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0047038

Meeting Minutes
Interim Status Dangerous Waste Tank Systems
Hanford Federal Facility Agreement and Consent Order
Milestone M-32-00

PROJECT MANAGERS MEETING
June 14, 1996

The undersigned indicate by their signatures that these meeting minutes reflect the actual occurrences of the above dated Project Mangers Meeting (PMM).

(Not present) E. M. Greager Date: 2/24/97
E. M. Greager, Contractor Representative, Westinghouse Hanford Company

Date: 3-5-97
D. E. Jackson, Project Manager, Department of Energy, Richland Operations Office

R. W. Wilson Date: 02/19/97
R. W. Wilson, Unit Manager, Washington State Department of Ecology

Purpose: Discuss current Double-Shell Tank Farm issues related to Milestone M-32-00.

Meeting minutes are attached. The minutes are comprised of the following:

Attachment 1 - Summary of Discussion, Agreements and Actions
Attachment 2 - Attendance List
Attachment 3 - Revised Plan for the Integrity Assessment of the Double-Shell Tank System

MILESTONE M-32-00
PROJECT MANAGERS MEETING
June 14, 1996

Summary of Discussion, Agreements and Actions

This Project Managers Meeting (PMM) continues discussions with Ecology for a path forward on the Double-Shell Tank (DST) assessment strategy. Mr. Kamal Bandyopadhyay of the Tank Structural Integrity Panel (TSIP) participated in this meeting by phone.

Mr. Keith Scott of the Westinghouse Hanford Company (WHC) began the meeting by inquiring about certain TSIP members' availability to meet in person at the end of June. Mr. Bandyopadhyay informed the meeting participants that only Mr. Spencer Bush (TSIP) and himself would be available. He mentioned that Mr. Bruce Thompson (TSIP) would not be available until the end of July, but that Mr. Paul Shoeman (TSIP) could substitute if needed. Mr. Bandyopadhyay explained that Mr. Shoeman's expertise in metals would make him a good candidate for the review of tank visual examination videos. However, he did acknowledge that Mr. Thompson would be a better choice for a review of the entire assessment's activities. Mr. Scott proposed giving Mr. Thompson a copy of the assessment plan for his review before the next M32/TWRS PMM ("end of June" meeting) with the intent of having Mr. Thompson comments at that meeting. Mr. Scott agreed to send an electronic copy of the "Revised Plan for the Integrity Assessment of the Double-Shell Tank System" to Mr. Bandyopadhyay and Ecology for review prior to the end of the June meeting.

Ms. Laura Cusack of the Washington State Department of Ecology (Ecology) mentioned that she wanted the TSIP's review of the acceptance criteria and results incorporated into the schedule that is due to Ecology by June 28th. Mr. Bandyopadhyay replied by stating that last year's TSIP guidance document remains unchanged except for incorporation of the Pressure Vessel and Research Council's comments. As the basic material remains the same, there is no further need for TSIP development of this portion of the acceptance criteria. Mr. Bandyopadhyay acknowledged that this guidance applied to a unique system and that the guidance was presented with the understanding that it may be revised as data is collected from the tank assessments. He pointed out that Mr. Scott would have to develop site specific inspection criteria to add to the general guidelines of the TSIP document. The TSIP document gives limits that recommend expanded actions to be developed by individual sites. Ms. Cusack asserted that this was the reason why Ecology wanted the TSIP to review the data. Mr. Bandyopadhyay said that WHC has the capability to handle this activity but that the TSIP is willing to assist if needed. He also pointed out that the TSIP was currently not funded to review data from the tank assessments.

