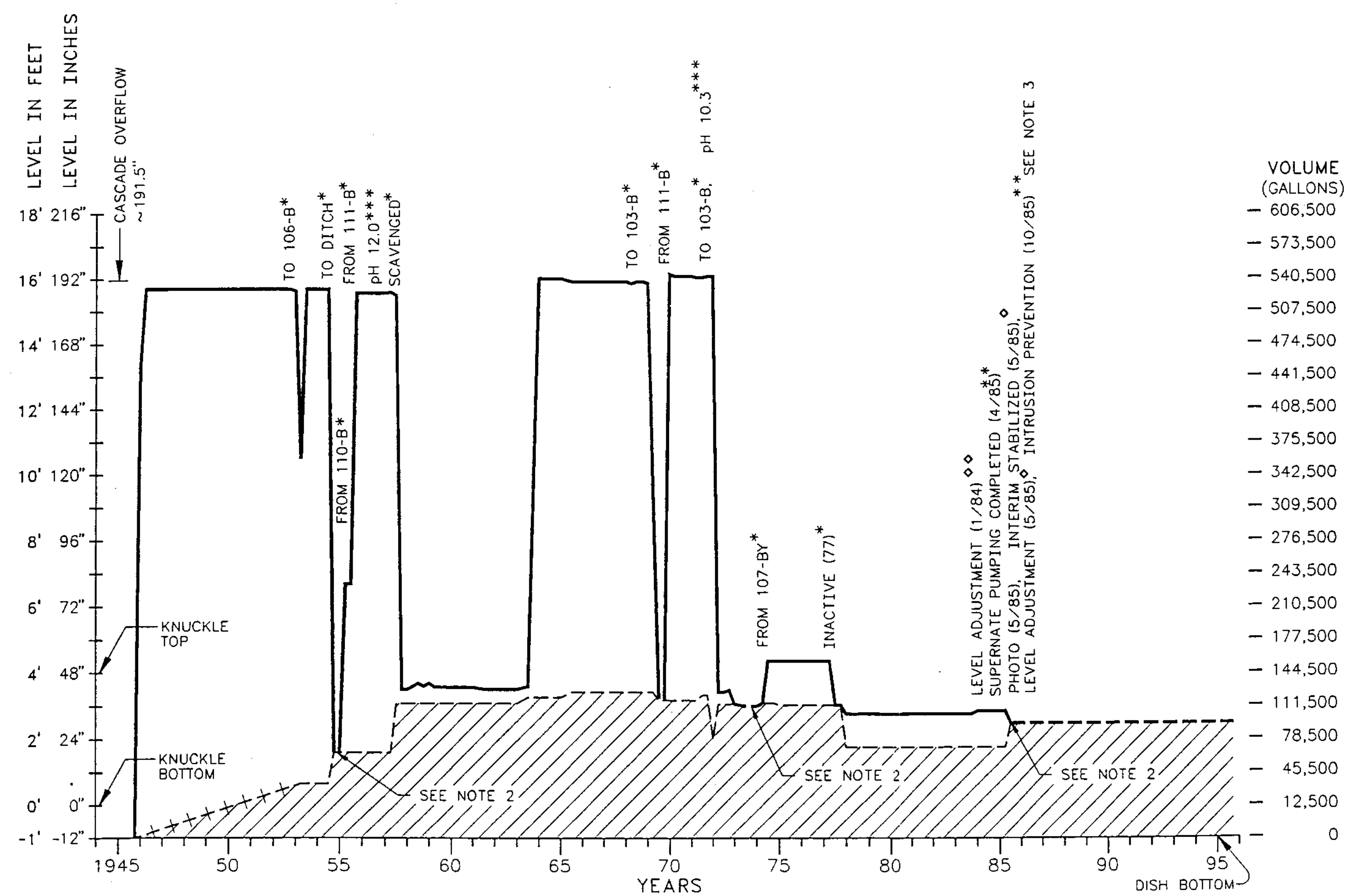
REFERENCES

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

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.

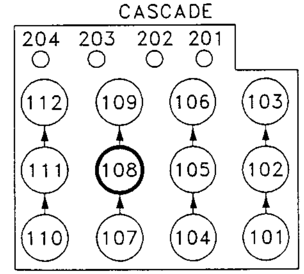
GLOSSARY OF WASTE TERMS:
FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A

BSLTCK:	SALTCAKE WASTE 1951-1955
CW:	COATING (CLADDING) WASTE
CWP2:	CLADDING (COATING) WASTE PUREX
EB:	EVAPORATOR BOTTOMS
IX:	ION EXCHANGE WASTE
NCPLX:	NON-COMPLEXED WASTE
1C:	FIRST-CYCLE WASTE



LEGEND

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



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ICF KAISER HANFORD

241-B-108 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1945-1995
SOUND/STABILIZED TANK
WATCH LIST: N/A

SIZE	BLDG NO.	DWG NO.	DATE
B	241	ES-TKS-E18	5/96
SCALE NONE		JOB NO.	SHEET 1 OF 1

ITKSE018

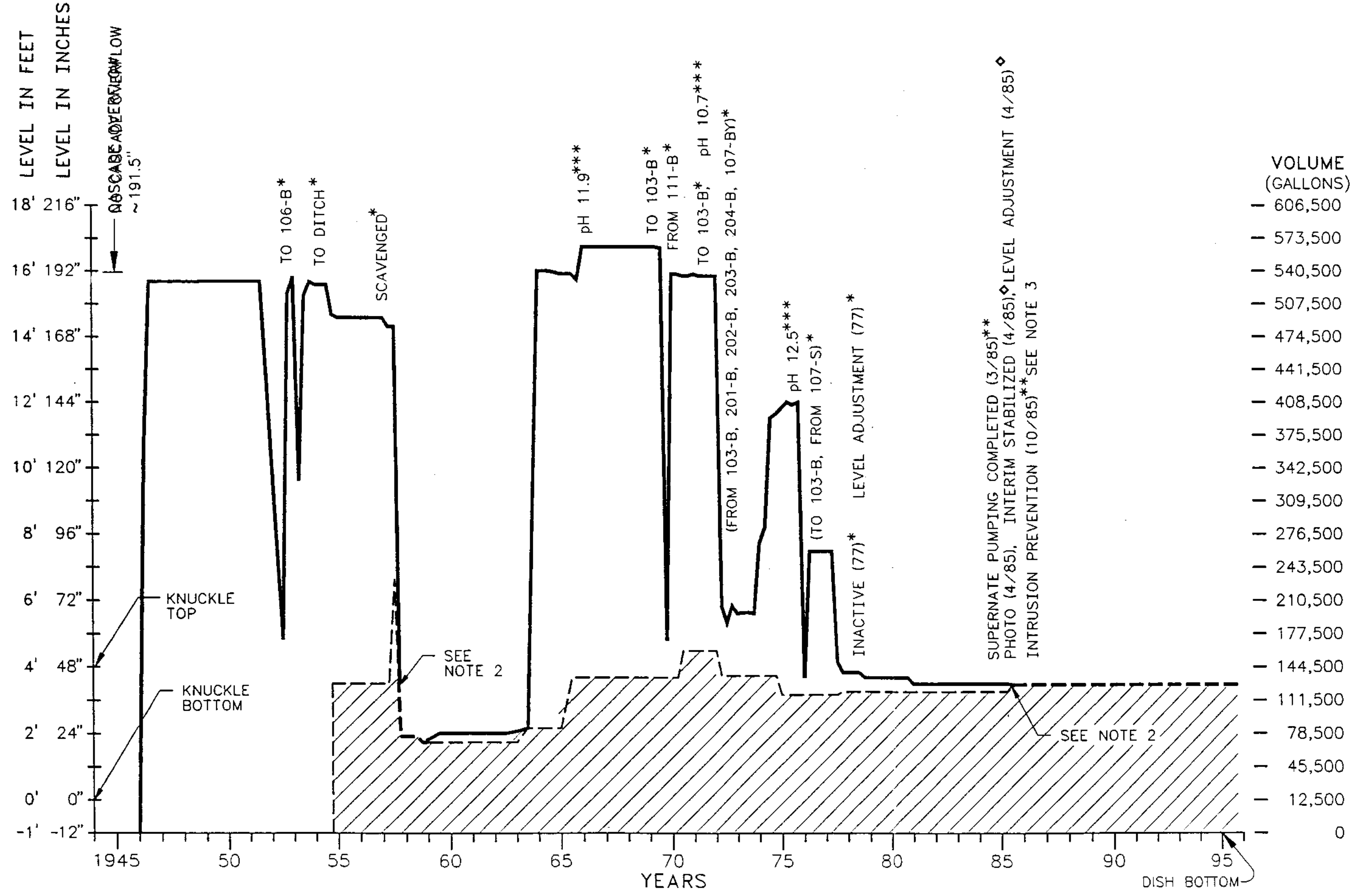
WASTE TYPES ADDED TIME LINE (ANDERSON 1990)	1C:	EB:	CW: EB:	CW:	CW: IX:	224: IX: EB:	NCPLX:
PRIMARY ADDITIONS TIME LINE (AGNEW 1995b)		WTR:	BSLTCK:	CWP2:		BYSLTCK:	

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



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:

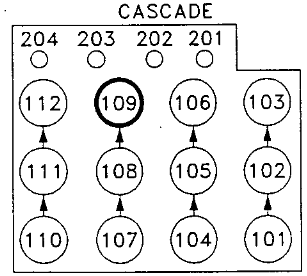
FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A

BSLTCK:	SALTCAKE WASTE 1951-1955
BYSLTCK:	SALTCAKE WASTE 1965-1974
CW:	COATING (CLADDING) WASTE
CWP2:	CLADDING (COATING) WASTE PUREX
EB:	EVAPORATOR BOTTOMS
IX:	ION EXCHANGE WASTE
NCPLX:	NON-COMPLEXED WASTE
WTR:	WATER
1C:	FIRST-CYCLE WASTE
224:	224-U WASTE

LEGEND

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

B TANK FARM CASCADE



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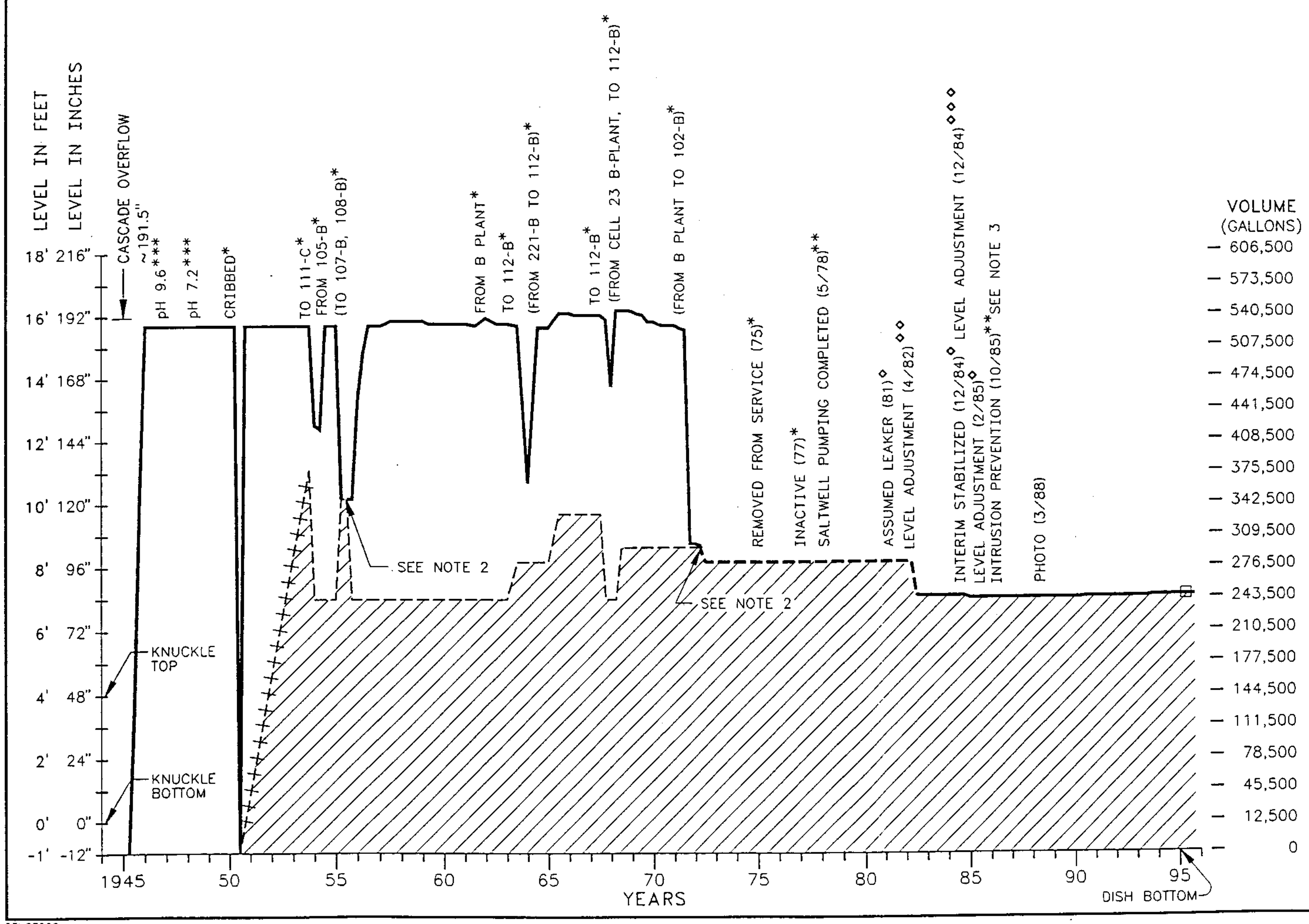
ICF KAISER HANFORD

241-B-109 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1945-1995
SOUND/STABILIZED TANK
WATCH LIST: N/A

SIZE	BLDG NO.	DWG NO.	DATE
B	241	ES-TKS-E19	5/96
SCALE NONE		JOB NO.	SHEET 1 OF 1

ITASE019

WASTE TYPES ADDED TIME LINE (ANDERSON 1990)	2C:	5-6: 1C: 2C: EB:	5-6: 1C: 2C:	5-6:	5-6: FP:	FP: EB: BL:	BL: EB: IX:	IX:	
PRIMARY ADDITIONS TIME LINE (AGNEW 1995b)	2C1:	2C2: DW:	DW:		P2:	B: CSR: WTR:		WTR:	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
◇◇◇ McCANN & VAIL 1985a

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:

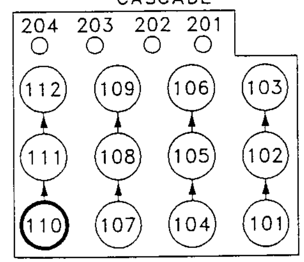
FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A

B:	B PLANT HIGH-LEVEL WASTE
BL:	B PLANT LOW-LEVEL WASTE
BYSLTCK:	SALTCAKE WASTE 1965-1974
CSR:	WASTE(SUPERNATANT)FROM CESIUM RECVY
DW:	DECONTAMINATION WASTE
EB:	EVAPORATOR BOTTOMS
FP:	FISSION PRODUCT WASTE
IX:	ION EXCHANGE WASTE
P2:	PUREX HIGH-LEVEL WASTE 1963-67
WTR:	WATER
1C:	FIRST-CYCLE WASTE
2C:	SECOND-CYCLE WASTE
2C1:	SECOND-CYCLE DECON WASTE 1944-51
2C2:	SECOND-CYCLE DECON WASTE 1952-56
5-6:	CELL 5 TANK 6 IN B PLANT WASTE

LEGEND

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

B TANK FARM CASCADE

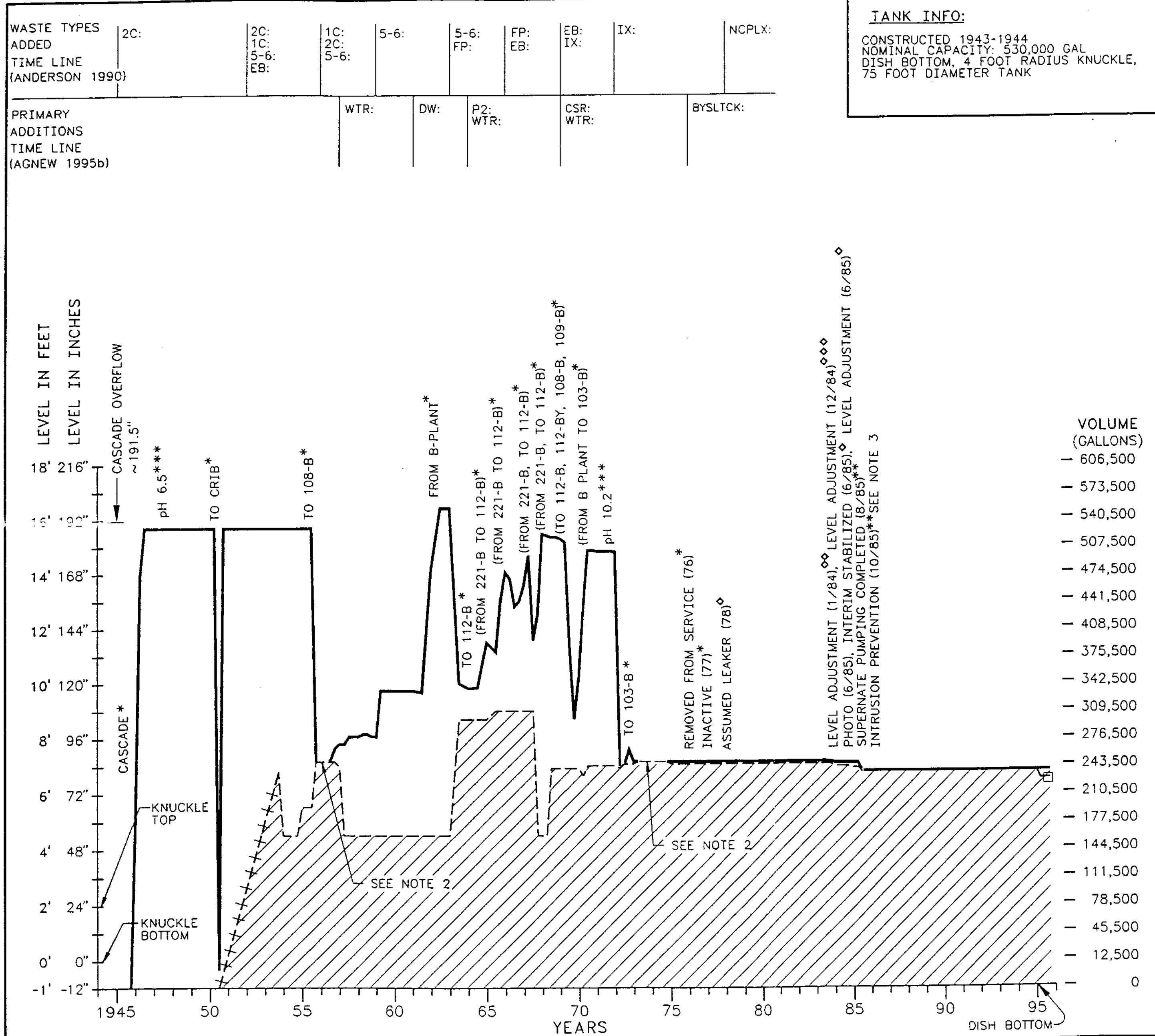


U.S. DEPARTMENT OF ENERGY
RICHLAND FIELD OFFICE
ICF KAISER HANFORD

241-B-110 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1945-1995
ASSUMED LEAKER/STABILIZED TANK
WATCH LIST: N/A

SIZE	BLDG NO.	DWG NO.	DATE
B	241	ES-TKS-E20	5/96
SCALE NONE		JOB NO.	SHEET 1 OF 1

1TKSE020



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 & VAIL 1984 (I)
◊◊◊ VAIL 1985d

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.

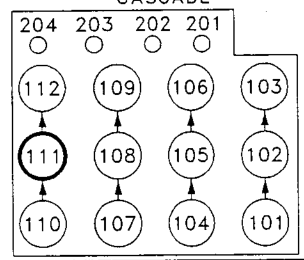
GLOSSARY OF WASTE TERMS:
FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A

BYSLTCK: SALTCAKE WASTE 1965-1974
CSR: WASTE(SUPERNATANT) FROM CESIUM RCVY
DW: DECONTAMINATION WASTE
EB: EVAPORATOR BOTTOMS
FP: FISSION PRODUCT WASTE
IX: ION EXCHANGE WASTE
NCPLX: NON-COMPLEXED WASTE
P2: PUREX HIGH-LEVEL WASTE 1963-1967
WTR: WATER
1C: FIRST-CYCLE WASTE
2C: SECOND-CYCLE WASTE
5-6: CELL 5 TANK 6 IN B PLANT

LEGEND

TOTAL WASTE LEVEL (SUPERNATE)
TOTAL WASTE LEVEL (SOLIDS)
SOLIDS LEVEL
INTERSTITIAL LIQUID LEVEL (LOW) (SUSPECT DATA UNDER INVESTIGATION)
ASSUMED SOLIDS LEVEL
ASSUMED INTERSTITIAL LIQUID LEVEL
SOLIDS

B TANK FARM CASCADE



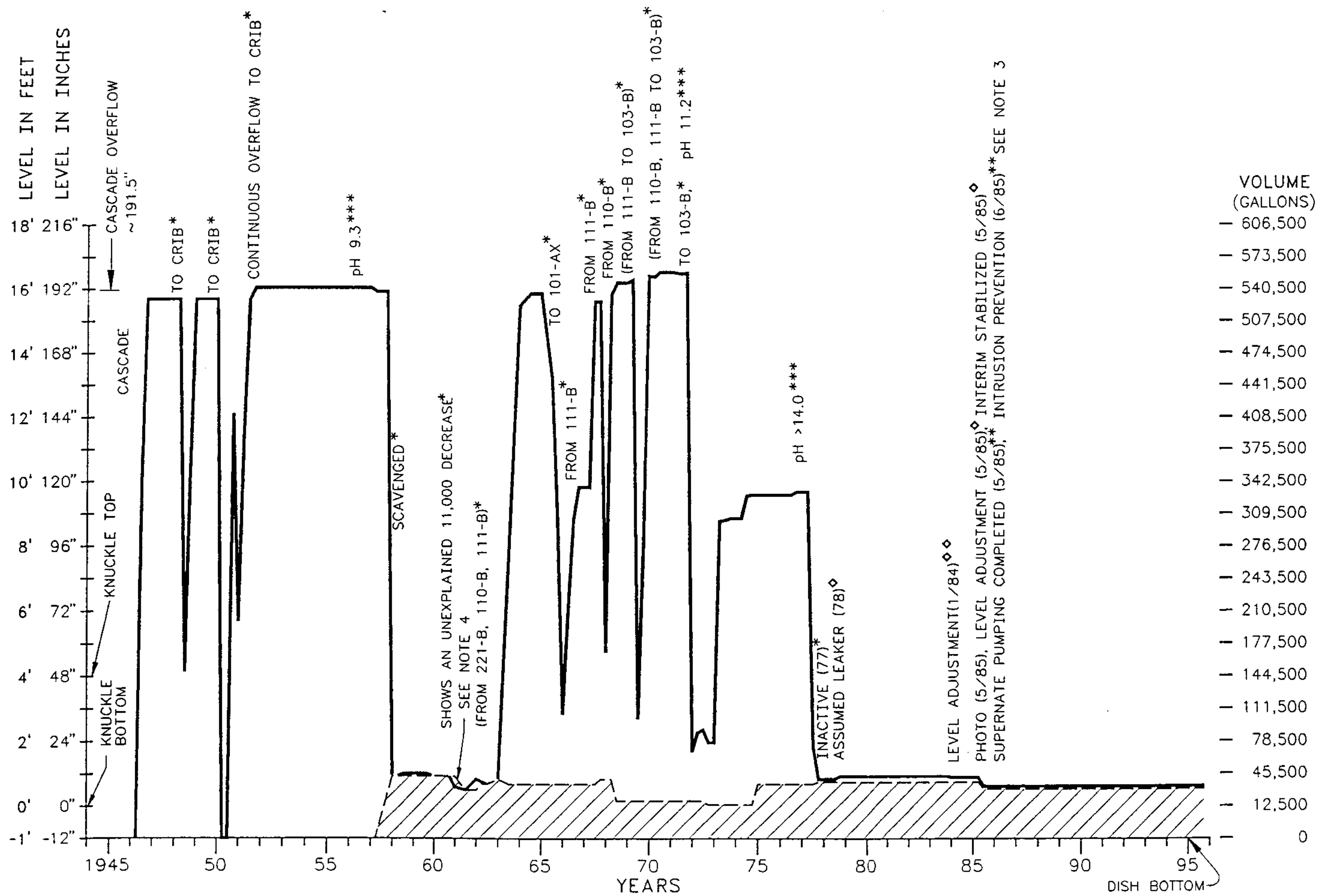
U.S. DEPARTMENT OF ENERGY
RICHLAND FIELD OFFICE
ICF KAISER HANFORD

241-B-111 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1945-1995
ASSUMED LEAKER/STABILIZED TANK
WATCH LIST: N/A

SIZE	BLDG NO.	DWG NO.	DATE
B	241	ES-TKS-E21	5/96
SCALE NONE		JOB NO.	SHEET 1 OF 1

ITKSE022

WASTE TYPES ADDED TIME LINE (ANDERSON 1990)	2C:	5-6: 2C: 1C:	5-6:	5-6: FP:	FP: EB: BL:	BL: EB: IX:	EB: IX:	EB:	NCPLX:
PRIMARY ADDITIONS TIME LINE (AGNEW 1995b)				DW:		P2: WTR:	WTR: 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
- ◊◊ VAIL 1985b

NOTES:

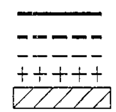
1) TRANSFER SOURCES AND DESTINATIONS ARE NOT AVAILABLE FOR ALL LEVEL CHANGES. FOR MORE DETAILS ABOUT TRANSFER INFORMATION SEE ANDERSON 1990.
2) INTERSTITIAL LIQUID LEVEL IS UNKNOWN.
3) IN JUNE 1993, INTERIM ISOLATION WAS REPLACED BY INTRUSION ISOLATION.
4) DATA IS QUESTIONABLE BECAUSE ANDERSON 1990 INDICATES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

GLOSSARY OF WASTE TERMS:

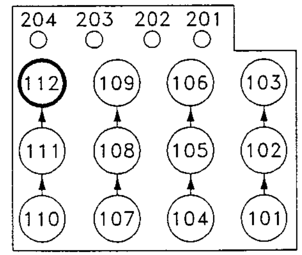
FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A

BYSLTCK:	SALTCAKE WASTE 1965-1974
BL:	B-PLANT LOW-LEVEL WASTE
DW:	DECONTAMINATION WASTE
EB:	EVAPORATOR BOTTOMS
FP:	FISSION PRODUCT WASTE
IX:	ION EXCHANGE WASTE
NCPLX:	NON-COMPLEXED WASTE
P2:	PUREX HIGH-LEVEL WASTE 1963-1967
WTR:	WATER
1C:	FIRST-CYCLE WASTE
2C:	SECOND-CYCLE WASTE
5-6:	CELL 5 TANK 6 IN B PLANT

LEGEND



B TANK FARM CASCADE

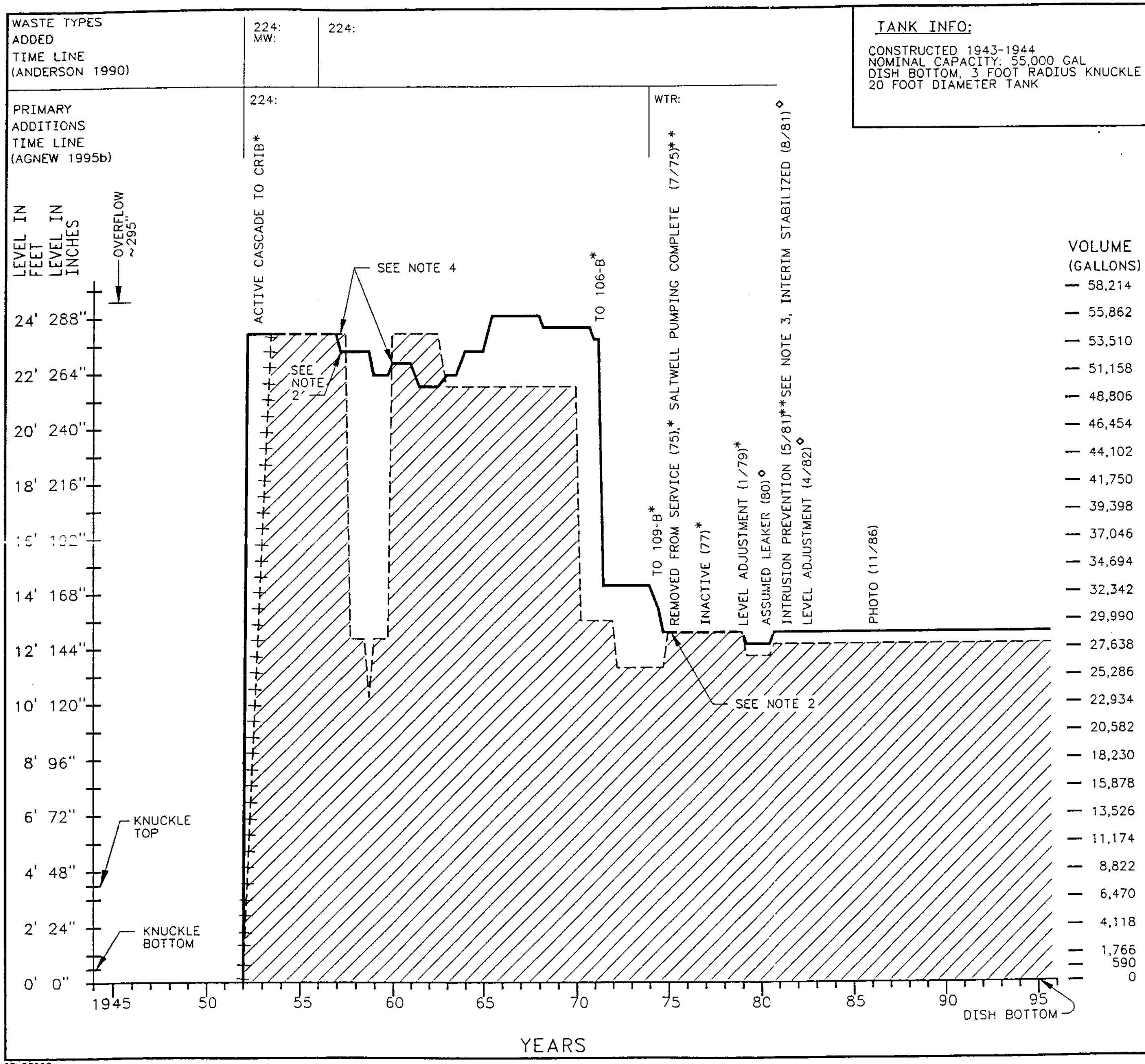


U.S. DEPARTMENT OF ENERGY
RICHLAND FIELD OFFICE
ICF KAISER HANFORD

241-B-112 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1945-1995
ASSUMED LEAKER/STABILIZED TANK
WATCH LIST: N/A

SIZE	BLDG NO.	DWG NO.	DATE
B	241	ES-TKS-E22	5/96
SCALE NONE		JOB NO.	SHEET 1 OF 1

TKSE022



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

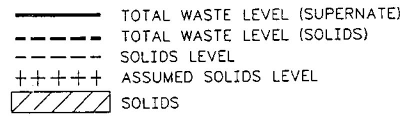
NOTES:

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.

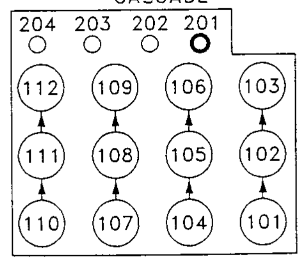
GLOSSARY OF WASTE TERMS:
FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A

MW: METAL WASTE
WTR: WATER
224: 224-U WASTE

LEGEND



B TANK FARM CASCADE

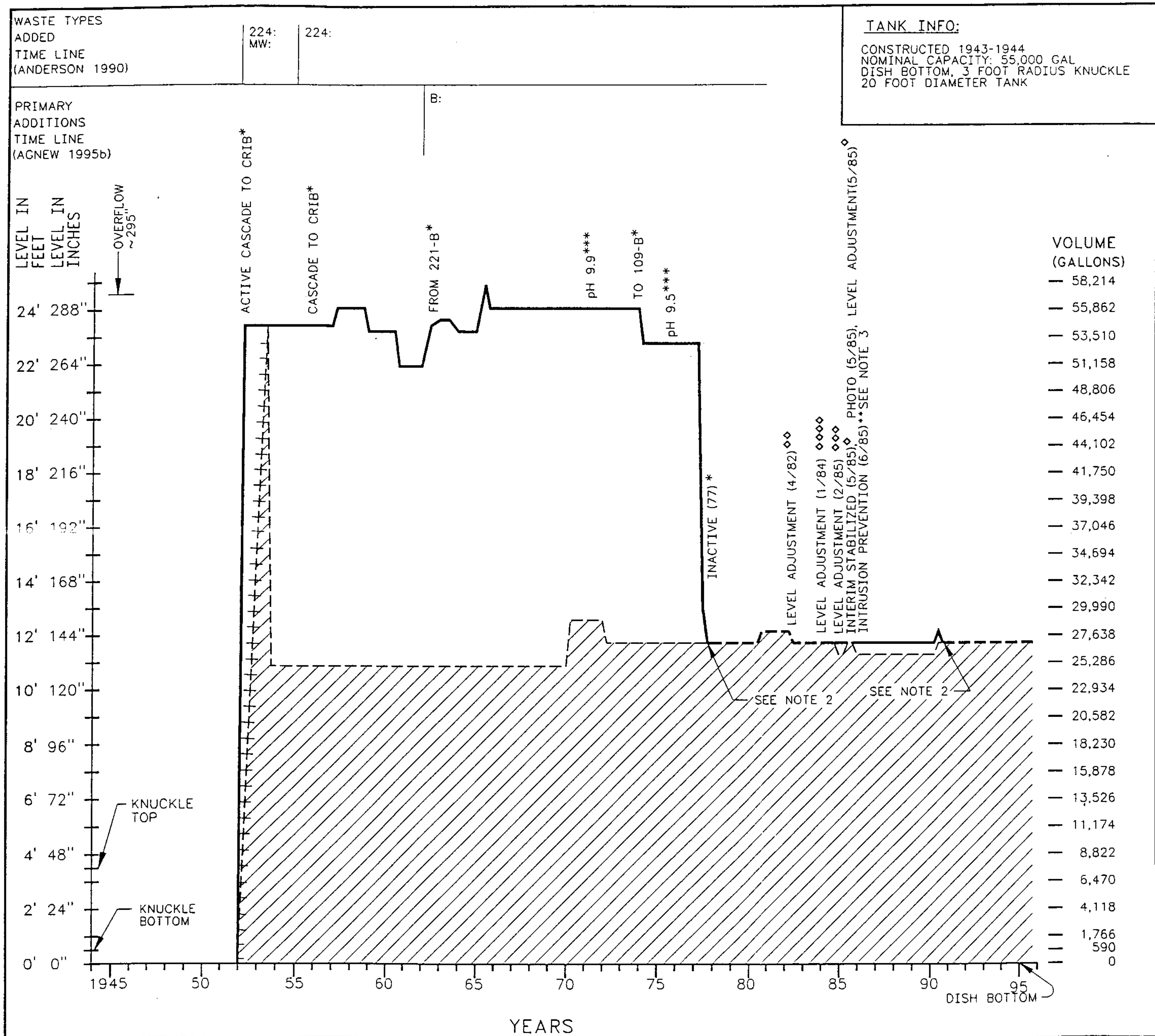


U.S. DEPARTMENT OF ENERGY
RICHLAND FIELD OFFICE
ICF KAISER HANFORD

241-B-201 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1952-1995
ASSUMED LEAKER/STABILIZED TANK
WATCH LIST: N/A

SIZE	BLDG NO.	DWG NO.	DATE
B	241	ES-TKS-E23	5/96
SCALE NONE		JOB NO.	SHEET 1 OF 1

ITKSE023



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
- ◇◇ McCANN 1984a
- ◇◇◇ VAIL 1985b
- ◇◇◇◇ McCANN 1984b

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.

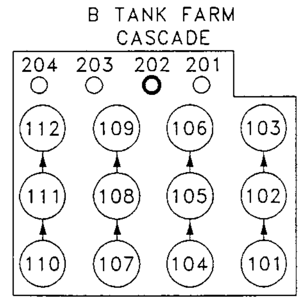
GLOSSARY OF WASTE TERMS:

FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A

B: B-PLANT HIGH-LEVEL WASTE
MW: METAL WASTE
224: 224-U WASTE

LEGEND

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



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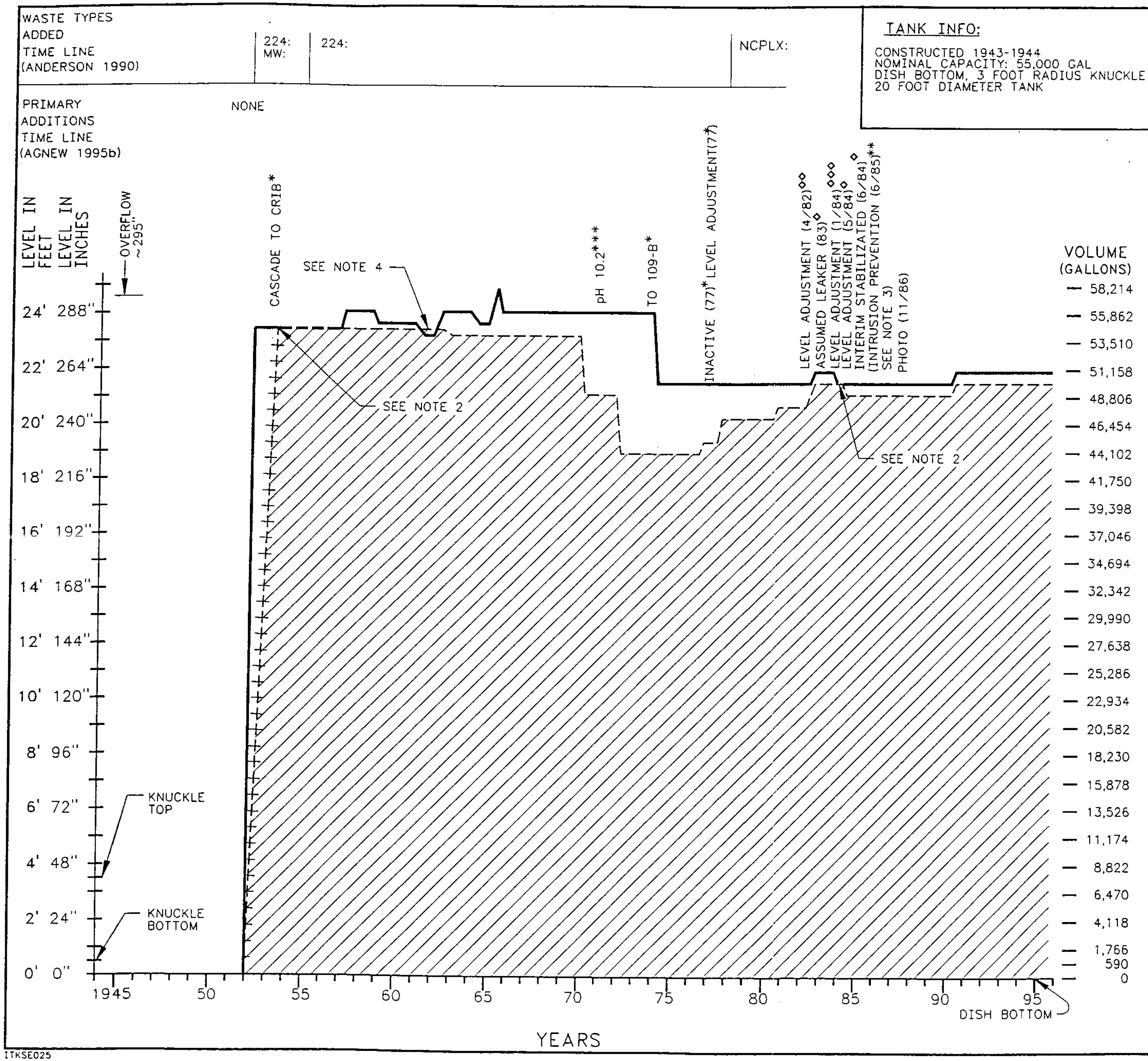
RICHLAND FIELD OFFICE
ICF KAISER HANFORD

241-B-202 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1952-1995
SOUND/STABILIZED TANK
WATCH LIST: N/A

SIZE	BLDG NO.	DWG NO.	DATE
B	241	ES-TKS-E24	5/96
SCALE NONE		JOB NO.	SHEET 1 OF 1

ITKSE024



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
- ◇◇ McCANN 1984a
- ◇◇◇ McCANN 1984d

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.

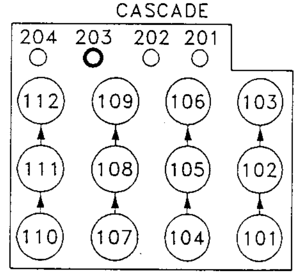
GLOSSARY OF WASTE TERMS:

FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A

MW: METAL WASTE
NCPLX: NON-COMPLEXED WASTE
224: 224-U WASTE

LEGEND

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



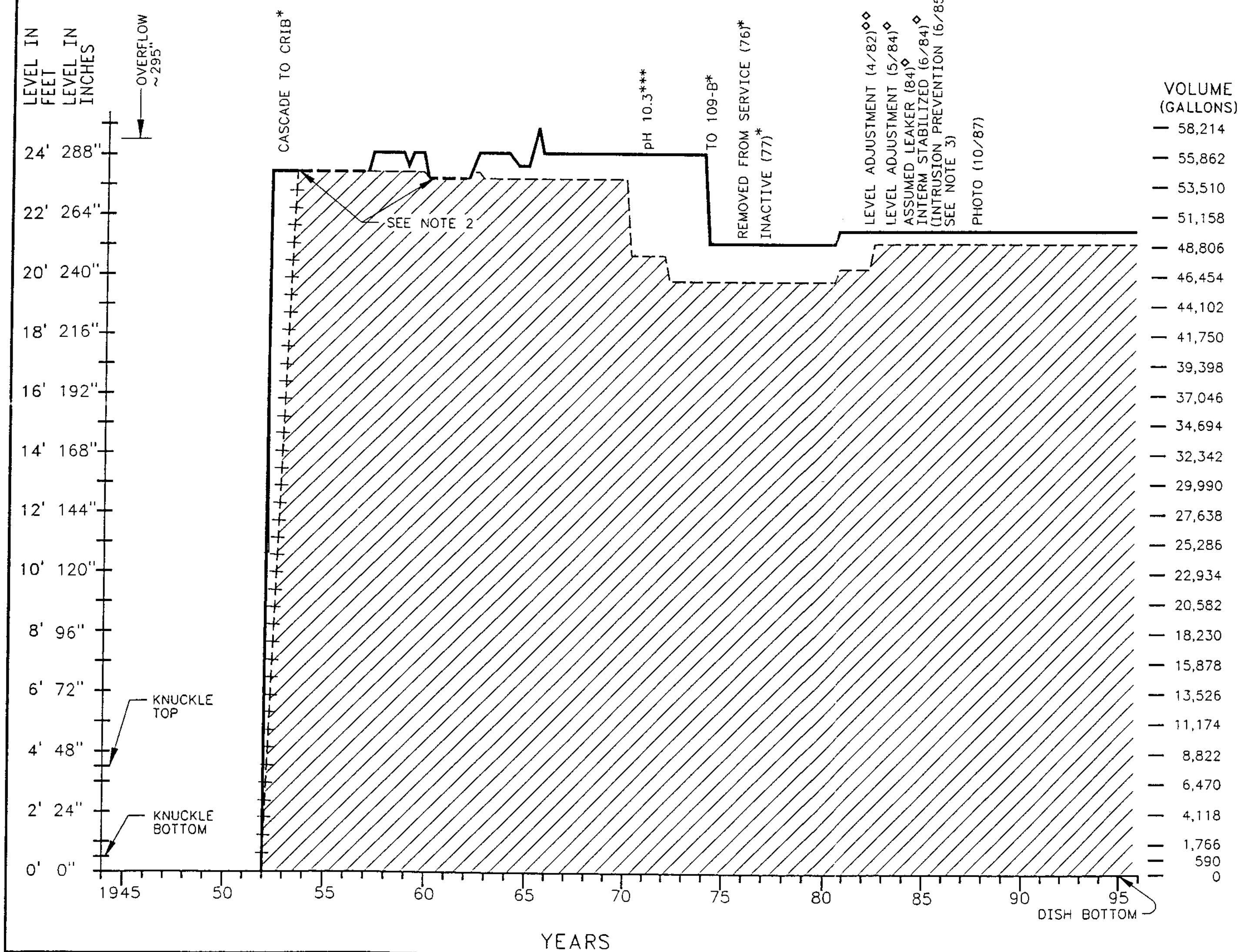
U.S. DEPARTMENT OF ENERGY
RICHLAND FIELD OFFICE
ICF KAISER HANFORD

241-B-203 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1952-1995
ASSUMED LEAKER/STABILIZED TANK
WATCH LIST: N/A

SIZE	BLDG NO.	DWG NO.	DATE
B	241	ES-TKS-E25	5/96
SCALE NONE		JOB NO.	SHEET 1 OF 1

ITKSE025

WASTE TYPES ADDED TIME LINE (ANDERSON 1990)	224: MW:	224:	NCPLX:
PRIMARY ADDITIONS TIME LINE (AGNEW 1995b)	224: DW:		



ITKSE026

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

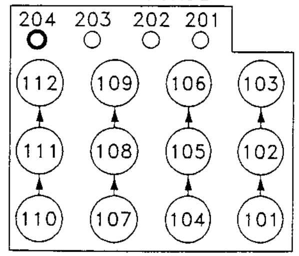
REFERENCES
- * ANDERSON 1990
- ** WELTY 1988
- *** BORSHEIM AND KIRCH 1991
- ◇ HANLON 1996a
- ◇◇ McCANN 1984d

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
DW: DECONTAMINATION WASTE
MW: METAL WASTE
NCPLX: NON-COMPLEXED WASTE
224: 224-U WASTE

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

B TANK FARM
CASCADE



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

241-B-204 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1952-1995
ASSUMED LEAKER/STABILIZED TANK
WATCH LIST: N/A

SIZE	BLDG NO.	DWG NO.	DATE
B	241	ES-TKS-E26	5/96
SCALE: NONE		JOB NO.	SHEET 1 OF 1

241-B-101 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1944				
2				
3				
4				
1-1945				
2	168	57		
3	512	182		
4	530	188		
1-1946	530	188		
2	530	188		
3	530	188		
4	530	188		
1-1947	530	188		
2	530	188		
3	530	188		
4	530	188		
1-1948	530	188		
2	530	188		
3	530	188		
4	530	188		
1-1949	530	188		
2	530	188		
3	530	188		
4	530	188		
1-1950	530	188		
2	530	188		
3	530	188		
4	530	188		
1-1951	530	188		
2	530	188		
3	530	188		
4	530	188		
1-1952	530	188		
2	530	188		
3	530	188		
4	530	188		
1-1953 *	1291	465		
2				
3	0	-12		
4	223	77		
1-1954	527	187		
2	527	187		
3	527	187		
4	527	187		
1-1955	527	187		
2	527	187		

* Data not included, cascade volume.

241-B-101 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
3	527	187		
4	527	187		
1-1956	527	187		
2	527	187		
3	527	187		
4	527	187		
1-1957	538	191		
2	541	192	106	34
3	318	111	315	110
4	318	111	315	110
1-1958	318	111	315	110
2	321	112	315	110
3	321	112	315	110
4	321	112	315	110
1-1959	321	112	315	110
2	313	109	315	110
3	313	109	315	110
4	316	110	315	110
1-1960	316	110	315	110
2	403	142	315	110
3	403	142	315	110
4	403	142	315	110
1-1961	403	142	315	110
2	403	142	315	110
3	403	142	315	110
4	403	142	315	110
1-1962	403	142	315	110
2	403	142	315	110
3	403	142	315	110
4	403	142	315	110
1-1963				
2	403	142	202	69
3			202	69
4	525	186	202	69
1-1964	525	186	202	69
2	525	186	202	69
3	525	186	202	69
4	525	186	202	69
1-1965				
2	527	187	161	54
3	527	187	161	54
4	527	187	161	54
1-1966	527	187	161	54
2	527	187	161	54
3	527	187	161	54
4	527	187	161	54

241-B-101 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1967	527	187	161	54
2	527	187	161	54
3	527	187	161	54
4	527	187	161	54
1-1968	527	187	161	54
2	527	187	161	54
3	527	187	161	54
4	528	187	161	54
1-1969	151	50	151	50
2	356	125	151	50
3	290	101	151	50
4	220	75	151	50
1-1970	349	122	151	50
2	403	142	150	50
3	355	125	106	34
4	497	176	103	33
1-1971	436	154	103	33
2	259	90	103	33
3	502	178	103	33
4	469	166	103	33
1-1972	508	180	103	33
2	433	153	103	33
3	502	178	109	35
4	535	190	109	35
1-1973	514	182	109	35
2	513	182	109	35
3	512	182	109	35
4	511	181	109	35
1-1974	509	181	109	35
2	440	155	109	35
3	432	153	109	35
4	334	117	136	45
1-1975	136	45	136	45
2	136	45	136	45
3	136	45	136	45
4	136	45	136	45
1-1976	103	33	103	33
2	103	33	103	33
3	103	33	103	33
4	103	33	103	33
1-1977	103	33	103	33
2	103	33	103	33
3	103	33	103	33
4	103	33	103	33
1-1978	103	33	103	33
2	103	33	103	33

241-B-101 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
3	103	33	103	33
4	103	33	103	33
1-1979	103	33	103	33
2	103	33	103	33
3	103	33	103	33
4	103	33	103	33
1-1980	103	33	103	33
2	103	33	103	33
3	103	33	103	33
4	103	33	103	33
1-1981	103	33	103	33
2	103	33	103	33
3	103	33	103	33
4	103	33	103	33
1-1982	103	33	103	33
2	113	37	113	37
3	113	37	113	37
4	113	37	113	37
1-1983	113	37	113	37
2	113	37	113	37
3	113	37	113	37
4	113	37	113	37
1-1984	113	37	113	37
2	113	37	113	37
3	113	37	113	37
4	113	37	113	37
1-1985	113	37	113	37
2	113	37	113	37
3	113	37	113	37
4	113	37	113	37
1-1986	113	37	113	37
2	113	37	113	37
3	113	37	113	37
4	113	37	113	37
1-1987	113	37	113	37
2	113	37	113	37
3	113	37	113	37
4	113	37	113	37
1-1988	113	37	113	37
2	113	37	113	37
3	113	37	113	37
4	113	37	113	37
1-1989	113	37	113	37
2	113	37	113	37
3	113	37	113	37
4	113	37	113	37

241-B-101 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1990	113	37	113	37
2	113	37	113	37
3	113	37	113	37
4	113	37	113	37
1-1991	113	37	113	37
2	113	37	113	37
3	113	37	113	37
4	113	37	113	37
1-1992	113	37	113	37
2	113	37	113	37
3	113	37	113	37
4	113	37	113	37
1-1993	113	37	113	37
2	113	37	113	37
3	113	37	113	37
4	113	37	113	37
1-1994	113	37	113	37
2	113	37	113	37
3	113	37	113	37
4	113	37	113	37
1-1995	113	37	113	37
2	113	37	113	37
3	113	37	113	37

241-B-102 LEVEL HISTORY

Year	Total	Total	Solids	Solids
	(K gal)	(in)	(K gal)	(in)
1-1944				
2				
3				
4				
1-1945				
2				
3				
4	530	188		
1-1946	530	188		
2	530	188		
3	530	188		
4	530	188		
1-1947	530	188		
2	530	188		
3	530	188		
4	530	188		
1-1948	530	188		
2	530	188		
3	530	188		
4	530	188		
1-1949	530	188		
2	530	188		
3	530	188		
4	530	188		
1-1950	530	188		
2	530	188		
3	530	188		
4	530	188		
1-1951	530	188		
2	530	188		
3	530	188		
4	530	188		
1-1952	530	188		
2	530	188		
3	530	188		
4	530	188		
1-1953 *	1291	465		
2				
3	0	-12		
4	530	188		
1-1954	530	188		
2	530	188		
3	530	188		
4	530	188		
1-1955	530	188		
2	530	188		

* Data not included, cascade volume.

241-B-102 LEVEL HISTORY

Year	Total	Total	Solids	Solids
	(K gal)	(in)	(K gal)	(in)
3	530	188		
4	530	188		
1-1956	530	188		
2	530	188		
3	530	188		
4	530	188		
1-1957	502	178		
2	502	178		
3	84	26		
4	114	37	84	26
1-1958	114	37	84	26
2	114	37	84	26
3	114	37	84	26
4	114	37	84	26
1-1959	114	37	84	26
2	120	39	84	26
3	120	39	84	26
4	120	39	84	26
1-1960	120	39	84	26
2	120	39	84	26
3	120	39	84	26
4	120	39	84	26
1-1961	120	39	84	26
2	120	39	84	26
3			84	26
4	125	41	84	26
1-1962			84	26
2	123	40	84	26
3	123	40	84	26
4	123	40	84	26
1-1963				
2	494	175	40	10
3				
4	542	193	40	10
1-1964	542	193	40	10
2	542	193	40	10
3			40	10
4	535	190	40	10
1-1965				
2	532	189	24	4
3	532	189	24	4
4	532	189	24	4
1-1966	532	189	24	4
2	532	189	24	4
3	532	189	24	4
4	532	189	24	4

241-B-102 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1967	532	189	24	4
2	532	189	24	4
3	532	189	24	4
4	532	189	24	4
1-1968	531	189	24	4
2	534	190	24	4
3	534	190	24	4
4	534	190	24	4
1-1969	26	5	24	4
2	25	5	24	4
3	228	78	24	4
4	513	182	24	4
1-1970	514	182	24	4
2	98	31	55	15
3	272	94	55	15
4	271	94	55	15
1-1971	277	96	55	15
2	277	96	55	15
3	499	177	55	15
4	81	25	55	15
1-1972	95	30	34	8
2	186	63	34	8
3	310	108	33	7
4	395	139	33	7
1-1973	485	172	33	7
2	492	174	33	7
3	493	175	33	7
4	497	176	33	7
1-1974	497	176	33	7
2	511	181	33	7
3	452	160	33	7
4	462	163	35	8
1-1975	469	166	35	8
2	200	68	35	8
3	208	71	35	8
4	219	75	35	8
1-1976	43	11	35	8
2	48	13	35	8
3	59	17	35	8
4	68	20	51	14
1-1977	73	22	40	10
2	79	24	40	10
3	43	11	40	10
4	48	13	40	10
1-1978	51	14	40	10
2	54	15	37	9

241-B-102 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
3	54	15	37	9
4	54	15	37	9
1-1979	51	14	37	9
2	51	14	37	9
3	51	14	37	9
4	51	14	37	9
1-1980	51	14	37	9
2	51	14	37	9
3	51	14	37	9
4	51	14	37	9
1-1981	51	14	37	9
2	51	14	37	9
3	51	14	37	9
4	51	14	37	9
1-1982	51	14	37	9
2	51	14	37	9
3	51	14	37	9
4	51	14	37	9
1-1983	51	14	37	9
2	51	14	37	9
3	51	14	37	9
4	57	16	37	9
1-1984	57	16	37	9
2	57	16	37	9
3	57	16	37	9
4	57	16	37	9
1-1985	57	16	37	9
2	57	16	37	9
3	32	7	28	6
4	32	7	28	6
1-1986	32	7	28	6
2	32	7	28	6
3	32	7	28	6
4	32	7	28	6
1-1987	32	7	28	6
2	32	7	28	6
3	32	7	28	6
4	32	7	28	6
1-1988	32	7	28	6
2	32	7	28	6
3	32	7	28	6
4	32	7	28	6
1-1989	32	7	28	6
2	32	7	28	6
3	32	7	28	6
4	32	7	28	6

241-B-102 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1990	32	7	28	6
2	32	7	28	6
3	32	7	28	6
4	32	7	28	6
1-1991	32	7	28	6
2	32	7	28	6
3	32	7	28	6
4	32	7	28	6
1-1992	32	7	28	6
2	32	7	28	6
3	32	7	28	6
4	32	7	28	6
1-1993	32	7	28	6
2	32	7	28	6
3	32	7	28	6
4	32	7	28	6
1-1994	32	7	28	6
2	32	7	28	6
3	32	7	28	6
4	32	7	28	6
1-1995	32	7	28	6
2	32	7	28	6
3	32	7	28	6

241-B-103 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1944				
2				
3				
4				
1-1945				
2				
3				
4	67	20		
1-1946	530	188		
2	530	188		
3	530	188		
4	530	188		
1-1947	530	188		
2	530	188		
3	530	188		
4	530	188		
1-1948	530	188		
2	530	188		
3	530	188		
4	530	188		
1-1949	530	188		
2	530	188		
3	530	188		
4	530	188		
1-1950	530	188		
2	530	188		
3	530	188		
4	530	188		
1-1951	530	188		
2	530	188		
3	530	188		
4	530	188		
1-1952	530	188		
2	519	184		
3	519	184		
4	519	184		
1-1953 *	1291	465		
2	359	126		
3	327	114		
4	12	0		
1-1954	554	197		
2	554	197		
3	554	197		
4	554	197		
1-1955	554	197		
2	554	197		

* Data not included, cascade volume.

241-B-103 LEVEL HISTORY

Year	Total	Total	Solids	Solids
	(K gal)	(in)	(K gal)	(in)
3	554	197		
4	554	197		
1-1956	554	197		
2	554	197		
3	554	197		
4	554	197		
1-1957	554	197		
2	530	188		
3	230	79	227	78
4	235	81	227	78
1-1958	235	81	227	78
2	238	82	227	78
3	238	82	227	78
4	238	82	227	78
1-1959	238	82	227	78
2	238	82	227	78
3	238	82	227	78
4	238	82	227	78
1-1960	238	82	227	78
2	238	82	227	78
3	238	82	227	78
4	238	82	227	78
1-1961			227	78
2	241	83	227	78
3	241	83	227	78
4	241	83	227	78
1-1962			227	78
2	222	76	227	78
3	222	76		
4	222	76	220	75
1-1963	222	76		
2	222	76	59	17
3			59	17
4	503	178	59	17
1-1964			59	17
2	536	190	59	17
3			59	17
4	552	196	59	17
1-1965			59	17
2	560	199	59	17
3	560	199	59	17
4	560	199	59	17
1-1966	560	199	59	17
2	560	199	59	17
3	560	199	59	17
4	560	199	59	17

241-B-103 LEVEL HISTORY

Year	Total	Total	Solids	Solids
	(K gal)	(in)	(K gal)	(in)
1-1967	560	199	59	17
2	560	199	59	17
3	560	199	59	17
4	560	199	59	17
1-1968	558	198	59	17
2	558	198	59	17
3	559	199	59	17
4	560	199	59	17
1-1969	66	19	59	17
2	158	53	59	17
3	55	15	55	15
4	55	15	55	15
1-1970	263	91	55	15
2	541	192	55	15
3	541	192	55	15
4	541	192	55	15
1-1971	541	192	55	15
2	540	192	59	17
3	539	191	59	17
4	206	70	20	3
1-1972	52	14	52	14
2	59	17	52	14
3	68	20	52	14
4	87	27	52	14
1-1973	87	27	52	14
2	270	94	52	14
3	251	87	52	14
4	489	173	52	14
1-1974	489	173	52	14
2	489	173	52	14
3	504	179	52	14
4	499	177	68	20
1-1975	499	177	68	20
2	499	177	68	20
3	505	179	68	20
4	299	104	68	20
1-1976				
2				
3				
4				
1-1977	131	43	68	20
2	90	28	68	20
3	90	28	68	20
4	90	28	68	20
1-1978	90	28	68	20
2	92	29	68	20

241-B-103 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
3	92	29	68	20
4	92	29	68	20
1-1979	92	29	68	20
2	92	29	68	20
3	92	29	68	20
4	92	29	68	20
1-1980	92	29	68	20
2	92	29	68	20
3	92	29	68	20
4	92	29	68	20
1-1981	92	29	68	20
2	92	29	68	20
3	92	29	68	20
4	92	29	68	20
1-1982	92	29	68	20
2	100	32	68	20
3	100	32	68	20
4	100	32	68	20
1-1983	100	32	68	20
2	100	32	68	20
3	100	32	68	20
4	103	33	67	20
1-1984	103	33	67	20
2	103	33	67	20
3	103	33	67	20
4	103	33	67	20
1-1985	59	17	59	17
2	59	17	59	17
3	59	17	59	17
4	59	17	59	17
1-1986	59	17	59	17
2	59	17	59	17
3	59	17	59	17
4	59	17	59	17
1-1987	59	17	59	17
2	59	17	59	17
3	59	17	59	17
4	59	17	59	17
1-1988	59	17	59	17
2	59	17	59	17
3	59	17	59	17
4	59	17	59	17
1-1989	59	17	59	17
2	59	17	59	17
3	59	17	59	17
4	59	17	59	17

241-B-103 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1990	59	17	59	17
2	59	17	59	17
3	59	17	59	17
4	59	17	59	17
1-1991	59	17	59	17
2	59	17	59	17
3	59	17	59	17
4	59	17	59	17
1-1992	59	17	59	17
2	59	17	59	17
3	59	17	59	17
4	59	17	59	17
1-1993	59	17	59	17
2	59	17	59	17
3	59	17	59	17
4	59	17	59	17
1-1994	59	17	59	17
2	59	17	59	17
3	59	17	59	17
4	59	17	59	17
1-1995	59	17	59	17
2	59	17	59	17
3	59	17	59	17

241-B-104 LEVEL HISTORY

Year	Total	Total	Solids	Solids	ILL
	(K gal)	(in)	(K gal)	(in)	(in)
1-1944					
2					
3					
4					
1-1945					
2					
3					
4					
1-1946					
2					
3	165	55			
4	488	173			
1-1947	530	188			
2	530	188			
3	530	188			
4	530	188			
1-1948	530	188			
2	530	188			
3	216	74			
4	216	74			
1-1949	530	188			
2	530	188			
3	530	188			
4	530	188			
1-1950	530	188			
2	501	178			
3	530	188			
4	530	188			
1-1951	530	188			
2	530	188			
3					
4					
1-1952	530	188			
2	530	188			
3	410	145			
4	531	189			
1-1953	531	189	309	108	
2	354	124	309	108	
3	508	180	309	108	
4	525	186	309	108	
1-1954	525	186	309	108	
2	525	186	309	108	
3	537	191	309	108	
4	537	191	309	108	
1-1955	537	191	309	108	
2	537	191	309	108	

241-B-104 LEVEL HISTORY

Year	Total	Total	Solids	Solids	ILL
	(K gal)	(in)	(K gal)	(in)	(in)
3	537	191	309	108	
4	537	191	309	108	
1-1956	537	191	309	108	
2	537	191	309	108	
3	537	191	309	108	
4	537	191	309	108	
1-1957	535	190	309	108	
2	535	190	40	10	
3	535	190	365	128	
4	535	190	530	188	
1-1958	532	189	530	188	
2	532	189	530	188	
3	532	189	530	188	
4	532	189	530	188	
1-1959	532	189	530	188	
2	546	194	530	188	
3	546	194	530	188	
4	546	194	530	188	
1-1960	546	194	530	188	
2	546	194	530	188	
3	546	194	530	188	
4	546	194	530	188	
1-1961	546	194	530	188	
2	546	194	530	188	
3	546	194	530	188	
4	546	194	530	188	
1-1962	546	194	530	188	
2	546	194	530	188	
3	546	194	530	188	
4	546	194	530	188	
1-1963	546	194			
2	546	194	409	144	
3	546	194	409	144	
4	546	194	409	144	
1-1964			409	144	
2	542	193	409	144	
3	542	193	409	144	
4	542	193	409	144	
1-1965	542	193	409	144	
2	542	193	409	144	
3	542	193	409	144	
4	542	193	409	144	
1-1966	542	193	409	144	
2	542	193	409	144	
3	542	193	409	144	
4	542	193	409	144	

241-B-104 LEVEL HISTORY

Year	Total	Total	Solids	Solids	ILL
	(K gal)	(in)	(K gal)	(in)	(in)
1-1967	542	193	409	144	
2	541	192	409	144	
3	541	192	409	144	
4	541	192	409	144	
1-1968	541	192	409	144	
2	541	192	409	144	
3	541	192	409	144	
4	541	192	409	144	
1-1969	541	192	409	144	
2	417	147	409	144	
3	417	147	409	144	
4	417	147	409	144	
1-1970	417	147	409	144	
2	417	147	414	146	
3	418	147	400	141	
4	417	147	400	141	
1-1971	417	147	400	141	
2	418	147	400	141	
3	418	147	400	141	
4	418	147	400	141	
1-1972	418	147	400	141	
2	415	146	400	141	
3	414	146	400	141	
4	411	145	400	141	
1-1973	408	144	400	141	
2	403	142	400	141	
3	404	142	400	141	
4	404	142	400	141	
1-1974	405	143	400	141	
2	407	143	400	141	
3	407	143	400	141	
4	400	141	400	141	
1-1975	400	141	400	141	
2	400	141	400	141	
3	400	141	400	141	
4	400	141	400	141	
1-1976	400	141	400	141	
2	409	144	395	139	
3	409	144	395	139	
4	409	144	395	139	
1-1977	409	144	395	139	
2	409	144	395	139	
3	409	144	395	139	
4	409	144	395	139	
1-1978	409	144	395	139	
2	409	144	395	139	

241-B-104 LEVEL HISTORY

Year	Total	Total	Solids	Solids	ILL
	(K gal)	(in)	(K gal)	(in)	(in)
3	409	144	395	139	
4	409	144	395	139	
1-1979	409	144	395	139	
2	409	144	395	139	
3	409	144	395	139	
4	409	144	395	139	
1-1980	409	144	395	139	
2	409	144	395	139	
3	409	144	395	139	
4	409	144	395	139	
1-1981	409	144	395	139	
2	409	144	395	139	
3	409	144	395	139	
4	409	144	395	139	
1-1982	409	144	395	139	
2	409	144	395	139	
3	409	144	395	139	
4	409	144	395	139	
1-1983	409	144	395	139	
2	409	144	395	139	
3	409	144	395	139	
4	410	145	395	139	
1-1984	410	145	395	139	
2	410	145	395	139	
3	410	145	395	139	
4	410	145	395	139	
1-1985	410	145	395	139	
2	371	130	370	130	
3	371	130	370	130	
4	371	130	370	130	
1-1986	371	130	370	130	140
2	371	130	370	130	139
3	371	130	370	130	140
4	371	130	370	130	142
1-1987	371	130	370	130	140
2	371	130	370	130	141
3	371	130	370	130	141
4	371	130	370	130	141
1-1988	371	130	370	130	141
2	371	130	370	130	141
3	371	130	370	130	141
4	371	130	370	130	141
1-1989	371	130	370	130	141
2	371	130	370	130	142
3	371	130	370	130	142
4	371	130	370	130	142

241-B-104 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)	ILL (in)
1-1990	371	130	370	130	140
2	371	130	370	130	
3	371	130	370	130	142
4	371	130	370	130	141
1-1991	371	130	370	130	142
2	371	130	370	130	141
3	371	130	370	130	142
4	371	130	370	130	141
1-1992	371	130	370	130	141
2	371	130	370	130	
3	371	130	370	130	140
4	371	130	370	130	
1-1993	371	130	370	130	142
2	371	130	370	130	141
3	371	130	370	130	141
4	371	130	370	130	141
1-1994	371	130	370	130	141
2	371	130	370	130	141
3	371	130	370	130	141
4	371	130	370	130	142
1-1995	371	130	370	130	141
2	371	130	370	130	141
3	371	130	370	130	141

241-B-105 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)	ILL (in)
1-1944					
2					
3					
4					
1-1945					
2					
3					
4					
1-1946					
2					
3					
4					
1-1947	171	58			
2	379	133			
3	530	188			
4	530	188			
1-1948	530	188			
2	530	188			
3	378	133			
4	0	-12			
1-1949	18	2			
2	201	69			
3	366	129			
4	530	188			
1-1950	530	188			
2	0	-12			
3	530	188			
4	530	188			
1-1951	530	188			
2	530	188			
3	530	188			
4	530	188			
1-1952	530	188			
2	530	188			
3	172	58			
4	227	78			
1-1953	491	174	39	10	
2	28	6	39	10	
3	28	6	39	10	
4	344	121	28	6	
1-1954	396	139	28	6	
2	342	120	28	6	
3	519	184	28	6	
4	516	183	28	6	
1-1955	516	183	28	6	
2	516	183	28	6	

241-B-105 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)	ILL (in)
3	516	183	28	6	
4	516	183	28	6	
1-1956	516	183	28	6	
2	516	183	28	6	
3	516	183	28	6	
4	516	183	28	6	
1-1957	497	176	28	6	
2	497	176	28	6	
3	497	176	490	174	
4	497	176	490	174	
1-1958	494	175	490	174	
2	494	175	490	174	
3	494	175	490	174	
4	494	175	490	174	
1-1959	494	175	490	174	
2	494	175	490	174	
3	494	175	490	174	
4	494	175	490	174	
1-1960	494	175	490	174	
2	494	175	490	174	
3	494	175	490	174	
4	494	175	490	174	
1-1961			490	174	
2	491	174	490	174	
3	491	174	490	174	
4	491	174	490	174	
1-1962	491	174	490	174	
2	491	174	490	174	
3	491	174	490	174	
4	491	174	490	174	
1-1963	491	174	490	174	
2	491	174	490	174	
3	491	174	490	174	
4	491	174	490	174	
1-1964	491	174	490	174	
2	491	174	490	174	
3			490	174	
4	505	179	490	174	
1-1965	505	179	490	174	
2	505	179	490	174	
3	505	179	490	174	
4	505	179	490	174	
1-1966	505	179	490	174	
2	505	179	490	174	
3	505	179	490	174	
4	505	179	490	174	

241-B-105 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)	ILL (in)
1-1967	505	179	490	174	
2	505	179	490	174	
3	505	179	490	174	
4	505	179	490	174	
1-1968	505	179	490	174	
2	503	178	490	174	
3	503	178	490	174	
4	503	178	490	174	
1-1969	503	178	490	174	
2	503	178	490	174	
3	503	178	490	174	
4	503	178	490	174	
1-1970	502	178	490	174	
2	502	178	490	174	
3	502	178	490	174	
4	503	178	490	174	
1-1971	502	178	490	174	
2	502	178	490	174	
3	502	178	490	174	
4	503	178	490	174	
1-1972	501	178	490	174	
2	501	178	490	174	
3	490	174	490	174	
4	490	174	490	174	
1-1973	490	174	490	174	
2	490	174	490	174	
3	490	174	490	174	
4	490	174	490	174	
1-1974	490	174	490	174	
2	490	174	490	174	
3	490	174	490	174	
4	491	174	491	174	
1-1975	491	174	491	174	
2	491	174	491	174	
3	293	102	293	102	
4	293	102	293	102	
1-1976	293	102	293	102	
2	293	102	293	102	
3	293	102	293	102	
4	293	102	293	102	
1-1977	293	102	293	102	
2	293	102	293	102	
3	293	102	293	102	
4	293	102	293	102	
1-1978	293	102	293	102	
2	293	102	293	102	

241-B-105 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)	ILL (in)
3	293	102	293	102	
4	293	102	293	102	
1-1979	293	102	293	102	
2	293	102	293	102	
3	293	102	293	102	
4	293	102	293	102	
1-1980	293	102	293	102	
2	293	102	293	102	
3	293	102	293	102	
4	293	102	293	102	
1-1981	293	102	293	102	
2	293	102	293	102	
3	293	102	293	102	
4	293	102	293	102	
1-1982	293	102	293	102	
2	293	102	293	102	
3	293	102	293	102	
4	293	102	293	102	
1-1983	293	102	293	102	
2	377	133	377	133	
3	377	133	377	133	
4	377	133	377	133	
1-1984	377	133	377	133	
2	377	133	377	133	
3	377	133	377	133	
4	306	107	306	107	
1-1985	306	107	306	107	
2	306	107	306	107	
3	306	107	306	107	
4	306	107	306	107	
1-1986	306	107	306	107	44
2	306	107	306	107	45
3	306	107	306	107	43
4	306	107	306	107	44
1-1987	306	107	306	107	44
2	306	107	306	107	44
3	306	107	306	107	44
4	306	107	306	107	45
1-1988	306	107	306	107	44
2	306	107	306	107	44
3	306	107	306	107	43
4	306	107	306	107	44
1-1989	306	107	306	107	45
2	306	107	306	107	45
3	306	107	306	107	45
4	306	107	306	107	44

241-B-105 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)	ILL (in)
1-1990	306	107	306	107	44
2	306	107	306	107	
3	306	107	306	107	45
4	306	107	306	107	45
1-1991	306	107	306	107	45
2	306	107	306	107	45
3	306	107	306	107	44
4	306	107	306	107	45
1-1992	306	107	306	107	44
2	306	107	306	107	
3	306	107	306	107	45
4	306	107	306	107	45
1-1993	306	107	306	107	44
2	306	107	306	107	43
3	306	107	306	107	45
4	306	107	306	107	44
1-1994	306	107	306	107	46
2	306	107	306	107	45
3	306	107	306	107	43
4	306	107	306	107	44
1-1995	306	107	306	107	45
2	306	107	306	107	45
3	306	107	306	107	44

241-B-106 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				
1-1947				
2				
3	59	17		
4	215	74		
1-1948	432	153		
2	530	188		
3	530	188		
4	293	102		
1-1949	0	-12		
2	0	-12		
3	0	-12		
4	112	36		
1-1950	239	82		
2	0	-12		
3	0	-12		
4	0	-12		
1-1951	0	-12		
2	0	-12		
3				
4				
1-1952				
2	193	66		
3	448	158		
4	415	146		
1-1953	302	105	0	
2	213	73	0	
3	197	67	0	
4	444	157	0	
1-1954	239	82	0	
2	415	146	0	
3	338	118	137	45
4	426	150	137	45
1-1955	426	150	137	45
2	426	150	137	45

241-B-106 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
3	426	150	137	45
4	426	150	137	45
1-1956	426	150	137	45
2	426	150	137	45
3	426	150	137	45
4	426	150	100	32
1-1957	480	170	100	32
2	551	196	125	41
3	552	196	125	41
4	172	58	167	56
1-1958	172	58	167	56
2	230	79	167	56
3	227	78	167	56
4	227	78	167	56
1-1959	167	56	167	56
2	178	60	167	56
3	189	64	167	56
4	209	71	167	56
1-1960	230	79	167	56
2	246	85	167	56
3	268	93	167	56
4	273	95	167	56
1-1961			167	56
2	288	100	167	56
3			167	56
4	304	106	167	56
1-1962			167	56
2	315	110	167	56
3			167	56
4	337	118	167	56
1-1963				
2	343	120	114	37
3			114	37
4	349	122	114	37
1-1964			114	37
2	354	124	114	37
3			114	37
4	356	125	114	37
1-1965				
2	392	138	145	48
3	392	138	145	48
4	403	142	145	48
1-1966	407	143	145	48
2	407	143	145	48
3	407	143	145	48
4	407	143	145	48

241-B-106 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1967	409	144	145	48
2	409	144	145	48
3	410	145	145	48
4	410	145	145	48
1-1968	418	147	145	48
2	418	147	145	48
3	418	147	145	48
4	418	147	145	48
1-1969	418	147	145	48
2	418	147	145	48
3	215	74	145	48
4	216	74	145	48
1-1970	215	74	145	48
2	215	74	172	58
3	215	74	172	58
4	216	74	172	58
1-1971	216	74	172	58
2	237	82	172	58
3	237	82	172	58
4	237	82	172	58
1-1972	237	82	172	58
2	222	76	153	51
3	227	78	153	51
4	228	78	153	51
1-1973	228	78	147	49
2	228	78	147	49
3	229	79	147	49
4	229	79	147	49
1-1974	229	79	147	49
2	229	79	147	49
3	289	101	147	49
4	285	99	125	41
1-1975	285	99	125	41
2	285	99	125	41
3	285	99	125	41
4	142	47	125	41
1-1976	142	47	125	41
2	142	47	125	41
3	142	47	125	41
4	142	47	125	41
1-1977	142	47	125	41
2	142	47	125	41
3	142	47	125	41
4	142	47	125	41
1-1978	139	46	125	41
2	139	46	125	41

241-B-106 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
3	139	46	125	41
4	139	46	125	41
1-1979	139	46	125	41
2	139	46	125	41
3	139	46	125	41
4	139	46	125	41
1-1980	139	46	125	41
2	139	46	125	41
3	139	46	125	41
4	139	46	125	41
1-1981	139	46	125	41
2	139	46	125	41
3	139	46	125	41
4	139	46	125	41
1-1982	139	46	125	41
2	139	46	125	41
3	139	46	125	41
4	139	46	125	41
1-1983	139	46	125	41
2	139	46	125	41
3	139	46	125	41
4	138	46	125	41
1-1984	138	46	125	41
2	138	46	125	41
3	138	46	125	41
4	138	46	125	41
1-1985	117	38	116	38
2	117	38	116	38
3	117	38	116	38
4	117	38	116	38
1-1986	117	38	116	38
2	117	38	116	38
3	117	38	116	38
4	117	38	116	38
1-1987	117	38	116	38
2	117	38	116	38
3	117	38	116	38
4	117	38	116	38
1-1988	117	38	116	38
2	117	38	116	38
3	117	38	116	38
4	117	38	116	38
1-1989	117	38	116	38
2	117	38	116	38
3	117	38	116	38
4	117	38	116	38

241-B-106 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1990	117	38	116	38
2	117	38	116	38
3	117	38	116	38
4	117	38	116	38
1-1991	117	38	116	38
2	117	38	116	38
3	117	38	116	38
4	117	38	116	38
1-1992	117	38	116	38
2	117	38	116	38
3	117	38	116	38
4	117	38	116	38
1-1993	117	38	116	38
2	117	38	116	38
3	117	38	116	38
4	117	38	116	38
1-1994	117	38	116	38
2	117	38	116	38
3	117	38	116	38
4	117	38	116	38
1-1995	117	38	116	38
2	117	38	116	38
3	117	38	116	38

241-B-107 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1944				
2				
3				
4				
1-1945				
2	168	57		
3	475	168		
4	530	188		
1-1946	530	188		
2	530	188		
3	530	188		
4	530	188		
1-1947	530	188		
2	530	188		
3	530	188		
4	530	188		
1-1948	530	188		
2	530	188		
3	530	188		
4	530	188		
1-1949	530	188		
2	530	188		
3	530	188		
4	530	188		
1-1950	530	188		
2	530	188		
3	530	188		
4	530	188		
1-1951	530	188		
2	530	188		
3				
4				
1-1952				
2	220	75		
3	461	163		
4	531	189		
1-1953	531	189	220	75
2	523	186	220	75
3	530	188	172	58
4	530	188	172	58
1-1954	530	188	172	58
2	530	188	172	58
3	225	77	225	77
4	488	173	225	77
1-1955	530	188	225	77
2	530	188	225	77

241-B-107 LEVEL HISTORY

Year	Total	Total	Solids	Solids
	(K gal)	(in)	(K gal)	(in)
3	530	188	225	77
4	530	188	225	77
1-1956	530	188	225	77
2	530	188	225	77
3	530	188	225	77
4	530	188	225	77
1-1957	496	176	225	77
2	532	189	230	79
3	271	94	230	79
4	271	94	261	90
1-1958	274	95	261	90
2	271	94	261	90
3	271	94	261	90
4	271	94	261	90
1-1959	271	94	261	90
2	271	94	261	90
3	271	94	261	90
4	271	94	261	90
1-1960	271	94	261	90
2	271	94	261	90
3	271	94	261	90
4	237	82	261	90
1-1961			261	90
2	268	93	261	90
3			261	90
4	271	94	261	90
1-1962	271	94	261	90
2	271	94	261	90
3	271	94	261	90
4	271	94	261	90
1-1963	271	94		
2	271	94	271	94
3			271	94
4	535	190	271	94
1-1964	535	190	271	94
2	535	190	271	94
3			271	94
4	541	192	271	94
1-1965				
2	541	192	202	69
3	549	195	202	69
4	546	194	202	69
1-1966	543	193	202	69
2	543	193	202	69
3	541	192	202	69
4	541	192	202	69

241-B-107 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
				.
1-1967	538	191	202	69
2	535	190	202	69
3	535	190	202	69
4	535	190	202	69
1-1968	531	189	202	69
2	530	188	202	69
3	530	188	202	69
4	528	187	202	69
1-1969	528	187	202	69
2	527	187	202	69
3	200	68	200	68
4	200	68	200	68
1-1970	200	68	200	68
2	200	68	200	68
3	200	68	200	68
4	200	68	200	68
1-1971	200	68	200	68
2	200	68	200	68
3	200	68	200	68
4	200	68	200	68
1-1972	200	68	200	68
2	193	66	193	66
3	193	66	193	66
4	193	66	193	66
1-1973	193	66	193	66
2	193	66	193	66
3	193	66	193	66
4	193	66	193	66
1-1974	193	66	193	66
2	193	66	193	66
3	193	66	193	66
4	194	66	194	66
1-1975	194	66	194	66
2	194	66	194	66
3	194	66	194	66
4	194	66	194	66
1-1976	194	66	194	66
2	194	66	194	66
3	194	66	194	66
4	194	66	194	66
1-1977	194	66	194	66
2	194	66	194	66
3	194	66	194	66
4	194	66	194	66
1-1978	194	66	194	66
2	194	66	194	66

241-B-107 LEVEL HISTORY

Year	Total	Total	Solids	Solids
	(K gal)	(in)	(K gal)	(in)
3	194	66	194	66
4	194	66	194	66
1-1979	194	66	194	66
2	194	66	194	66
3	194	66	194	66
4	194	66	194	66
1-1980	194	66	194	66
2	194	66	194	66
3	194	66	194	66
4	194	66	194	66
1-1981	194	66	191	65
2	194	66	191	65
3	194	66	191	65
4	194	66	191	65
1-1982	194	66	191	65
2	170	57	170	57
3	170	57	170	57
4	170	57	170	57
1-1983	170	57	170	57
2	170	57	170	57
3	170	57	170	57
4	170	57	170	57
1-1984	170	57	170	57
2	170	57	170	57
3	170	57	170	57
4	167	56	151	50
1-1985	165	55	164	55
2	165	55	164	55
3	165	55	164	55
4	165	55	164	55
1-1986	165	55	164	55
2	165	55	164	55
3	165	55	164	55
4	165	55	164	55
1-1987	165	55	164	55
2	165	55	164	55
3	165	55	164	55
4	165	55	164	55
1-1988	165	55	164	55
2	165	55	164	55
3	165	55	164	55
4	165	55	164	55
1-1989	165	55	164	55
2	165	55	164	55
3	165	55	164	55
4	165	55	164	55

241-B-107 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1990	165	55	164	55
2	165	55	164	55
3	165	55	164	55
4	165	55	164	55
1-1991	165	55	164	55
2	165	55	164	55
3	165	55	164	55
4	165	55	164	55
1-1992	165	55	164	55
2	165	55	164	55
3	165	55	164	55
4	165	55	164	55
1-1993	165	55	164	55
2	165	55	164	55
3	165	55	164	55
4	165	55	164	55
1-1994	165	55	164	55
2	165	55	164	55
3	165	55	164	55
4	165	55	164	55
1-1995	165	55	164	55
2	165	55	164	55
3	165	55	164	55

241-B-108 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1944				
2				
3				
4				
1-1945				
2				
3				
4	450	159		
1-1946	530	188		
2	530	188		
3	530	188		
4	530	188		
1-1947	530	188		
2	530	188		
3	530	188		
4	530	188		
1-1948	530	188		
2	530	188		
3	530	188		
4	530	188		
1-1949	530	188		
2	530	188		
3	530	188		
4	530	188		
1-1950	530	188		
2	530	188		
3	530	188		
4	530	188		
1-1951	530	188		
2	530	188		
3				
4				
1-1952				
2	530	188		
3	530	188		
4	528	187		
1-1953	359	126	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	65	19	65	19
4	65	19	65	19
1-1955	233	80	65	19
2	233	80	65	19

241-B-108 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
3	526	187	65	19
4	526	187	65	19
1-1956	526	187	65	19
2	526	187	65	19
3	526	187	65	19
4	526	187	65	19
1-1957	527	187	65	19
2	524	186	114	37
3	128	42	114	37
4	128	42	114	37
1-1958	131	43	114	37
2	134	44	114	37
3	131	43	114	37
4	134	44	114	37
1-1959	130	43	114	37
2	130	43	114	37
3	130	43	114	37
4	130	43	114	37
1-1960	130	43	114	37
2	130	43	114	37
3	130	43	114	37
4	130	43	114	37
1-1961			114	37
2	128	42	114	37
3	128	42	114	37
4	128	42	114	37
1-1962	128	42	114	37
2	128	42	114	37
3	128	42	114	37
4	128	42	114	37
1-1963				
2	131	43	120	39
3			120	39
4	541	192	120	39
1-1964	541	192	120	39
2	541	192	120	39
3	541	192	120	39
4	541	192	120	39
1-1965				
2	538	191	125	41
3	538	191	125	41
4	538	191	125	41
1-1966	538	191	125	41
2	538	191	125	41
3	538	191	125	41
4	538	191	125	41

241-B-108 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1967	538	191	125	41
2	538	191	125	41
3	538	191	125	41
4	538	191	125	41
1-1968	536	190	125	41
2	538	191	125	41
3	538	191	125	41
4	536	190	125	41
1-1969	324	113	125	41
2	117	38	117	38
3	117	38	117	38
4	545	194	117	38
1-1970	543	193	117	38
2	543	193	117	38
3	543	193	117	38
4	543	193	117	38
1-1971	542	193	117	38
2	542	193	122	40
3	543	193	122	40
4	543	193	78	24
1-1972	125	41	113	37
2	125	41	113	37
3	127	42	113	37
4	113	37	113	37
1-1973	112	36	112	36
2	111	36	111	36
3	111	36	111	36
4	111	36	111	36
1-1974	114	37	114	37
2	156	52	114	37
3	156	52	114	37
4	156	52	112	36
1-1975	156	52	112	36
2	156	52	112	36
3	156	52	112	36
4	156	52	112	36
1-1976	156	52	112	36
2	156	52	112	36
3	156	52	112	36
4	156	52	112	36
1-1977	156	52	112	36
2	112	36	112	36
3	112	36	112	36
4	103	33	70	21
1-1978	103	33	70	21
2	103	33	70	21

241-B-108 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
3	103	33	70	21
4	103	33	70	21
1-1979	103	33	70	21
2	103	33	70	21
3	103	33	70	21
4	103	33	70	21
1-1980	103	33	70	21
2	103	33	70	21
3	103	33	70	21
4	103	33	70	21
1-1981	103	33	70	21
2	103	33	70	21
3	103	33	70	21
4	103	33	70	21
1-1982	103	33	70	21
2	103	33	70	21
3	103	33	70	21
4	103	33	70	21
1-1983	103	33	70	21
2	103	33	70	21
3	103	33	70	21
4	106	34	70	21
1-1984	106	34	70	21
2	106	34	70	21
3	106	34	70	21
4	106	34	70	21
1-1985	106	34	70	21
2	94	30	94	30
3	94	30	94	30
4	94	30	94	30
1-1986	94	30	94	30
2	94	30	94	30
3	94	30	94	30
4	94	30	94	30
1-1987	94	30	94	30
2	94	30	94	30
3	94	30	94	30
4	94	30	94	30
1-1988	94	30	94	30
2	94	30	94	30
3	94	30	94	30
4	94	30	94	30
1-1989	94	30	94	30
2	94	30	94	30
3	94	30	94	30
4	94	30	94	30

241-B-108 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1990	94	30	94	30
2	94	30	94	30
3	94	30	94	30
4	94	30	94	30
1-1991	94	30	94	30
2	94	30	94	30
3	94	30	94	30
4	94	30	94	30
1-1992	94	30	94	30
2	94	30	94	30
3	94	30	94	30
4	94	30	94	30
1-1993	94	30	94	30
2	94	30	94	30
3	94	30	94	30
4	94	30	94	30
1-1994	94	30	94	30
2	94	30	94	30
3	94	30	94	30
4	94	30	94	30
1-1995	94	30	94	30
2	94	30	94	30
3	94	30	94	30

241-B-109 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	360	126		
2	530	188		
3	530	188		
4	530	188		
1-1947	530	188		
2	530	188		
3	530	188		
4	530	188		
1-1948	530	188		
2	530	188		
3	530	188		
4	530	188		
1-1949	530	188		
2	530	188		
3	530	188		
4	530	188		
1-1950	530	188		
2	530	188		
3	530	188		
4	530	188		
1-1951	530	188		
2	530	188		
3				
4				
1-1952				
2	172	58		
3	518	184		
4	535	190		
1-1953	330	115	0	
2	516	183	0	
3	530	188	0	
4	527	187	0	
1-1954	527	187	0	
2	527	187	0	
3	497	176	128	42
4	494	175	128	42
1-1955	494	175	128	42
2	494	175	128	42

241-B-109 LEVEL HISTORY

Year	Total	Total	Solids	Solids
	(K gal)	(in)	(K gal)	(in)
3	494	175	128	42
4	494	175	128	42
1-1956	494	175	128	42
2	494	175	128	42
3	494	175	128	42
4	494	175	128	42
1-1957	485	172	128	42
2	485	172	232	80
3	76	23	76	23
4	76	23	76	23
1-1958	76	23	76	23
2	79	24	76	23
3	70	21	70	21
4	73	22	70	21
1-1959	76	23	70	21
2	79	24	70	21
3	79	24	70	21
4	79	24	70	21
1-1960	79	24	70	21
2	79	24	70	21
3	79	24	70	21
4	79	24	70	21
1-1961	79	24	70	21
2	79	24	70	21
3	79	24	70	21
4	79	24	70	21
1-1962	79	24	70	21
2	79	24	70	21
3			70	21
4	81	25	70	21
1-1963				
2	84	26	84	26
3			84	26
4	541	192	84	26
1-1964	541	192	84	26
2	541	192	84	26
3			84	26
4	538	191	84	26
1-1965				
2	538	191	134	44
3	532	189	134	44
4	565	201	134	44
1-1966	565	201	134	44
2	565	201	134	44
3	565	201	134	44
4	565	201	134	44

241-B-109 LEVEL HISTORY

Year	Total	Total	Solids	Solids
	(K gal)	(in)	(K gal)	(in)
1-1967	565	201	134	44
2	565	201	134	44
3	565	201	134	44
4	565	201	134	44
1-1968	565	201	134	44
2	565	201	134	44
3	565	201	134	44
4	565	201	134	44
1-1969	565	201	134	44
2	564	201	134	44
3	171	58	134	44
4	538	191	134	44
1-1970	538	191	134	44
2	536	190	161	54
3	536	190	161	54
4	538	191	161	54
1-1971	536	190	161	54
2	536	190	161	54
3	536	190	161	54
4	536	190	161	54
1-1972	205	70	136	45
2	189	64	136	45
3	206	70	136	45
4	198	67	136	45
1-1973	199	68	136	45
2	199	68	136	45
3	198	67	136	45
4	268	93	136	45
1-1974	284	99	136	45
2	393	138	136	45
3	397	140	136	45
4	403	142	117	38
1-1975	409	144	117	38
2	406	143	117	38
3	409	144	117	38
4	134	44	117	38
1-1976	260	90	117	38
2	260	90	117	38
3	260	90	117	38
4	260	90	117	38
1-1977	260	90	117	38
2	150	50	117	38
3	139	46	120	39
4	139	46	120	39
1-1978	139	46	120	39
2	139	46	120	39

241-B-109 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
3	134	44	120	39
4	134	44	120	39
1-1979	134	44	120	39
2	134	44	120	39
3	134	44	120	39
4	134	44	120	39
1-1980	134	44	120	39
2	134	44	120	39
3	134	44	120	39
4	128	42	120	39
1-1981	128	42	120	39
2	128	42	120	39
3	128	42	120	39
4	128	42	120	39
1-1982	128	42	120	39
2	128	42	120	39
3	128	42	120	39
4	128	42	120	39
1-1983	128	42	120	39
2	128	42	120	39
3	128	42	120	39
4	128	42	120	39
1-1984	128	42	120	39
2	128	42	120	39
3	128	42	120	39
4	128	42	120	39
1-1985	128	42	120	39
2	127	42	127	42
3	127	42	127	42
4	127	42	127	42
1-1986	127	42	127	42
2	127	42	127	42
3	127	42	127	42
4	127	42	127	42
1-1987	127	42	127	42
2	127	42	127	42
3	127	42	127	42
4	127	42	127	42
1-1988	127	42	127	42
2	127	42	127	42
3	127	42	127	42
4	127	42	127	42
1-1989	127	42	127	42
2	127	42	127	42
3	127	42	127	42
4	127	42	127	42

241-B-109 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1990	127	42	127	42
2	127	42	127	42
3	127	42	127	42
4	127	42	127	42
1-1991	127	42	127	42
2	127	42	127	42
3	127	42	127	42
4	127	42	127	42
1-1992	127	42	127	42
2	127	42	127	42
3	127	42	127	42
4	127	42	127	42
1-1993	127	42	127	42
2	127	42	127	42
3	127	42	127	42
4	127	42	127	42
1-1994	127	42	127	42
2	127	42	127	42
3	127	42	127	42
4	127	42	127	42
1-1995	127	42	127	42
2	127	42	127	42
3	127	42	127	42

241-B-110 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)	ILL (in)
1-1944					
2					
3					
4					
1-1945					
2	128	42			
3	350	123			
4	530	188			
1-1946	530	188			
2	530	188			
3	530	188			
4	530	188			
1-1947	530	188			
2	530	188			
3	530	188			
4	530	188			
1-1948	530	188			
2	530	188			
3	530	188			
4	530	188			
1-1949	530	188			
2	530	188			
3	530	188			
4	530	188			
1-1950	530	188			
2	0	-12			
3	530	188			
4	530	188			
1-1951	530	188			
2	530	188			
3	530	188			
4	530	188			
1-1952	530	188			
2	530	188			
3	530	188			
4	530	188			
1-1953	530	188			
2	530	188			
3	530	188	378	133	
4	425	150	243	84	
1-1954	421	149	243	84	
2	530	188	243	84	
3	530	188	243	84	
4	530	188	243	84	
1-1955	348	122	348	122	
2	348	122	348	122	

241-B-110 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)	ILL (in)
3	348	122	243	84	
4	451	159	243	84	
1-1956	501	178	243	84	
2	530	188	243	84	
3	530	188	243	84	
4	530	188	243	84	
1-1957	532	189	243	84	
2	535	190	243	84	
3	535	190	243	84	
4	535	190	243	84	
1-1958	535	190	243	84	
2	535	190	243	84	
3	535	190	243	84	
4	535	190	243	84	
1-1959	532	189	243	84	
2	532	189	243	84	
3	532	189	243	84	
4	532	189	243	84	
1-1960	532	189	243	84	
2	532	189	243	84	
3	532	189	243	84	
4	532	189	243	84	
1-1961			243	84	
2	530	188	243	84	
3			243	84	
4	538	191	243	84	
1-1962			243	84	
2	532	189	243	84	
3	532	189	243	84	
4	532	189	243	84	
1-1963					
2	530	188	282	98	
3			282	98	
4	365	128	282	98	
1-1964			282	98	
2	528	187	282	98	
3			282	98	
4	528	187	282	98	
1-1965					
2	543	193	332	116	
3	543	193	332	116	
4	543	193	332	116	
1-1966	541	192	332	116	
2	541	192	332	116	
3	541	192	332	116	
4	541	192	332	116	

241-B-110 LEVEL HISTORY

Year	Total	Total	Solids	Solids	ILL
	(K gal)	(in)	(K gal)	(in)	(in)
1-1967	541	192	332	116	
2	541	192	332	116	
3	536	190	243	84	
4	466	165	243	84	
1-1968	546	194	243	84	
2	546	194	297	103	
3	546	194	297	103	
4	545	194	297	103	
1-1969	542	193	297	103	
2	541	192	297	103	
3	534	190	297	103	
4	534	190	297	103	
1-1970	531	189	297	103	
2	530	188	297	103	
3	530	188	297	103	
4	530	188	297	103	
1-1971	527	187	297	103	
2	525	186	297	103	
3	301	105	297	103	
4	301	105	297	103	
1-1972	299	104	297	103	
2	288	100	282	98	
3	282	98	282	98	
4	282	98	282	98	
1-1973	282	98	282	98	
2	282	98	282	98	
3	282	98	282	98	
4	282	98	282	98	
1-1974	282	98	282	98	
2	282	98	282	98	
3	282	98	282	98	
4	282	98	282	98	
1-1975	282	98	282	98	
2	282	98	282	98	
3	282	98	282	98	
4	282	98	282	98	
1-1976	282	98	282	98	
2	282	98	282	98	
3	282	98	282	98	
4	282	98	282	98	
1-1977	282	98	282	98	
2	282	98	282	98	
3	282	98	282	98	
4	282	98	282	98	
1-1978	282	98	282	98	
2	282	98	282	98	

