U.S. Department of Energy
Office of River Protection
P.O. Box 450
Richland, Washington 99352

0060347

SEP 17 2003

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Mr. Michael A. Wilson, Program Manager
Nuclear Waste Program
State of Washington
Department of Ecology
1315 W. 4th Avenue
Kennewick, Washington 99336

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Dear Mr. Wilson:

SUBMITTAL OF MILESTONE M-23-26 SCHEDULE FOR PERFORMING LIQUID LEVEL ASSESSMENTS FOR 241-AX-151-CT, 241-BY-ITS2 TANK 2, 241-AX-IX, AND 241-BY-ITS1 FOR THE STATE OF WASHINGTON DEPARMENT OF ECOLOGY (ECOLOGY) APPROVAL

This letter transmits the schedule (Enclosure) for performing liquid level assessments for Tanks 241-AX-151-CT, 241-BY-ITS2 TANK 2, 241-AX-IX, and 241-BY-ITS1 required to complete the Hanford Federal Facility Agreement and Consent Order Milestone M-23-26. This schedule is submitted as a primary document for Ecology approval. This milestone establishes the completion schedule for liquid level assessments for the identified inactive waste sites.

If you have any questions, please contact me, or your staff may contact Deborah Williams, Tank Farms Operations Division, (509) 376-8488.

Sincerely,

Roy J. Schepens
Manager

TOD:DJW

Enclosure:
Inactive Waste Site Liquid Level and
Video Assessment Plan for HFFACO
Milestone M-23-26

cc: See page 2

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Enclosure

Inactive Waste Site Liquid Level and Video Assessment Plan for Hanford Federal Facility Agreement and Consent Order Milestone M-23-26

Document Addresses:
241-AX-IX, 241-AX-151-CT, 241-BY-ITS1, and 241-BY-ITS2-Tank2

September 16, 2003

1.0 Introduction

The Hanford Federal Facility Agreement and Consent Order (HFFACO) Milestone M-23-26 established on June 30, 2003, requires the generation of schedules and completion dates for the liquid level assessment and video inspection of specified tanks and vessels. HFFACO Milestone M-23-26 requires:

"Submittal to State of Washington Department of Ecology (Ecology), as a primary document, a schedule for performing liquid level assessments for Tanks 241-AX-151-CT, 241-BY-ITS2 Tank 2, 241-AX-IX, 241-BY-ITS1. Assessments will include liquid level measurements using a manual tape or more accurate method, volume estimates, and a video inspection of the tanks and surrounding vaults sufficient to determine if the waste is being stored in manner that is protective of human health and the environment. The schedule shall establish dates for each assessment and will establish a completion date of all assessments of no later than December 31, 2006."

The milestone date for the submittal of this schedule is September 30, 2003.

Leak detection and monitoring actions in these tanks will be in accordance with the HFFACO Milestone M-23-23 Single-Shell Tank (SST) System Leak Detection and Monitoring Functions and Requirements document (RPP-9937, Revision B), based on the results of the assessment.

2.0 Purpose

This assessment plan, including the assessment schedule, provides the description of the specific tasks to be performed for each of the listed tanks and facilities. A general description of the assessment methodology for each tank will be provided as well as the assumptions for each of the tanks and facilities.

3.0 Task Description

The tanks and facilities addressed in this assessment are inactive and have been previously removed from service in the 1970s and 1980s. The majority of the systems has been isolated from the operating facilities but documentation on the presence of equipment or position of valves is not available. Time has been allotted in the schedule to perform some initial fieldwork in assessing the equipment presence and configuration. It is assumed that no new permits will be required and that pit entries will be performed under the existing As Low As Reasonably Achievable Control Technology and the Facility Entry Notice of Construction for the ion exchanger enclosures. The anticipated method to be used in assessing the liquid content of these tanks and facilities is summarized and the anticipated deliverable for each of the tanks and facilities is defined. These deliverables are based on the projected configuration of the facility.

3.1 241-AX-IX

The 241-AX-IX ion exchange column is located northeast of the condensate holdup tank 241-A-417 between 241-A and 241-AX tank farms at the Hanford Site 200 East Area. The ion exchange system was built to remove cesium from the 702-A aging waste ventilation system

condensate collected in 241-A-417. The facility was constructed in 1967 - 1969 and operated routinely from 1973 - 1976. The amount of liquid present in the column is unknown.