Ms. Alisa Huckaby (Ecology) asked if the TSIP's guidance document provided direction for situations where test results indicated that something more had to be done. Ms. Huckaby asked for previous meeting minutes where the TSIP decided what types of guidance would be developed, specifically, the decision to develop guidance versus code. She also asked if the TSIP could give Ecology a judgement of their confidence in the modified DST inspection plans. Mr. Bandyopadhyay stated that the TSIP's document provided guidance on how to develop criteria specific to a site without further assistance from the TSIP. This was done because site specific input would be needed. Ms. Cusack expressed Ecology's concern that the TSIP document's guidance was new and basically untested. Ms. Huckaby asked for a copy of the TSIP's meeting minutes where the TSIP decided what type of guidance would be given. Mr. Scott agreed to make his partial copy of TSIP meeting minutes/letters accessible to Ecology for them to copy. If other meeting minutes are required by Ecology, Mr. Bandyopadhyay will locate them and provide them to Ecology.

The meeting then continued with a discussion on the role of the independent qualified registered professional engineer (IQRPE). Ms. Cusack stated that the IQRPE was really taking on the tank assessment liability; that his reputation was on the line. Mr. Scott agreed that the IQRPE's job was to certify the results. Mr. Ramsay of the U.S. Department of Energy, Richland Operations Office (RL) outlined the ultrasonic test (UT) results review cycle. He stated that an expert panel (WHC personnel not TSIP members) would be evaluating UT inspection results that would be brought to their attention by the UT equipment operator (supplied by the UT equipment vendor) and that the IQRPE would review everything (panel credentials, methods used, test results, etc.). Mr. Scott said Ecology could attend the meetings of this expert panel. Ms. Cusack asked if each stage of the review cycle would "get a signature" and if a report would be produced by the UT equipment's operator that showed such things as the operator's opinion of the accuracy of the measurements, adequacy of the test method used, and of the test results. Mr. Ramsay responded that it would depend on the contract and on Mr. Scott's needs. Ms. Huckaby suggested asking the TSIP to evaluate the UT equipment operator's report. Ms. Cusack explained that Ecology is pushing to perform UT inspections on all 28 DSTs so that examining any less required that they be able to defend their position.

At this time, Mr. Ramsay suggested shelving discussions on the UT inspection's scope until the next M32/TWRS PMM and asked Mr. Bandyopadhyay to review a statement of work for the TSIP's involvement during that meeting. After agreeing to the review, Mr. Bandyopadhyay hung up and the discussion went on without him.

The discussion turned to the DST UT inspection strategy that would be used. Ms. Cusack mentioned Ecology's concern that the modified DST UT inspection plans did not follow the TSIP guidance document; the document suggested using a horizontal pass during the UT inspection of the tank wall where as TWRS would be using a vertical pass. Mr. Scott acknowledged that the TWRS' plan would be different in some cases from the suggestions given in the guidance document. He pointed out that it did not necessarily mean that the TWRS' plan was "less" than one that followed the guidance document's suggestions; that was why the TSIP's evaluation on the modified plan was being sought. After more discussion, Mr. Ramsay asked if Ecology would be comfortable with what the TSIP "blesses." Ms. Cusack said no. She explained that getting the TSIP's evaluation of the modified plan was not enough, because that left WHC reviewing the UT inspection results. She wants the TSIP involved in the review of the results, so that the TSIP can then evaluate how good their guidance document's suggestions were.

Mr. Scott explained that the results would be evaluated such that: if no findings were found that exceeded a certain size, then the tank would be declared adequate; if findings over a certain size were found, then the expert panel would be used to determine whatever additional actions were required. The expert panel could review findings on a daily basis (unlike the TSIP) and then the testing could move forward. Later, someone else (perhaps a member of the TSIP) could review the findings at a slower pace. Ms. Cusack stated that Ecology wants to follow the expert panel's discussions as they resolve issues so that Ecology can know how things are decided. She suggested that Ecology be an observer on the panel. Mr. Ramsay agreed that Ecology could be an observer on the panel.