241-B-110 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)	ILL (in)
3	282	98	282	98	
4	282	98	282	98	
1-1979	282	98	282	98	
2	282	98	282	98	
3	282	98	282	98	
4	282	98	282	98	
1-1980	282	98	282	98	
2	282	98	282	98	
3	282	98	282	98	
4	282	98	282	98	
1-1981	282	98	282	98	
2	282	98	282	98	
3	282	98	282	98	
4	282	98	282	98	
1-1982	282	98	282	98	
2	247	85	247	85	
3	247	85	246	85	
4	247	85	246	85	
1-1983	247	85	246	85	
2	247	85	246	85	
3	247	85	246	85	
4	247	85	246	85	
1-1984	247	85	246	85	
2	247	85	246	85	
3	247	85	246	85	
4	245	85	244	84	
1-1985	245	85	244	84	
2	245	85	244	84	
3	245	85	244	84	
4	245	85	244	84	
1-1986	245	85	244	84	
2	245	85	244	84	
3	245	85	244	84	
4	245	85	244	84	
1-1987	245	85	244	84	
2	245	85	244	84	
3	245	85	244	84	
4	245	85	244	84	
1-1988	245	85	244	84	
2	245	85	244	84	
3	245	85	244	84	
4	245	85	244	84	
1-1989	245	85	244	84	
2	245	85	244	84	
3	245	85	244	84	
4	245	85	244	84	

241-B-110 LEVEL HISTORY

Year	Total	Total	Solids	Solids	ILL
	(K gal)	(in)	(K gal)	(in)	(in)
1-1990	245	85	244	84	
2	246	85	245	85	
3	246	85	245	85	
4	246	85	245	85	
1-1991	246	85	245	85	
2	246	85	245	85	
3	246	85	245	85	
4	246	85	245	85	
1-1992	246	85	245	85	
2	246	85	245	85	
3	246	85	245	85	
4	246	85	245	85	
1-1993	246	85	245	85	
2	246	85	245	85	
3	246	85	245	85	
4	246	85	245	85	
1-1994	246	85	245	85	
2	246	85	245	85	
3	246	85	245	85	
4	246	85	245	85	97
1-1995	246	85	245	85	97
2	246	85	245	85	97
3	246	85	245	85	97

241-B-111 LEVEL HISTORY

Year	Total	Total	Solids	Solids	ILL
	(K gal)	(in)	(K gal)	(in)	(in)
1-1944					
2					
3					
4					
1-1945					
2					
3					
4	181	61			
1-1946	473	167			
2	530	188			
3	530	188			
4	530	188			
1-1947	530	188			
2	530	188			
3	530	188			
4	530	188			
1-1948	530	188			
2	530	188			
3	530	188			
4	530	188			
1-1949	530	188			
2	530	188			
3	530	188			
4	530	188			
1-1950	530	188			
2	1	-4			
3	530	188			
4	530	188			
1-1951	530	188			
2	530	188			
3	530	188			
4	530	188			
1-1952	530	188			
2	530	188			
3	530	188			
4	530	188			
1-1953	530	188			
2	530	188			
3	530	188	237	82	
4	530	188	161	54	
1-1954	530	188	161	54	
2	530	188	161	54	
3	530	188	161	54	
4	530	188	195	66	
1-1955	530	188	195	66	
2	530	188	195	66	

241-B-111 LEVEL HISTORY

Year	Total	Total	Solids	Solids	ILL
	(K gal)	(in)	(K gal)	(in)	(in)
3	249	86	249	86	
4	249	86	249	86	
1-1956	249	86	249	86	
2	251	87	249	86	
3	265	92	249	86	
4	270	94	243	84	
1-1957	270	94	161	54	
2	279	97	161	54	
3	279	97	161	54	
4	279	97	161	54	
1-1958	282	98	161	54	
2	282	98	161	54	
3	279	97	161	54	
4	279	97	161	54	
1-1959	334	117	161	54	
2	334	117	161	54	
3	334	117	161	54	
4	334	117	161	54	
1-1960	334	117	161	54	
2	334	117	161	54	
3	334	117	161	54	
4	334	117	161	54	
1-1961			161	54	
2	332	116	161	54	
3			161	54	
4	480	170	161	54	
1-1962			161	54	
2	554	197	161	54	
3	554	197	161	54	
4	554	197	161	54	
1-1963					
2	343	120	300	105	
3			300	105	
4	337	118	300	105	
1-1964			300	105	
2	338	118	300	105	
3			300	105	
4	392	138	300	105	
1-1965					
2	381	134	310	108	
3	442	156	310	108	
4	477	169	310	108	
1-1966	469	166	310	108	
2	436	154	310	108	
3	442	156	310	108	
4	461	163	310	108	

241-B-111 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)	ILL (in)
1-1967	497	176	310	108	
2	395	139	310	108	
3	426	150	161	54	
4	523	186	161	54	
1-1968	521	185	161	54	
2	519	184	241	83	
3	519	184	241	83	
4	517	183	241	83	
1-1969	513	182	241	83	
2	388	137	241	83	
3	300	105	241	83	
4	349	122	241	83	
1-1970	431	152	232	80	
2	503	178	244	84	
3	503	178	244	84	
4	502	178	244	84	
1-1971	502	178	244	84	
2	502	178	244	84	
3	502	178	244	84	
4	501	178	244	84	
1-1972	241	83	241	83	
2	246	85	246	85	
3	263	91	246	85	
4	249	86	246	85	
1-1973	249	86	249	86	
2	249	86	249	86	
3	249	86	249	86	
4	249	86	249	86	
1-1974	249	86	249	86	
2	249	86	249	86	
3	249	86	249	86	
4	249	86	246	85	
1-1975	249	86	246	85	
2	249	86	246	85	
3	249	86	246	85	
4	249	86	246	85	
1-1976	249	86	246	85	
2	249	86	246	85	
3	249	86	246	85	
4	249	86	246	85	
1-1977	249	86	246	85	
2	249	86	246	85	
3	249	86	246	85	
4	249	86	246	85	
1-1978	249	86	246	85	
2	249	86	246	85	

241-B-111 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)	ILL (in)
3	249	86	246	85	
4	249	86	246	85	
1-1979	249	86	246	85	
2	249	86	246	85	
3	249	86	246	85	
4	249	86	246	85	
1-1980	249	86	246	85	
2	249	86	246	85	
3	249	86	246	85	
4	249	86	246	85	
1-1981	249	86	246	85	
2	249	86	246	85	
3	249	86	246	85	
4	249	86	246	85	
1-1982	249	86	246	85	
2	249	86	246	85	
3	249	86	246	85	
4	249	86	246	85	
1-1983	249	86	246	85	
2	249	86	246	85	
3	249	86	246	85	
4	247	85	243	84	
1-1984	247	85	243	84	
2	247	85	243	84	
3	247	85	243	84	
4	247	85	241	83	
1-1985	247	85	241	83	
2	237	82	236	81	
3	237	82	236	81	
4	237	82	236	81	
1-1986	237	82	236	81	
2	237	82	236	81	
3	237	82	236	81	
4	237	82	236	81	
1-1987	237	82	236	81	
2	237	82	236	81	
3	237	82	236	81	
4	237	82	236	81	
1-1988	237	82	236	81	
2	237	82	236	81	
3	237	82	236	81	
4	237	82	236	81	
1-1989	237	82	236	81	
2	237	82	236	81	
3	237	82	236	81	
4	237	82	236	81	

241-B-111 LEVEL HISTORY

Year	Total	Total	Solids	Solids	ILL
	(K gal)	(in)	(K gal)	(in)	(in)
1-1990	237	82	236	81	
2	237	82	236	81	
3	237	82	236	81	
4	237	82	236	81	
1-1991	237	82	236	81	
2	237	82	236	81	
3	237	82	236	81	
4	237	82	236	81	
1-1992	237	82	236	81	
2	237	82	236	81	
3	237	82	236	81	
4	237	82	236	81	
1-1993	237	82	236	81	
2	237	82	236	81	
3	237	82	236	81	
4	237	82	236	81	
1-1994	237	82	236	81	
2	237	82	236	81	
3	237	82	236	81	
4	237	82	236	81	94
1-1995	237	82	236	81	90
2	237	82	236	81	90
3	237	82	236	81	90

241-B-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	342	120		
3	530	188		
4	530	188		
1-1947	530	188		
2	530	188		
3	530	188		
4	530	188		
1-1948	530	188		
2	149	50		
3	353	124		
4	530	188		
1-1949	530	188		
2	530	188		
3	530	188		
4	530	188		
1-1950	0	-12		
2	0	-12		
3	412	145		
4	200	68		
1-1951	396	139		
2	530	188		
3	542	193		
4	542	193		
1-1952	542	193		
2	542	193		
3	542	193		
4	542	193		
1-1953	542	193		
2	542	193		
3	542	193	0	
4	542	193	0	
1-1954	542	193	0	
2	542	193	0	
3	542	193	0	
4	542	193	0	
1-1955	542	193	0	
2	542	193	0	

241-B-112 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
3	542	193	0	
4	542	193	0	
1-1956	542	193	0	
2	542	193	0	
3	542	193	0	
4	542	193	0	
1-1957	538	191	0	
2	538	191	23	4
3	538	191	23	4
4	43	11	43	11
1-1958	43	11	43	11
2	46	12	43	11
3	46	12	43	11
4	46	12	43	11
1-1959	46	12	43	11
2	46	12	43	11
3	45	12	43	11
4	43	11	43	11
1-1960	43	11	43	11
2	43	11	43	11
3	43	11	43	11
4	32	7	43	11
1-1961				
2	29	6	29	6
3			29	6
4	40	10	29	6
1-1962			35	8
2	35	8	35	8
3				
4	40	10	40	10
1-1963				
2	271	94	35	8
3			35	8
4	524	186	35	8
1-1964			35	8
2	536	190	35	8
3	536	190	35	8
4	536	190	35	8
1-1965			35	8
2	450	159	35	8
3	313	109	35	8
4	106	34	35	8
1-1966	211	72	35	8
2	304	106	35	8
3	337	118	35	8
4	337	118	35	8

241-B-112 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1967	337	118	35	8
2	528	187	35	8
3	528	187	40	10
4	169	57	40	10
1-1968	535	190	40	10
2	547	194	18	2
3	547	194	18	2
4	547	194	18	2
1-1969	550	195	18	2
2	101	32	18	2
3	279	97	18	2
4	554	197	18	2
1-1970	553	197	18	2
2	558	198	18	2
3	558	198	18	2
4	558	198	18	2
1-1971	557	198	18	2
2	556	198	18	2
3	557	198	18	2
4	68	20	18	2
1-1972	87	27	18	2
2	90	28	18	2
3	77	23	14	1
4	77	23	14	1
1-1973	302	105	14	1
2	303	106	14	1
3	305	106	14	1
4	305	106	14	1
1-1974	305	106	14	1
2	328	115	14	1
3	329	115	14	1
4	329	115	35	8
1-1975	329	115	35	8
2	329	115	35	8
3	329	115	35	8
4	329	115	35	8
1-1976	329	115	35	8
2	329	115	35	8
3	332	116	35	8
4	332	116	35	8
1-1977	332	116	35	8
2	73	22	35	8
3	40	10	37	9
4	40	10	37	9
1-1978	40	10	37	9
2	40	10	37	9

241-B-112 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
3	43	11	37	9
4	43	11	37	9
1-1979	43	11	37	9
2	43	11	37	9
3	43	11	37	9
4	43	11	37	9
1-1980	43	11	37	9
2	43	11	37	9
3	43	11	37	9
4	43	11	37	9
1-1981	43	11	37	9
2	43	11	37	9
3	43	11	37	9
4	43	11	37	9
1-1982	43	11	37	9
2	43	11	37	9
3	43	11	37	9
4	43	11	37	9
1-1983	43	11	37	9
2	43	11	37	9
3	43	11	37	9
4	42	11	37	9
1-1984	42	11	37	9
2	42	11	37	9
3	42	11	37	9
4	42	11	37	9
1-1985	42	11	37	9
2	33	7	30	6
3	33	7	30	6
4	33	7	30	6
1-1986	33	7	30	6
2	33	7	30	6
3	33	7	30	6
4	33	7	30	6
1-1987	33	7	30	6
2	33	7	30	6
3	33	7	30	6
4	33	7	30	6
1-1988	33	7	30	6
2	33	7	30	6
3	33	7	30	6
4	33	7	30	6
1-1989	33	7	30	6
2	33	7	30	6
3	33	7	30	6
4	33	7	30	6

241-B-112 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1990	33	7	30	6
2	33	7	30	6
3	33	7	30	6
4	33	[illegible]	30	6
1-1991	33	[illegible]	30	6
2	33	[illegible]	30	6
3	33	7	30	6
4	33	7	30	6
1-1992	33	7	30	6
2	33	7	30	6
3	33	7	30	6
4	33	7	30	6
1-1993	33	7	30	6
2	33	7	30	6
3	33	7	30	6
4	33	7	30	6
1-1994	33	7	30	6
2	33	7	30	6
3	33	7	30	6
4	33	7	30	6
1-1995	33	7	30	6
2	33	7	30	6
3	33	7	30	6

241-B-201 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
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	54.5	281
3	54.5	281	54.5	281
4	54.5	281	54.5	281
1-1954	54.5	281	54.5	281
2	54.5	281	54.5	281
3	54.5	281	54.5	281
4	54.5	281	54.5	281
1-1955	54.5	281	54.5	281
2	54.5	281	54.5	281
3	54.5	281	54.5	281
4	54.5	281	54.5	281
1-1956	54.5	281	54.5	281
2	54.5	281	54.5	281
3	54.5	281	54.5	281
4	54.5	281	54.5	281
1-1957	53	273	54.5	281
2	53	273	54.5	281
3	53	273	28.5	148
4	53	273	28.5	148
1-1958	53	273	28.5	148
2	53	273	28.5	148
3	53	273	23.5	123
4	51	263	28.5	148
1-1959	51	263	28.5	148
2	51	263	28.5	148
3	51	263	28.5	148
4	52	268	54.5	281
1-1960	52	268	54.5	281
2	52	268	54.5	281
3	52	268	54.5	281
4	52	268	54.5	281
1-1961			54.5	281
2	50	258	54.5	281
3	50	258	54.5	281
4	50	258	54.5	281
1-1962	50	258	54.5	281
2	50	258	54.5	281
3				
4	51	263	50	258
1-1963	51	263	50	258
2	51	263	50	258

241-B-201 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
3			50	258
4	53	273	50	258
1-1964	53	273	50	258
2	53	273	50	258
3	53	273	50	258
4	53	273	50	258
1-1965			50	258
2	56	289	50	258
3	56	289	50	258
4	56	289	50	258
1-1966	56	289	50	258
2	56	289	50	258
3	56	289	50	258
4	56	289	50	258
1-1967	56	289	50	258
2	56	289	50	258
3	56	289	50	258
4	56	289	50	258
1-1968	55	284	50	258
2	55	284	50	258
3	55	284	50	258
4	55	284	50	258
1-1969	55	284	50	258
2	55	284	50	258
3	55	284	50	258
4	55	284	50	258
1-1970	55	284	30	156
2	55	284	30	156
3	55	284	30	156
4	54	279	30	156
1-1971	54	279	30	156
2	33	171	30	156
3	33	171	30	156
4	33	171	30	156
1-1972	33	171	26	136
2	33	171	26	136
3	33	171	26	136
4	33	171	26	136
1-1973	33	171	26	136
2	33	171	26	136
3	33	171	26	136
4	33	171	26	136
1-1974	32	166	26	136
2	31	161	26	136
3	29	151	26	136
4	29	151	29	151

241-B-201 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1975	29	151	29	151
2	29	151	29	151
3	29	151	29	151
4	29	151	29	151
1-1976	29	151	29	151
2	29	151	29	151
3	29	151	29	151
4	29	151	29	151
1-1977	29	151	29	151
2	29	151	29	151
3	29	151	29	151
4	29	151	29	151
1-1978	29	151	29	151
2	29	151	29	151
3	29	151	29	151
4	29	151	29	151
1-1979	28	146	27	141
2	28	146	27	141
3	28	146	27	141
4	28	146	27	141
1-1980	28	146	27	141
2	28	146	27	141
3	29	151	28	146
4	29	151	28	146
1-1981	29	151	28	146
2	29	151	28	146
3	29	151	28	146
4	29	151	28	146
1-1982	29	151	28	146
2	29	151	28	146
3	29	151	28	146
4	29	151	28	146
1-1983	29	151	28	146
2	29	151	28	146
3	29	151	28	146
4	29	151	28	146
1-1984	29	151	28	146
2	29	151	28	146
3	29	151	28	146
4	29	151	28	146
1-1985	29	151	28	146
2	29	151	28	146
3	29	151	28	146
4	29	151	28	146
1-1986	29	151	28	146
2	29	151	28	146

241-B-201 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
3	29	151	28	146
4	29	151	28	146
1-1987	29	151	28	146
2	29	151	28	146
3	29	151	28	146
4	29	151	28	146
1-1988	29	151	28	146
2	29	151	28	146
3	29	151	28	146
4	29	151	28	146
1-1989	29	151	28	146
2	29	151	28	146
3	29	151	28	146
4	29	151	28	146
1-1990	29	151	28	146
2	29	151	28	146
3	29	151	28	146
4	29	151	28	146
1-1991	29	151	28	146
2	29	151	28	146
3	29	151	28	146
4	29	151	28	146
1-1992	29	151	28	146
2	29	151	28	146
3	29	151	28	146
4	29	151	28	146
1-1993	29	151	28	146
2	29	151	28	146
3	29	151	28	146
4	29	151	28	146
1-1994	29	151	28	146
2	29	151	28	146
3	29	151	28	146
4	29	151	28	146
1-1995	29	151	28	146
2	29	151	28	146
3	29	151	28	146

241-B-202 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
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	54.5	281
3	54.5	281	25	131
4	54.5	281	25	131
1-1954	54.5	281	25	131
2	54.5	281	25	131
3	54.5	281	25	131
4	54.5	281	25	131
1-1955	54.5	281	25	131
2	54.5	281	25	131
3	54.5	281	25	131
4	54.5	281	25	131
1-1956	54.5	281	25	131
2	54.5	281	25	131
3	54.5	281	25	131
4	54.5	281	25	131
1-1957	56	289	25	131
2	56	289	25	131
3	56	289	25	131
4	56	289	25	131
1-1958	56	289	25	131
2	56	289	25	131
3	56	289	25	131
4	54	279	25	131
1-1959	54	279	25	131
2	54	279	25	131
3	54	279	25	131
4	54	279	25	131
1-1960	54	279	25	131
2	54	279	25	131
3	51	263	25	131
4	51	263	25	131
1-1961	51	263	25	131
2	51	263	25	131
3	51	263	25	131
4	51	263	25	131
1-1962			25	131
2	55	281	25	131
3			25	131
4	55	284	25	131
1-1963	55	284	25	131
2	55	284	25	131

241-B-202 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
3			25	131
4	54	279	25	131
1-1964	54	279	25	131
2	54	279	25	131
3	54	279	25	131
4	54	279	25	131
1-1965			25	131
2	58	299	25	131
3	56	289	25	131
4	56	289	25	131
1-1966	56	289	25	131
2	56	289	25	131
3	56	289	25	131
4	56	289	25	131
1-1967	56	289	25	131
2	56	289	25	131
3	56	289	25	131
4	56	289	25	131
1-1968	56	289	25	131
2	56	289	25	131
3	56	289	25	131
4	56	289	25	131
1-1969	56	289	25	131
2	56	289	25	131
3	56	289	25	131
4	56	289	25	131
1-1970	56	289	29	151
2	56	289	29	151
3	56	289	29	151
4	56	289	29	151
1-1971	56	289	29	151
2	56	289	29	151
3	56	289	29	151
4	56	289	29	151
1-1972	56	289	27	141
2	56	289	27	141
3	56	289	27	141
4	56	289	27	141
1-1973	56	289	27	141
2	56	289	27	141
3	56	289	27	141
4	56	289	27	141
1-1974	53	273	27	141
2	53	273	27	141
3	53	273	27	141
4	53	273	27	141

241-B-202 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1975	53	273	27	141
2	53	273	27	141
3	53	273	27	141
4	53	273	27	141
1-1976	53	273	27	141
2	53	273	27	141
3	53	273	27	141
4	53	273	27	141
1-1977	53	273	27	141
2	30	156	27	141
3	27	141	27	141
4	27	141	27	141
1-1978	27	141	27	141
2	27	141	27	141
3	27	141	27	141
4	27	141	27	141
1-1979	27	141	27	141
2	27	141	27	141
3	27	141	27	141
4	27	141	27	141
1-1980	27	141	27	141
2	27	141	27	141
3	28	146	28	146
4	28	146	28	146
1-1981	28	146	28	146
2	28	146	28	146
3	28	146	28	146
4	28	146	28	146
1-1982	28	146	28	146
2	27	141	27	141
3	27	141	27	141
4	27	141	27	141
1-1983	27	141	27	141
2	27	141	27	141
3	27	141	27	141
4	27	141	27	141
1-1984	27	141	27	141
2	27	141	27	141
3	27	141	27	141
4	27	141	26	136
1-1985	27	141	26	136
2	27	141	27	141
3	27	141	27	141
4	27	141	26	136
1-1986	27	141	26	136
2	27	141	26	136

241-B-202 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
3	27	141	26	136
4	27	141	26	136
1-1987	27	141	26	136
2	27	141	26	136
3	27	141	26	136
4	27	141	26	136
1-1988	27	141	26	136
2	27	141	26	136
3	27	141	26	136
4	27	141	26	136
1-1989	27	141	26	136
2	27	141	26	136
3	27	141	26	136
4	27	141	26	136
1-1990	27	141	26	136
2	28	146	27	141
3	27	141	27	141
4	27	141	27	141
1-1991	27	141	27	141
2	27	141	27	141
3	27	141	27	141
4	27	141	27	141
1-1992	27	141	27	141
2	27	141	27	141
3	27	141	27	141
4	27	141	27	141
1-1993	27	141	27	141
2	27	141	27	141
3	27	141	27	141
4	27	141	27	141
1-1994	27	141	27	141
2	27	141	27	141
3	27	141	27	141
4	27	141	27	141
1-1995	27	141	27	141
2	27	141	27	141
3	27	141	27	141

241-B-203 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
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	54.5	281
3	54.5	281	54.5	281
4	54.5	281	54.5	281
1-1954	54.5	281	54.5	281
2	54.5	281	54.5	281
3	54.5	281	54.5	281
4	54.5	281	54.5	281
1-1955	54.5	281	54.5	281
2	54.5	281	54.5	281
3	54.5	281	54.5	281
4	54.5	281	54.5	281
1-1956	54.5	281	54.5	281
2	54.5	281	54.5	281
3	54.5	281	54.5	281
4	54.5	281	54.5	281
1-1957	56	289	54.5	281
2	56	289	54.5	281
3	56	289	54.5	281
4	56	289	54.5	281
1-1958	56	289	54.5	281
2	56	289	54.5	281
3	56	289	54.5	281
4	55	284	54.5	281
1-1959	55	284	54.5	281
2	55	284	54.5	281
3	55	284	54.5	281
4	55	284	54.5	281
1-1960	55	284	54.5	281
2	55	284	54.5	281
3	55	284	54.5	281
4	55	284	54.5	281
1-1961			54.5	281
2	54	279	54.5	281
3	54	279	54.5	281
4	54	279	54.5	281
1-1962			54.5	281
2	56	289	54.5	281
3	56	289		
4	56	289	54	279
1-1963	56	289	54	279
2	56	289	54	279

241-B-203 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
3	56	289	54	279
4	56	289	54	279
1-1964			54	279
2	55	284	54	279
3	55	284	54	279
4	55	284	54	279
1-1965			54	279
2	58	299	54	279
3	56	289	54	279
4	56	289	54	279
1-1966	56	289	54	279
2	56	289	54	279
3	56	289	54	279
4	56	289	54	279
1-1967	56	289	54	279
2	56	289	54	279
3	56	289	54	279
4	56	289	54	279
1-1968	56	289	54	279
2	56	289	54	279
3	56	289	54	279
4	56	289	54	279
1-1969	56	289	54	279
2	56	289	54	279
3	56	289	54	279
4	56	289	54	279
1-1970	56	289	49	253
2	56	289	49	253
3	56	289	49	253
4	56	289	49	253
1-1971	56	289	49	253
2	56	289	49	253
3	56	289	49	253
4	56	289	49	253
1-1972	56	289	44	227
2	56	289	44	227
3	56	289	44	227
4	56	289	44	227
1-1973	56	289	44	227
2	56	289	44	227
3	56	289	44	227
4	56	289	44	227
1-1974	50	258	44	227
2	50	258	44	227
3	50	258	44	227
4	50	258	44	227

241-B-203 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1975	50	258	44	227
2	50	258	44	227
3	50	258	44	227
4	50	258	44	227
1-1976	50	258	44	227
2	50	258	44	227
3	50	258	45	233
4	50	258	45	233
1-1977	50	258	45	233
2	50	258	45	233
3	50	258	47	243
4	50	258	47	243
1-1978	50	258	47	243
2	50	258	47	243
3	50	258	47	243
4	50	258	47	243
1-1979	50	258	47	243
2	50	258	47	243
3	50	258	47	243
4	50	258	47	243
1-1980	50	258	47	243
2	50	258	47	243
3	50	258	48	248
4	50	258	48	248
1-1981	50	258	48	248
2	50	258	48	248
3	50	258	48	248
4	50	258	48	248
1-1982	50	258	48	248
2	50	258	49	253
3	51	263	50	258
4	51	263	50	258
1-1983	51	263	50	258
2	51	263	50	258
3	51	263	50	258
4	50	258	50	258
1-1984	50	258	50	258
2	50	258	49	253
3	50	258	49	253
4	50	258	49	253
1-1985	50	258	49	253
2	50	258	49	253
3	50	258	49	253
4	50	258	49	253
1-1986	50	258	49	253
2	50	258	49	253

241-B-203 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
3	50	258	49	253
4	50	258	49	253
1-1987	50	258	49	253
2	50	258	49	253
3	50	258	49	253
4	50	258	49	253
1-1988	50	258	49	253
2	50	258	49	253
3	50	258	49	253
4	50	258	49	253
1-1989	50	258	49	253
2	50	258	49	253
3	50	258	49	253
4	50	258	49	253
1-1990	50	258	49	253
2	51	263	50	258
3	51	263	50	258
4	51	263	50	258
1-1991	51	263	50	258
2	51	263	50	258
3	51	263	50	258
4	51	263	50	258
1-1992	51	263	50	258
2	51	263	50	258
3	51	263	50	258
4	51	263	50	258
1-1993	51	263	50	258
2	51	263	50	258
3	51	263	50	258
4	51	263	50	258
1-1994	51	263	50	258
2	51	263	50	258
3	51	263	50	258
4	51	263	50	258
1-1995	51	263	50	258
2	51	263	50	258
3	51	263	50	258

241-B-204 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
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	54.5	281
3	54.5	281	54.5	281
4	54.5	281	54.5	281
1-1954	54.5	281	54.5	281
2	54.5	281	54.5	281
3	54.5	281	54.5	281
4	54.5	281	54.5	281
1-1955	54.5	281	54.5	281
2	54.5	281	54.5	281
3	54.5	281	54.5	281
4	54.5	281	54.5	281
1-1956	54.5	281	54.5	281
2	54.5	281	54.5	281
3	54.5	281	54.5	281
4	54.5	281	54.5	281
1-1957	56	289	54.5	281
2	56	289	54.5	281
3	56	289	54.5	281
4	56	289	54.5	281
1-1958	56	289	54.5	281
2	56	289	54.5	281
3	56	289	54.5	281
4	55	284	54.5	281
1-1959	56	289	54.5	281
2	56	289	54.5	281
3	56	289	54.5	281
4	54	279	54	279
1-1960	54	279	54	279
2	54	279	54	279
3	54	279	54	279
4	54	279	54	279
1-1961	54	279	54	279
2	54	279	54	279
3	54	279	54	279
4	54	279	54	279
1-1962			54.5	281
2	56	289	54.5	281
3	56	289	54	279
4	56	289	54	279
1-1963	56	289	54	279
2	56	289	54	279

241-B-204 LEVEL HISTORY

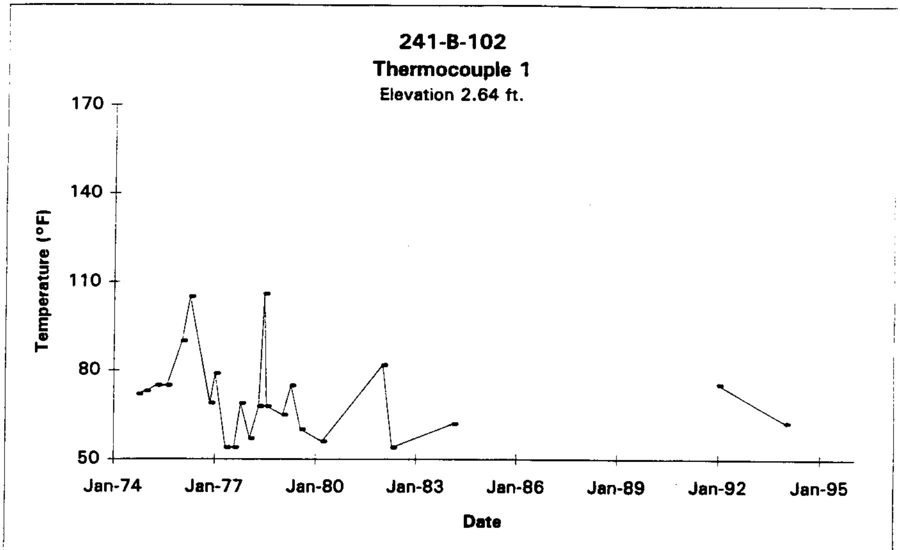
Year	Total	Total	Solids	Solids
	(K gal)	(in)	(K gal)	(in)
3	56	289	54	279
4	56	289	54	279
1-1964			54	279
2	55	284	54	279
3	55	284	54	279
4	55	284	54	279
1-1965			54	279
2	58	299	54	279
3	56	289	54	279
4	56	289	54	279
1-1966	56	289	54	279
2	56	289	54	279
3	56	289	54	279
4	56	289	54	279
1-1967	56	289	54	279
2	56	289	54	279
3	56	289	54	279
4	56	289	54	279
1-1968	56	289	54	279
2	56	289	54	279
3	56	289	54	279
4	56	289	54	279
1-1969	56	289	54	279
2	56	289	54	279
3	56	289	54	279
4	56	289	54	279
1-1970	56	289	48	248
2	56	289	48	248
3	56	289	48	248
4	56	289	48	248
1-1971	56	289	48	248
2	56	289	48	248
3	56	289	48	248
4	56	289	48	248
1-1972	56	289	46	238
2	56	289	46	238
3	56	289	46	238
4	56	289	46	238
1-1973	56	289	46	238
2	56	289	46	238
3	56	289	46	238
4	56	289	46	238
1-1974	49	253	46	238
2	49	253	46	238
3	49	253	46	238
4	49	253	46	238

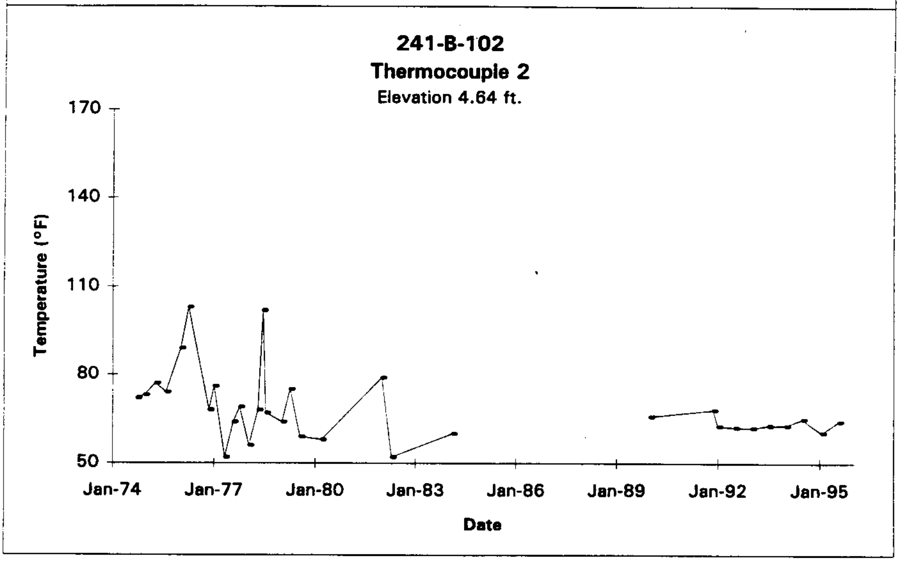
241-B-204 LEVEL HISTORY

Year	Total (K gal)	Total (in)	Solids (K gal)	Solids (in)
1-1975	49	253	46	238
2	49	253	46	238
3	49	253	46	238
4	49	253	46	238
1-1976	49	253	46	238
2	49	253	46	238
3	49	253	46	238
4	49	253	46	238
1-1977	49	253	46	238
2	49	253	46	238
3	49	253	46	238
4	49	253	46	238
1-1978	49	253	46	238
2	49	253	46	238
3	49	253	46	238
4	49	253	46	238
1-1979	49	253	46	238
2	49	253	46	238
3	49	253	46	238
4	49	253	46	238
1-1980	49	253	46	238
2	49	253	46	238
3	50	258	47	243
4	50	258	47	243
1-1981	50	258	47	243
2	50	258	47	243
3	50	258	47	243
4	50	258	47	243
1-1982	50	258	47	243
2	50	258	49	253
3	50	258	49	253
4	50	258	49	253
1-1983	50	258	49	253
2	50	258	49	253
3	50	258	49	253
4	50	258	49	253
1-1984	50	258	49	253
2	50	258	49	253
3	50	258	49	253
4	50	258	49	253
1-1985	50	258	49	253
2	50	258	49	253
3	50	258	49	253
4	50	258	49	253
1-1986	50	258	49	253
2	50	258	49	253

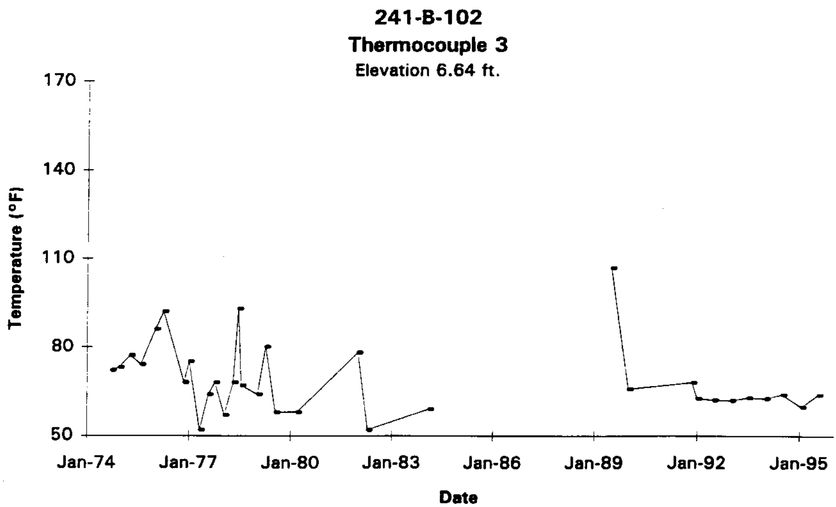
241-B-204 LEVEL HISTORY

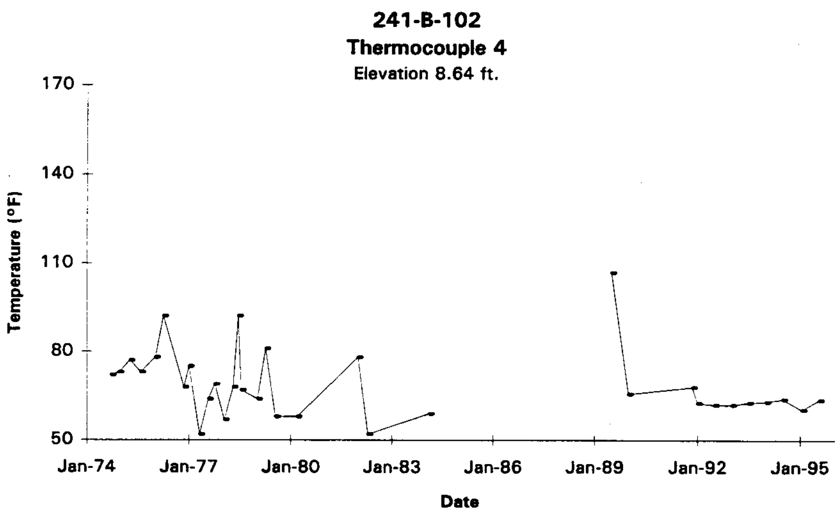
Year	Total	Total	Solids	Solids
	(K gal)	(in)	(K gal)	(in)
3	50	258	49	253
4	50	258	49	253
1-1987	50	258	49	253
2	50	258	49	253
3	50	258	49	253
4	50	258	49	253
1-1988	50	258	49	253
2	50	258	49	253
3	50	258	49	253
4	50	258	49	253
1-1989	50	258	49	253
2	50	258	49	253
3	50	258	49	253
4	50	258	49	253
1-1990	50	258	49	253
2	50	258	49	253
3	50	258	49	253
4	50	258	49	253
1-1991	50	258	49	253
2	50	258	49	253
3	50	258	49	253
4	50	258	49	253
1-1992	50	258	49	253
2	50	258	49	253
3	50	258	49	253
4	50	258	49	253
1-1993	50	258	49	253
2	50	258	49	253
3	50	258	49	253
4	50	258	49	253
1-1994	50	258	49	253
2	50	258	49	253
3	50	258	49	253
4	50	258	49	253
1-1995	50	258	49	253
2	50	258	49	253
3	50	258	49	253





Data obtained from WHC Surveillance Analysis Computer System (SACS), Oct 23, 1995.





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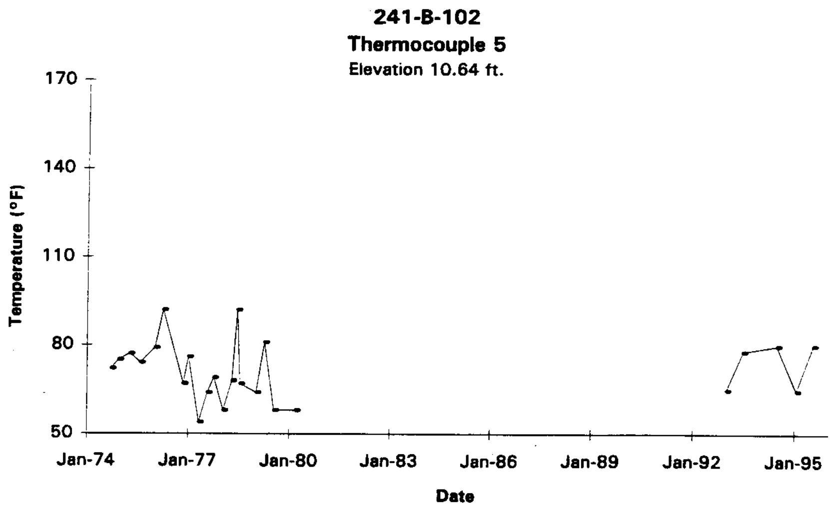

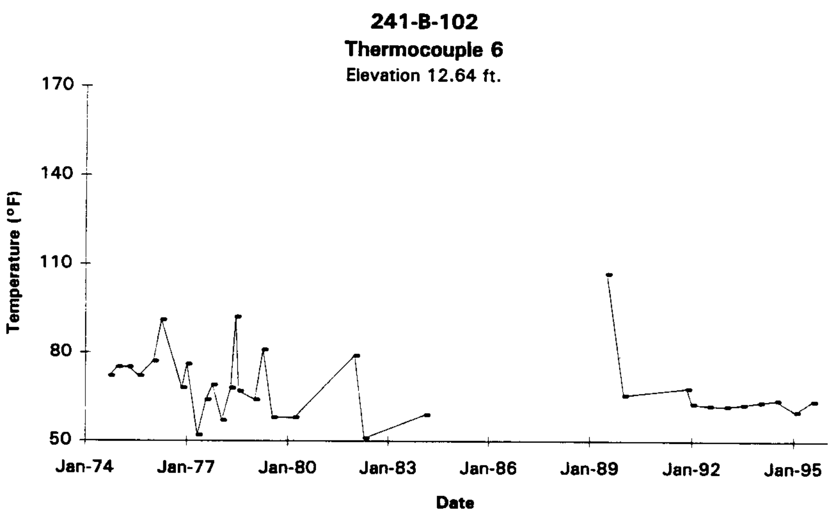

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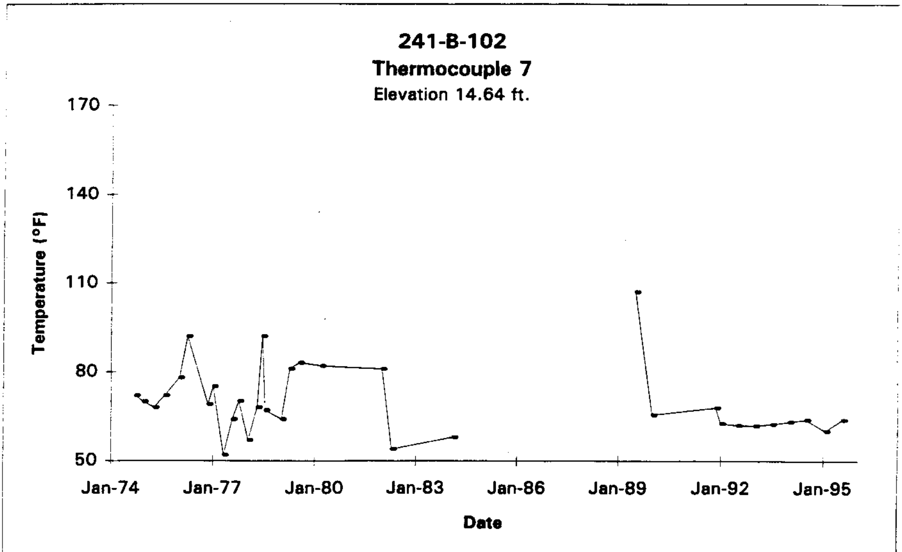

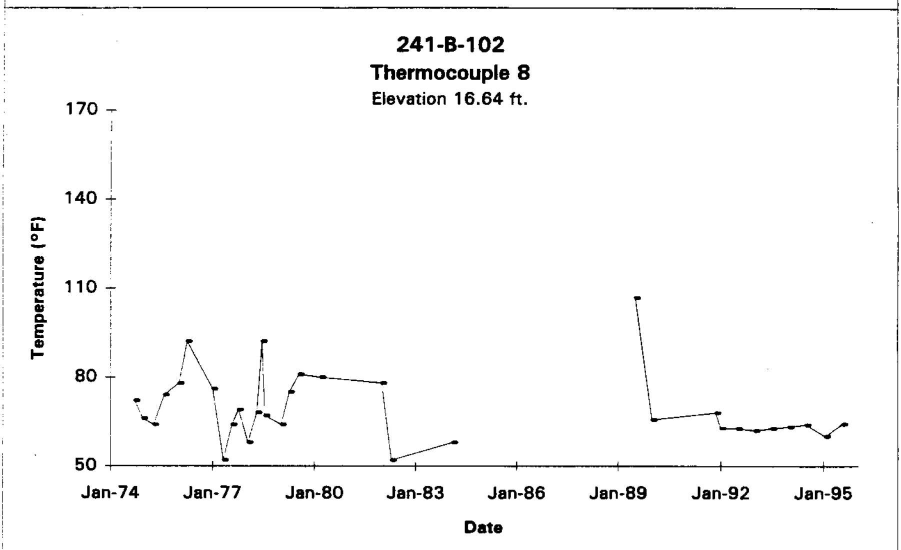

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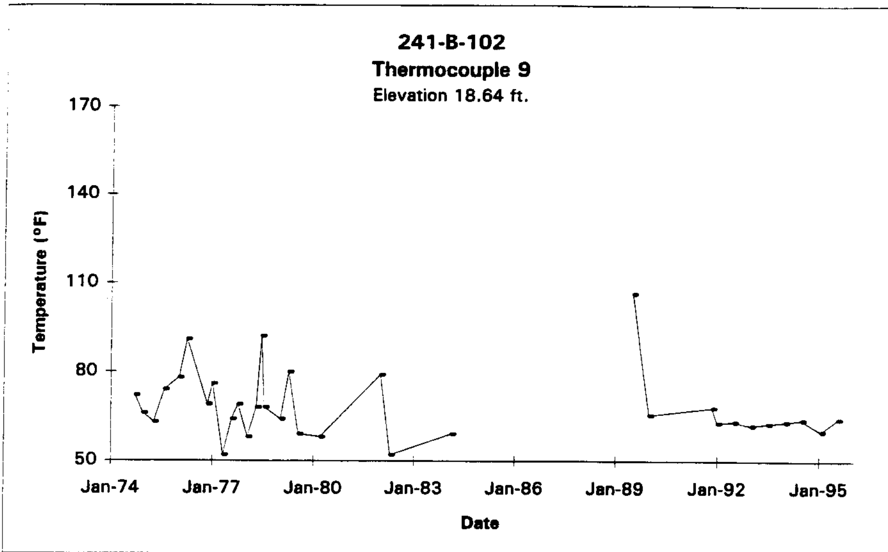

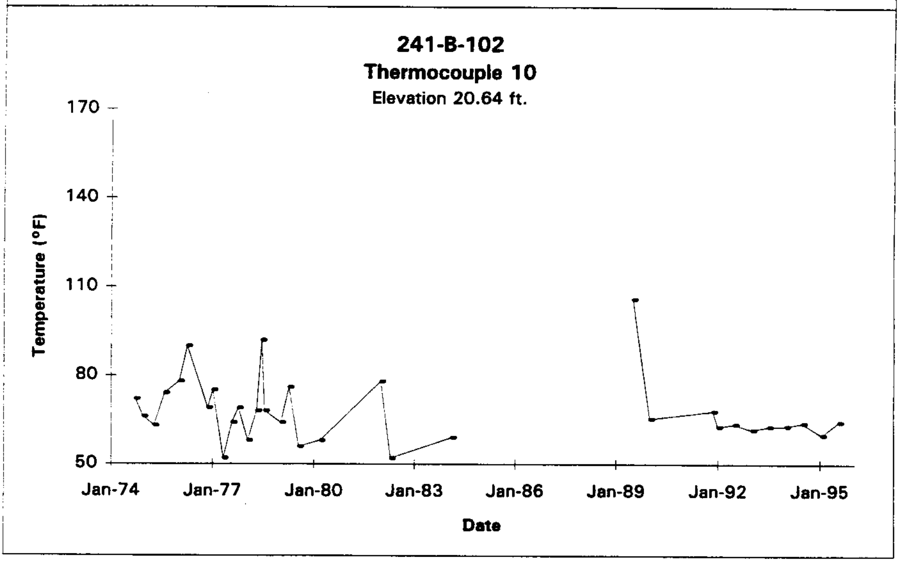

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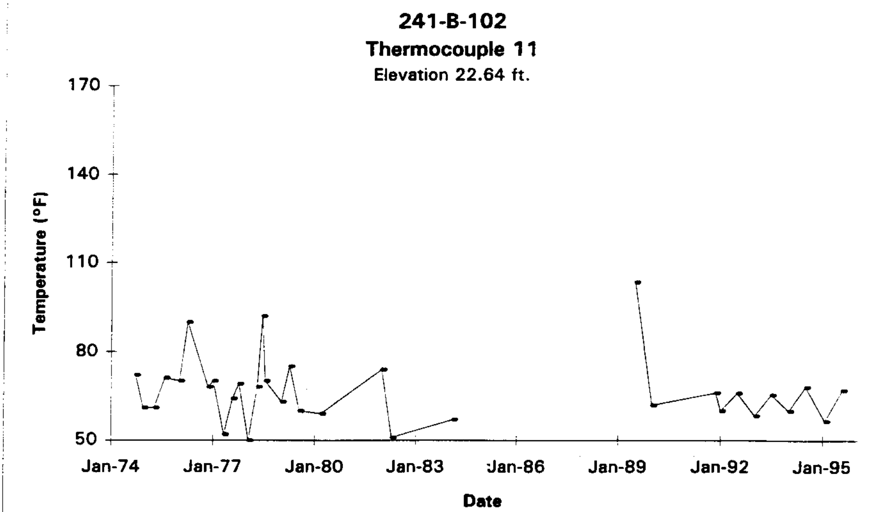

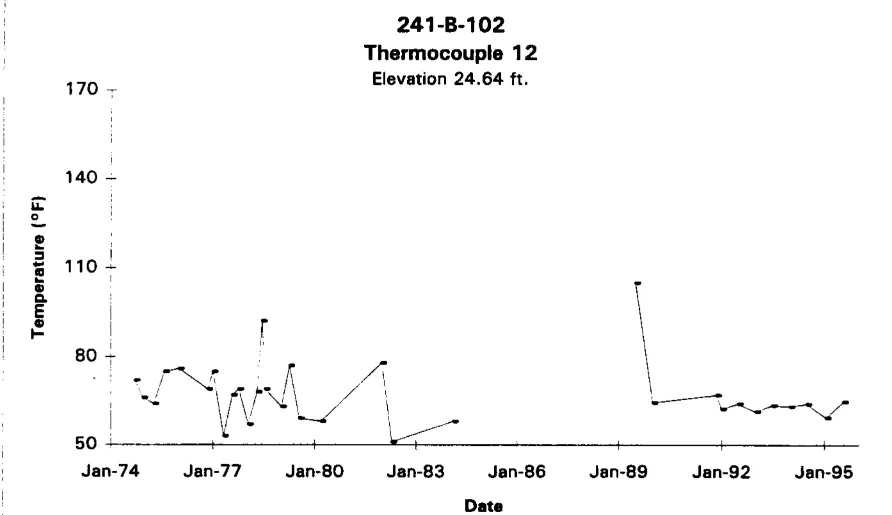

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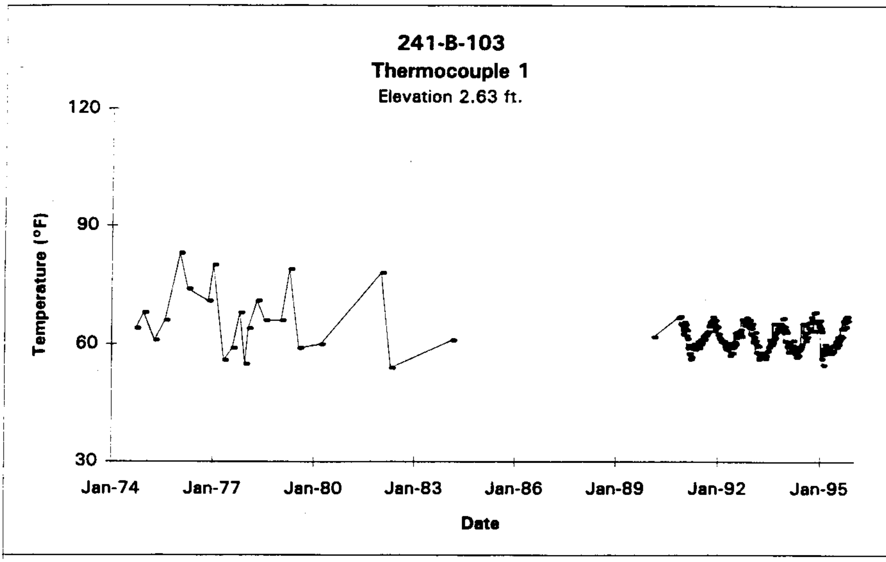

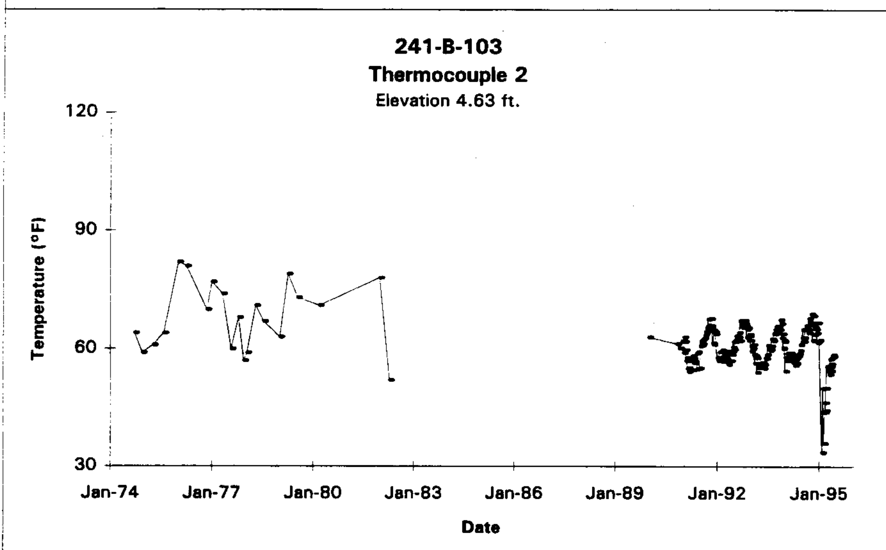

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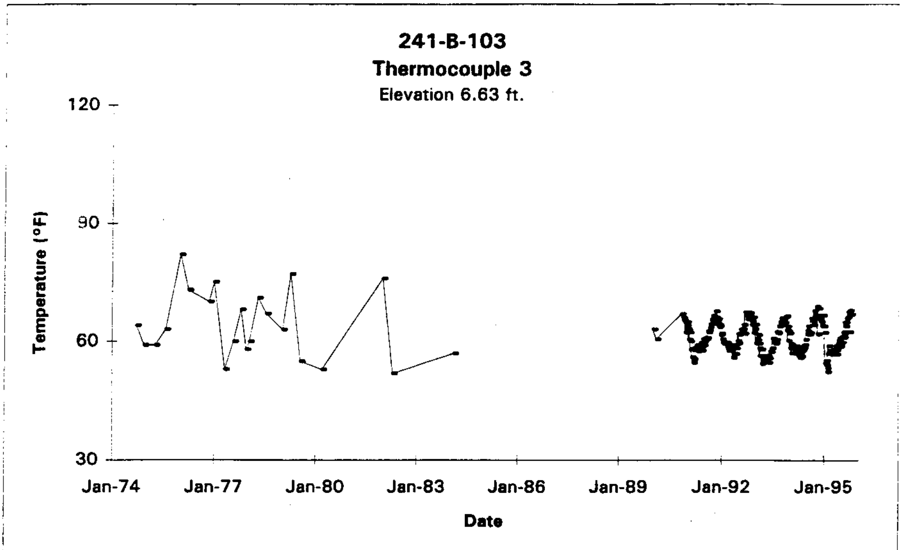

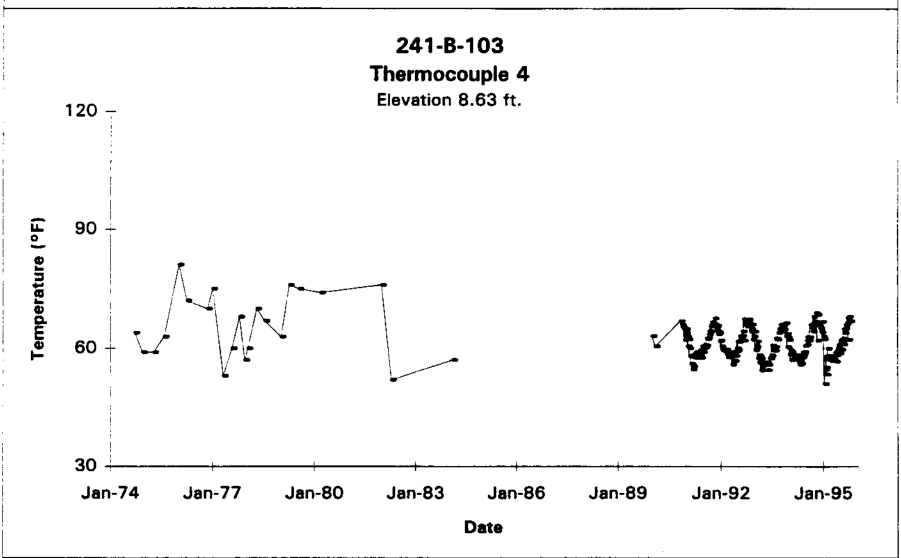

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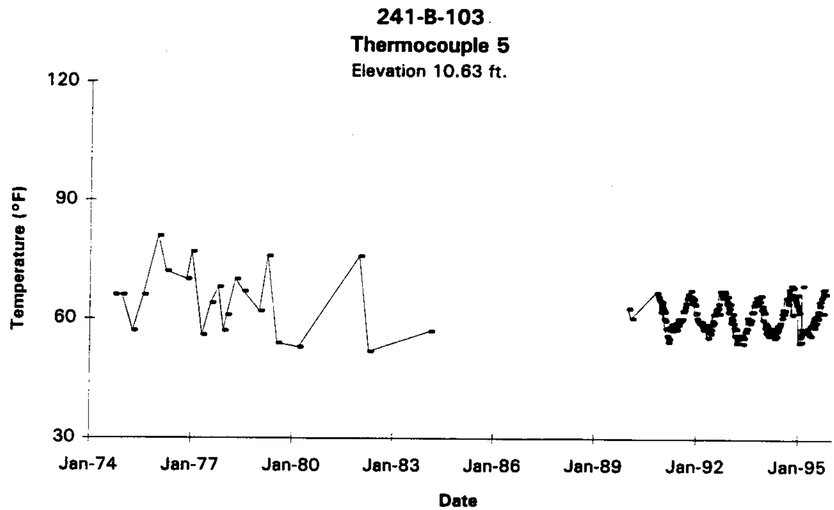

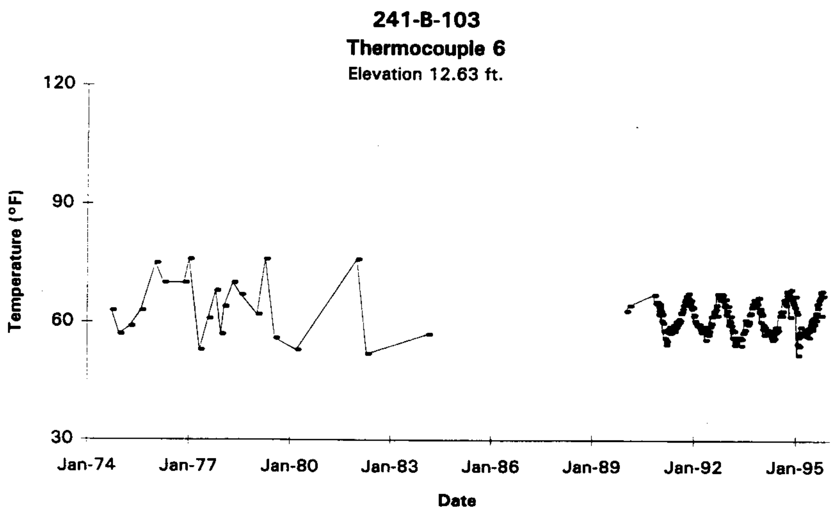

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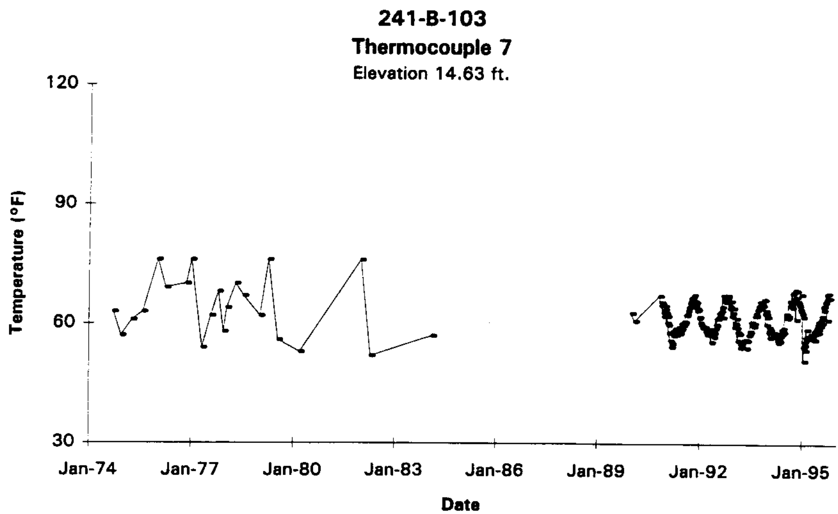

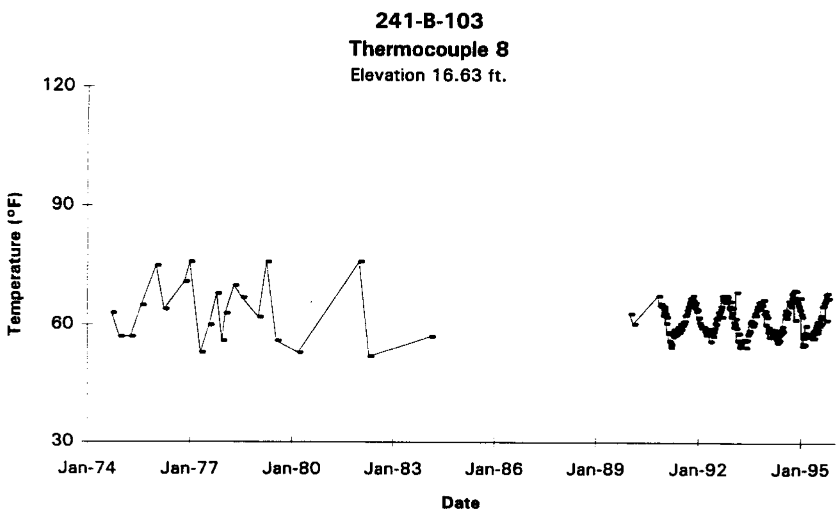

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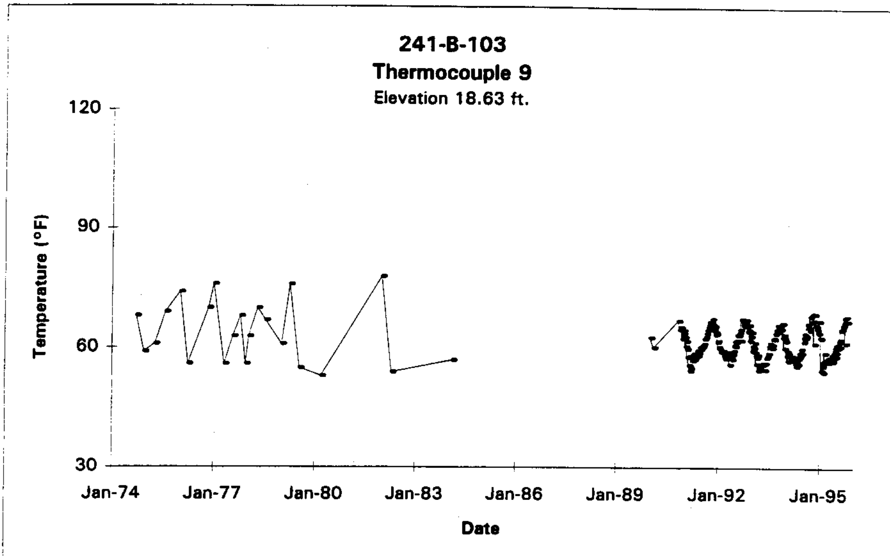

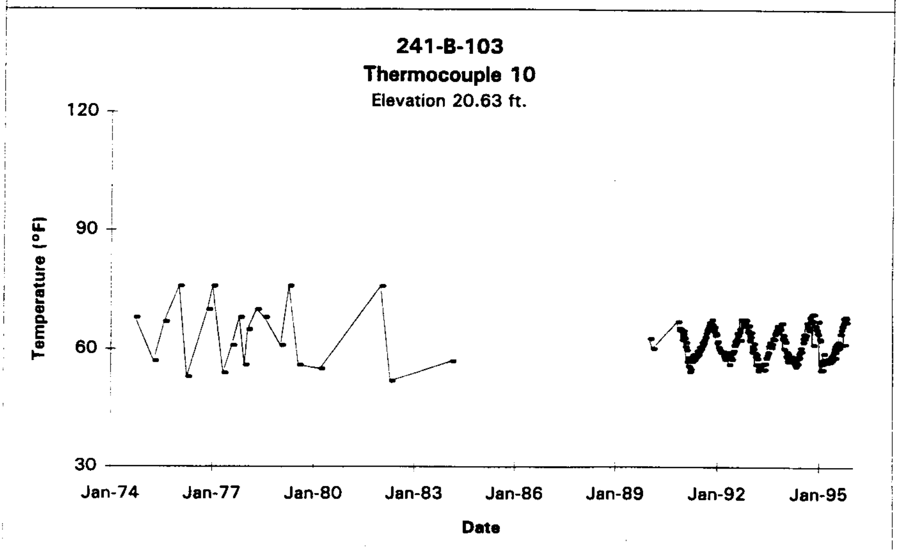

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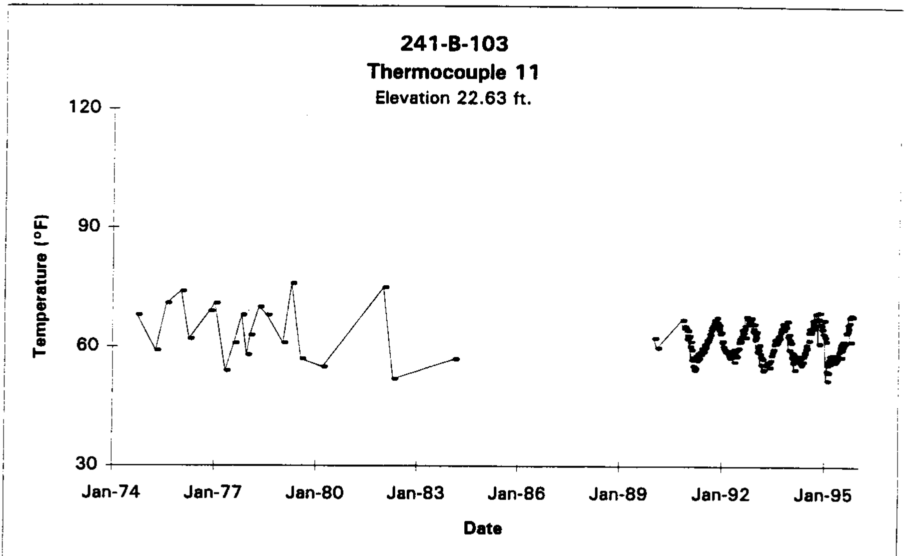

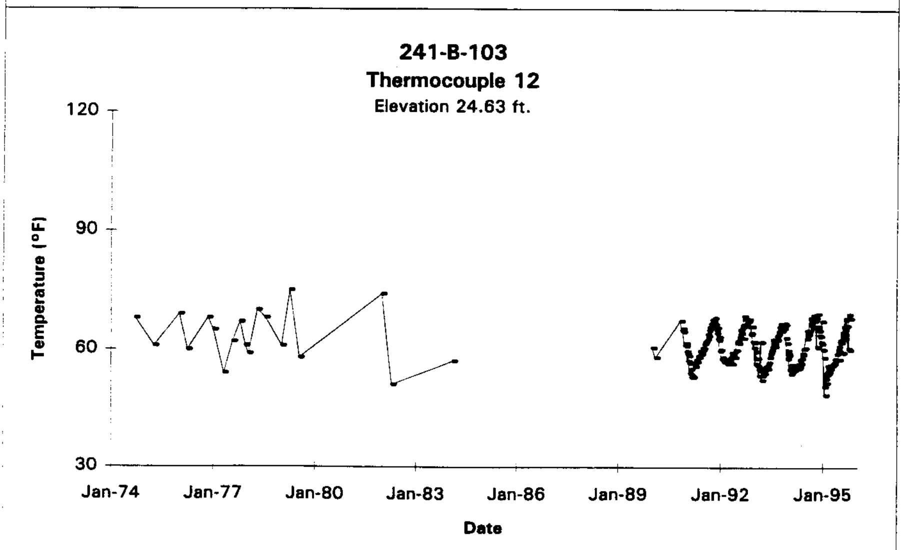

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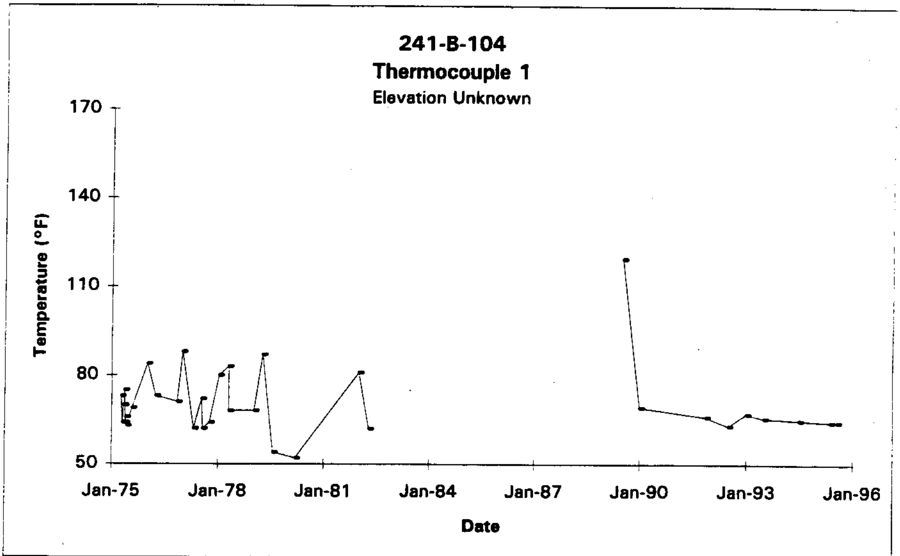

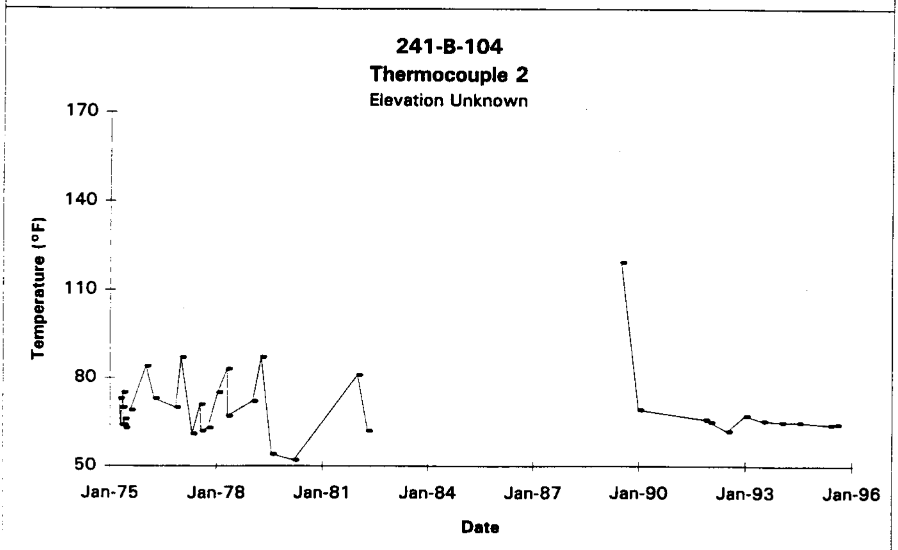

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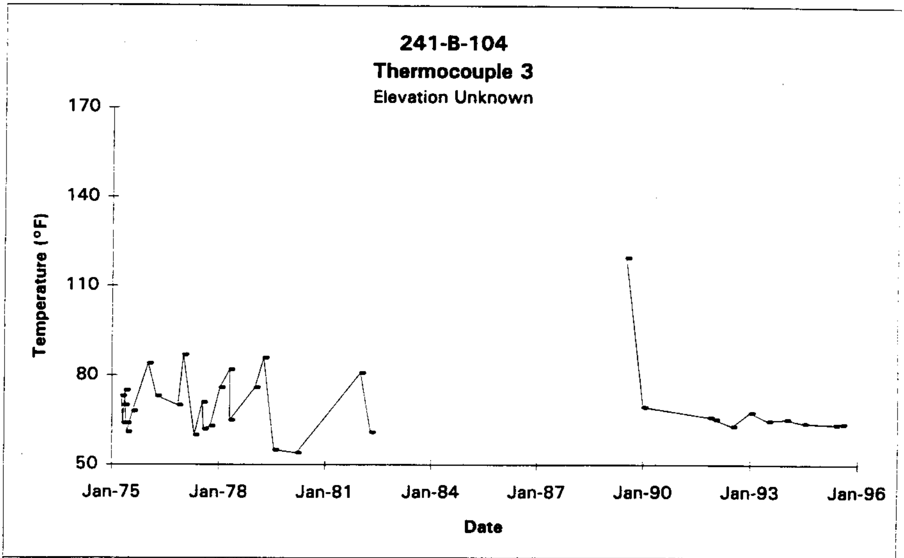

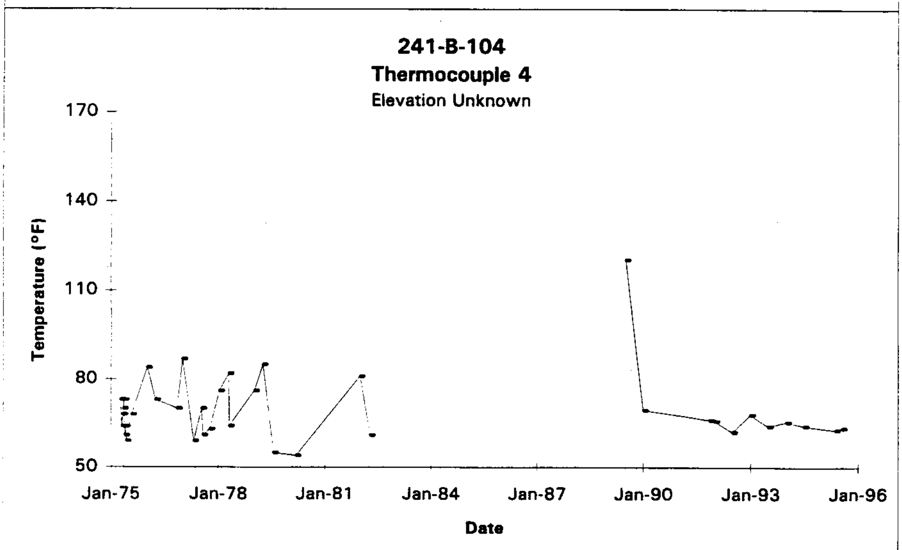

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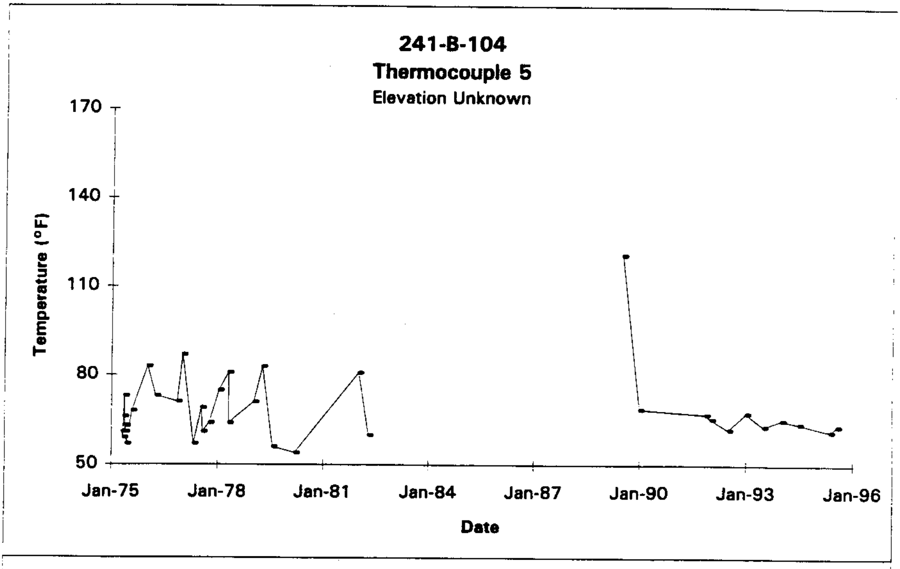

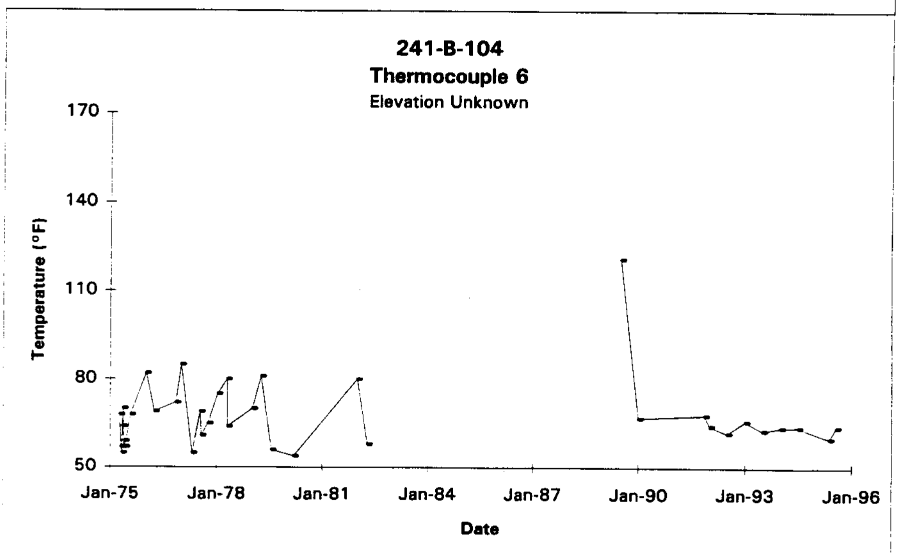

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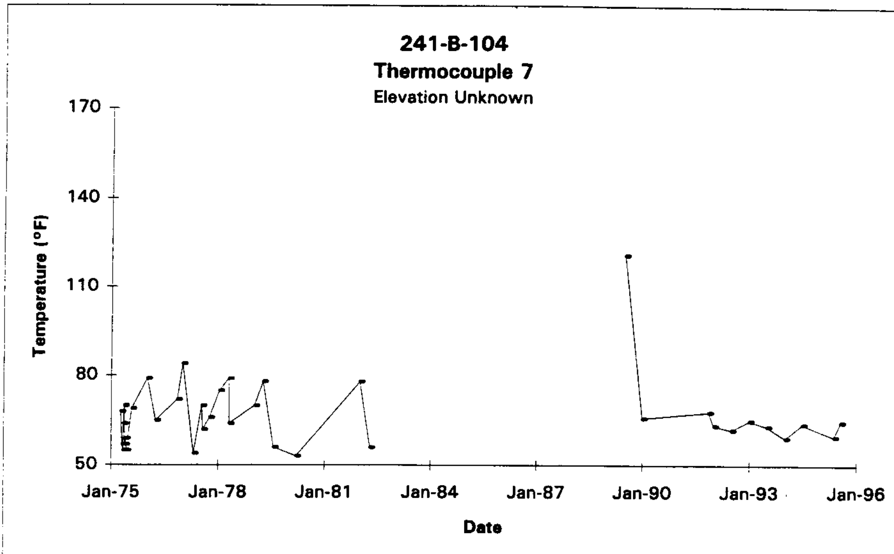

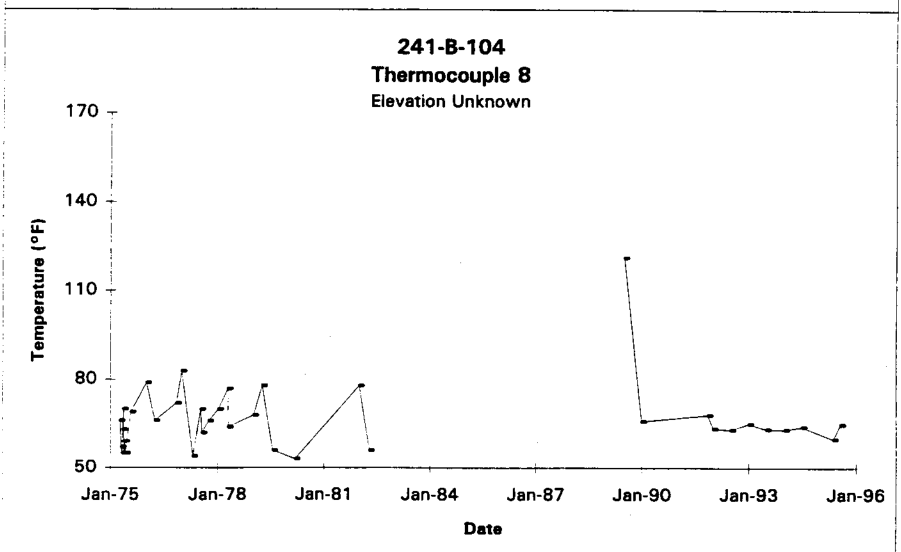

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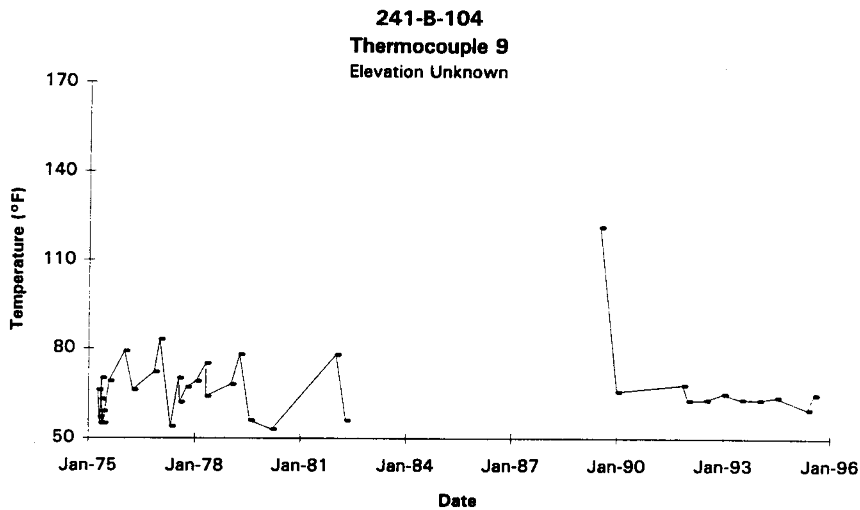

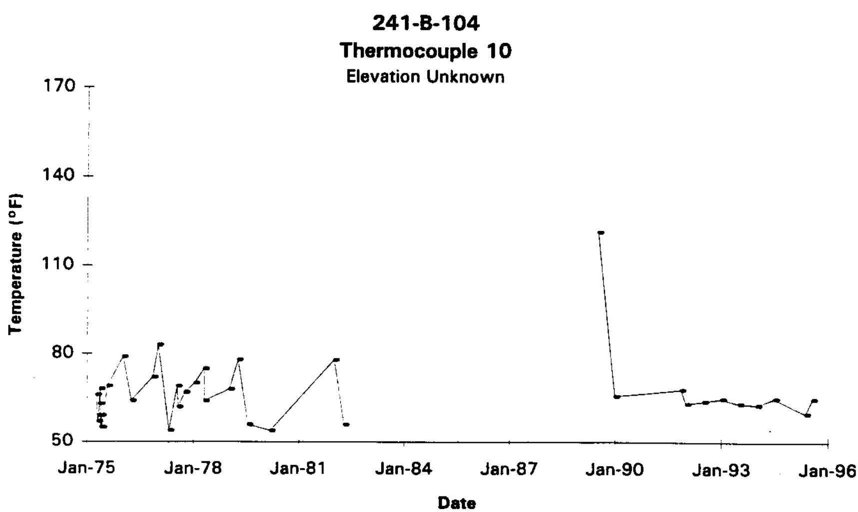

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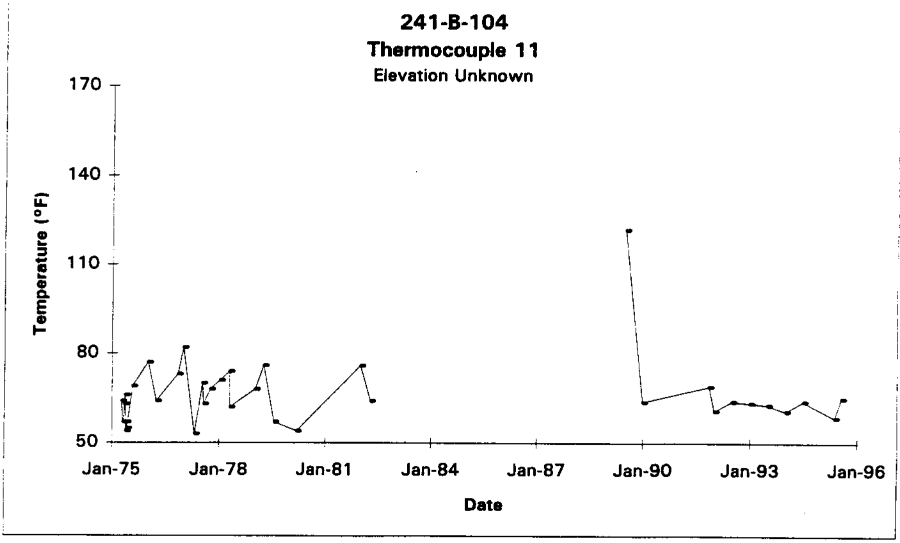

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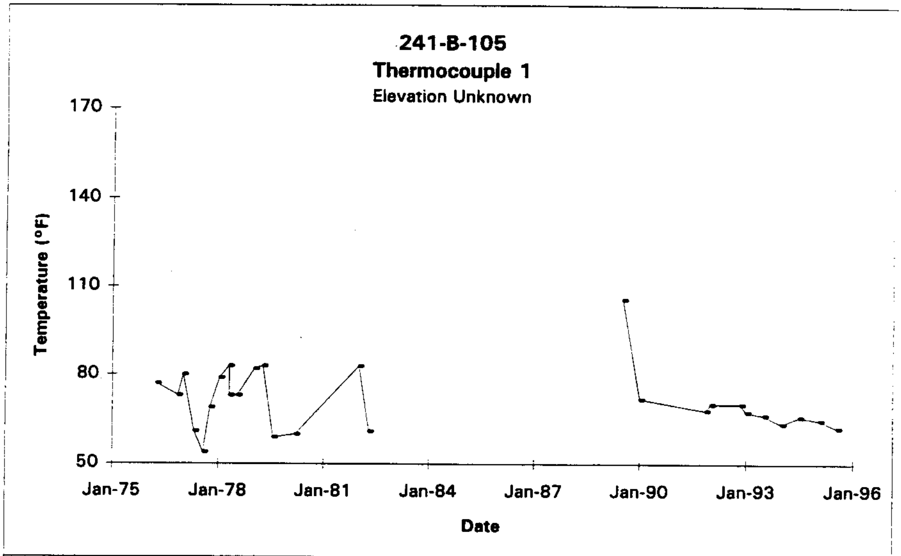

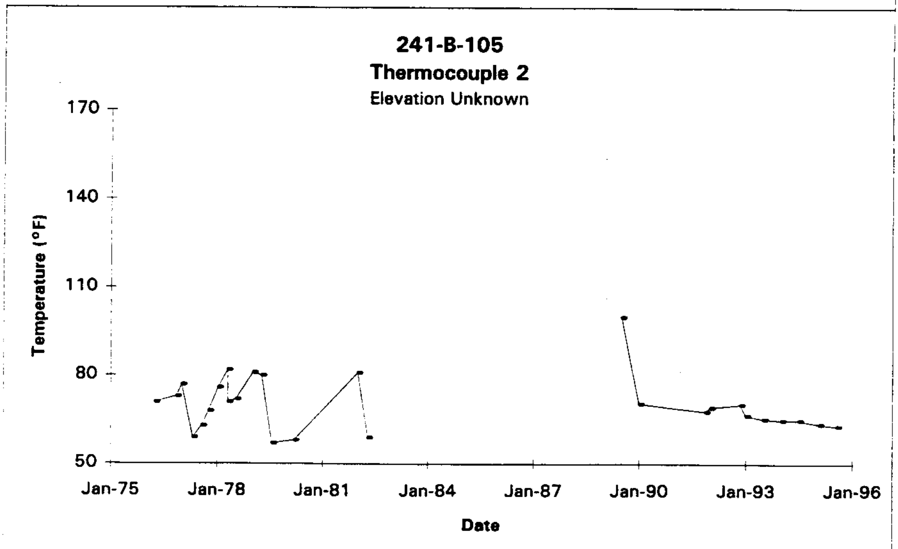

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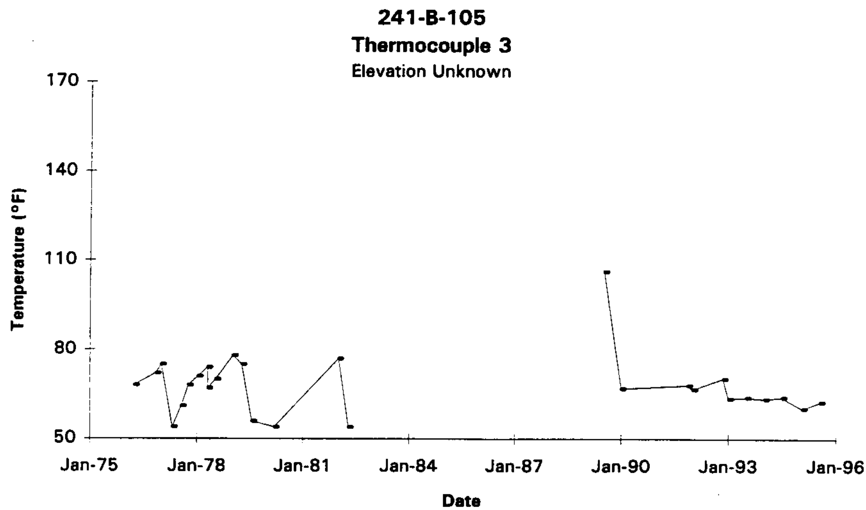

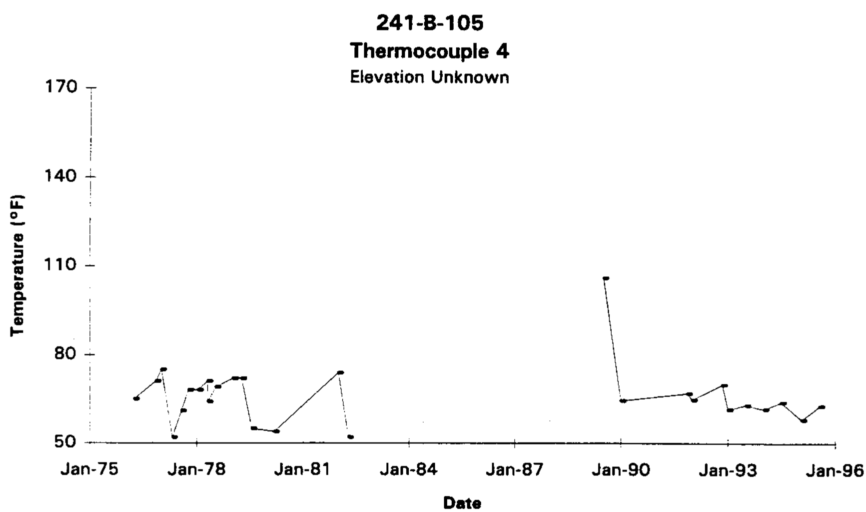

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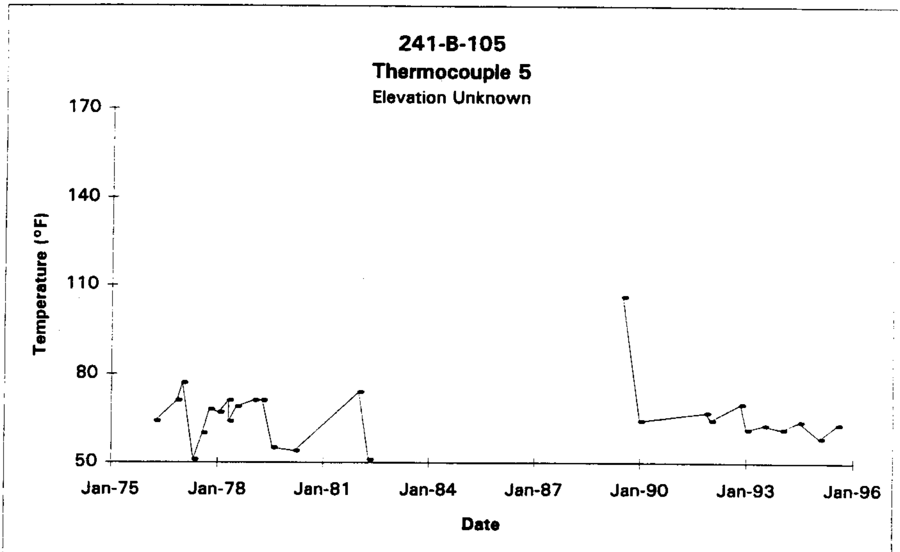

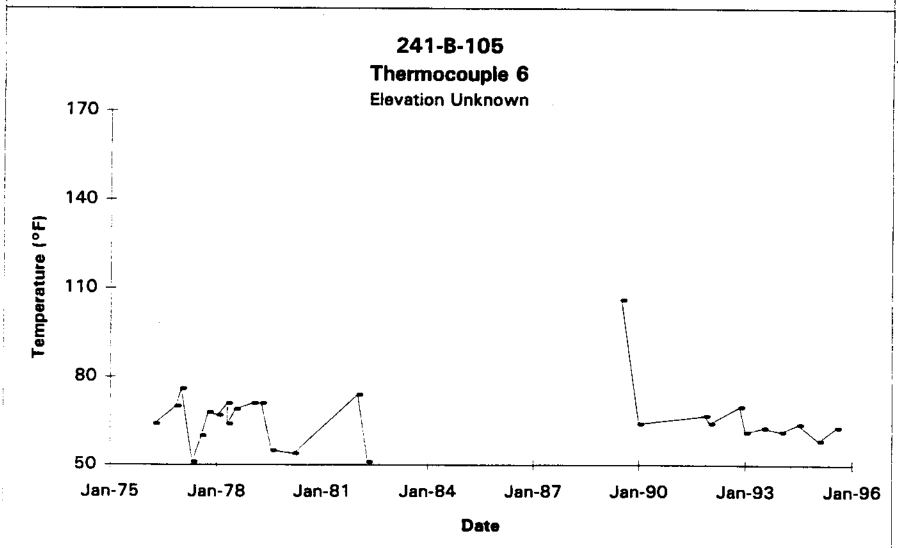

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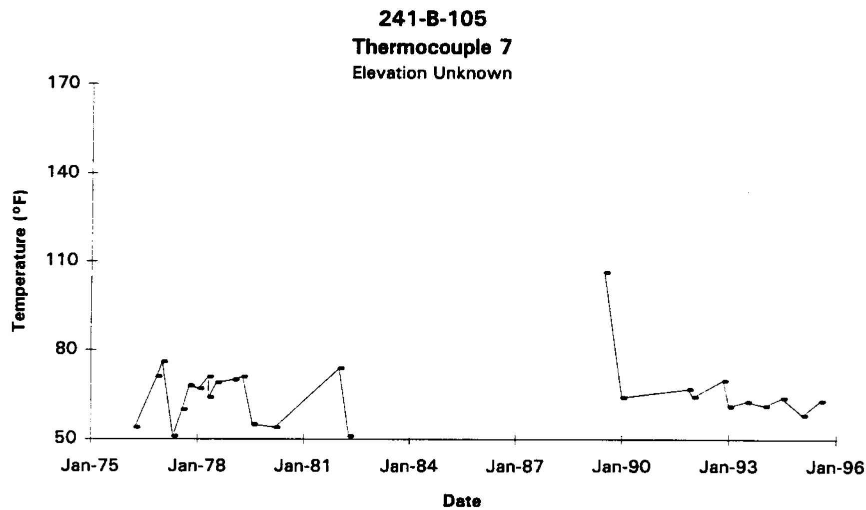

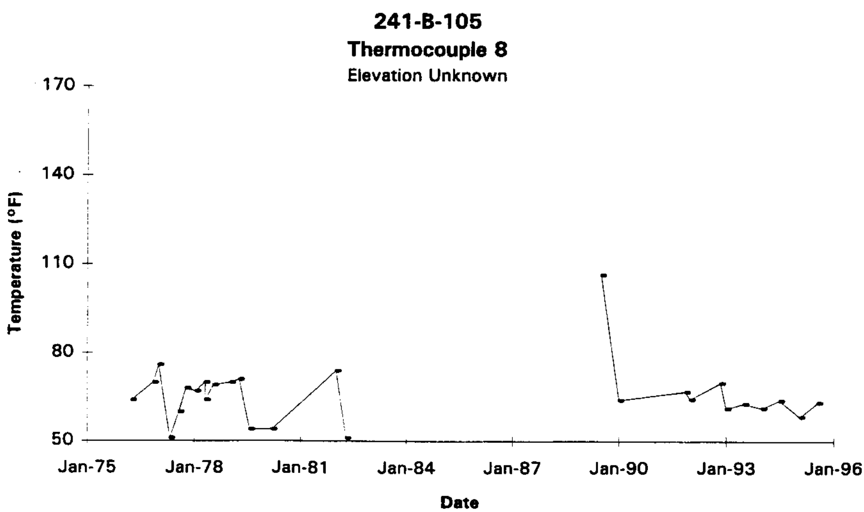

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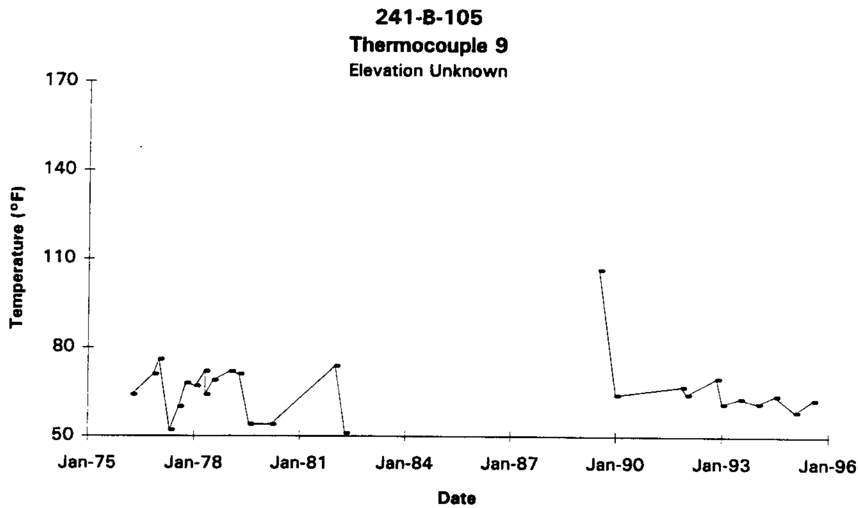