The 241-AX-IX ion exchange column is constructed above ground. The ion exchange column is 24 inches in diameter and 11 feet 6 inches high with a capacity of 260 gallons. The column is shielded inside 18 inches of concrete with a 5 foot inside diameter. The column and shielding sit atop a 6 foot 8 inch square by 8 foot 2 inch tall concrete structure on grade. Figure 1 is a graphical representation of the 241-AX-IX ion exchange column.

3.1.1 Liquid Level Assessment

The liquid level assessment will measure the liquid level in the 241-AX-IX ion exchange column. Although the selected method and location for the liquid level measurement will depend on final field walkdowns, it is anticipated that liquid levels will be measured through the use of a differential pressure instrument connected at the sample line off the treated condensate discharge line, in reference to atmospheric pressure.

3.1.2 Video Assessment

The video inspection of the ion exchange column will be performed in two phases. A still or video camera will be used to photograph or record the exterior of the column from above through the grating over the column, and from below via access inside the concrete structure supporting the column. Since it is not known if the ion exchange medium is still in the tank, a probe will be lowered through the 3-inch ball valve on the top of the vessel to determine if the medium is present. If it is determined that the medium has been emptied from the tank, a video camera will be lowered through the ball valve to confirm the tank has been emptied.

3.1.3 Deliverables

Due to the location of the taps in the exchange column, any liquid in the column should be measurable. A level and volume estimate of the remaining liquid in the ion exchange column will be prepared. Video of the ion exchange column will be done external to the vessel. If the ion exchange medium has been removed from the column, video will also be performed internal to the vessel.

3.1.4 Schedule

See Section 4.0

3.2 241-AX-151-CT

The 241-AX-151 Diverter station is located southwest of the 241-A tank farm in the Hanford Site 200 East Area. The Diverter Station was used to allow waste streams coming into the diverter station to be routed to various waste receiving tanks in the tank farms. Waste was piped into one of the four small diverter tanks located in individual cells and routed, through the use of an adjustable spout on the bottom of the diverter tank, to a tank farm tank. Each of these four

diverter cells and a pump pit have floor drains, which lead to the common 241-AX-151-Catch Tank (CT) located directly below the diverter cells and pump pit. Operation of the facility began in 1965 with the last documented transfer in 1977.

The combined 241-AX-151 diverter station and CT structure is 44 feet long and 10 feet wide. The structure is 25 feet deep and located below grade. All above grade structures of the facility have been removed with the top of the structure, extending about 6 inches above grade, having previously been sealed with foam. The CT itself is a stainless steel lined concrete vault 38 feet 4 inches long and 7 feet wide, with a depth of 6 feet 3 inches. It has a sloped floor with a sump located on the west end. Figure 2 is a graphical representation of the 241-AX-151 diverter station including the CT. The capacity of the CT is approximately 12,200 gallons. Operational history indicates that most recent liquid removal from the CT utilizes the jet system rather than the pump, which extended down into the sump. Although it is anticipated that there is some liquid in the CT, the quantity is unknown.

3.2.1 Liquid Level Assessment

Liquid level will be measured in the 241-AX-151-CT. Although access to the CT through the 24-inch opening in the pump pit may be evaluated for access by verifying whether a pump is installed, the liquid level reading is anticipated to be taken through the 1-inch liquid level access hole. Liquid levels representing a volume in excess of 50 gallons will be measured.

3.2.2 Video Assessment

Again dependent on whether a pump is in place in the 24-inch pump opening in the pump pit, the video will be taken through one of the inspection tubes in the cover blocks and through the 24-inch opening or through one of the drain lines in one of the four diverter cells. These access paths will be prioritized relative to proximity to the sump and remaining equipment configuration in the diverter station.

3.2.3 Deliverables

A liquid level and volume estimate of remaining liquid in the CT will be prepared. Liquid volume in excess of 50 gallons will be measurable. An internal video assessment of the CT will be performed to confirm that the waste is being stored in a manner that is protective of human health and the environment.

3.2.4 Schedule

See Section 4.0

3.3 241-BY-ITS-1

The in-tank solidification system number 1 (241-BY-ITS1) is located within the BY-Tank Farm of the Hanford Site 200 East area. This facility was used to concentrate the tank waste by evaporating the contents of Tank 241-BY-102. This was achieved by circulating

heated air through the waste and condensing the off gas. The facility was constructed in the late 1950s and operated through the mid 1970s. Although portions of the equipment and ducting have been removed, the bulk of the off-gas equipment remains. The facility is constructed primarily above ground with some underground components. The quantity of liquid in the component tanks is unknown.