Mr. Ramsay suggested focusing on one DST assessment with the expert panel review cycle as described by Mr. Scott while meeting with the TSIP to review activities. This pilot assessment would allow a better understanding of the parameters of the assessment and involve the TSIP (allowing the TSIP to evaluate their guidance document). Mr. Ramsay went on to suggest that the TSIP be relied on for the DST UT inspection path-forward (if they agree) to the extend reasonable. Mr. Scott added that the pilot assessment would look at the tank wall first and then at the tank bottom; at wall thinning then at wall cracks. The assessment would be performed in a piece-meal fashion because different vendors would be used for different areas of the tank.

Mr. Robert Wilson (Ecology) reiterated the following details of the discussion and asked if RL was agreeing to them: use the modified DST UT plan with TSIP's involvement; perform one DST assessment with TSIP's involvement; and get TSIP involvement on the acceptance criteria. Mr. Scott clarified that WHC, RL and Ecology would mutually decide when the TSIP would be brought in during the pilot assessment. Mr. Ramsay agreed to the details listed by Mr. Wilson as clarified by Mr. Scott.

The June 28, 1996 schedule was discussed next. Ms. Huckaby stressed the need to meet the June 28th due date. Ms. Cusack suggested that the schedule reflect the pilot assessment and the completion of six tanks leaving sufficient time for Ecology review of tank assessment results prior to issuance of the DST final RCRA permit (09/99). She cautioned that if the assessments are not completed by that time the DST permit may not be issued. Mr. Ramsay stated that completion of the six assessments would require an aggressive schedule given transition/new contractors but agreed to performing the pilot assessment, "regrouping" after that assessment, and completing six tanks by 9/99. Mr. Ramsay asked if the integrity assessment program plan submitted to Ecology in June 1994 would need to be revised. Ms. Cusack said that there was no need for an officially updated plan, but that a recovery schedule for the DST integrity assessments was needed.

Actions/Agreements:

1. Mr. Scott agreed he will make his partial copy of TSIP meeting minutes/letters accessible to Ecology for them to copy. If other meeting minutes are required by Ecology, Mr. Bandyopadhyay will locate them and provide them to Ecology.

2. RL, WHC, and Ecology agreed to use the modified DST UT inspection plan with TSIP involvement; get TSIP's involvement on the acceptance criteria; perform one DST assessment with TSIP's involvement (as mutually decided by RL, WHC, and Ecology); "regroup" once the pilot assessment is complete, and complete the UT inspection of six tanks by 9/99.

3. Ecology will not require that the June 1994 DST Integrity Assessment Program Plan be revised.

4. Ecology agreed that the schedule submitted by DOE/WHC on June 28, 1996 would supersede the original schedule submitted in the June 1994 DST Integrity Assessment Program Plan.

Attachment 2

M-32-00 PROJECT MANAGER MEETING
June 14, 1996

Attendance List

NAME	ORGANIZATION
Kamal Bandyopadhyay	TSIP
Laura Cusack	Ecology
Alisa Huckaby	Ecology
Dale Jackson	DOE-EAP
Mark Ramsay	RL Programs
Keith Scott	WHC-TWRS
Ana Sherwood	WHC-ES
Jack Thurman	WHC-TWRS
Hal Wacek	RL-WSD
Bob Wilson	Ecology

Attachment 3

M-32-00 PROJECT MANAGER MEETING
June 14, 1996

Revised Plan for the Integrity Assessment of the Double-Shell Tank System

REVISED PLAN FOR THE INTEGRITY ASSESSMENT OF THE DOUBLE-SHELL TANK SYSTEM

1.0 INTRODUCTION

Integrity assessment of the double-shell tank (DST) waste system is required by law (WAC 173-303-640). The law requires a written integrity assessment report be certified by an independent, qualified, registered professional engineer and that the report be submitted with the final status operating permit request (Part B Permit). In addition to the legal requirements, integrity assessments provide information on the condition of the waste system components and the adequacy of their design to protect against failure. This information supports waste storage planning and corrosion control decision making.