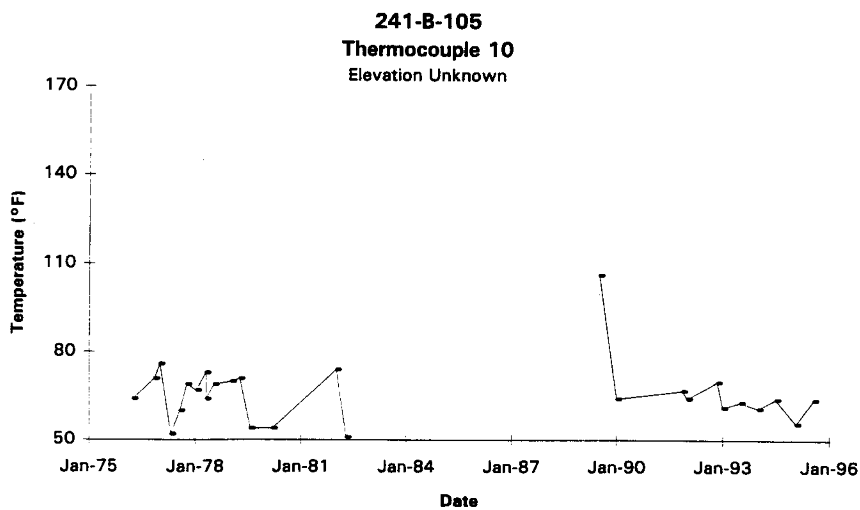

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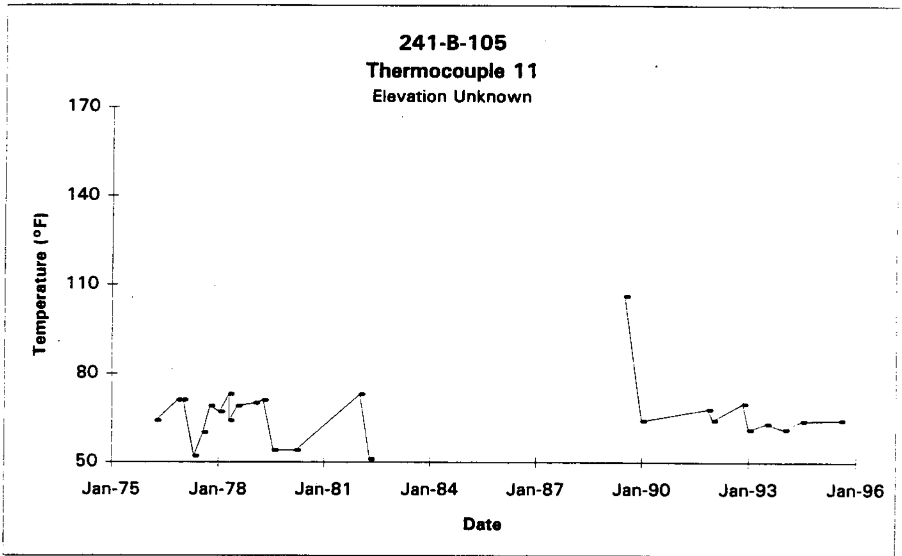

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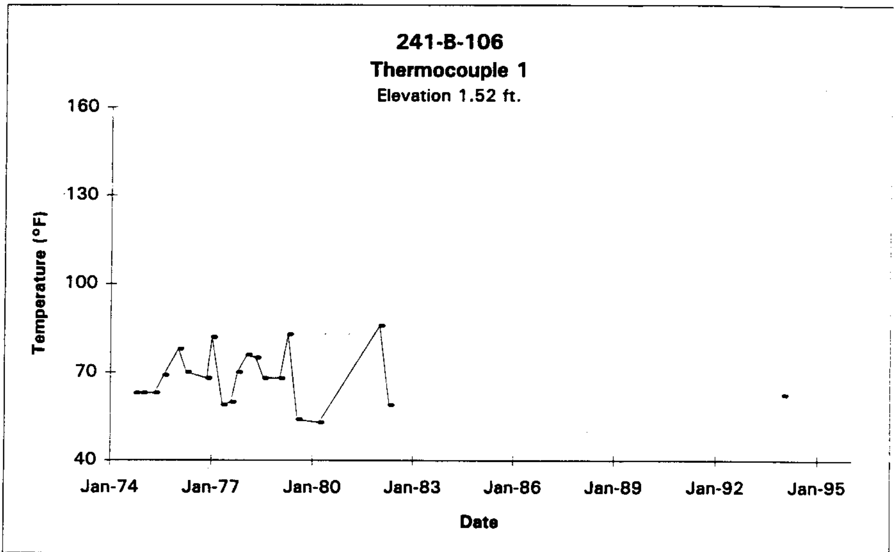

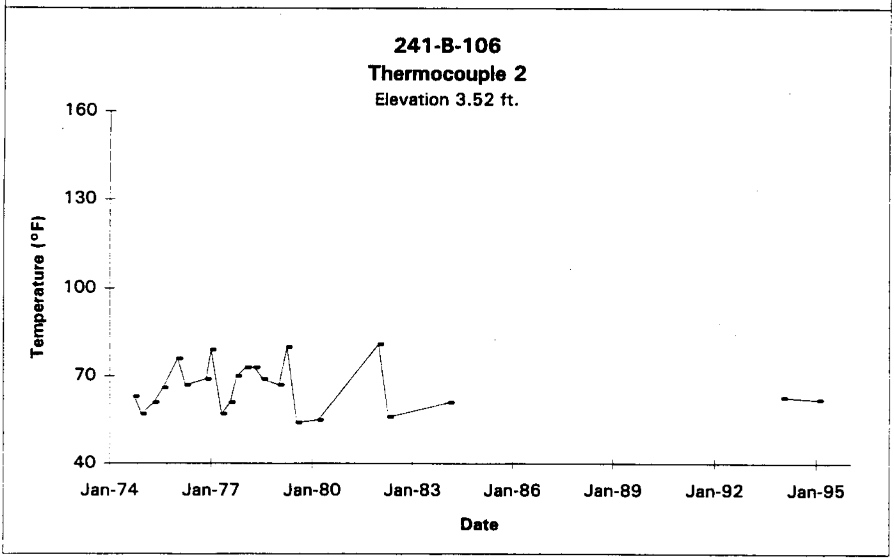

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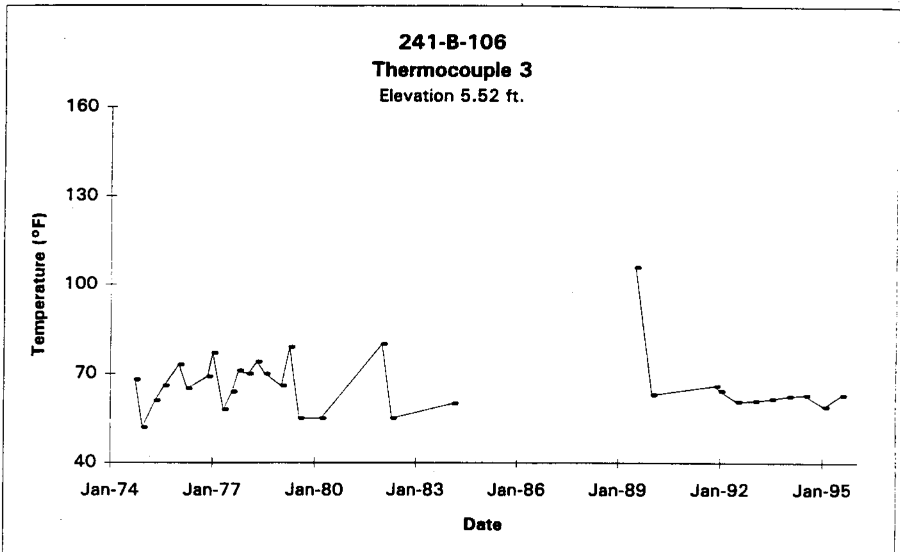

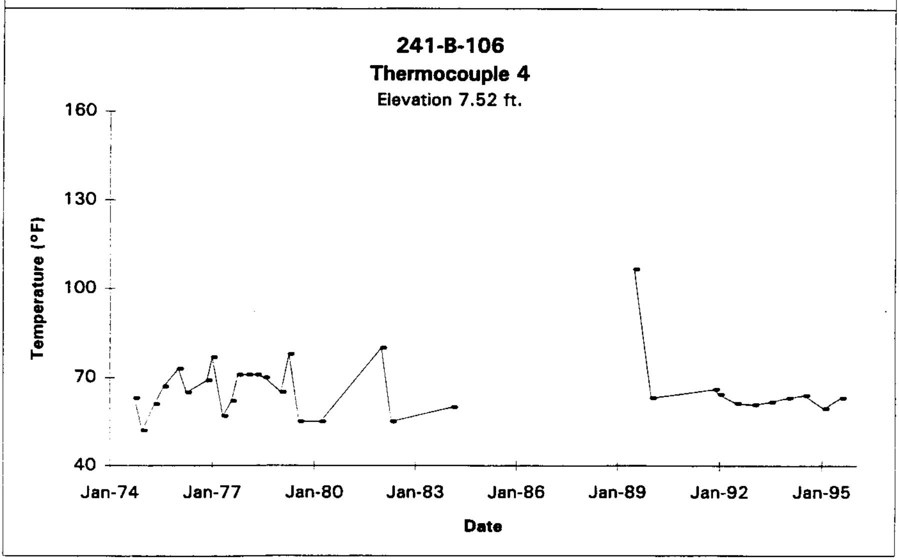

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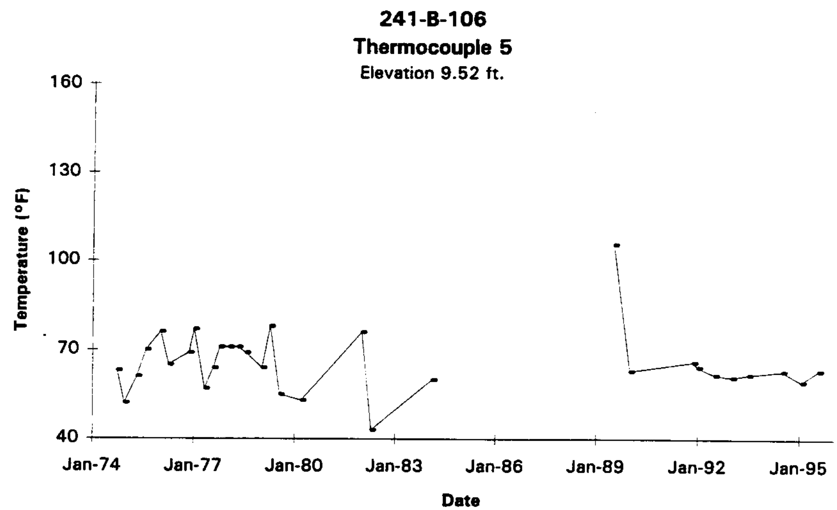

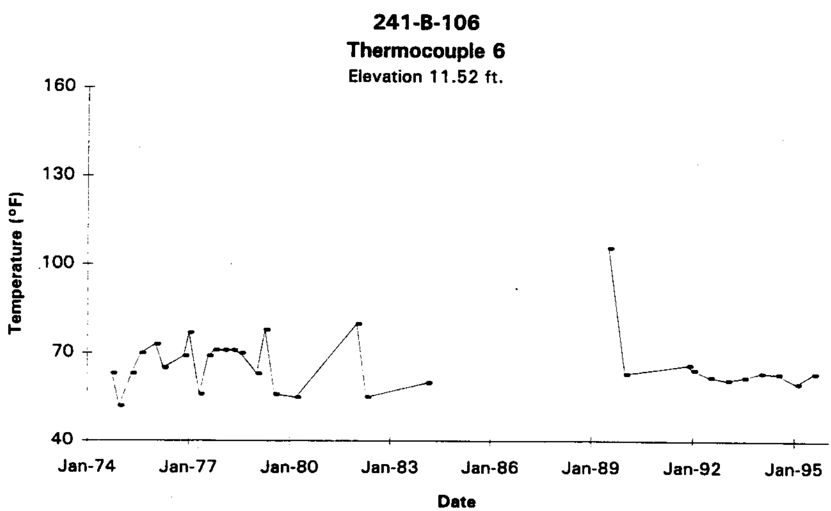

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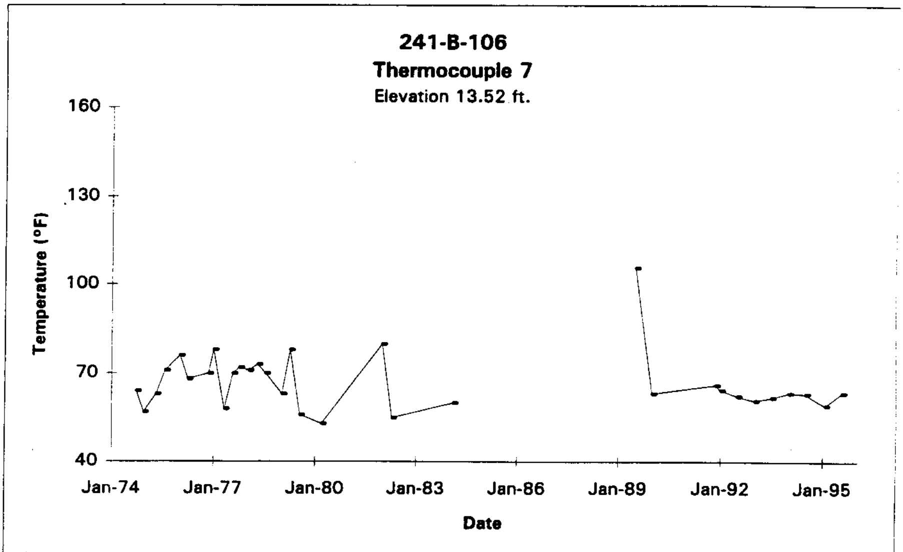

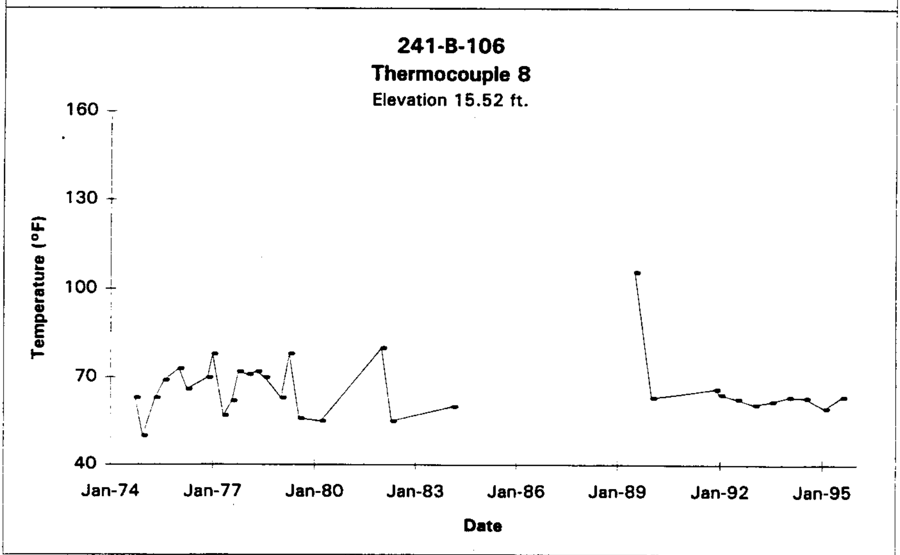

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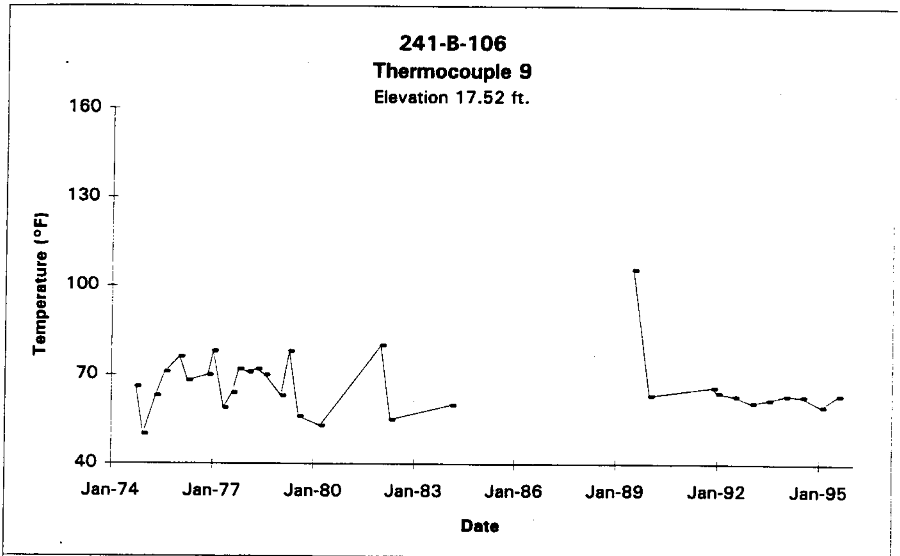

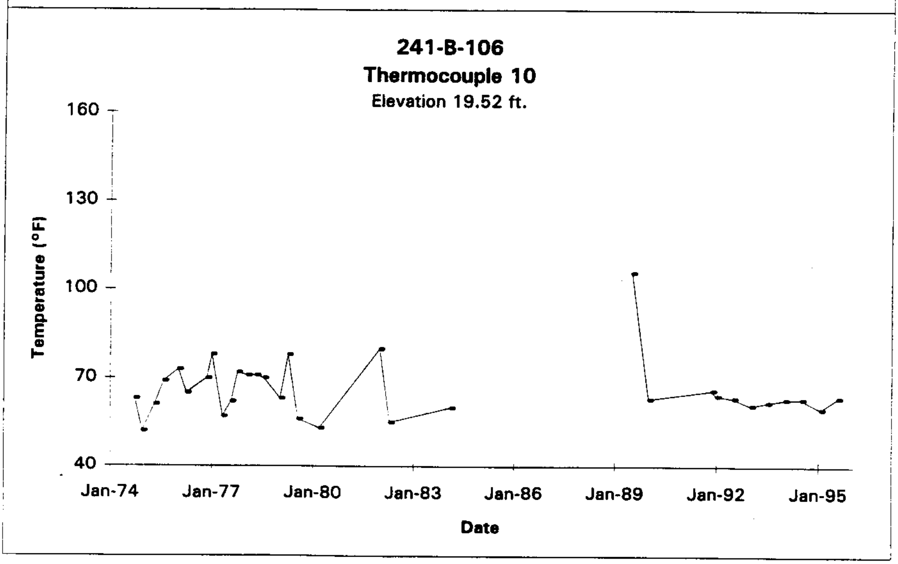

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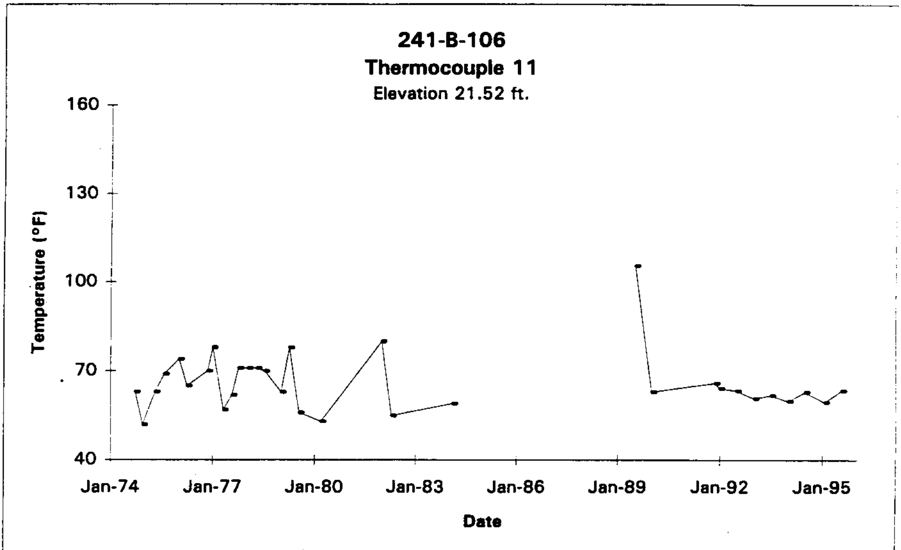

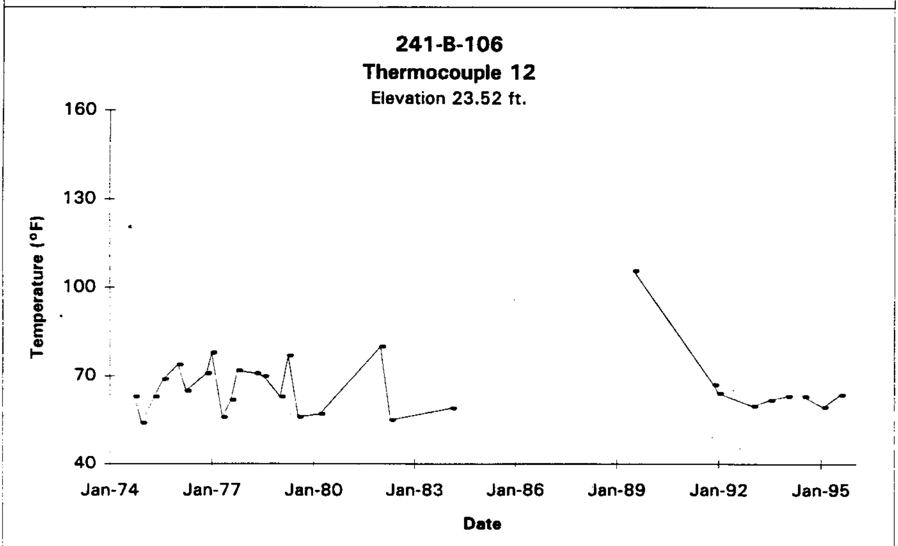

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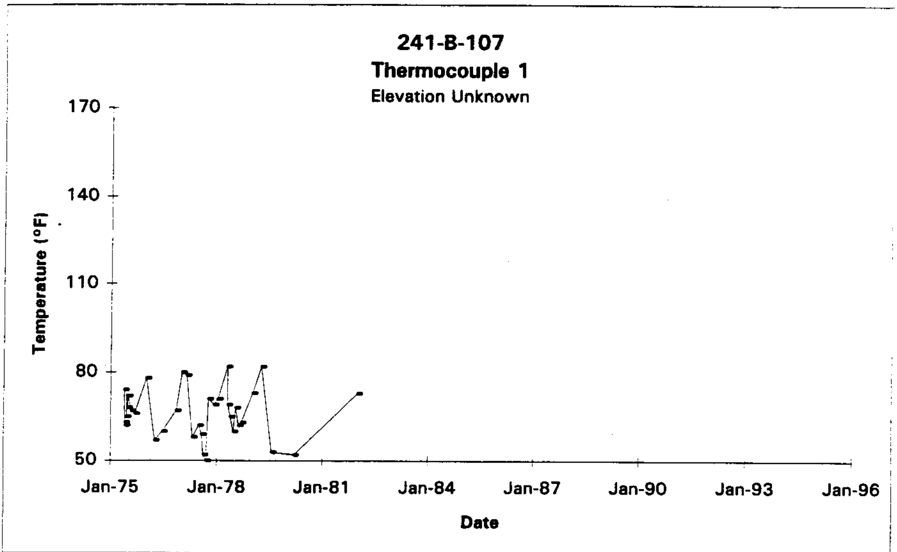

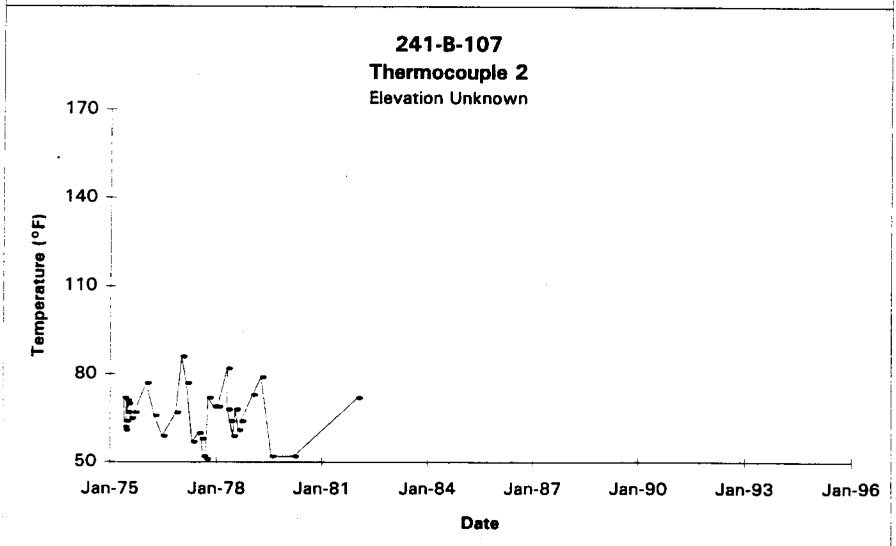

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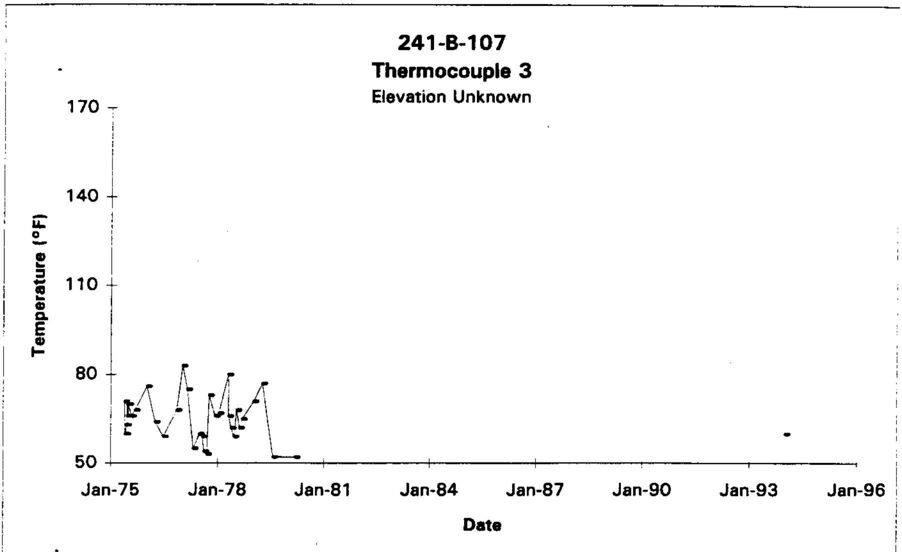

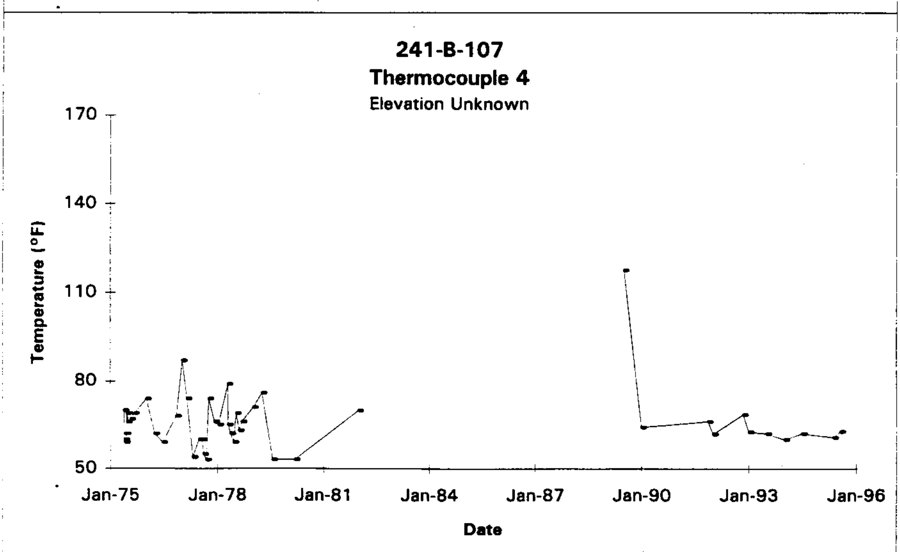

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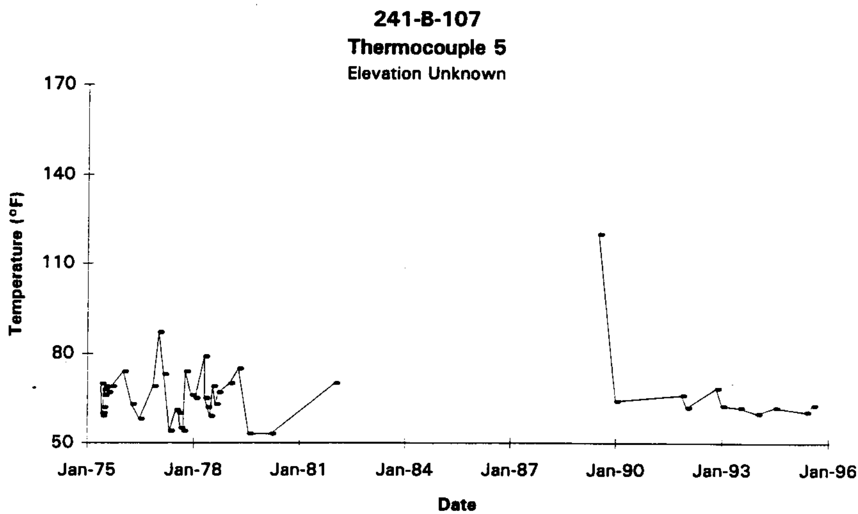

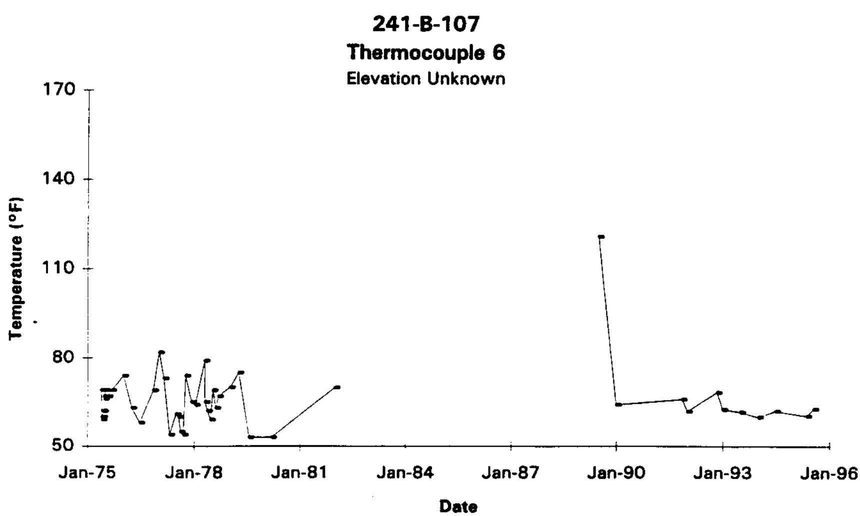

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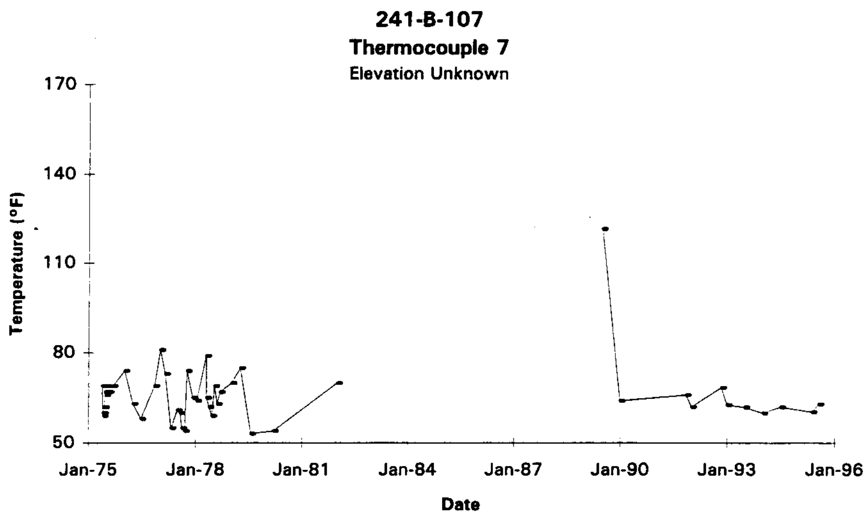

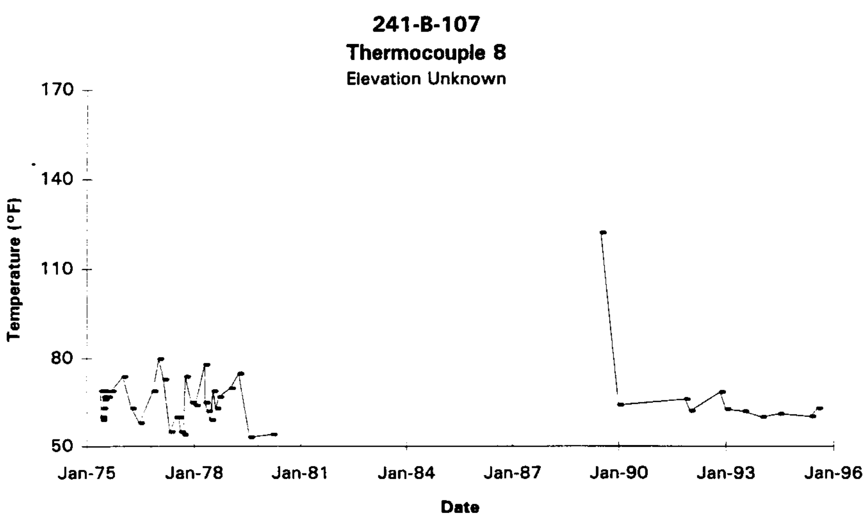

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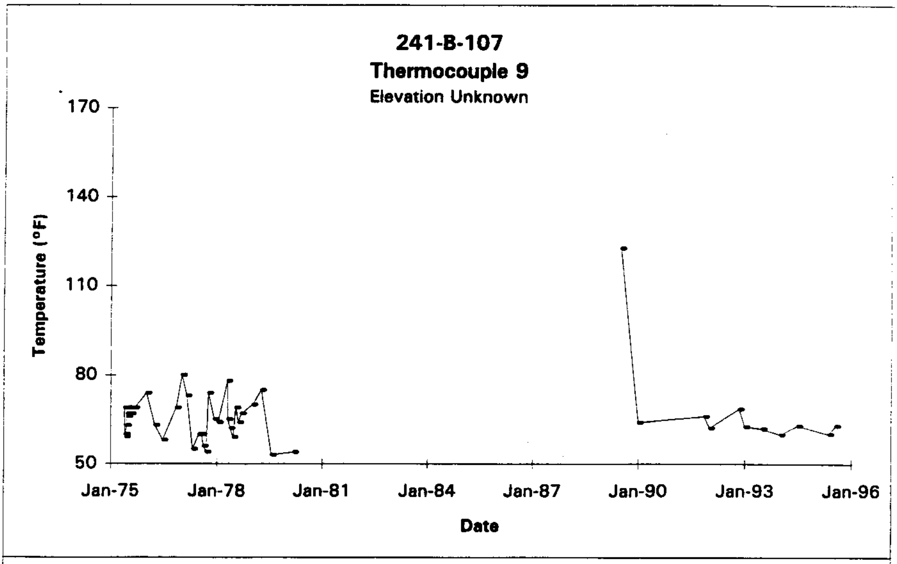

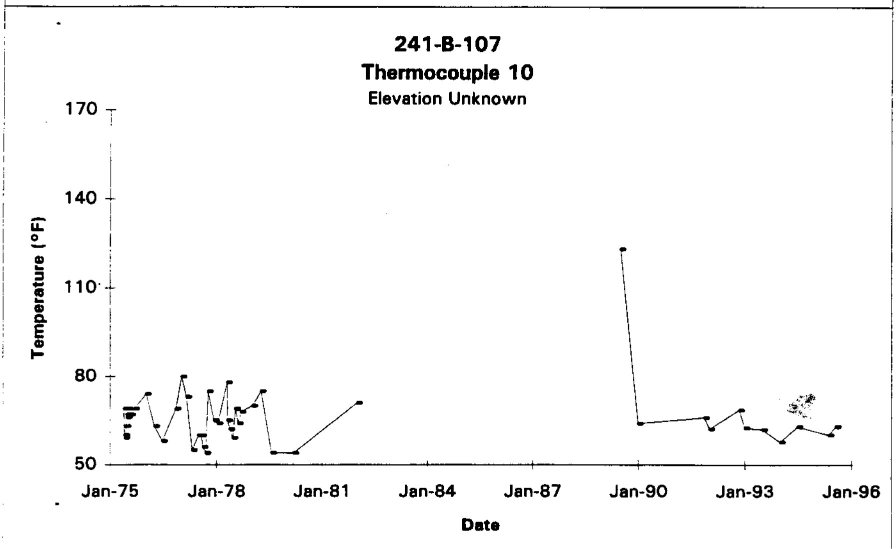

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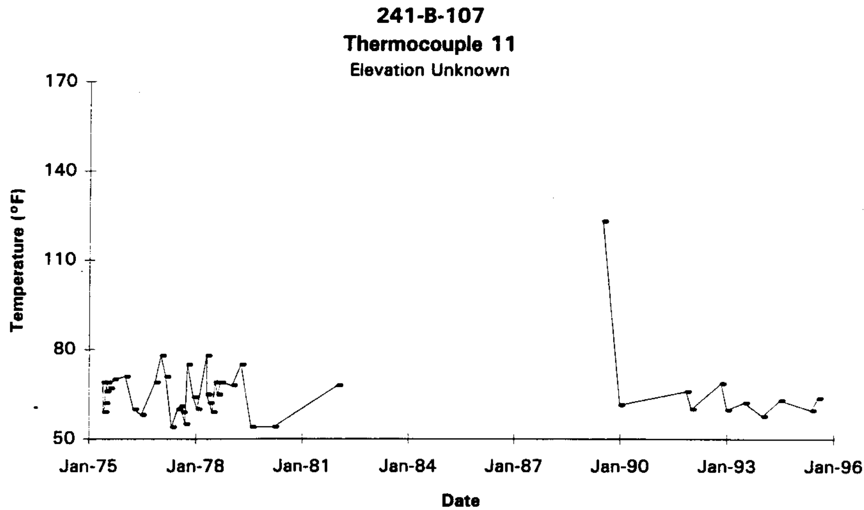

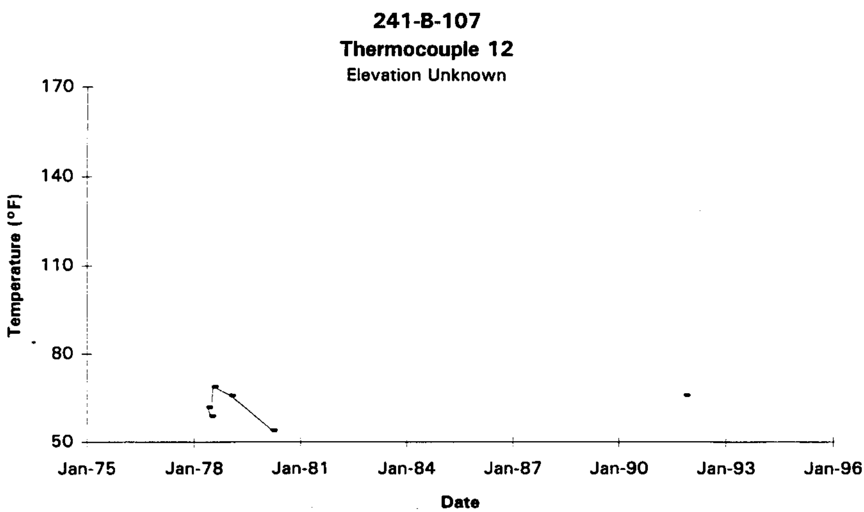

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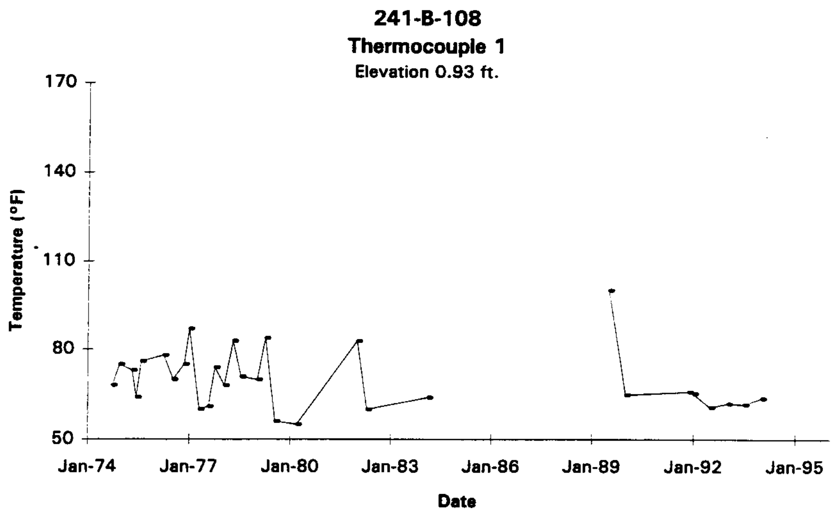

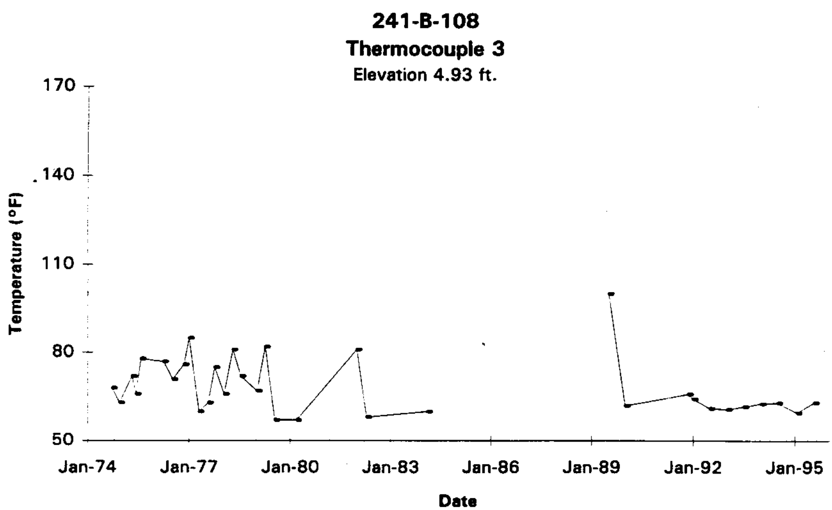

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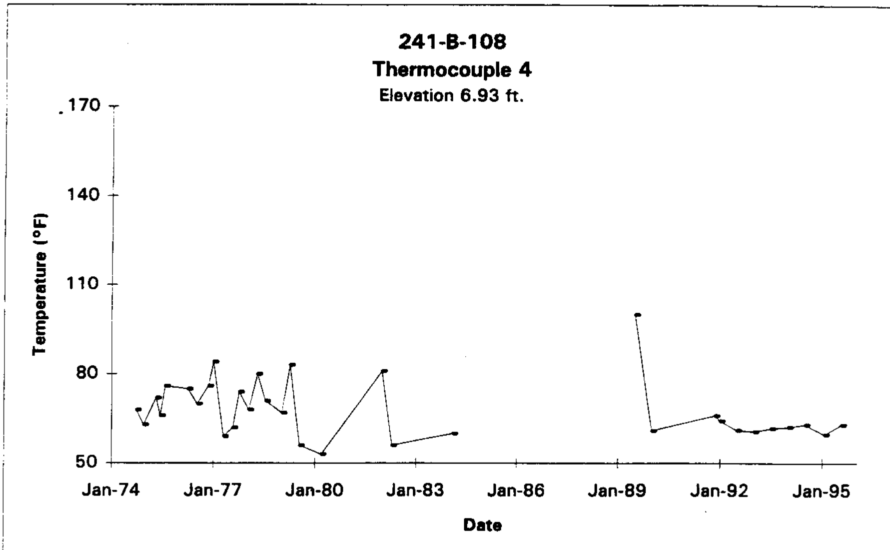

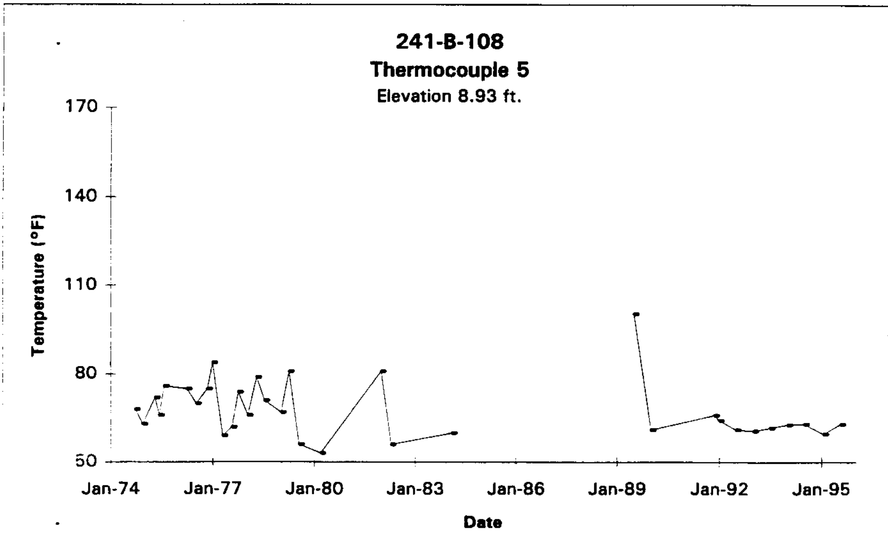

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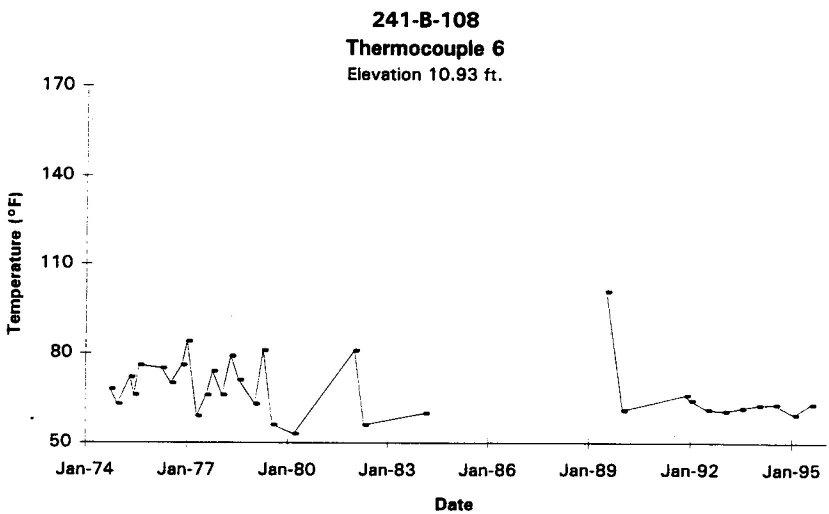

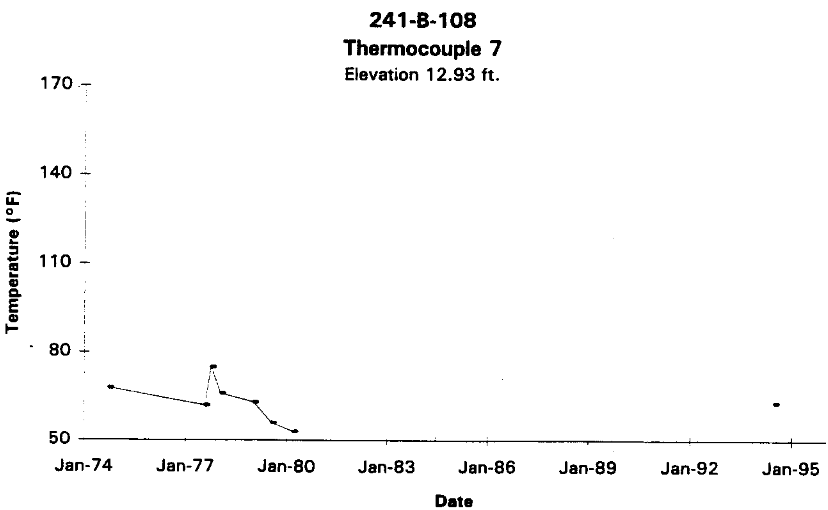

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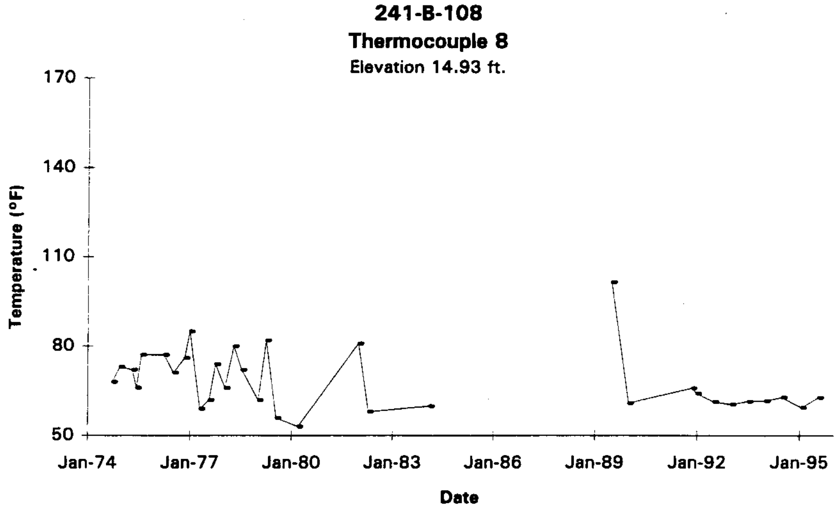

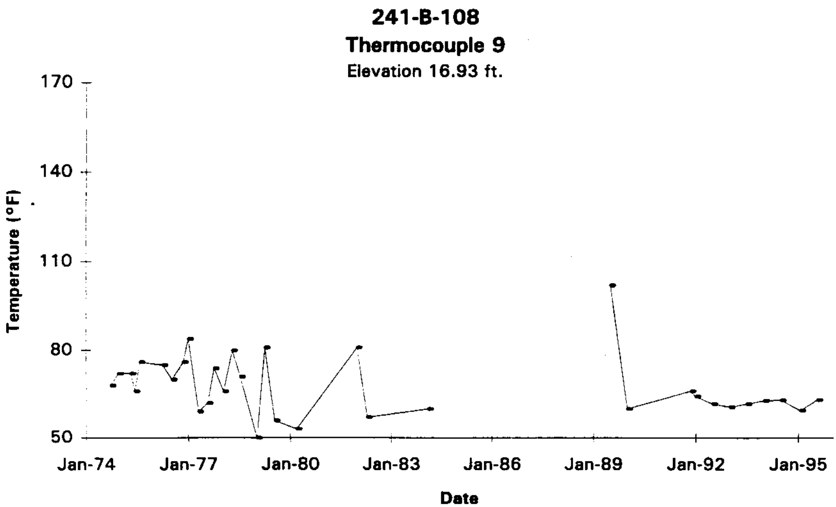

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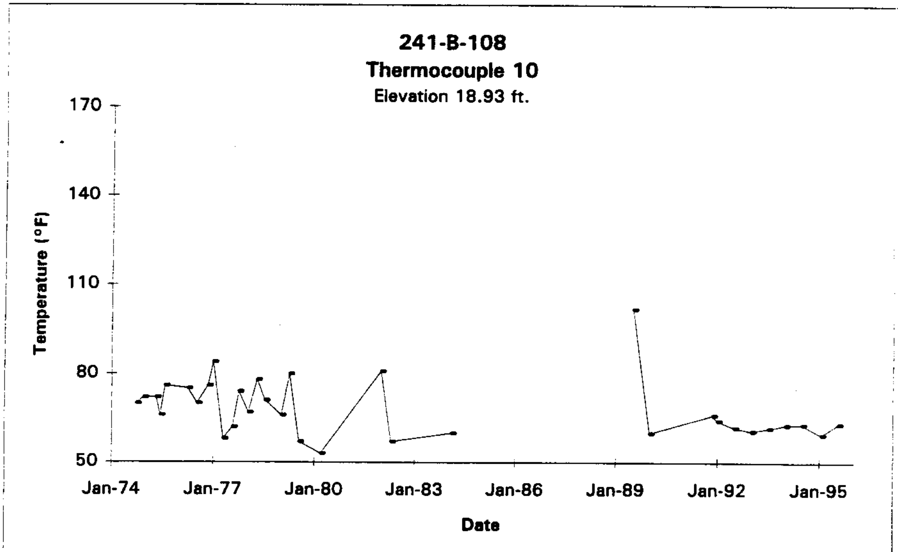

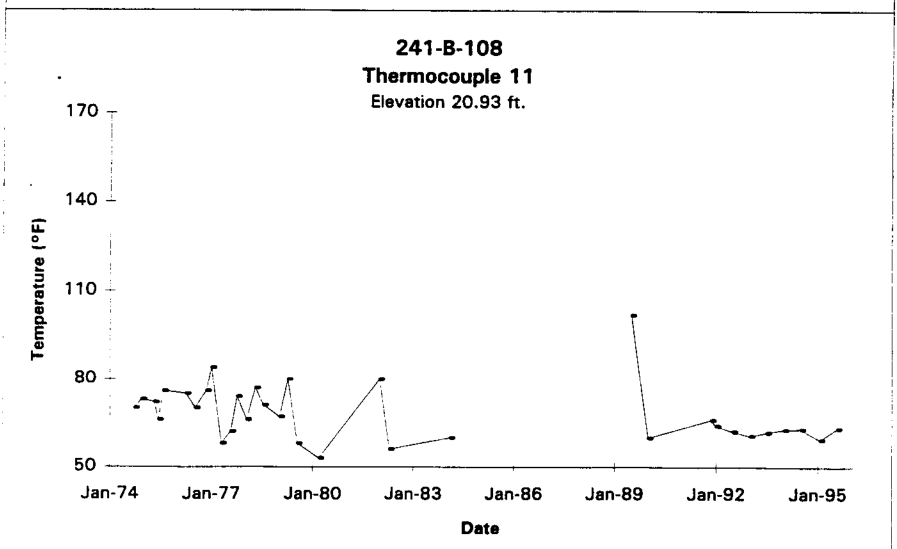

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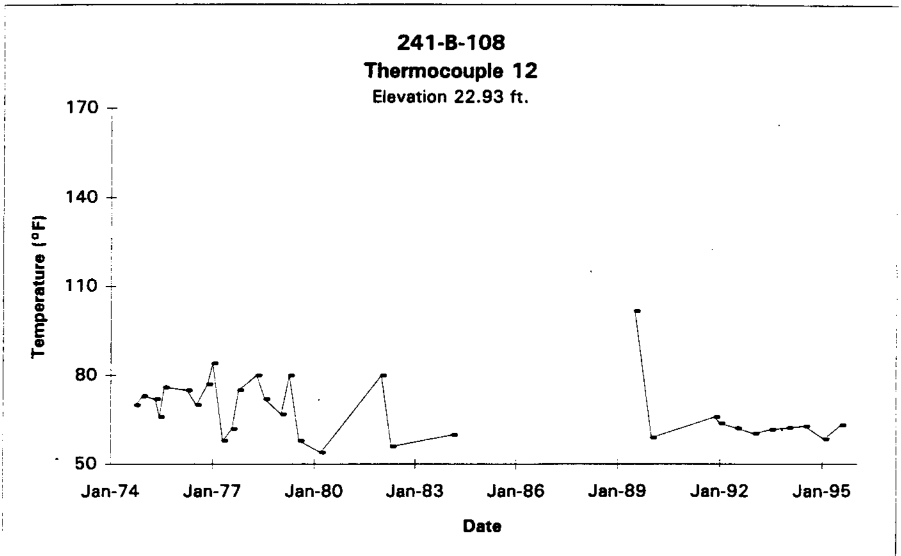

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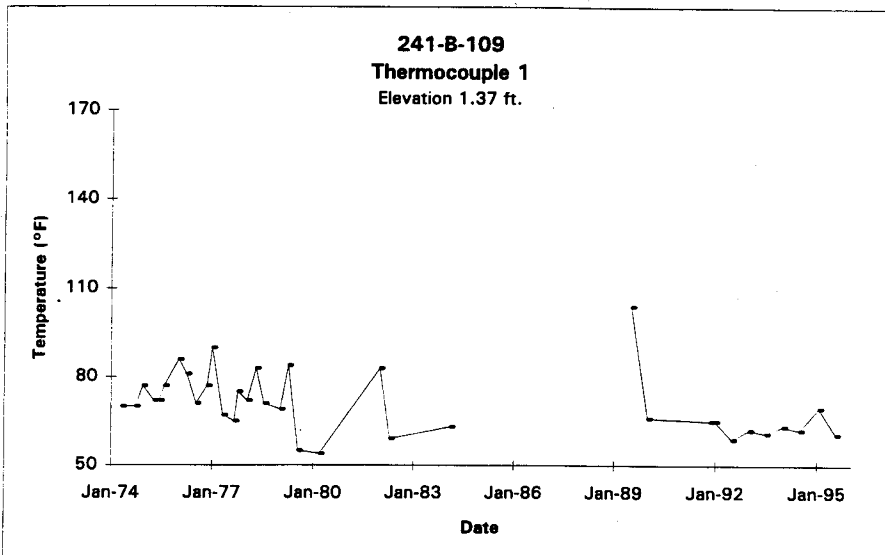

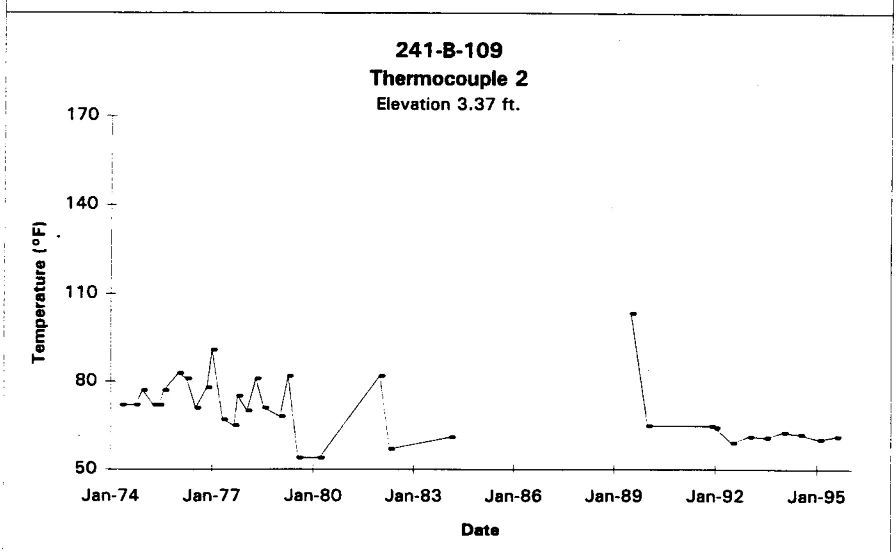

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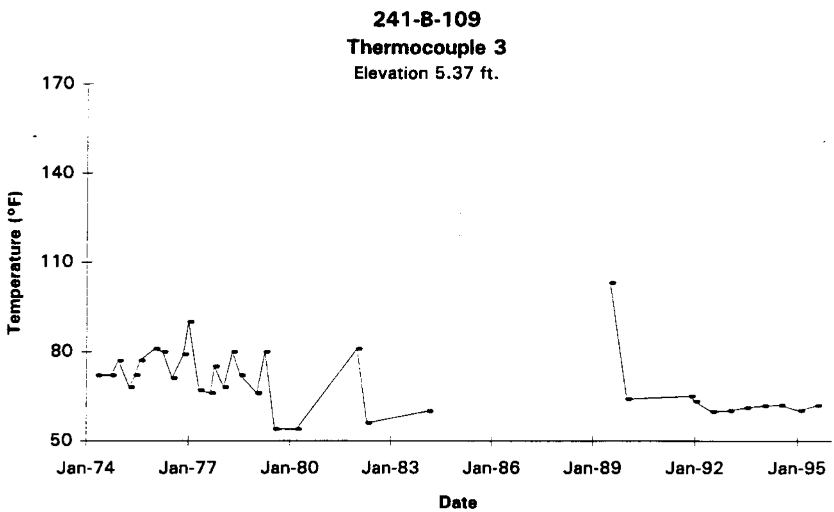

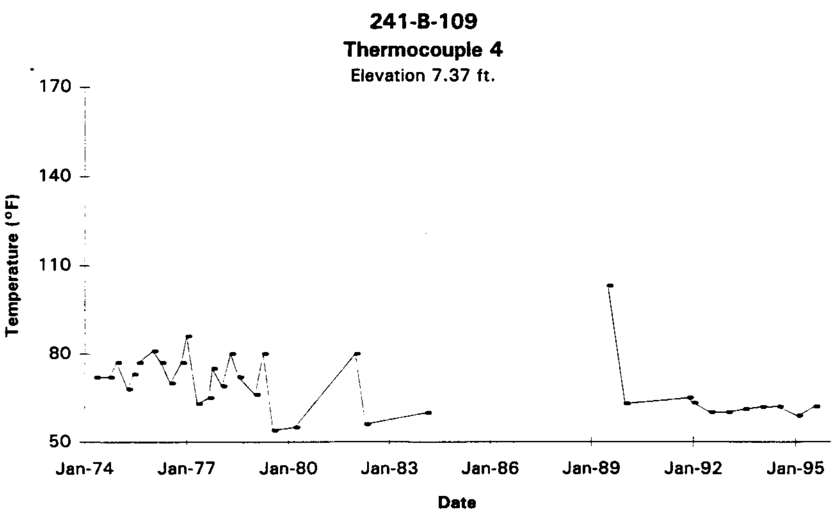

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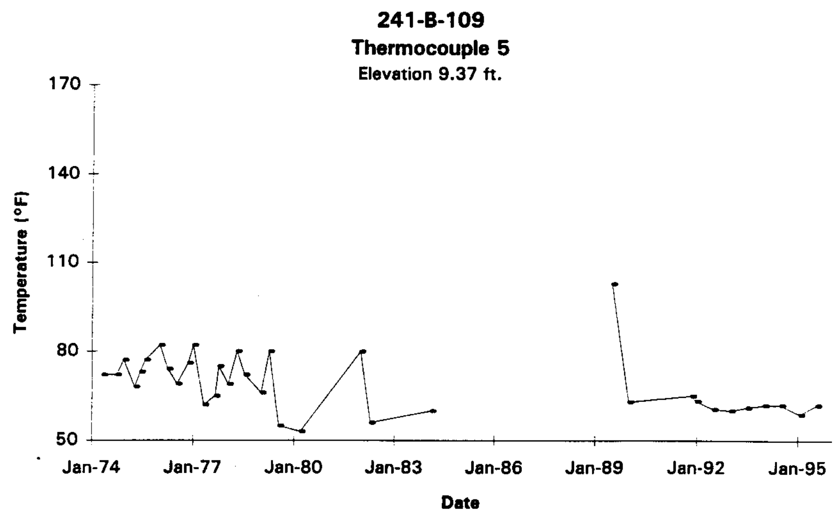

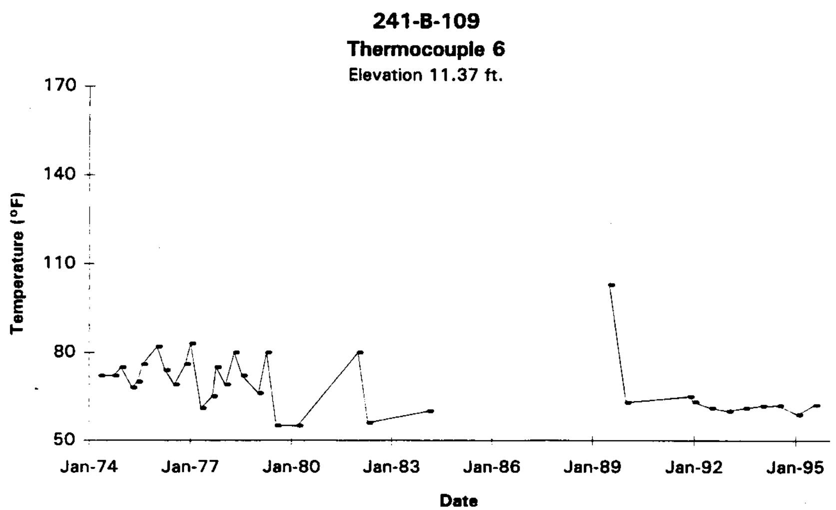

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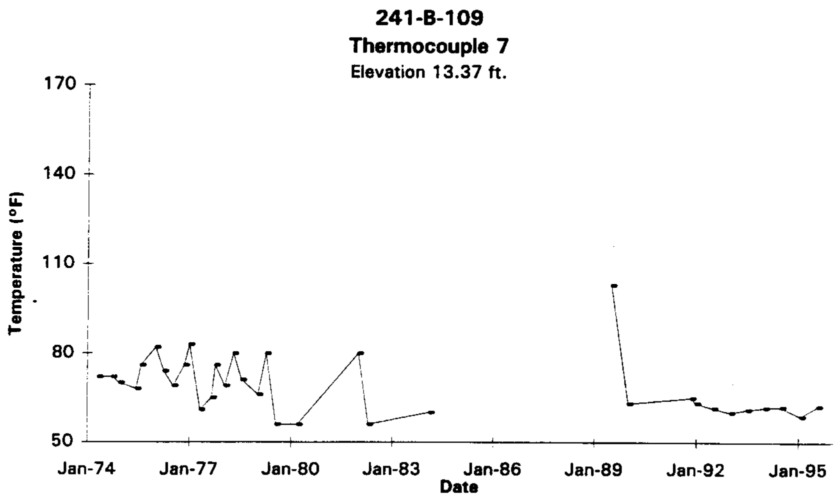

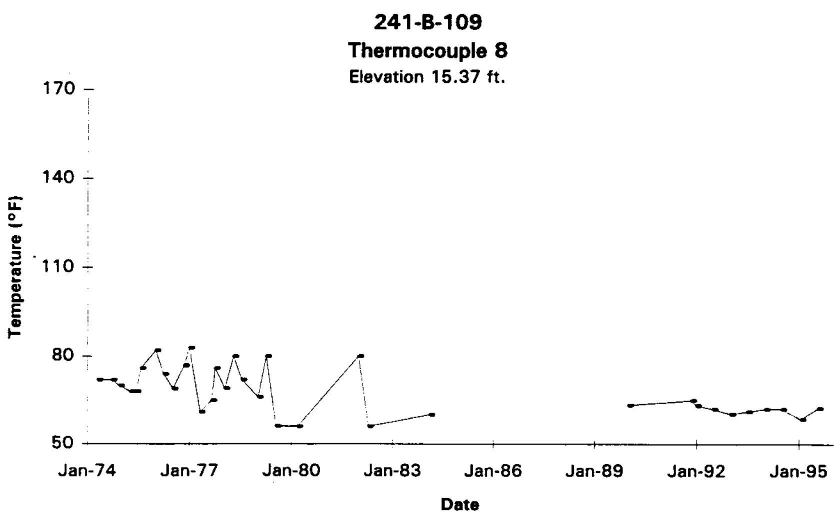

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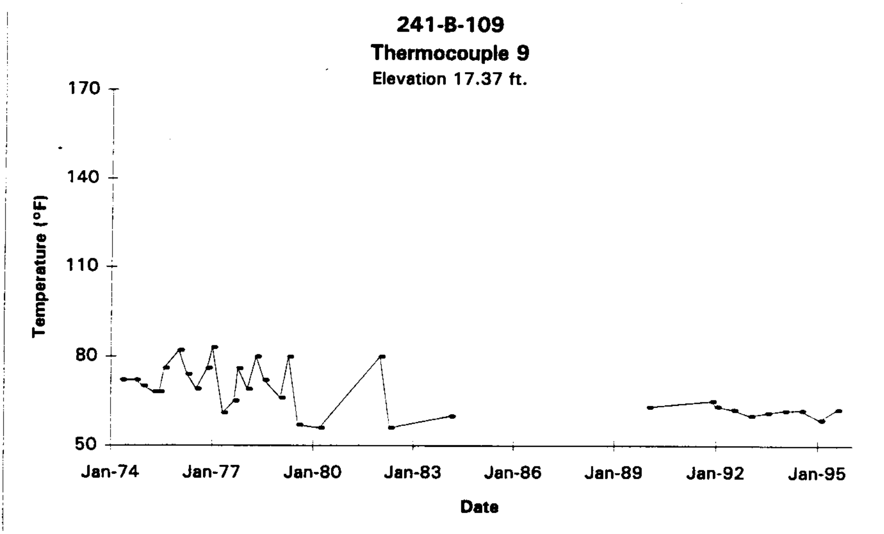

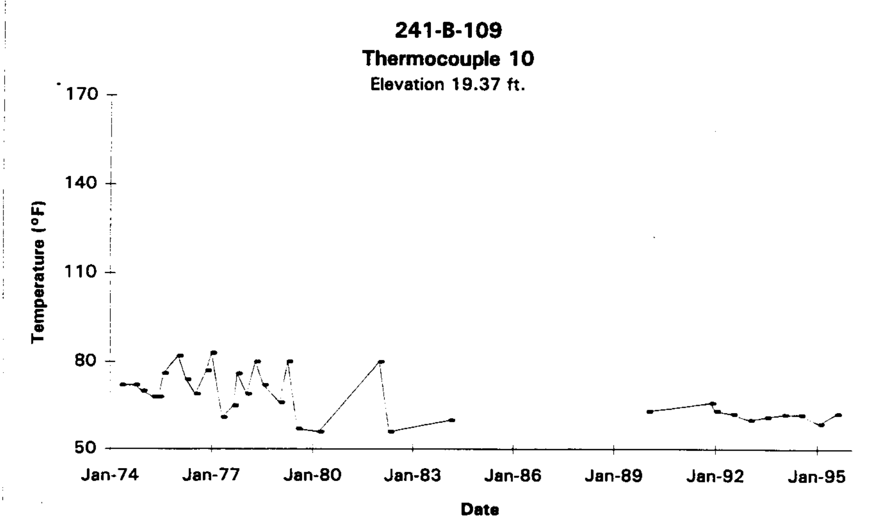

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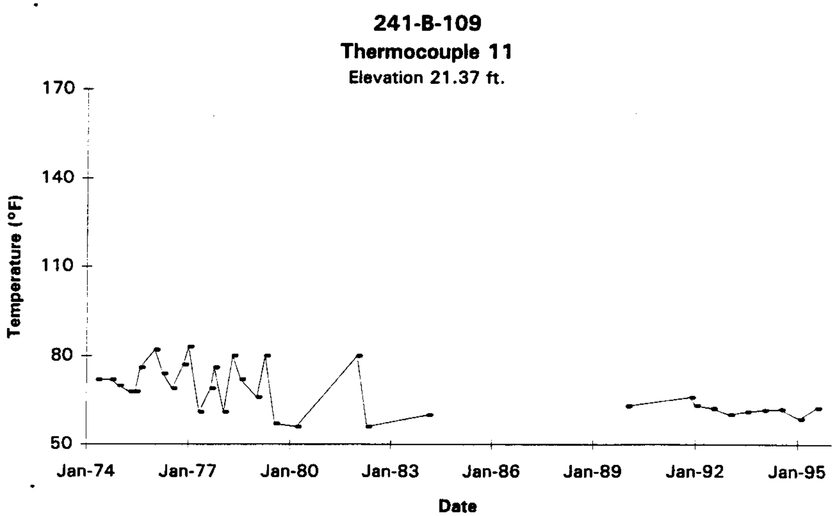

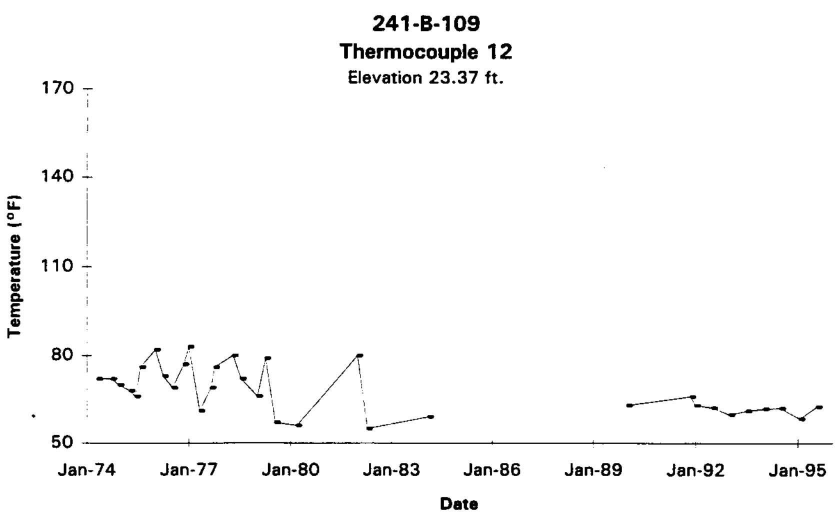

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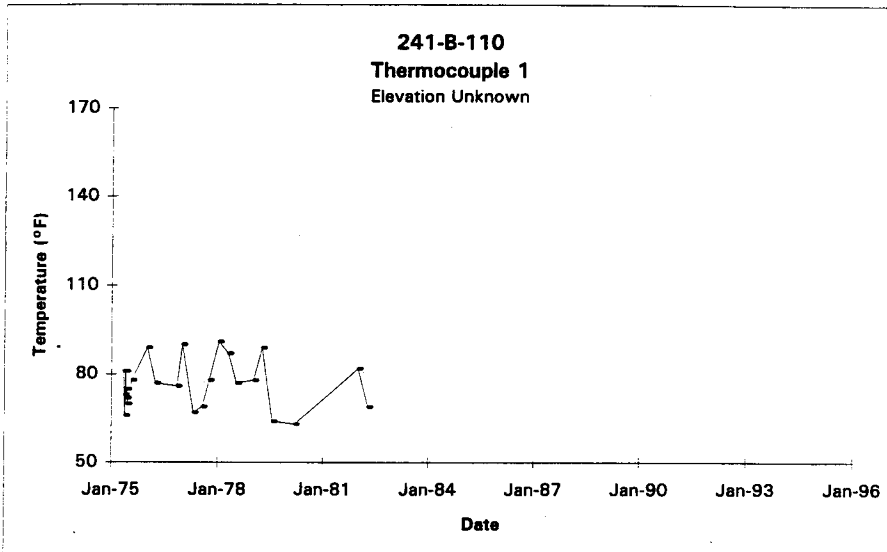

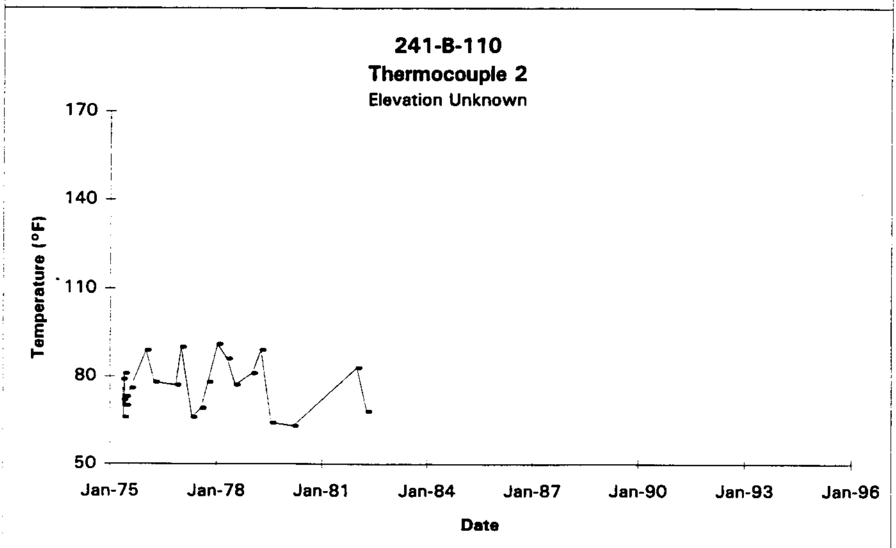

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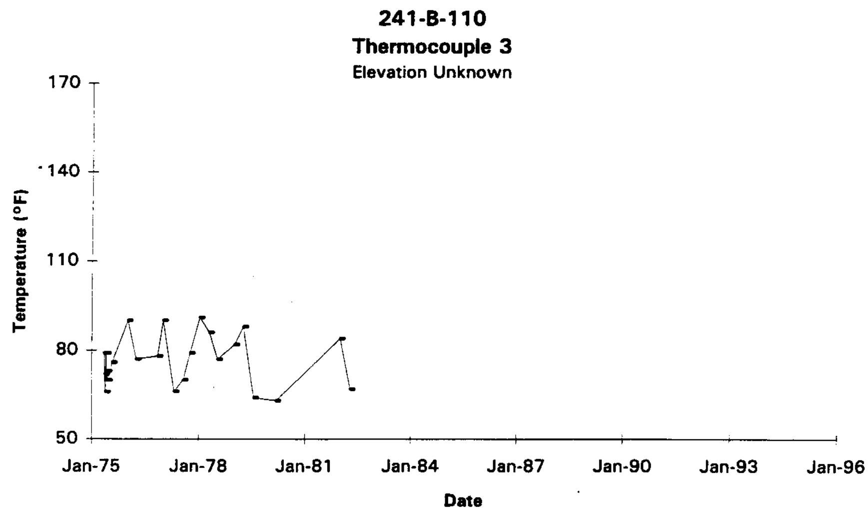

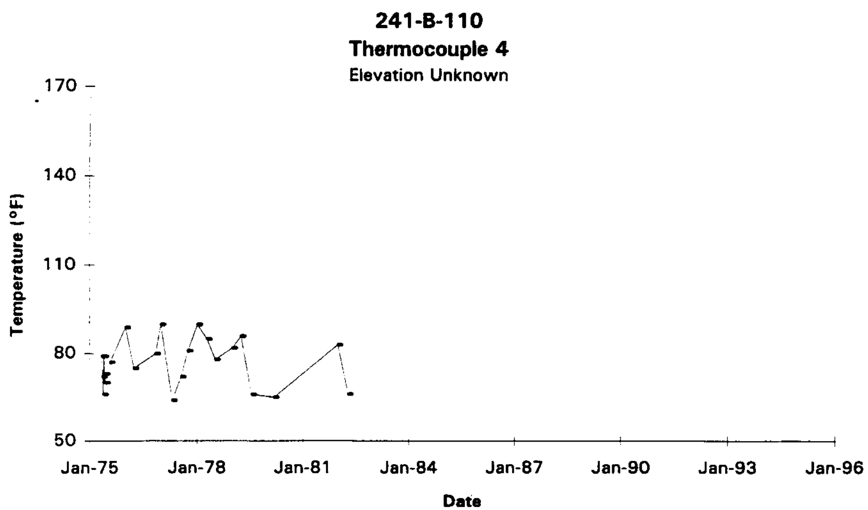

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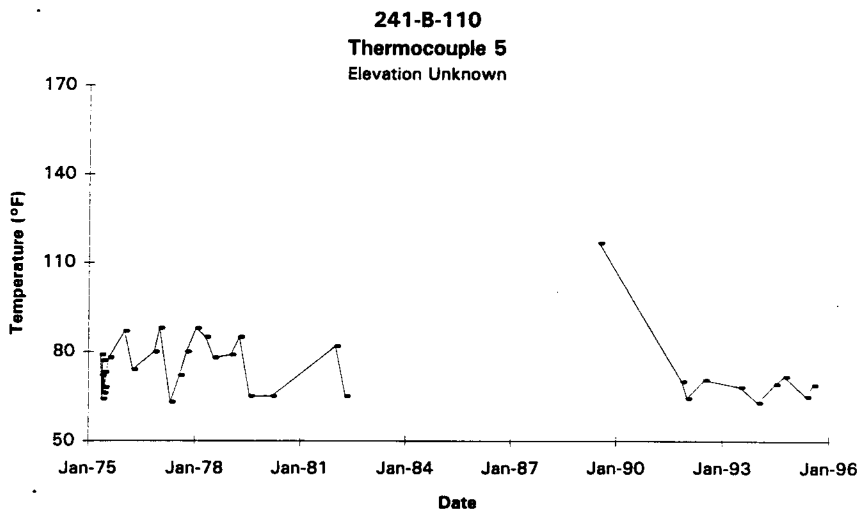

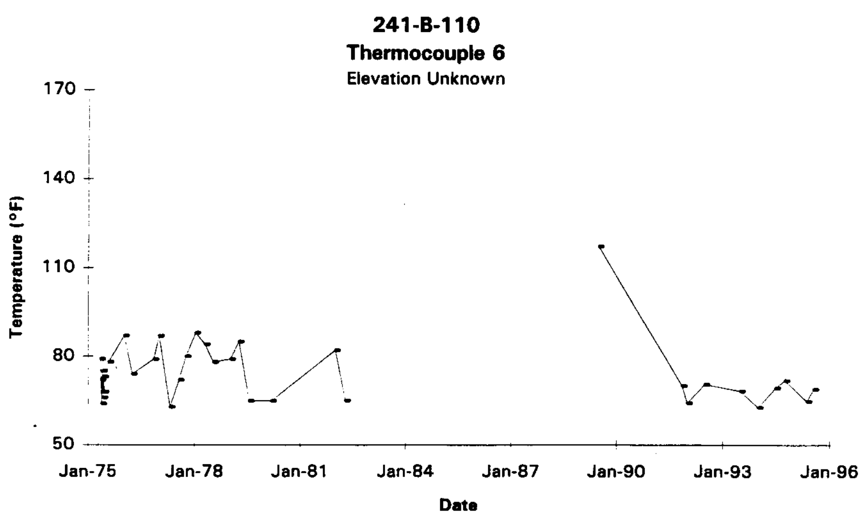

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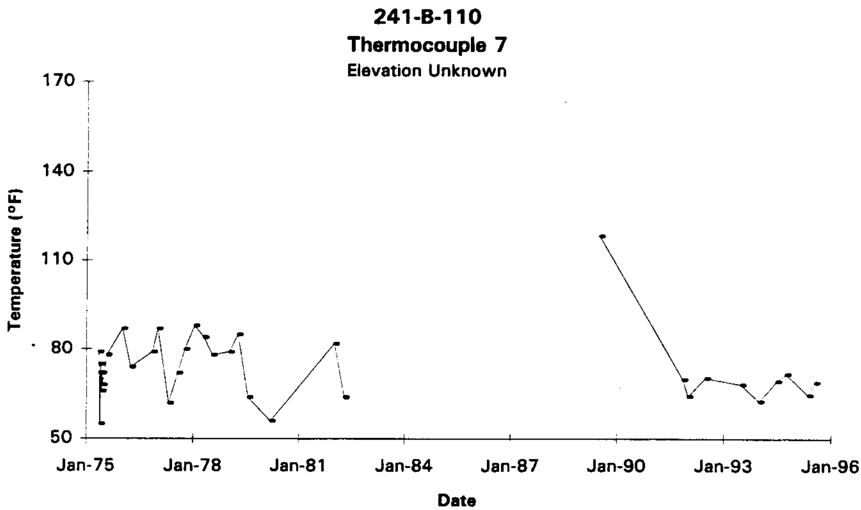

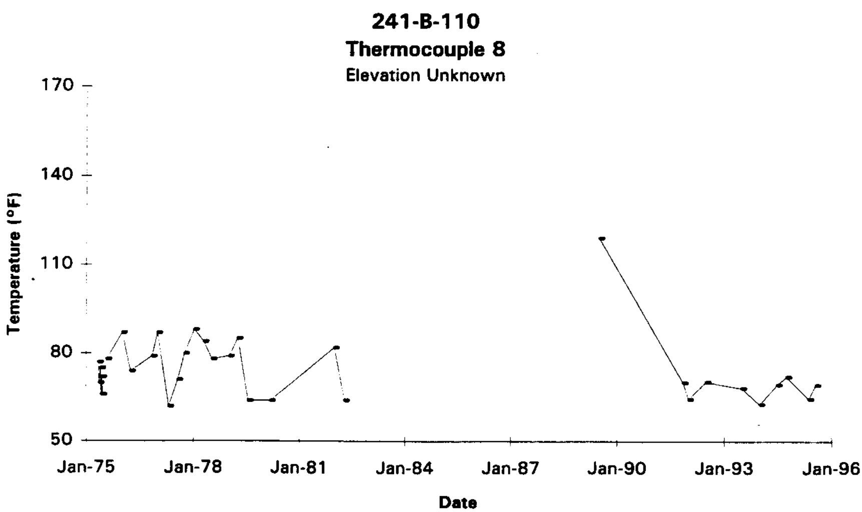

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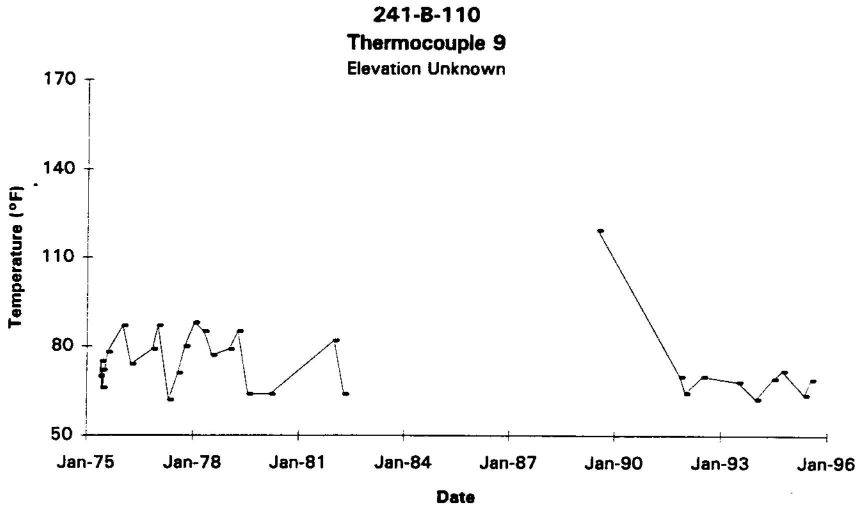

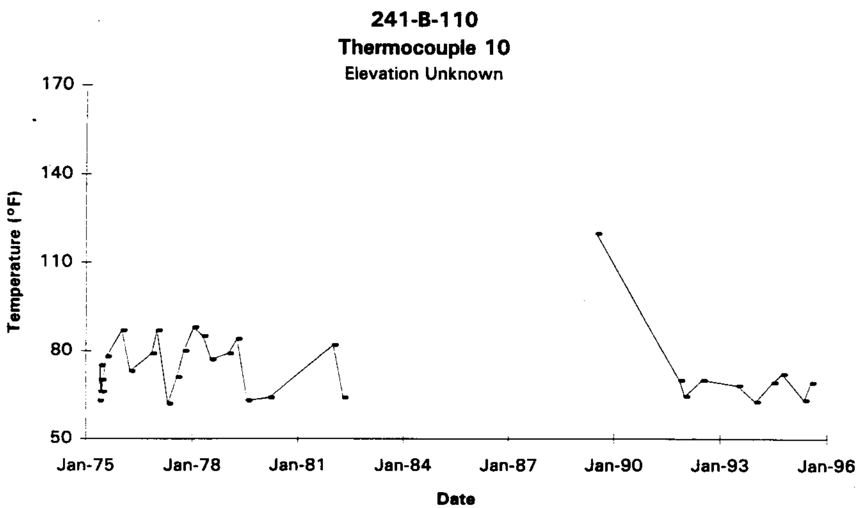

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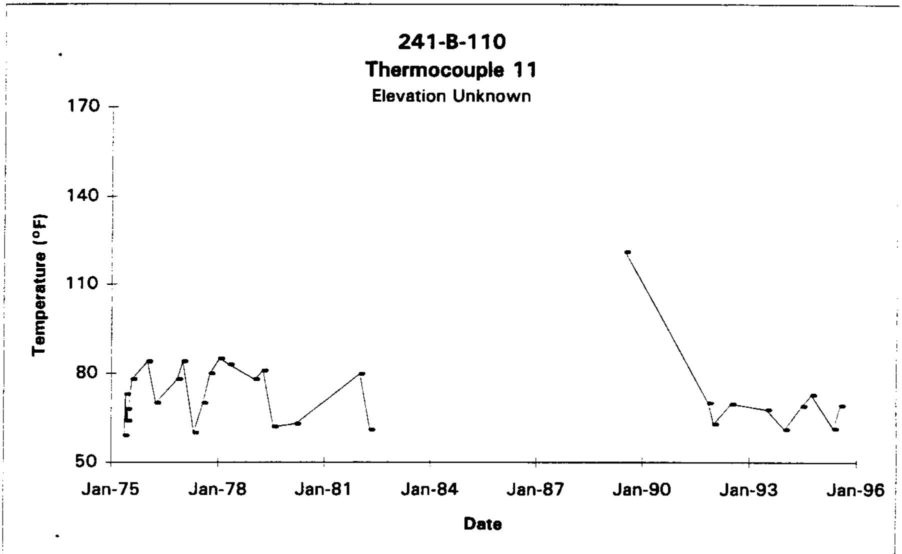

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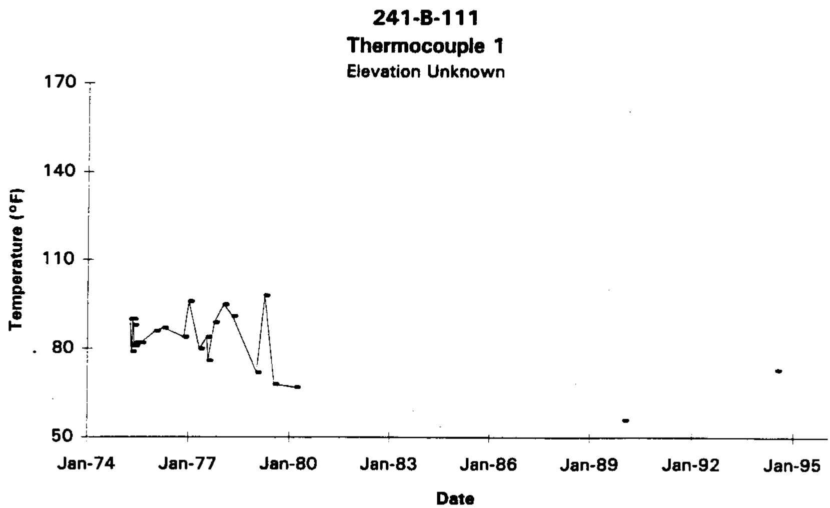

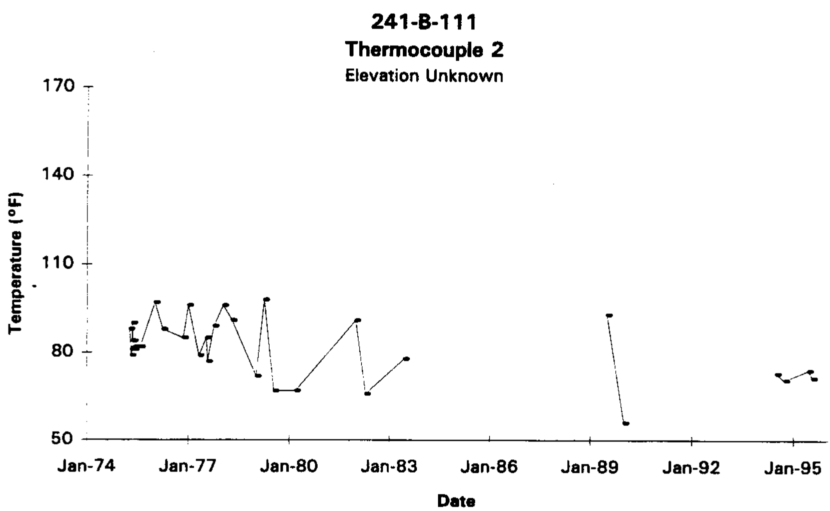

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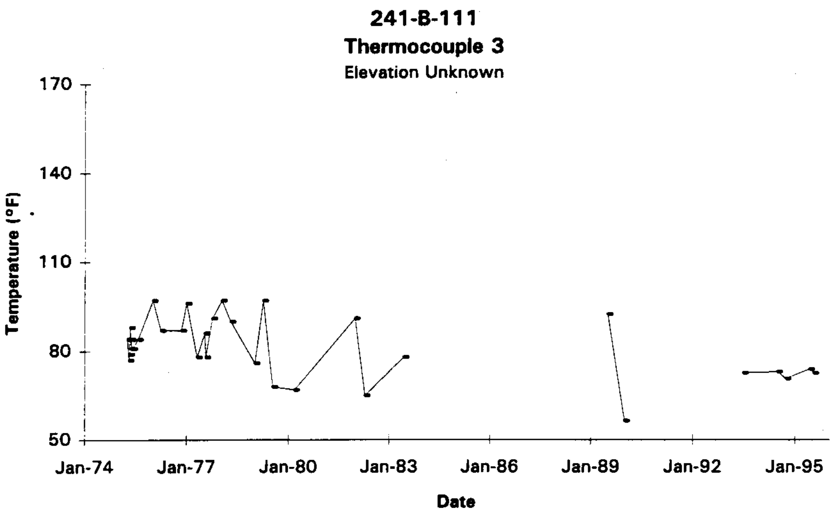

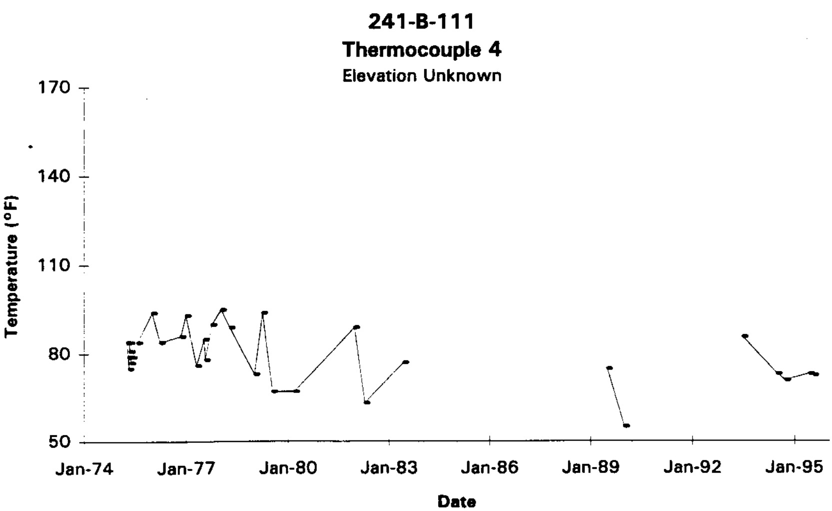

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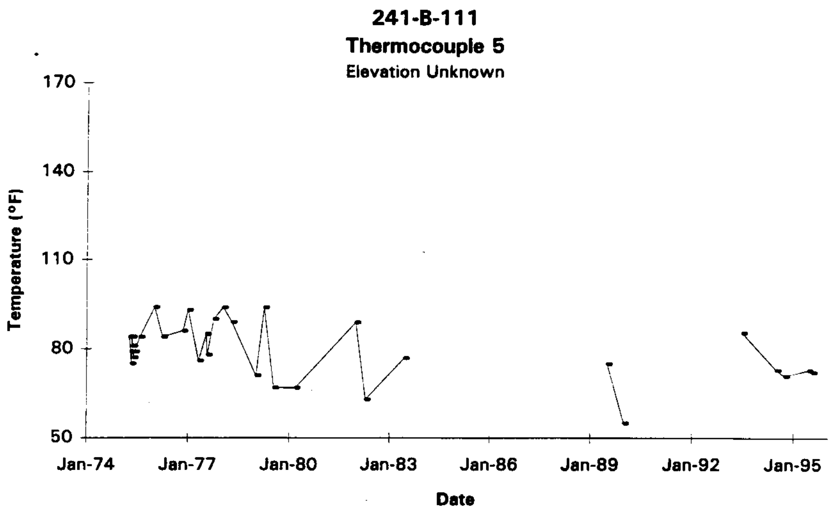