This effort will assess the liquid levels in three of the vessels in the facility. These include the ion exchange column, the ion exchange feed tank (Tank 2) and the scrub solution circulation tank. The ion exchange column is 18 inches in diameter and 9 feet high with a volume of approximately 120 gallons. It is shielded inside a 5-foot diameter, 10-foot high reinforced concrete pipe and sits atop a 6-foot 6-inch square, 6-foot 8-inch tall concrete structure. Tank 2 is 5 feet in diameter and 4 feet 6 inches tall with a capacity of 600 gallons. The scrub solution circulation tank, also with a capacity of 600 gallons, is located below grade in a 10-foot by 7-foot 6-inch pit, 5 feet 10 inches deep. The oblong tank is 39 inches in diameter, 7 feet in overall length, and 4 feet tall. Figure 3 is a graphical representation of 241-BY-ITS1.

3.3.1 Liquid Level Assessment

Liquid level assessment will be performed on three of the vessels of 241-BY-ITS1. On the ion exchange column, it is anticipated that liquid levels will be measured using a differential pressure instrument connected at the sample line off the treated condensate discharge line, in reference to atmospheric pressure. For Tank 2, and the scrub solution circulation tank, liquid levels will be accessed through a flanged connection on the top of the tank.

3.3.2 Video Assessment

The video inspection of the ion exchange column will be performed in two phases. Still photos or video tape will be taken of the top of the exterior of the column through the access cover on the top of the concrete shielding, and photos of the exterior bottom of the tank through the access door on the concrete structure supporting the column. Since it is not known if the ion exchange medium is still in the tank, a probe will be lowered through the ball valve on the top of the vessel to determine if the medium is present. If the medium has been emptied from the tank, a video will be lowered through the ball valve to confirm the tank has been emptied. The video assessment of the scrub solution circulation tank will be performed externally with the pit cover removed. The video for tank 2 will also be performed externally.

3.3.3 Deliverables

As a flat bottom tank, any liquid remaining in the scrub solution circulation tank should be measurable. Due to the location of the taps in the ion exchange column, any liquid in the column should also be measurable. Tank 2 levels and corresponding volumes will be assessed in excess of 11 gallons. External photos or video will be provided for the ion exchange column, the ion exchange feed tank, and the scrub solution circulation tank. Interior video of the ion exchange column will be dependent on the presence of the exchange media.

3.3.4 Schedule

See Section 4.0

3.4 241-BY-ITS2 Tank 2

Tank 241-BY-ITS2, Tank 2 is located between Tanks 241-BY-111 and 241-BY-112 within the BY-Tank Farm of the Hanford Site 200 East Area. This tank was used to decontaminate in-tank heaters used in 241-BY-112 as part of the in-tank solidification number 2 system. The purpose of the in-tank solidification system was to concentrate the waste in underground storage tanks by installing in-tank heaters to produce saturated off-gas from the tank. 241-BY-ITS2, Tank 2 was constructed in the late 1950s and operated through the mid 1970s. The piping configuration in the pit above the tank, which provides the access openings to the tank, has been partially dismantled and is not known. The presence or quantity of liquid in the tank is unknown.

241-BY-ITS2 Tank 2 is constructed underground. Access is through an 8-foot square concrete pit 42 inches deep. The top of the 40-inch diameter tank is open to the pit with removable cover plates. The vertical tank is 42 feet long and housed in a 48-inch diameter caisson extending 43 feet below the pit. Figure 4 is a graphical representation of 241-BY-ITS2 Tank 2. The tank has a capacity of 2,700 gallons.

3.4.1 Liquid Level Assessment

A liquid level measurement will be performed in both 241-BY-ITS2 Tank 2 and the caisson surrounding the tank. It is anticipated that either the existing dip tubes that were a part of the operating system or a conductivity probe will be used to assess liquid levels. Because the dip tubes are not in contact with the bottom of the tank or caisson, levels will only be measured in the tank at a volume greater than 35 gallons and above 36 gallons in the caisson.