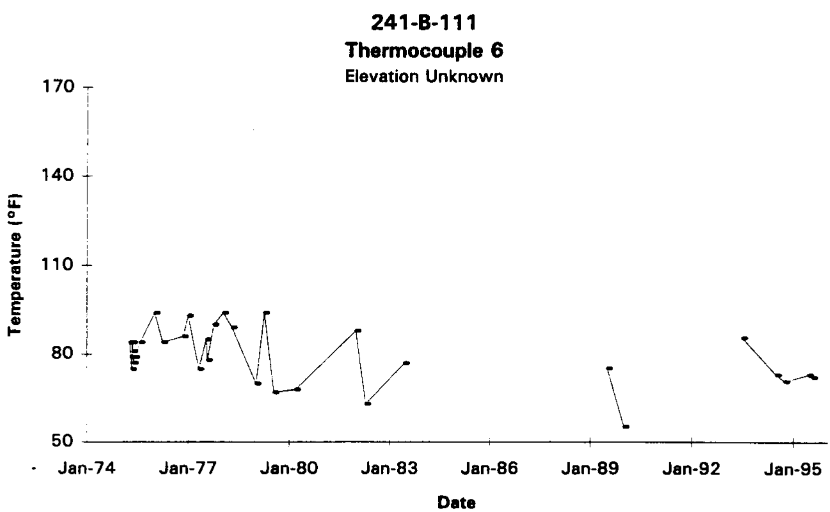

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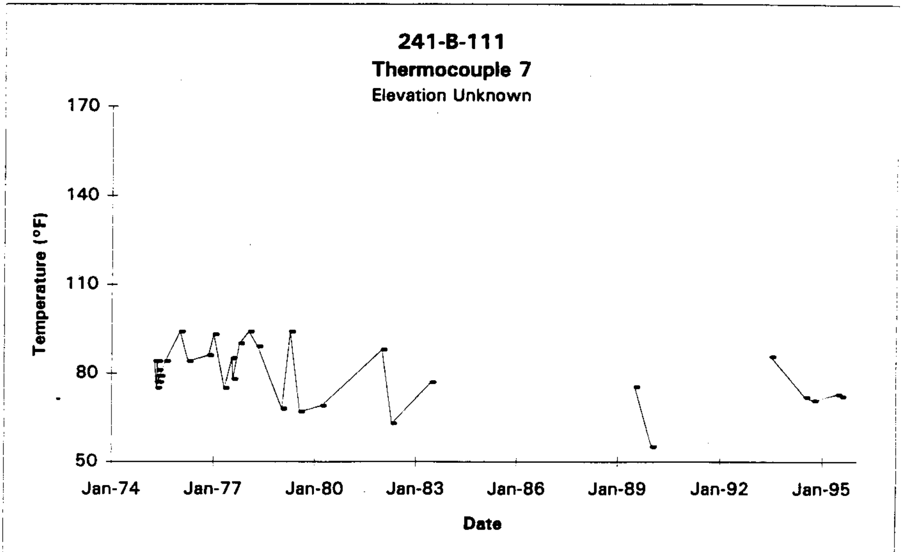

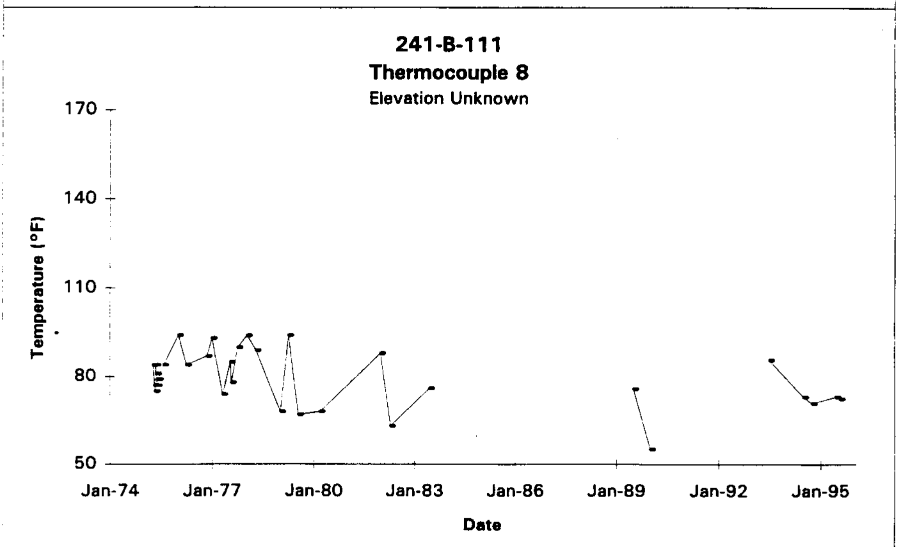

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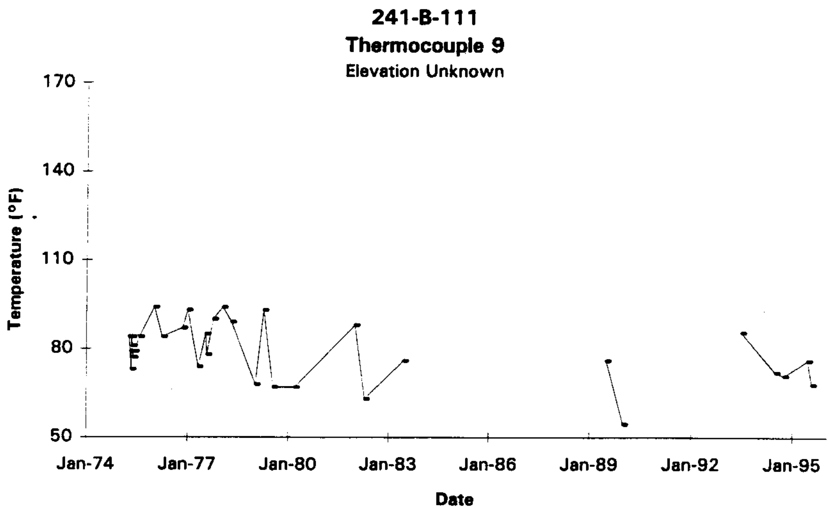

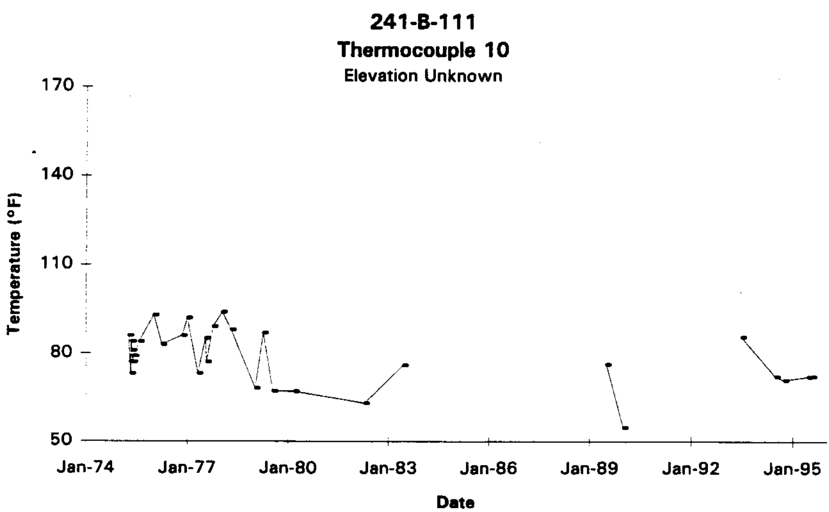

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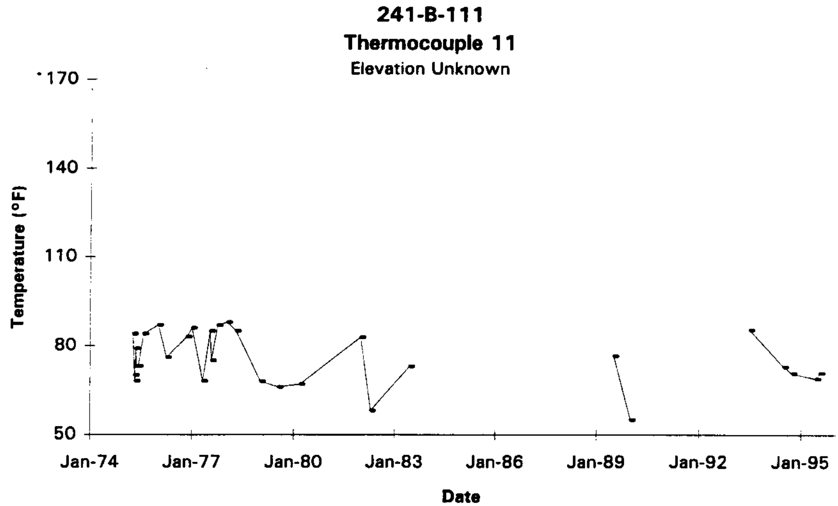

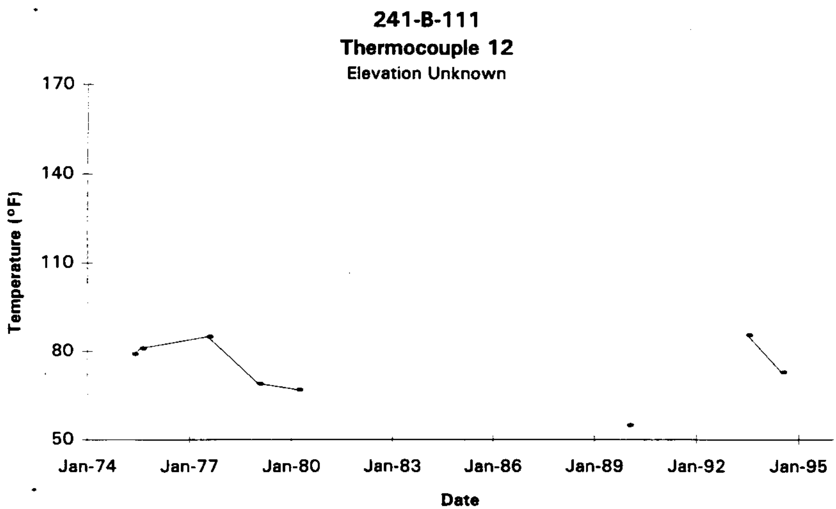

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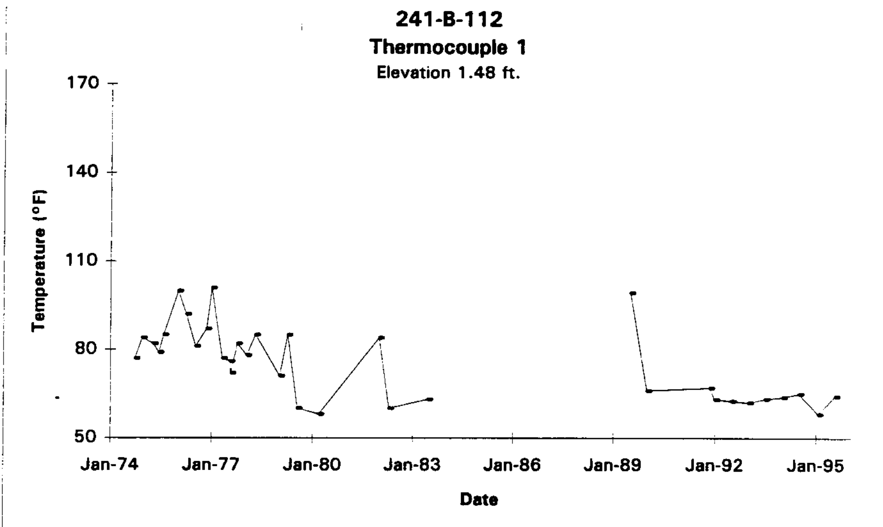

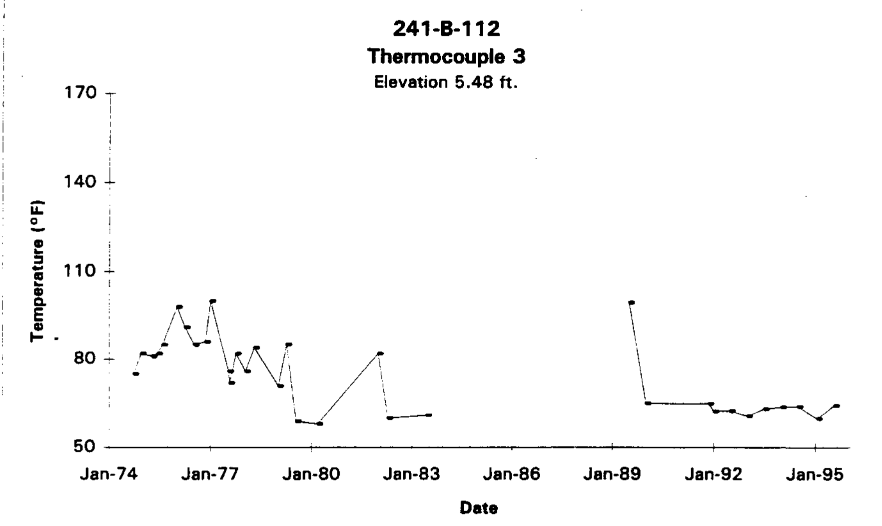

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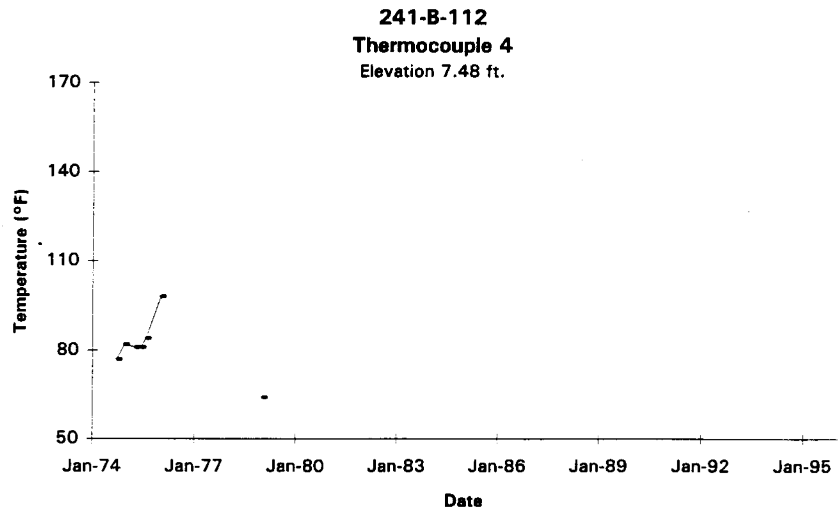

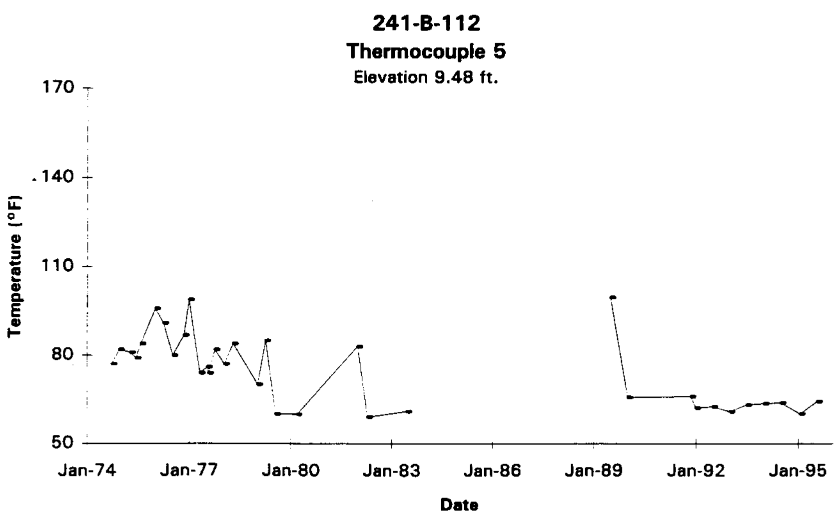

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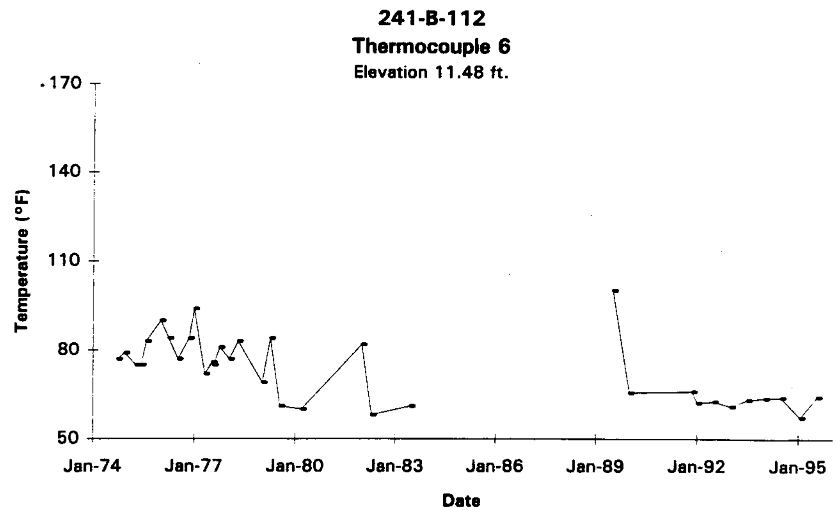

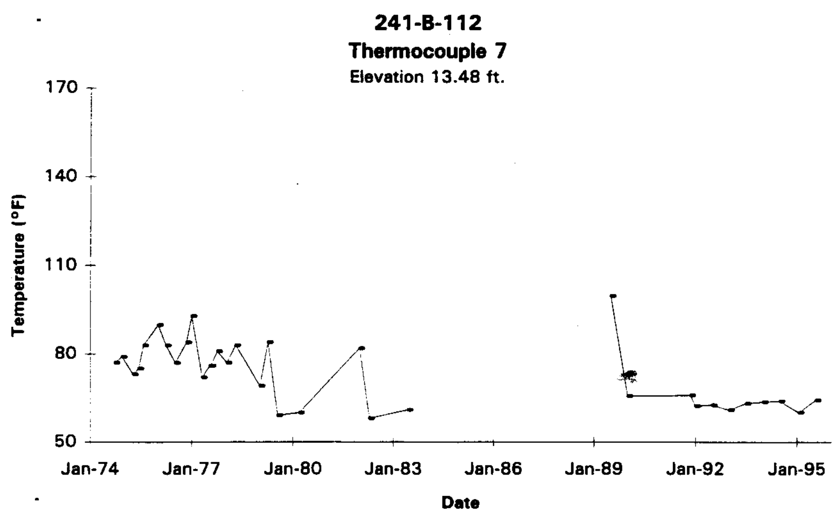

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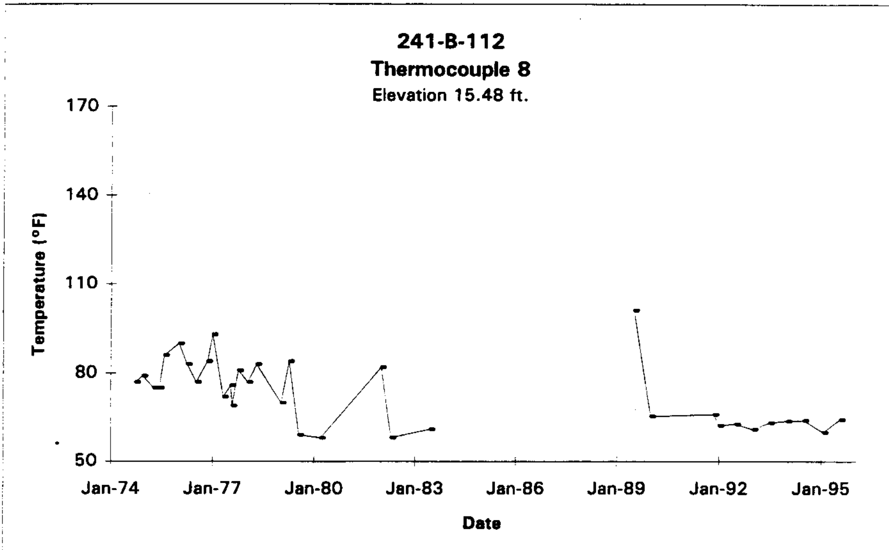

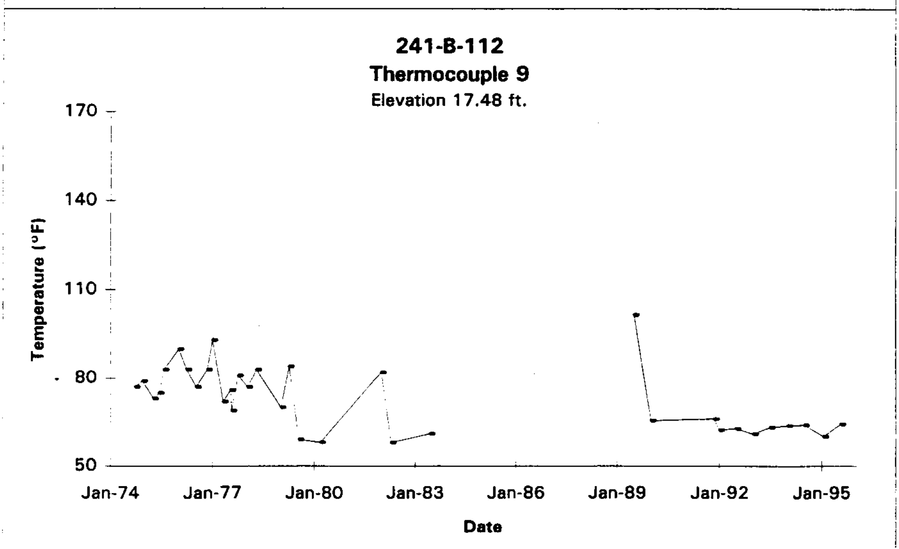

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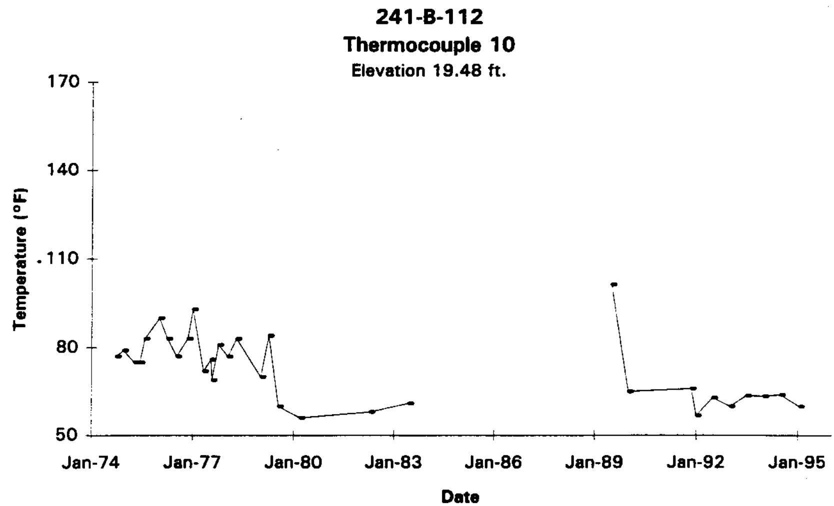

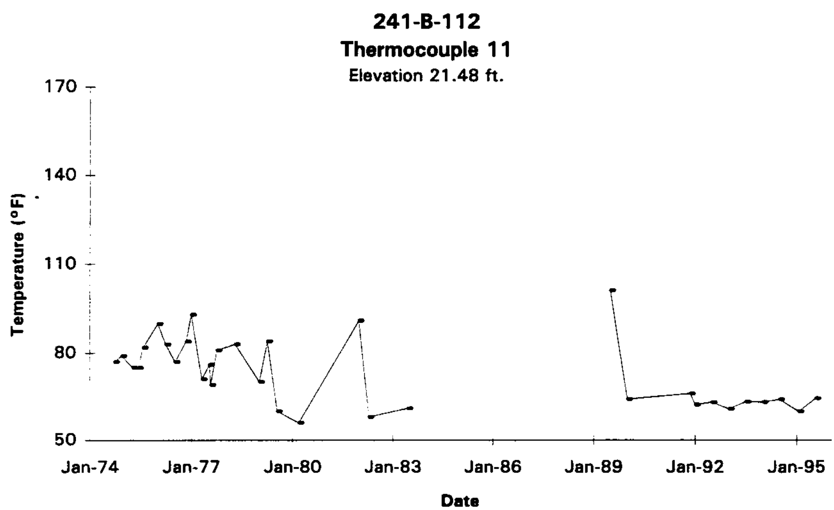

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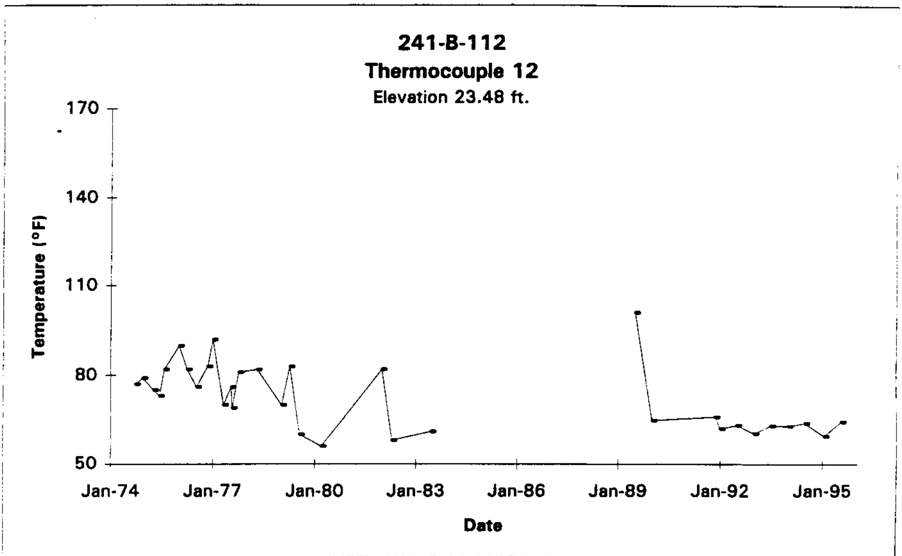

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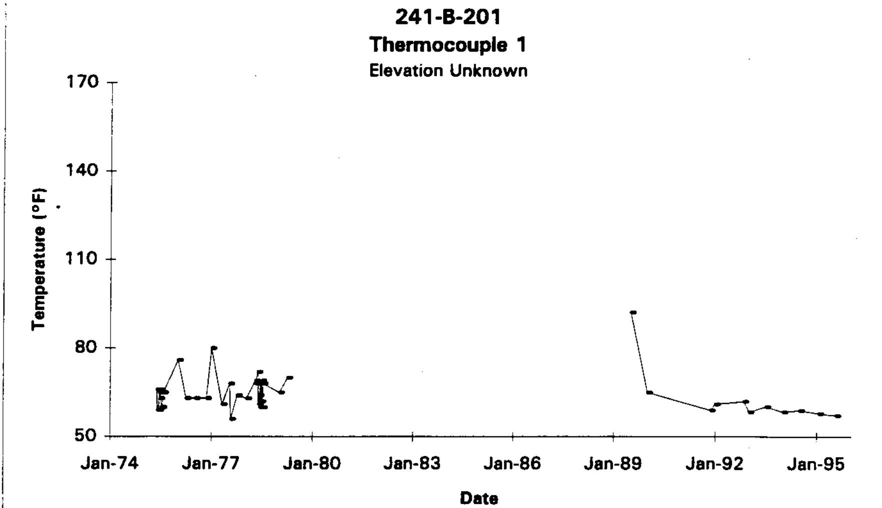

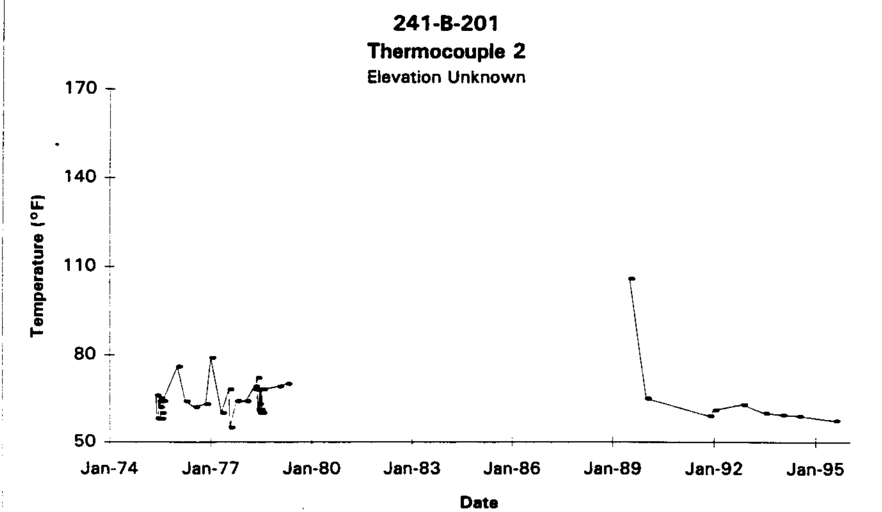

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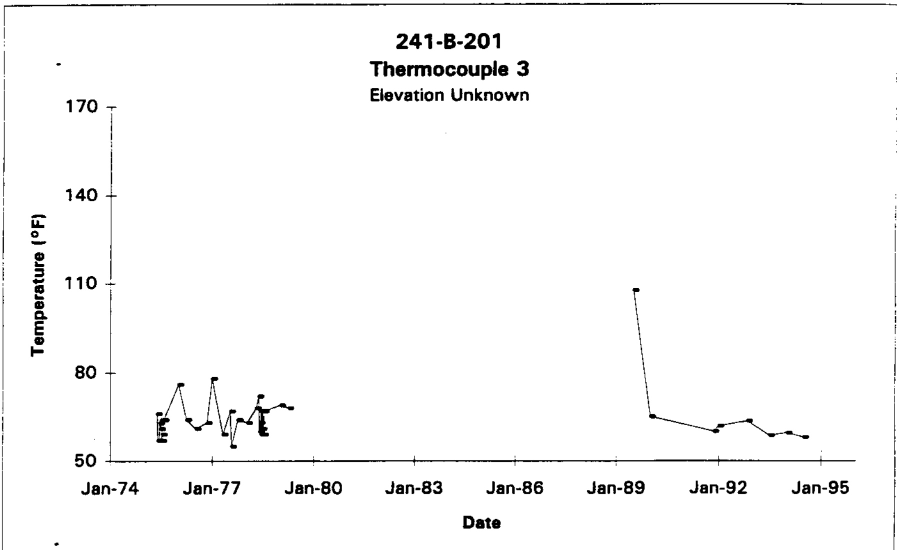

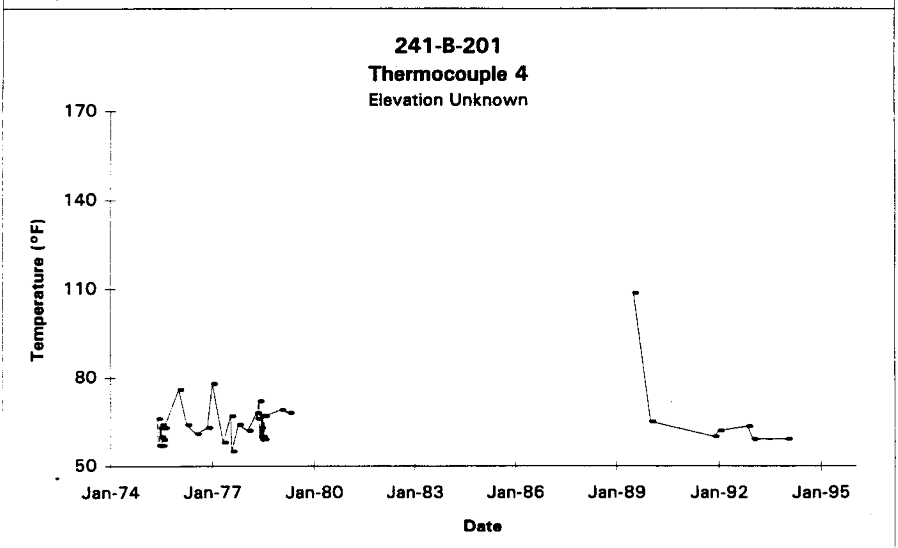

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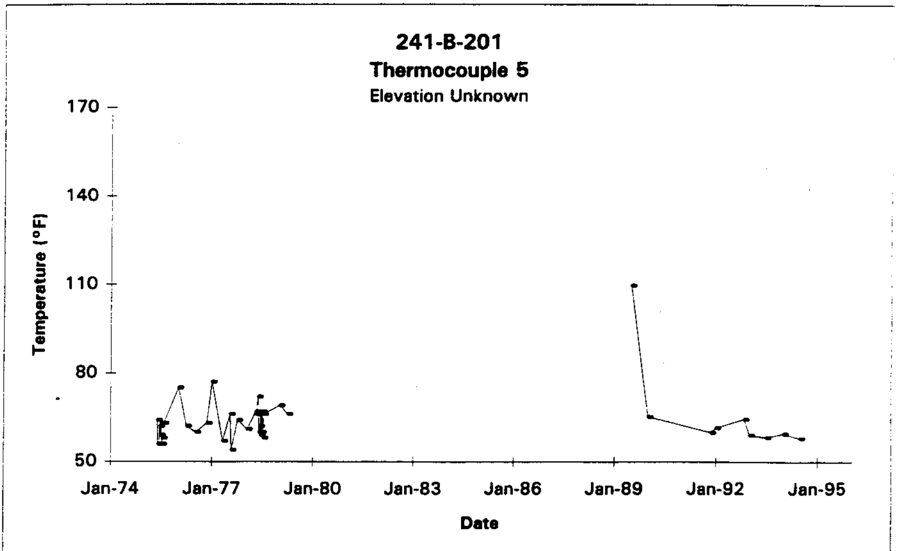

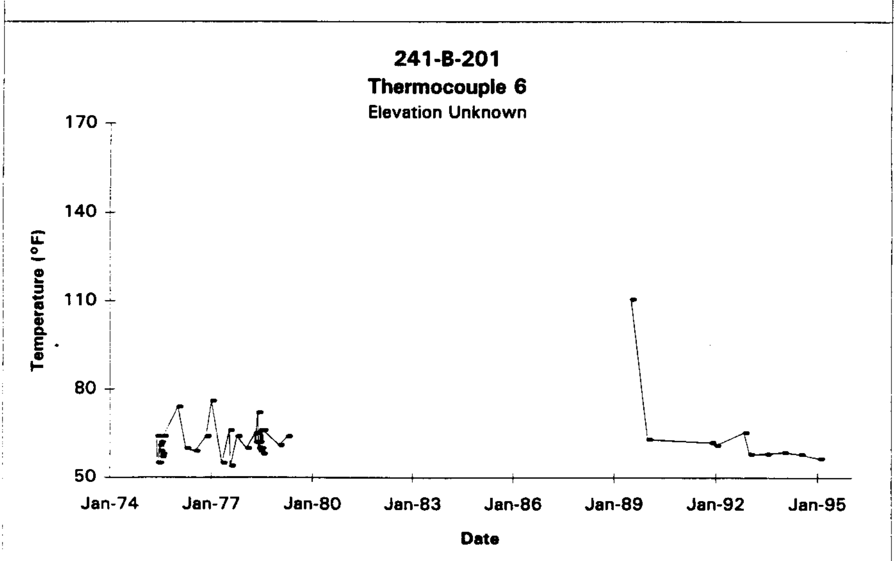

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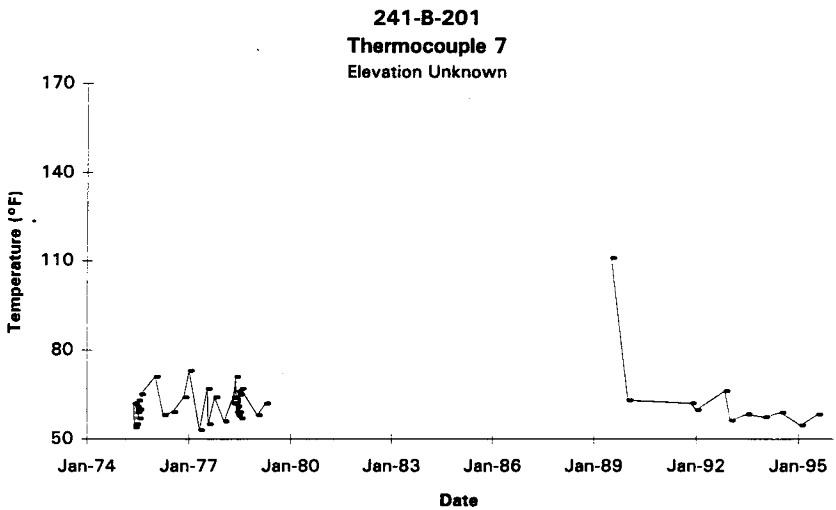

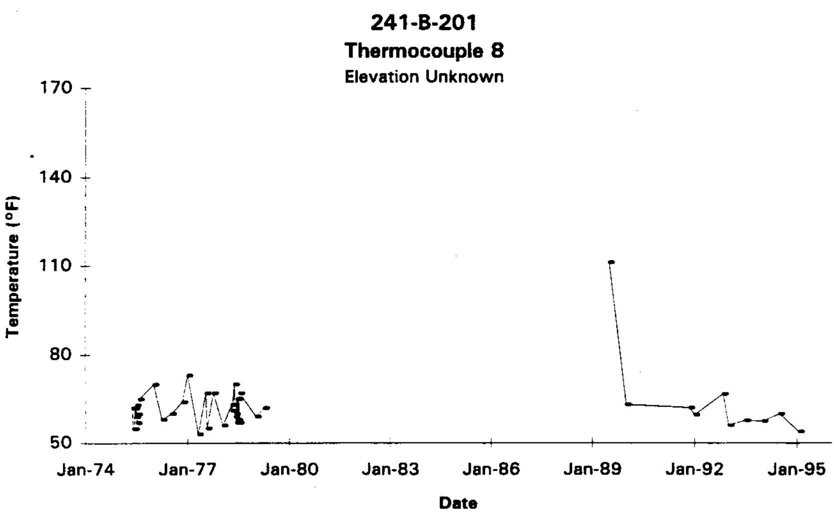

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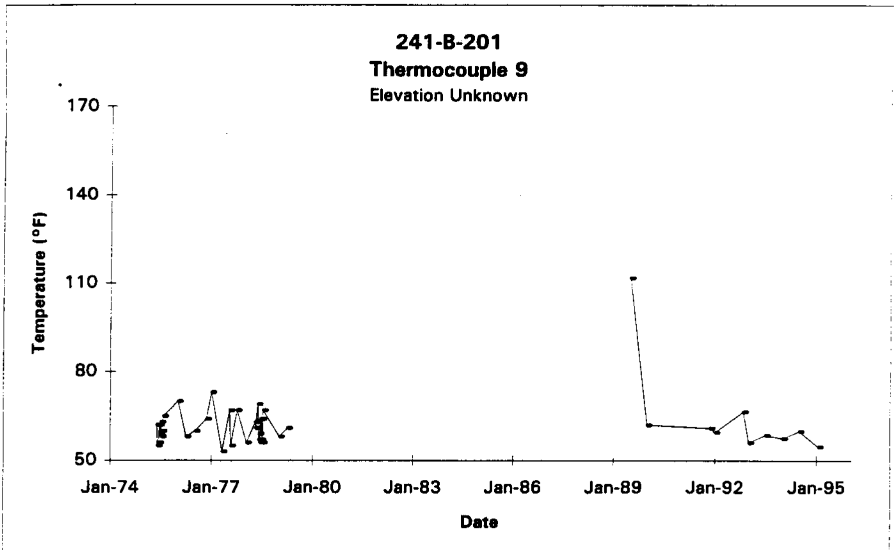

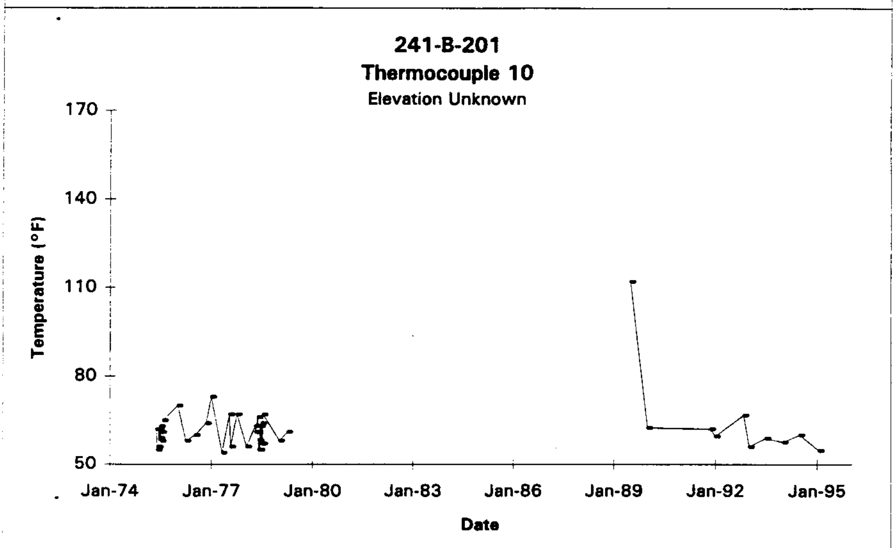

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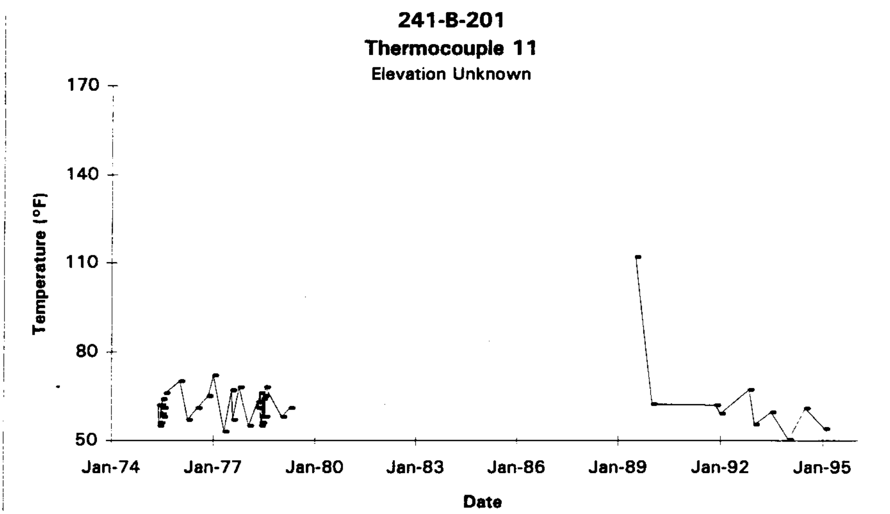

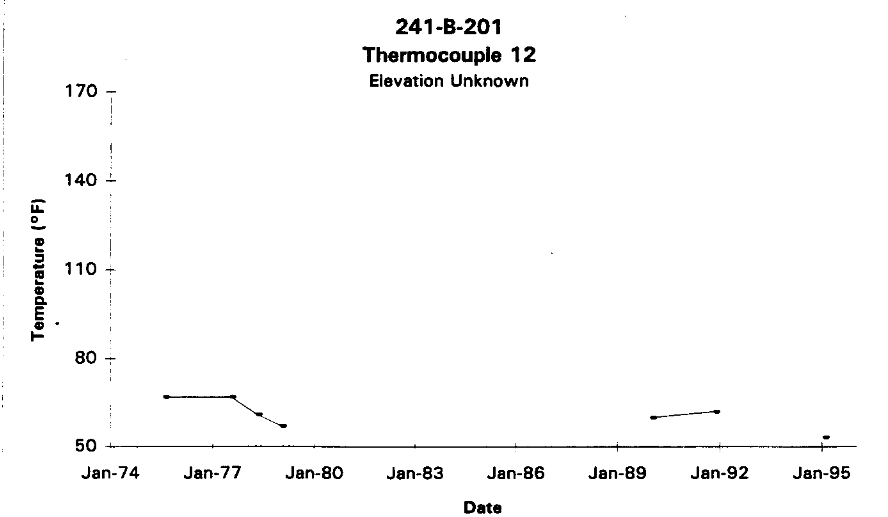

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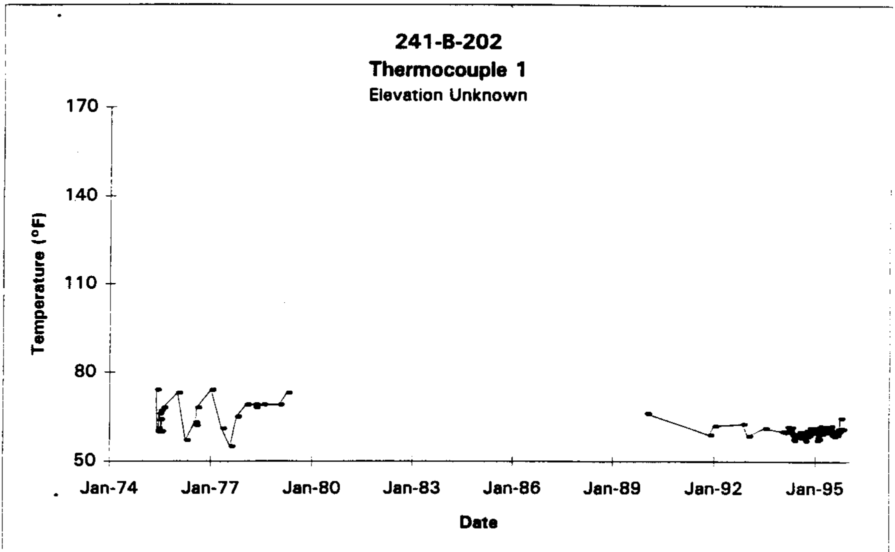

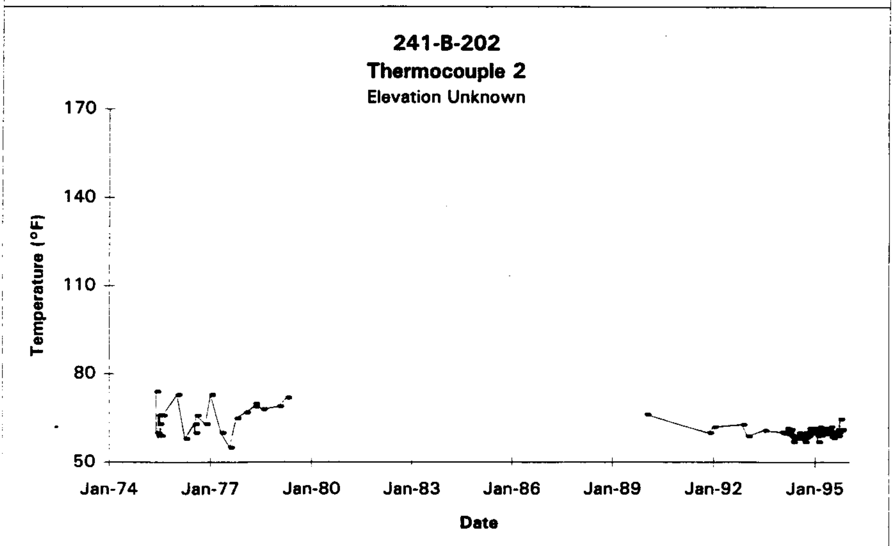

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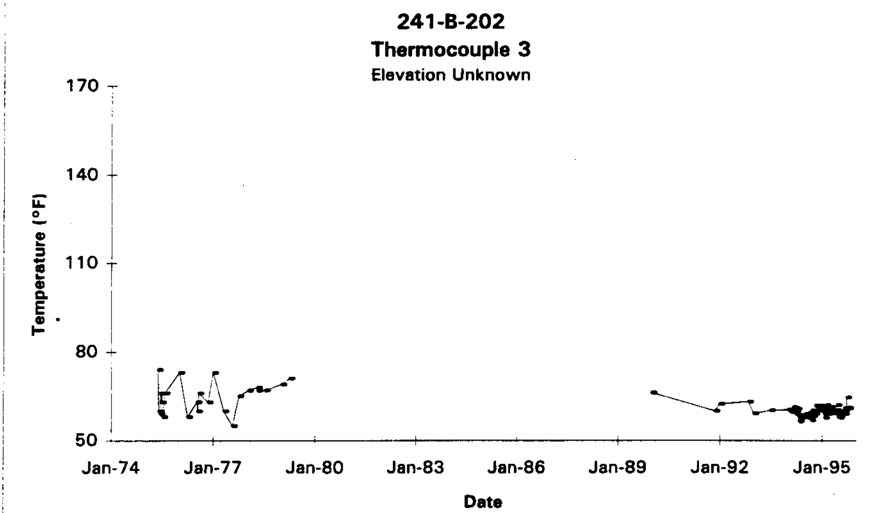

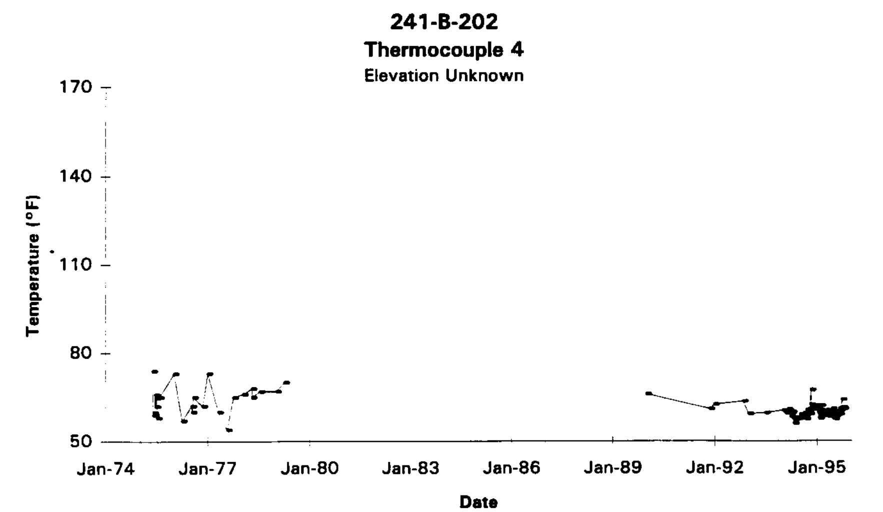

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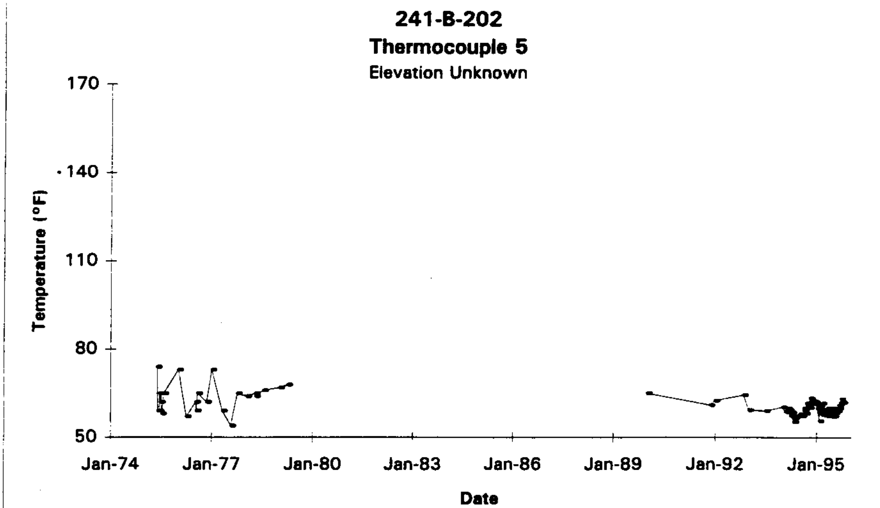

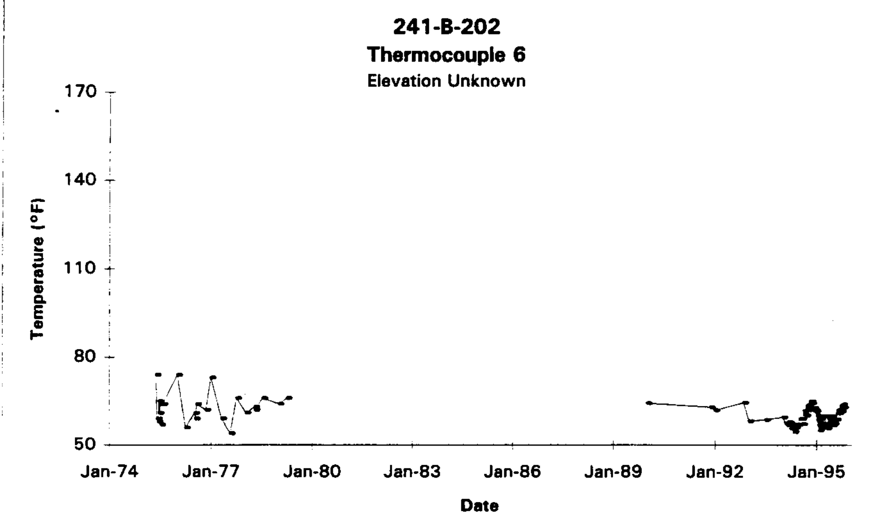

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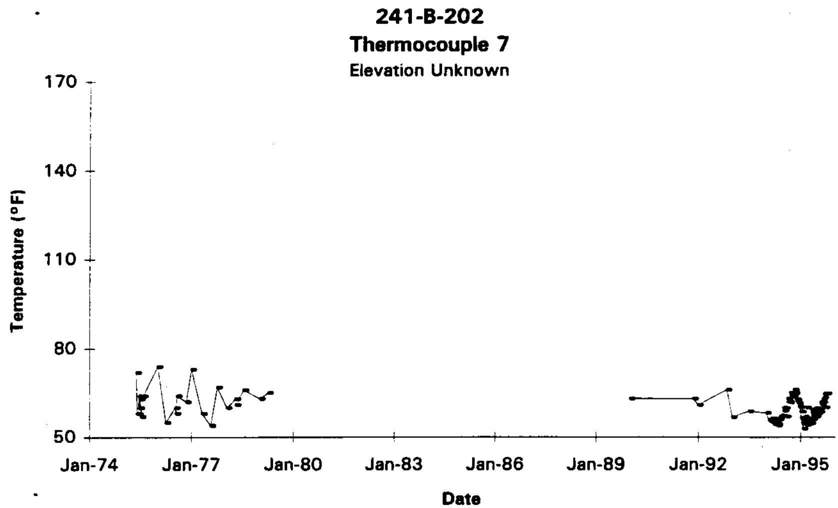

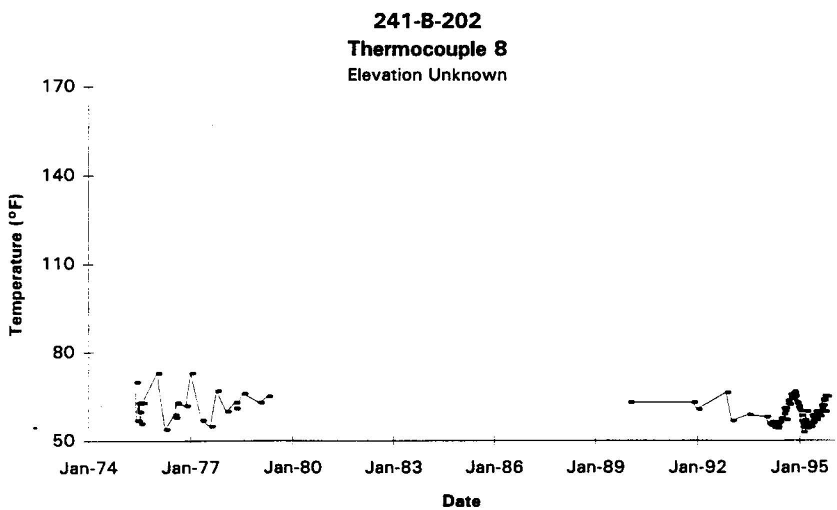

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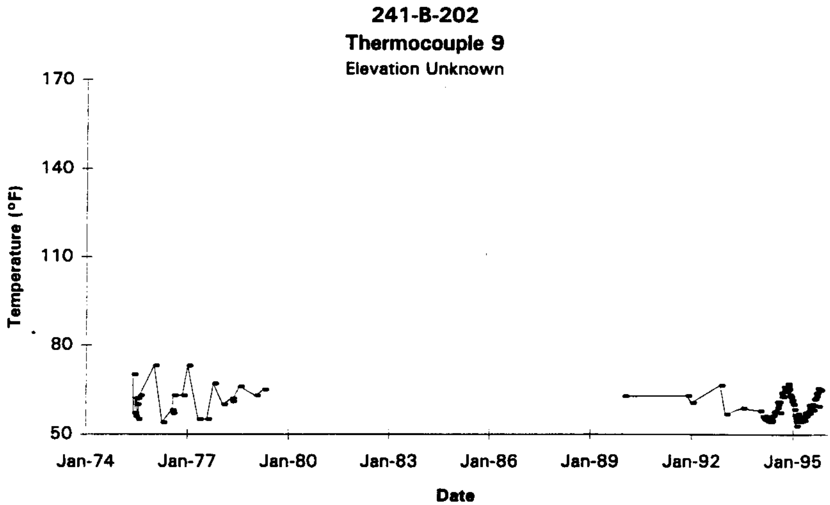

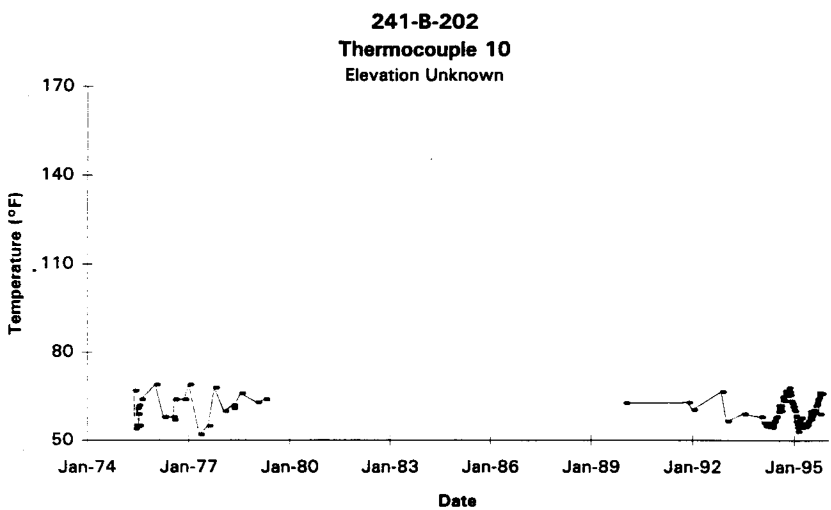

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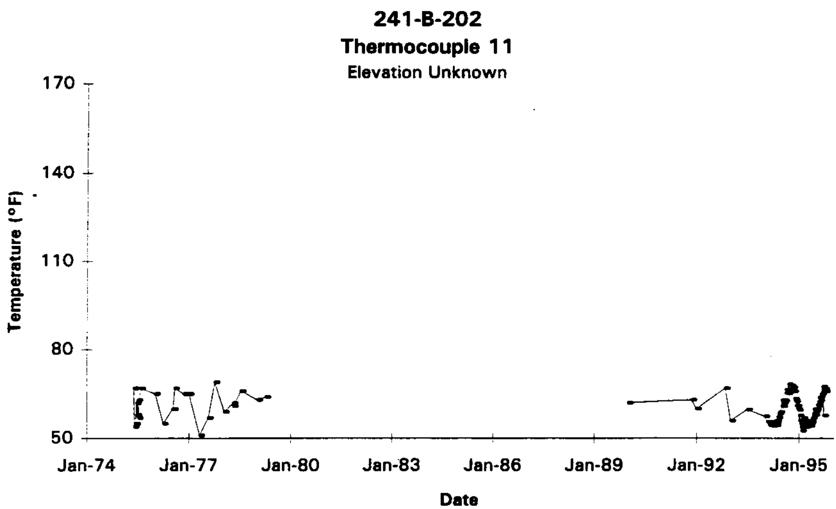

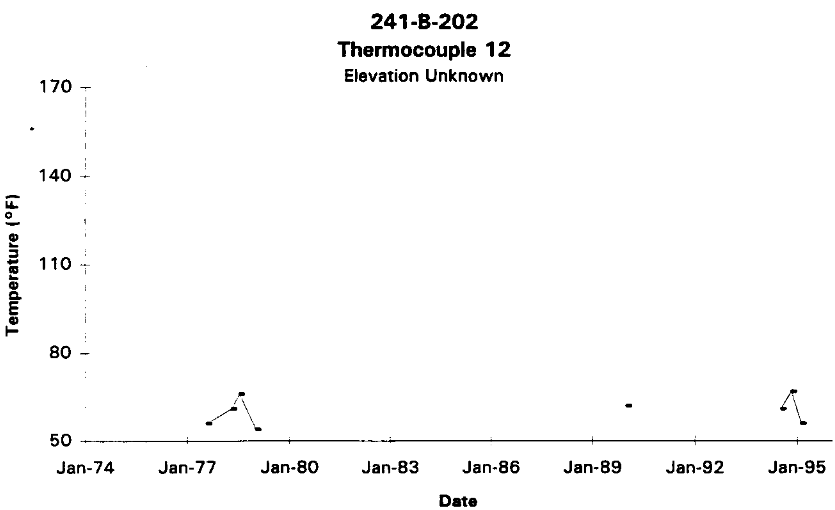

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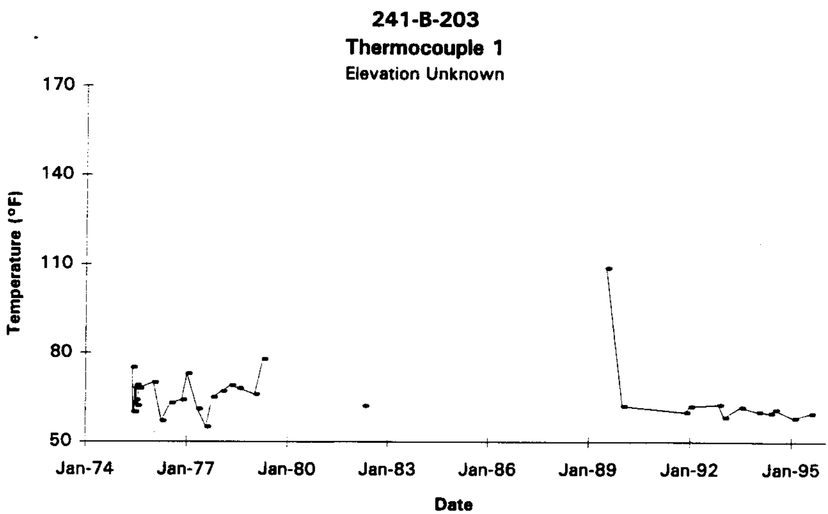

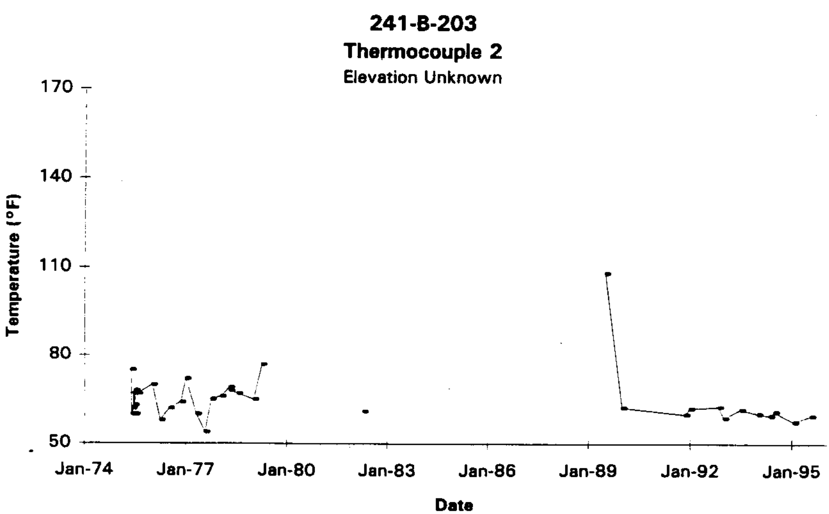

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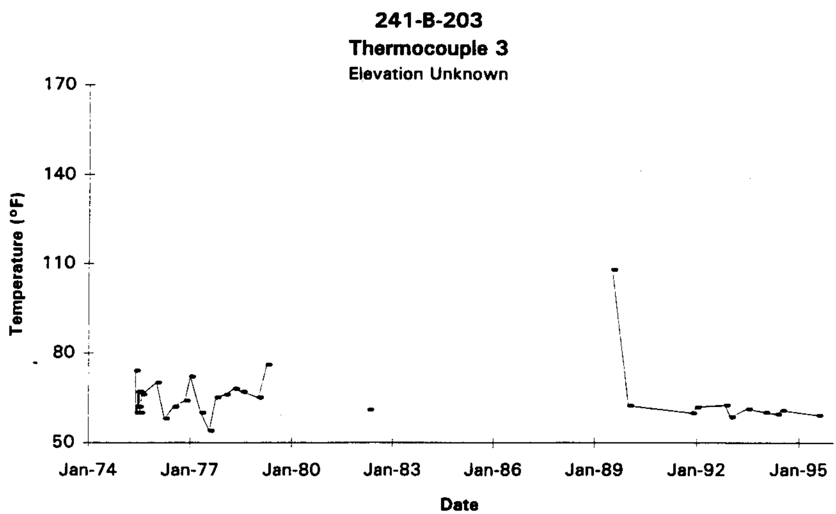

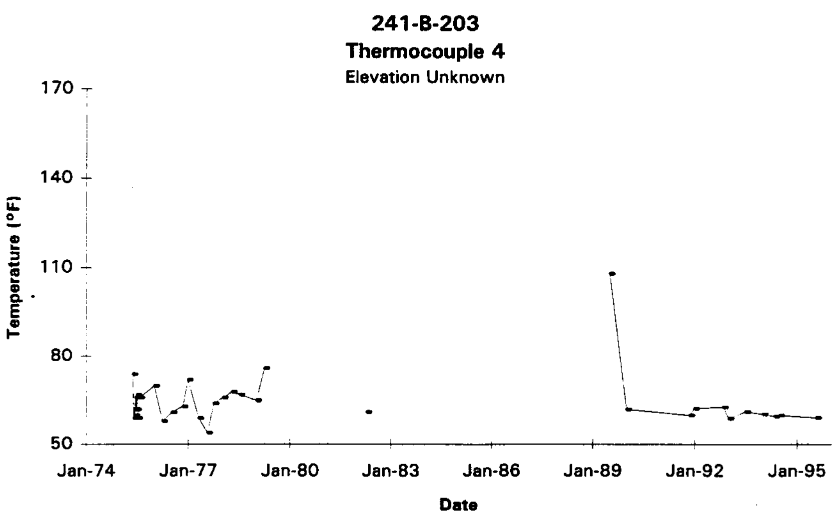

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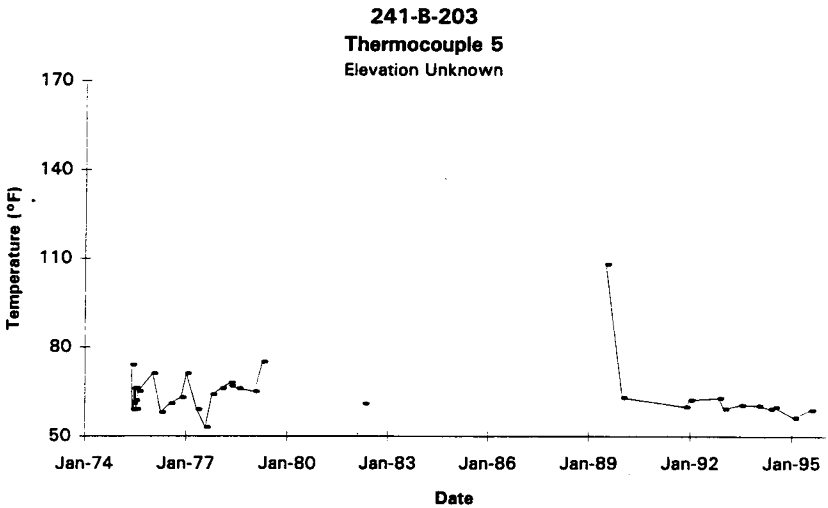

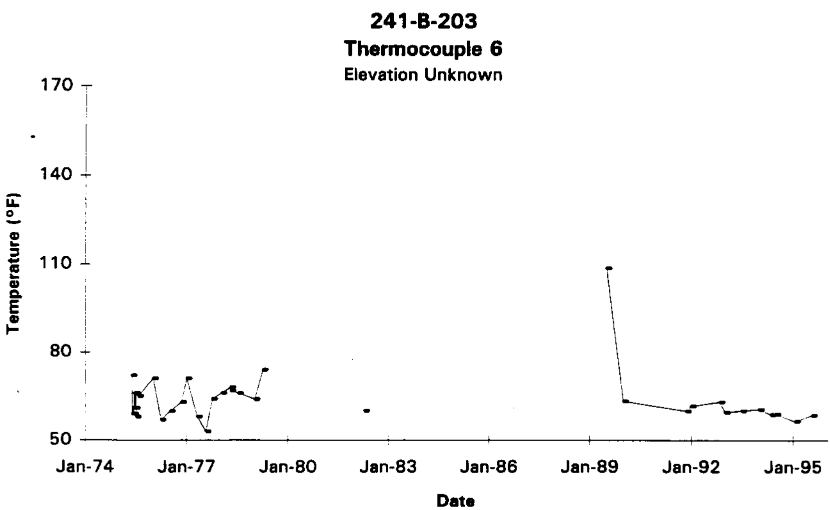

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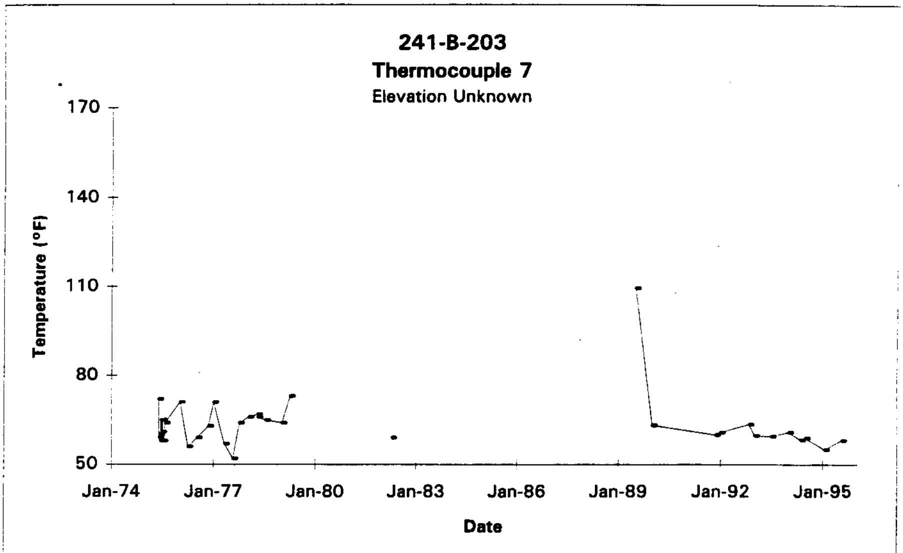

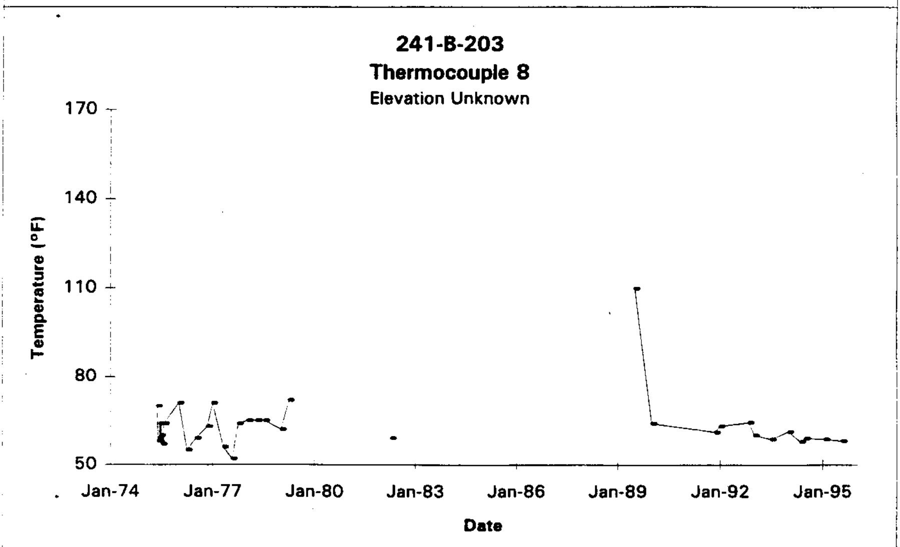

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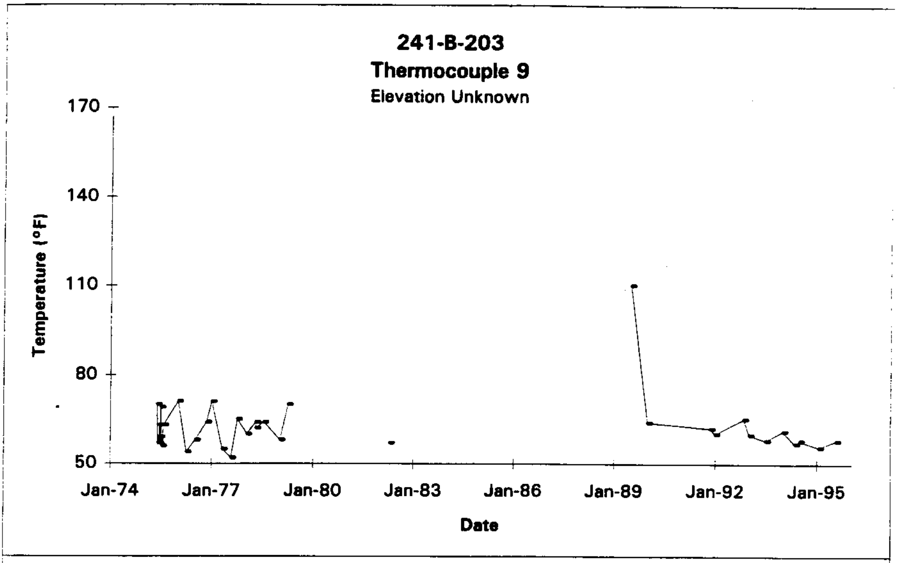

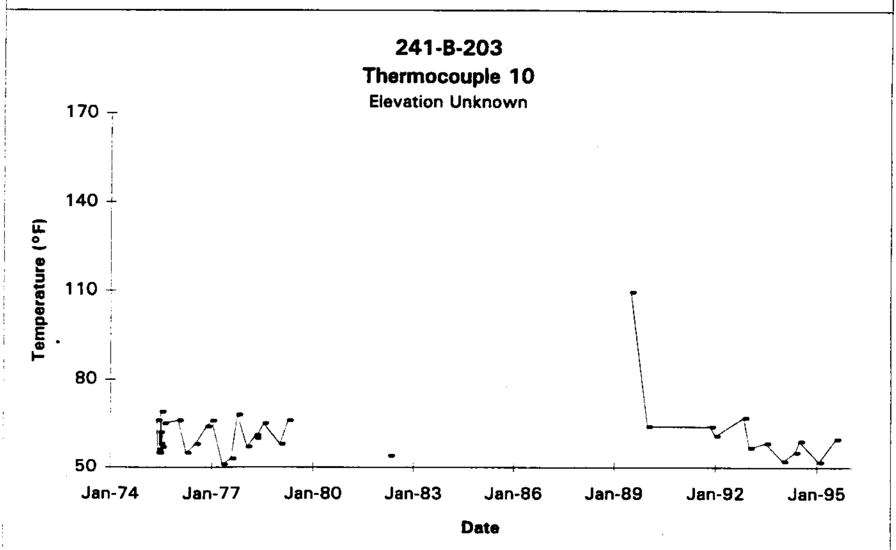

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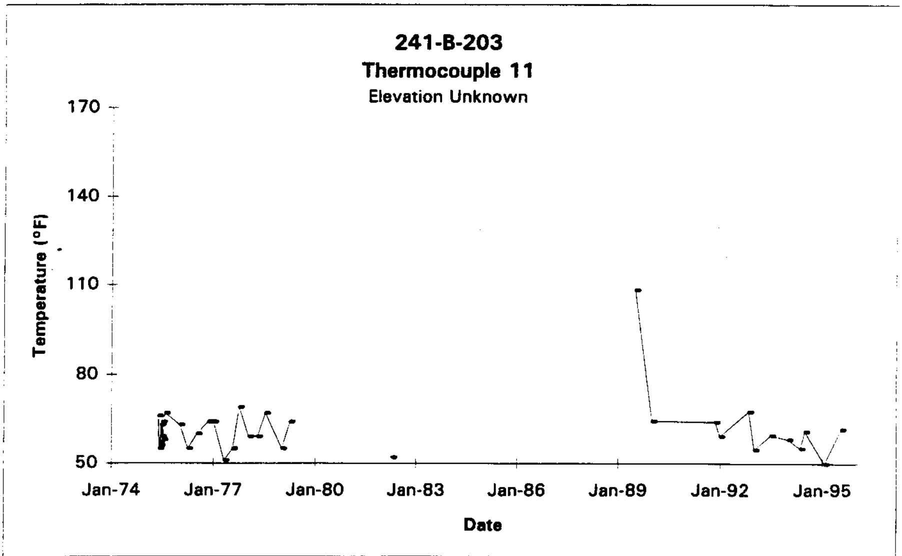

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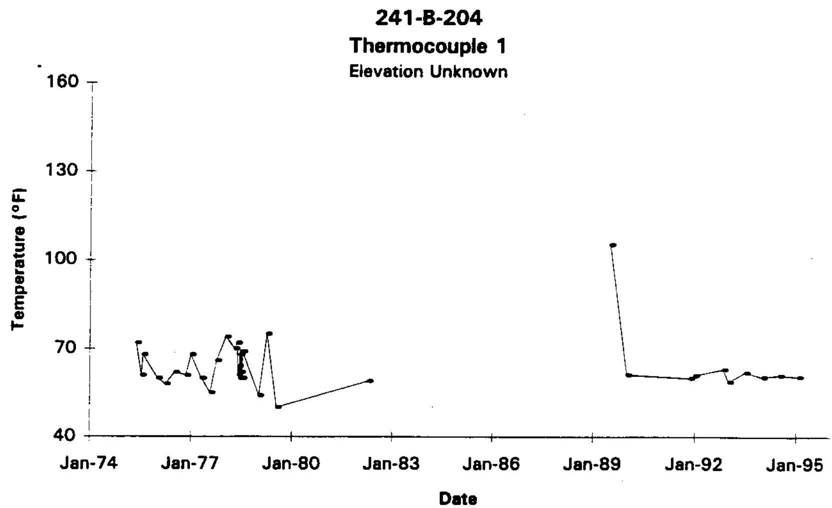

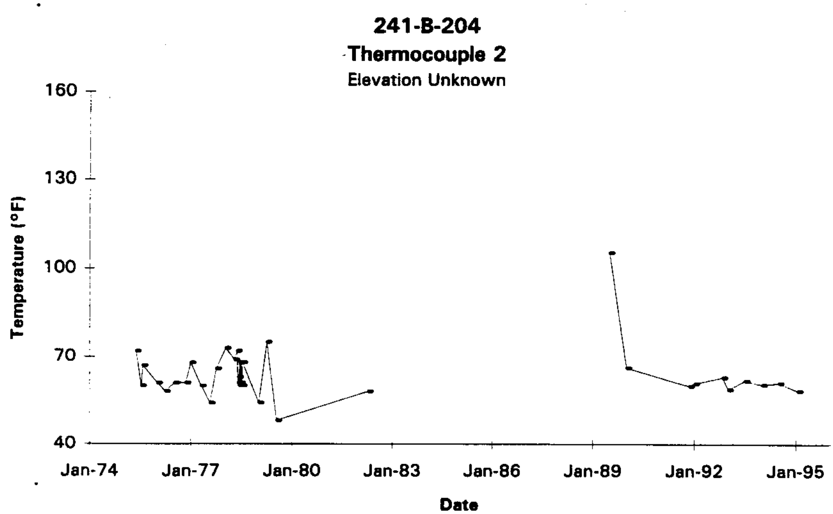

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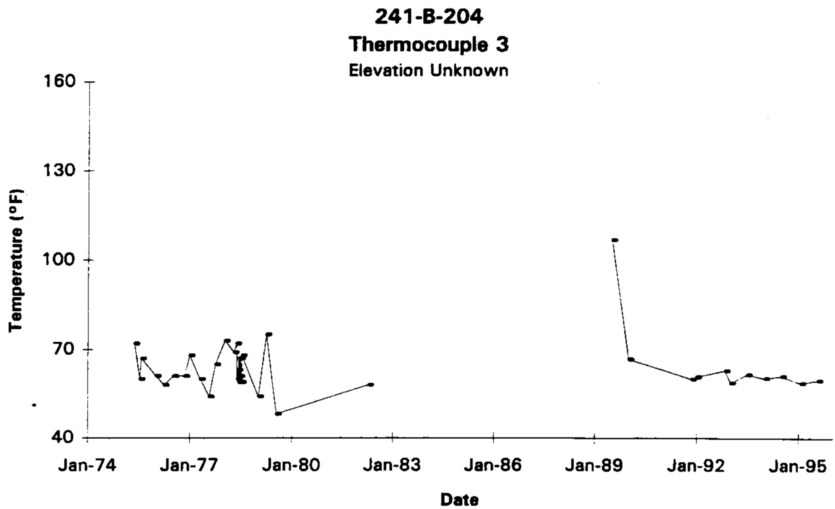

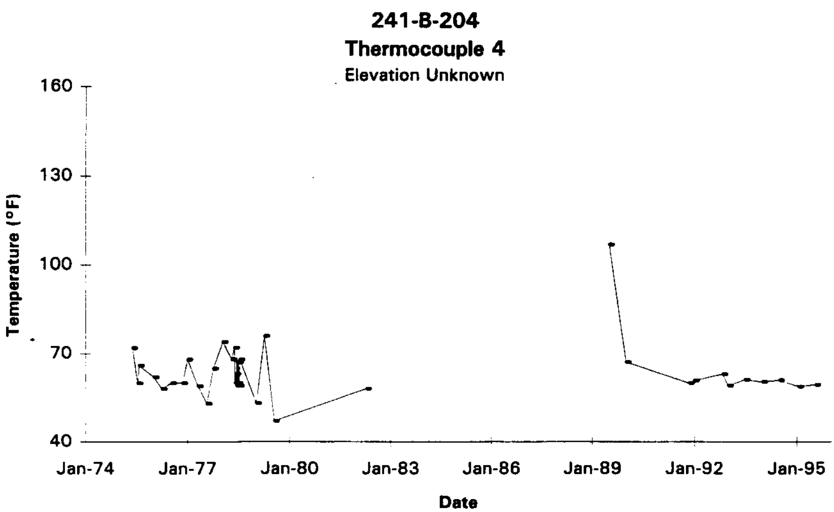

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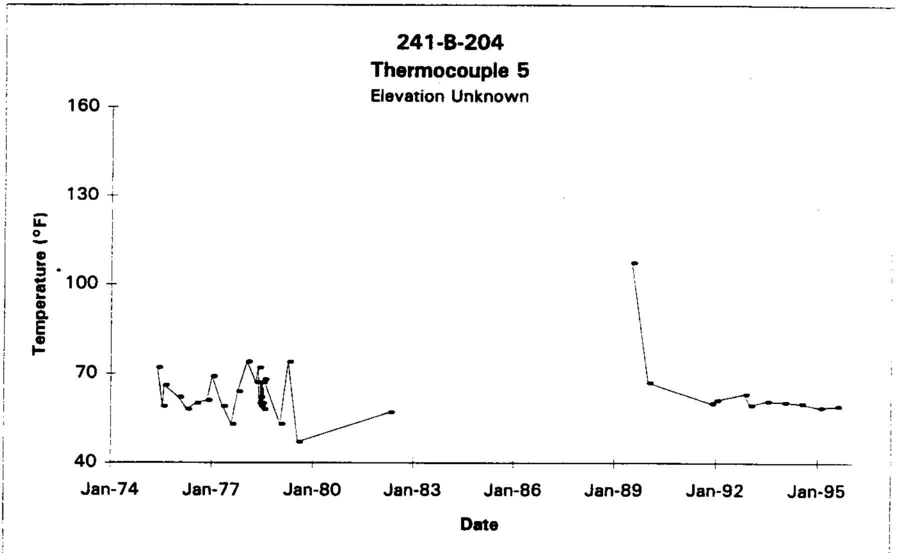

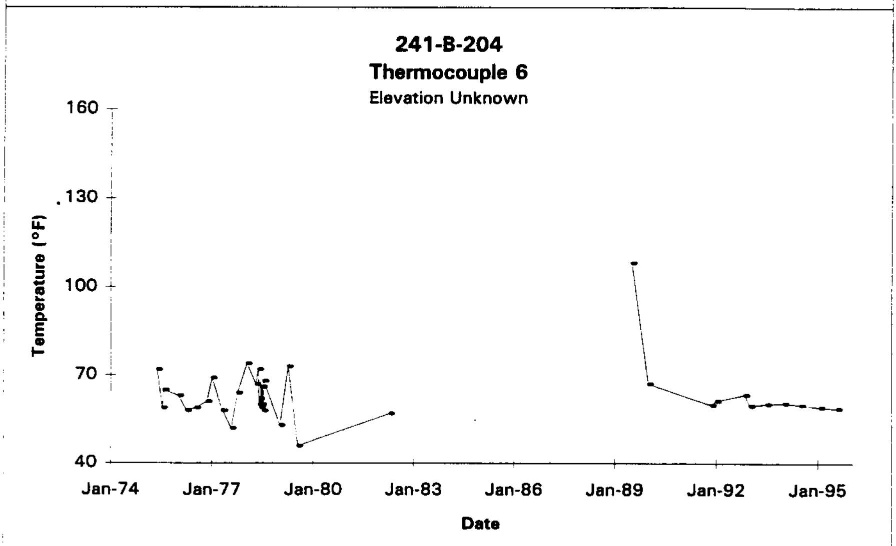

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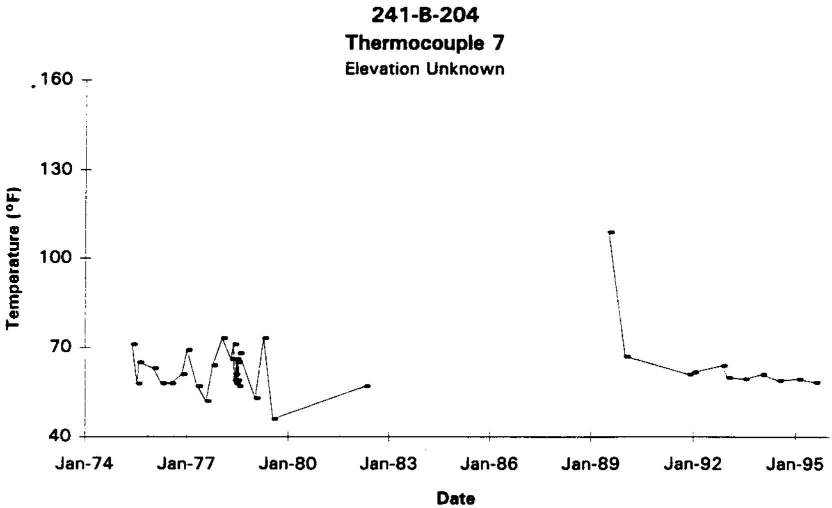

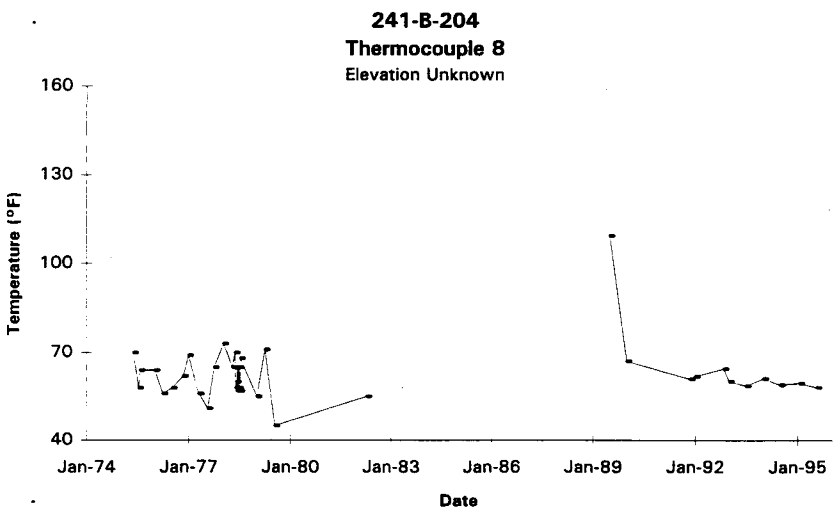

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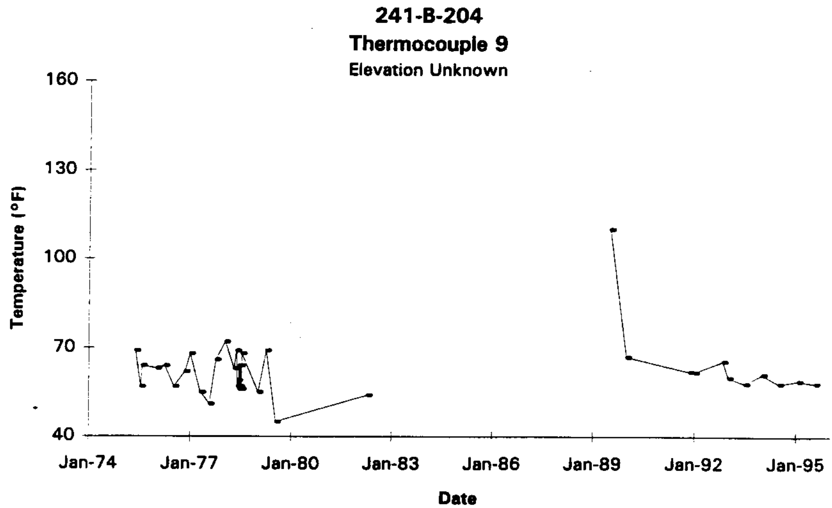

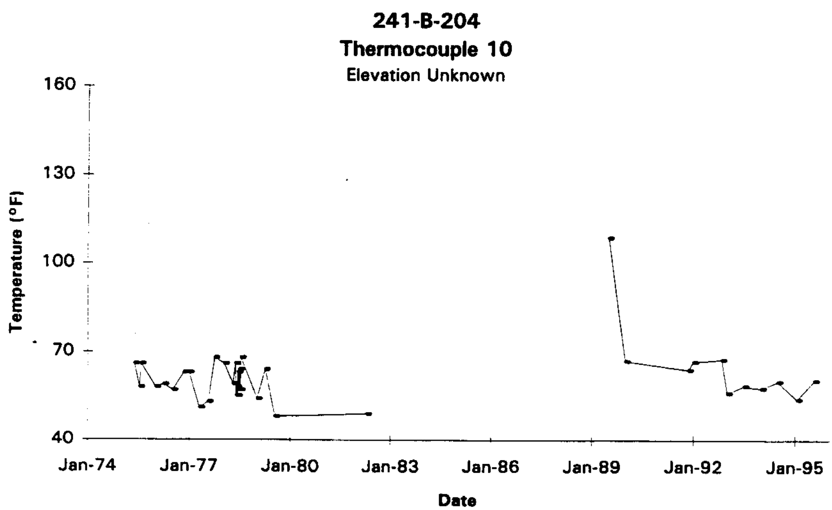

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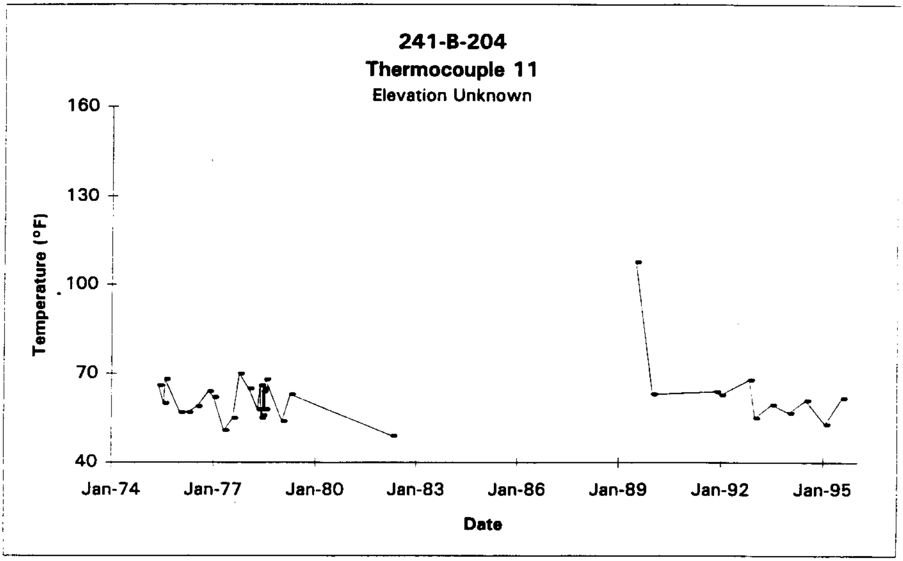

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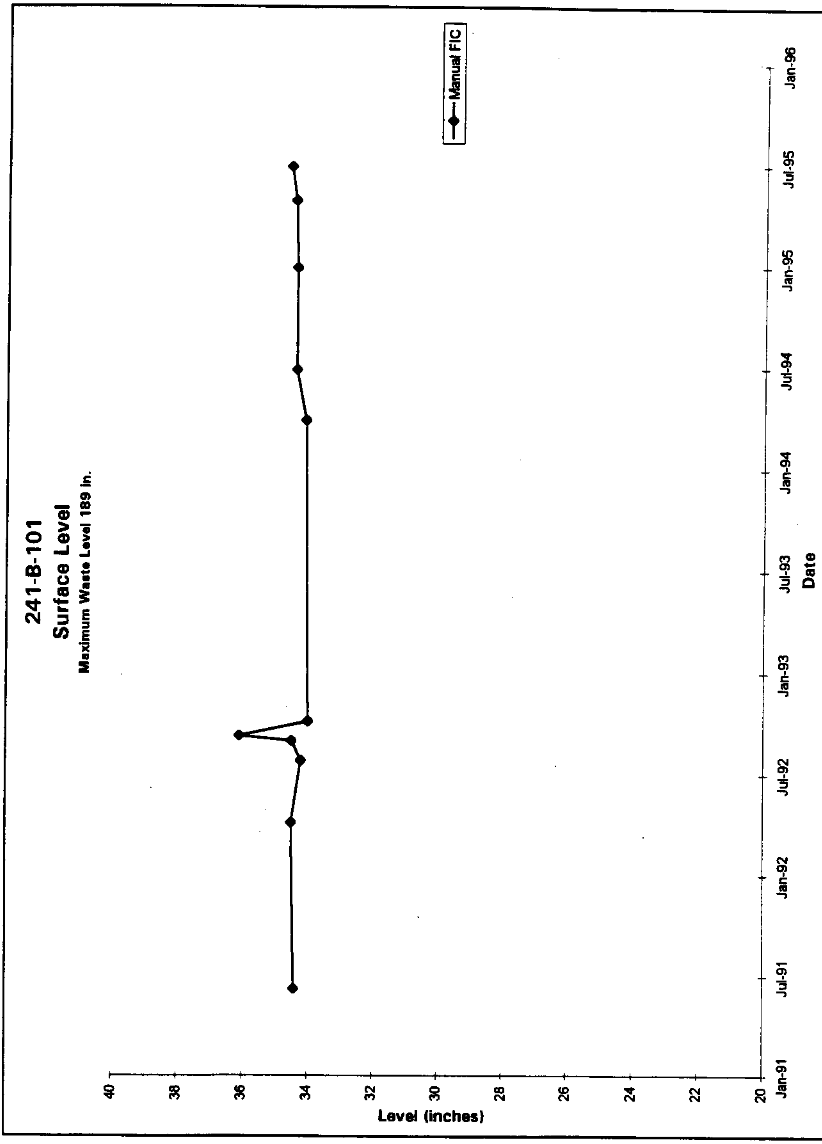

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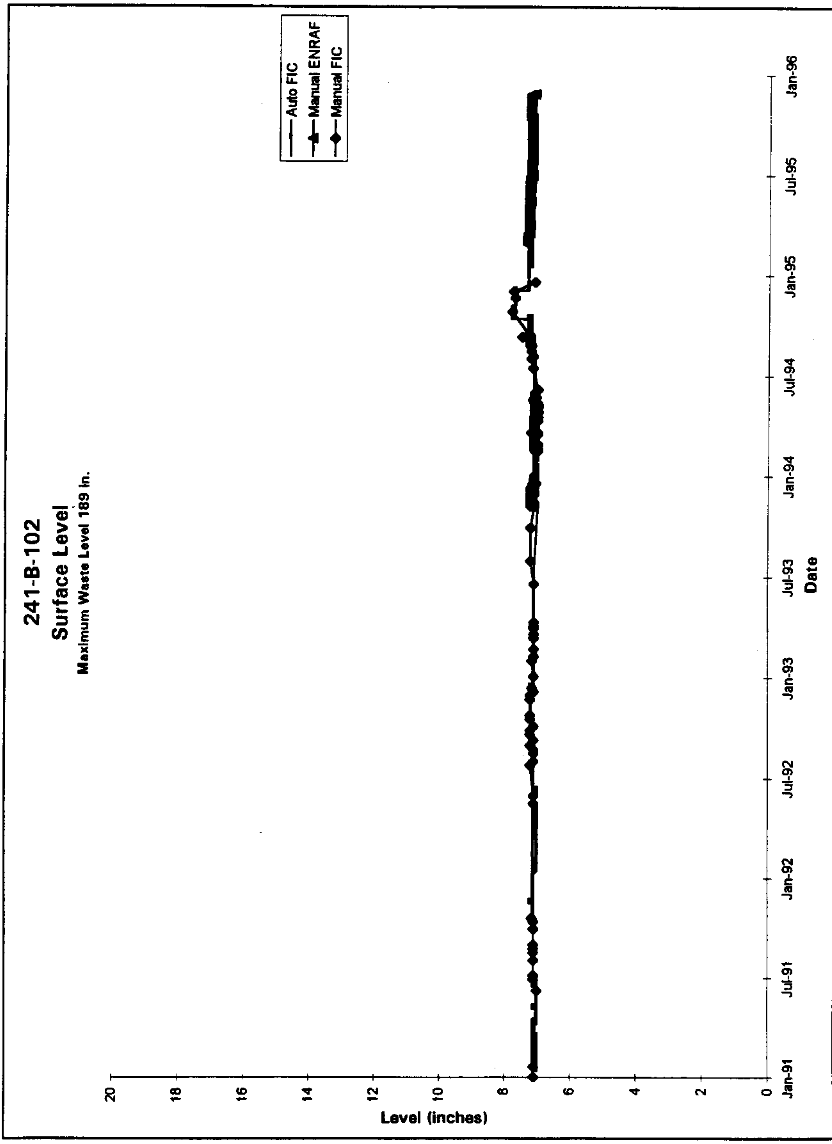

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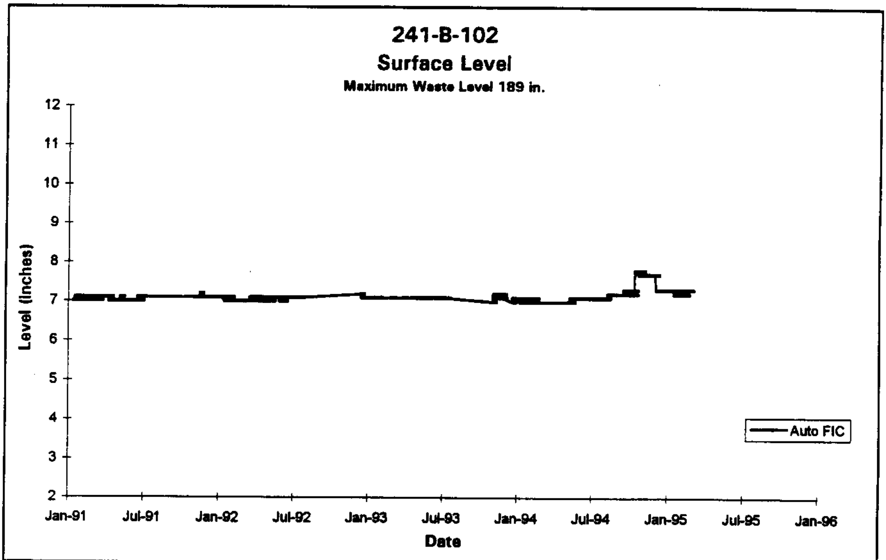

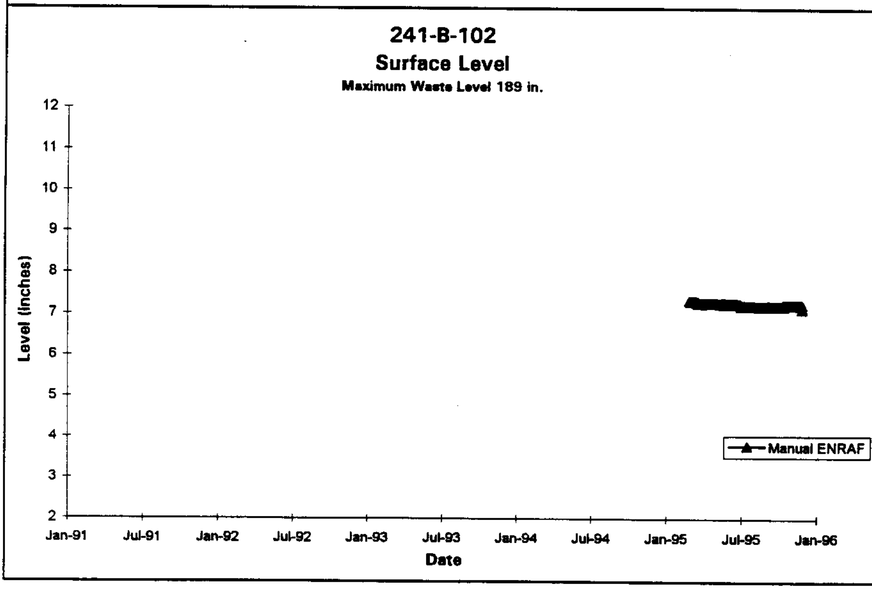

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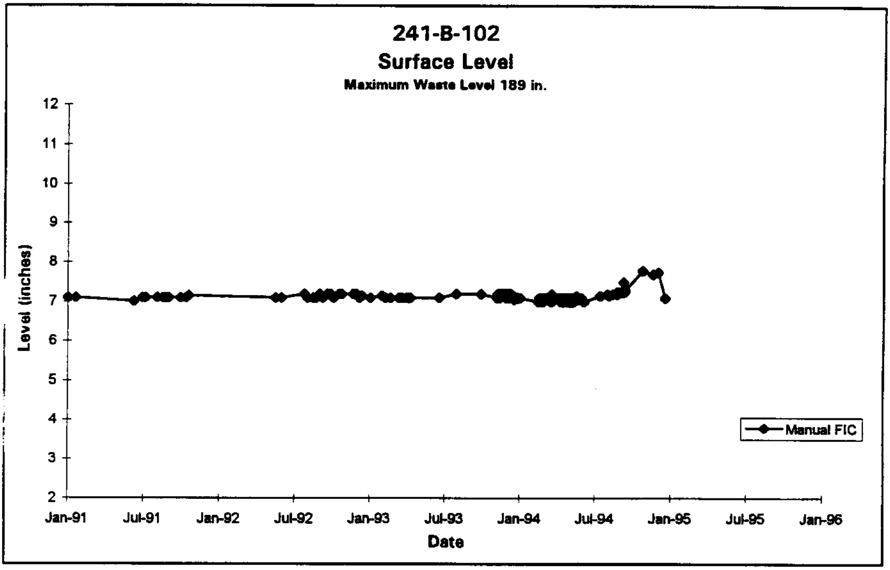

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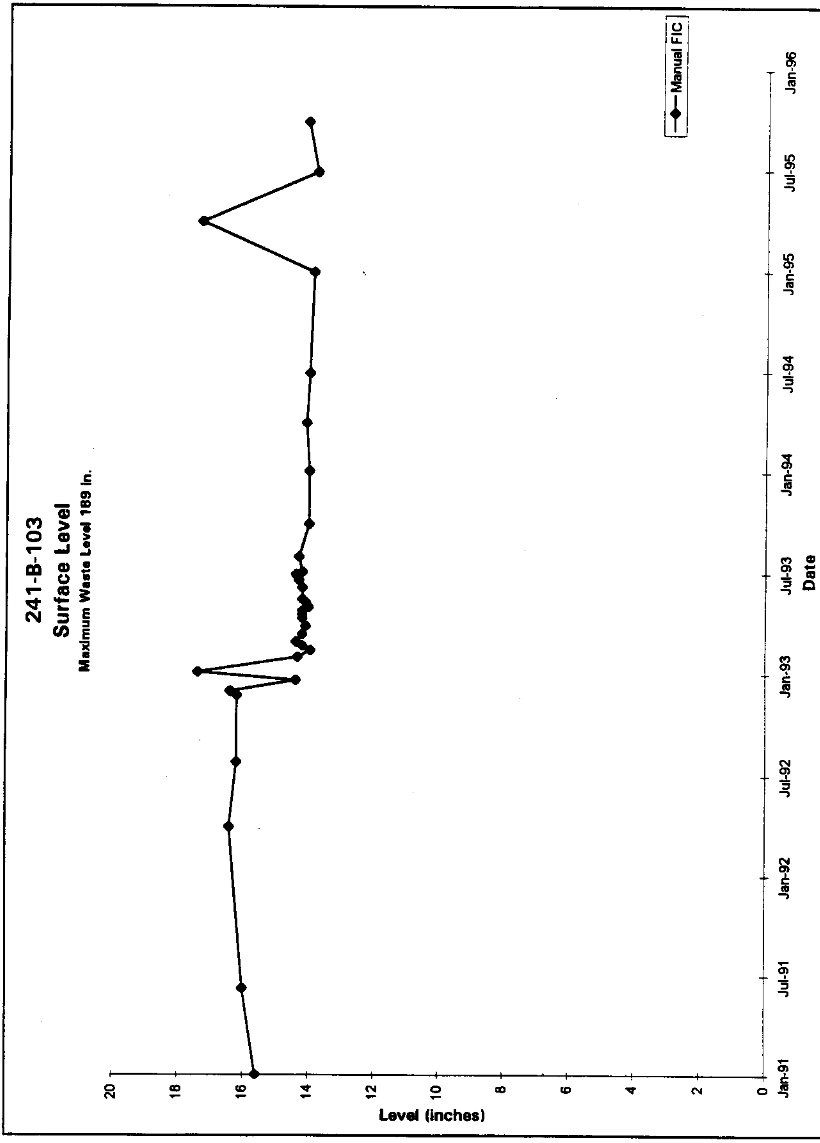

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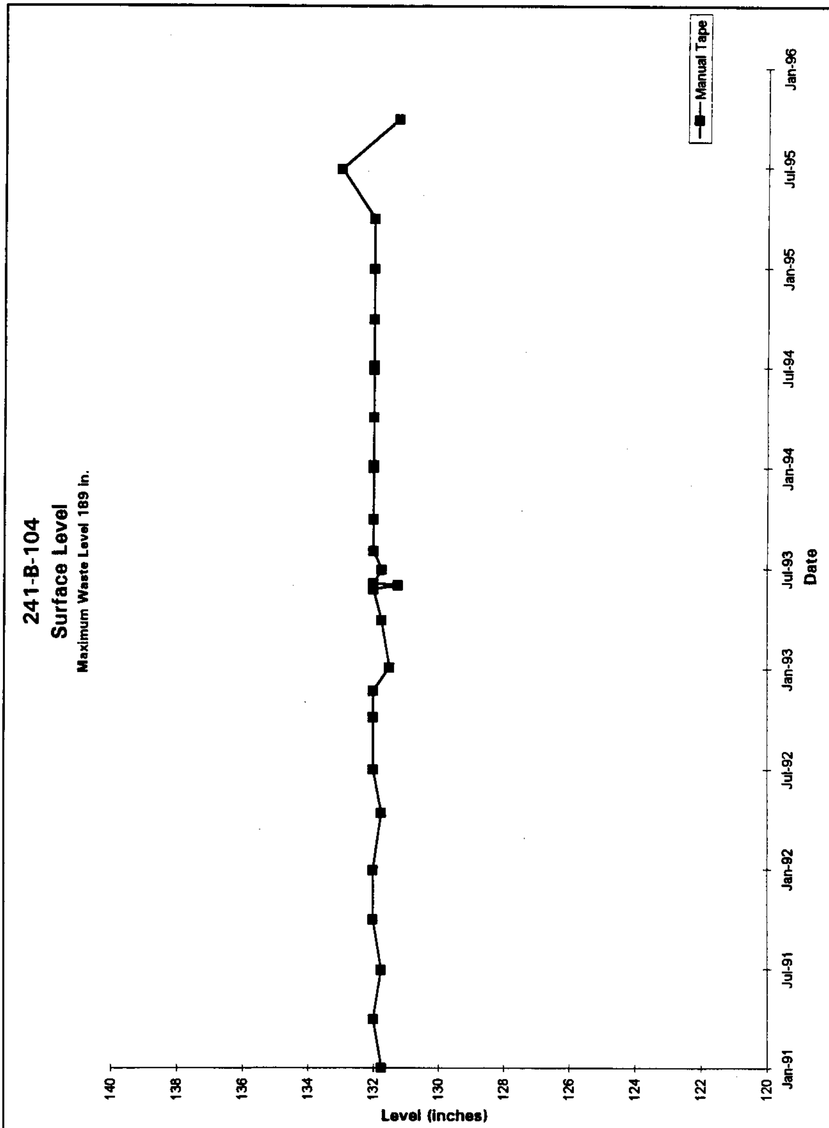

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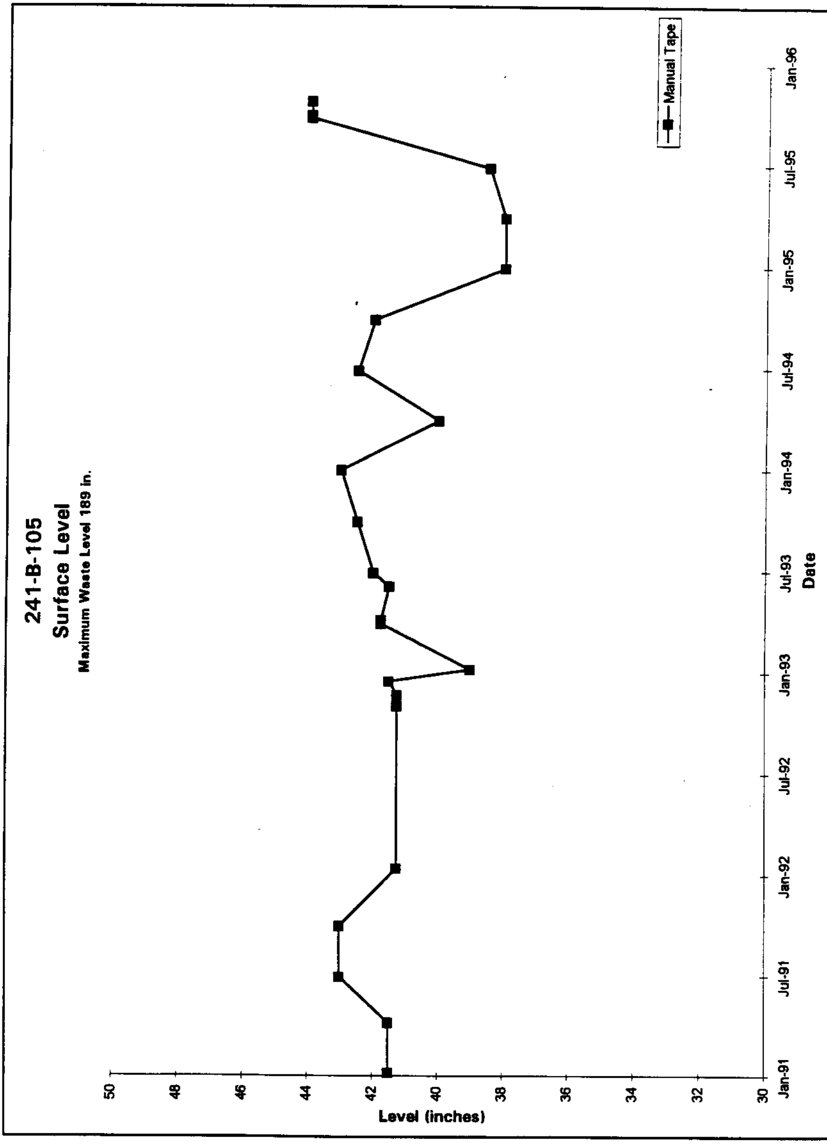

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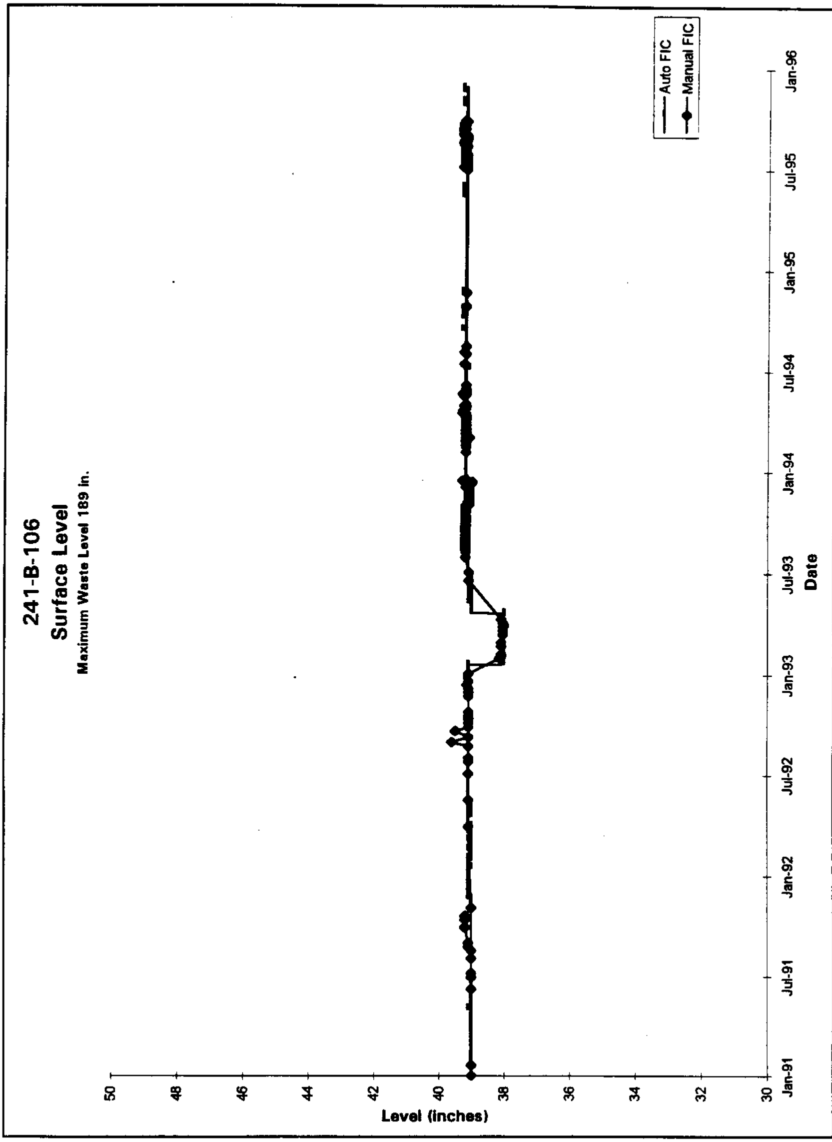

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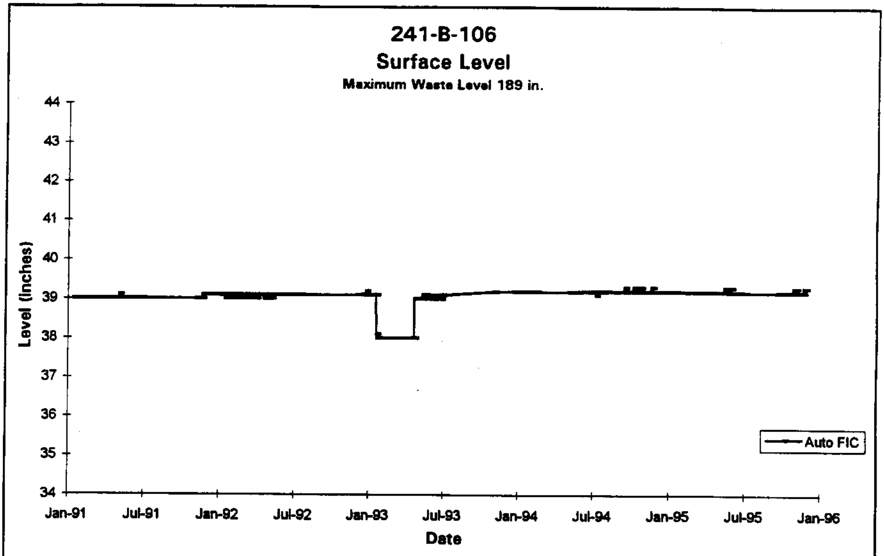

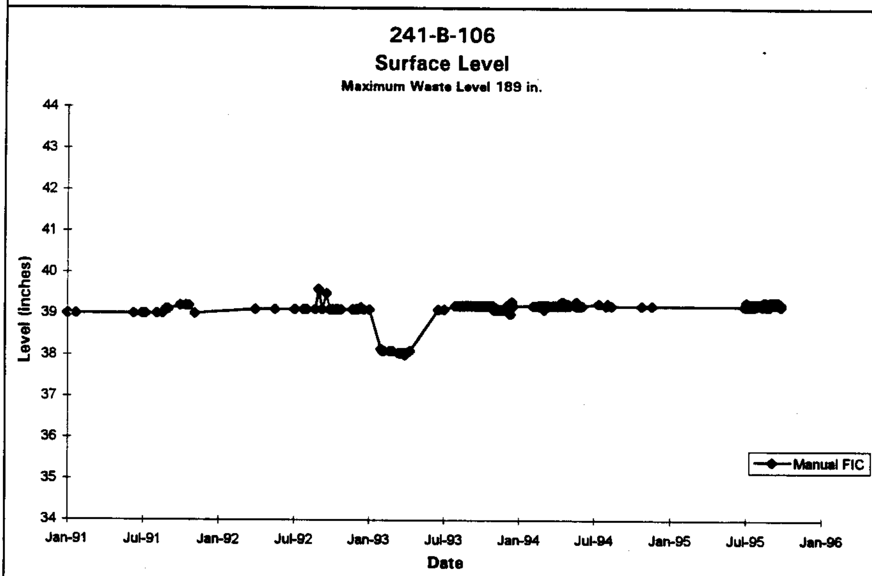

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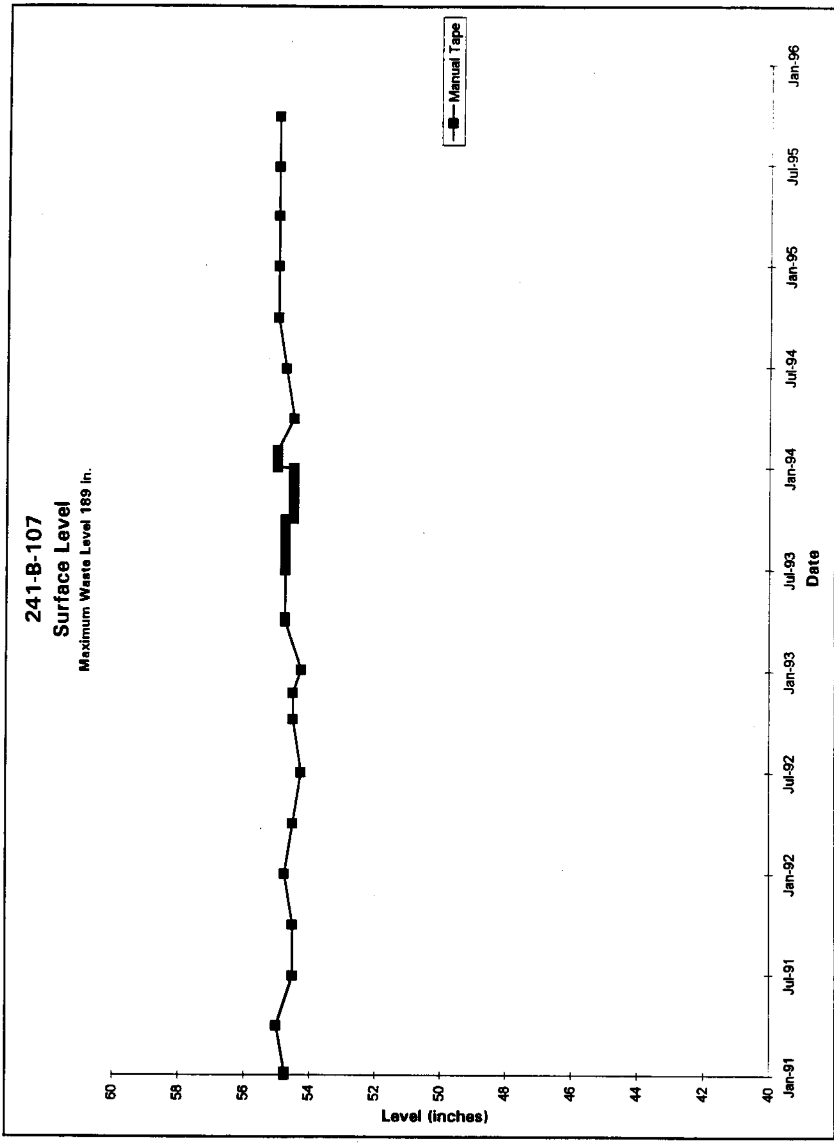

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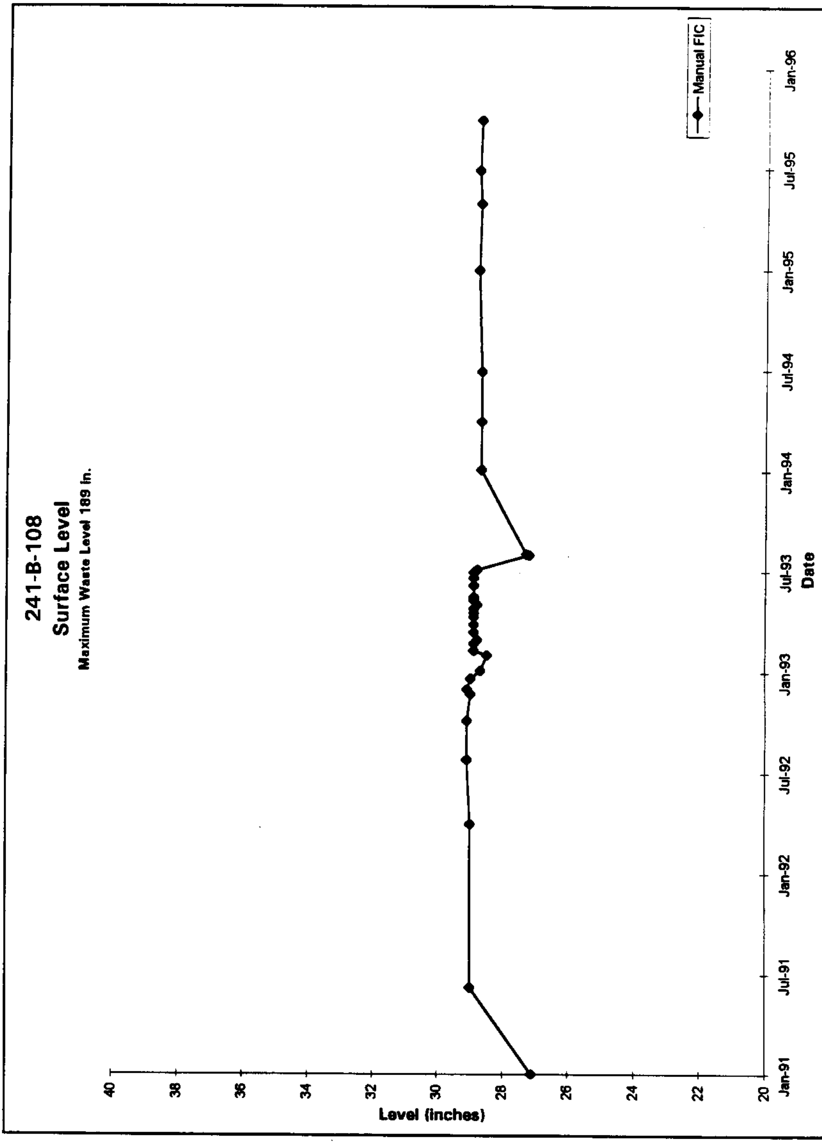

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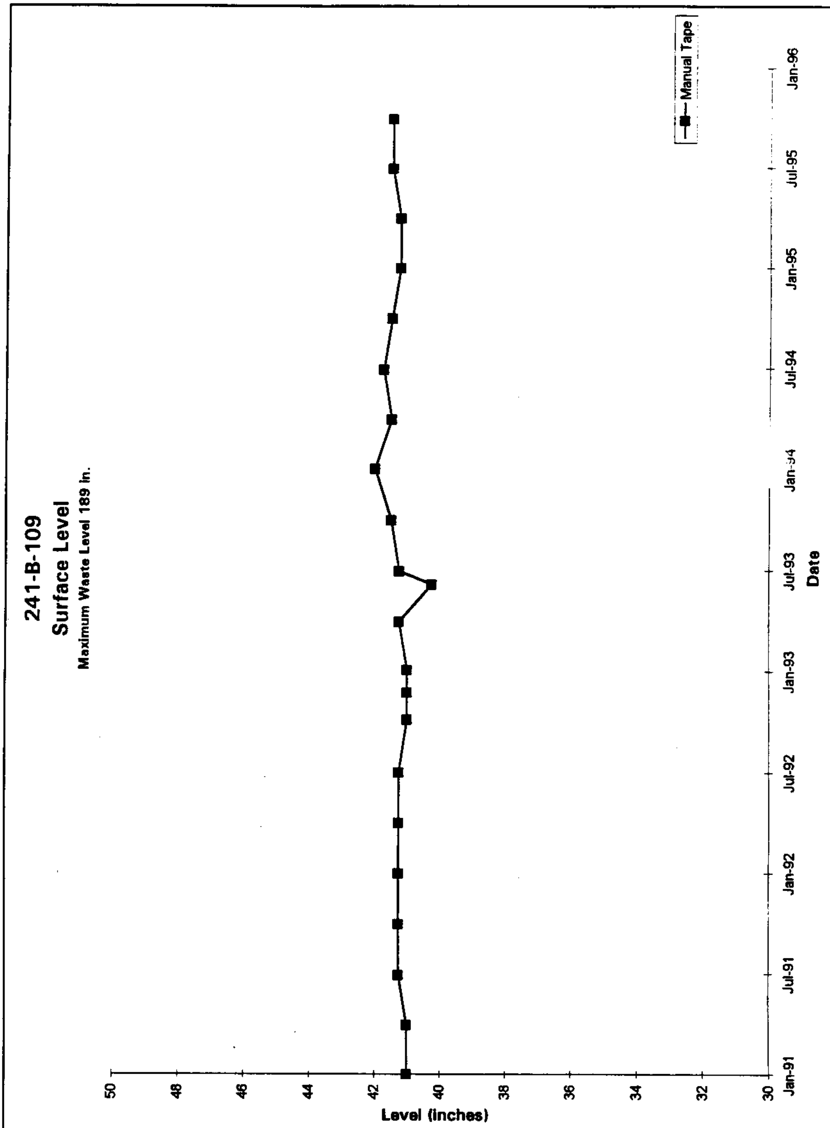

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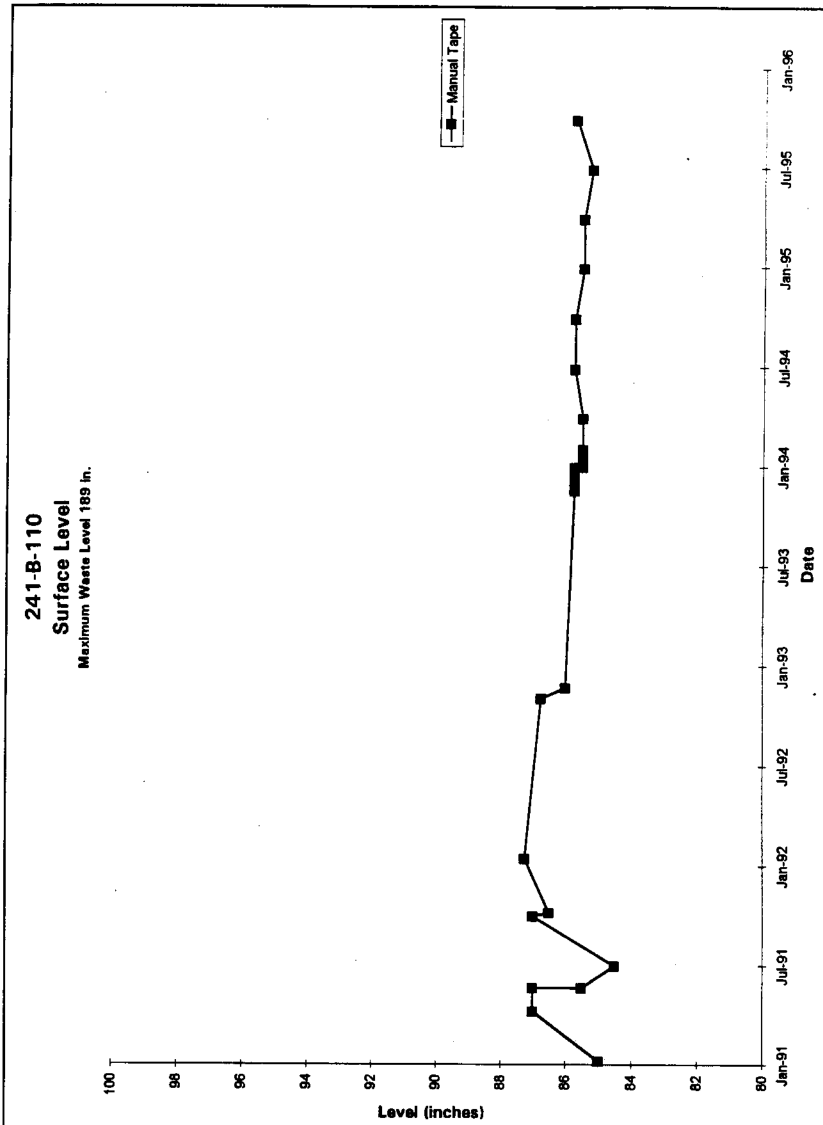

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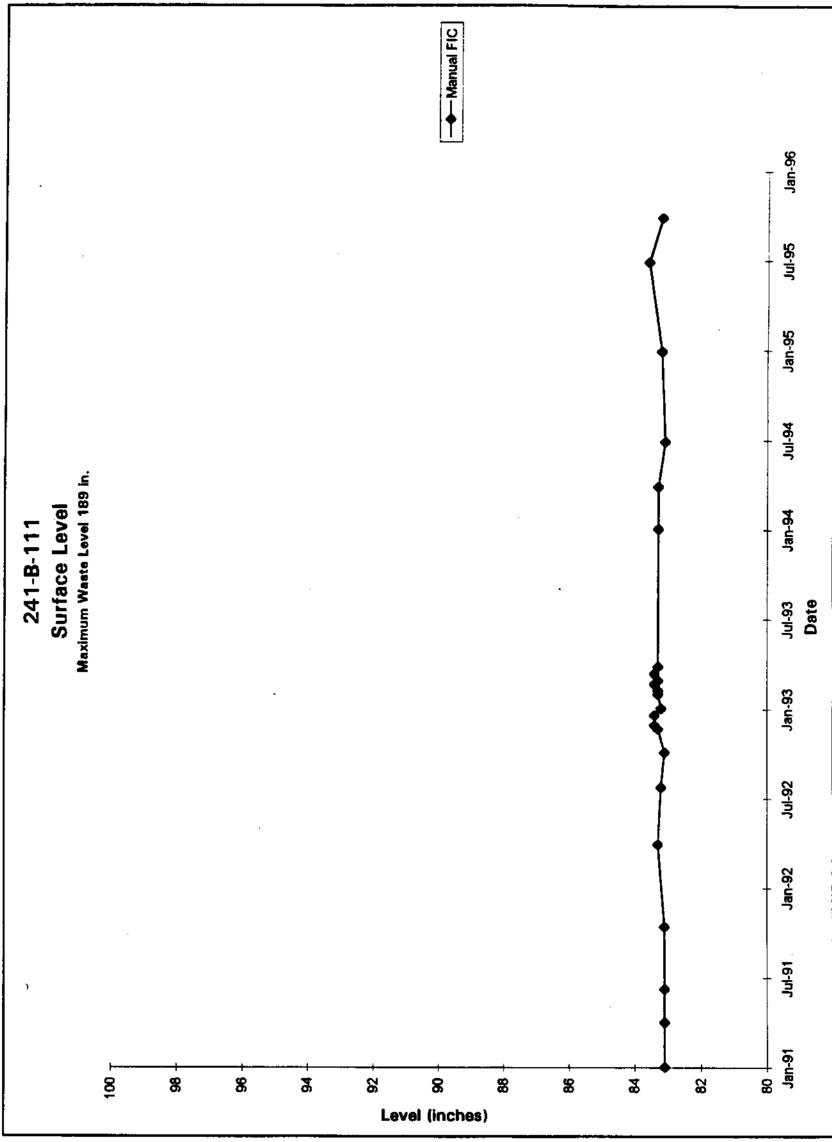

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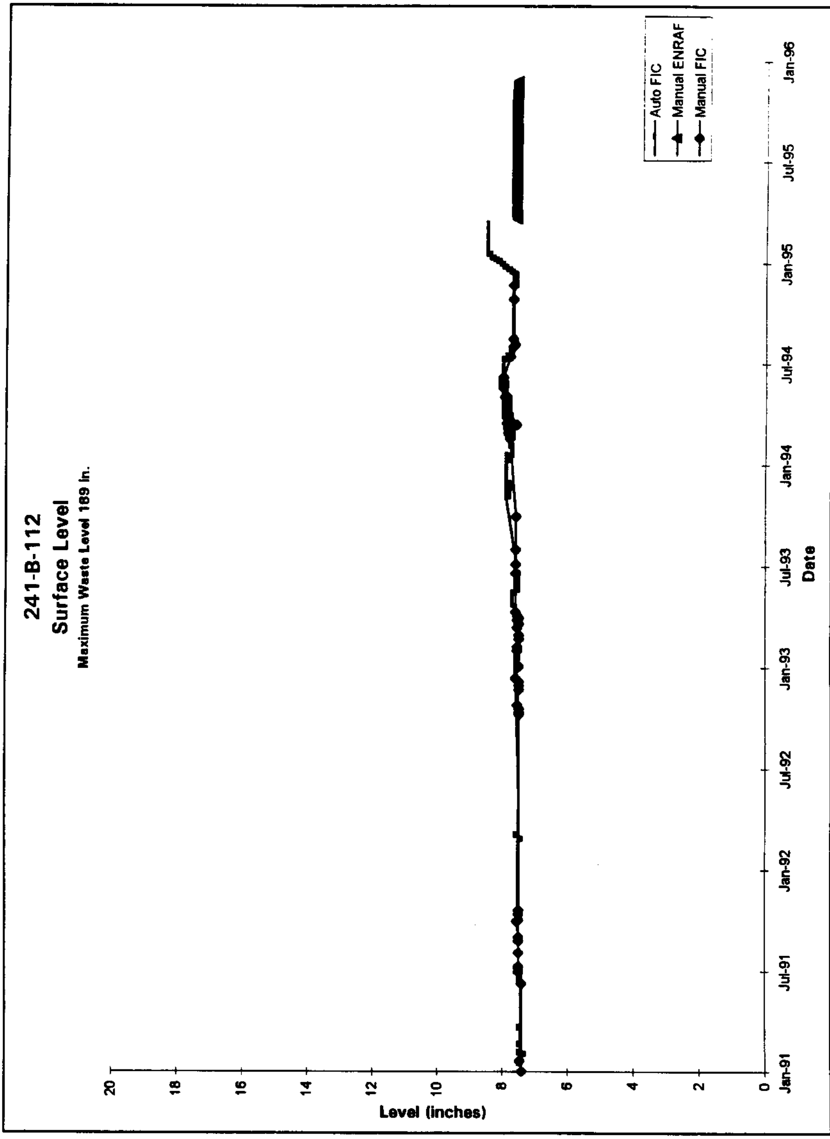

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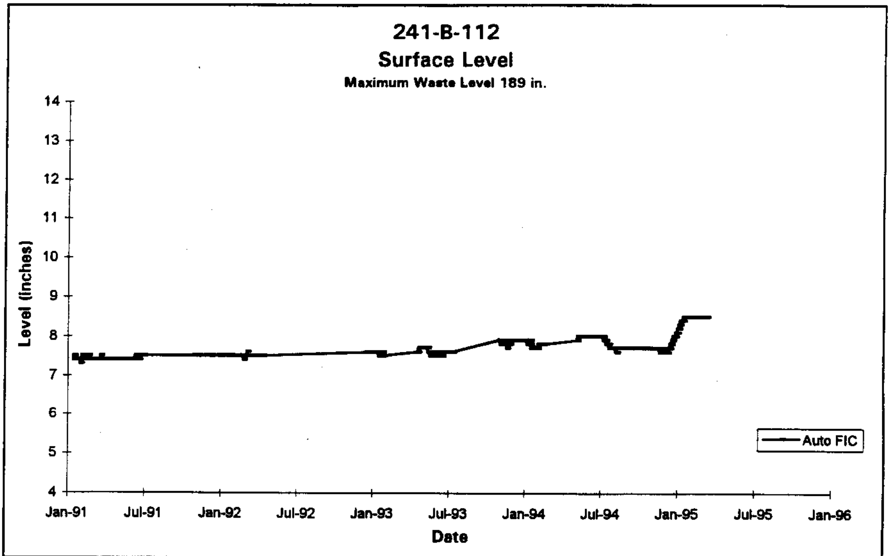

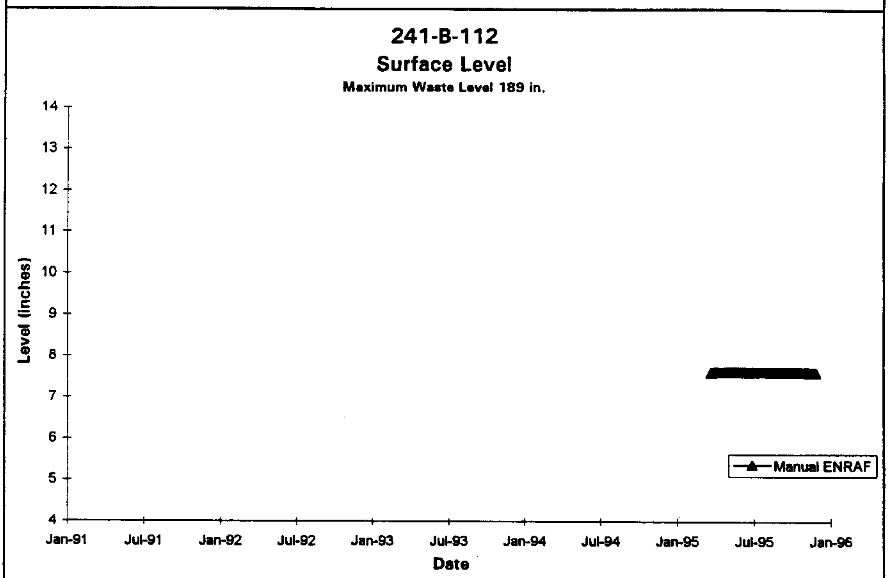

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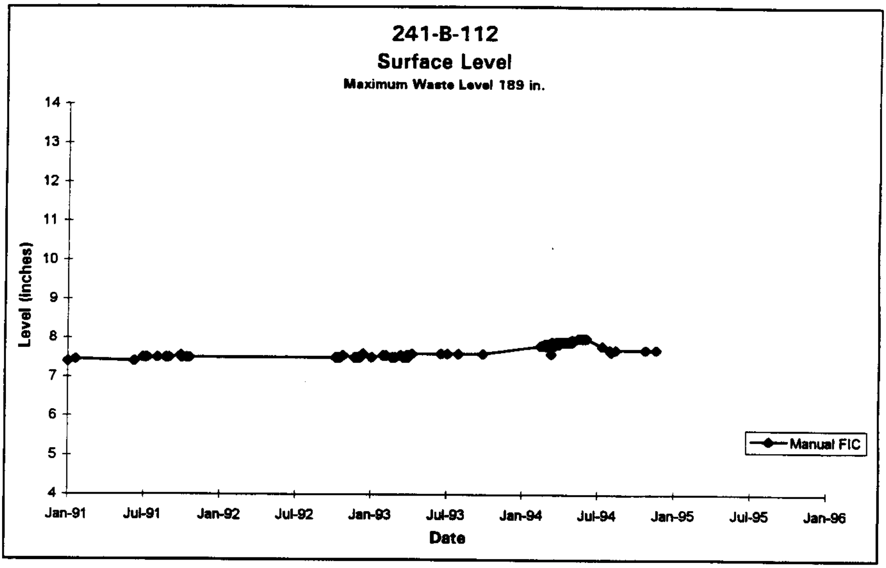

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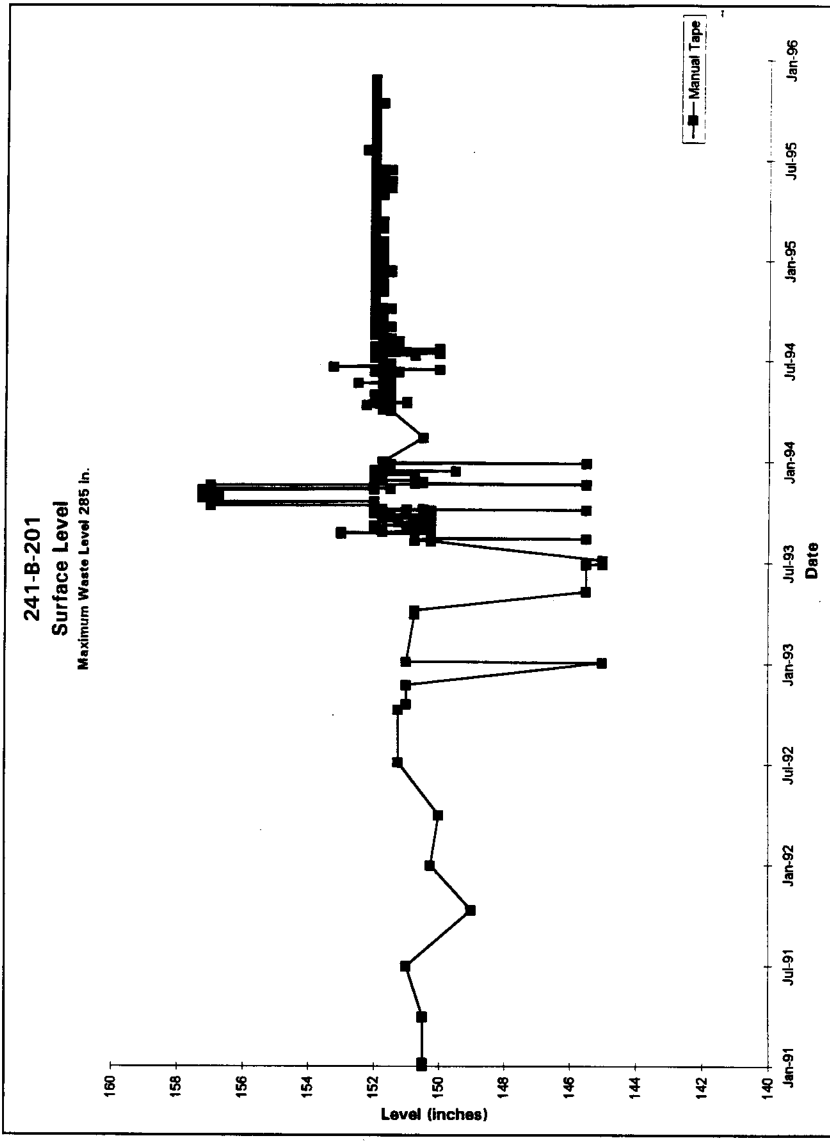

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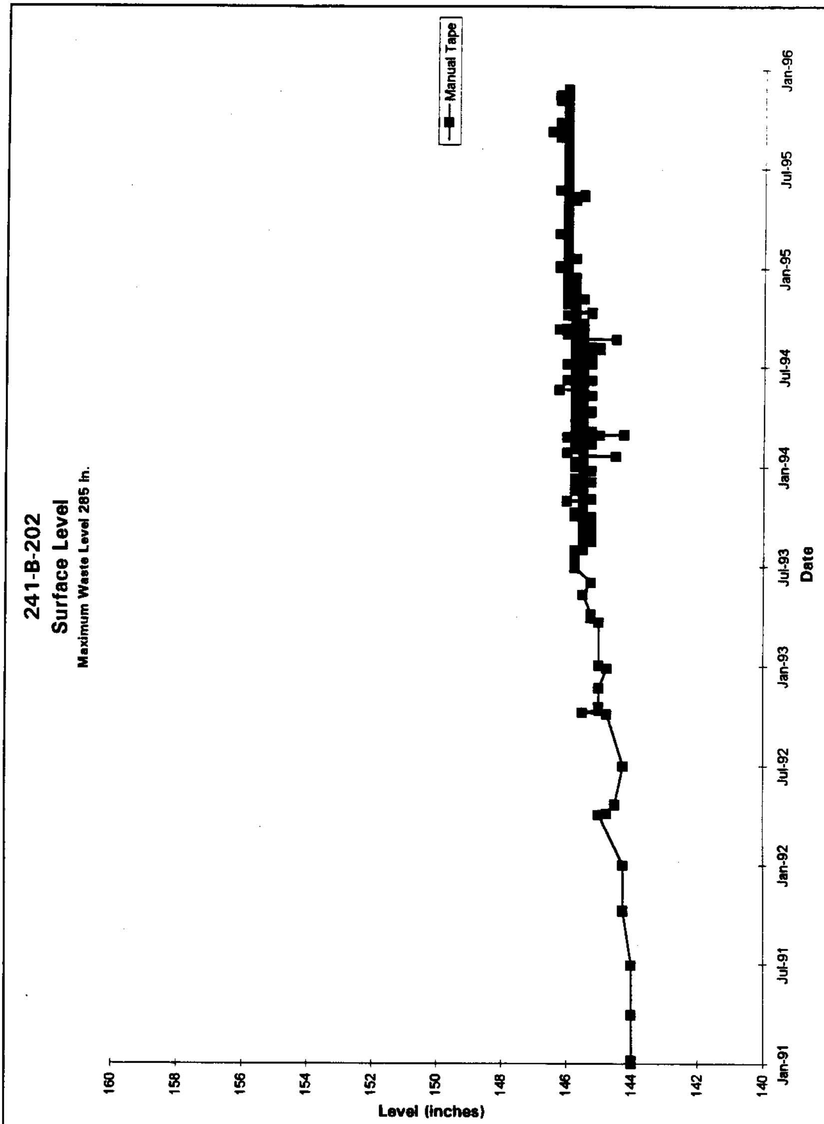

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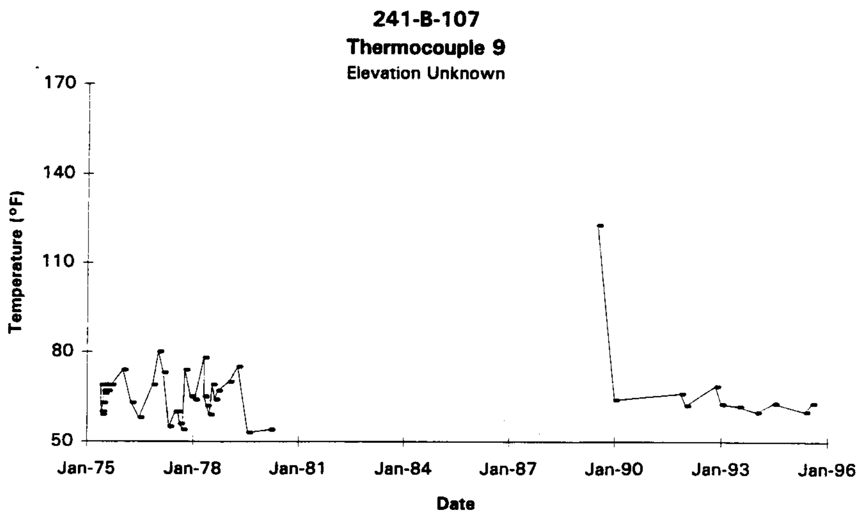

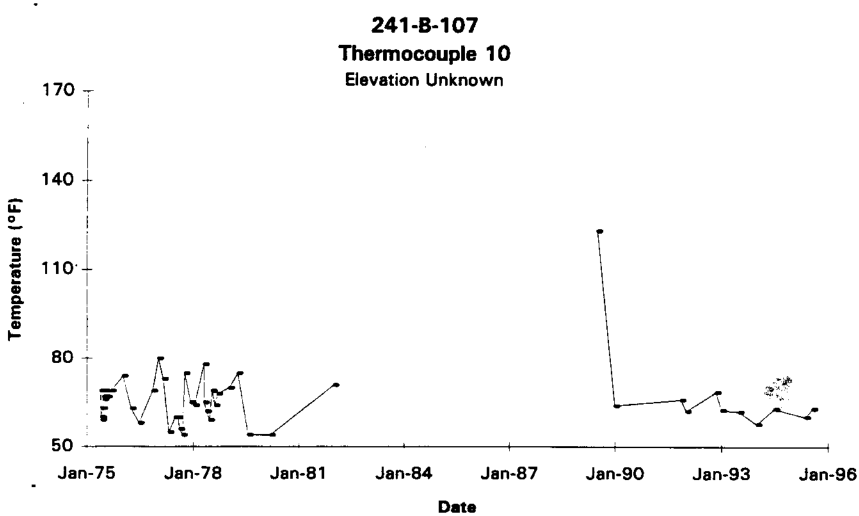

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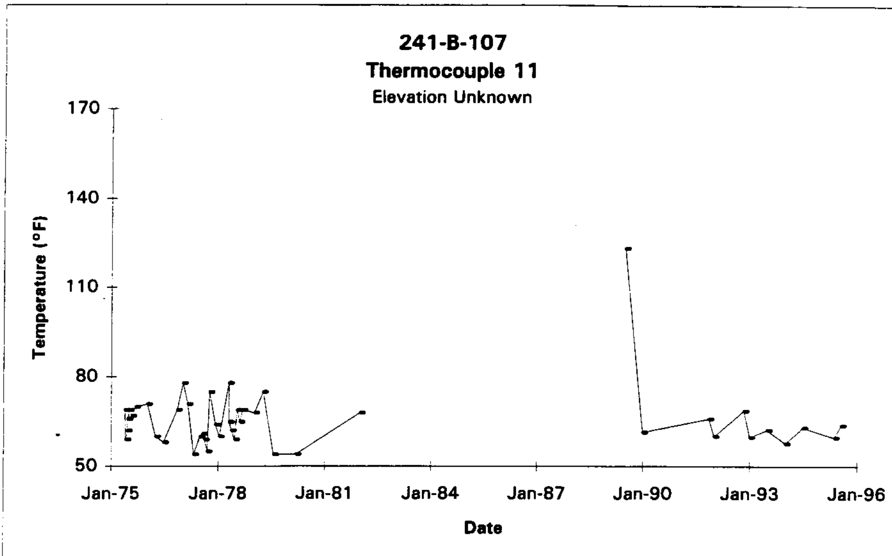

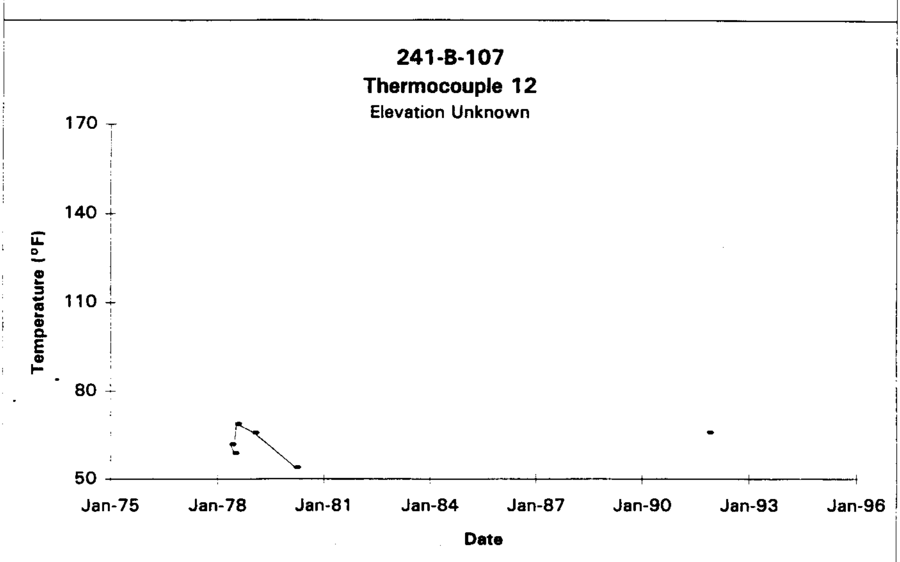

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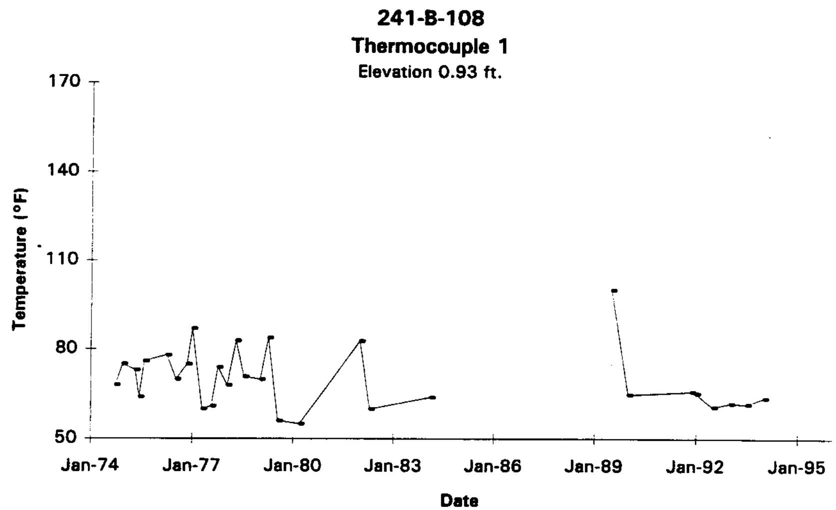

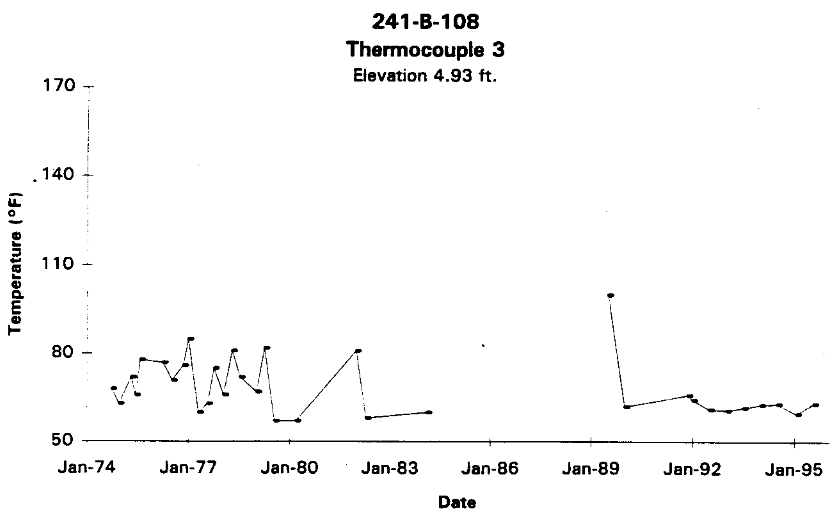

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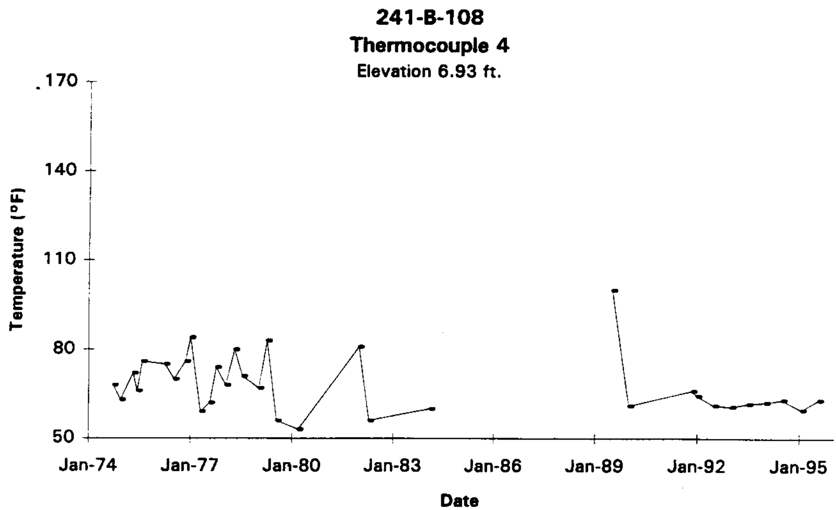

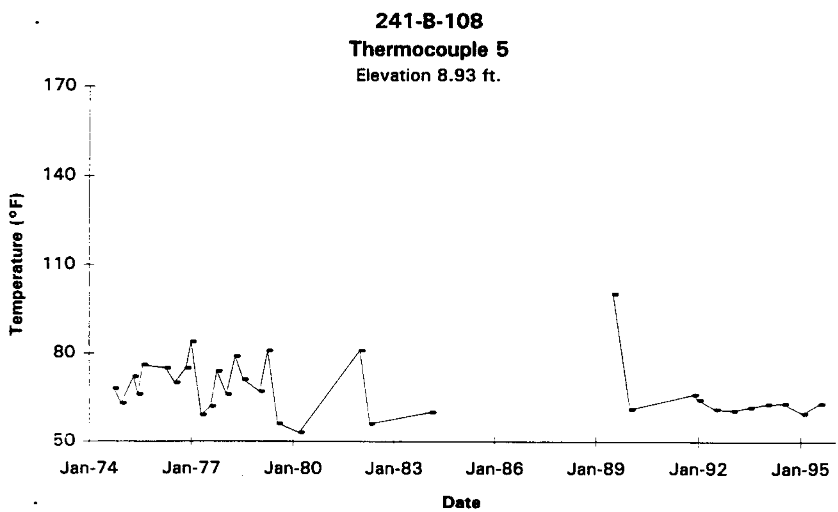

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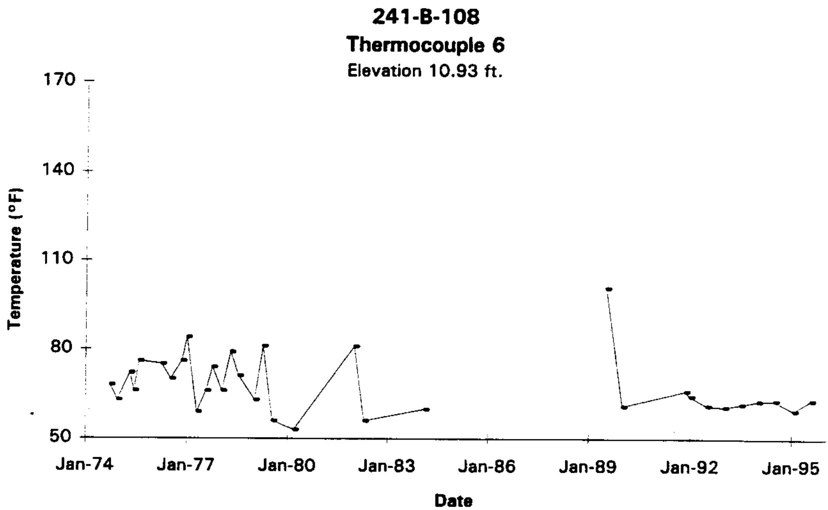

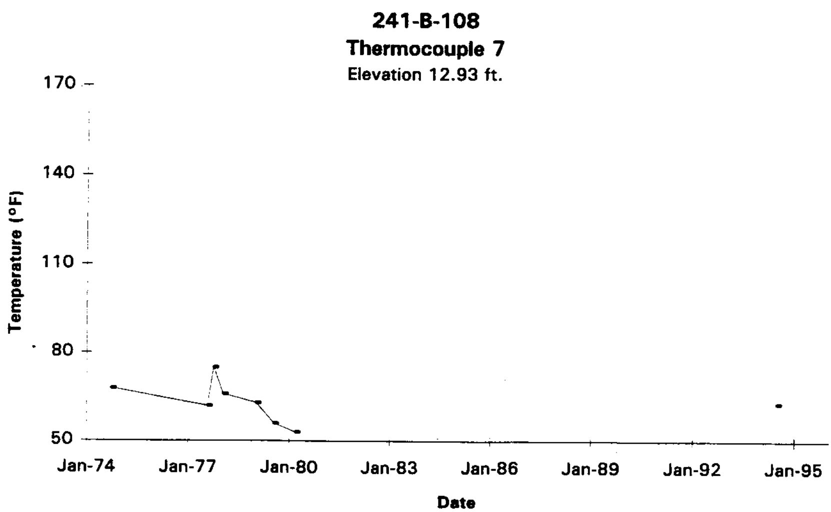

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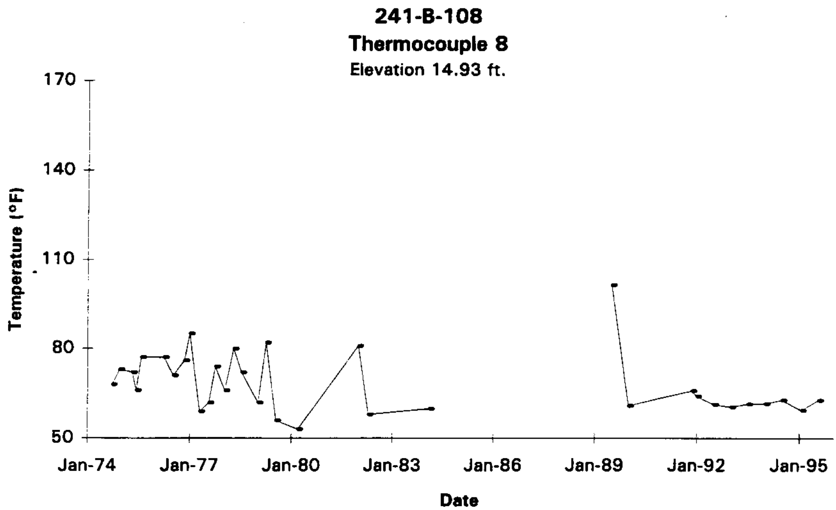

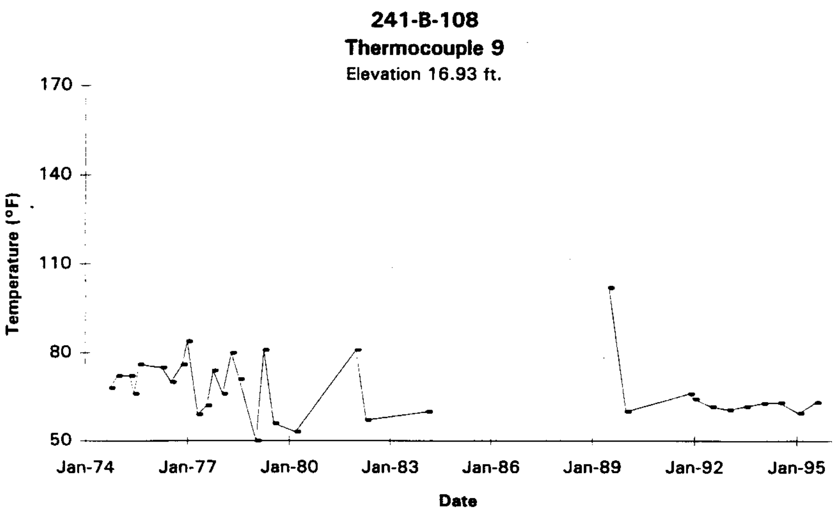

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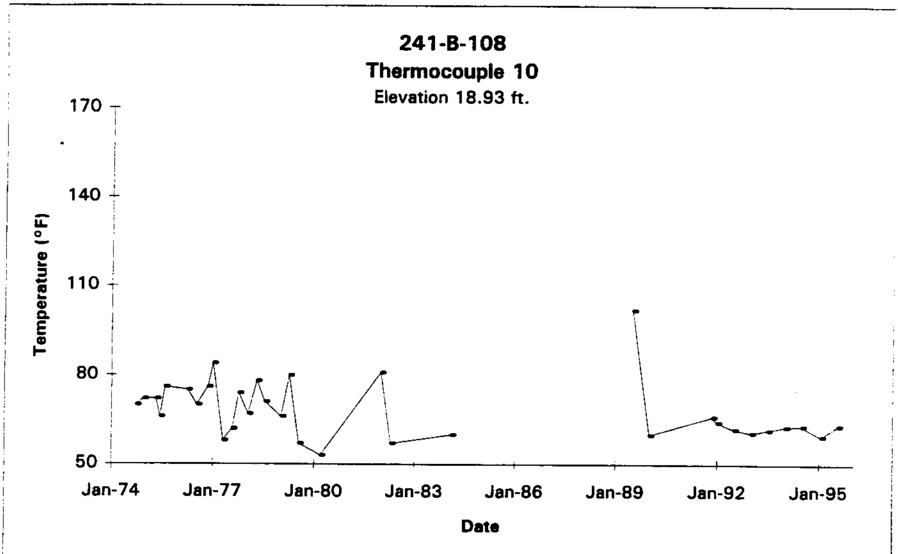

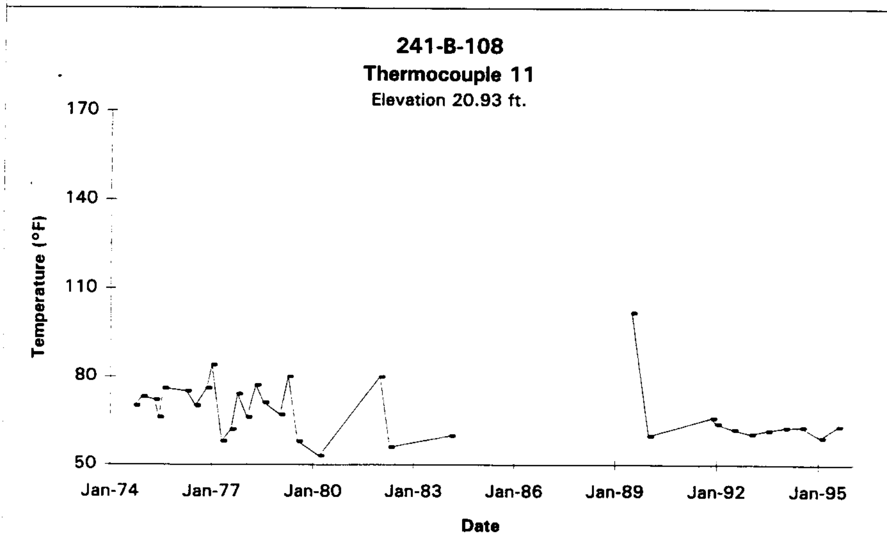

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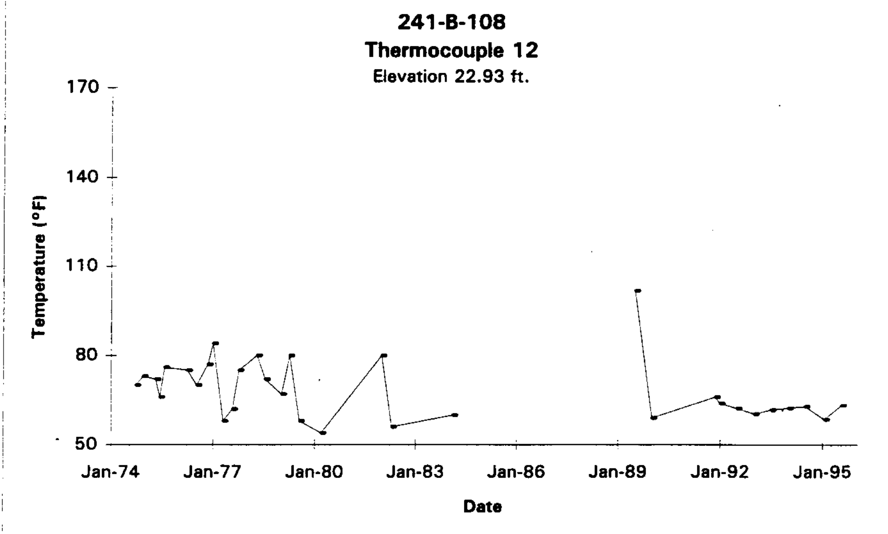

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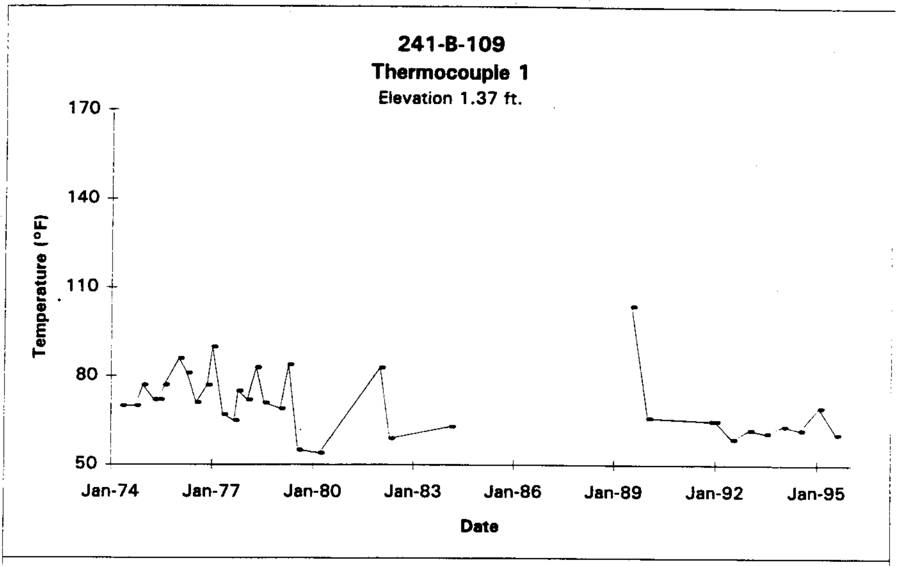

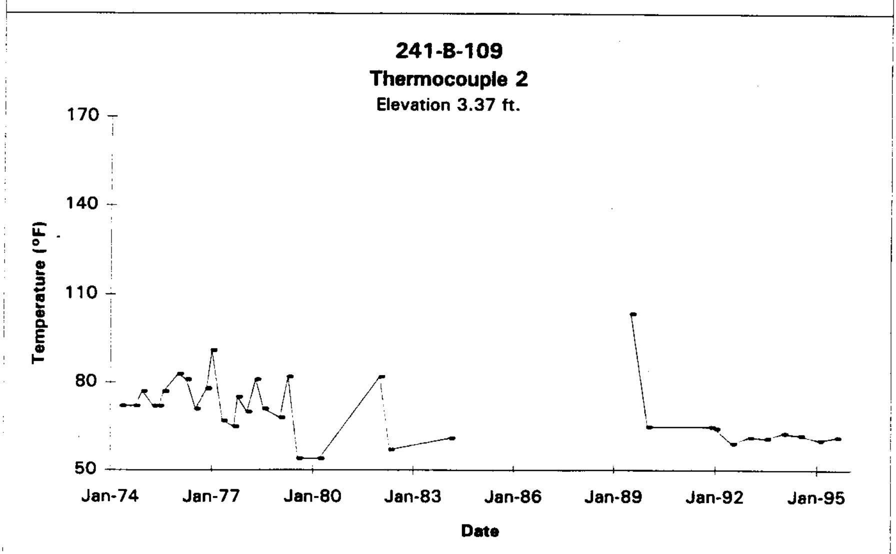

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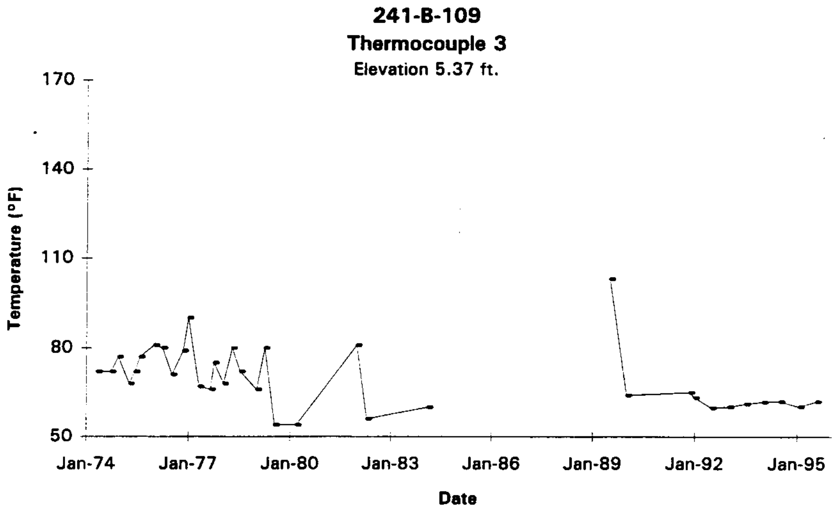

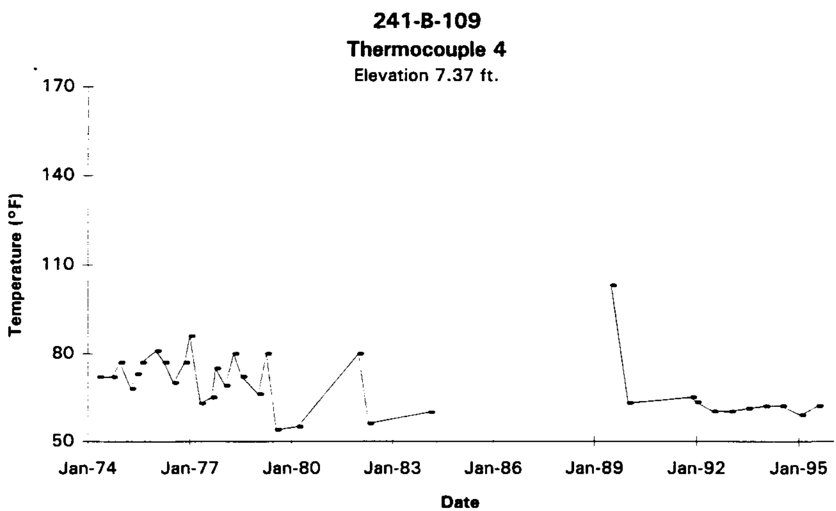

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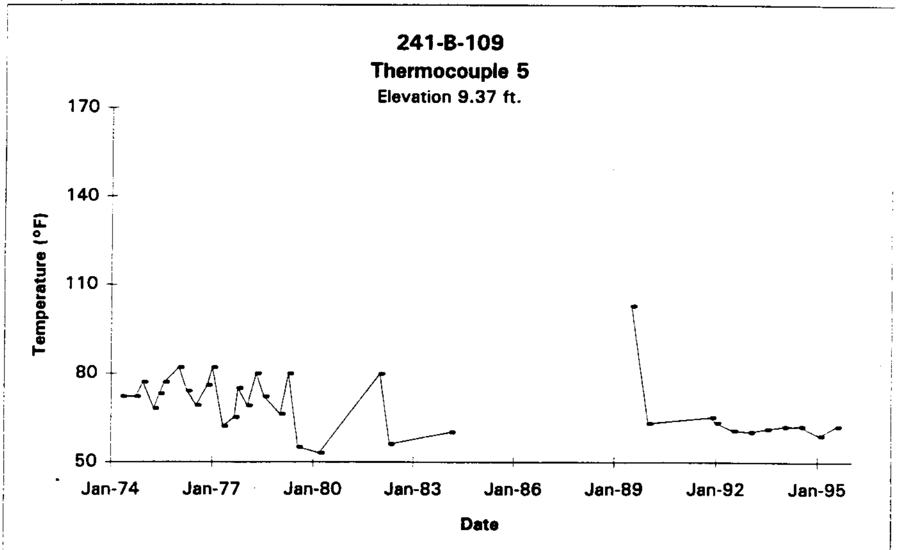

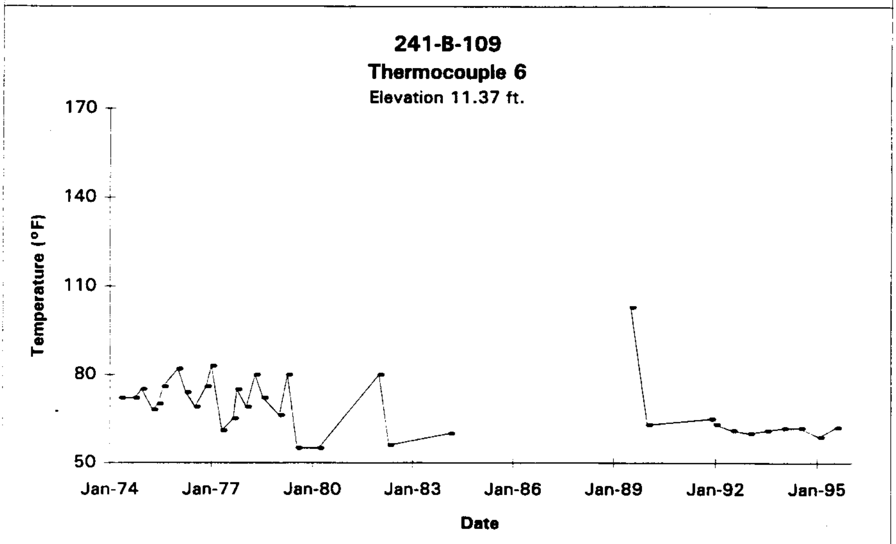

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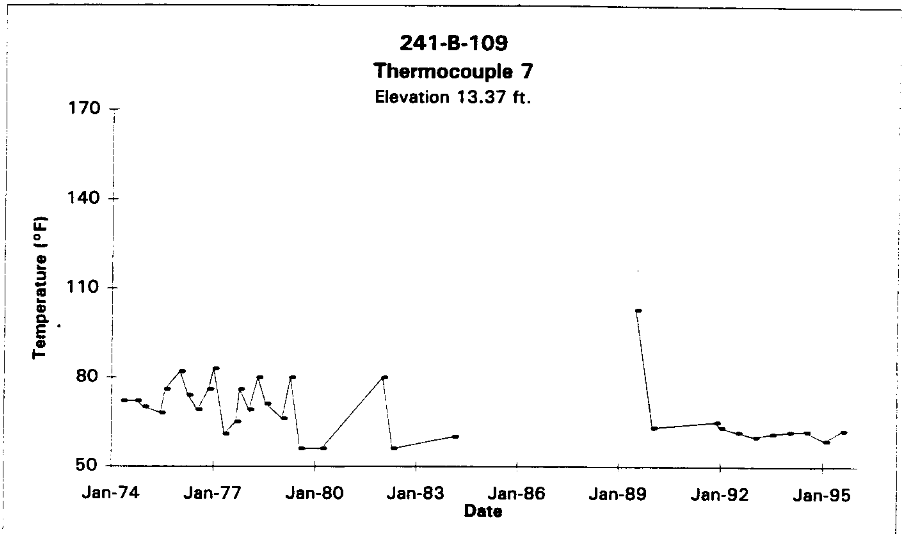

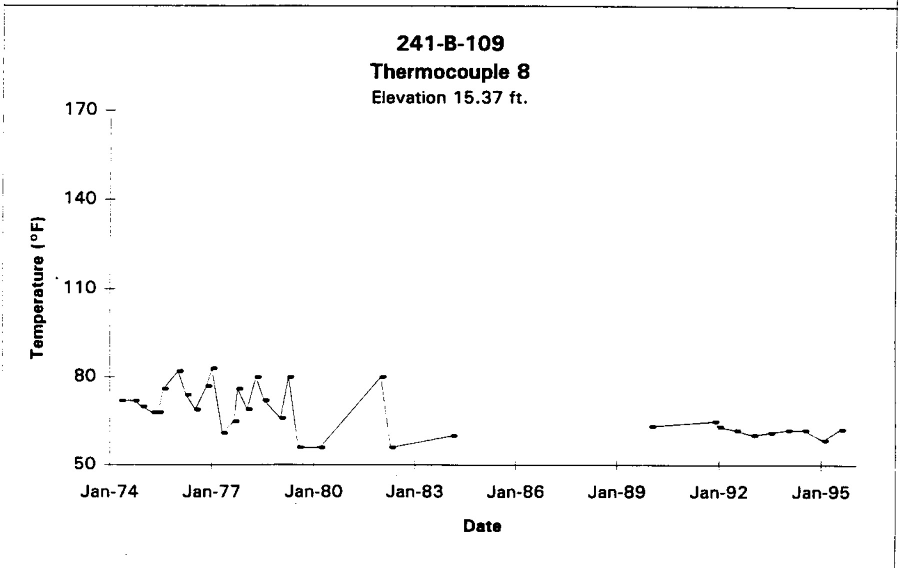

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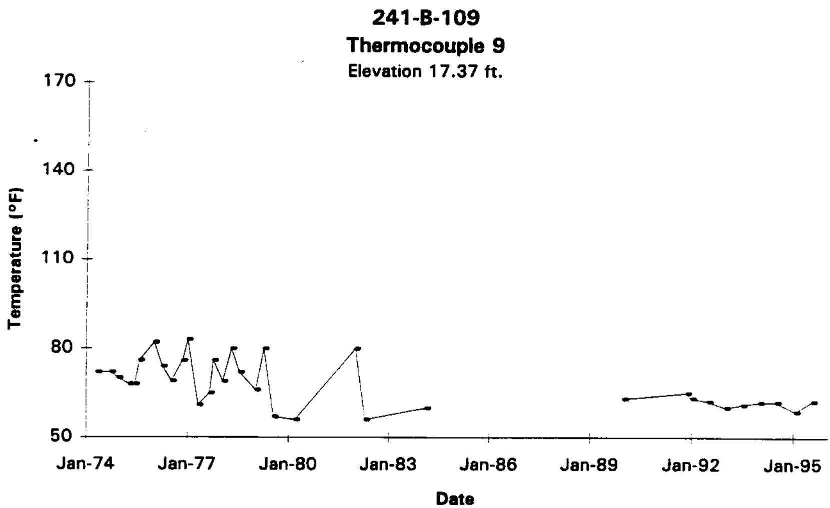

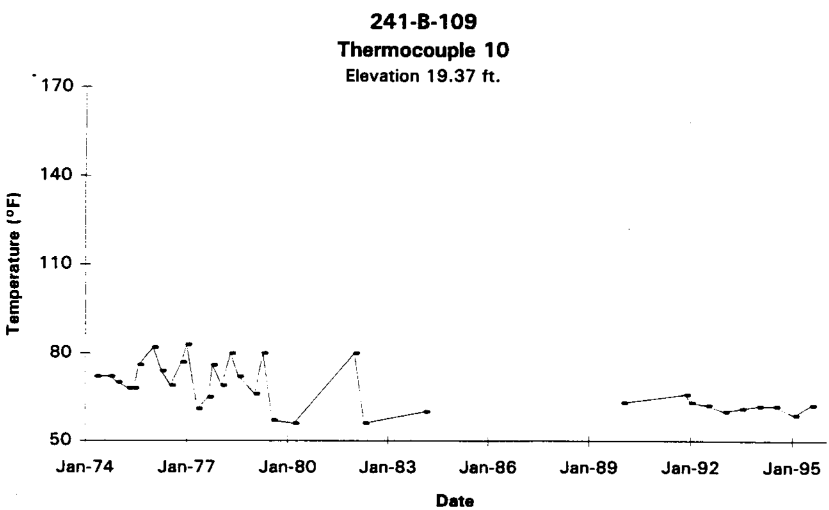

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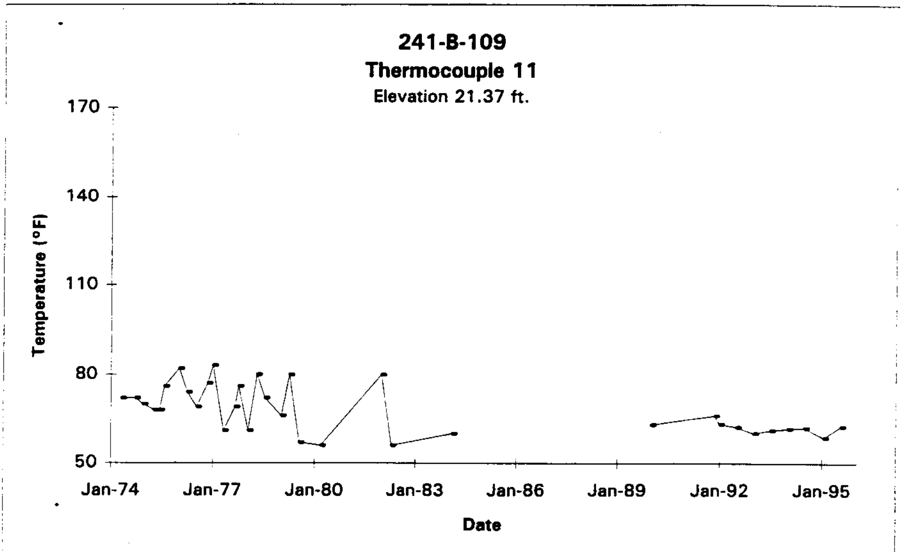

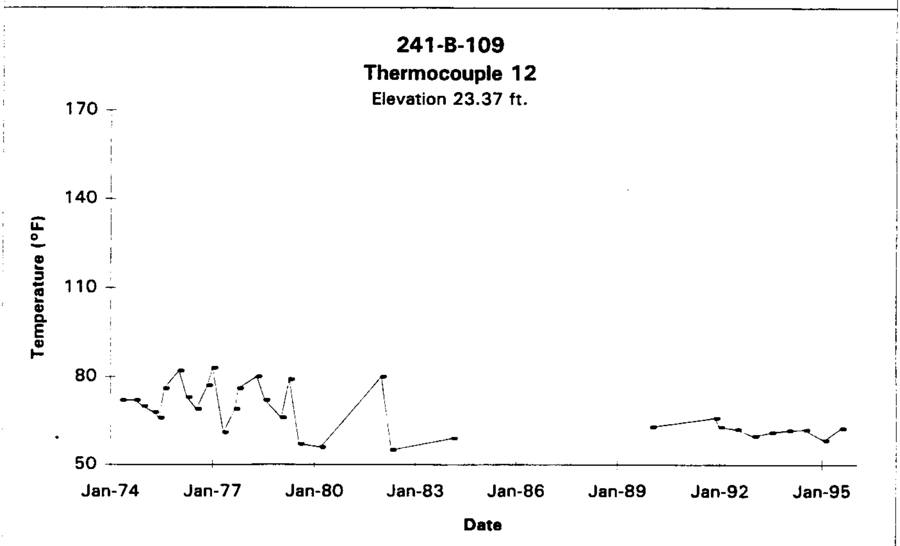

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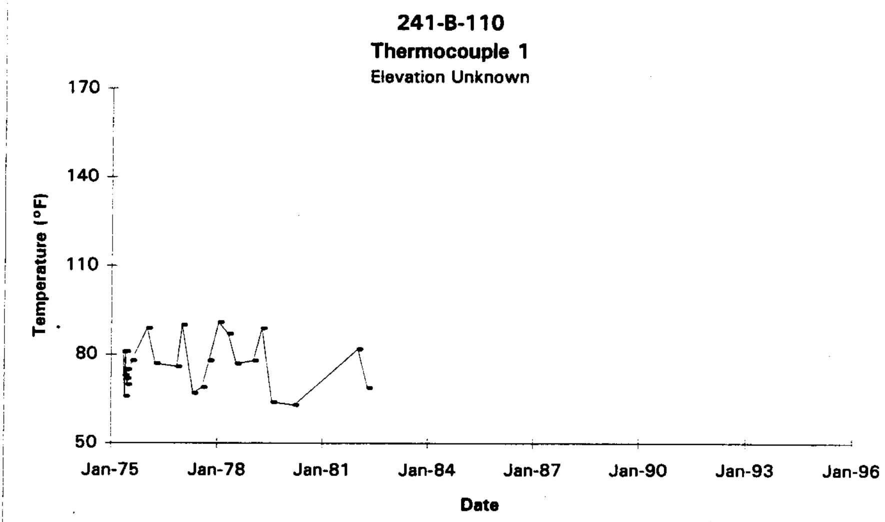

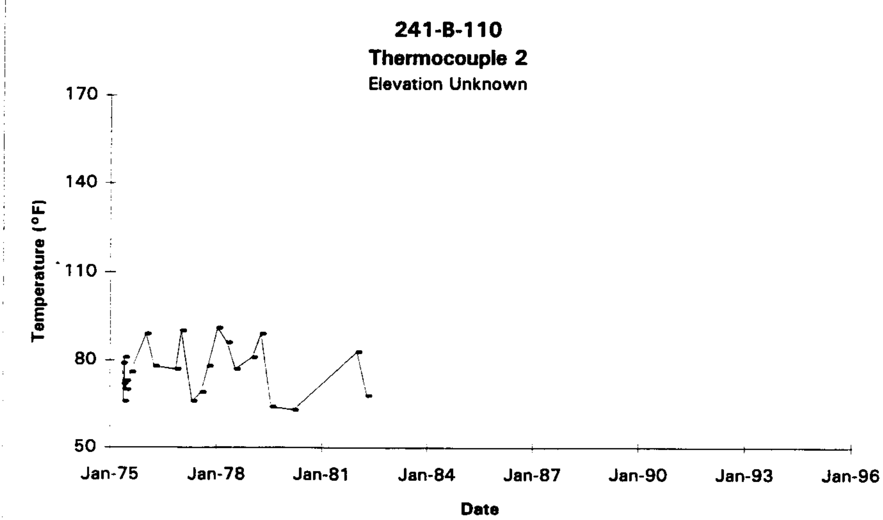

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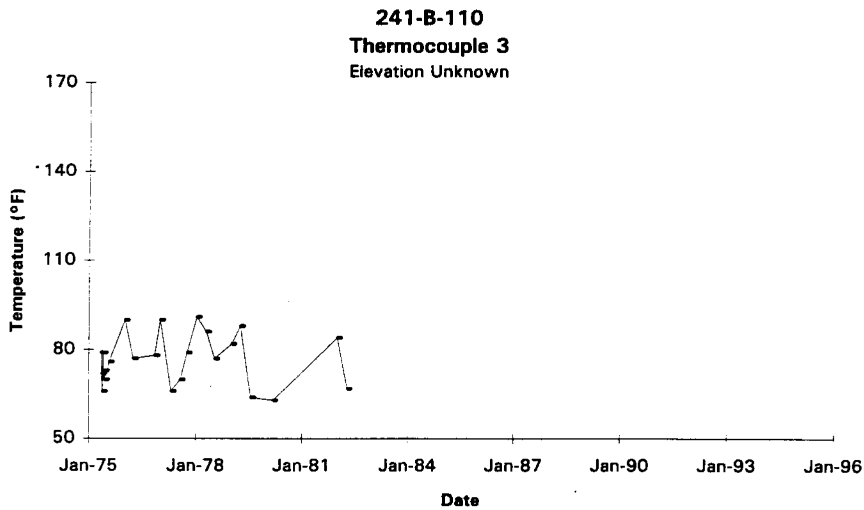

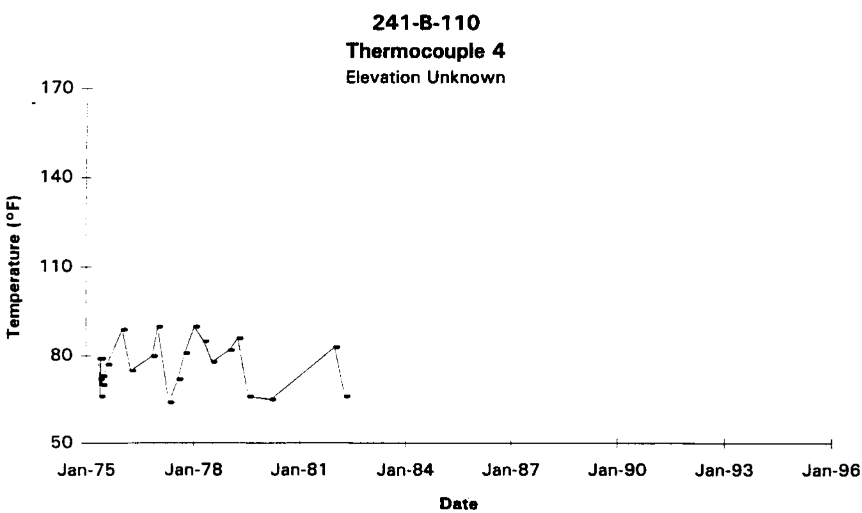

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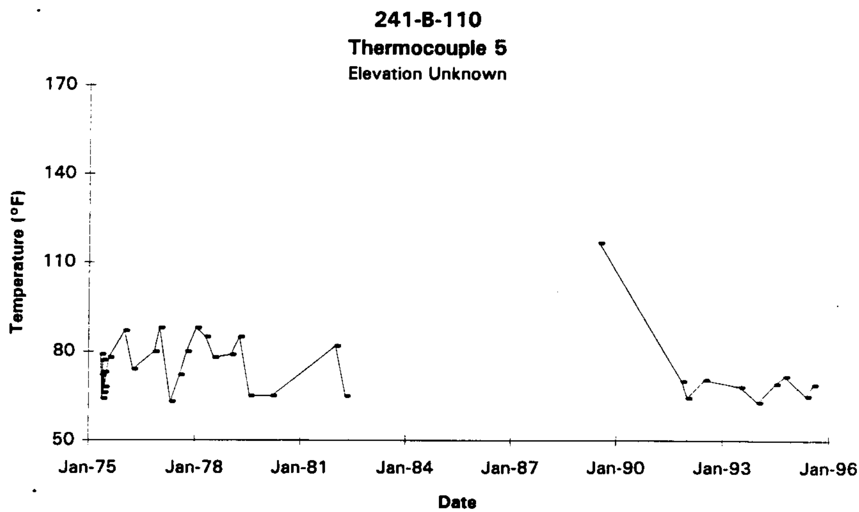

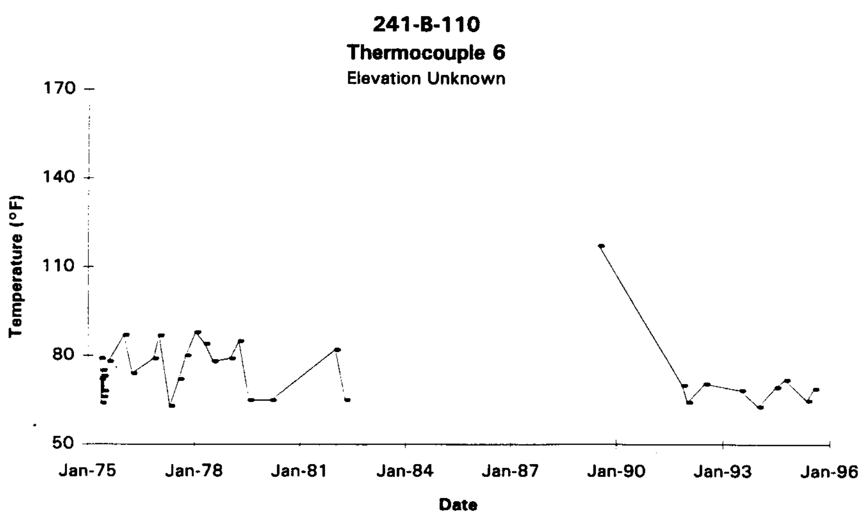

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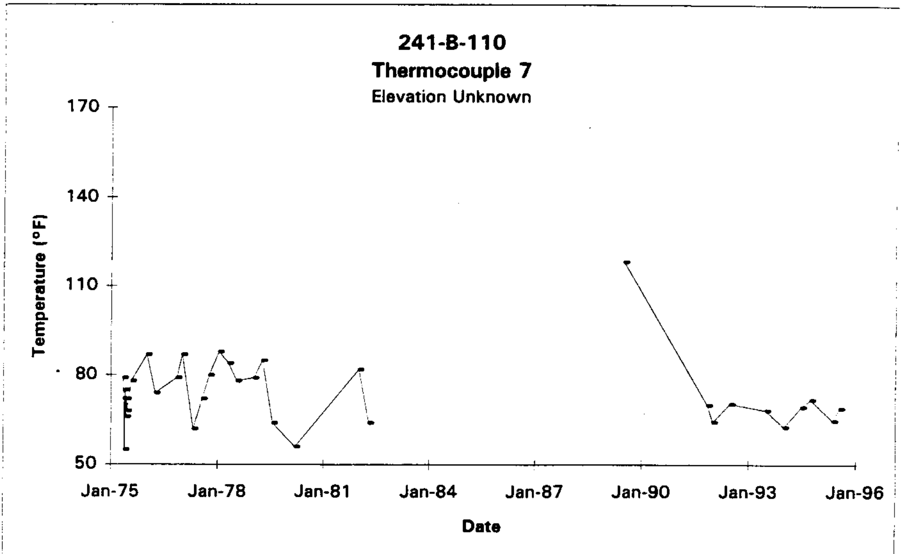