3.4.2 Video Assessment

Video assessment will be internal to the tank to determine whether the tank is storing waste, if present, in a manner that is protective of human health and the environment. The video will also be used to assess the presence of liquid in the tank if the level is below the level of the dip tube. No video inspection will be made external to the tank due to the limitations of access.

3.4.3 Deliverables

The liquid levels and volumes will be assessed within 241-BY-ITS2 Tank 2 and the surrounding caisson. Due to the limitations of access to the tanks and the existing configuration of the facility, any volume greater than 36 gallons in the caisson and 35 gallons in the tank will be measured. Video will be provided from inside the tank to assess the general condition of the tank and presence of any liquid within the tank.

3.4.4 Schedule

See Section 4.0

4.0 Schedule

The schedule for performing the liquid level and video assessments has been developed for each of the facilities. The order in which these four facilities are addressed may be impacted by other work being performed in the tank farm or facility location. Order of the sites may be changed with notification of the U.S. Department of Energy, Office of River Protection and the State of Washington Department of Ecology, maintaining the listed completion dates. The assessment schedules are as follows:

Initiate Work on 241-AX-151-CT:	October 3, 2005
Completion of the Liquid Level/Video Assessment at the first location:	April 6, 2006
Initiate Work on 241-AX-IX:	January 2, 2006
Completion of the Liquid Level/Video Assessment at the second location:	May 30, 2006
Initiate Work on 241-BY-ITS1:	March 27, 2006
Completion of the Liquid Level/Video Assessment at the third location:	August 30, 2006
Initiate Work on 241-BY-ITS2 Tank 2:	May 10, 2006
Completion of the Liquid Level/Video Assessment at the fourth location:	September 22, 2006
Overall completion of the Assessment:	December 31, 2006