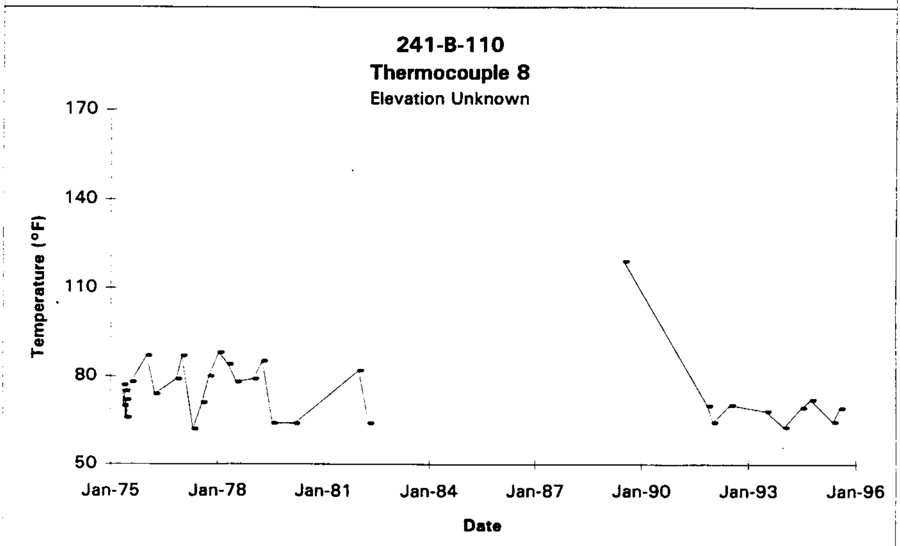

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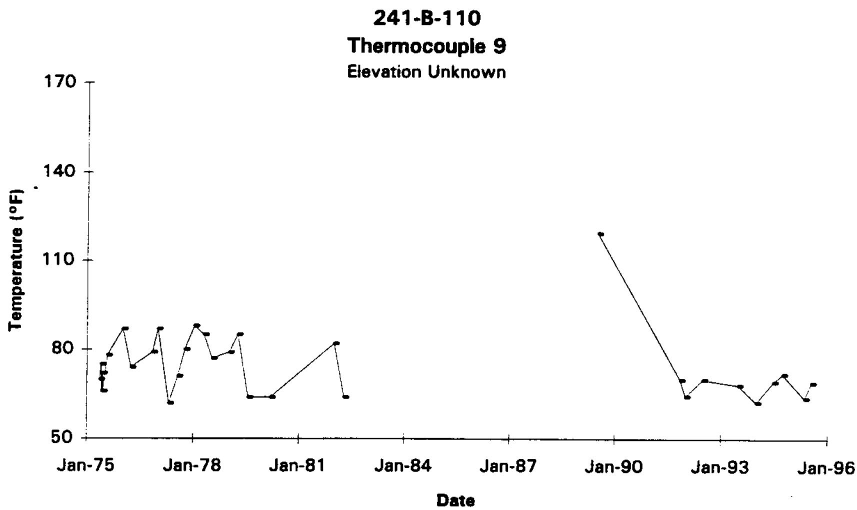

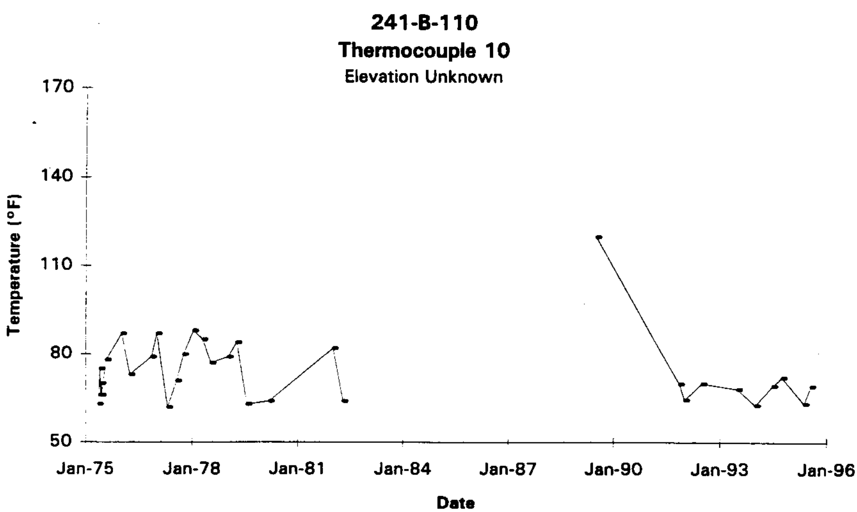

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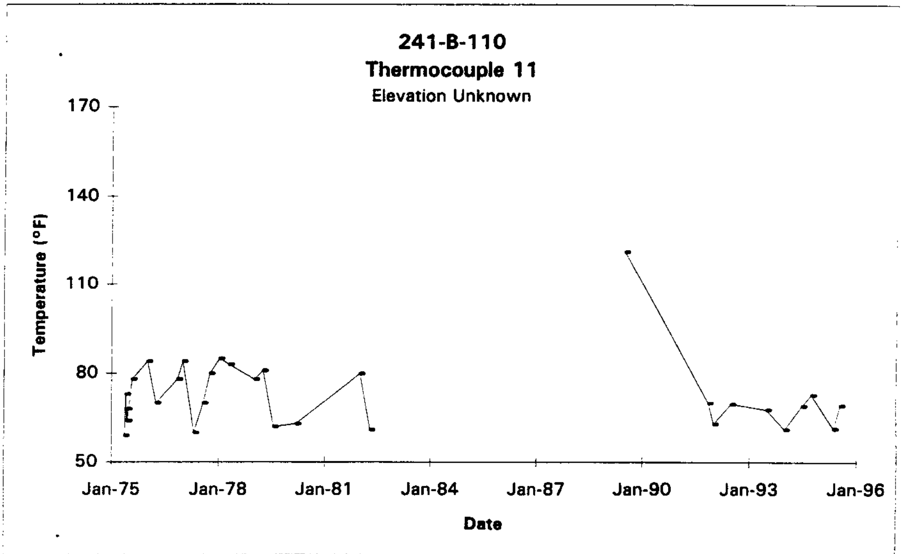

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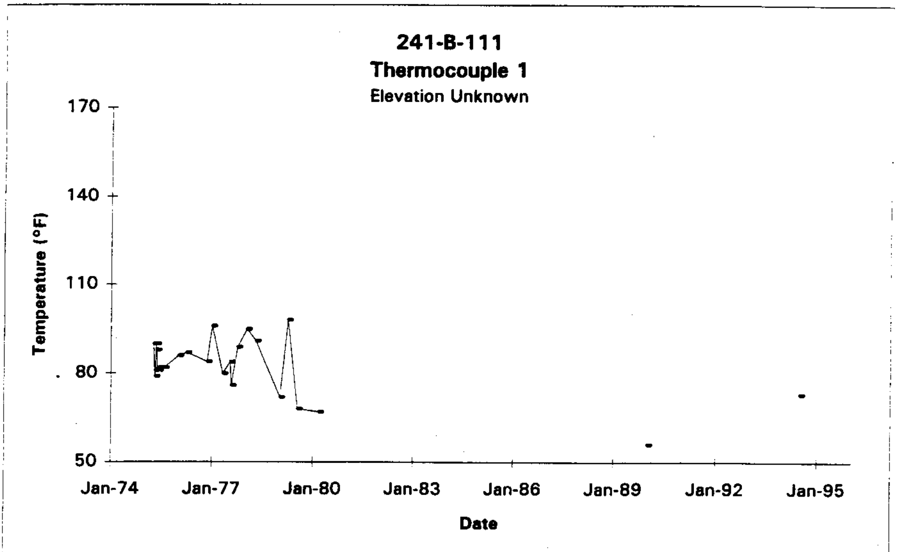

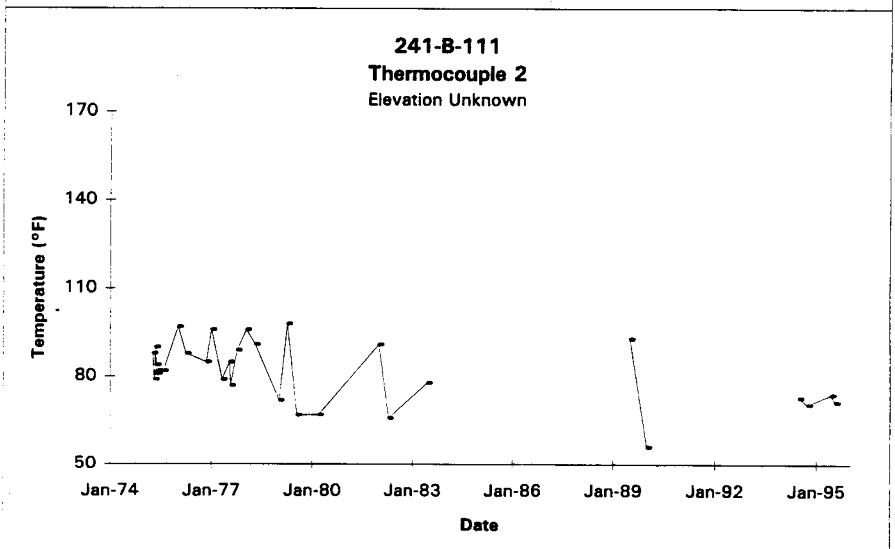

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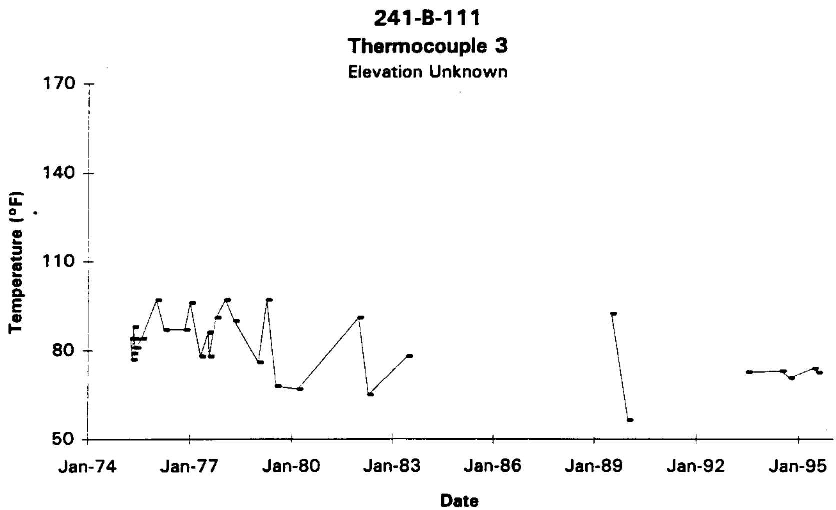

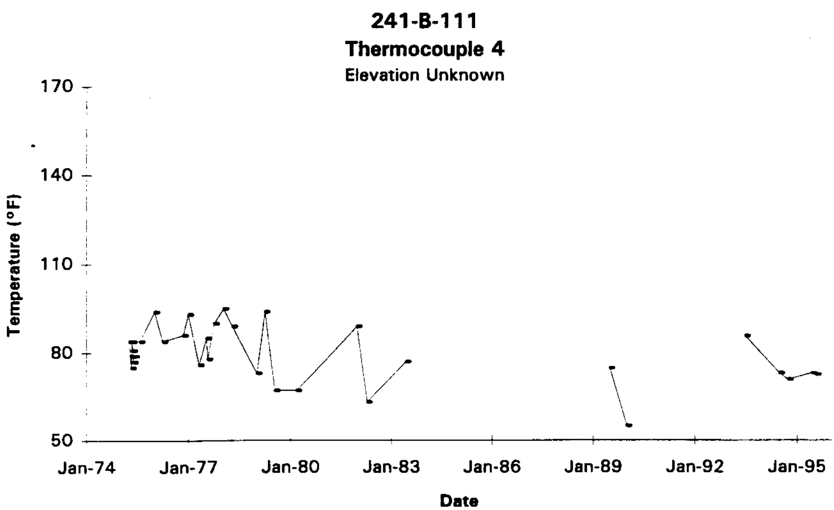

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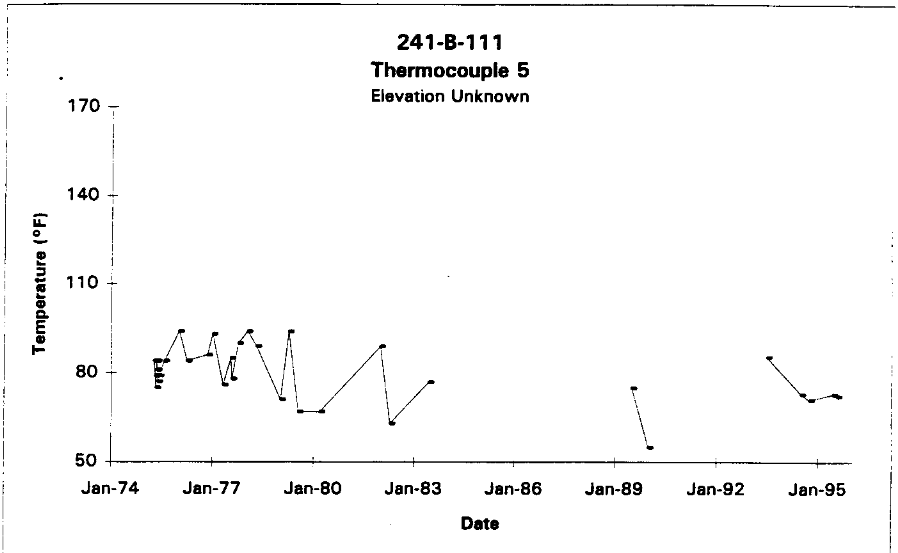

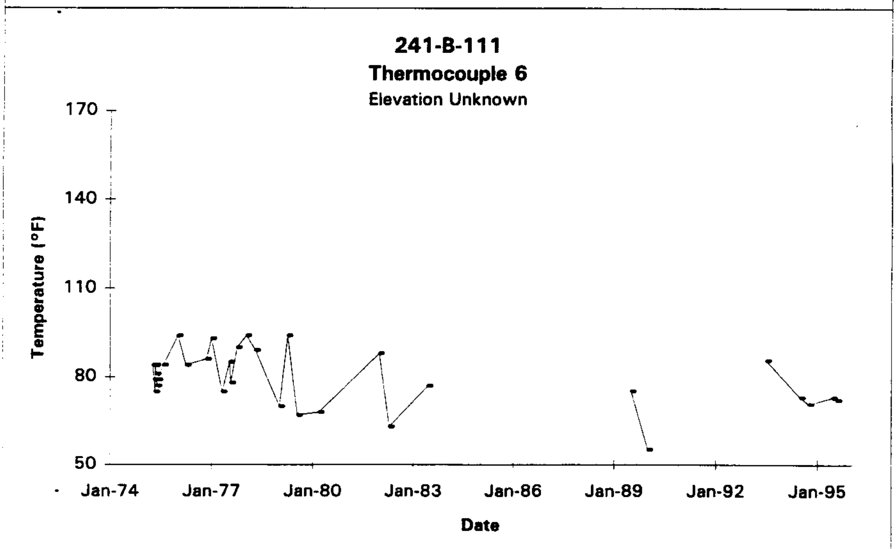

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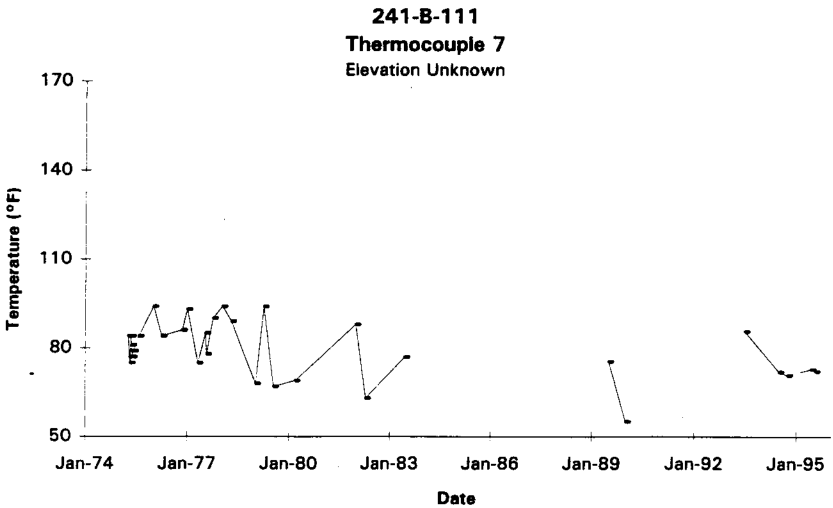

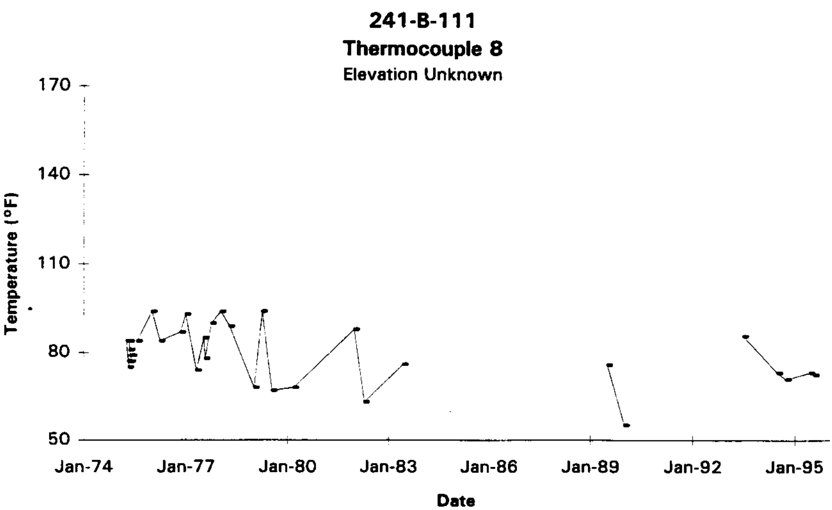

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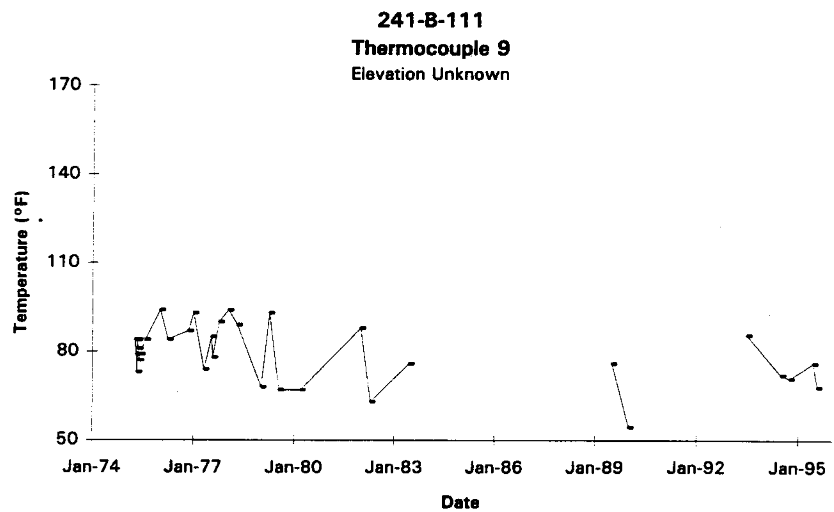

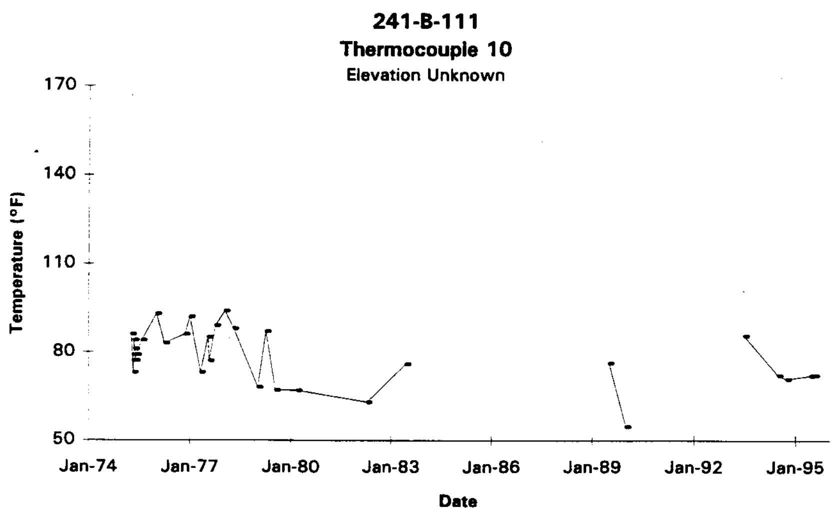

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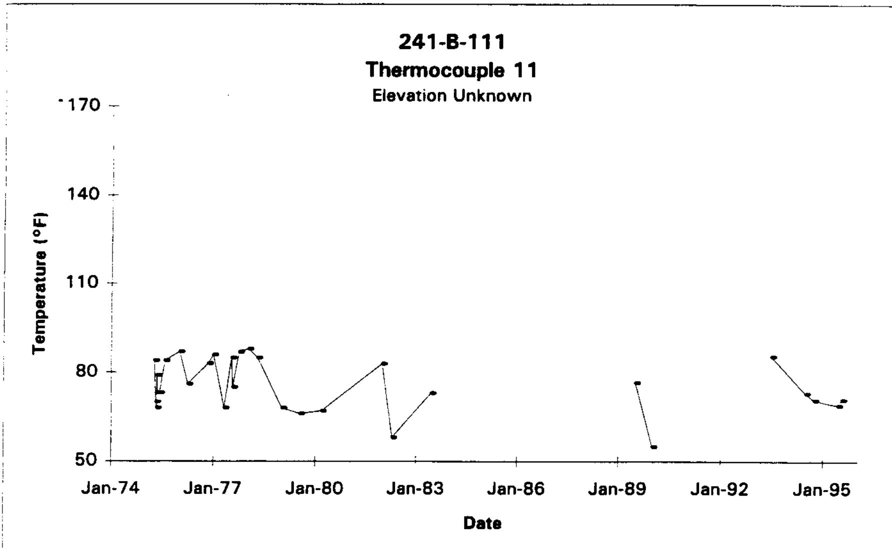

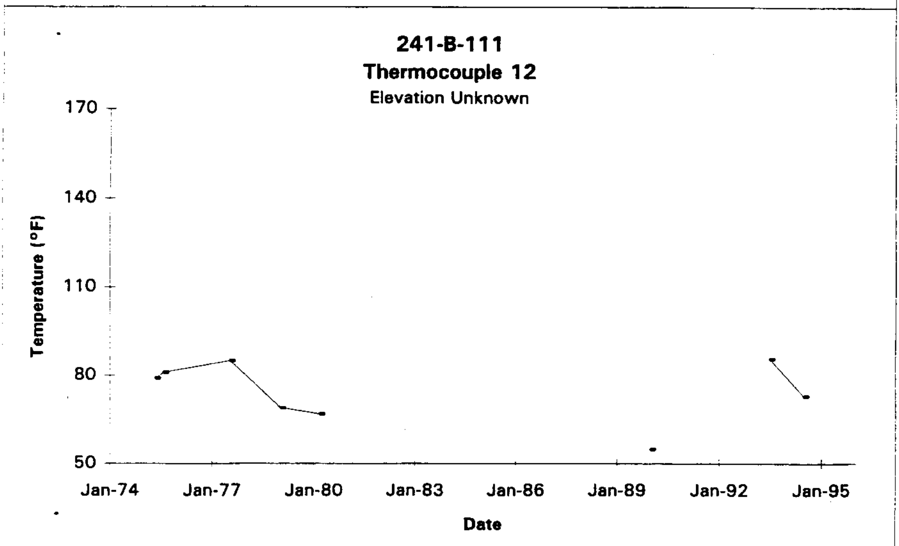

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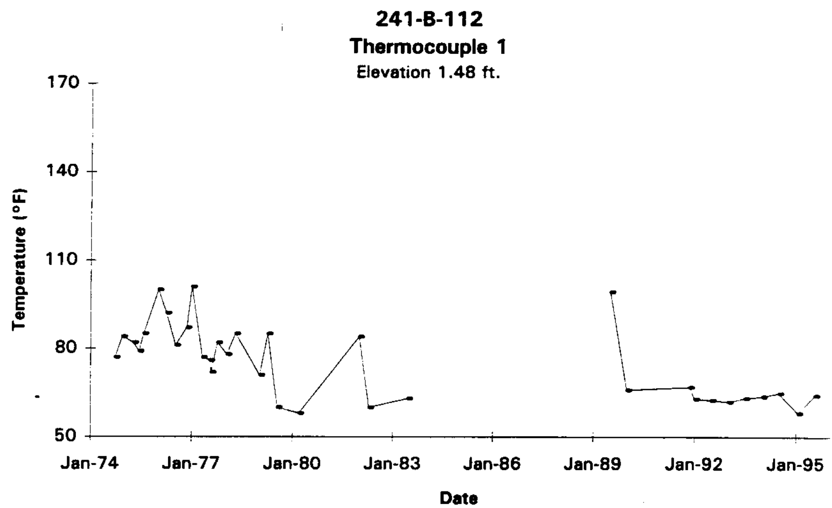

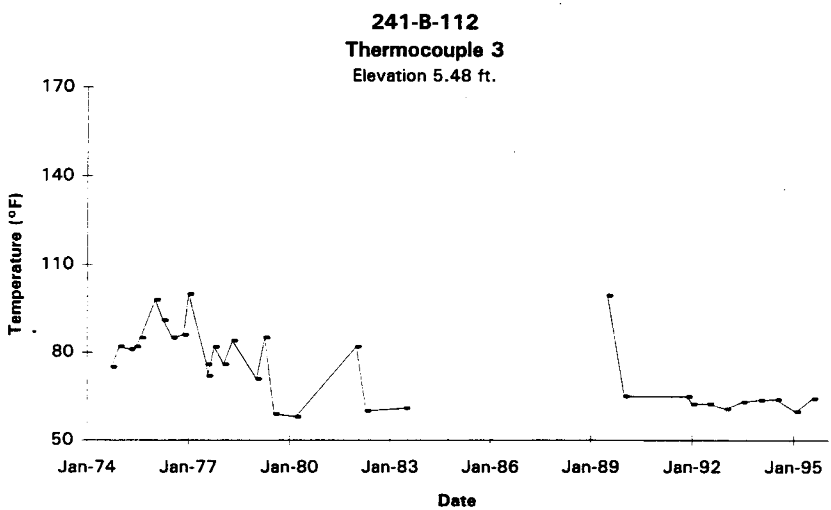

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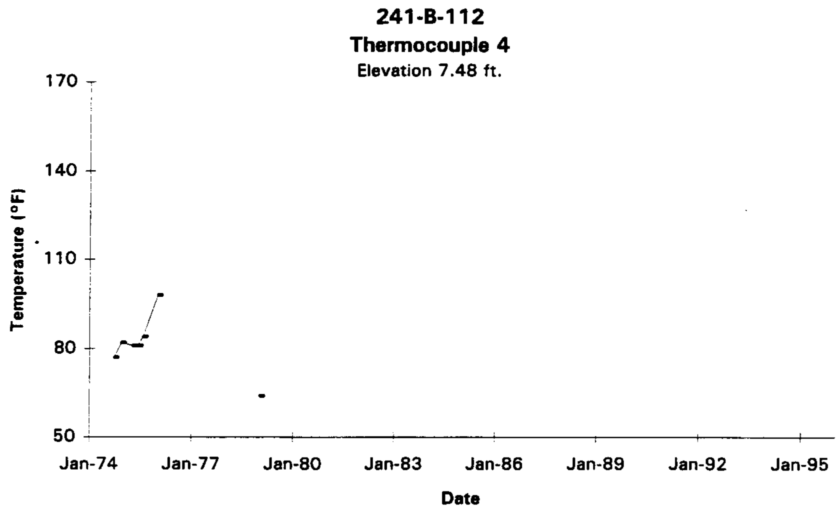

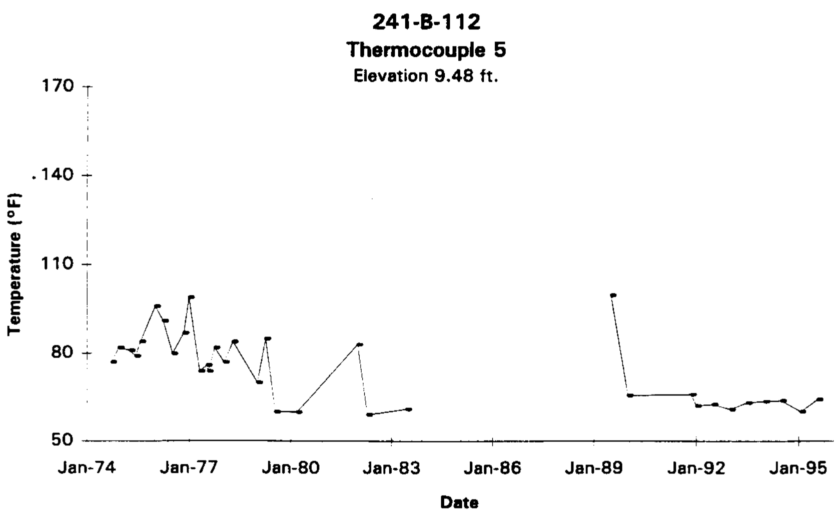

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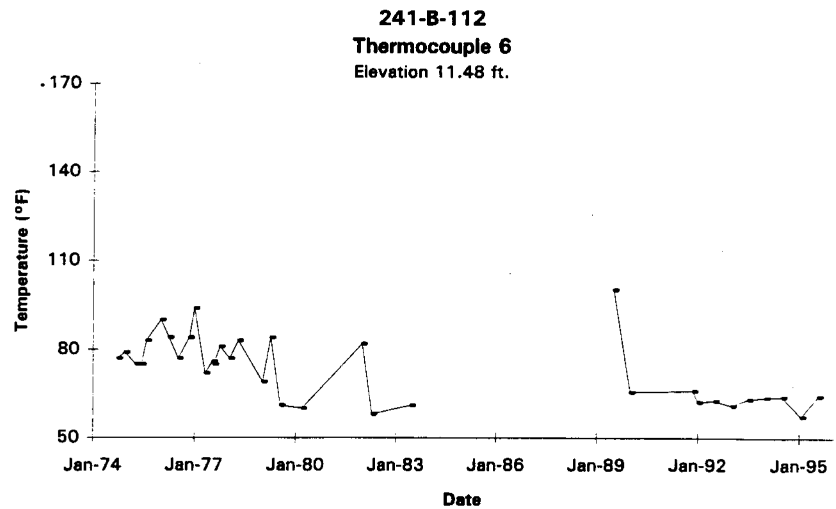

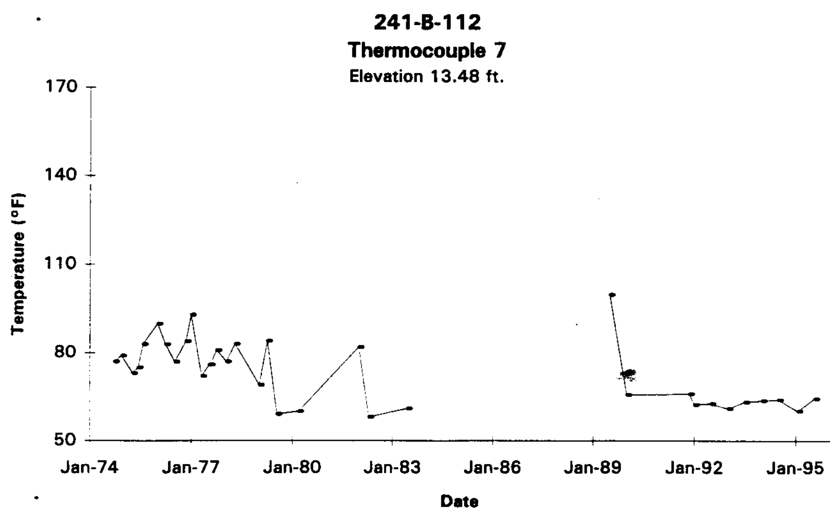

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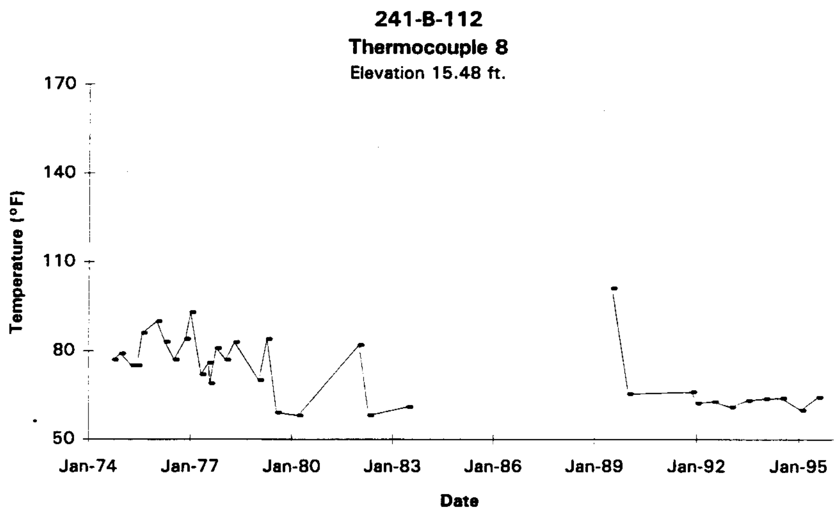
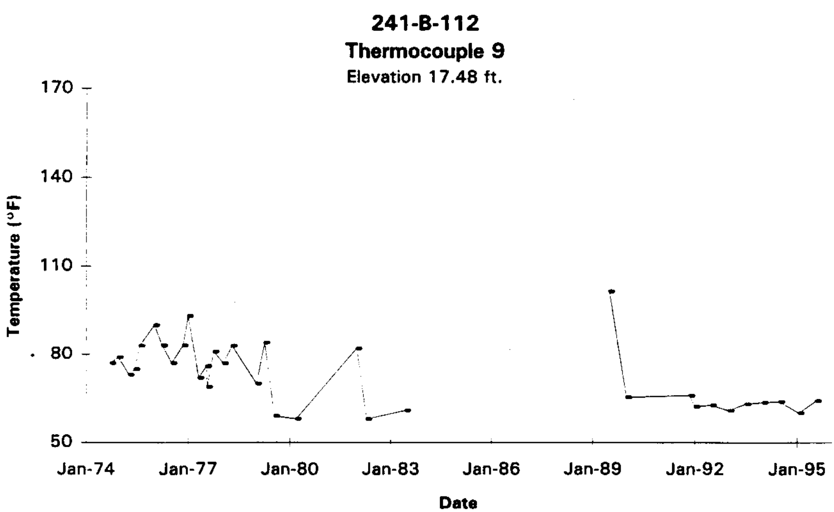
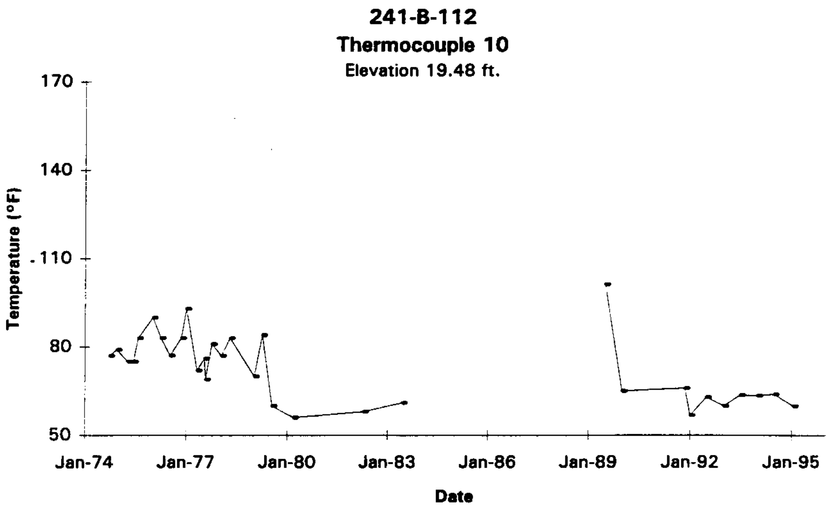
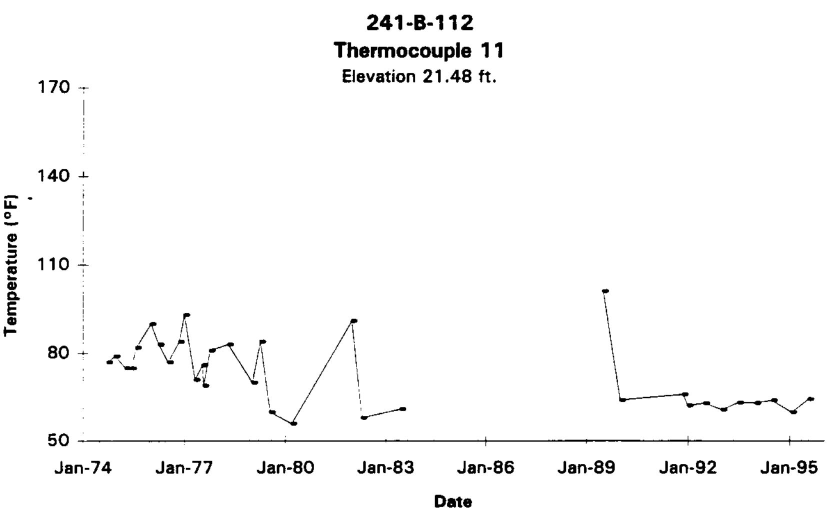


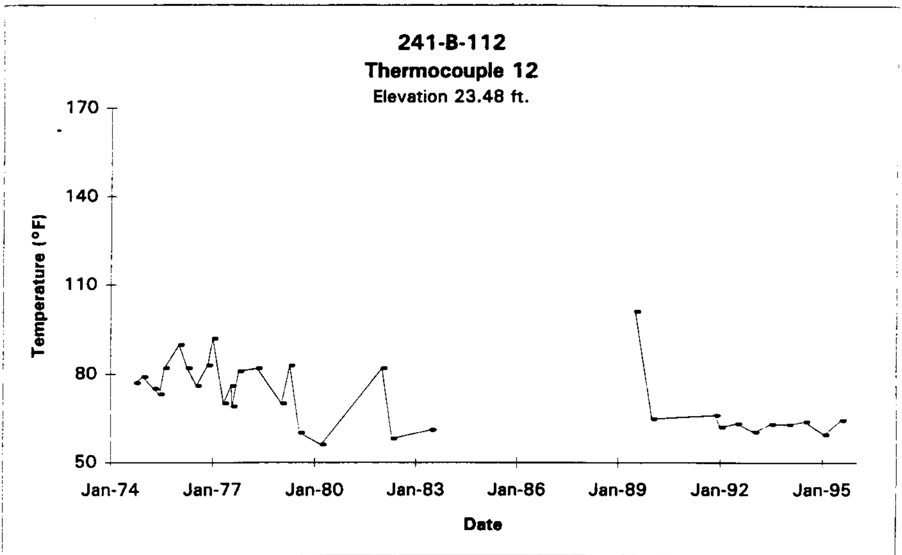


Data obtained from WHC Surveillance Analysis Computer System (SACS), Oct 23, 1995.

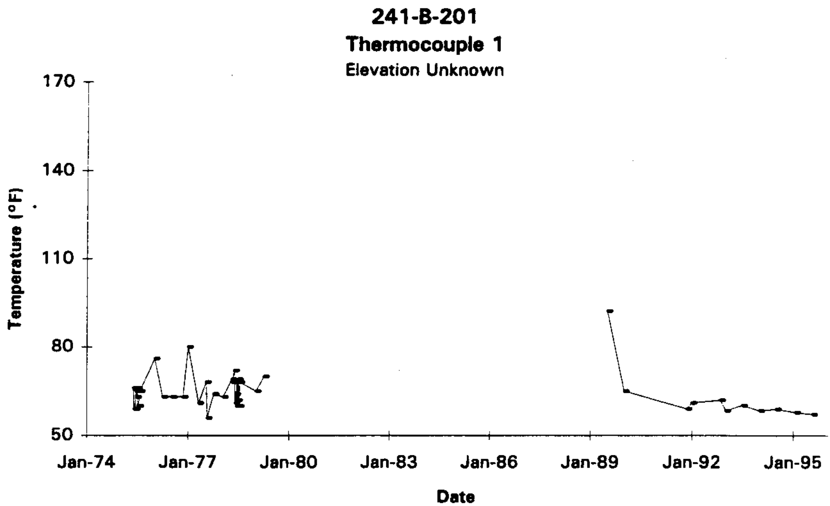


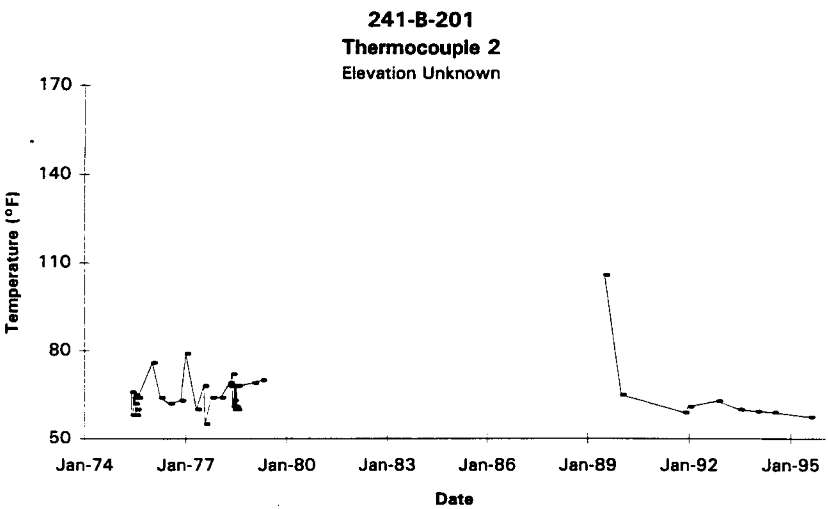


Data obtained from WHC Surveillance Analysis Computer System (SACS), Oct 23, 1995.

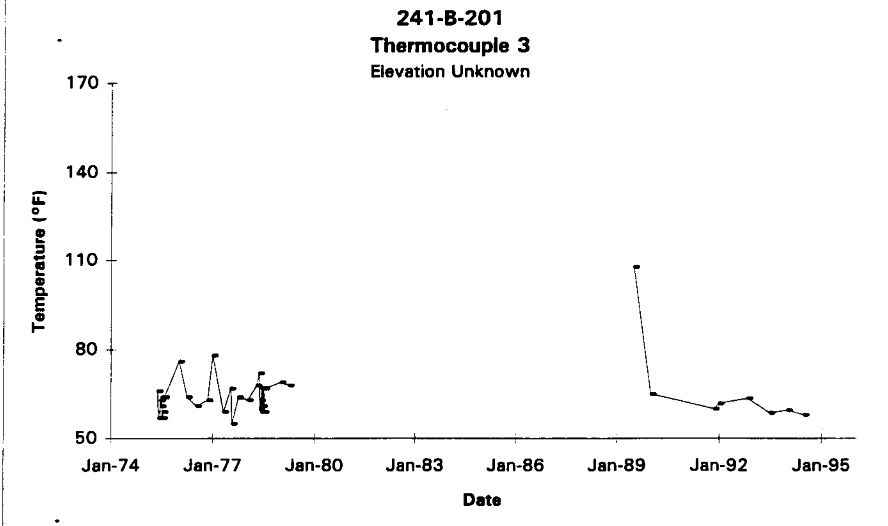


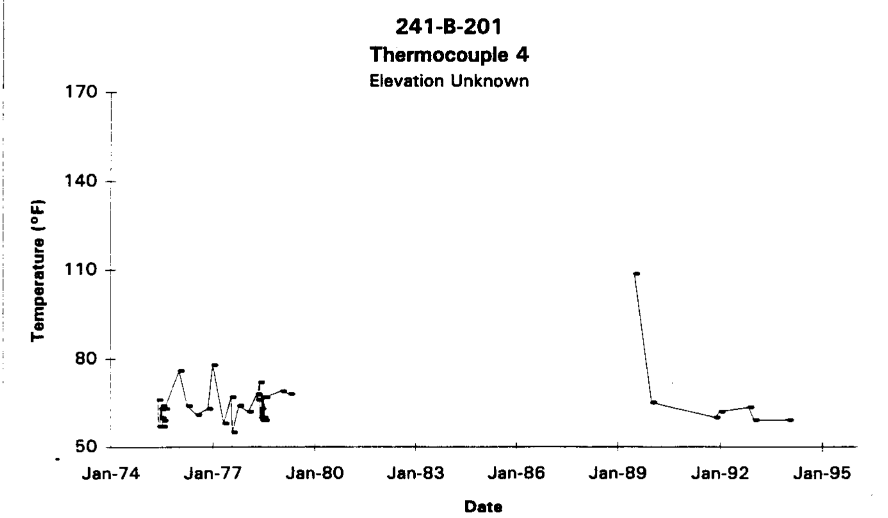
Data obtained from WHC Surveillance Analysis Computer System (SACS), Oct 23, 1995.



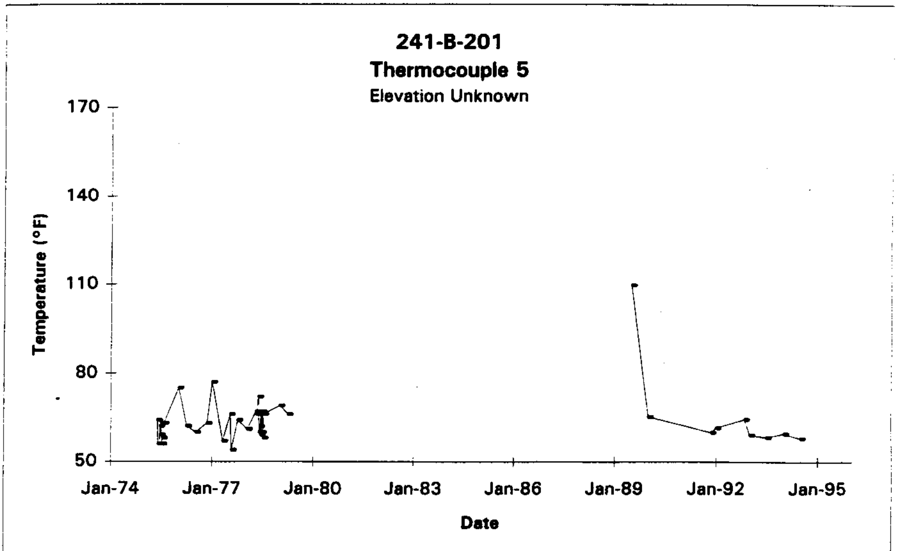


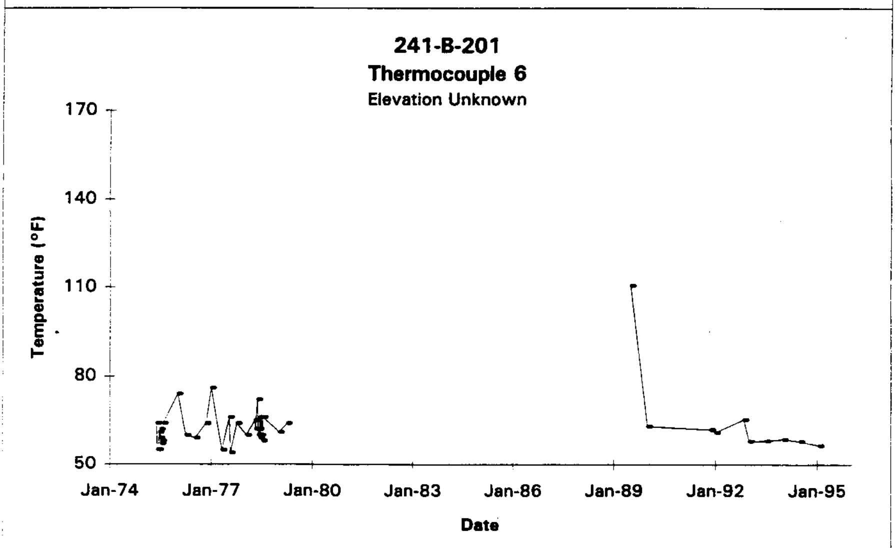
Data obtained from WHC Surveillance Analysis Computer System (SACS), Oct 23, 1995.



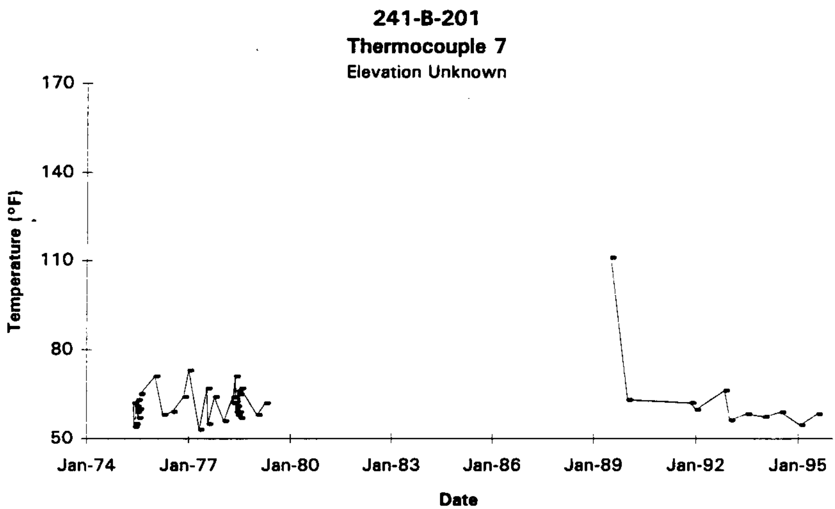


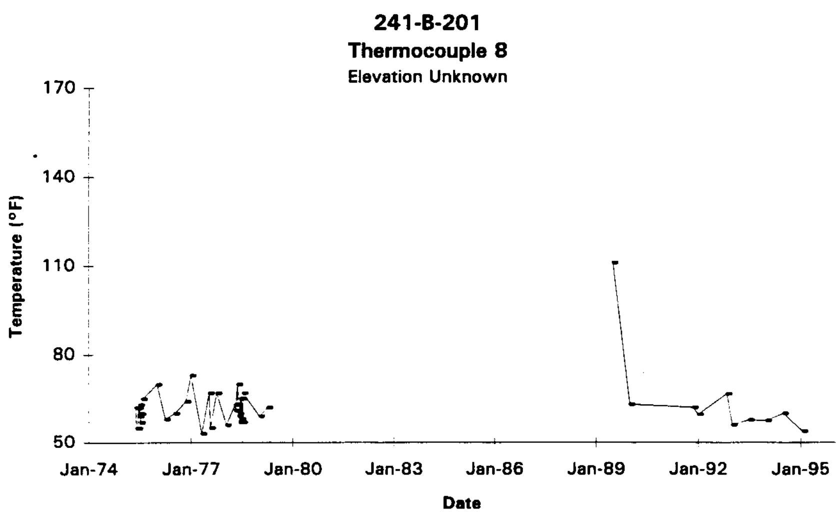
Data obtained from WHC Surveillance Analysis Computer System (SACS), Oct 23, 1995.



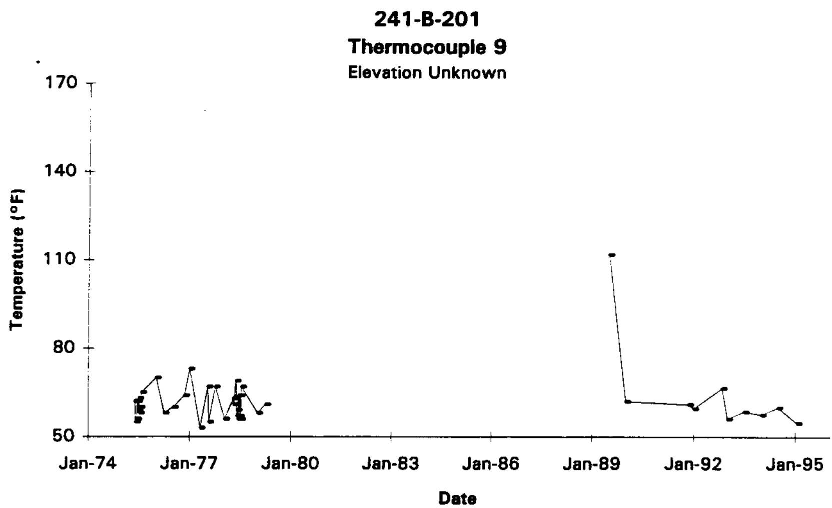


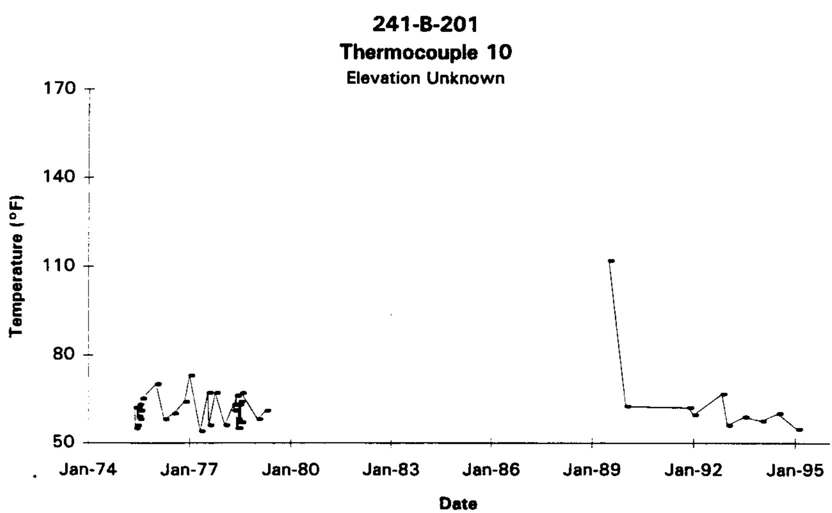
Data obtained from WHC Surveillance Analysis Computer System (SACS), Oct 23, 1995.



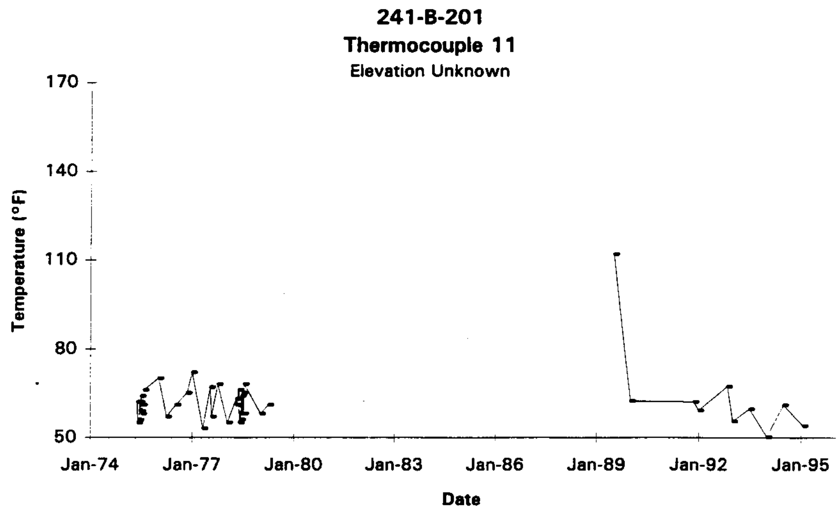


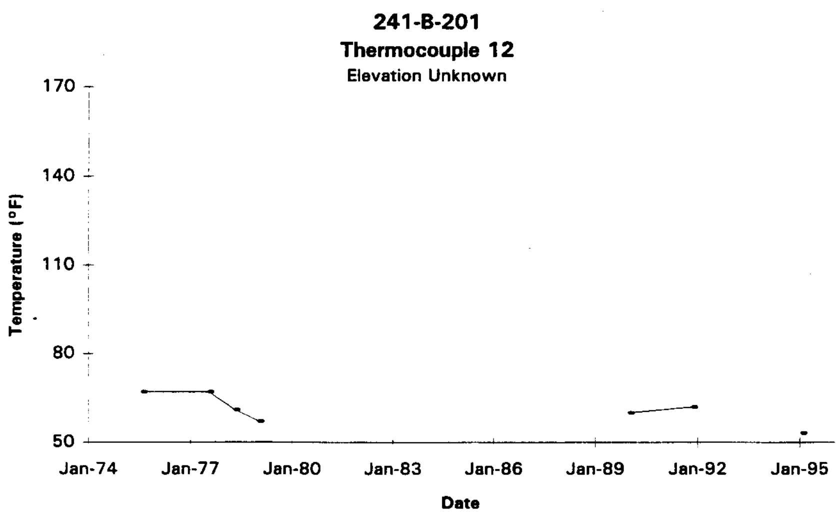
Data obtained from WHC Surveillance Analysis Computer System (SACS), Oct 23, 1995.



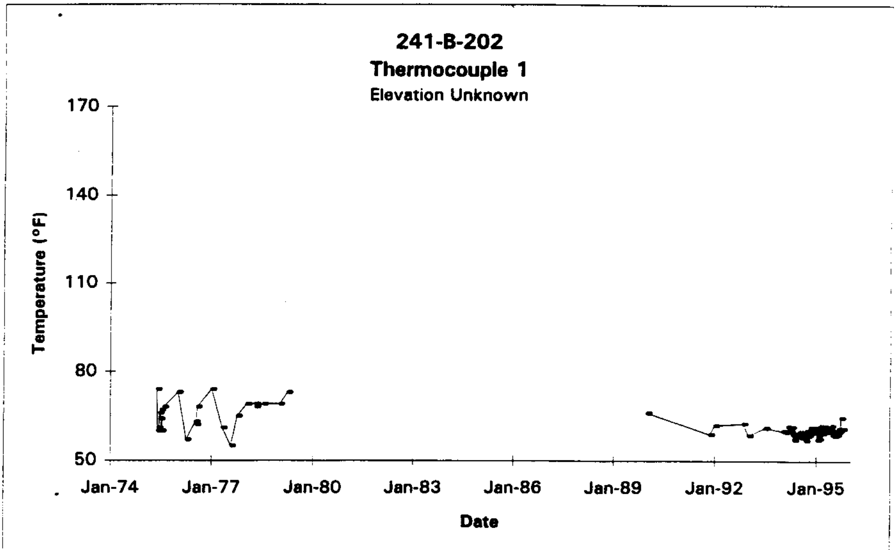


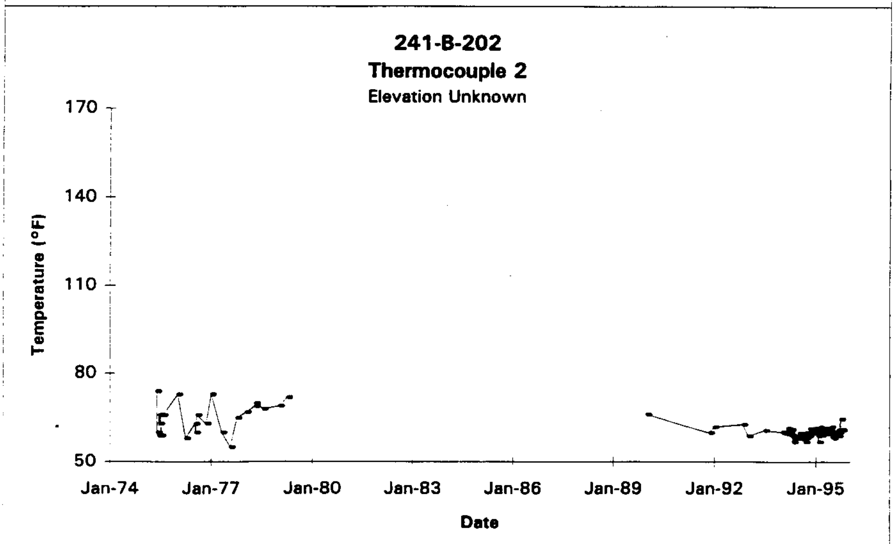
Data obtained from WHC Surveillance Analysis Computer System (SACS), Oct 23, 1995.



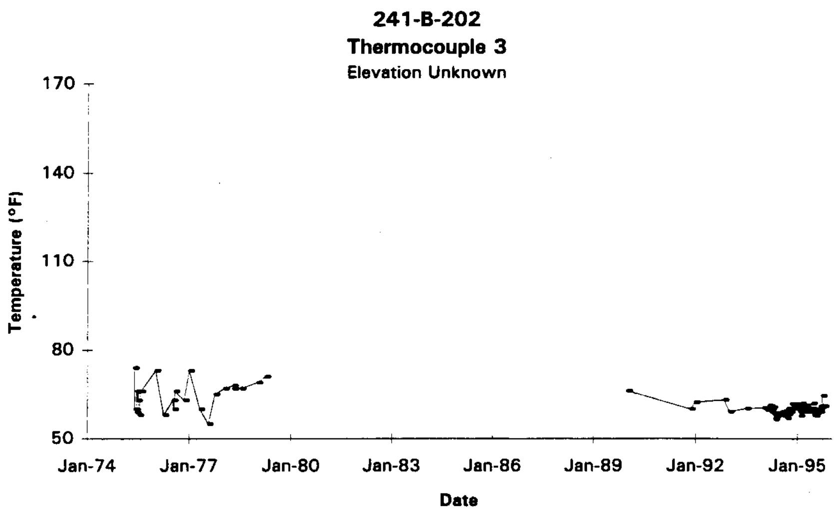


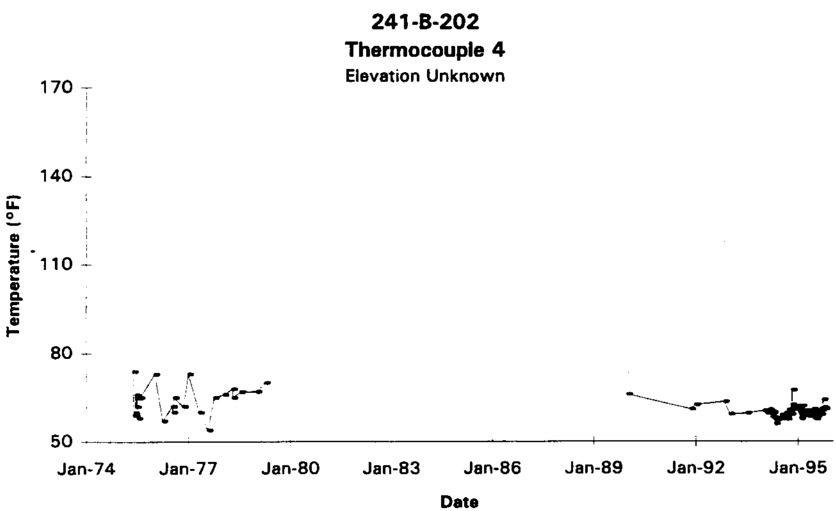
Data obtained from WHC Surveillance Analysis Computer System (SACS), Oct 23, 1995.



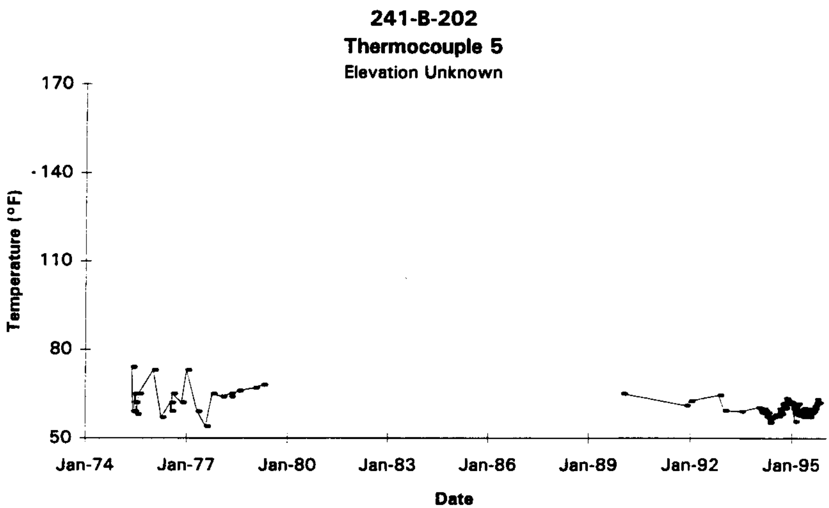


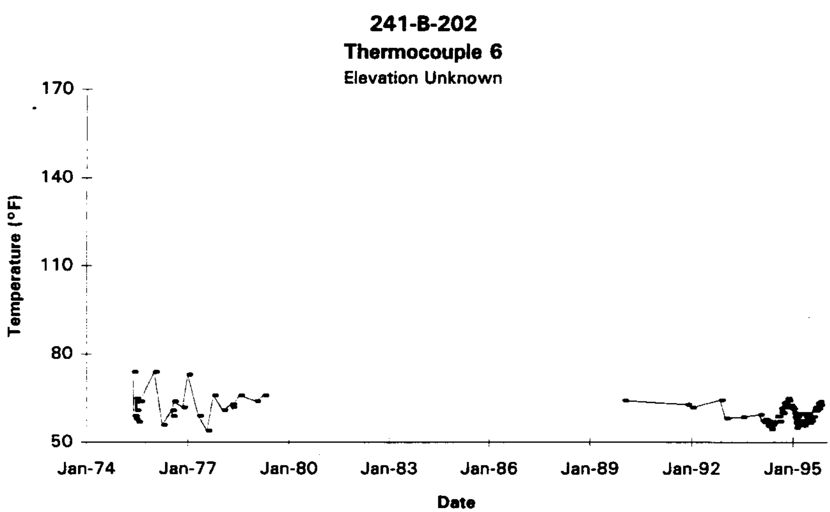
Data obtained from WHC Surveillance Analysis Computer System (SACS), Oct 23, 1995.



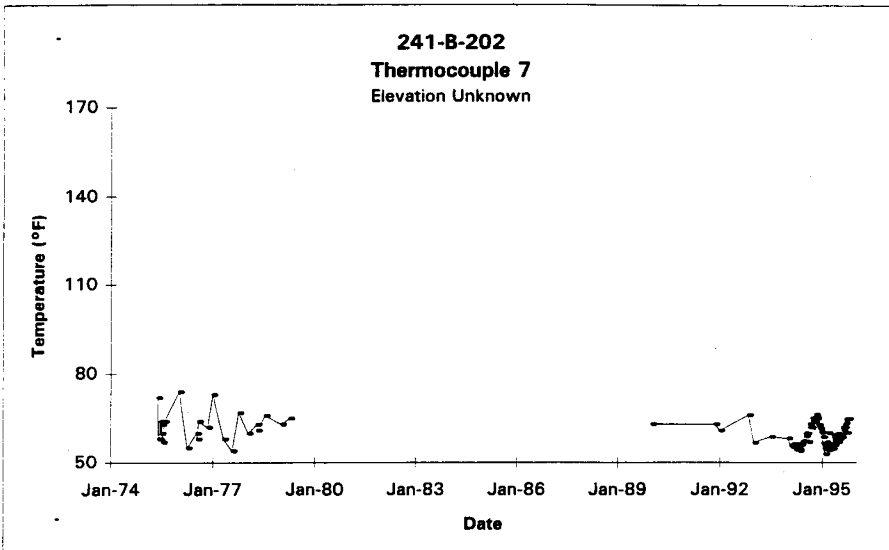


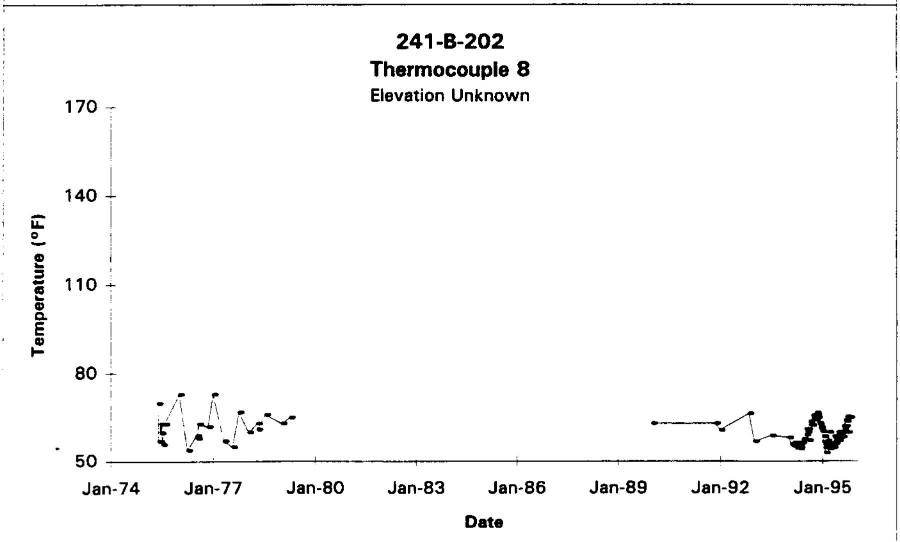
Data obtained from WHC Surveillance Analysis Computer System (SACS), Oct 23, 1995.



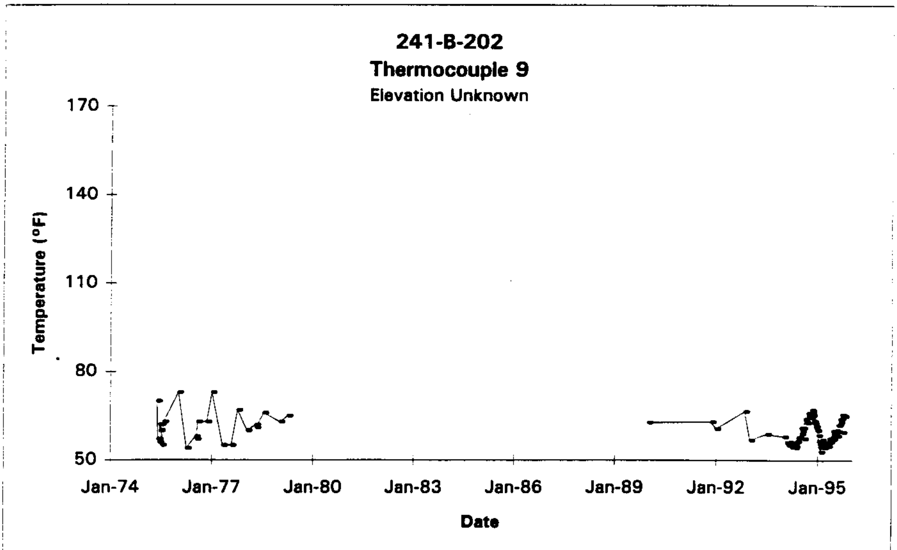


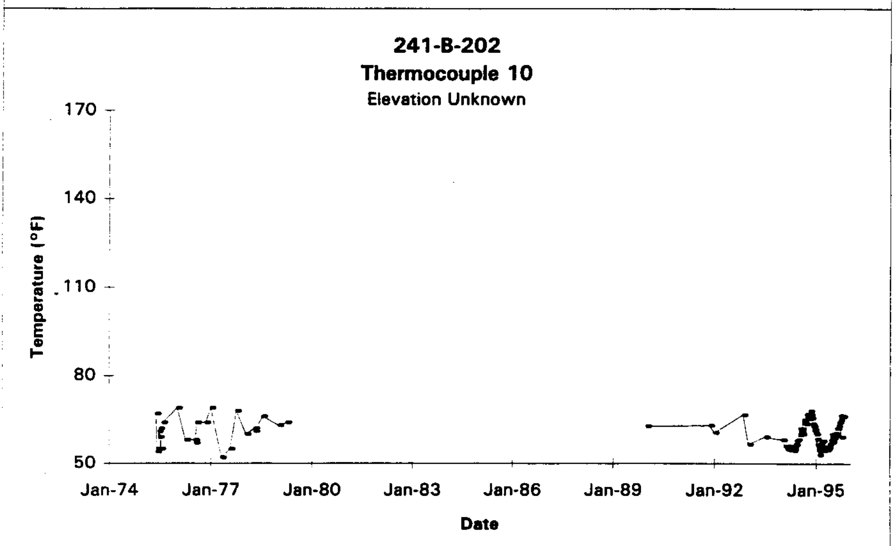
Data obtained from WHC Surveillance Analysis Computer System (SACS), Oct 23, 1995.



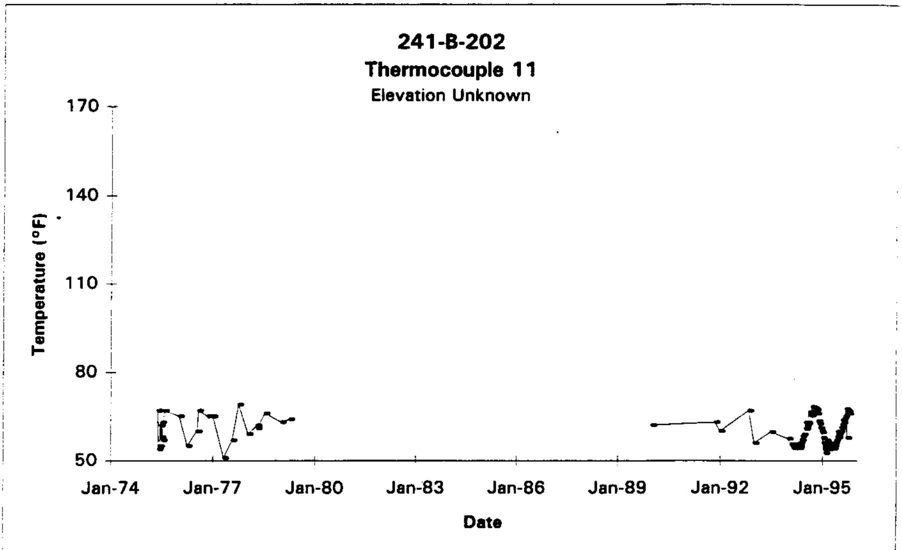


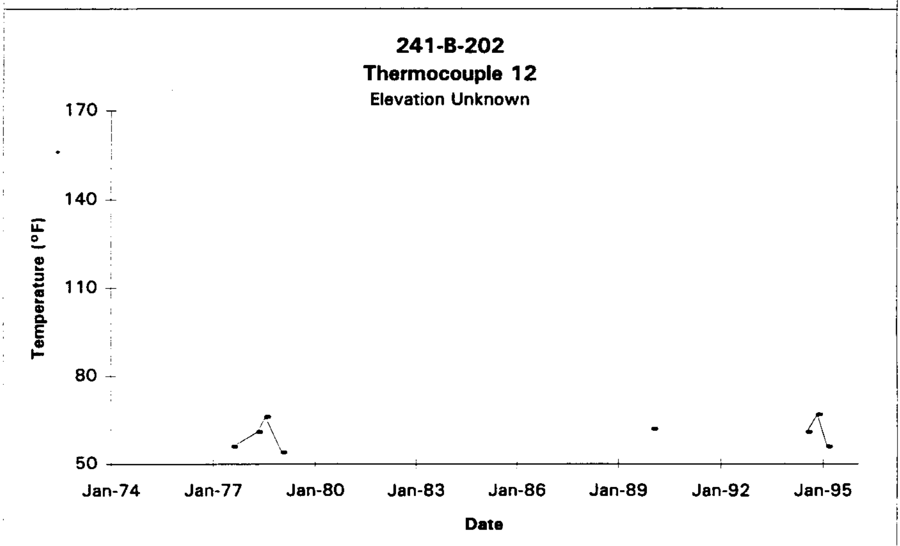
Data obtained from WHC Surveillance Analysis Computer System (SACS), Oct 23, 1995.



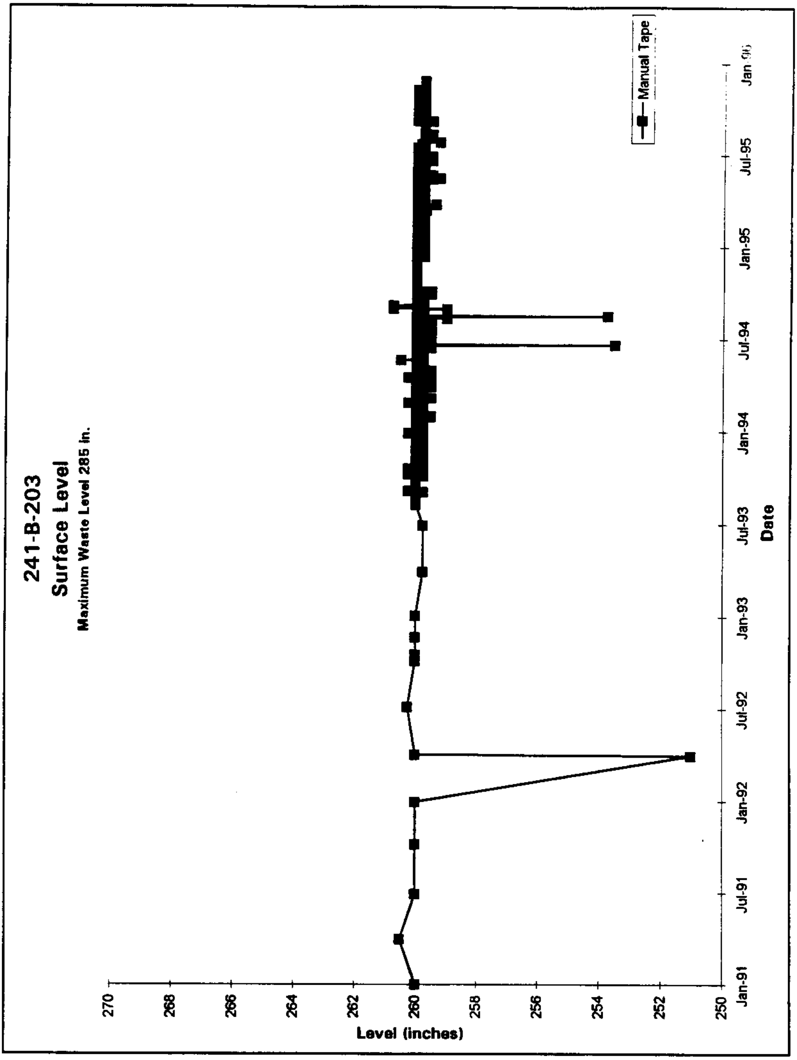


Data obtained from WHC Surveillance Analysis Computer System (SACS), Oct 23, 1995.

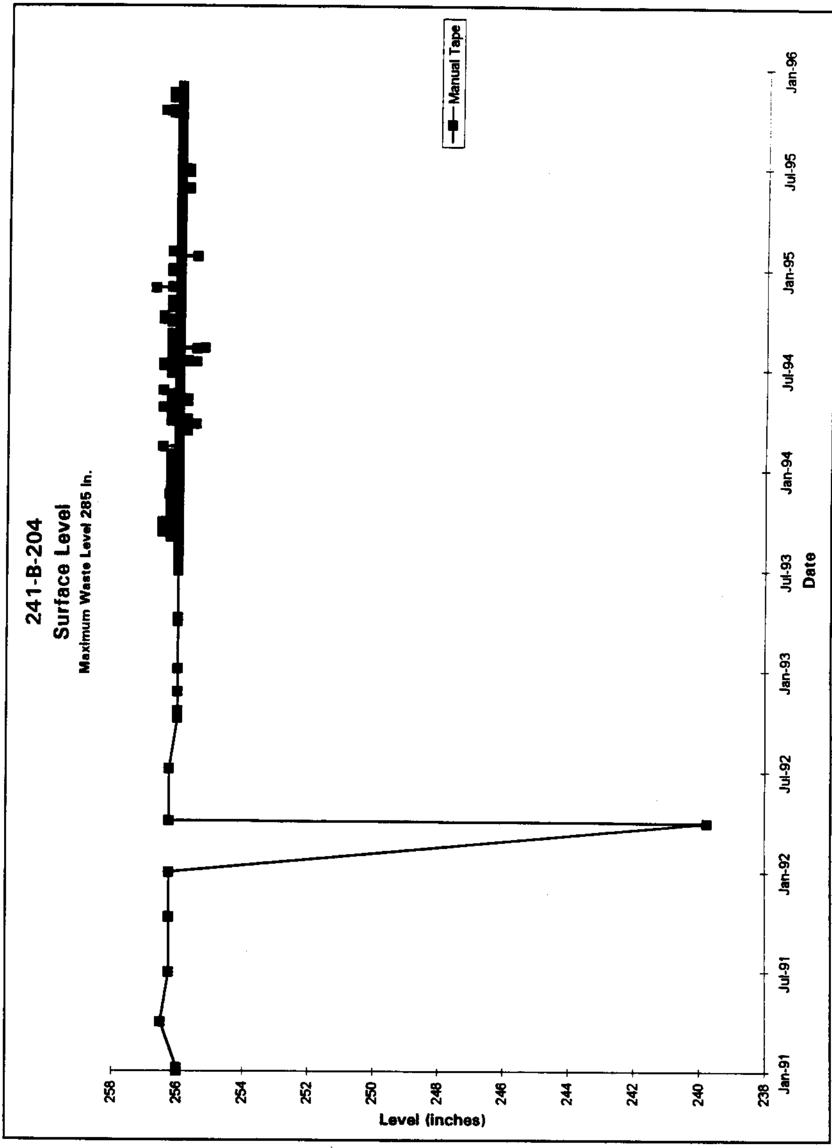




Data obtained from WHC Surveillance Analysis Computer System (SACS), Oct 23, 1995.



Data obtained from WHC Surveillance Analysis Computer System (SACS), December 4, 1995.



Data obtained from WHC Surveillance Analysis Computer System (SACS), December 4, 1995.

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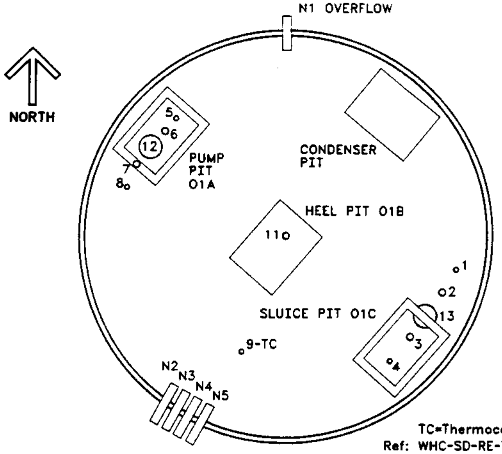
241-B-101

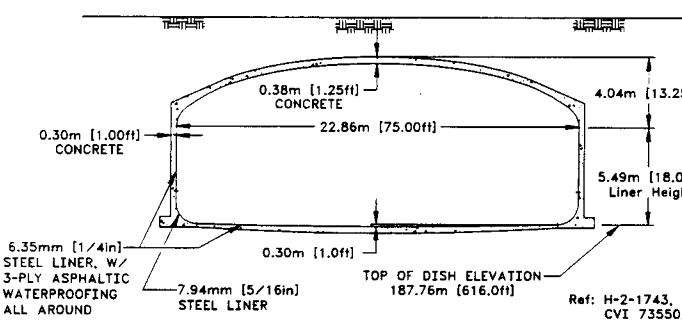
2,006,300 Liters
[530,000 Gallons]



TC=Thermocouple
Ref: WHC-SD-RE-TI-053, Rev. 8
WHC-SD-WM-TI-553, Rev. 0
H-2-73276, Rev. 3
W-72743

TANK RISER LOCATION

Approximate Grade Elevation 199.03m [653.0ft]



Ref: H-2-1743, Rev. 2
CVI 73550, dwg D-2

NOT TO SCALE

241-B-101			
NO.	DIA.	SAMPLING*	DESCRIPTION AND COMMENTS
1	4"	X	BREATHER FILTER
2	12"	X	B-222 OBSV PORT
3	12"		SLUICING NOZZLE, WC
4	4"		RECIRCULATING LINE DIP LEG, WC
5	4"		RECIRCULATING LINE DIP LEG, WC
6	12"		4" PIPE STUB W/ BLIND FLANGE INSTALLED, WC
7	12"	X	BLIND FLANGE, WC
8	4"		FIC, [BM CE0-36505 12/08/86]
9	4"		TEMPERATURE, [BM CE0-36505 12/08/86]
11	12"		SALTWELL SCREEN & PUMP, WC
12	42"		PUMP PIT, BG
13	42"		MAN HOLE, PLUGGED & BG
N1	3"		OVERFLOW
N2	3"		SPARE
N3	3"		LINE V-234, SEALED IN DIVERSION BOX 241-B-151
N4	3"		LINE V-233, SEALED IN DIVERSION BOX 241-B-151
N5	3"		SPARE

Ref: WHC-SD-RE-TI-053, Rev.8 *WHC-SD-WM-TI-710, Rev.1
WHC-SD-WM-TI-553, Rev.0 H-2-73276, Rev. 3

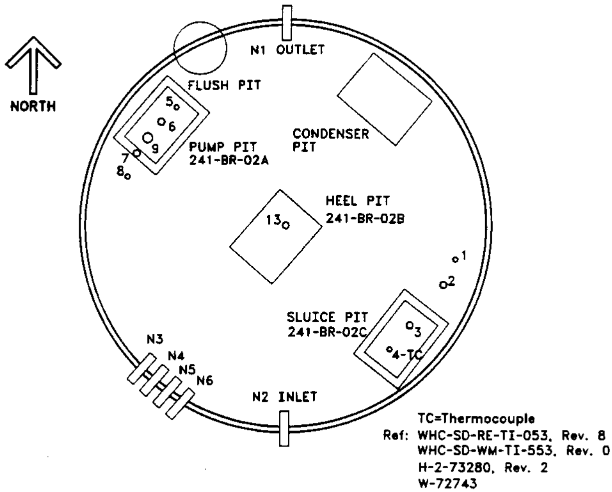
If there was a discrepancy between the documents and the drawings, the drawings shall take precedence.

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

* Denotes risers tentatively available for sampling (Lipnicki 1995)

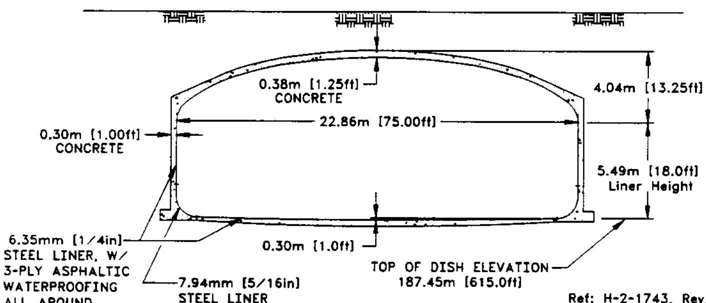
241-B-102

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



TANK RISER LOCATION

Approximate Grade Elevation 198.73m [652.0ft]



Ref: H-2-1743, Rev. 2
CVI 73550, dwg D-2

NOT TO SCALE

241-B-102			
NO.	DIA.	SAMPLING*	DESCRIPTION AND COMMENTS
1	4"		FIC, [ENRAF 854 ECN-619360 12/30/94]
2	12"		SALTWELL TRANSFER INLET, BG
3	12"		SLUICING NOZZLE, WC
4	4"		TEMPERATURE, WC
5	4"		RECIRCULATING DIP LEG, WC
6	12"		SLUICING NOZZLE, WC
7	12"	X	B-222 OBSV PORT, WC
8	4"	X	BREATHER FILTER, G1 HOUSING
9	42"		MAN HOLE W/ FLANGE
13	12"		STEEL PLATE TACK WELDED IN 4 PLACES, WC
N1	3"		OVERFLOW
N2	3"		INLET
N3	3"		SPARE
N4	3"		SPARE
N5	3"		SPARE
N6	3"		SPARE

Ref: WHC-SD-RE-TI-053, Rev.8 *WHC-SD-WM-TI-710, Rev.1
WHC-SD-WM-TI-553, Rev.0 H-2-73280, Rev. 2

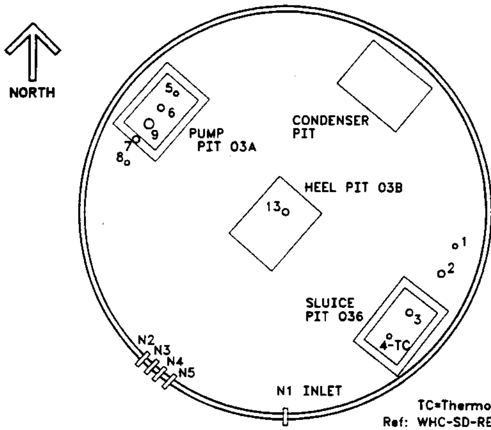
If there was a discrepancy between the documents and the drawings, the drawings shall take precedence.

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

* Denotes risers tentatively available for sampling (Lipnicki 1995)

241-B-103

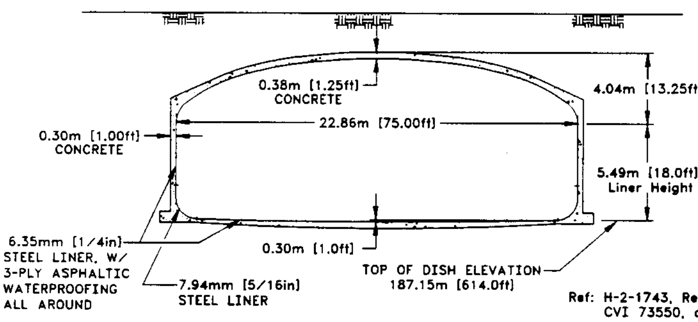
2,006,300 Liters
[530,000 Gallons]



TC=Thermocouple
Ref: WHC-SD-RE-TI-053, Rev. 8
WHC-SD-WM-TI-553, Rev. 0
H-2-73281, Rev. 2
W-72743

TANK RISER LOCATION

Approximate Grade Elevation 198.42m [651.0ft]



Ref: H-2-1743, Rev. 2
CVI 73550, dwg D-2

NOT TO SCALE

241-B-103			
NO.	DIA.	SAMPLING*	DESCRIPTION AND COMMENTS
1	4"		FIC
2	12"	X	FLANGE/B-222 OBSV PORT
3	12"		(SLUICING RISER) WC
4	4"		TEMPERATURE, WC
5	4"		DIP LEG, WC
6	12"		SLUICING RISER, WC
7	12"	X	SPARE, WC, [BREATHER FILTER, G1 HOUSING ECN-623082 05-19-95]
8	4"	X	BREATHER FILTER, G1 HOUSING, [LOW ECN-604355 09/07/95]
9	42"		MAN HOLE, WC
13	12"		SALTWELL SCREEN, WC
N1	3"		INLET, TYPE B
N2	3"		SPARE, TYPE C
N3	3"		SPARE, TYPE C
N4	3"		SPARE, TYPE C
N5	3"		SPARE, TYPE C

Ref: WHC-SD-RE-TI-053, Rev.8 *WHC-SD-WM-TI-710, Rev.1
WHC-SD-WM-TI-553, Rev.0 H-2-73281, Rev. 2

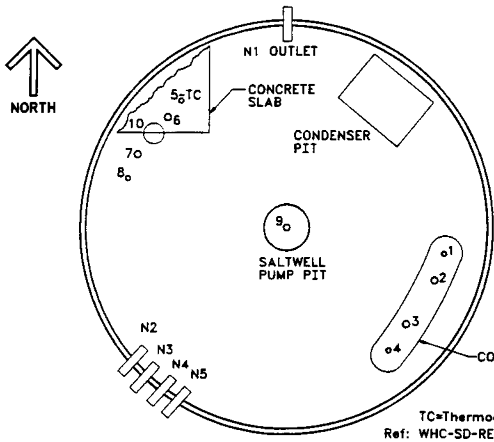
If there was a discrepancy between the documents and the drawings, the drawings shall take precedence.

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

* Denotes risers tentatively available for sampling (Lipnicki 1995)

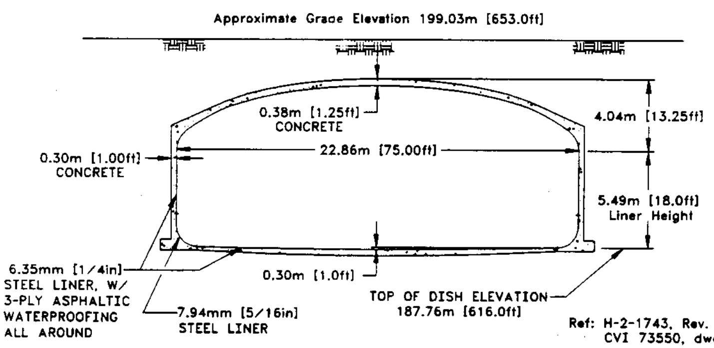
241-B-104

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-2-73282, Rev. 2
W-72743

TANK RISER LOCATION



Ref: H-2-1743, Rev. 2
CVI 73550, dwg D-2

NOT TO SCALE

241-B-104			
NO.	DIA.	SAMPLING*	DESCRIPTION AND COMMENTS
1	4"		SPARE, BG
2	12"	X	BLIND FLANGE, [BM CEO-37775 12/08/86]
3	12"	X	SPARE
4	4"		SPARE, BG
5	4"		TEMPERATURE PROBE
6	12"		B-436 LOW
7	12"	X	BREATHER FILTER, G1 HOUSING/OBSV PORT
8	4"		LIQUID LEVEL REEL, [BM CEO-37775 12/08/86]
9	12"		SALTWELL SCREEN & PUMP, WC
10	42"		MAN HOLE, BG
N1	3"		OUTLET
N2	3"		DRAIN FROM DIVERSION BOX 242-B-151
N3	3"		LINE V-271, FROM DIVERSION BOX 241-B-153
N4	3"		LINE V-272, FROM DIVERSION BOX 241-B-153
N5	3"		LINE V-273, FROM DIVERSION BOX 241-B-153

Ref: WHC-SD-RE-TI-053, Rev.8 *WHC-SD-WM-TI-710, Rev.1
WHC-SD-WM-TI-553, Rev.0 H-2-73282, Rev. 2

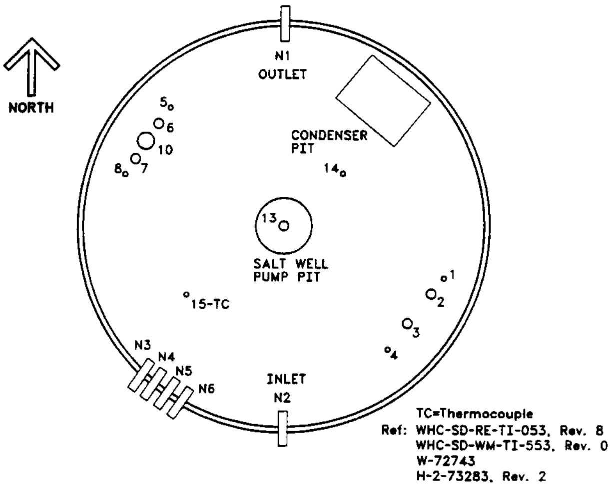
If there was a discrepancy between the documents and the drawings, the drawings shall take precedence.

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

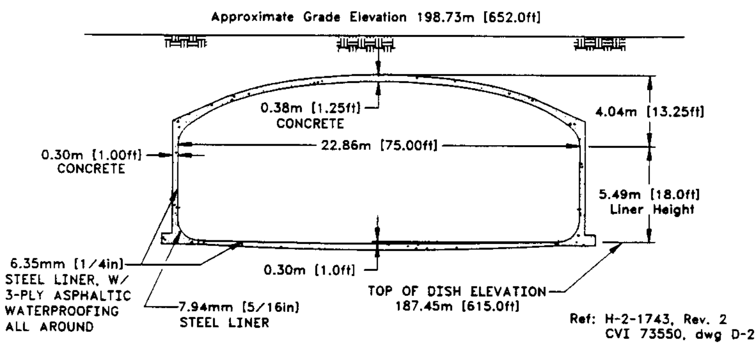
* Denotes risers tentatively available for sampling (Lipnicki 1995)

241-B-105

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



TANK RISER LOCATION



NOT TO SCALE

241-B-105			
NO.	DIA.	SAMPLING*	DESCRIPTION AND COMMENTS
1	4"		PLUG & GROUT FILLED
2	12"	X	FLANGE
3	12"	X	FLANGE
4	4"		PLUG & GROUT FILLED
5	4"		B-436 LOW
6	12"	X	FLANGE
7	12"	X	FLANGE/B-222 OBSV PORT
8	4"	X	BREATHER FILTER, G1 HOUSING, [BM CEO-37774 12/08/86]
10	42"		MAN HOLE, BG
13	12"		SALTWELL SCREEN, WC
14	4"		LIQUID LEVEL REEL, [BM CEO-37774 12/08/86]
15	4"		TEMPERATURE
N1	3"		OUTLET
N2	3"		INLET
N3	3"		SPARE
N4	3"		SPARE
N5	3"		SPARE
N6	3"		SPARE

Ref: WHC-SD-RE-TI-053, Rev.8 *WHC-SD-WM-TI-710, Rev.1
WHC-SD-WM-TI-553, Rev.0 H-2-73283, Rev. 2

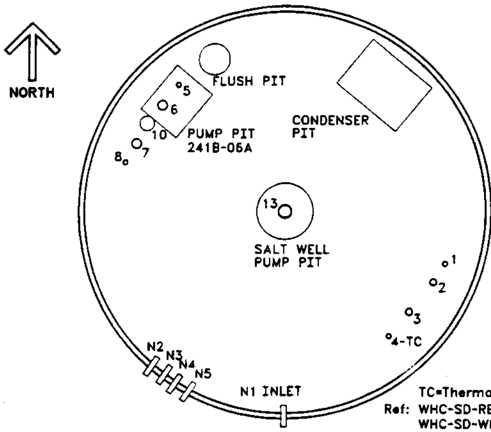
If there was a discrepancy between the documents and the drawings, the drawings shall take precedence.

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

* Denotes risers tentatively available for sampling (Lipnicki 1995)

241-B-106

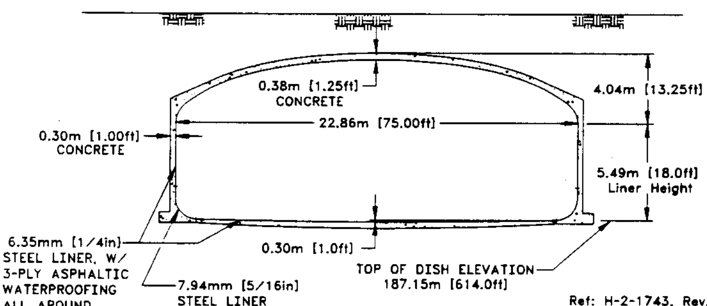
2,006,300 Liters
[530,000 Gallons]



TC=Thermocouple
Ref: WHC-SD-RE-TI-053, Rev. 8
WHC-SD-WM-TI-553, Rev. 0
H-2-73284, Rev. 2,
W-72743

TANK RISER LOCATION

Approximate Grade Elevation 198.50m [651.25ft]



Ref: H-2-1743, Rev. 2
CVI 73550, dwg D-2

NOT TO SCALE

241-B-106

NO.	DIA.	SAMPLING*	DESCRIPTION AND COMMENTS
1	4"		FIC, [ENRAF 854 ECN-616321 11/09/94]
2	12"	X	BLIND FLANGE
3	12"	X	B-222 OBSV PORT
4	4"		TEMPERATURE PROBE
5	4"		SPARE, WC
6	12"		TRANSFER PUMP, WC
7	12"	X	AIR INLET STACK
8	4"	X	BREATHER FILTER, G1 HOUSING
10	42"		MAN HOLE, BG
13	12"		SALTWELL SCREEN & PUMP, WC
N1	3"		INLET
N2	3"		LINE V-250
N3	3"		SPARE
N4	3"		SPARE
N5	3"		SPARE

Ref: WHC-SD-RE-TI-053, Rev.8 *WHC-SD-WM-TI-710, Rev.1
WHC-SD-WM-TI-553, Rev.0 H-2-73284, Rev. 2

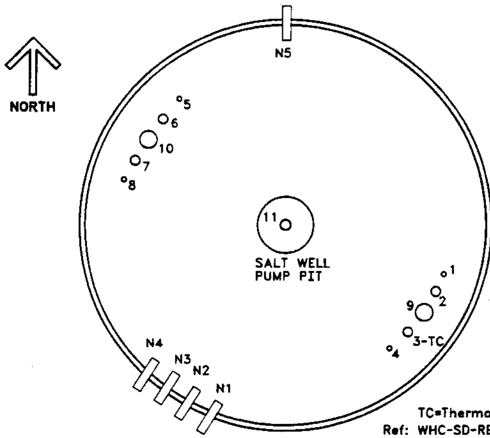
If there was a discrepancy between the documents and the drawings, the drawings shall take precedence.

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

* Denotes risers tentatively available for sampling (Lipnicki 1995)

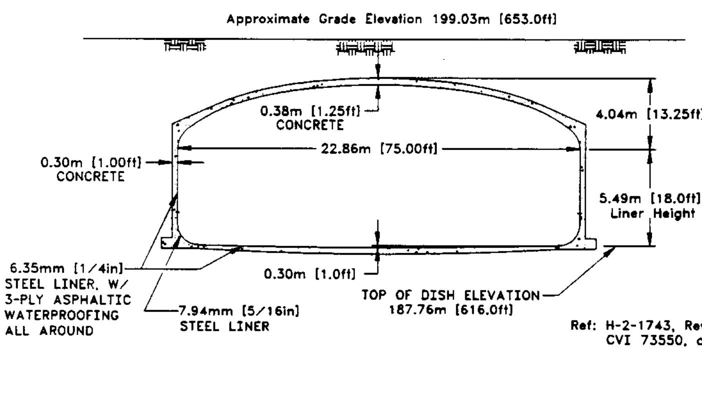
241-B-107

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-2-73278, Rev. 4
W-72743

TANK RISER LOCATION



Ref: H-2-1743, Rev. 2
CVI 73550, dwg D-2

NOT TO SCALE

241-B-107			
NO.	DIA.	SAMPLING*	DESCRIPTION AND COMMENTS
1	4"	X	BLIND FLANGE, WC
2	12"	X	FLANGE/B-222 OBSV PORT
3	12"		TEMPERATURE PROBE
4	4"	X	BREATHER FILTER, [BM CE0-37777 12/08/86]
5	4"	X	BLIND FLANGE
6	12"	X	SMP
7	12"	X	FLANGE
8	4"		LIQUID LEVEL REEL, [BM CE0-37777 12/08/86]
9	42"		MAN HOLE, BG
10	42"		MAN HOLE, BG
11	12"		SALTWELL SCREEN, WC
N1	3"		INLET LINE V-268, SEALED IN DIVERSION BOX 241-B-152
N2	3"		INLET LINE V-267, SEALED IN DIVERSION BOX 241-B-152
N3	3"		INLET LINE V-266, SEALED IN DIVERSION BOX 241-B-152
N4	3"		SPARE, CAPPED
N5	3"		OVERFLOW

Ref: WHC-SD-RE-TI-053, Rev.8 *WHC-SD-WM-TI-710, Rev.1
WHC-SD-WM-TI-553, Rev.0 H-2-73278, Rev. 4

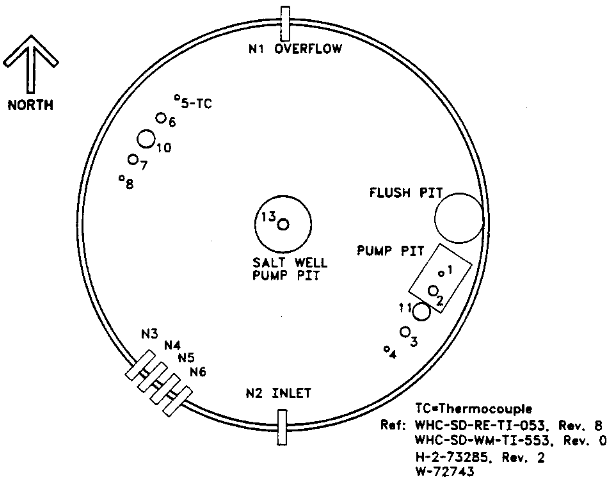
If there was a discrepancy between the documents and the drawings, the drawings shall take precedence.

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

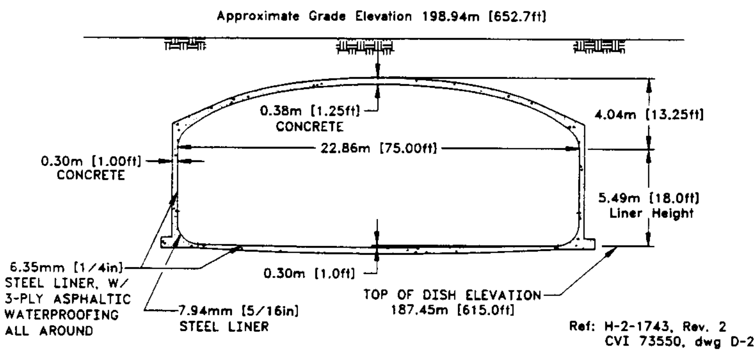
* Denotes risers tentatively available for sampling (Lipnicki 1995)

241-B-108

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



TANK RISER LOCATION



NOT TO SCALE

241-B-108			
NO.	DIA.	SAMPLING*	DESCRIPTION AND COMMENTS
1	4"		TANK FILL, WC
2	12"		PUMP, WC
3	12"	X	FLANGE
4	4"	X	BREATHER FILTER, G1 HOUSING
5	4"		TEMPERATURE PROBE
6	12"	X	BLIND FLANGE
7	12"	X	B-222 OBSV PORT
8	4"		FIC, [BM CEO-37772 12/08/86]
10	42"		MAN HOLE, BG
11	42"		MAN HOLE, BG
13	12"		SALTWELL SCREEN, WC
N1	3"		OVERFLOW
N2	3"		INLET
N3	3"		SPARE
N4	3"		SPARE
N5	3"		SPARE
N6	3"		SPARE

Ref: WHC-SD-RE-TI-053, Rev.8 *WHC-SD-WM-TI-710, Rev.1
WHC-SD-WM-TI-553, Rev.0 H-2-73285, Rev. 2

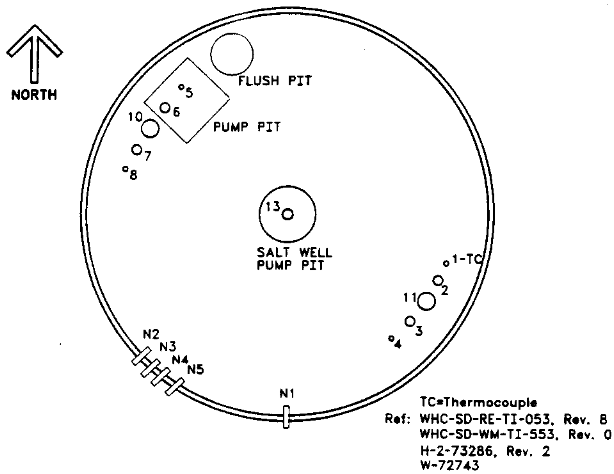
If there was a discrepancy between the documents and the drawings, the drawings shall take precedence.

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

* Denotes risers tentatively available for sampling (Lipnicki 1995)

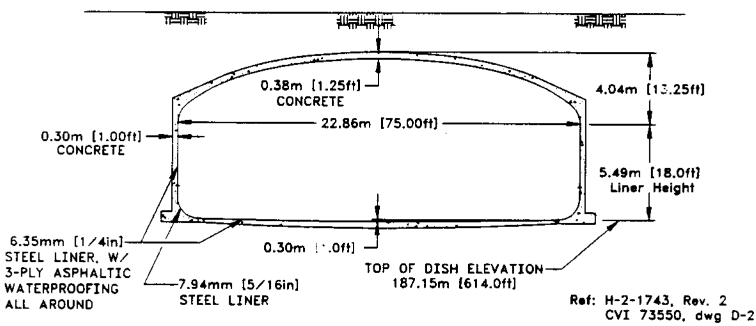
241-B-109

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



TANK RISER LOCATION

Approximate Grade Elevation 198.64m [651.7ft]



NOT TO SCALE

241-B-109			
NO.	DIA.	SAMPLING*	DESCRIPTION AND COMMENTS
1	4"		TEMPERATURE PROBE, [BM CEO-37771 12/08/86]
2	12"	X	FLANGE/B-222 OBSV PORT
3	12"		LIQUID LEVEL REEL
4	4"	X	BREATHER FILTER, G1 HOUSING
5	4"		TANK FILL, WC
6	12"		PUMP, WC
7	12"	X	BLIND FLANGE
8	4"		TANK FILL, BG
10	42"		MAN HOLE, BG
11	42"		MAN HOLE, BG
13	12"		SALTWELL SCREEN, WC
N1	3"		INLET
N2	3"		SPARE
N3	3"		SPARE
N4	3"		SPARE
N5	3"		SPARE

Ref: WHC-SD-RE-TI-053, Rev.8 *WHC-SD-WM-TI-710, Rev.1
WHC-SD-WM-TI-553, Rev.0 H-2-73286, Rev. 2

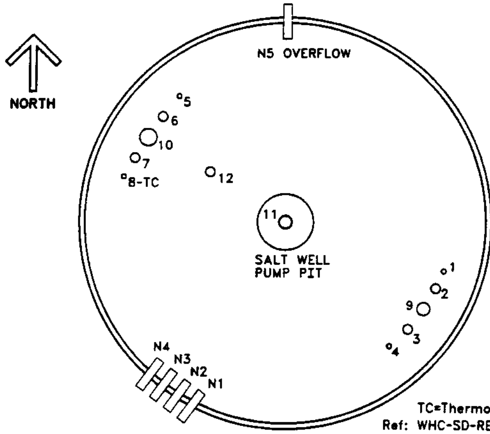
If there was a discrepancy between the documents and the drawings, the drawings shall take precedence.

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

* Denotes risers tentatively available for sampling (Lipnicki 1995)

241-B-110

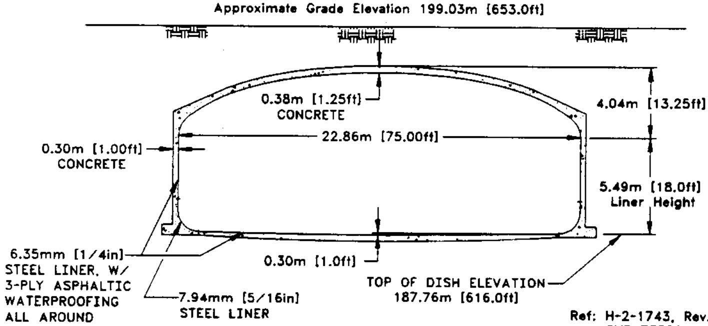
2,006,300 Liters
[530,000 Gallons]



TC=Thermocouple
Ref: WHC-SD-RE-TI-053, Rev. 8
WHC-SD-WM-TI-553, Rev. 0
H-2-73279, Rev. 4
W-72743

TANK RISER LOCATION

Approximate Grade Elevation 199.03m [653.0ft]



Ref: H-2-1743, Rev. 2
CVI 73550, dwg D-2

NOT TO SCALE

241-B-110

NO.	DIA.	SAMPLING*	DESCRIPTION AND COMMENTS
1	4"	X	BREATHER FILTER, [STEEL LOW ECN-614181 09/27/94]
2	12"		LLW DIP TUBES, CAPPED & BG
3	12"	X	BLIND FLANGE
4	4"	X	FLANGE, [BM CE0-37765 12/08/86]
5	4"		LIQUID LEVEL REEL
6	12"	X	BLIND FLANGE
7	12"	X	B-222 OBSV PORT, [OBSV PORT/AIR FILTER ECN-614181 09/27/94]
8	4"		TEMPERATURE PROBE
9	42"		MAN HOLE, BG
10	42"		MAN HOLE, BG
11	12"		SALTWELL SCREEN, WC
12	4"		LLW DIP TUBES, CAPPED & BG
N1	3"		LINE V-263, SEALED IN DIVERSION BOX 241-B-153
N2	3"		LINE V-262, SEALED IN DIVERSION BOX 241-B-153
N3	3"		LINE V-261, SEALED IN DIVERSION BOX 241-B-153
N4	3"		SPARE, CAPPED
N5	3"		OVERFLOW

Ref: WHC-SD-RE-TI-053, Rev.8 *WHC-SD-WM-TI-710, Rev.1
WHC-SD-WM-TI-553, Rev.0 H-2-73279, Rev. 4

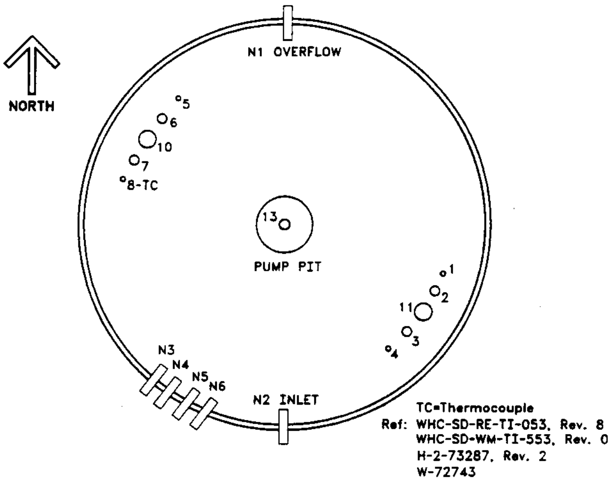
If there was a discrepancy between the documents and the drawings, the drawings shall take precedence.

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

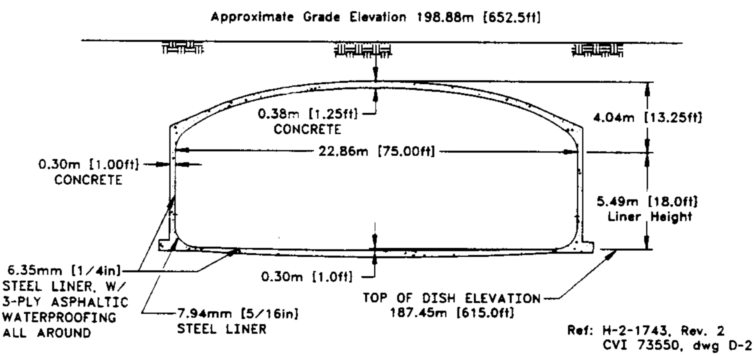
* Denotes risers tentatively available for sampling (Lipnicki 1995)

241-B-111

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



TANK RISER LOCATION



NOT TO SCALE

241-B-111			
NO.	DIA.	SAMPLING*	DESCRIPTION AND COMMENTS
1	4"		FIC, BM
2	12"	X	DIP TUBES, CUT OFF/BLIND FLANGED
3	12"	X	FLANGE/B-222 OBSV PORT
4	4"	X	FLANGE, [STEEL LOW ECN-614182 09/27/94]
5	4"	X	BREATHER FILTER, G1 HOUSING
6	12"	X	FLANGE WITH LEAD
7	12"	X	BLIND FLANGE
8	4"		TEMPERATURE PROBE, BM
10	42"		MAN HOLE, BG
11	42"		MAN HOLE, BG
13	12"		SALTWELL PUMP, WC
N1	3"		OVERFLOW
N2	3"		INLET
N3	3"		SPARE
N4	3"		LINE V-260
N5	3"		SPARE
N6	3"		SPARE

Ref: WHC-SD-RE-TI-053, Rev.8 *WHC-SD-WM-TI-710, Rev.1
WHC-SD-WM-TI-553, Rev.0 H-2-73287, Rev. 2

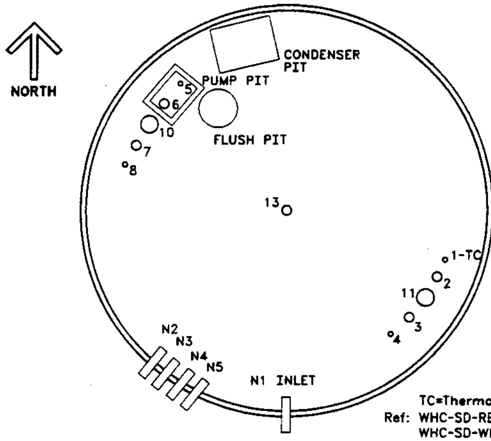
If there was a discrepancy between the documents and the drawings, the drawings shall take precedence.

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

* Denotes risers tentatively available for sampling (Lipnicki 1995)

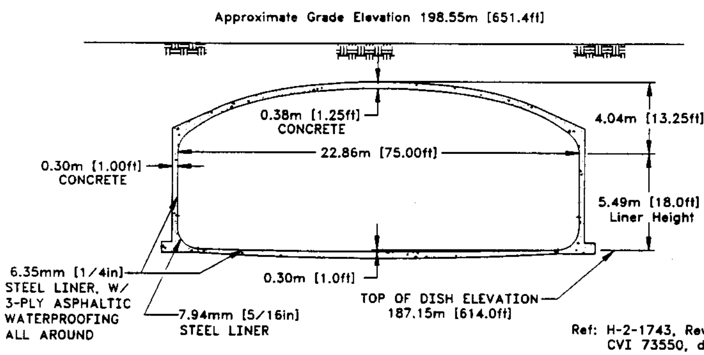
241-B-112

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-2-73288, Rev. 2
W-72743

TANK RISER LOCATION



Ref: H-2-1743, Rev. 2
CVI 73550, dwg D-2

NOT TO SCALE

241-B-112			
NO.	DIA.	SAMPLING*	DESCRIPTION AND COMMENTS
1	4"		TEMPERATURE PROBE, [BM CEO-36509 12/08/86]
2	12"	X	BLIND FLANGE
3	12"	X	FLANGE/B-222 OBSV PORT
4	4"		FIC, [ENRAF 854 ECN-616322 11/09/94]
5	4"		TANK INLET, WC
6	12"		PUMP, WC
7	12"	X	FLANGE
8	4"	X	BREATHER FILTER, G1 HOUSING
10	42"		BG, MH
11	42"		BG, MH
13	12"	X	BLIND FLANGE, [BM CEO-36509 12/08/86]
N1	3"		INLET
N2	3"		SPARE
N3	3"		OVERFLOW TO REVERSE WELL
N4	3"		SPARE
N5	3"		SPARE

Ref: WHC-SD-RE-TI-053, Rev.8 *WHC-SD-WM-TI-710, Rev.1
WHC-SD-WM-TI-553, Rev.0 H-2-73288, Rev. 2

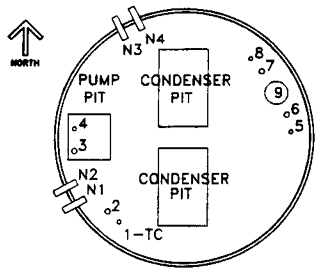
If there was a discrepancy between the documents and the drawings, the drawings shall take precedence.

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

* Denotes risers tentatively available for sampling (Lipnicki 1995)

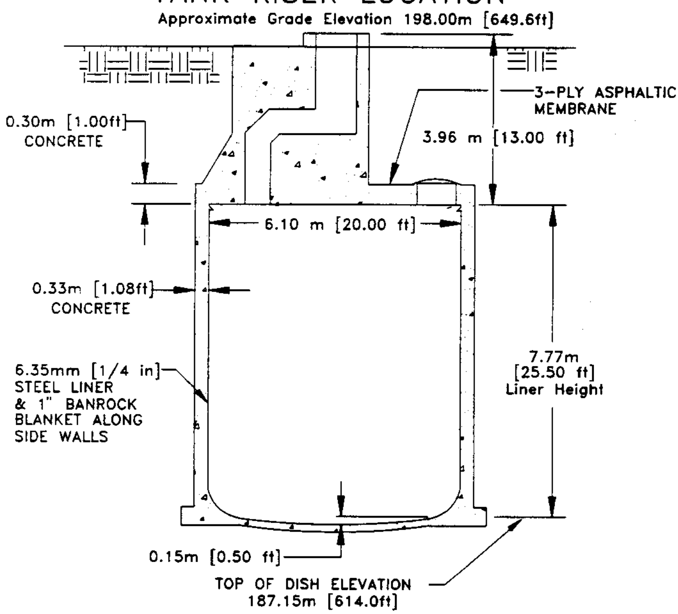
241-B-201

208,200 Liters
[55,000 Gallons]



TC=Thermocouple
Ref: WHC-SD-RE-TI-053, Rev. 8
WHC-SD-WM-TI-553, Rev. 0
H-2-73275, Rev. 3

TANK RISER LOCATION



Ref: CVI 73550
Drawing D-20

NOT TO SCALE

241-B-201			
NO.	DIA.	SAMPLING*	DESCRIPTION AND COMMENTS
1	4"		THERMOCOUPLE
2	12"	X	FLANGE/B-222 OBSV PORT
3	12"		SPARE, WC
4	4"		PIT DRAIN, WC
5	4"	X	SPARE, FLANGE
6	12"	X	BREATHER FILTER
7	12"	X	FLANGE
8	4"		LIQUID LEVEL REEL
9	42"		MAN HOLE, BG
N1	3"		LINE V-290, BLANKED IN DIVERSION BOX 241-B-252
N2	3"		LINE V-291, BLANKED IN DIVERSION BOX 241-B-252
N3	3"		CAPPED
N4	3"		LINE TO SUMP 216-B-7B, BLANKED IN CAISSON

Ref: WHC-SD-RE-TI-053, Rev.8 *WHC-SD-WM-TI-710, Rev.1
WHC-SD-WM-TI-553, Rev.0 H-2-73275, Rev. 3

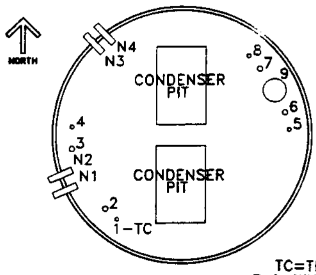
If there was a discrepancy between the documents and the drawings, the drawings shall take precedence.

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

* Denotes risers tentatively available for sampling (Lipnicki 1995)

241-B-202

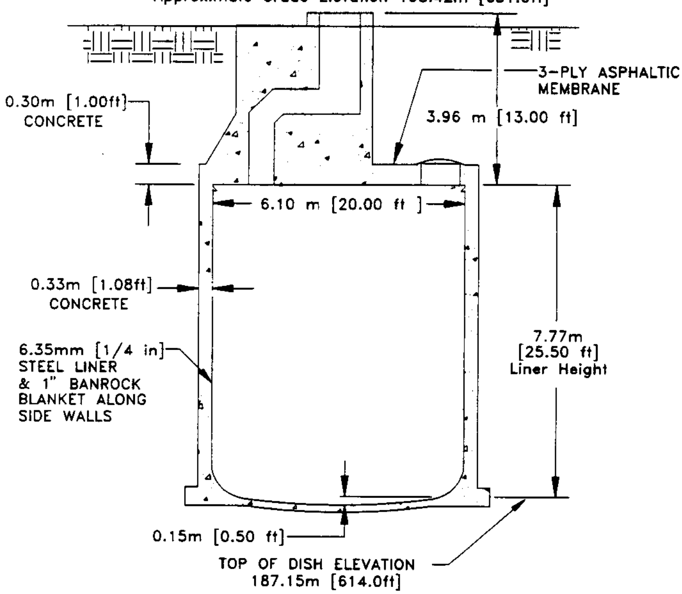
208,200 Liters
[55,000 Gallons]



TC=Thermocouple
Ref: WHC-SD-RE-TI-053, Rev. 8
WHC-SD-WM-TI-553, Rev. 0
H-2-73298, Rev. 2

TANK RISER LOCATION

Approximate Grade Elevation 198.42m [651.0ft]



Ref: CVI 73550
Drawing D-20

NOT TO SCALE

241-B-202			
NO.	DIA.	SAMPLING*	DESCRIPTION AND COMMENTS
1	4"		THERMOCOUPLE
2	12"	X	FLANGE/OBSV PORT
3	12"	X	FLANGE
4	4"	X	BREATHER FILTER, G1 HOUSING
5	4"	X	FLANGE
6	12"	X	FLANGE
7	12"	X	FLANGE
8	4"		LIQUID LEVEL REEL, [ENRAF 854 ECN-625940 10/17/95]
9	42"		MAN HOLE, BG
N1	3"		LINE V-292
N2	3"		LINE V-293
N3	3"		LINE FROM TANK B-203
N4	3"		LINE TO CRIBS

Ref: WHC-SD-RE-TI-053, Rev.8 *WHC-SD-WM-TI-710, Rev.1
WHC-SD-WM-TI-553, Rev.0 H-2-73289, Rev. 2

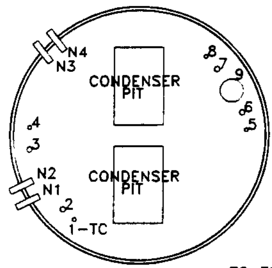
If there was a discrepancy between the documents and the drawings, the drawings shall take precedence.

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

* Denotes risers tentatively available for sampling (Lipnicki 1995)

241-B-203

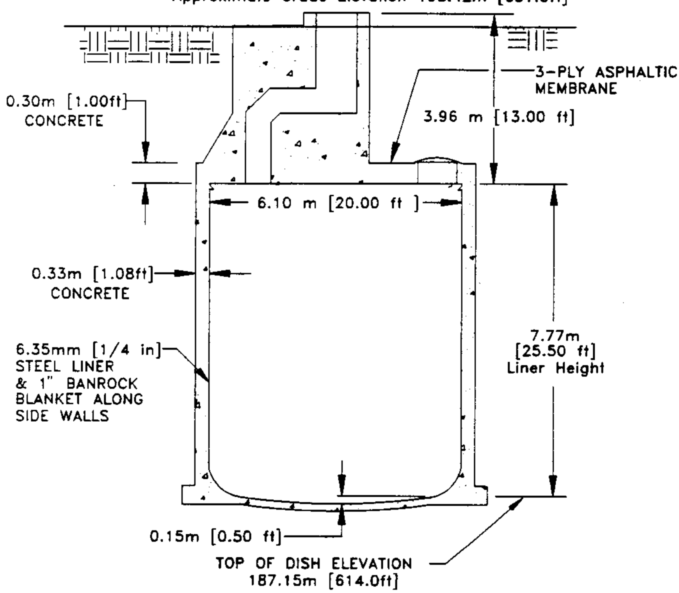
208,200 Liters
[55,000 Gallons]



TC=Thermocouple
Ref: WHC-SD-RE-TI-053, Rev. 8
WHC-SD-WM-TI-553, Rev. 0
H-2-73290, Rev. 2

TANK RISER LOCATION

Approximate Grade Elevation 198.42m [651.0ft]



Ref: CVI-73550
Drawing D-20

NOT TO SCALE

241-B-203			
NO.	DIA.	SAMPLING*	DESCRIPTION AND COMMENTS
1	4"		THERMOCOUPLE
2	12"	X	FLANGE/OBSV PORT
3	12"	X	FLANGE
4	4"	X	BREATHER FILTER, G1 HOUSING
5	4"	X	FLANGE
6	12"	X	FLANGE
7	12"	X	BLIND FLANGE
8	4"		LIQUID LEVEL REEL
9	42"		MAN HOLE, BG
N1	3"		LINE V-294
N2	3"		LINE V-295
N3	3"		LINE FROM TANK B-204
N4	3"		LINE FROM TANK B-202

Ref: WHC-SD-RE-TI-053, Rev.8 *WHC-SD-WM-TI-710, Rev.1
WHC-SD-WM-TI-553, Rev.0 H-2-73290, Rev. 2

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

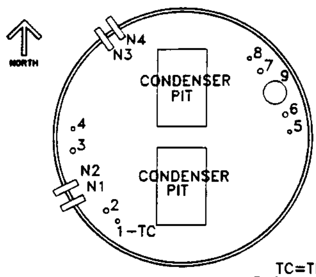
Comments placed in [] denote Engineering Change Notices (ECN) made against the reference drawings.

* Denotes risers tentatively available for sampling (Lipnicki 1995)

241-B-204

208,200 Liters

[55,000 Gallons]

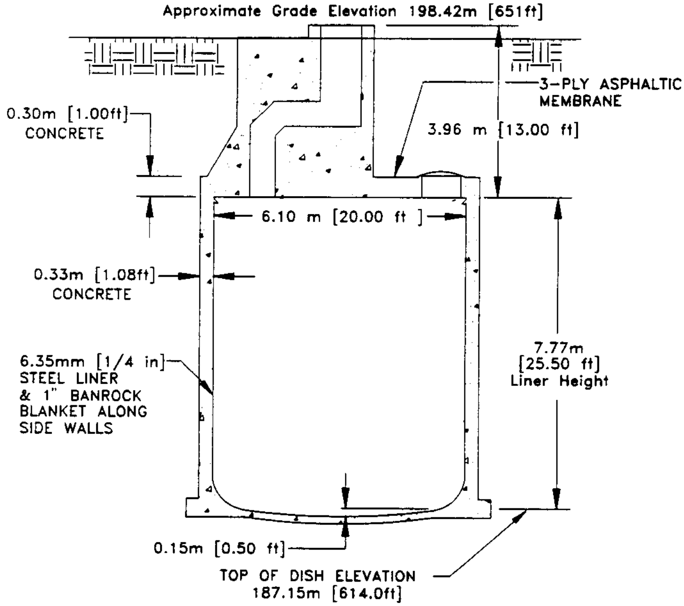


TC=Thermocouple

Ref: WHC-SD-RE-TI-053, Rev. 8
WHC-SD-WM-TI-553, Rev. 0
H-2-73291, Rev. 2

TANK RISER LOCATION

Approximate Grade Elevation 198.42m [651ft]



Ref: CVI 73550
Drawing D-20

NOT TO SCALE

241-B-204			
NO.	DIA.	SAMPLING*	DESCRIPTION AND COMMENTS
1	4"		THERMOCOUPLE
2	12"	X	FLANGE/OBSV PORT
3	12"	X	FLANGE
4	4"	X	BREATHER FILTER, G1 HOUSING
5	4"	X	BLIND FLANGE
6	12"	X	FLANGE
7	12"	X	BLIND FLANGE
8	4"		LIQUID LEVEL REEL
9	42"		MAN HOLE, BG
N1	3"		LINE V-296
N2	3"		LINE V-297
N3	3"		SPARE
N4	3"		LINE TO TANK B-203

Ref: WHC-SD-RE-TI-053, Rev.8 *WHC-SD-WM-TI-710, Rev.1
WHC-SD-WM-TI-553, Rev.0 H-2-73291, Rev. 2

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

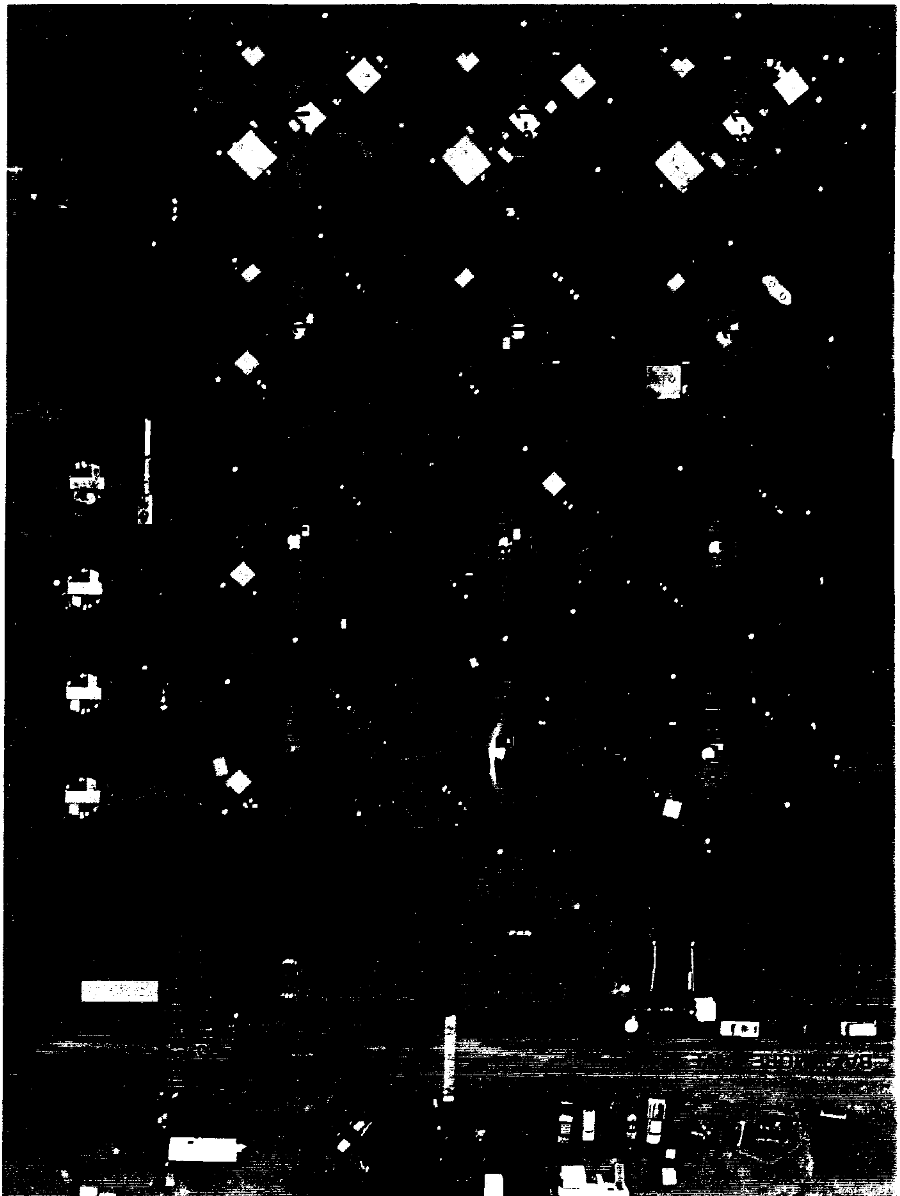
Comments placed in [] denote Engineering Change Notices (ECN) made against the reference drawings.

* Denotes risers tentatively available for sampling (Lipnicki 1995)

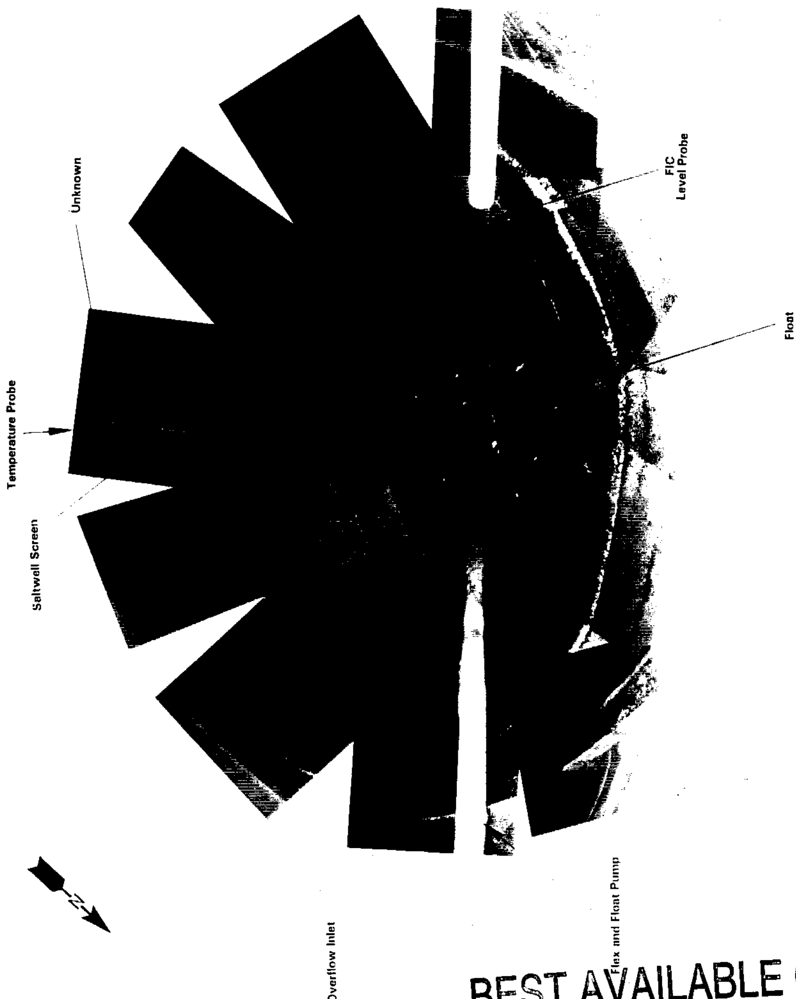
B TANK FARM PHOTOS

TANK #	MONTAGE #	ORIGINAL PHOTO SET #	DATE
B Farm Aerial Photo	N/A	93030994-300CN	N/A
241-B-101	94011379-9CN	Unknown	2/27/75
241-B-102	94011379-10CN	85-05757	8/22/85
241-B-103	94011379-11CN	88-101364	10/13/88
241-B-104	94011379-12CN	88-101366	10/13/88
241-B-105	94011379-13CN	88-02710	5/19/88
241-B-106	94011379-14CN	85-01618	2/28/85
241-B-107	94011379-41CN	85-01617	2/28/85
241-B-108	96030717-2CN	85-03173	5/10/85
241-B-109	94011379-43CN	85-02080	4/2/85
241-B-110	94011379-44CN	88-01416	3/17/88
241-B-111	94011379-45CN	85-04598	6/26/85
241-B-112	94011379-46CN	85-03886	5/29/85
241-B-201	94011379-7CN	86-07254	11/12/86
241-B-202	94011379-8CN	85-03885	5/29/85
241-B-203	94011379-8CN	86-07255	11/13/86
241-B-204	94011379-8CN	87-06422	10/22/87

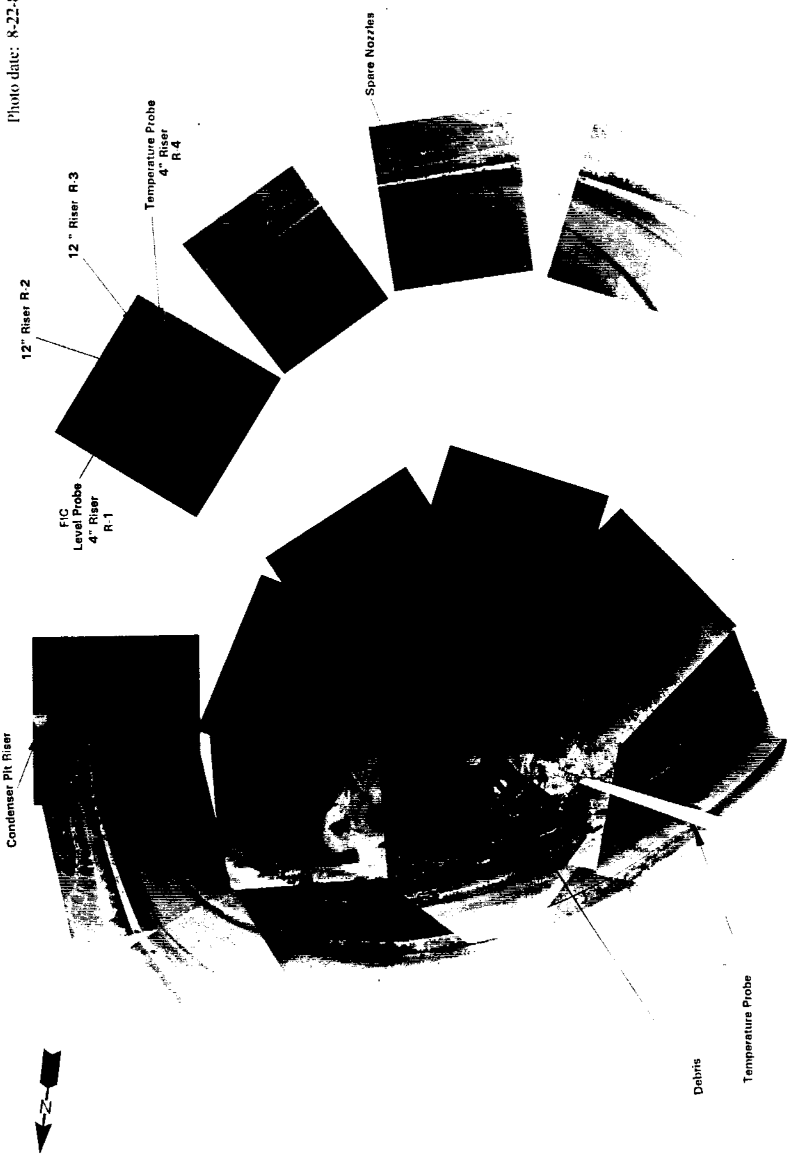
B Tank Farm

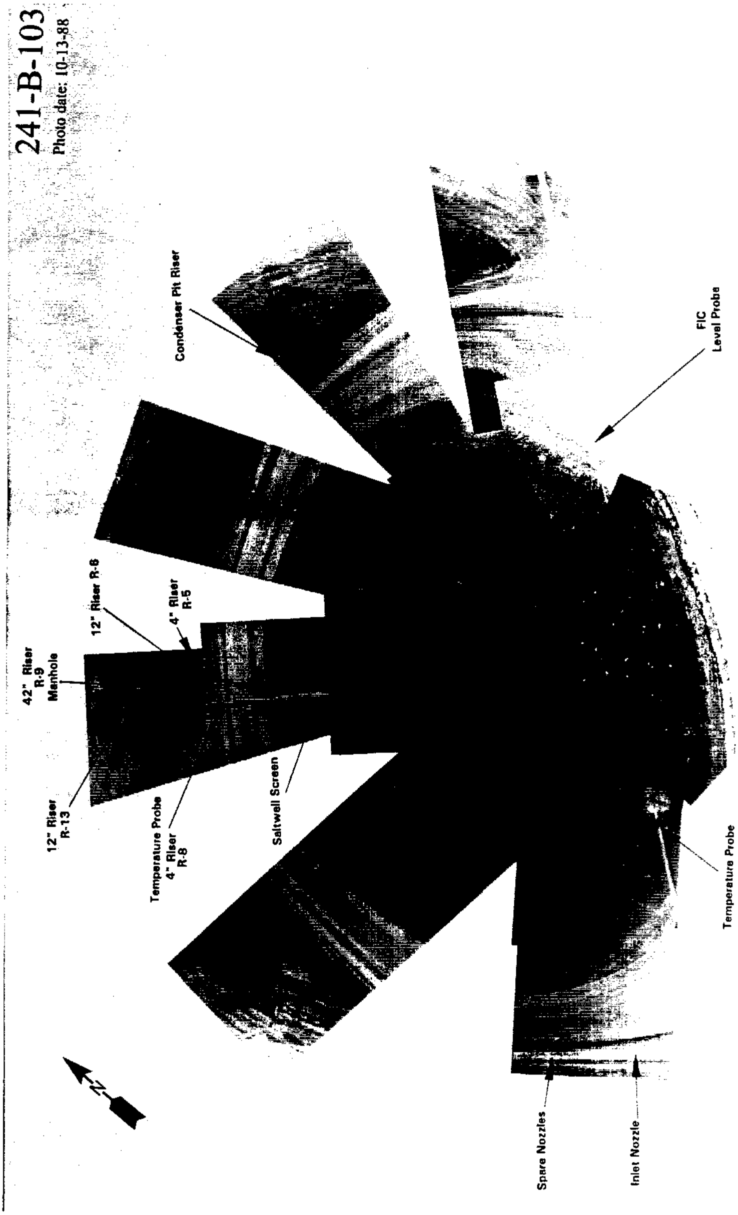


241-B-101
Photo date: 2-27-75



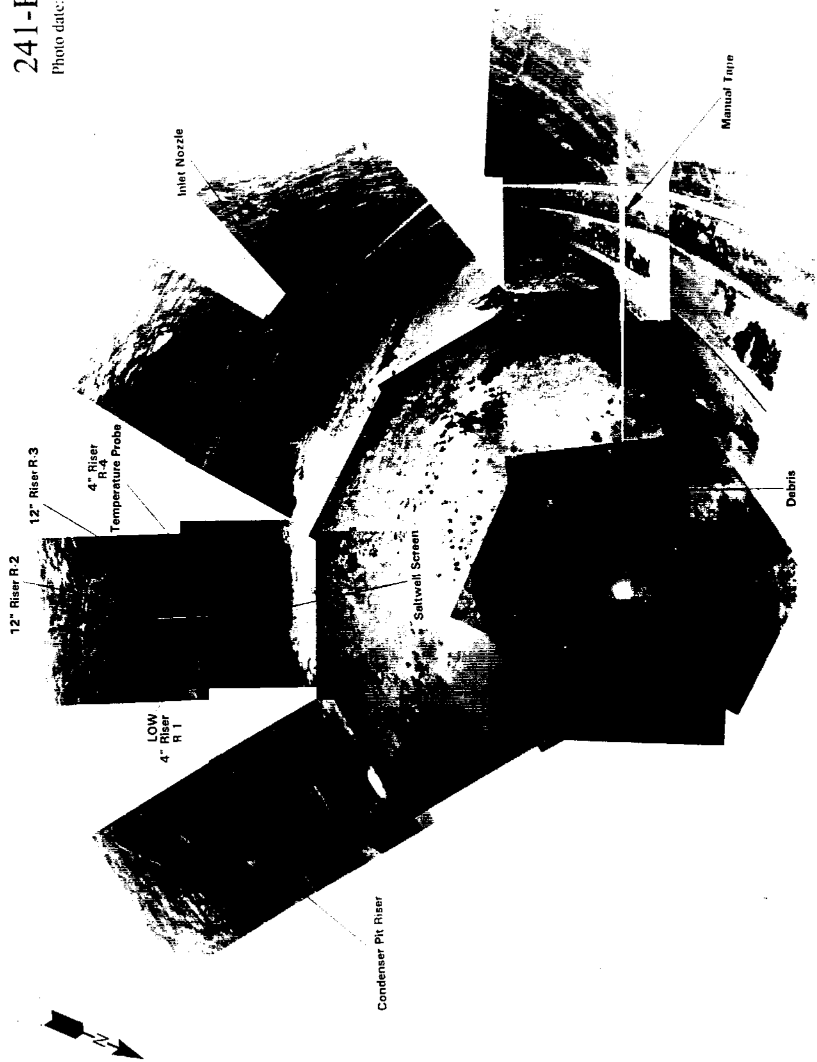
241-B-102
Photo date: 8-22-85




241-B-103
Photo date: 10-13-88
Condenser Pit Riser
FIC
Level Probe
12" Riser R-6
4" Riser
R-5
42" Riser
R-9
Manhole
12" Riser
R-13
Temperature Probe
4" Riser
R-8
Saltwell Screen
Temperature Probe
Spare Nozzles
Inlet Nozzle
N

241-B-104

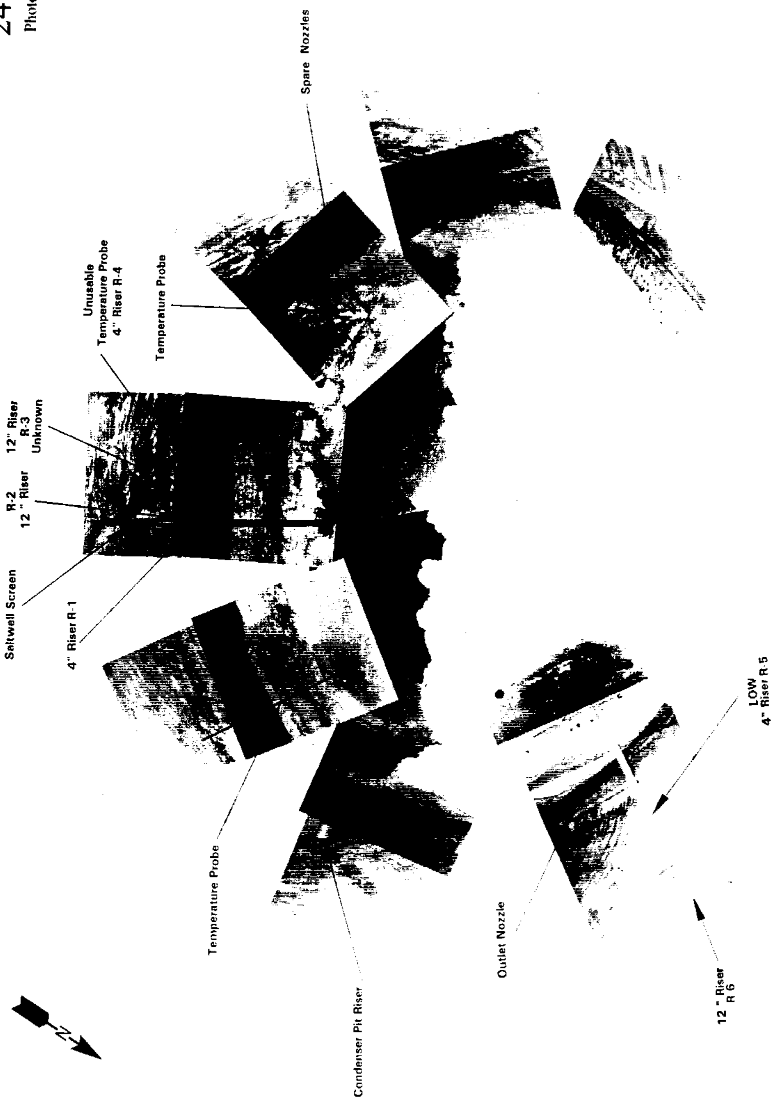
Photo date: 10-13-88



BEST AVAILABLE COPY

241-B-105

Photo date: 5-19-88



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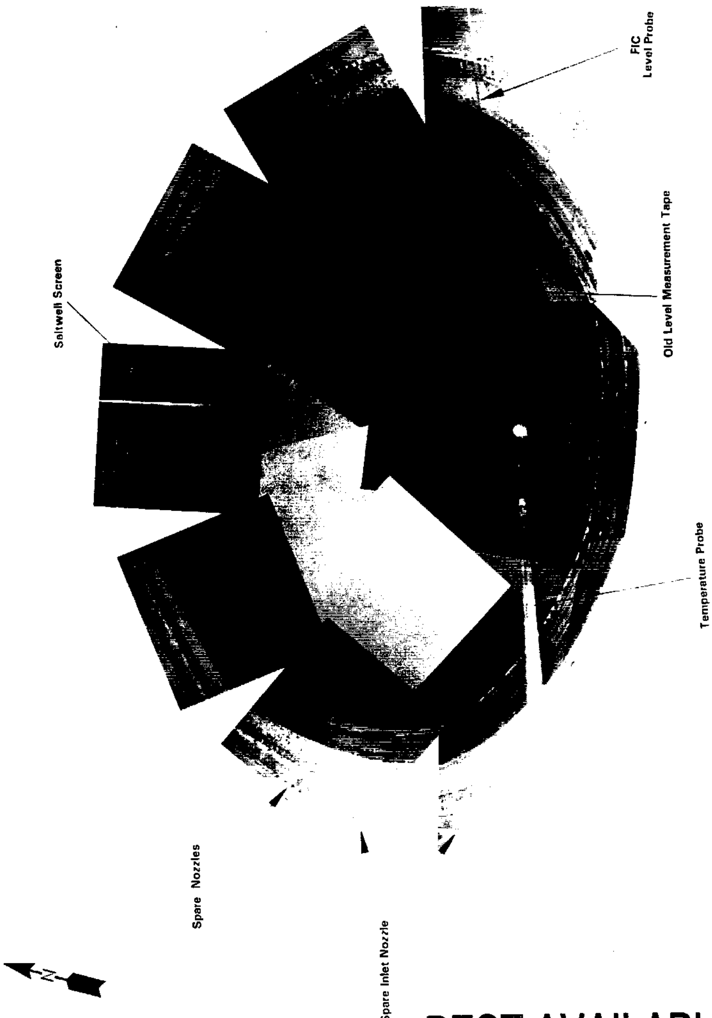

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241-B-107

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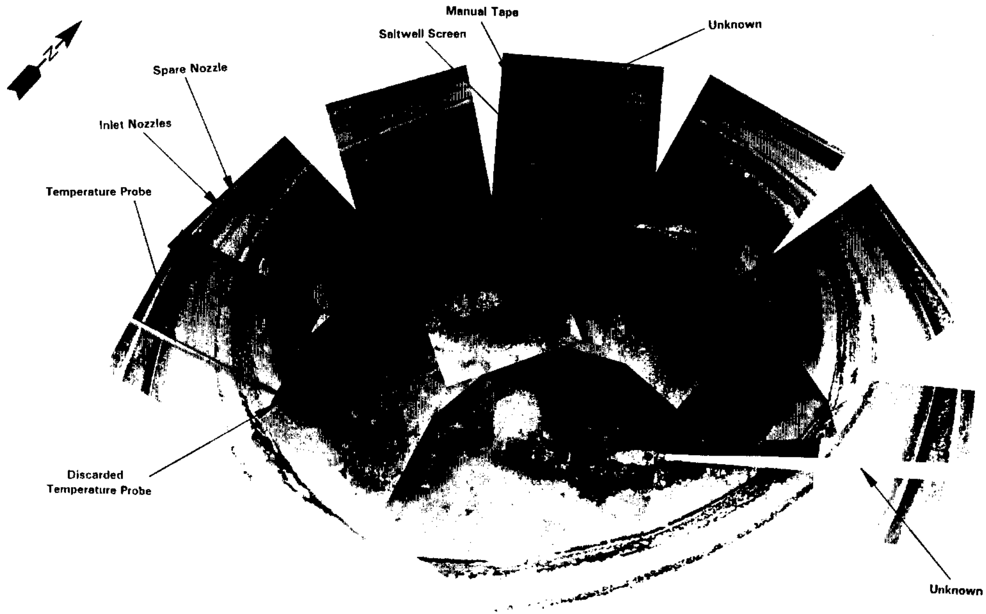

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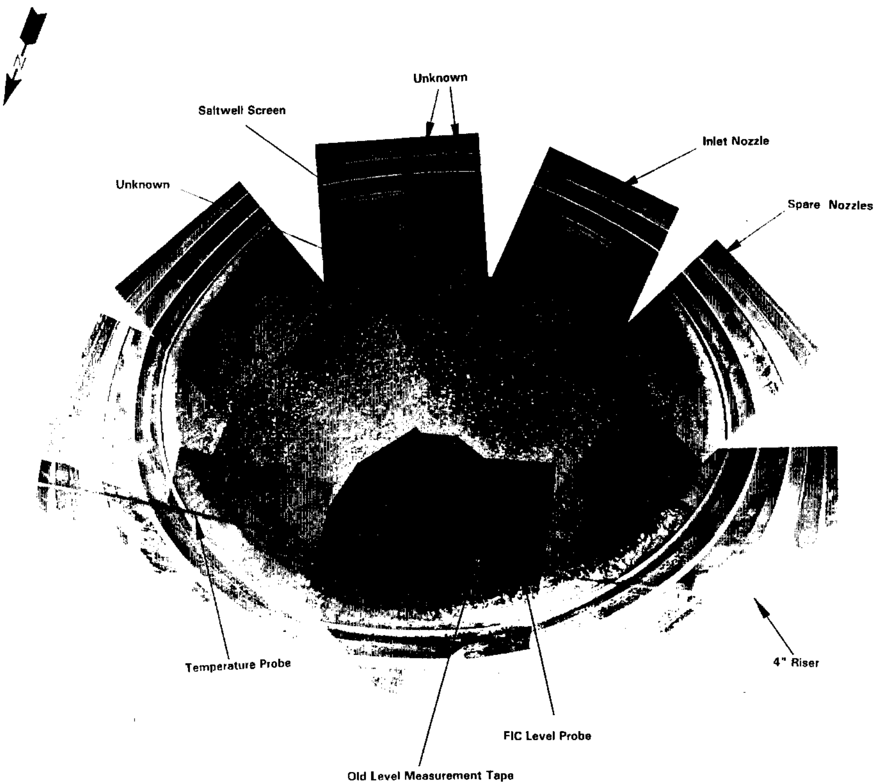

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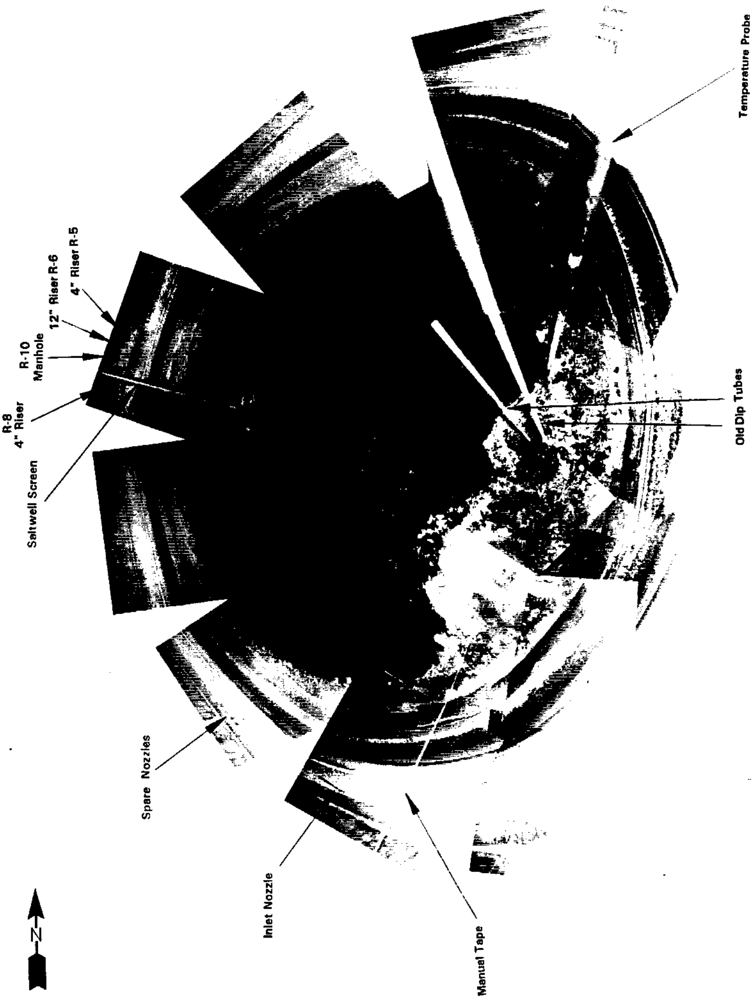

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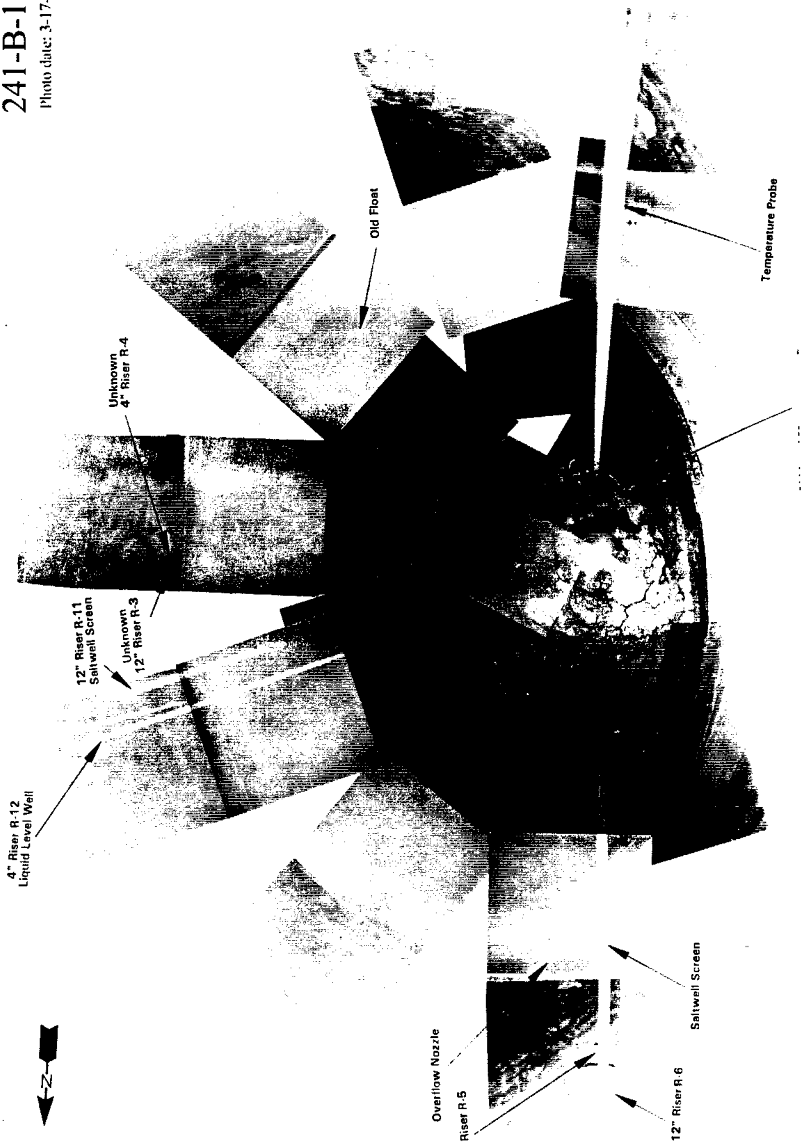

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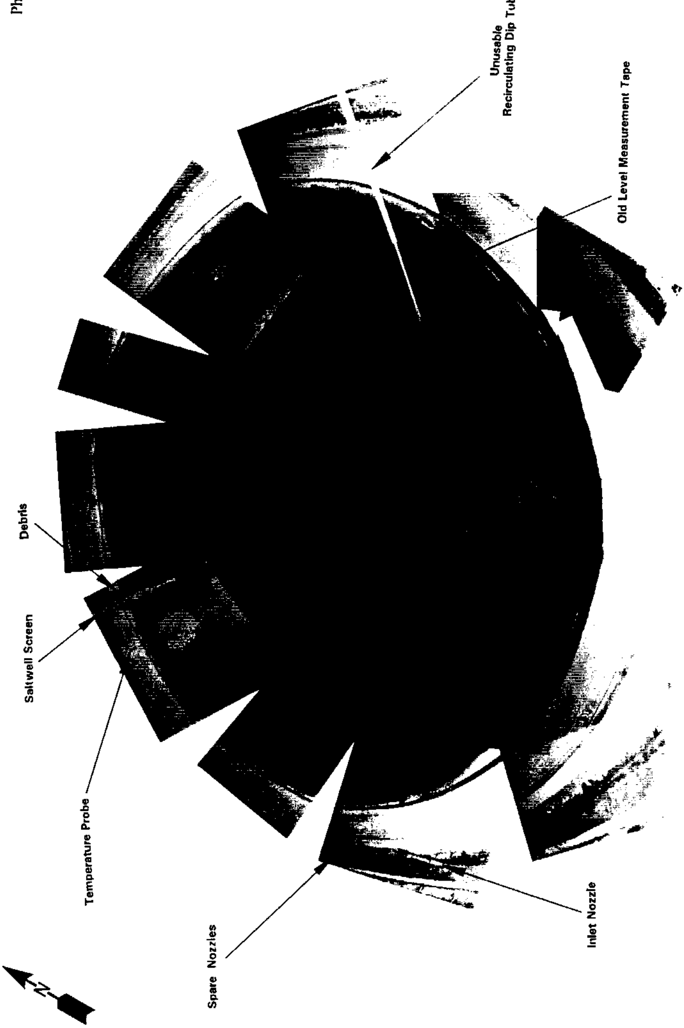

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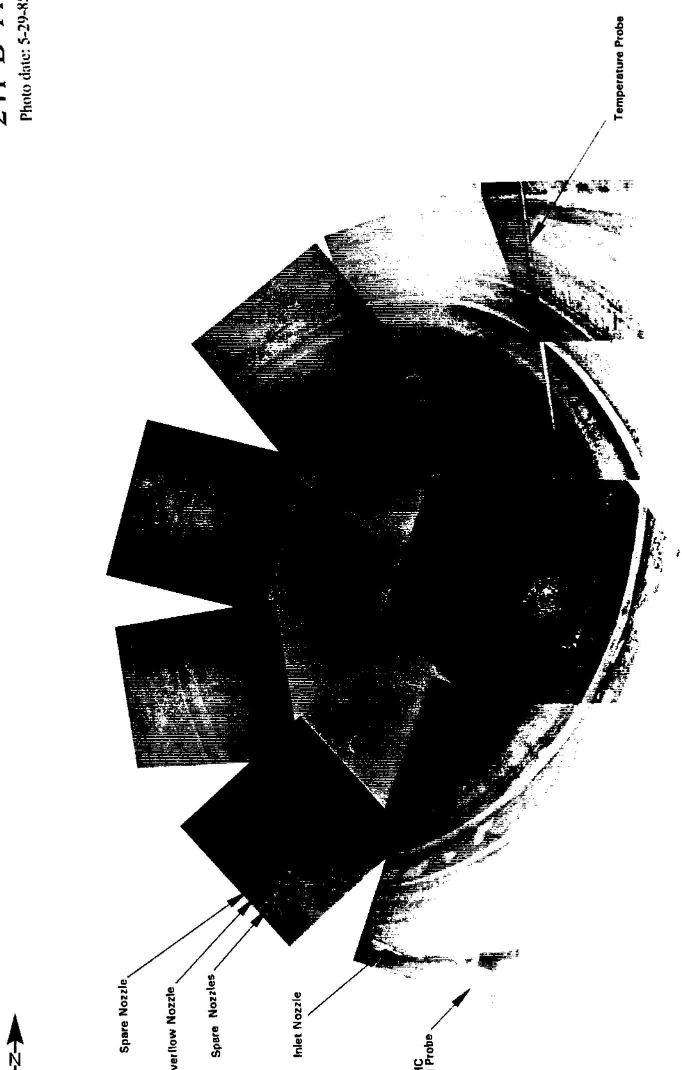

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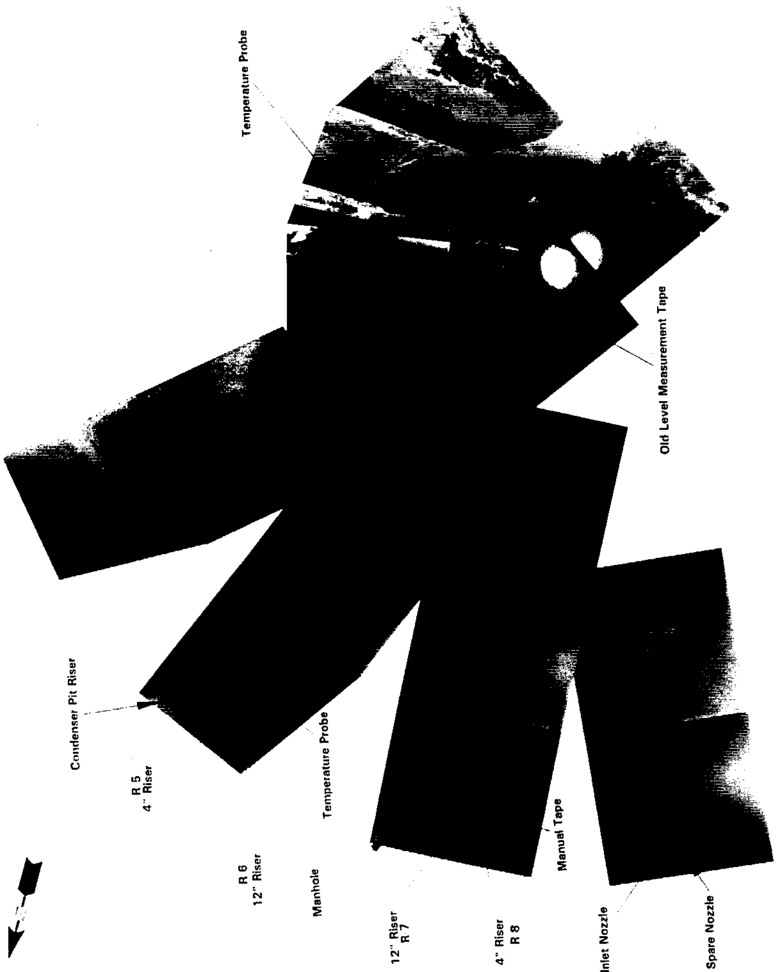

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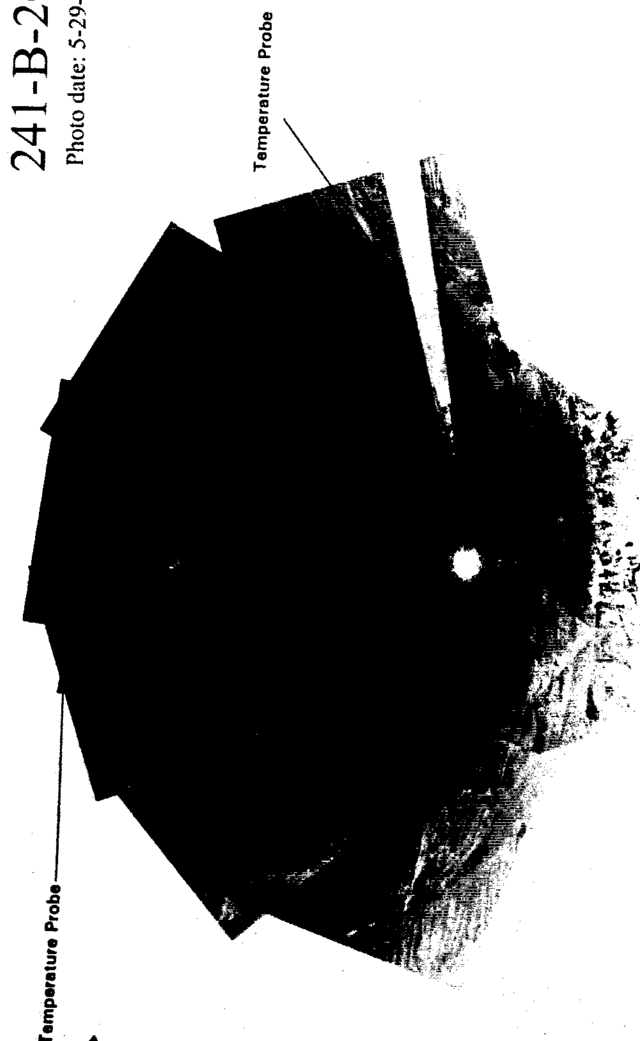

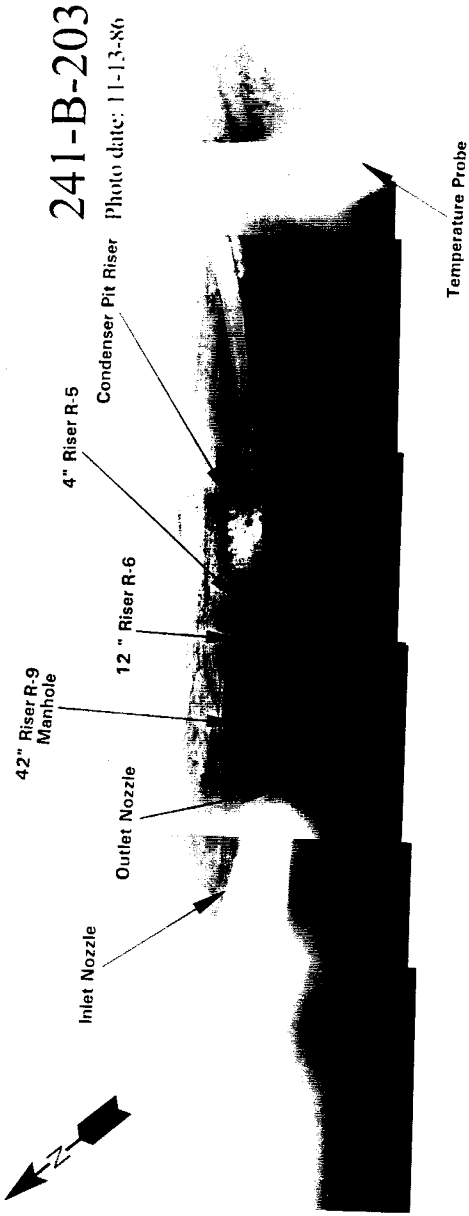
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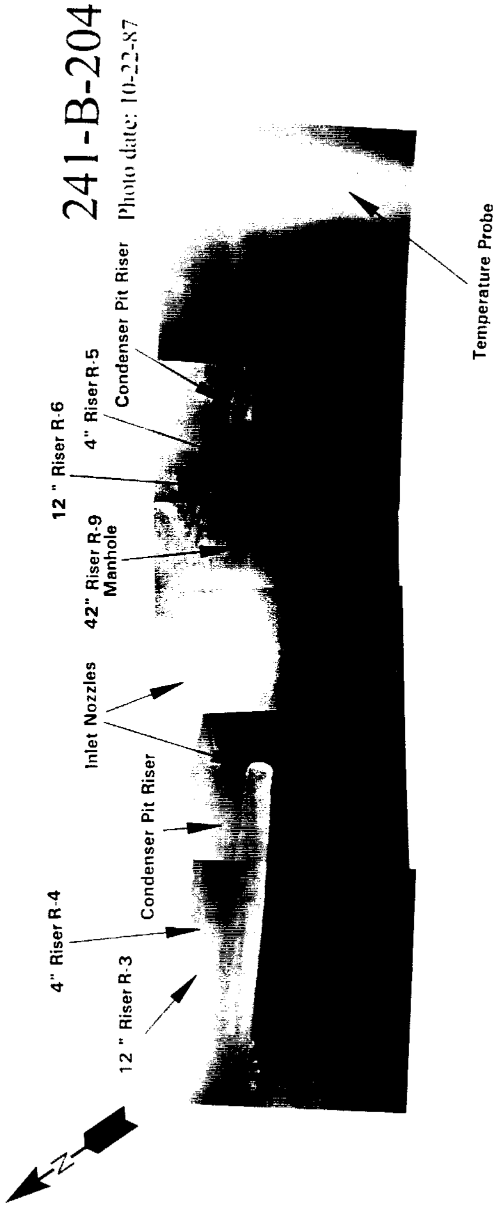
4" Riser R-5
12 " Riser R-6
42" Riser R-9
Manhole
Outlet Nozzle
Inlet Nozzle
N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4" Riser R-5
12 " Riser R-6
42" Riser R-9
Manhole
Inlet Nozzles
Condenser Pit Riser
4" Riser R-4
12 " Riser R-3
N

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

Stephen F. Agnew
James Boyer
Robert A. Corbin
Tomasita B. Duran
John R. FitzPatrick
Kenneth A. Jurgensen
Theodore P. Ortiz
Bonnie L. Young

Chemical Science and Technology Division
Los Alamos National Laboratory
Los Alamos, NM 87545

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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 as 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

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

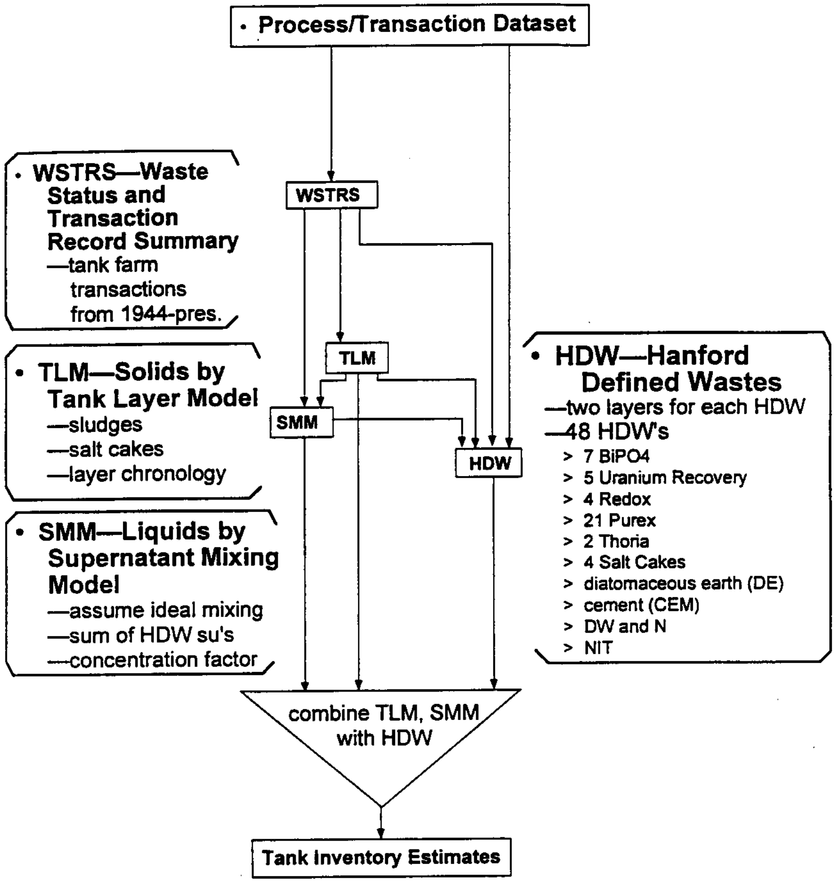

Fig. 1. Schematic of overall strategy.

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 durin 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

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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.

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.

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

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

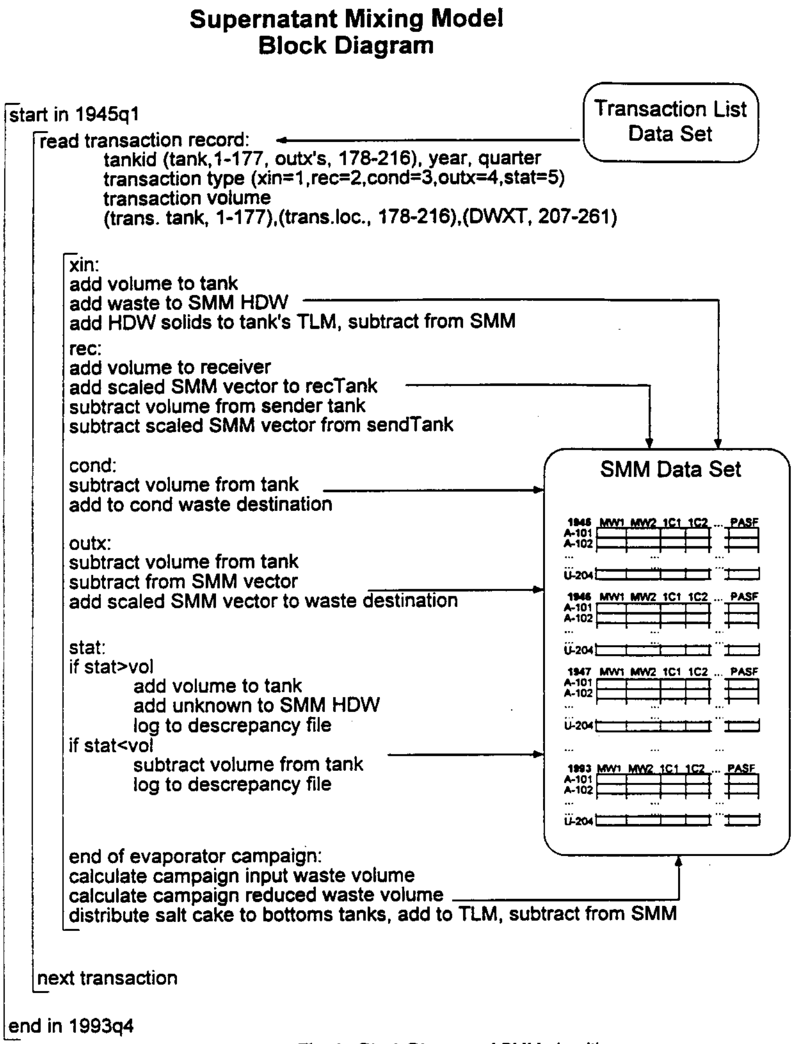

Fig. 2. Block Diagram of SMM algorithm.

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

Block Diagram of HDW Spreadsheet

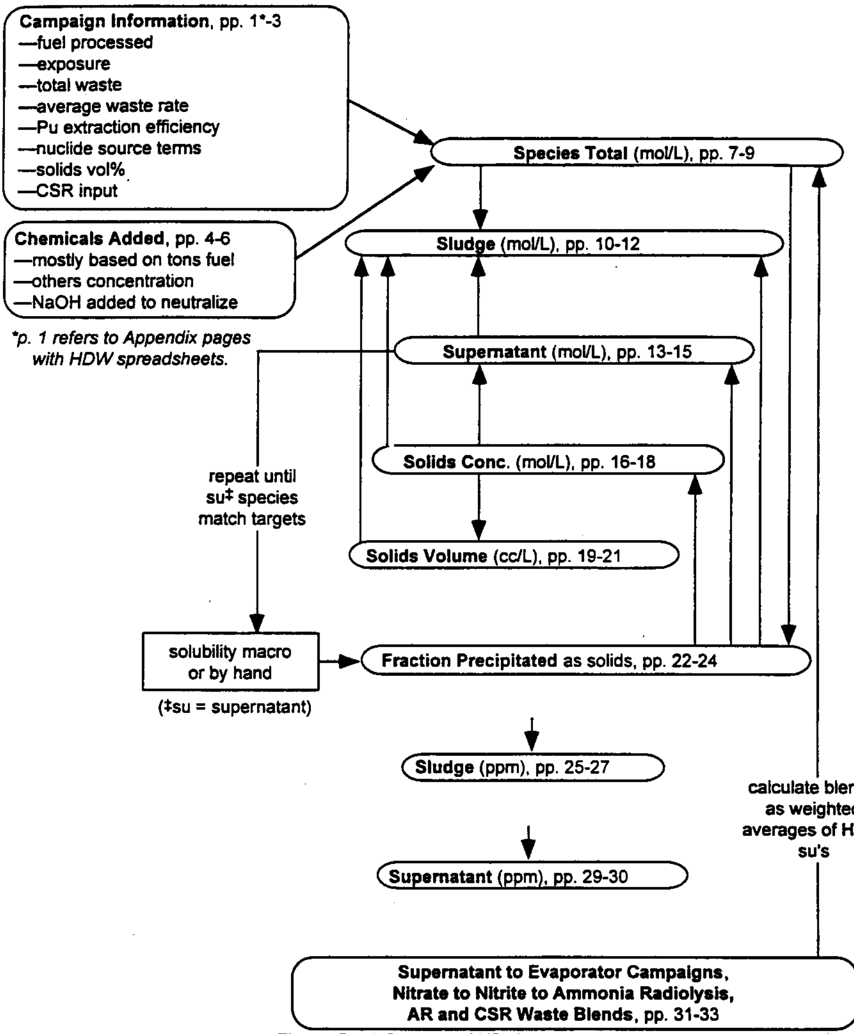

Fig. 3. Block Diagram of HDW spreadsheet.

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
B-101	1946	1		191		MW	1590	12 vol %
B-101	1953	4	0	-191				
B-101	1957	1	0	3	3	MW		1" sludge heel left after sluicing
B-101	1957	2	106					242-B evap
B-101	1957	3	315	312		BSltCk		
B-101	1963	2	202					
B-101	1965	2	161					
B-101	1969	1	151	-164				loss due to dissolution?
B-101	1970	2		5		B	1005	0.5 vol %
B-101	1970	2	150	-6				unk loss
B-101	1970	3	106					
B-101	1970	4	103					
B-101	1972	3	109	-41				unk. loss
B-101	1973	1		101		BL	4025	2.50 vol %
B-101	1974	4	136	-74	75	BSltCk		salt cake dissolution until 9" occurance of sludge on top, unk loss
B-101	1976	1	103		5	B		
B-101	1993	2	113		20	BL		
B-101	1993	4	113	-23	10	(BSltCk)		unk assign to BSltck based on low heat load
B-102	1953	1					-530	SL B-103
B-102	1953	4	0					
B-102	1957	3	0	3	3	MW		1" heel after sluicing
B-102	1957	4	84	81	24	BSltCk		242-B evap
B-102	1963	2	40	-44				unk loss
B-102	1965	2	24	-16	1	CWP2		Rec 48 CWP2 2.9 vol%
B-102	1970	2	55	31				CW settled in
B-102	1972	1	34					
B-102	1972	3	33					
B-102	1974	4	35					
B-102	1976	4	51					
B-102	1977	1	40					
B-102	1978	4	37					
B-102	1993	2	28					
B-102	1993	4	28	-27				SltCk Dissolution?
B-103	1953	1					1060	SL B-102, SL B-101
B-103	1953	2					-1649	SL UR
B-103	1953	4	0					
B-103	1957	2	0	3	3	MW		1" sludge heel after sluicing
B-103	1957	3	227					bottoms from B-105, ignore

Tank	Year	Qtr	Meas. solids	Solids change	Pred layer	Layer type	Waste volume	comments
B-103	1962	4	220					anomalously high solids, ignore
B-103	1963	2	59	56	56	BSltCk		
B-103	1964	2		9		CWP2	314	2.90 vol %
B-103	1969	3	55	-13				unk loss
B-103	1971	2	59					
B-103	1971	4	20					
B-103	1972	1	52					
B-103	1974	4	68					
B-103	1993	2	59					
B-103	1993	4	59	4				unk gain
B-104	1942	2		173	173	2C1	2537	6.8 vol%
B-104	1950	2		11	11	2C2	336	3.4 vol%
B-104	1950	3		121	121	1C2	486	24.9vol%
B-104	1953	1	309	4	4	UNK (No Assign.)		unk. gain, (unk, no TLM assignment)
B-104	1953	3					292	SL 242-B
B-104	1953	4		58		BSltCk	292	20 vol% Rec'd TBP Waste Evap Bottoms
B-104	1957	2	40					ignore
B-104	1957	3	365	-2				unk loss
B-104	1957	4	530					
B-104	1963	4	409					
B-104	1970	2	414					
B-104	1970	3	400					
B-104	1976	2	395					
B-104	1993	2	370					
B-104	1993	4	370	5	61	BSltCk		unk gain
B-105	1953	1	39					Cascaded 1C1 & 2C1
B-105	1953	4	28	28	16	2C1		Active bottoms tank
B-105	1954	3			12	1C2	3753	SL-242-B
B-105	1957	4	490	462				
B-105	1975	2	491					
B-105	1975	3	293					salt filled
B-105	1993	2	158					
B-105	1993	4	158	-184	130	BSltCk		unk loss
B-106	1953	1	0					
B-106	1954	2	0					Evap feed tank
B-106	1954	3	137	137				
B-106	1956	4	100					
B-106	1957	2	125					

Tank	Year	Qtr	Meas. solids	Solids change	Pred layer	Layer type	Waste volume	comments
B-106	1957	4	167					
B-106	1963	2	114					
B-106	1965	2	145					
B-106	1971	2	172					
B-106	1972	2	153					
B-106	1973	1	147					
B-106	1974	4	125					
B-106	1993	2	116					
B-106	1993	4	116	-21	116	BSltCk		unk loss
B-107	1946	2		218		1C1	1590	13.7 vol%
B-107	1953	1	220	2				unk gain, prob 1C1
B-107	1953	3	172					1C re-evaporated bottoms, loss of 1C1
B-107	1954	3	225				897	SL 242-B
B-107	1957	2	230					
B-107	1957	4	261					
B-107	1963	2	271	51				unk gain
B-107	1963	3		8		CWP2	264	2.9 vol%
B-107	1965	2	202	-77				unk loss
B-107	1969	3	200					
B-107	1972	2	193					Suspect leaker
B-107	1993	2	164					
B-107	1993	4	164	-38	164	1C1		unk loss
B-108	1953	1	34	34	34	1C1	975	SL 242-B, cascaded 1C solids.
B-108	1954	4	65	31		BSltCk		Cascading
B-108	1957	2	114					
B-108	1963	2	120					
B-108	1963	3		12		CWP2	410	2.9 vol%
B-108	1965	2	125					
B-108	1969	2	117					
B-108	1971	2	122	45				unk gain
B-108	1971	4	78					ignore
B-108	1972	1	113	-9				unk loss
B-108	1973	1	112					
B-108	1974	1	114					
B-108	1976	2	112					Evap.Feed Dil.
B-108	1977	4	70					
B-108	1993	2	94					
B-108	1993	4	94	-19	60	BSltCk		loss due to redissolution possible upper layer of CW.