Figure 1. Graphical Representation of 241-AX-IX

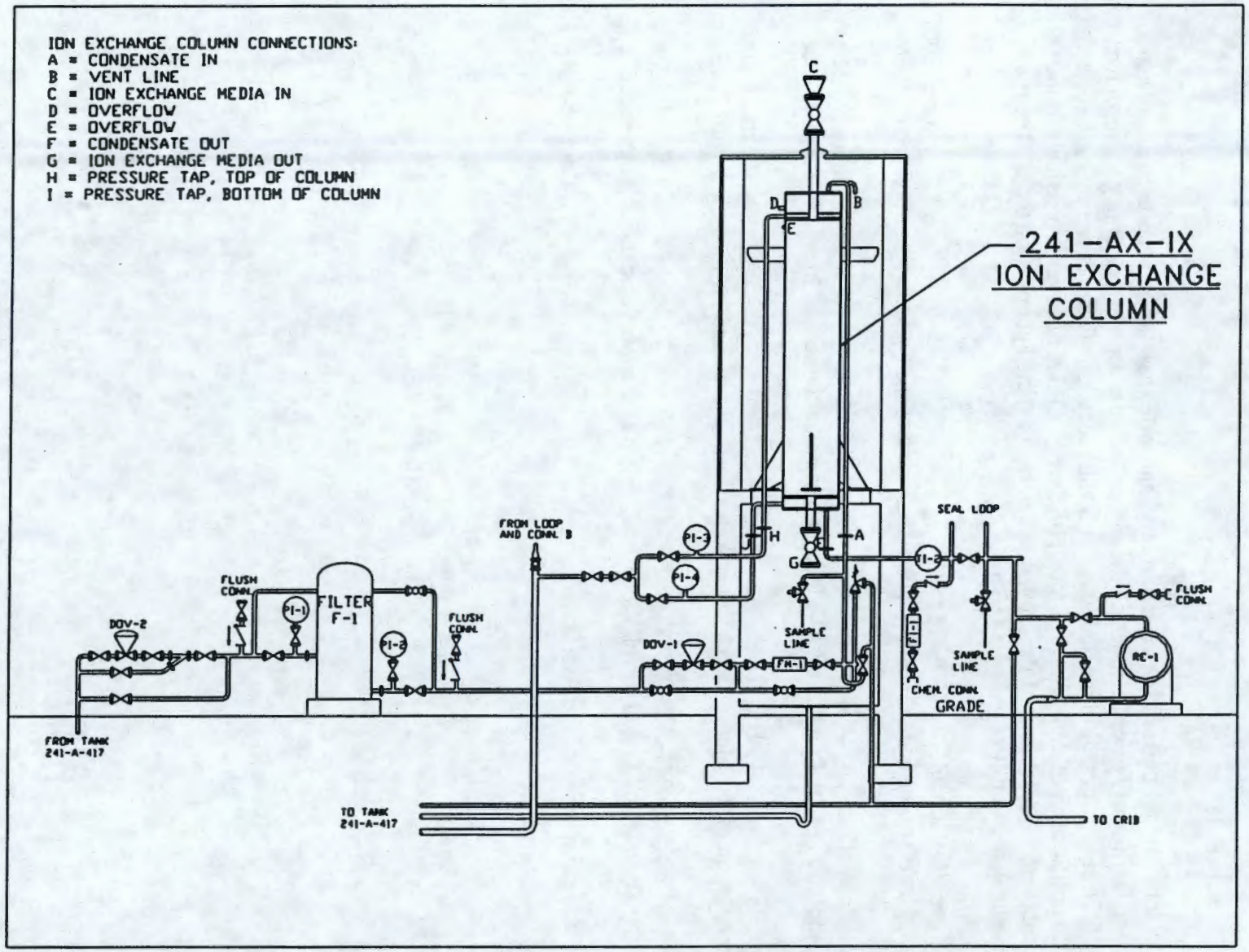

Figure 2. Graphical Representation of 