Tank	Year	Qtr	Meas. solids	Solids change	Pred layer	Layer type	Waste volume	comments
B-109	1953	1	0					
B-109	1954	3	128	128			1323	SL 242-B, re-evaporated bottoms
B-109	1957	2	232	104				SL 242-B, re-evaporated bottoms
B-109	1957	3	76					
B-109	1958	3	70					
B-109	1963	2	84	-148	84	BSltCk		drawdown -solids sent to C-111
B-109	1963	4		13	13	CWP2	457	2.9 vol%
B-109	1965	2	134	37		unk		unk gain, possible solids from C-farm (1,300 kgal cascaded)
B-109	1970	2	161					
B-109	1972	1	136					
B-109	1974	4	117					
B-109	1977	3	120					Evap feed conc. resid liq dil
B-109	1993	2	127					
B-109	1993	4	127	-7	30	UNK (No Assign.)		unk losses and gains, (unk, no TLM assignment)
B-110	1953	1		143	143	2C1	2103	6.8 vol %
B-110	1953	1		148	100	2C2	4346	3.4 vol%
B-110	1953	3	378	87				UNK gain
B-110	1953	4	243					
B-110	1955	1	348					
B-110	1955	3	243					
B-110	1963	2	282	-242				unk loss
B-110	1963	4		0		DW	147	1 vol%, also known as 5-6#
B-110	1965	2	332	49				unk gain
B-110	1967	3	243	-89				unk loss
B-110	1967	4		26	3	P2	674	3.9 vol%
B-110	1968	1		1		B	135	0.5 vol %
B-110	1968	2	297	27				unk gain
B-110	1969	3		2		CSR	199	1 vol%
B-110	1972	2	282					Suspect leaker
B-110	1993	2	245	-54				unk loss
B-110	1993	4	246	1				unk gain
B-111	1953	3	237	237				2C2 by cascade ?
B-111	1953	4	161	-76				unk loss
B-111	1955	2	195					
B-111	1955	3	249					
B-111	1956	4	243	82				unk gain
B-111	1957	1	161					ignore
B-111	1957	1			209	2C2		

Tank	Year	Qtr	Meas. solids	Solids change	Pred layer	Layer type	Waste volume	comments
B-111	1962	2		1	1	DW	216	0.5 vol%, Receives B plant flushes, also known as 5-6#.
B-111	1963	2	300					
B-111	1965	2	310	66				unk gain
B-111	1967	3		26	26	P2	669	3.9 vol %, also known as FP
B-111	1967	3	161					
B-111	1968	3	241					
B-111	1970	1	232					
B-111	1970	2	244	19		CSR	1874	1 vol%
B-111	1972	1	241					
B-111	1972	2	246					
B-111	1973	1	249					
B-111	1976	2	246					Evap. feed dil.
B-111	1993	2	236					
B-111	1993	4	236	-119				unk loss
B-112	1953	3	0					
B-112	1957	2	23	23				2C2 cascaded solids?
B-112	1957	4	43	20				unk gain
B-112	1961	2	29					
B-112	1962	2	35					
B-112	1962	4		0		DW	5	1 vol%, also known as 5-6#
B-112	1962	4	40					
B-112	1963	2	35					
B-112	1967	3	40	11				unk gain
B-112	1968	2	18					
B-112	1969	2		0		P2	3	3.9 vol%
B-112	1972	3	14	-40	14	2C2		ITS bottoms and recycle, 2C2 cascaded solids?
B-112	1974	4	35					
B-112	1977	2	37					Evap. feed con.
B-112	1993	2	30					
B-112	1993	4	30	-16	16	BYSltCk		unk loss
B-201	1953	2	55	55				
B-201	1958	2	28					
B-201	1958	3	24					
B-201	1958	4	29					
B-201	1960	4	55					
B-201	1963	2	50					
B-201	1970	3	30					
B-201	1973	1	26					Suspect leaker

Tank	Year	Qtr	Meas. solids	Solids change	Pred layer	Layer type	Waste volume	comments
B-201	1974	4	29					
B-201	1979	1	27					
B-201	1980	4	28					
B-201	1993	2	28					
B-201	1993	4	28	-27	28	224		unk loss
B-202	1953	3	26	26				
B-202	1954	3	25					Active cascade to crib
B-202	1962	2		0		B	8	0.5 vol %
B-202	1962	2	26					
B-202	1963	2	25					
B-202	1971	4	29					
B-202	1973	4	27					
B-202	1980	4	28					
B-202	1993	2	27					
B-202	1993	4	27	1	27	224		unk gain
B-203	1953	2	55	55				
B-203	1957	1	55					
B-203	1963	4	54					
B-203	1969	4	54					
B-203	1971	4	49					
B-203	1973	4	44					
B-203	1974	1	44					
B-203	1976	3	45					
B-203	1977	3	47					
B-203	1980	4	48					
B-203	1993	2	50					
B-203	1993	4	50	-5	50	224		unk loss
B-204	1953	1		1		DW	123	1 vol%
B-204	1953	2	55	54		224	372	
B-204	1959	4	54					
B-204	1971	4	48					
B-204	1973	4	46					
B-204	1980	4	47					
B-204	1993	2	49					
B-204	1993	4	49	-6	49	224		unk loss

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	3.6	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	16.0
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	14.6
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	0.6
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		0.0	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	2.6	4.0	2.5	4.2	2.2		0.8	2.3	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	0.2	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	0.1	0.5
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	0.0	0.1
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		3.6	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	506.6	18.6	66.7	19.6	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	58.5	17.6	24.5	10.6		5.0	7.4	45.6
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	65.7	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	15.0	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	0.6	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		8.9	36.1	166.2
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		9.2	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	125.8
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	8.2	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		8.5	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		7.8	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							
U-204																						
T-101	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	0.6	4.7
T-102																						
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	1.8	1.4	43.3	14.2	18.1	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	116.1
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	15.3	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	6.0	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	15.0	35.5	38.8	45.2	20.4			3.2	51.7
TX-117	0.4	0.5	1.7	12.4	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	1.8	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	0.8	0.3	3.3	16.0	0.0	22.8	2.0	62.0	8.8	7.9	4.6	2.9	283.6	30.7	58.5	41.2	65.8	35.8		8.4	43.0	208.1
AN-104	0.7	0.2	3.2	16.8	0.0	8.5	2.1	[illegible]	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	6.6	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	58.0	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	16.2	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	6.6	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	18.8	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	21.5
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	67.7	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				278.1	
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	6.5	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	164.3	45.7	706.0	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		1780.6	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	6.7		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	579.8	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		19.6			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		12.8	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		2.8			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	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
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	6.0	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		415.8					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	6.8	15.9	10.0	228.3	72.6		659.8			4.8		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		435.0			73.8		169.7	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		9.0		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		9.1		66.6
U-108	7.8	9.4	13.5	44.2	28.6	6.4	2.1	4.6	12.5	6.8	163.2	51.4		483.9					155.6	80.0		16.6		71.4
U-109	9.0	10.6	15.9	47.0	31.6	9.0	2.2	4.8	14.0	7.2	181.1	62.9		506.8					136.4	71.7		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		6.7
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	5.0		43.9					30.5	0.3		0.5		26.8
TX-104	1.4	1.1	2.3	4.4	8.5	0.2	0.2	0.5	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	6.5		305.8					235.9	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					114.5	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		1.6
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	73.8	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	36.7	63.6	17.8	2.4	1.9	6.2		6.5	47.8			153.4					206.9			2.6		162.1
TX-114	21.0	15.4	35.4	68.7	32.3	3.0	2.3	7.8		8.4	61.9			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		208.6
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	8.3	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	6.1			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	16.0	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	9.7	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	509.6	132.3		374.5			15.9		328.1	50.0		10.1		101.6

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
AN-105	27.6	28.8	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		8.8			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		6.9		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		4.3			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	3.5	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	128.9		474.5			13.1		579.4	91.5		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	4.8	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	0.5	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	0.0	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	100.8	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		18.9		130.6
COND																								
CRIB		12.9																	280.6					417.3
CSR	7.4	3094.4	7962.0	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		1.2	726.0		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					7.5			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		615.0	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	6067.3		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	5218.1		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-ShCk	BL'	T1-ShCk
T1-in																						426.0		70.0
T2-in	16035.0	12292.2	30170.6	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		134319.8
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		6796.7					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	[illegible]	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	1.0
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	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
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				13.9															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															1070.6	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																			27.6	
SX-113																					32.9	
SX-114		4.2																			15.8	
SX-115																						
U-101																						
U-102		50.7				3.3															490.0	
U-103		85.3				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															638.6	0.4
U-108		89.5				3.9															796.6	
U-109		94.7				1.6															817.5	

WSTRS3.45b	R In	RShCk	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																			26.6	
TX-105		45.1																			354.1	
TX-106		22.6																			192.8	
TX-107		0.3																			2.9	
TX-108		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																			76.9	
TX-117		14.0																			144.0	
TX-118		14.1				0.2															188.5	
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
AN-104		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	766.3	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	787.0			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				1560.6	0.1
AZ-102		0.1				0.8									378.4	12.1	0.0				1615.2	0.0
SY-101		219.1				17.4															2221.5	8.0
SY-102		0.0				0.1									0.0	0.3	0.0				347.6	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																					33346.8	
VENT																						
A1COND																						
A2COND																						
BCOND																						
BYCOND																						
S1COND																						
S2COND																						
T1COND																						
T2COND																						
A1-In		1897.1				55869.2															61414.9	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																					198.6	
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	ammVol	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	368.0	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	76.6	438.2	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	5.08	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	1974.95	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	2688	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	8386	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	0.66	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	1969.76		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	9640	3513	0.67	1976.85		0.83	
BY-102		2.3	9.3	17.4	11.0	330	341	21863	9971	1.11	1978.63	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	1978.60		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	1976.06	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		99.6	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	3586	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	1974.65	0.37	0.30	0.30
S-110		42.6	276.7	1303.6	277.0	113	390	12699	1668	0.61	1977.35	0.61	0.60	0.60
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	1975.65	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	1976.97	1.03	0.72	0.72
SX-103		119.1	538.5	3291.6	540.0	112	652	9691	4935	1.07	1976.47	1.01	0.76	0.75
SX-104		116.8	435.3	2765.9	445.0	169	614	6276	3236	1.06	1976.65	0.92	0.72	0.69
SX-105		155.7	617.1	4026.2	626.0	55	683	11309	4470	1.07	1976.65	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	1974.63		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	681	0.24	1978.72	0.20	0.13	0.13
U-105		100.7	374.0	2370.5	366.0	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	2186	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	6067	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	1975.53	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	0.36	0.41	0.34
TX-106		38.7	334.4	1273.6	336.0	5	341	14606	10663	0.65	1976.48	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	1976.98	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	1258.6	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	10614	9539	0.28	1974.79	0.28	0.27	0.27
TX-115		75.7	549.5	2321.9	560.0	6	566	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	3454	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	116	116	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	3.85	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		336.8	1496.7	6147.9	1056.0		1056	2381		1.44	1983.99	1.08	0.97	0.96

WSTRS3.45b	SWLIQ	UNK	assume	ammVol	supVol	tlmVol	tankVol	traffic	assum trf.	Max. TOC wt%	date of Max. TOC	TOC wt% now	Max. Haz. Index	Haz. Ind. New
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
AP-104		6.9		27.6	18.0		18	1080						
AP-105	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	1991.88	0.23	0.93	0.93
AW-101	33.4	431.0	2401.8	12386.1	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	1981.76	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	143.5	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
AY-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	0.63	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		2138.5	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		6.6	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		3226.3	-866.1	71536.8	57987.0		57987							
S1-in		32323.2	424759.8	975084.4	87393.0		87393							
S2-in		10650.0	69776.9	275697.7	26327.0		26327							

WSTRS3.45b	SWLIQ	UNK	assume	smmVol	supVol	timVol	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	18.0																										
BY-103																						9.0					
BY-104										150.0																	
BY-105	16.0									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													106.0		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	26.0													
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 In	CSR	DE	CEM	NIT	Salt Slurry	DW	N	B In	B-ShCk	T1 In	T1-ShCk	R In	RShCk	T2 In	T2-ShCk	BY In	BY-ShCk	S1 In	S1-ShCk	S2 In
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																	56.0											
B-104																	61.0											
B-105																	130.0											
B-106																	116.0											
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																									178.0			
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		28.0																										
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						27.8																						
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	96
BX-103																	62.0	66
BX-104																	41.0	99
BX-105																	46.0	51
BX-106																	31.0	46
BX-107																	344.0	345
BX-108																	26.0	26
BX-109																	193.0	193
BX-110																	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
BY-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	196

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																	76.0	536
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 ln	A1-SltCk	A2 ln	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																	16.0	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																	2.0	217
TX-103																	3.0	157
TX-104																	18.0	65
TX-105																	8.0	609
TX-106																	5.0	341
TX-107																	6.0	36
TX-108																	6.0	134
TX-109																	384.0	384
TX-110																	37.0	462
TX-111																	43.0	370
TX-112																	24.0	649
TX-113																	183.0	607
TX-114																	62.0	535
TX-115																	8.0	566
TX-116																	391.0	563
TX-117																	226.0	632
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 ln	A1-SltCk	A2 ln	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										28.0	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-B-101			
TLM Solids Composite Inventory Estimate*			
Physical Properties			
Total Solid Waste	6.89E+05 kg	(113 kgal)	
Heat Load	6.37 kW	(2.18E+04 BTU/hr)	
Bulk Density	1.61 (g/cc)		
Void Fraction	0.713		
Water wt%	50.9		
TOC wt% C (wet)	3.91E-02		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	8.35	1.19E+05	8.21E+04
Al^{3+}	1.30	2.17E+04	1.49E+04
Fe^{3+} (total Fe)	0.592	2.05E+04	1.41E+04
Cr^{3+}	4.56E-03	147	101
Bi^{3+}	3.46E-02	4.49E+03	3.10E+03
La^{3+}	0	0	0
Hg^{2+}	3.84E-05	4.78	3.29
Zr (as $ZrO(OH)_2$)	2.95E-03	167	115
Pb^{2+}	3.74E-08	4.81E-03	3.32E-03
Ni^{2+}	0.222	8.08E+03	5.57E+03
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	0.116	2.89E+03	1.99E+03
K^{+}	1.33E-02	322	222
OH^{-}	7.41	7.82E+04	5.39E+04
$NO3^{-}$	2.84	1.09E+05	7.52E+04
$NO2^{-}$	0.411	1.17E+04	8.09E+03
$CO3^{2-}$	0.287	1.07E+04	7.37E+03
$PO4^{3-}$	1.07	6.29E+04	4.33E+04
$SO4^{2-}$	0.117	6.98E+03	4.81E+03
Si (as SiO_3^{2-})	0.500	8.72E+03	6.01E+03
F^{-}	0.119	1.40E+03	968
Cl^{-}	7.32E-02	1.61E+03	1.11E+03
$C_6H_5O_7^{3-}$	1.90E-03	224	154
$EDTA^{4-}$	0	0	0
$HEDTA^{3-}$	0	0	0
glycolate^{-}	2.04E-02	950	655
acetate^{-}	0	0	0
oxalate^{2-}	0	0	0
DBP	1.61E-05	2.67	1.84
butanol	1.61E-05	0.742	0.512
NH_3	2.26E-02	239	164
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		1.14 (μCi/g)	13.1 (kg)
U	0.177 (M)	2.61E+04 (μg/g)	1.80E+04 (kg)
Cs	2.84E-02 (Ci/L)	17.6 (μCi/g)	1.21E+04 (Ci)
Sr	2.19 (Ci/L)	1.36E+03 (μCi/g)	9.37E+05 (Ci)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

Single-Shell Tank 241-B-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	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-B-101			
Total Inventory Estimate*			
Physical Properties			
Total Waste	6.89E+05 kg	(113 kgal)	
Heat Load	6.37 kW	(2.18E+04 BTU/hr)	
Bulk Density†	1.61 (g/cc)		
Water wt%†	50.9		
TOC wt% C (wet)†	3.91E-02		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	8.35	1.19E+05	8.21E+04
Al^{3+}	1.30	2.17E+04	1.49E+04
Fe^{3+} (total Fe)	0.592	2.05E+04	1.41E+04
Cr^{3+}	4.56E-03	147	101
Bi^{3+}	3.46E-02	4.49E+03	3.10E+03
La^{3+}	0	0	0
Hg^{2+}	3.84E-05	4.78	3.29
Zr (as $ZrO(OH)_2$)	2.95E-03	167	115
Pb^{2+}	3.74E-08	4.81E-03	3.32E-03
Ni^{2+}	0.222	8.08E+03	5.57E+03
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	0.116	2.89E+03	1.99E+03
K^{+}	1.33E-02	322	222
OH^{-}	7.41	7.82E+04	5.39E+04
$NO3^{-}$	2.84	1.09E+05	7.52E+04
$NO2^{-}$	0.411	1.17E+04	8.09E+03
$CO3^{2-}$	0.287	1.07E+04	7.37E+03
$PO4^{3-}$	1.07	6.29E+04	4.33E+04
$SO4^{2-}$	0.117	6.98E+03	4.81E+03
Si (as SiO_3^{2-})	0.500	8.72E+03	6.01E+03
F^{-}	0.119	1.40E+03	968
Cl^{-}	7.32E-02	1.61E+03	1.11E+03
$C_6H_5O_7^{3-}$	1.90E-03	224	154
$EDTA^{4-}$	0	0	0
$HEDTA^{3-}$	0	0	0
glycolate^{-}	2.04E-02	950	655
acetate^{-}	0	0	0
oxalate^{2-}	0	0	0
DBP	1.61E-05	2.67	1.84
butanol	1.61E-05	0.742	0.512
NH_3	2.26E-02	239	164
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		1.14 (μCi/g)	13.1 (kg)
U	0.177 (M)	2.61E+04 (μg/g)	1.80E+04 (kg)
Cs	2.84E-02 (Ci/L)	17.6 (μCi/g)	1.21E+04 (Ci)
Sr	2.19 (Ci/L)	1.36E+03 (μCi/g)	9.37E+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-B-102			
TLM Solids Composite Inventory Estimate*			
Physical Properties			
Total Solid Waste	1.64E+05 kg	(28.0 kgal)	
Heat Load	2.05E-02 kW	(70.0 BTU/hr)	
Bulk Density	1.55 (g/cc)		
Void Fraction	0.708		
Water wt%	54.1		
TOC wt% C (wet)	1.71E-04		
Chemical Constituents	mole/L	ppm	kg
Na^{+}	8.44	1.25E+05	2.06E+04
Al^{3+}	0.400	6.95E+03	1.14E+03
Fe^{3+} (total Fe)	0.205	7.37E+03	1.21E+03
Cr^{3+}	5.28E-03	177	29.1
Bi^{3+}	3.95E-02	5.31E+03	874
La^{3+}	0	0	0
Hg^{2+}	2.55E-04	32.9	5.41
Zr (as $ZrO(OH)_2$)	3.36E-03	197	32.5
Pb^{2+}	1.16E-02	1.55E+03	255
Ni^{2+}	7.04E-03	266	43.8
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	9.81E-02	2.53E+03	417
K^{+}	1.35E-02	340	56.0
OH^{-}	3.41	3.74E+04	6.15E+03
$NO3^{-}$	3.26	1.30E+05	2.14E+04
$NO2^{-}$	0.265	7.86E+03	1.29E+03
$CO3^{2-}$	0.402	1.55E+04	2.55E+03
$PO4^{3-}$	1.24	7.62E+04	1.25E+04
$SO4^{2-}$	0.134	8.31E+03	1.37E+03
Si (as SiO_3^{2-})	2.72E-02	493	81.1
F^{-}	0.136	1.66E+03	273
Cl^{-}	7.61E-02	1.74E+03	286
$C_6H_5O_7^{3-}$	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	1.84E-05	3.15	0.519
butanol	1.84E-05	0.878	0.144
NH_3	7.77E-04	8.51	1.40
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		5.09E-02 (µCi/g)	0.139 (kg)
U	0.226 (M)	3.46E+04 (µg/g)	5.69E+03 (kg)
Cs	1.88E-02 (Ci/L)	12.1 (µCi/g)	2.00E+03 (Ci)
Sr	1.56E-02 (Ci/L)	10.1 (µCi/g)	1.65E+03 (Ci)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

Single-Shell Tank 241-B-102			
SMM Composite Inventory Estimate			
Physical Properties			
Total Supernatant Wa	1.62E+04 kg	(4.00 kgal)	
Heat Load	2.84E-03 kW	(9.70 BTU/hr)	
Bulk Density*	1.07 (g/cc)		
Water wt%†	88.3		
TOC wt% C (wet)	8.55E-02		
Chemical Constituents	mole/L	ppm	kg
Na^{+}	1.53	3.27E+04	531
Al^{3+}	0.215	5.40E+03	87.7
Fe^{3+} (total Fe)	9.57E-04	49.9	0.810
Cr^{3+}	4.74E-03	230	3.74
Bi^{3+}	4.81E-04	93.7	1.52
La^{3+}	5.80E-07	7.52E-02	1.22E-03
Hg^{2+}	2.99E-06	0.560	9.10E-03
Zr (as $ZrO(OH)_2$)	3.25E-04	27.6	0.448
Pb^{2+}	3.19E-04	61.6	1.000
Ni^{2+}	8.20E-04	44.9	0.729
Sr^{2+}	1.93E-07	1.58E-02	2.57E-04
Mn^{4+}	4.13E-04	21.2	0.344
Ca^{2+}	4.34E-03	162	2.63
K^{+}	6.53E-03	238	3.87
OH^{-}	0.916	1.45E+04	236
$NO3^{-}$	0.691	4.00E+04	649
$NO2^{-}$	0.247	1.06E+04	172
$CO3^{2-}$	6.25E-02	3.50E+03	56.8
$PO4^{3-}$	2.12E-02	1.88E+03	30.5
$SO4^{2-}$	4.26E-02	3.82E+03	62.0
Si (as SiO_3^{2-})	9.07E-03	238	3.86
F^{-}	2.65E-02	470	7.63
Cl^{-}	2.67E-02	884	14.4
$C_6H_5O_7^{3-}$	3.22E-03	568	9.22
$EDTA^{4-}$	5.96E-04	160	2.60
$HEDTA^{3-}$	9.49E-05	24.3	0.394
$glycolate^{-}$	3.35E-03	234	3.80
$acetate^{-}$	3.50E-03	193	3.13
$oxalate^{2-}$	4.97E-07	4.08E-02	6.62E-04
DBP	3.04E-03	754	12.2
butanol	3.04E-03	210	3.41
NH_3	2.97E-03	47.1	0.765
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu	10.7 (μCi/L)		2.70E-03 (kg)
U	1.71E-03 (M)	379 (μg/g)	6.16 (kg)
Cs	2.50E-02 (Ci/L)	23.3 (μCi/g)	378 (Ci)
Sr	1.05E-02 (Ci/L)	9.76 (μCi/g)	158 (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-B-102			
Total Inventory Estimate*			
Physical Properties			
Total Waste	1.81E+05 kg	(32.0 kgal)	
Heat Load	2.33E-02 kW	(79.7 BTU/hr)	
Bulk Density†	1.49 (g/cc)		
Water wt%†	58.4		
TOC wt% C (wet)†	1.08E-02		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	7.58	1.17E+05	2.11E+04
Al^{3+}	0.377	6.81E+03	1.23E+03
Fe^{3+} (total Fe)	0.179	6.71E+03	1.21E+03
Cr^{3+}	5.22E-03	182	32.9
Bi^{3+}	3.46E-02	4.85E+03	876
La^{3+}	7.26E-08	6.76E-03	1.22E-03
Hg^{2+}	2.23E-04	30.0	5.42
Zr (as $ZrO(OH)_2$)	2.98E-03	182	32.9
Pb^{2+}	1.02E-02	1.42E+03	256
Ni^{2+}	6.26E-03	246	44.5
Sr^{2+}	2.42E-08	1.42E-03	2.57E-04
Mn^{4+}	5.16E-05	1.90	0.344
Ca^{2+}	8.64E-02	2.32E+03	419
K^{+}	1.26E-02	331	59.8
OH^{-}	3.10	3.53E+04	6.38E+03
$NO3^{-}$	2.94	1.22E+05	2.20E+04
$NO2^{-}$	0.263	8.11E+03	1.47E+03
$CO3^{2-}$	0.359	1.44E+04	2.61E+03
$PO4^{3-}$	1.09	6.95E+04	1.26E+04
$SO4^{2-}$	0.123	7.91E+03	1.43E+03
Si (as SiO_3^{2-})	2.50E-02	470	84.9
F^{-}	0.122	1.55E+03	281
Cl^{-}	6.99E-02	1.66E+03	300
$C_6H_5O_7^{3-}$	4.02E-04	51.0	9.22
$EDTA^{4-}$	7.45E-05	14.4	2.60
$HEDTA^{3-}$	1.19E-05	2.18	0.394
glycolate^{-}	4.18E-04	21.0	3.80
acetate^{-}	4.38E-04	17.3	3.13
oxalate^{2-}	6.21E-08	3.66E-03	6.62E-04
DBP	3.96E-04	70.6	12.8
butanol	3.96E-04	19.7	3.55
NH_3	1.05E-03	12.0	2.16
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		4.72E-02 (µCi/g)	0.142 (kg)
U	0.198 (M)	3.15E+04 (µg/g)	5.70E+03 (kg)
Cs	1.96E-02 (Ci/L)	13.1 (µCi/g)	2.38E+03 (Ci)
Sr	1.50E-02 (Ci/L)	10.0 (µCi/g)	1.81E+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-B-103			
TLM Solids Composite Inventory Estimate*			
Physical Properties			
Total Solid Waste	3.44E+05 kg	(59.0 kgal)	
Heat Load	4.68E-02 kW	(160 BTU/hr)	
Bulk Density	1.54 (g/cc)		
Void Fraction	0.730		
Water wt%	55.0		
TOC wt% C (wet)	1.90E-04		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	8.96	1.34E+05	4.60E+04
Al^{3+}	0.211	3.70E+03	1.27E+03
Fe^{3+} (total Fe)	0.201	7.28E+03	2.50E+03
Cr^{3+}	5.68E-03	192	65.9
Bi^{3+}	4.37E-02	5.93E+03	2.04E+03
La^{3+}	0	0	0
Hg^{2+}	4.84E-05	6.31	2.17
Zr (as $ZrO(OH)_2$)	3.72E-03	220	75.8
Pb^{2+}	0	0	0
Ni^{2+}	7.70E-03	294	101
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	9.03E-02	2.35E+03	808
K^{+}	1.49E-02	378	130
OH^{-}	2.10	2.32E+04	7.98E+03
$NO3^{-}$	3.58	1.44E+05	4.96E+04
$NO2^{-}$	0.284	8.49E+03	2.92E+03
$CO3^{2-}$	0.304	1.18E+04	4.07E+03
$PO4^{3-}$	1.35	8.33E+04	2.87E+04
$SO4^{2-}$	0.143	8.91E+03	3.06E+03
Si (as SiO_3^{2-})	3.00E-02	548	188
F^{-}	0.150	1.85E+03	637
Cl^{-}	8.38E-02	1.93E+03	663
$C_6H_5O_7^{3-}$	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	2.04E-05	3.52	1.21
butanol	2.04E-05	0.980	0.337
NH_3	8.59E-04	9.48	3.26
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		9.12E-03 (μCi/g)	5.23E-02 (kg)
U	0.107 (M)	1.65E+04 (μg/g)	5.67E+03 (kg)
Cs	2.07E-02 (Ci/L)	13.5 (μCi/g)	4.63E+03 (Ci)
Sr	1.67E-02 (Ci/L)	10.9 (μCi/g)	3.73E+03 (Ci)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

Single-Shell Tank 241-B-103			
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
C-$^{3+}$	0	0	0
B	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-B-103			
Total Inventory Estimate*			
Physical Properties			
Total Waste	3.44E+05 kg	(59.0 kgal)	
Heat Load	4.68E-02 kW	(160 BTU/hr)	
Bulk Density†	1.54 (g/cc)		
Water wt%†	55.0		
TOC wt% C (wet)†	1.90E-04		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^+	8.96	1.34E+05	4.60E+04
Al^{3+}	0.211	3.70E+03	1.27E+03
Fe^{3+} (total Fe)	0.201	7.28E+03	2.50E+03
Cr^{3+}	5.68E-03	192	65.9
Bi^{3+}	4.37E-02	5.93E+03	2.04E+03
La^{3+}	0	0	0
Hg^{2+}	4.84E-05	6.31	2.17
Zr (as $ZrO(OH)_2$)	3.72E-03	220	75.8
Pb^{2+}	0	0	0
Ni^{2+}	7.70E-03	294	101
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	9.03E-02	2.35E+03	808
K^+	1.49E-02	378	130
OH^-	2.10	2.32E+04	7.98E+03
$NO3^-$	3.58	1.44E+05	4.96E+04
$NO2^-$	0.284	8.49E+03	2.92E+03
$CO3^{2-}$	0.304	1.18E+04	4.07E+03
$PO4^{3-}$	1.35	8.33E+04	2.87E+04
$SO4^{2-}$	0.143	8.91E+03	3.06E+03
Si (as SiO_3^{2-})	3.00E-02	548	188
F^-	0.150	1.85E+03	637
Cl^-	8.38E-02	1.93E+03	663
$C_6H_5O_7^{3-}$	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	2.04E-05	3.52	1.21
butanol	2.04E-05	0.980	0.337
NH_3	8.59E-04	9.48	3.26
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		9.12E-03 (μCi/g)	5.23E-02 (kg)
U	0.107 (M)	1.65E+04 (μg/g)	5.67E+03 (kg)
Cs	2.07E-02 (Ci/L)	13.5 (μCi/g)	4.63E+03 (Ci)
Sr	1.67E-02 (Ci/L)	10.9 (μCi/g)	3.73E+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-B-104			
TLM Solids Composite Inventory Estimate*			
Physical Properties			
Total Solid Waste	1.78E+06 kg	(366 kgal)	
Heat Load	0.115 kW	(391 BTU/hr)	
Bulk Density	1.28 (g/cc)		
Void Fraction	0.779		
Water wt%	69.5		
TOC wt% C (wet)	4.01E-05		
Chemical Constituents	mole/L	ppm	kg
Na^{+}	4.71	8.44E+04	1.50E+05
Al^{3+}	0.322	6.76E+03	1.20E+04
Fe^{3+} (total Fe)	0.382	1.66E+04	2.95E+04
Cr^{3+}	4.13E-03	167	297
Bi^{3+}	6.71E-02	1.09E+04	1.94E+04
La^{3+}	0	0	0
Hg^{2+}	2.77E-05	4.32	7.69
Zr (as $ZrO(OH)_2$)	2.97E-03	211	376
Pb^{2+}	0	0	0
Ni^{2+}	2.43E-03	111	197
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	0.106	3.32E+03	5.90E+03
K^{+}	6.05E-03	184	328
OH^{-}	2.19	2.90E+04	5.15E+04
$NO3^{-}$	1.23	5.96E+04	1.06E+05
$NO2^{-}$	0.132	4.74E+03	8.43E+03
$CO3^{2-}$	0.128	5.97E+03	1.06E+04
$PO4^{3-}$	1.01	7.46E+04	1.33E+05
$SO4^{2-}$	6.04E-02	4.52E+03	8.04E+03
Si (as SiO_3^{2-})	5.92E-02	1.30E+03	2.30E+03
F^{-}	0.174	2.58E+03	4.59E+03
Cl^{-}	3.06E-02	843	1.50E+03
$C_6H_5O_7^{3-}$	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	3.58E-06	0.741	1.32
butanol	3.58E-06	0.206	0.367
NH_3	3.33E-04	4.41	7.85
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		1.31E-02 (μCi/g)	0.388 (kg)
U	1.25E-03 (M)	232 (μg/g)	413 (kg)
Cs	1.34E-02 (Ci/L)	10.4 (μCi/g)	1.86E+04 (Ci)
Sr	2.96E-03 (Ci/L)	2.31 (μCi/g)	4.10E+03 (Ci)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

Single-Shell Tank 241-B-104			
SMM Composite Inventory Estimate			
Physical Properties			
Total Supernatant Wa	2.32E+04 kg	(5.02 kgal)	
Heat Load	4.55E-03 kW	(15.6 BTU/hr)	
Bulk Density*	1.22 (g/cc)		
Water wt%†	66.5		
TOC wt% C (wet)	3.51E-04		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	5.19	9.80E+04	2.27E+03
Al^{3+}	0.309	6.83E+03	158
Fe^{3+} (total Fe)	2.08E-03	95.3	2.21
Cr^{3+}	8.20E-03	350	8.10
Bi^{3+}	4.16E-03	713	16.5
La^{3+}	0	0	0
Hg^{2+}	1.04E-05	1.71	3.96E-02
Zr (as $ZrO(OH)_2$)	3.12E-03	233	5.41
Pb^{2+}	0	0	0
Ni^{2+}	1.87E-03	90.1	2.09
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	9.36E-03	308	7.13
K^{+}	2.17E-02	696	16.1
OH^{-}	1.26	1.76E+04	407
$NO3^{-}$	2.91	1.48E+05	3.43E+03
$NO2^{-}$	0.414	1.56E+04	362
$CO3^{2-}$	0.188	9.25E+03	214
$PO4^{3-}$	0.156	1.22E+04	282
$SO4^{2-}$	0.202	1.60E+04	370
Si (as SiO_3^{2-})	3.53E-02	815	18.9
F^{-}	0.219	3.42E+03	79.3
Cl^{-}	0.122	3.56E+03	82.4
$C_6H_5O_7^{3-}$	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	2.97E-05	6.49	0.150
butanol	2.97E-05	1.81	4.19E-02
NH_3	1.25E-03	17.5	0.405
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu	15.9 (µCi/L)		5.03E-03 (kg)
U	4.16E-03 (M)	812 (µg/g)	18.8 (kg)
Cs	1.68E-02 (Ci/L)	13.8 (µCi/g)	320 (Ci)
Sr	2.39E-02 (Ci/L)	19.6 (µCi/g)	454 (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-B-104			
Total Inventory Estimate*			
Physical Properties			
Total Waste	1.80E+06 kg	(371 kgal)	
Heat Load	0.119 kW	(407 BTU/hr)	
Bulk Density†	1.28 (g/cc)		
Water wt%†	69.4		
TOC wt% C (wet)†	4.43E-05		
Chemical Constituents	mole/L	ppm	kg
Na^{+}	4.72	8.45E+04	1.52E+05
Al^{3+}	0.322	6.76E+03	1.22E+04
Fe^{3+} (total Fe)	0.377	1.64E+04	2.95E+04
Cr^{3+}	4.18E-03	169	305
Bi^{3+}	6.62E-02	1.08E+04	1.94E+04
La^{3+}	0	0	0
Hg^{2+}	2.74E-05	4.29	7.73
Zr (as $ZrO(OH)_2$)	2.97E-03	211	381
Pb^{2+}	0	0	0
Ni^{2+}	2.42E-03	111	199
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	0.105	3.28E+03	5.91E+03
K^{+}	6.27E-03	191	344
OH^{-}	2.18	2.88E+04	5.19E+04
$NO3^{-}$	1.26	6.07E+04	1.09E+05
$NO2^{-}$	0.136	4.88E+03	8.80E+03
$CO3^{2-}$	0.129	6.01E+03	1.08E+04
$PO4^{3-}$	0.997	7.38E+04	1.33E+05
$SO4^{2-}$	6.24E-02	4.67E+03	8.41E+03
Si (as SiO_3^{2-})	5.89E-02	1.29E+03	2.32E+03
F^{-}	0.175	2.59E+03	4.67E+03
Cl^{-}	3.18E-02	878	1.58E+03
$C_6H_5O_7^{3-}$	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	3.93E-06	0.815	1.47
butanol	3.93E-06	0.227	0.409
NH_3	3.46E-04	4.58	8.26
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		1.31E-02 (μCi/g)	0.393 (kg)
U	1.29E-03 (M)	239 (μg/g)	432 (kg)
Cs	1.34E-02 (Ci/L)	10.5 (μCi/g)	1.89E+04 (Ci)
Sr	3.24E-03 (Ci/L)	2.53 (μCi/g)	4.55E+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-B-105			
TLM Solids Composite Inventory Estimate*			
Physical Properties			
Total Solid Waste	8.83E+05 kg	(158 kgal)	
Heat Load	0.114 kW	(388 BTU/hr)	
Bulk Density	1.48 (g/cc)		
Void Fraction	0.755		
Water wt%	58.2		
TOC wt% C (wet)	1.72E-04		
Chemical Constituents	mole/L	ppm	kg
Na^{+}	8.24	1.28E+05	1.13E+05
Al^{3+}	0.249	4.54E+03	4.01E+03
Fe^{3+} (total Fe)	0.239	9.04E+03	7.98E+03
Cr^{3+}	5.53E-03	195	172
Bi^{3+}	5.06E-02	7.15E+03	6.32E+03
La^{3+}	0	0	0
Hg^{2+}	4.64E-05	6.29	5.56
Zr (as $ZrO(OH)_2$)	3.76E-03	232	205
Pb^{2+}	0	0	0
Ni^{2+}	6.88E-03	273	241
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	9.25E-02	2.51E+03	2.22E+03
K^{+}	1.36E-02	360	318
OH^{-}	1.70	2.24E+04	1.72E+04
$NO3^{-}$	3.23	1.56E+05	1.20E+05
$NO2^{-}$	0.265	9.49E+03	7.29E+03
$CO3^{2-}$	0.198	9.27E+03	7.12E+03
$PO4^{3-}$	1.32	9.78E+04	7.51E+04
$SO4^{2-}$	0.128	9.57E+03	7.35E+03
Si (as SiO_3^{2-})	3.77E-02	824	633
F^{-}	0.162	2.40E+03	1.84E+03
Cl^{-}	7.59E-02	2.10E+03	1.61E+03
$C_6H_5O_7^{3-}$	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	1.77E-05	3.66	2.81
butanol	1.77E-05	1.02	0.782
NH_3	7.86E-04	10.4	7.99
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		1.02E-02 (μCi/g)	0.150 (kg)
U	5.02E-03 (M)	809 (μg/g)	715 (kg)
Cs	2.02E-02 (Ci/L)	13.7 (μCi/g)	1.21E+04 (Ci)
Sr	1.42E-02 (Ci/L)	9.60 (μCi/g)	8.48E+03 (Ci)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

Single-Shell Tank 241-B-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_2^-.

†Water wt% derived from the difference of density and total dissolved species.

Single-Shell Tank 241-B-105			
Total Inventory Estimate*			
Physical Properties			
Total Waste	8.83E+05 kg	(158 kgal)	
Heat Load	0.114 kW	(388 BTU/hr)	
Bulk Density†	1.48 (g/cc)		
Water wt%†	58.2		
TOC wt% C (wet)†	1.72E-04		
Chemical Constituents	mole/L	ppm	kg
Na^{+}	8.24	1.28E+05	1.13E+05
Al^{3+}	0.249	4.54E+03	4.01E+03
Fe^{3+} (total Fe)	0.239	9.04E+03	7.98E+03
Cr^{3+}	5.53E-03	195	172
Bi^{3+}	5.06E-02	7.15E+03	6.32E+03
La^{3+}	0	0	0
Hg^{2+}	4.64E-05	6.29	5.56
Zr (as $ZrO(OH)_2$)	3.76E-03	232	205
Pb^{2+}	0	0	0
Ni^{2+}	6.88E-03	273	241
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	9.25E-02	2.51E+03	2.22E+03
K^{+}	1.36E-02	360	318
OH^{-}	1.70	2.24E+04	1.72E+04
$NO3^{-}$	3.23	1.56E+05	1.20E+05
$NO2^{-}$	0.265	9.49E+03	7.29E+03
$CO3^{2-}$	0.198	9.27E+03	7.12E+03
$PO4^{3-}$	1.32	9.78E+04	7.51E+04
$SO4^{2-}$	0.128	9.57E+03	7.35E+03
Si (as SiO_3^{2-})	3.77E-02	824	633
F^{-}	0.162	2.40E+03	1.84E+03
Cl^{-}	7.59E-02	2.10E+03	1.61E+03
$C_6H_5O_7^{3-}$	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	1.77E-05	3.66	2.81
butanol	1.77E-05	1.02	0.782
NH_3	7.86E-04	10.4	7.99
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		1.02E-02 (μCi/g)	0.150 (kg)
U	5.02E-03 (M)	809 (μg/g)	715 (kg)
Cs	2.02E-02 (Ci/L)	13.7 (μCi/g)	1.21E+04 (Ci)
Sr	1.42E-02 (Ci/L)	9.60 (μCi/g)	8.48E+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-B-106			
TLM Solids Composite Inventory Estimate*			
Physical Properties			
Total Solid Waste	6.71E+05 kg	(116 kgal)	
Heat Load	9.57E-02 kW	(327 BTU/hr)	
Bulk Density	1.53 (g/cc)		
Void Fraction	0.750		
Water wt%	55.6		
TOC wt% C (wet)	2.02E-04		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	9.17	1.38E+05	9.25E+04
Al^{3+}	0.223	3.93E+03	2.64E+03
Fe^{3+} (total Fe)	0.205	7.49E+03	5.03E+03
Cr^{3+}	5.91E-03	201	135
Bi^{3+}	4.60E-02	6.30E+03	4.22E+03
La^{3+}	0	0	0
Hg^{2+}	5.10E-05	6.69	4.49
Zr (as $ZrO(OH)_2$)	3.92E-03	234	157
Pb^{2+}	0	0	0
Ni^{2+}	8.08E-03	310	208
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	9.06E-02	2.38E+03	1.59E+03
K^{+}	1.56E-02	400	269
OH^{-}	1.56	1.79E+04	1.16E+04
$NO3^{-}$	3.77	1.58E+05	1.03E+05
$NO2^{-}$	0.299	9.31E+03	6.04E+03
$CO3^{2-}$	0.219	8.91E+03	5.78E+03
$PO4^{3-}$	1.40	9.01E+04	5.85E+04
$SO4^{2-}$	0.146	9.49E+03	6.16E+03
Si (as SiO_3^{2-})	3.16E-02	600	389
F^{-}	0.158	2.04E+03	1.32E+03
Cl^{-}	8.82E-02	2.12E+03	1.37E+03
$C_6H_5O_7^{3-}$	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	2.15E-05	3.86	2.51
butanol	2.15E-05	1.08	0.698
NH_3	9.04E-04	10.4	6.75
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		9.45E-03 (μCi/g)	0.106 (kg)
U	6.03E-03 (M)	940 (μg/g)	631 (kg)
Cs	2.18E-02 (Ci/L)	14.3 (μCi/g)	9.57E+03 (Ci)
Sr	1.72E-02 (Ci/L)	11.3 (μCi/g)	7.56E+03 (Ci)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

Single-Shell Tank 241-B-106			
SMM Composite Inventory Estimate			
Physical Properties			
Total Supernatant Wa	4.28E+03 kg	(1.00 kgal)	
Heat Load	1.14E-03 kW	(3.88 BTU/hr)	
Bulk Density*	1.13 (g/cc)		
Water wt%†	79.1		
TOC wt% C (wet)	0.113		
Chemical Constituents	mole/L	ppm	kg
Na^+	2.85	5.80E+04	248
Al^{3+}	0.330	7.87E+03	33.7
Fe^{3+} (total Fe)	1.91E-03	94.5	0.404
Cr^{3+}	8.13E-03	374	1.60
Bi^{3+}	1.50E-03	277	1.18
La^{3+}	6.24E-04	76.7	0.328
Hg^{2+}	5.44E-06	0.966	4.13E-03
Zr (as $ZrO(OH)_2$)	7.66E-04	61.9	0.265
Pb^{2+}	4.77E-04	87.5	0.374
Ni^{2+}	1.63E-03	84.8	0.363
Sr^{2+}	2.08E-04	16.1	6.90E-02
Mn^{4+}	1.05E-03	51.2	0.219
Ca^{2+}	8.65E-03	307	1.31
K^+	3.95E-02	1.36E+03	5.84
OH^-	1.41	2.12E+04	90.6
$NO3^-$	1.46	8.00E+04	342
$NO2^-$	0.375	1.52E+04	65.2
$CO3^{2-}$	0.109	5.81E+03	24.9
$PO4^{3-}$	4.94E-02	4.15E+03	17.8
$SO4^{2-}$	7.92E-02	6.73E+03	28.8
Si (as SiO_3^{2-})	1.68E-02	419	1.79
F^-	8.34E-02	1.40E+03	6.00
Cl^-	5.21E-02	1.63E+03	6.99
$C_6H_5O_7^{3-}$	4.50E-03	753	3.22
$EDTA^{4-}$	8.04E-04	205	0.877
$HEDTA^{3-}$	1.32E-04	32.0	0.137
$glycolate^-$	4.97E-03	330	1.41
$acetate^-$	4.71E-03	246	1.05
$oxalate^{2-}$	5.34E-04	41.6	0.178
DBP	4.14E-03	974	4.17
butanol	4.14E-03	271	1.16
NH_3	4.75E-03	71.4	0.305
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu	19.5 (μCi/L)		1.23E-03 (kg)
U	3.05E-03 (M)	642 (μg/g)	2.75 (kg)
Cs	3.75E-02 (Ci/L)	33.2 (μCi/g)	142 (Ci)
Sr	1.85E-02 (Ci/L)	16.3 (μCi/g)	69.9 (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-B-106			
Total Inventory Estimate*			
Physical Properties			
Total Waste	6.75E+05 kg	(117 kgal)	
Heat Load	9.69E-02 kW	(331 BTU/hr)	
Bulk Density†	1.53 (g/cc)		
Water wt%†	55.8		
TOC wt% C (wet)†	1.17E-03		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	9.11	1.37E+05	9.28E+04
Al^{3+}	0.224	3.96E+03	2.67E+03
Fe^{3+} (total Fe)	0.203	7.44E+03	5.03E+03
Cr^{3+}	5.93E-03	202	137
Bi^{3+}	4.57E-02	6.26E+03	4.23E+03
La^{3+}	5.33E-06	0.486	0.328
Hg^{2+}	5.06E-05	6.65	4.49
Zr (as $ZrO(OH)_2$)	3.89E-03	233	157
Pb^{2+}	4.08E-06	0.554	0.374
Ni^{2+}	8.03E-03	309	209
Sr^{2+}	1.78E-06	0.102	6.90E-02
Mn^{4+}	8.99E-06	0.324	0.219
Ca^{2+}	8.99E-02	2.36E+03	1.60E+03
K^{+}	1.58E-02	406	274
OH^{-}	1.56	1.79E+04	1.17E+04
$NO3^{-}$	3.75	1.58E+05	1.03E+05
$NO2^{-}$	0.300	9.35E+03	6.10E+03
$CO3^{2-}$	0.218	8.89E+03	5.80E+03
$PO4^{3-}$	1.39	8.96E+04	5.85E+04
$SO4^{2-}$	0.145	9.48E+03	6.19E+03
Si (as SiO_3^{2-})	3.14E-02	599	391
F^{-}	0.158	2.03E+03	1.33E+03
Cl^{-}	8.79E-02	2.11E+03	1.38E+03
$C_6H_5O_7^{3-}$	3.85E-05	4.77	3.22
$EDTA^{4-}$	6.87E-06	1.30	0.877
$HEDTA^{3-}$	1.13E-06	0.203	0.137
$glycolate^{-}$	4.25E-05	2.09	1.41
$acetate^{-}$	4.03E-05	1.56	1.05
$oxalate^{2-}$	4.56E-06	0.263	0.178
DBP	5.66E-05	10.0	6.67
butanol	5.66E-05	2.79	1.86
NH_3	9.37E-04	10.8	7.06
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		9.50E-03 (µCi/g)	0.107 (kg)
U	6.01E-03 (M)	938 (µg/g)	633 (kg)
Cs	2.19E-02 (Ci/L)	14.4 (µCi/g)	9.71E+03 (Ci)
Sr	1.72E-02 (Ci/L)	11.3 (µCi/g)	7.63E+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-B-107			
TLM Solids Composite Inventory Estimate*			
Physical Properties			
Total Solid Waste	8.01E+05 kg	(164 kgal)	
Heat Load	3.59E-02 kW	(123 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	6.96E+04
Al^{3+}	0.475	9.93E+03	7.96E+03
Fe^{3+} (total Fe)	0.323	1.40E+04	1.12E+04
Cr^{3+}	3.77E-03	152	122
Bi^{3+}	7.70E-02	1.25E+04	9.99E+03
La^{3+}	0	0	0
Hg^{2+}	1.06E-04	16.4	13.2
Zr (as $ZrO(OH)_2$)	1.03E-02	728	583
Pb^{2+}	0	0	0
Ni^{2+}	1.16E-03	52.8	42.3
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	7.55E-02	2.34E+03	1.88E+03
K^+	3.23E-03	97.7	78.3
OH^-	2.62	2.91E+04	2.76E+04
$NO3^-$	0.374	1.52E+04	1.44E+04
$NO2^-$	0.179	5.39E+03	5.11E+03
$CO3^{2-}$	7.55E-02	2.96E+03	2.81E+03
$PO4^{3-}$	1.33	8.28E+04	7.85E+04
$SO4^{2-}$	4.47E-02	2.81E+03	2.66E+03
Si (as SiO_3^{2-})	6.32E-02	1.16E+03	1.10E+03
F^-	0.165	2.06E+03	1.95E+03
Cl^-	1.48E-02	344	326
$C_6H_5O_7^{3-}$	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	1.99	1.89
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		5.93E-03 (µCi/g)	7.92E-02 (kg)
U	5.72E-04 (M)	105 (µg/g)	84.4 (kg)
Cs	1.22E-02 (Ci/L)	9.44 (µCi/g)	7.57E+03 (Ci)
Sr	1.08E-04 (Ci/L)	8.35E-02 (µCi/g)	66.9 (Ci)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

Single-Shell Tank 241-B-107			
SMM Composite Inventory Estimate			
Physical Properties			
Total Supernatant Wa	3.91E+03 kg	(1.01 kgal)	
Heat Load	1.28E-04 kW	(0.436 BTU/hr)	
Bulk Density*	1.03 (g/cc)		
Water wt%†	96.0		
TOC wt% C (wet)	2.78E-03		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^+	0.444	9.95E+03	38.9
Al^{3+}	0.138	3.63E+03	14.2
Fe^{3+} (total Fe)	4.68E-04	25.4	9.94E-02
Cr^{3+}	8.68E-04	44.0	0.172
Bi^{3+}	6.59E-05	13.4	5.25E-02
La^{3+}	0	0	0
Hg^{2+}	2.12E-06	0.414	1.62E-03
Zr (as $ZrO(OH)_2$)	3.88E-05	3.45	1.35E-02
Pb^{2+}	3.18E-04	64.2	0.251
Ni^{2+}	3.67E-04	21.0	8.21E-02
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	2.10E-03	82.2	0.321
K^+	8.31E-04	31.6	0.124
OH^-	0.558	9.24E+03	36.1
$NO3^-$	0.186	1.12E+04	43.9
$NO2^-$	8.83E-02	3.96E+03	15.5
$CO3^{2-}$	5.03E-03	294	1.15
$PO4^{3-}$	2.46E-03	228	0.890
$SO4^{2-}$	6.58E-03	616	2.41
Si (as SiO_3^{2-})	1.90E-03	.52.0	0.203
F^-	3.48E-03	64.4	0.252
Cl^-	4.11E-03	142	0.554
$C_6H_5O_7^{3-}$	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	1.98E-04	51.4	0.201
butanol	1.98E-04	14.3	5.60E-02
NH_3	1.74E-04	2.88	1.13E-02
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu	6.62 (μCi/L)		4.20E-04 (kg)
U	9.22E-04 (M)	214 (μg/g)	0.836 (kg)
Cs	5.36E-03 (Ci/L)	5.23 (μCi/g)	20.4 (Ci)
Sr	1.24E-03 (Ci/L)	1.21 (μCi/g)	4.73 (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-B-107			
Total Inventory Estimate*			
Physical Properties			
Total Waste	8.05E+05 kg	(165 kgal)	
Heat Load	3.60E-02 kW	(123 BTU/hr)	
Bulk Density†	1.29 (g/cc)		
Water wt%†	71.0		
TOC wt% C (wet)†	1.70E-05		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	4.85	8.65E+04	6.96E+04
Al^{3+}	0.473	9.90E+03	7.97E+03
Fe^{3+} (total Fe)	0.321	1.39E+04	1.12E+04
Cr^{3+}	3.75E-03	151	122
Bi^{3+}	7.65E-02	1.24E+04	9.99E+03
La^{3+}	0	0	0
Hg^{2+}	1.05E-04	16.3	13.2
Zr (as $ZrO(OH)_2$)	1.02E-02	724	583
Pb^{2+}	1.94E-06	0.312	0.251
Ni^{2+}	1.16E-03	52.6	42.4
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	7.50E-02	2.33E+03	1.88E+03
K^{+}	3.21E-03	97.4	78.4
OH^{-}	2.61	2.90E+04	2.77E+04
$NO3^{-}$	0.373	1.52E+04	1.44E+04
$NO2^{-}$	0.178	5.38E+03	5.13E+03
$CO3^{2-}$	7.50E-02	2.95E+03	2.81E+03
$PO4^{3-}$	1.32	8.24E+04	7.85E+04
$SO4^{2-}$	4.44E-02	2.80E+03	2.67E+03
Si (as SiO_3^{2-})	6.28E-02	1.16E+03	1.10E+03
F^{-}	0.164	2.05E+03	1.95E+03
Cl^{-}	1.48E-02	343	327
$C_6H_5O_7^{3-}$	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	1.21E-06	0.250	0.201
butanol	1.21E-06	6.95E-02	5.60E-02
NH_3	1.79E-04	2.00	1.90
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		5.93E-03 (μCi/g)	7.96E-02 (kg)
U	5.74E-04 (M)	106 (μg/g)	85.3 (kg)
Cs	1.21E-02 (Ci/L)	9.42 (μCi/g)	7.59E+03 (Ci)
Sr	1.15E-04 (Ci/L)	8.90E-02 (μCi/g)	71.7 (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-B-108			
TLM Solids Composite Inventory Estimate*			
Physical Properties			
Total Solid Waste	5.13E+05 kg	(94.0 kgal)	
Heat Load	5.70E-02 kW	(195 BTU/hr)	
Bulk Density	1.44 (g/cc)		
Void Fraction	0.730		
Water wt%	60.6		
TOC wt% C (wet)	1.37E-04		
Chemical Constituents	mole/L	ppm	kg
Na^{+}	7.62	1.21E+05	6.23E+04
Al^{3+}	0.314	5.87E+03	3.01E+03
Fe^{3+} (total Fe)	0.248	9.59E+03	4.92E+03
Cr^{3+}	5.14E-03	185	95.1
Bi^{3+}	5.72E-02	8.29E+03	4.26E+03
La^{3+}	0	0	0
Hg^{2+}	7.08E-05	9.84	5.05
Zr (as $ZrO(OH)_2$)	6.23E-03	394	202
Pb^{2+}	0	0	0
Ni^{2+}	5.58E-03	227	117
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	8.51E-02	2.37E+03	1.21E+03
K^{+}	1.12E-02	302	155
OH^{-}	1.94	2.29E+04	1.17E+04
$NO3^{-}$	2.54	1.09E+05	5.61E+04
$NO2^{-}$	0.256	8.15E+03	4.18E+03
$CO3^{2-}$	0.167	6.96E+03	3.57E+03
$PO4^{3-}$	1.38	9.06E+04	4.65E+04
$SO4^{2-}$	0.109	7.28E+03	3.74E+03
Si (as SiO_3^{2-})	4.30E-02	838	430
F^{-}	0.161	2.12E+03	1.09E+03
Cl^{-}	6.17E-02	1.51E+03	777
$C_6H_5O_7^{3-}$	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	1.37E-05	2.53	1.30
butanol	1.37E-05	0.704	0.361
NH_3	6.42E-04	7.57	3.88
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		8.31E-03 (μCi/g)	7.11E-02 (kg)
U	4.06E-03 (M)	670 (μg/g)	344 (kg)
Cs	1.83E-02 (Ci/L)	12.7 (μCi/g)	6.52E+03 (Ci)
Sr	1.10E-02 (Ci/L)	7.64 (μCi/g)	3.92E+03 (Ci)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

Single-Shell Tank 241-B-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-B-108			
Total Inventory Estimate*			
Physical Properties			
Total Waste	5.13E+05 kg	(94.0 kgal)	
Heat Load	5.70E-02 kW	(195 BTU/hr)	
Bulk Density†	1.44 (g/cc)		
Water wt%†	60.6		
TOC wt% C (wet)†	1.37E-04		
Chemical Constituents	mole/L	ppm	kg
Na^+	7.62	1.21E+05	6.23E+04
Al^{3+}	0.314	5.87E+03	3.01E+03
Fe^{3+} (total Fe)	0.248	9.59E+03	4.92E+03
Cr^{3+}	5.14E-03	185	95.1
Bi^{3+}	5.72E-02	8.29E+03	4.26E+03
La^{3+}	0	0	0
Hg^{2+}	7.08E-05	9.84	5.05
Zr (as $ZrO(OH)_2$)	6.23E-03	394	202
Pb^{2+}	0	0	0
Ni^{2+}	5.58E-03	227	117
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	8.51E-02	2.37E+03	1.21E+03
K^+	1.12E-02	302	155
OH^-	1.94	2.29E+04	1.17E+04
$NO3^-$	2.54	1.09E+05	5.61E+04
$NO2^-$	0.256	8.15E+03	4.18E+03
$CO3^{2-}$	0.167	6.96E+03	3.57E+03
$PO4^{3-}$	1.38	9.06E+04	4.65E+04
$SO4^{2-}$	0.109	7.28E+03	3.74E+03
Si (as SiO_3^{2-})	4.30E-02	838	430
F^-	0.161	2.12E+03	1.09E+03
Cl^-	6.17E-02	1.51E+03	777
$C_6H_5O_7^{3-}$	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	1.37E-05	2.53	1.30
butanol	1.37E-05	0.704	0.361
NH_3	6.42E-04	7.57	3.88
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		8.31E-03 (μCi/g)	7.11E-02 (kg)
U	4.06E-03 (M)	670 (μg/g)	344 (kg)
Cs	1.83E-02 (Ci/L)	12.7 (μCi/g)	6.52E+03 (Ci)
Sr	1.10E-02 (Ci/L)	7.64 (μCi/g)	3.92E+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-B-109			
TLM Solids Composite Inventory Estimate*			
Physical Properties			
Total Solid Waste	5.61E+05 kg	(97.0 kgal)	
Heat Load	7.03E-02 kW	(240 BTU/hr)	
Bulk Density	1.53 (g/cc)		
Void Fraction	0.751		
Water wt%	55.0		
TOC wt% C (wet)	1.75E-04		
Chemical Constituents	mole/L	ppm	kg
Na^{+}	8.10	1.22E+05	6.84E+04
Al^{3+}	0.978	1.73E+04	9.69E+03
Fe^{3+} (total Fe)	0.239	8.72E+03	4.90E+03
Cr^{3+}	5.43E-03	185	104
Bi^{3+}	3.99E-02	5.45E+03	3.06E+03
La^{3+}	0	0	0
Hg^{2+}	8.37E-04	110	61.6
Zr (as $ZrO(OH)_2$)	3.39E-03	202	114
Pb^{2+}	4.37E-02	5.92E+03	3.32E+03
Ni^{2+}	7.15E-03	275	154
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	0.121	3.18E+03	1.79E+03
K^{+}	1.38E-02	353	198
OH^{-}	4.21	4.68E+04	2.63E+04
$NO3^{-}$	3.33	1.35E+05	7.59E+04
$NO2^{-}$	0.289	8.69E+03	4.88E+03
$CO3^{2-}$	0.233	9.14E+03	5.13E+03
$PO4^{3-}$	1.21	7.54E+04	4.23E+04
$SO4^{2-}$	0.128	8.02E+03	4.50E+03
Si (as SiO_3^{2-})	2.73E-02	502	282
F^{-}	0.137	1.70E+03	956
Cl^{-}	7.75E-02	1.80E+03	1.01E+03
$C_6H_5O_7^{3-}$	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	1.86E-05	3.23	1.81
butanol	1.86E-05	0.901	0.506
NH_3	7.88E-04	8.76	4.92
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		0.170 (μCi/g)	1.59 (kg)
U	3.29E-02 (M)	5.13E+03 (μg/g)	2.88E+03 (kg)
Cs	1.91E-02 (Ci/L)	12.5 (μCi/g)	7.03E+03 (Ci)
Sr	1.51E-02 (Ci/L)	9.89 (μCi/g)	5.55E+03 (Ci)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

Single-Shell Tank 241-B-109			
SMM Composite Inventory Estimate			
Physical Properties			
Total Supernatant Wa	1.72E+05 kg	(30.0 kgal)	
Heat Load	0.140 kW	(477 BTU/hr)	
Bulk Density*	1.52 (g/cc)		
Water wt%†	43.7		
TOC wt% C (wet)	0.725		
Chemical Constituents	mole/L	ppm	kg
Na^+	10.4	1.57E+05	2.71E+04
Al^{3+}	1.88	3.34E+04	5.76E+03
Fe^{3+} (total Fe)	2.35E-03	86.4	14.9
Cr^{3+}	3.52E-02	1.21E+03	208
Bi^{3+}	1.36E-03	187	32.2
La^{3+}	4.86E-06	0.445	7.67E-02
Hg^{2+}	1.17E-05	1.55	0.268
Zr (as $ZrO(OH)_2$)	4.47E-04	26.9	4.63
Pb^{2+}	1.88E-03	257	44.2
Ni^{2+}	2.11E-03	81.8	14.1
Sr^{2+}	1.62E-06	9.36E-02	1.61E-02
Mn^{4+}	4.90E-03	177	30.6
Ca^{2+}	1.06E-02	279	48.1
K^+	5.68E-02	1.46E+03	252
OH^-	8.01	8.97E+04	1.55E+04
$NO3^-$	3.29	1.34E+05	2.32E+04
$NO2^-$	2.63	7.96E+04	1.37E+04
$CO3^{2-}$	0.435	1.72E+04	2.96E+03
$PO4^{3-}$	0.103	6.46E+03	1.11E+03
$SO4^{2-}$	0.288	1.82E+04	3.14E+03
Si (as SiO_3^{2-})	3.99E-02	739	127
F^-	8.98E-02	1.12E+03	194
Cl^-	0.192	4.47E+03	771
$C_6H_5O_7^{3-}$	3.62E-02	4.50E+03	776
$EDTA^{4-}$	8.12E-03	1.54E+03	266
$HEDTA^{3-}$	1.10E-03	198	34.1
glycolate$^-$	2.55E-02	1.26E+03	217
acetate$^-$	4.83E-02	1.88E+03	324
oxalate^{2-}	4.16E-06	0.241	4.16E-02
DBP	3.84E-02	6.73E+03	1.16E+03
butanol	3.84E-02	1.87E+03	323
NH_3	1.55E-02	174	29.9
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu	35.2 (μCi/L)		6.67E-02 (kg)
U	4.70E-03 (M)	737 (μg/g)	127 (kg)
Cs	0.205 (Ci/L)	135 (μCi/g)	2.33E+04 (Ci)
Sr	3.99E-02 (Ci/L)	26.3 (μCi/g)	4.54E+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-B-109			
Total Inventory Estimate*			
Physical Properties			
Total Waste	7.34E+05 kg	(127 kgal)	
Heat Load	0.210 kW	(717 BTU/hr)	
Bulk Density†	1.53 (g/cc)		
Water wt%†	52.4		
TOC wt% C (wet)†	0.171		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	8.64	1.30E+05	9.55E+04
Al^{3+}	1.19	2.11E+04	1.54E+04
Fe^{3+} (total Fe)	0.183	6.69E+03	4.91E+03
Cr^{3+}	1.25E-02	425	312
Bi^{3+}	3.08E-02	4.21E+03	3.09E+03
La^{3+}	1.15E-06	0.105	7.67E-02
Hg^{2+}	6.42E-04	84.3	61.9
Zr (as $ZrO(OH)_2$)	2.70E-03	161	118
Pb^{2+}	3.38E-02	4.59E+03	3.37E+03
Ni^{2+}	5.96E-03	229	168
Sr^{2+}	3.83E-07	2.20E-02	1.61E-02
Mn^{4+}	1.16E-03	41.7	30.6
Ca^{2+}	9.53E-02	2.50E+03	1.84E+03
K^{+}	2.40E-02	614	450
OH^{-}	5.10	5.68E+04	4.17E+04
$NO3^{-}$	3.32	1.35E+05	9.90E+04
$NO2^{-}$	0.841	2.53E+04	1.86E+04
$CO3^{2-}$	0.281	1.10E+04	8.10E+03
$PO4^{3-}$	0.952	5.92E+04	4.34E+04
$SO4^{2-}$	0.166	1.04E+04	7.65E+03
Si (as SiO_3^{2-})	3.03E-02	558	409
F^{-}	0.126	1.57E+03	1.15E+03
Cl^{-}	0.104	2.43E+03	1.78E+03
$C_6H_5O_7^{3-}$	8.54E-03	1.06E+03	776
$EDTA^{4-}$	1.92E-03	362	266
$HEDTA^{3-}$	2.59E-04	46.5	34.1
$glycolate^{-}$	6.02E-03	296	217
$acetate^{-}$	1.14E-02	441	324
$oxalate^{2-}$	9.83E-07	5.67E-02	4.16E-02
DBP	9.09E-03	1.58E+03	1.16E+03
butanol	9.09E-03	441	324
NH_3	4.27E-03	47.5	34.9
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		0.136 (μCi/g)	1.66 (kg)
U	2.63E-02 (M)	4.10E+03 (μg/g)	3.01E+03 (kg)
Cs	6.31E-02 (Ci/L)	41.3 (μCi/g)	3.03E+04 (Ci)
Sr	2.10E-02 (Ci/L)	13.7 (μCi/g)	1.01E+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-B-110			
TLM Solids Composite Inventory Estimate*			
Physical Properties			
Total Solid Waste	1.12E+06 kg	(246 kgal)	
Heat Load	1.08 kW	(3.67E+03 BTU/hr)	
Bulk Density	1.20 (g/cc)		
Void Fraction	0.841		
Water wt%	75.1		
TOC wt% C (wet)	0		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	2.96	5.66E+04	6.34E+04
Al^{3+}	0	0	0
Fe^{3+} (total Fe)	0.681	3.16E+04	3.54E+04
Cr^{3+}	4.07E-03	176	197
Bi^{3+}	7.03E-02	1.22E+04	1.37E+04
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+}	2.05E-03	100	112
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	0.199	6.63E+03	7.42E+03
K^{+}	4.45E-03	145	162
OH^{-}	2.09	2.96E+04	3.32E+04
NO_3^{-}	0.829	4.28E+04	4.79E+04
$NO2^{-}$	8.91E-03	341	382
$CO3^{2-}$	0.199	9.92E+03	1.11E+04
$PO4^{3-}$	0.647	5.11E+04	5.72E+04
$SO4^{2-}$	3.45E-02	2.75E+03	3.08E+03
Si (as SiO_3^{2-})	7.14E-02	1.67E+03	1.87E+03
F^{-}	0.145	2.28E+03	2.56E+03
Cl^{-}	2.05E-02	603	675
$C_6H_5O_7^{3-}$	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	2.95E-03	41.7	46.7
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		2.60E-02 (μCi/g)	0.485 (kg)
U	2.20E-03 (M)	436 (μg/g)	488 (kg)
Cs	7.05E-03 (Ci/L)	5.87 (μCi/g)	6.56E+03 (Ci)
Sr	0.167 (Ci/L)	139 (μCi/g)	1.55E+05 (Ci)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

Single-Shell Tank 241-B-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-B-110			
Total Inventory Estimate*			
Physical Properties			
Total Waste	1.12E+06 kg	(246 kgal)	
Heat Load	1.08 kW	(3.67E+03 BTU/hr)	
Bulk Density†	1.20 (g/cc)		
Water wt%†	75.1		
TOC wt% C (wet)†	0		
Chemical Constituents	mole/L	ppm	kg
Na^{+}	2.96	5.66E+04	6.34E+04
Al^{3+}	0	0	0
Fe^{3+} (total Fe)	0.681	3.16E+04	3.54E+04
Cr^{3+}	4.07E-03	176	197
Bi^{3+}	7.03E-02	1.22E+04	1.37E+04
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+}	2.05E-03	100	112
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	0.199	6.63E+03	7.42E+03
K^{+}	4.45E-03	145	162
OH^{-}	2.09	2.96E+04	3.32E+04
$NO3^{-}$	0.829	4.28E+04	4.79E+04
$NO2^{-}$	8.91E-03	341	382
$CO3^{2-}$	0.199	9.92E+03	1.11E+04
$PO4^{3-}$	0.647	5.11E+04	5.72E+04
$SO4^{2-}$	3.45E-02	2.75E+03	3.08E+03
Si (as SiO_3^{2-})	7.14E-02	1.67E+03	1.87E+03
F^{-}	0.145	2.28E+03	2.56E+03
Cl^{-}	2.05E-02	603	675
$C_6H_5O_7^{3-}$	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	2.95E-03	41.7	46.7
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		2.60E-02 (μCi/g)	0.485 (kg)
U	2.20E-03 (M)	436 (μg/g)	488 (kg)
Cs	7.05E-03 (Ci/L)	5.87 (μCi/g)	6.56E+03 (Ci)
Sr	0.167 (Ci/L)	139 (μCi/g)	1.55E+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-B-111			
TLM Solids Composite Inventory Estimate*			
Physical Properties			
Total Solid Waste	1.03E+06 kg	(236 kgal)	
Heat Load	9.33 kW	(3.19E+04 BTU/hr)	
Bulk Density	1.16 (g/cc)		
Void Fraction	0.928		
Water wt%	78.3		
TOC wt% C (wet)	0		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^+	1.51	3.00E+04	3.10E+04
Al^{3+}	0	0	0
Fe^{3+} (total Fe)	1.04	5.01E+04	5.18E+04
Cr^{3+}	8.66E-03	389	402
Bi^{3+}	3.64E-02	6.56E+03	6.79E+03
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+}	9.45E-03	479	495
Sr^{2+}	0	0	0
Mn^{4+}	0	0	0
Ca^{2+}	0.275	9.53E+03	9.86E+03
K^+	3.60E-03	121	126
OH^-	3.32	4.87E+04	5.04E+04
$NO3^-$	0.579	3.10E+04	3.21E+04
$NO2^-$	6.61E-02	2.63E+03	2.72E+03
$CO3^{2-}$	0.275	1.43E+04	1.48E+04
$PO4^{3-}$	0.124	1.02E+04	1.06E+04
$SO4^{2-}$	3.85E-02	3.20E+03	3.31E+03
Si (as SiO_3^{2-})	0.184	4.47E+03	4.62E+03
F^-	9.69E-02	1.59E+03	1.64E+03
Cl^-	1.66E-02	506	524
$C_6H_5O_7^{3-}$	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	2.67E-02	391	405
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		0.148 (μCi/g)	2.56 (kg)
U	1.94E-02 (M)	3.98E+03 (μg/g)	4.12E+03 (kg)
Cs	6.20E-02 (Ci/L)	53.5 (μCi/g)	5.54E+04 (Ci)
Sr	1.51 (Ci/L)	1.30E+03 (μCi/g)	1.35E+06 (Ci)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

Single-Shell Tank 241-B-111			
SMM Composite Inventory Estimate			
Physical Properties			
Total Supernatant Wa	5.53E+03 kg	(1.01 kgal)	
Heat Load	4.02E-03 kW	(13.7 BTU/hr)	
Bulk Density*	1.44 (g/cc)		
Water wt%†	49.5		
TOC wt% C (wet)	0.650		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	8.82	1.41E+05	778
Al^{3+}	1.60	3.00E+04	166
Fe^{3+} (total Fe)	2.00E-03	77.5	0.429
Cr^{3+}	3.00E-02	1.08E+03	5.99
Bi^{3+}	1.15E-03	167	0.925
La^{3+}	4.14E-06	0.399	2.21E-03
Hg^{2+}	1.00E-05	1.39	7.70E-03
Zr (as $ZrO(OH)_2$)	3.81E-04	24.1	0.133
Pb^{2+}	1.60E-03	230	1.27
Ni^{2+}	1.80E-03	73.4	0.406
Sr^{2+}	1.38E-06	8.39E-02	4.64E-04
Mn^{4+}	4.17E-03	159	0.880
Ca^{2+}	9.00E-03	250	1.38
K^{+}	4.83E-02	1.31E+03	7.25
OH^{-}	6.81	8.04E+04	445
$NO3^{-}$	2.80	1.20E+05	666
$NO2^{-}$	2.23	7.13E+04	394
$CO3^{2-}$	0.370	1.54E+04	85.3
$PO4^{3-}$	8.79E-02	5.79E+03	32.0
SO4	0.245	1.64E+04	90.4
Si (as SiO_3^{2-})	3.40E-02	663	3.66
F^{-}	7.64E-02	1.01E+03	5.57
Cl^{-}	0.163	4.01E+03	22.2
$C_6H_5O_7^{3-}$	3.08E-02	4.04E+03	22.3
$EDTA^{4-}$	6.91E-03	1.38E+03	7.64
$HEDTA^{3-}$	9.32E-04	177	0.981
$glycolate^{-}$	2.17E-02	1.13E+03	6.24
$acetate^{-}$	4.11E-02	1.68E+03	9.31
$oxalate^{2-}$	3.54E-06	0.216	1.20E-03
DBP	3.27E-02	6.03E+03	33.4
butanol	3.27E-02	1.68E+03	9.30
NH_3	1.32E-02	156	0.861
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu	30.0 (μCi/L)		1.92E-03 (kg)
U	4.00E-03 (M)	661 (μg/g)	3.66 (kg)
Cs	0.174 (Ci/L)	121 (μCi/g)	670 (Ci)
Sr	3.40E-02 (Ci/L)	23.6 (μCi/g)	131 (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-B-111			
Total Inventory Estimate*			
Physical Properties			
Total Waste	1.04E+06 kg	(237 kgal)	
Heat Load	9.33 kW	(3.19E+04 BTU/hr)	
Bulk Density†	1.16 (g/cc)		
Water wt%†	78.2		
TOC wt% C (wet)†	2.78E-03		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	1.54	3.05E+04	3.18E+04
Al^{3+}	6.84E-03	159	166
Fe^{3+} (total Fe)	1.03	4.98E+04	5.18E+04
Cr^{3+}	8.75E-03	392	408
Bi^{3+}	3.62E-02	6.53E+03	6.79E+03
La^{3+}	1.77E-08	2.12E-03	2.21E-03
Hg^{2+}	4.28E-08	7.40E-03	7.70E-03
Zr (as $ZrO(OH)_2$)	1.63E-06	0.128	0.133
Pb^{2+}	6.85E-06	1.22	1.27
Ni^{2+}	9.41E-03	477	496
Sr^{2+}	5.90E-09	4.46E-04	4.64E-04
Mn^{4+}	1.78E-05	0.846	0.880
Ca^{2+}	0.274	9.48E+03	9.86E+03
K^{+}	3.79E-03	128	133
OH^{-}	3.34	4.89E+04	5.09E+04
$NO3^{-}$	0.589	3.15E+04	3.27E+04
$NO2^{-}$	7.54E-02	2.99E+03	3.11E+03
$CO3^{2-}$	0.276	1.43E+04	1.48E+04
$PO4^{3-}$	0.124	1.02E+04	1.06E+04
$SO4^{2-}$	3.94E-02	3.27E+03	3.40E+03
Si (as SiO_3^{2-})	0.184	4.45E+03	4.62E+03
F^{-}	9.68E-02	1.59E+03	1.65E+03
Cl^{-}	1.72E-02	525	546
$C_6H_5O_7^{3-}$	1.32E-04	21.5	22.3
$EDTA^{4-}$	2.95E-05	7.34	7.64
$HEDTA^{3-}$	3.99E-06	0.943	0.981
$glycolate^{-}$	9.27E-05	6.00	6.24
$acetate^{-}$	1.76E-04	8.95	9.31
$oxalate^{2-}$	1.51E-08	1.15E-03	1.20E-03
DBP	1.40E-04	32.1	33.4
butanol	1.40E-04	8.94	9.30
NH_3	2.66E-02	390	406
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		0.148 (µCi/g)	2.56 (kg)
U	1.93E-02 (M)	3.96E+03 (µg/g)	4.12E+03 (kg)
Cs	6.25E-02 (Ci/L)	53.9 (µCi/g)	5.61E+04 (Ci)
Sr	1.50 (Ci/L)	1.29E+03 (µCi/g)	1.35E+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-B-112			
TLM Solids Composite Inventory Estimate*			
Physical Properties			
Total Solid Waste	1.58E+05 kg	(30.0 kgal)	
Heat Load	0.114 kW	(390 BTU/hr)	
Bulk Density	1.39 (g/cc)		
Void Fraction	0.856		
Water wt%	54.0		
TOC wt% C (wet)	0.281		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^+	7.18	1.19E+05	1.87E+04
Al^{3+}	1.14	2.23E+04	3.51E+03
Fe^{3+} (total Fe)	0.375	1.51E+04	2.38E+03
Cr^{3+}	2.94E-02	1.10E+03	174
Bi^{3+}	1.96E-02	2.96E+03	466
La^{3+}	1.72E-06	0.172	2.72E-02
Hg^{2+}	1.93E-05	2.79	0.440
Zr (as $ZrO(OH)_2$)	1.58E-04	10.4	1.64
Pb^{2+}	3.02E-03	452	71.1
Ni^{2+}	7.90E-03	334	52.7
Sr^{2+}	1.92E-06	0.121	1.91E-02
Mn^{4+}	1.74E-03	68.7	10.8
Ca^{2+}	0.168	4.85E+03	765
K^+	2.17E-02	612	96.5
OH^-	6.03	7.39E+04	1.16E+04
$NO3^-$	3.73	1.66E+05	2.62E+04
$NO2^-$	0.930	3.08E+04	4.86E+03
$CO3^{2-}$	0.396	1.71E+04	2.70E+03
$PO4^{3-}$	0.102	6.99E+03	1.10E+03
$SO4^{2-}$	0.114	7.88E+03	1.24E+03
Si (as SiO_3^{2-})	5.03E-02	1.02E+03	161
F^-	8.28E-02	1.13E+03	179
Cl^-	7.53E-02	1.92E+03	303
$C_6H_5O_7^{3-}$	1.28E-02	1.74E+03	275
$EDTA^{4-}$	2.87E-03	596	93.9
$HEDTA^{3-}$	3.88E-04	76.6	12.1
$glycolate^-$	9.01E-03	487	76.8
$acetate^-$	1.71E-02	727	115
$oxalate^{2-}$	1.47E-06	9.34E-02	1.47E-02
DBP	1.36E-02	2.61E+03	411
butanol	1.36E-02	726	114
NH_3	5.49E-03	67.2	10.6
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		7.05E-02 (µCi/g)	0.185 (kg)
U	1.38E-02 (M)	2.36E+03 (µg/g)	372 (kg)
Cs	0.115 (Ci/L)	82.9 (µCi/g)	1.31E+04 (Ci)
Sr	6.93E-02 (Ci/L)	49.9 (µCi/g)	7.87E+03 (Ci)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

Single-Shell Tank 241-B-112			
SMM Composite Inventory Estimate			
Physical Properties			
Total Supernatant Wa	1.52E+04 kg	(3.01 kgal)	
Heat Load	9.08E-03 kW	(31.0 BTU/hr)	
Bulk Density*	1.34 (g/cc)		
Water wt%†	58.5		
TOC wt% C (wet)	0.534		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^+	6.73	1.16E+05	1.76E+03
Al^{3+}	1.22	2.46E+04	374
Fe^{3+} (total Fe)	1.52E-03	63.7	0.969
Cr^{3+}	2.29E-02	890	13.5
Bi^{3+}	8.80E-04	138	2.09
La^{3+}	3.16E-06	0.328	4.99E-03
Hg^{2+}	7.62E-06	1.14	1.74E-02
Zr (as $ZrO(OH)_2$)	2.90E-04	19.8	0.301
Pb^{2+}	1.22E-03	189	2.88
Ni^{2+}	1.37E-03	60.3	0.917
Sr^{2+}	1.05E-06	6.90E-02	1.05E-03
Mn^{4+}	3.18E-03	131	1.99
Ca^{2+}	6.86E-03	206	3.13
K^+	3.69E-02	1.08E+03	16.4
OH^-	5.19	6.61E+04	1.01E+03
$NO3^-$	2.13	9.90E+04	1.51E+03
$NO2^-$	1.70	5.86E+04	892
$CO3^{2-}$	0.282	1.27E+04	193
$PO4^{3-}$	6.70E-02	4.76E+03	72.4
$SO4^{2-}$	0.187	1.34E+04	204
Si (as SiO_3^{2-})	2.59E-02	545	8.28
F^-	5.82E-02	828	12.6
Cl^-	0.124	3.30E+03	50.1
$C_6H_5O_7^{3-}$	2.35E-02	3.32E+03	50.5
$EDTA^{4-}$	5.27E-03	1.14E+03	17.3
$HEDTA^{3-}$	7.11E-04	146	2.22
glycolate$^-$	1.65E-02	928	14.1
acetate$^-$	3.13E-02	1.38E+03	21.0
oxalate^{2-}	2.70E-06	0.178	2.70E-03
DBP	2.49E-02	4.96E+03	75.4
butanol	2.49E-02	1.38E+03	21.0
NH_3	1.01E-02	128	1.95
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu	22.9 (μCi/L)		4.34E-03 (kg)
U	3.05E-03 (M)	543 (μg/g)	8.26 (kg)
Cs	0.133 (Ci/L)	99.6 (μCi/g)	1.51E+03 (Ci)
Sr	2.59E-02 (Ci/L)	19.4 (μCi/g)	295 (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-B-112			
Total Inventory Estimate*			
Physical Properties			
Total Waste	1.73E+05 kg	(33.0 kgal)	
Heat Load	0.123 kW	(421 BTU/hr)	
Bulk Density†	1.38 (g/cc)		
Water wt%†	54.4		
TOC wt% C (wet)†	0.304		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	7.14	1.19E+05	2.05E+04
Al^{3+}	1.15	2.25E+04	3.88E+03
Fe^{3+} (total Fe)	0.341	1.38E+04	2.38E+03
Cr^{3+}	2.88E-02	1.08E+03	187
Bi^{3+}	1.79E-02	2.71E+03	468
La^{3+}	1.85E-06	0.186	3.21E-02
Hg^{2+}	1.83E-05	2.65	0.458
Zr (as $ZrO(OH)_2$)	1.70E-04	11.2	1.94
Pb^{2+}	2.86E-03	428	74.0
Ni^{2+}	7.31E-03	310	53.6
Sr^{2+}	1.84E-06	0.116	2.01E-02
Mn^{4+}	1.87E-03	74.1	12.8
Ca^{2+}	0.153	4.44E+03	768
K^{+}	2.31E-02	653	113
OH^{-}	5.96	7.32E+04	1.26E+04
$NO3^{-}$	3.58	1.61E+05	2.77E+04
$NO2^{-}$	1.00	3.33E+04	5.75E+03
$CO3^{2-}$	0.386	1.67E+04	2.89E+03
$PO4^{3-}$	9.89E-02	6.79E+03	1.17E+03
$SO4^{2-}$	0.121	8.37E+03	1.45E+03
Si (as SiO_3^{2-})	4.81E-02	977	169
F^{-}	8.06E-02	1.11E+03	191
Cl^{-}	7.98E-02	2.04E+03	353
$C_6H_5O_7^{3-}$	1.38E-02	1.88E+03	325
$EDTA^{4-}$	3.09E-03	644	111
$HEDTA^{3-}$	4.17E-04	82.7	14.3
glycolate^{-}	9.70E-03	526	90.9
acetate^{-}	1.84E-02	785	136
oxalate^{2-}	1.58E-06	0.101	1.74E-02
DBP	1.46E-02	2.81E+03	486
butanol	1.46E-02	784	135
NH_3	5.91E-03	72.6	12.5
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		6.58E-02 (µCi/g)	0.189 (kg)
U	1.28E-02 (M)	2.20E+03 (µg/g)	381 (kg)
Cs	0.117 (Ci/L)	84.4 (µCi/g)	1.46E+04 (Ci)
Sr	6.53E-02 (Ci/L)	47.2 (µCi/g)	8.16E+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-B-201			
TLM Solids Composite Inventory Estimate*			
Physical Properties			
Total Solid Waste	1.46E+05 kg	(28.0 kgal)	
Heat Load	0 kW	(0 BTU/hr)	
Bulk Density	1.38 (g/cc)		
Void Fraction	0.834		
Water wt%	55.5		
TOC wt% C (wet)	1.12		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	4.52	7.55E+04	1.10E+04
Al^{3+}	0	0	0
Fe^{3+} (total Fe)	0.361	1.46E+04	2.14E+03
Cr^{3+}	3.44E-03	130	19.0
Bi^{3+}	6.04E-02	9.17E+03	1.34E+03
La^{3+}	0.237	2.39E+04	3.49E+03
Hg^{2+}	0	0	0
Zr (as $ZrO(OH)_2$)	0	0	0
Pb^{2+}	0	0	0
Ni^{2+}	1.34E-03	57.3	8.36
Sr^{2+}	1.57	9.97E+04	1.45E+04
Mn^{4+}	3.86E-03	154	22.5
Ca^{2+}	0.244	7.10E+03	1.04E+03
K^{+}	0.228	6.46E+03	943
OH^{-}	4.92	6.07E+04	8.86E+03
$NO3^{-}$	1.33	5.98E+04	8.72E+03
$NO2^{-}$	0	0	0
$CO3^{2-}$	0.244	1.06E+04	1.55E+03
$PO4^{3-}$	9.65E-02	6.66E+03	971
$SO4^{2-}$	1.34E-03	93.7	13.7
Si (as SiO_3^{2-})	0	0	0
F^{-}	2.03	2.81E+04	4.10E+03
Cl^{-}	2.49E-02	642	93.6
$C_6H_5O_7^{3-}$	0	0	0
$EDTA^{4-}$	0	0	0
$HEDTA^{3-}$	0	0	0
$glycolate^{-}$	0	0	0
$acetate^{-}$	0	0	0
$oxalate^{2-}$	0.643	4.11E+04	6.00E+03
DBP	0	0	0
butanol	0	0	0
NH_3	0	0	0
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		1.00E-02 (μCi/g)	2.44E-02 (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)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

Single-Shell Tank 241-B-201			
SMM Composite Inventory Estimate			
Physical Properties			
Total Supernatant Wa	3.79E+03 kg	(1.00 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-B-201			
Total Inventory Estimate*			
Physical Properties			
Total Waste	1.50E+05 kg	(29.0 kgal)	
Heat Load	0 kW	(0 BTU/hr)	
Bulk Density†	1.36 (g/cc)		
Water wt%†	57.1		
TOC wt% C (wet)†	1.08		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^+	4.36	7.36E+04	1.10E+04
Al^{3+}	0	0	0
Fe^{3+} (total Fe)	0.349	1.43E+04	2.14E+03
Cr^{3+}	3.32E-03	127	19.0
Bi^{3+}	5.83E-02	8.94E+03	1.34E+03
La^{3+}	0.229	2.33E+04	3.49E+03
Hg^{2+}	0	0	0
Zr (as $ZrO(OH)_2$)	0	0	0
Pb^{2+}	0	0	0
Ni^{2+}	1.30E-03	55.8	8.36
Sr^{2+}	1.51	9.72E+04	1.45E+04
Mn^{4+}	3.73E-03	150	22.5
Ca^{2+}	0.235	6.92E+03	1.04E+03
K^+	0.220	6.30E+03	943
OH^-	4.75	5.92E+04	8.86E+03
$NO3^-$	1.28	5.83E+04	8.72E+03
$NO2^-$	0	0	0
$CO3^{2-}$	0.235	1.04E+04	1.55E+03
$PO4^{3-}$	9.32E-02	6.49E+03	971
$SO4^{2-}$	1.30E-03	91.4	13.7
Si (as SiO_3^{2-})	0	0	0
F^-	1.96	2.74E+04	4.10E+03
Cl^-	2.41E-02	625	93.6
$C_6H_5O_7^{3-}$	0	0	0
$EDTA^{4-}$	0	0	0
$HEDTA^{3-}$	0	0	0
glycolate$^-$	0	0	0
acetate$^-$	0	0	0
oxalate^{2-}	0.621	4.01E+04	6.00E+03
DBP	0	0	0
butanol	0	0	0
NH_3	0	0	0
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		9.77E-03 (μCi/g)	2.44E-02 (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)

*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-B-202			
TLM Solids Composite Inventory Estimate*			
Physical Properties			
Total Solid Waste	1.41E+05 kg	(27.0 kgal)	
Heat Load	0 kW	(0 BTU/hr)	
Bulk Density	1.38 (g/cc)		
Void Fraction	0.834		
Water wt%	55.5		
TOC wt% C (wet)	1.12		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	4.52	7.55E+04	1.06E+04
Al^{3+}	0	0	0
Fe^{3+} (total Fe)	0.361	1.46E+04	2.06E+03
Cr^{3+}	3.44E-03	130	18.3
Bi^{3+}	6.04E-02	9.17E+03	1.29E+03
La^{3+}	0.237	2.39E+04	3.36E+03
[illegible]	0	0	0
Zr (as $ZrO(OH)_2$)	0	0	0
Pb^{2+}	0	0	0
Ni^{2+}	1.34E-03	57.3	8.06
Sr^{2+}	1.57	9.97E+04	1.40E+04
Mn^{4+}	3.86E-03	154	21.7
Ca^{2+}	0.244	7.10E+03	998
K^{+}	0.228	6.46E+03	909
OH^{-}	4.92	6.07E+04	8.54E+03
$NO3^{-}$	1.33	5.98E+04	8.41E+03
$NO2^{-}$	0	0	0
$CO3^{2-}$	0.244	1.06E+04	1.49E+03
$PO4^{3-}$	9.65E-02	6.66E+03	937
$SO4^{2-}$	1.34E-03	93.7	13.2
Si (as SiO_3^{2-})	0	0	0
F^{-}	2.03	2.81E+04	3.95E+03
Cl^{-}	2.49E-02	642	90.2
$C_6H_5O_7^{3-}$	0	0	0
$EDTA^{4-}$	0	0	0
$HEDTA^{3-}$	0	0	0
glycolate^{-}	0	0	0
acetate^{-}	0	0	0
oxalate^{2-}	0.643	4.11E+04	5.78E+03
DBP	0	0	0
butanol	0	0	0
NH_3	0	0	0
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		1.00E-02 (μCi/g)	2.35E-02 (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)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

Single-Shell Tank 241-B-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-B-202			
Total Inventory Estimate*			
Physical Properties			
Total Waste	1.41E+05 kg	(27.0 kgal)	
Heat Load	0 kW	(0 BTU/hr)	
Bulk Density†	1.38 (g/cc)		
Water wt%†	55.5		
TOC wt% C (wet)†	1.12		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^+	4.52	7.55E+04	1.06E+04
Al^{3+}	0	0	0
Fe^{3+} (total Fe)	0.361	1.46E+04	2.06E+03
Cr^{3+}	3.44E-03	130	18.3
Bi^{3+}	6.04E-02	9.17E+03	1.29E+03
La^{3+}	0.237	2.39E+04	3.36E+03
Hg^{2+}	0	0	0
Zr (as $ZrO(OH)_2$)	0	0	0
Pb^{2+}	0	0	0
Ni^{2+}	1.34E-03	57.3	8.06
Sr^{2+}	1.57	9.97E+04	1.40E+04
Mn^{4+}	3.86E-03	154	21.7
Ca^{2+}	0.244	7.10E+03	998
K^+	0.228	6.46E+03	909
OH^-	4.92	6.07E+04	8.54E+03
$NO3^-$	1.33	5.98E+04	8.41E+03
$NO2^-$	0	0	0
$CO3^{2-}$	0.244	1.06E+04	1.49E+03
$PO4^{3-}$	9.65E-02	6.66E+03	937
$SO4^{2-}$	1.34E-03	93.7	13.2
Si (as SiO_3^{2-})	0	0	0
F^-	2.03	2.81E+04	3.95E+03
Cl^-	2.49E-02	642	90.2
$C_6H_5O_7^{3-}$	0	0	0
$EDTA^{4-}$	0	0	0
$HEDTA^{3-}$	0	0	0
$glycolate^-$	0	0	0
$acetate^-$	0	0	0
$oxalate^{2-}$	0.643	4.11E+04	5.78E+03
DBP	0	0	0
butanol	0	0	0
NH_3	0	0	0
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		1.00E-02 (μCi/g)	2.35E-02 (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)

*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-B-203			
TLM Solids Composite Inventory Estimate*			
Physical Properties			
Total Solid Waste	2.60E+05 kg	(50.0 kgal)	
Heat Load	0 kW	(0 BTU/hr)	
Bulk Density	1.38 (g/cc)		
Void Fraction	0.834		
Water wt%	55.5		
TOC wt% C (wet)	1.12		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	4.52	7.55E+04	1.97E+04
Al^{3+}	0	0	0
Fe^{3+} (total Fe)	0.361	1.46E+04	3.81E+03
Cr^{3+}	3.44E-03	130	33.9
Bi^{3+}	6.04E-02	9.17E+03	2.39E+03
La^{3+}	0.237	2.39E+04	6.22E+03
Hg^{2+}	0	0	0
Zr (as $ZrO(OH)_2$)	0	0	0
Pb^{2+}	0	0	0
Ni^{2+}	1.34E-03	57.3	14.9
Sr^{2+}	1.57	9.97E+04	2.60E+04
Mn^{4+}	3.86E-03	154	40.1
Ca^{2+}	0.244	7.10E+03	1.85E+03
K^{+}	0.228	6.46E+03	1.68E+03
OH^{-}	4.92	6.07E+04	1.58E+04
$NO3^{-}$	1.33	5.98E+04	1.56E+04
$NO2^{-}$	0	0	0
$CO3^{2-}$	0.244	1.06E+04	2.77E+03
$PO4^{3-}$	9.65E-02	6.66E+03	1.73E+03
$SO4^{2-}$	1.34E-03	93.7	24.4
Si (as SiO_3^{2-})	0	0	0
F^{-}	2.03	2.81E+04	7.32E+03
Cl^{-}	2.49E-02	642	167
$C_6H_5O_7^{3-}$	0	0	0
$EDTA^{4-}$	0	0	0
$HEDTA^{3-}$	0	0	0
glycolate^{-}	0	0	0
acetate^{-}	0	0	0
oxalate^{2-}	0.643	4.11E+04	1.07E+04
DBP	0	0	0
butanol	0	0	0
NH_3	0	0	0
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		1.00E-02 (μCi/g)	4.35E-02 (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)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

Single-Shell Tank 241-B-203			
SMM Composite Inventory Estimate			
Physical Properties			
Total Supernatant Wa	3.79E+03 kg	(1.00 kgal)	
Heat Load	0 kW	(0 BTU/hr)	
Bulk Density*	1.00 (g/cc)		
Water wt%†	100.0		
TOC wt% C (wet)	1.49E-06		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	5.23E-04	12.0	4.56E-02
Al^{3+}	0	0	0
Fe^{3+} (total Fe)	3.50E-06	0.196	7.42E-04
Cr^{3+}	1.36E-05	0.706	2.68E-03
Bi^{3+}	4.83E-07	0.101	3.82E-04
La^{3+}	7.24E-07	0.101	3.81E-04
Hg^{2+}	0	0	0
Zr (as $ZrO(OH)_2$)	0	0	0
Pb^{2+}	0	0	0
Ni^{2+}	3.13E-06	0.184	6.97E-04
Sr^{2+}	2.41E-07	2.11E-02	8.02E-05
Mn^{4+}	5.59E-07	3.07E-02	1.16E-04
Ca^{2+}	1.58E-05	0.632	2.40E-03
K^{+}	3.40E-05	1.33	5.05E-03
OH^{-}	8.66E-05	1.47	5.59E-03
$NO3^{-}$	4.48E-04	27.8	0.105
$NO2^{-}$	3.92E-05	1.80	6.84E-03
$CO3^{2-}$	4.29E-06	0.258	9.77E-04
$PO4^{3-}$	5.70E-06	0.542	2.05E-03
$SO4^{2-}$	6.73E-06	0.647	2.45E-03
Si (as SiO_3^{2-})	0	0	0
F^{-}	2.90E-05	0.550	2.09E-03
Cl^{-}	8.79E-06	0.312	1.18E-03
$C_6H_5O_7^{3-}$	0	0	0
$EDTA^{4-}$	0	0	0
$HEDTA^{3-}$	0	0	0
$glycolate^{-}$	0	0	0
$acetate^{-}$	0	0	0
$oxalate^{2-}$	6.19E-07	5.45E-02	2.07E-04
DBP	0	0	0
butanol	0	0	0
NH_3	0	0	0
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu	1.54E-03 (μCi/L)		9.75E-08 (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-B-203			
Total Inventory Estimate*			
Physical Properties			
Total Waste	2.64E+05 kg	(51.0 kgal)	
Heat Load	0 kW	(0 BTU/hr)	
Bulk Density†	1.37 (g/cc)		
Water wt%†	56.4		
TOC wt% C (wet)†	1.10		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	4.43	7.44E+04	1.97E+04
Al^{3+}	0	0	0
Fe^{3+} (total Fe)	0.354	1.44E+04	3.81E+03
Cr^{3+}	3.37E-03	128	33.9
Bi^{3+}	5.92E-02	9.04E+03	2.39E+03
La^{3+}	0.232	2.36E+04	6.22E+03
Hg^{2+}	0	0	0
Zr (as $ZrO(OH)_2$)	0	0	0
Pb^{2+}	0	0	0
Ni^{2+}	1.32E-03	56.5	14.9
Sr^{2+}	1.54	9.83E+04	2.60E+04
Mn^{4+}	3.79E-03	152	40.1
Ca^{2+}	0.239	7.00E+03	1.85E+03
K^{+}	0.223	6.37E+03	1.68E+03
OH^{-}	4.82	5.99E+04	1.58E+04
$NO3^{-}$	1.30	5.90E+04	1.56E+04
$NO2^{-}$	7.71E-07	2.59E-02	6.84E-03
$CO3^{2-}$	0.239	1.05E+04	2.77E+03
$PO4^{3-}$	9.46E-02	6.56E+03	1.73E+03
$SO4^{2-}$	1.32E-03	92.4	24.4
Si (as SiO_3^{2-})	0	0	0
F^{-}	1.99	2.77E+04	7.32E+03
Cl^{-}	2.44E-02	632	167
$C_6H_5O_7^{3-}$	0	0	0
$EDTA^{4-}$	0	0	0
$HEDTA^{3-}$	0	0	0
glycolate^{-}	0	0	0
acetate^{-}	0	0	0
oxalate^{2-}	0.630	4.05E+04	1.07E+04
DBP	0	0	0
butanol	0	0	0
NH_3	0	0	0
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		9.88E-03 (μCi/g)	4.35E-02 (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)

*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-B-204			
TLM Solids Composite Inventory Estimate*			
Physical Properties			
Total Solid Waste	2.55E+05 kg	(49.0 kgal)	
Heat Load	0 kW	(0 BTU/hr)	
Bulk Density	1.38 (g/cc)		
Void Fraction	0.834		
Water wt%	55.5		
TOC wt% C (wet)	1.12		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	4.52	7.55E+04	1.93E+04
Al^{3+}	0	0	0
Fe^{3+} (total Fe)	0.361	1.46E+04	3.74E+03
Cr^{3+}	3.44E-03	130	33.2
Bi^{3+}	6.04E-02	9.17E+03	2.34E+03
La^{3+}	0.237	2.39E+04	6.10E+03
Hg^{2+}	0	0	0
Zr (as $ZrO(OH)_2$)	0	0	0
Pb^{2+}	0	0	0
Ni^{2+}	1.34E-03	57.3	14.6
Sr^{2+}	1.57	9.97E+04	2.54E+04
Mn^{4+}	3.86E-03	154	39.3
Ca^{2+}	0.244	7.10E+03	1.81E+03
K^{+}	0.228	6.46E+03	1.65E+03
OH^{-}	4.92	6.07E+04	1.55E+04
$NO3^{-}$	1.33	5.98E+04	1.53E+04
$NO2^{-}$	0	0	0
$CO3^{2-}$	0.244	1.06E+04	2.71E+03
$PO4^{3-}$	9.65E-02	6.66E+03	1.70E+03
$SO4^{2-}$	1.34E-03	93.7	23.9
Si (as SiO_3^{2-})	0	0	0
F^{-}	2.03	2.81E+04	7.17E+03
Cl^{-}	2.49E-02	642	164
$C_6H_5O_7^{3-}$	0	0	0
$EDTA^{4-}$	0	0	0
$HEDTA^{3-}$	0	0	0
glycolate^{-}	0	0	0
acetate^{-}	0	0	0
oxalate^{2-}	0.643	4.11E+04	1.05E+04
DBP	0	0	0
butanol	0	0	0
NH_3	0	0	0
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		1.00E-02 (μCi/g)	4.27E-02 (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)

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

Single-Shell Tank 241-B-204			
SMM Composite Inventory Estimate			
Physical Properties			
Total Supernatant Wa	3.82E+03 kg	(1.00 kgal)	
Heat Load	0 kW	(0 BTU/hr)	
Bulk Density*	1.01 (g/cc)		
Water wt%†	98.1		
TOC wt% C (wet)	3.11E-04		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	0.209	4.78E+03	18.3
Al^{3+}	0	0	0
Fe^{3+} (total Fe)	1.75E-03	97.1	0.371
Cr^{3+}	6.92E-03	357	1.37
Bi^{3+}	1.02E-04	21.1	8.06E-02
La^{3+}	1.52E-04	21.0	8.04E-02
Hg^{2+}	0	0	0
Zr (as $ZrO(OH)_2$)	0	0	0
Pb^{2+}	0	0	0
Ni^{2+}	1.57E-03	91.6	0.350
Sr^{2+}	5.08E-05	4.42	1.69E-02
Mn^{4+}	1.18E-04	6.42	2.45E-02
Ca^{2+}	7.88E-03	314	1.20
K^{+}	7.52E-03	292	1.12
OH^{-}	4.45E-02	750	2.87
$NO3^{-}$	0.174	1.07E+04	41.0
$NO2^{-}$	2.05E-02	934	3.57
$CO3^{2-}$	1.90E-03	113	0.433
$PO4^{3-}$	1.20E-03	113	0.433
$SO4^{2-}$	3.45E-03	329	1.26
Si (as SiO_3^{2-})	0	0	0
F^{-}	6.10E-03	115	0.440
Cl^{-}	3.46E-03	122	0.466
$C_6H_5O_7^{3-}$	0	0	0
$EDTA^{4-}$	0	0	0
$HEDTA^{3-}$	0	0	0
glycolate^{-}	0	0	0
acetate^{-}	0	0	0
oxalate^{2-}	1.30E-04	11.4	4.36E-02
DBP	0	0	0
butanol	0	0	0
NH_3	0	0	0
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu	0.325 (μCi/L)		2.06E-05 (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-B-204			
Total Inventory Estimate*			
Physical Properties			
Total Waste	2.59E+05 kg	(50.0 kgal)	
Heat Load	0 kW	(0 BTU/hr)	
Bulk Density†	1.37 (g/cc)		
Water wt%†	56.4		
TOC wt% C (wet)†	1.10		
Chemical Constituents	**mole/L**	**ppm**	**kg**
Na^{+}	4.43	7.45E+04	1.93E+04
Al^{3+}	0	0	0
Fe^{3+} (total Fe)	0.354	1.44E+04	3.74E+03
Cr^{3+}	3.51E-03	133	34.6
Bi^{3+}	5.92E-02	9.04E+03	2.34E+03
La^{3+}	0.232	2.35E+04	6.10E+03
Hg^{2+}	0	0	0
Zr (as $ZrO(OH)_2$)	0	0	0
Pb^{2+}	0	0	0
Ni^{2+}	1.35E-03	57.8	15.0
Sr^{2+}	1.53	9.82E+04	2.54E+04
Mn^{4+}	3.79E-03	152	39.4
Ca^{2+}	0.239	7.00E+03	1.81E+03
K^{+}	0.223	6.37E+03	1.65E+03
OH^{-}	4.82	5.99E+04	1.55E+04
$NO3^{-}$	1.30	5.91E+04	1.53E+04
$NO2^{-}$	4.10E-04	13.8	3.57
$CO3^{2-}$	0.239	1.05E+04	2.71E+03
$PO4^{3-}$	9.46E-02	6.56E+03	1.70E+03
$SO4^{2-}$	1.39E-03	97.2	25.2
Si (as SiO_3^{2-})	0	0	0
F^{-}	1.99	2.77E+04	7.17E+03
Cl^{-}	2.45E-02	634	164
$C_6H_5O_7^{3-}$	0	0	0
$EDTA^{4-}$	0	0	0
$HEDTA^{3-}$	0	0	0
glycolate^{-}	0	0	0
acetate^{-}	0	0	0
oxalate^{2-}	0.630	4.05E+04	1.05E+04
DBP	0	0	0
butanol	0	0	0
NH_3	0	0	0
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu		9.88E-03 (μCi/g)	4.27E-02 (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)

*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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