241-AX-151 Diverter Station

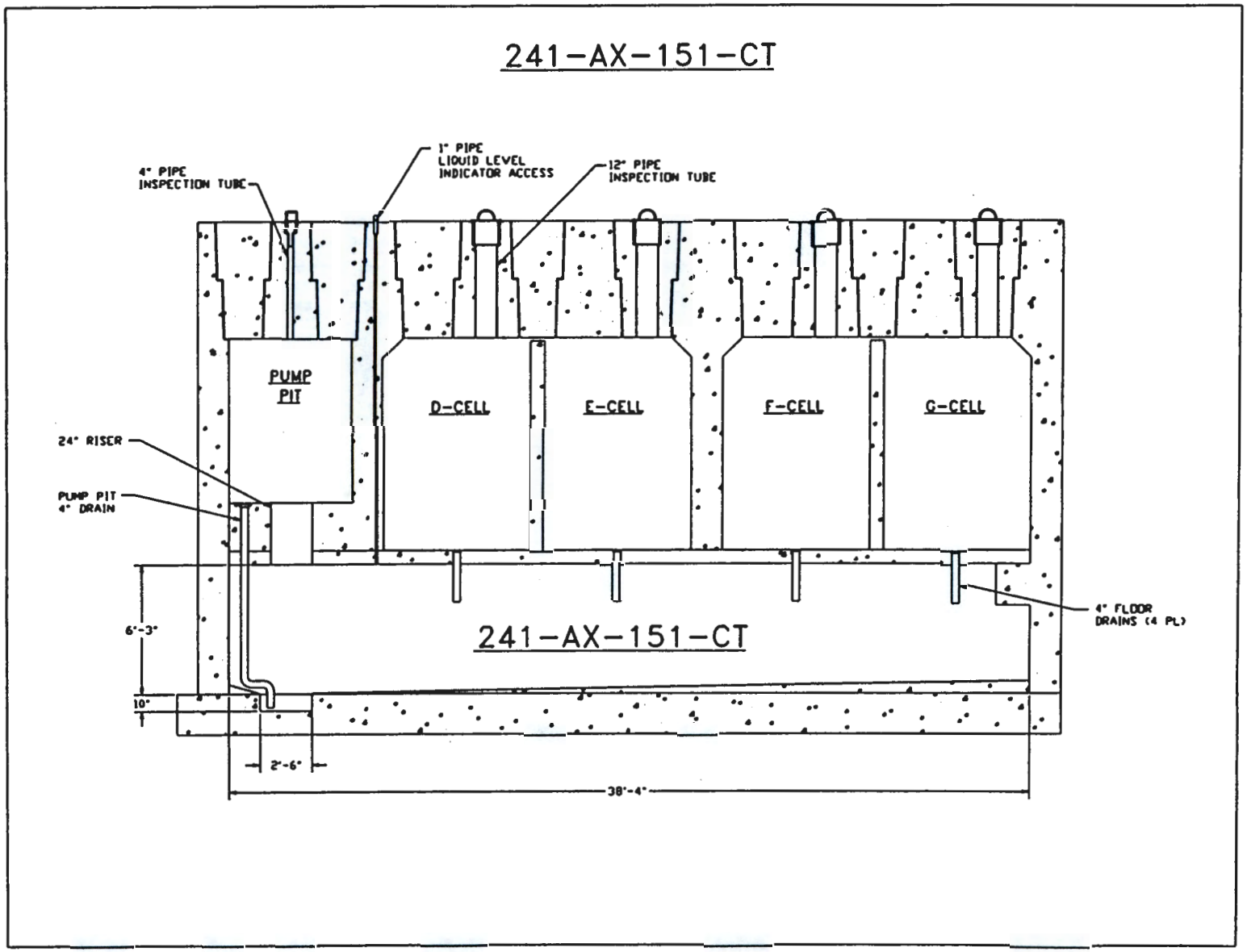

Figure 3. Graphical Representation of 241-BY-ITS1

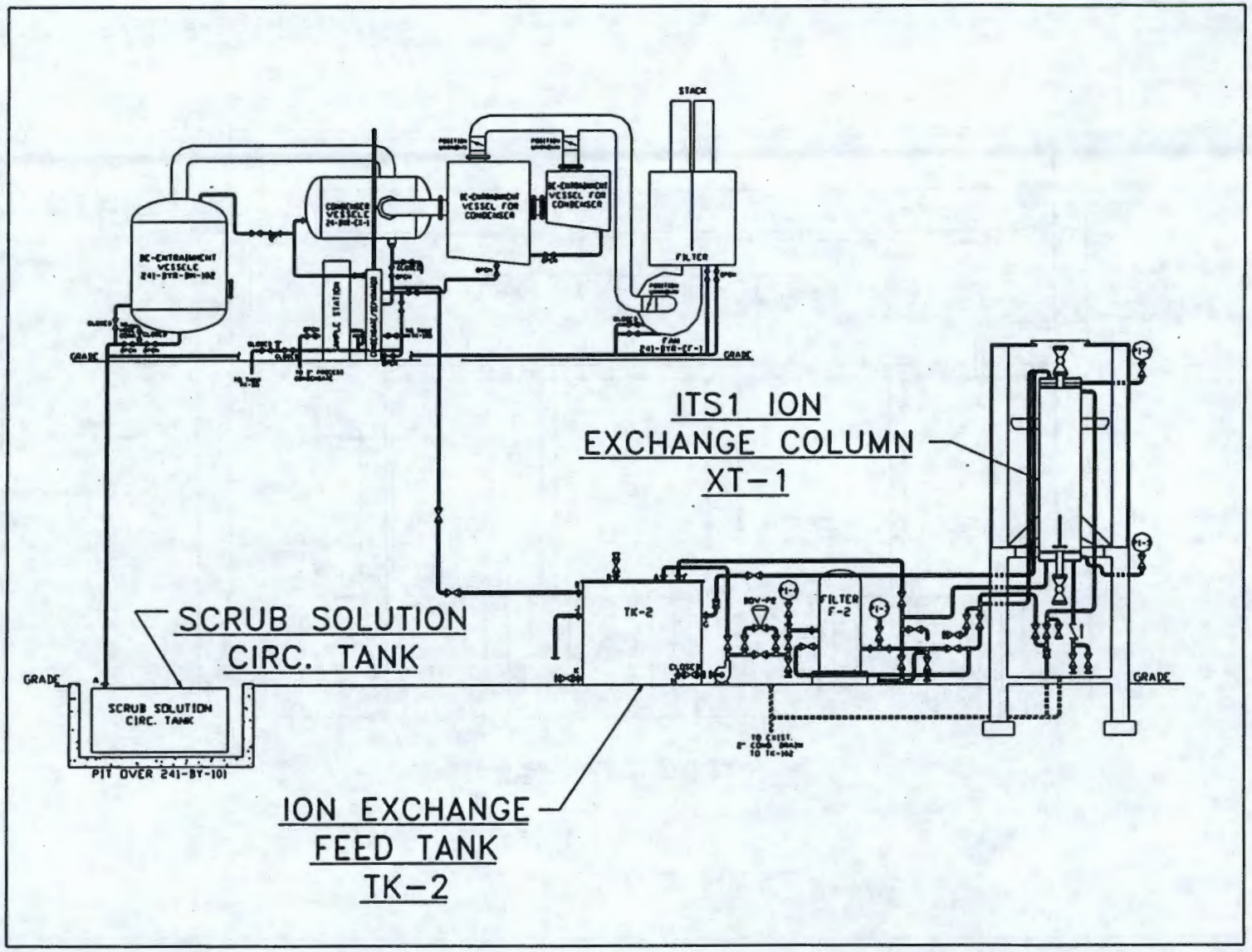
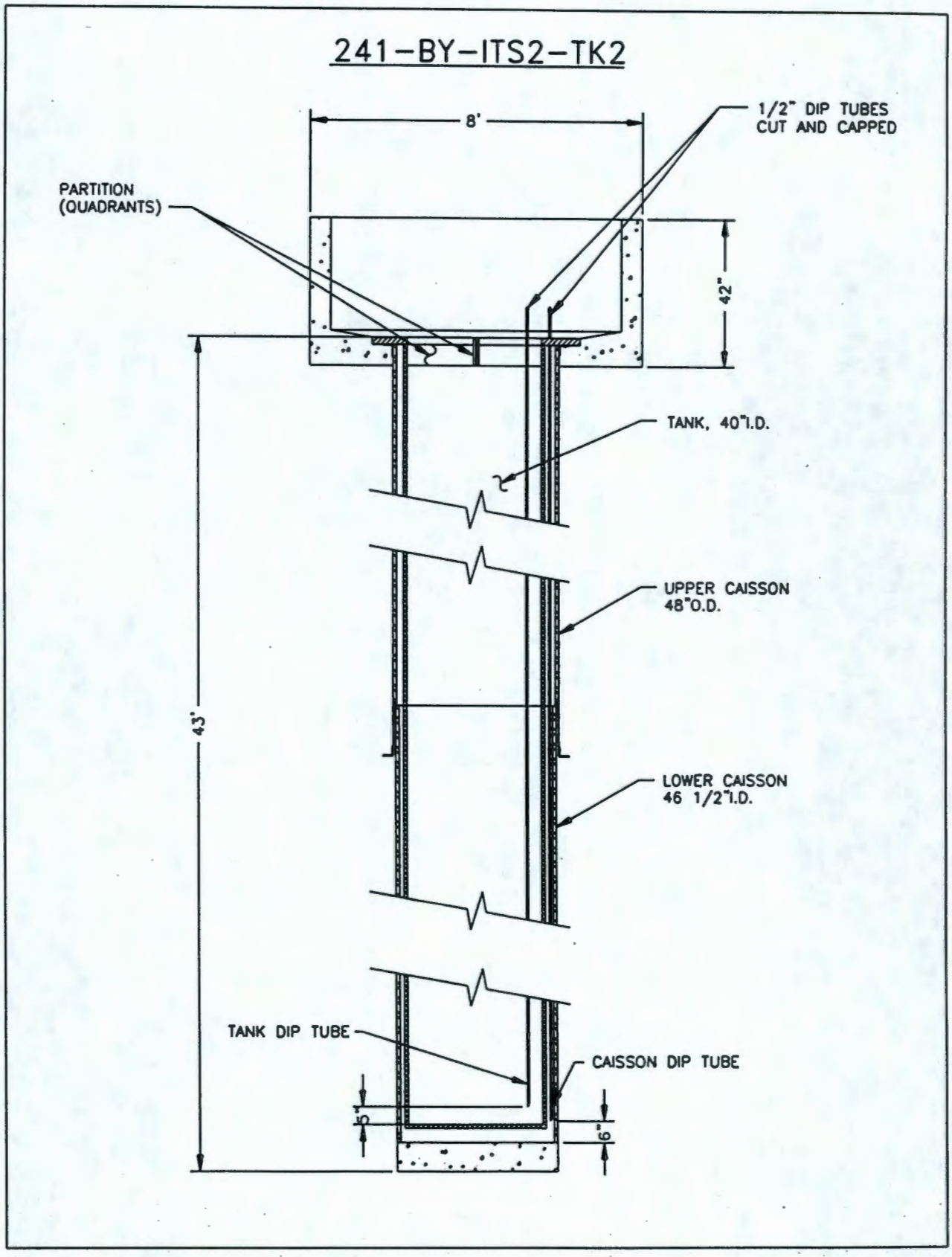
Figure 4. Graphical Representation of 241-BY-ITS2 Tank 2