The scope of integrity assessments divides conveniently into two physical parts, the double-shell tanks and the waste transfer facilities. The assessment of each of these parts is also conveniently divided into two parts, integrity examination and design evaluation. This is illustrated in the following table.

Content/Scope	Double-Shell Tanks	Transfer Facilities
Design Evaluation	X	X
Integrity Examination	X	X

Design Evaluation

The design evaluation is a study. The purpose is to determine if the design adequately ensures the components will be protected from damage by expected loads and material degradation. To achieve this purpose, the study reviews the past and expected future loads on the tank system and then judges if the design is adequate to protect the structure from these loads.

Judging design adequacy must include the expected future condition of the structural materials. The condition of the materials is estimated by the design evaluation which identifies the likely degradation mechanisms and determines if the materials are adequately protected. The design study relies on standard design practices which are usually effective but also, for a system that must perform in an environment of corrosive chemicals and at elevated temperatures for a period of time that may exceed 50 years, can have significant uncertainty.

To better determine the material condition and to guard against unexpected degradation mechanisms, the integrity assessment includes an integrity examination.

Integrity Examination

The purpose of the integrity examination is to reduce the uncertainty in the material conditions. The examination scope depends on the design and operating history of the component and the possible degradation mechanisms. The extent or degree of examination is determined by the environmental consequences of component failure. For instance, will the degradation lead to a leak or collapse, and does the component function as primary containment or secondary containment.

Integrity examinations typically consist of a leak test and a visual inspection to confirm the component is not only not leaking, but is not likely to leak in the near future. The examination also looks for structural weaknesses.

2.0 SCOPE

The complete integrity assessment will be a design evaluation and integrity examination of the DST waste system components listed below.

Double-Shell Tanks (28 tanks)
Double-Contained Receiver Tanks (5 tanks)
Catch Tanks (8 tanks)
242-A Evaporator
A-350 Lift Station
204AR Waste Unloading Facility
244CR Facility
Seal Pots (16)
Transfer Pits
Transfer Lines
All New Waste System Components

Two integrity assessment reports will be written and certified by the independent, qualified, registered professional engineer. One report will be written for the double-shell tanks and another for the waste transfer systems.

3.0 DOUBLE-SHELL TANK INTEGRITY ASSESSMENT

3.1 DESIGN EVALUATION

The double-shell tanks were designed and constructed between 1970 and 1986. The first tanks were put in service in 1971. None have leaked or shown any signs of structural weakness.

Sufficient studies of the double-shell tanks have been performed to assess the relevant degradation mechanisms (Ref.), to evaluate the structural design adequacy (Ref.), and to assess the existing corrosion protection (Ref.). New issues that may arise from the new safety analysis report to be issued this calendar year are expected to be limited to beyond design basis accident events. Results of the safety analysis effort will be incorporated as necessary.

3.2 INTEGRITY EXAMINATION

The environmental regulations require a leak test of non-enterable, underground waste storage tanks such as the double-shell tanks. However, a leak test does not determine the condition of the tank material.

To determine the condition of the tank material, some amount of the tanks must be examined. Unlike petrochemical and nuclear components, there is no national inspection code specifically for underground radioactive waste storage tanks. To establish a defensible technical position, a panel of experts prepared a guideline for development of structural integrity programs for DOE high-level waste storage tanks. The guideline is used to ensure that integrity programs across the DOE complex are technically adequate. Since the guideline was written to apply to all the DOE high-level waste sites, the guideline is not necessarily directly applicable to individual circumstances at any one site. The guideline acknowledges this limitation; "It is recognized that some of the elements in this document may not be applicable to certain tank farms. It is expected that site-specific structural integrity programs will be developed for the tank farms or even individual tanks by use and judicious selection of the guidelines presented in this document." The part of the TWRS structural integrity program that addresses double-shell tanks follows the guideline in all cases where it is relevant and practical.

The DST examination is a combination of visual and ultrasonic inspections. The initial scope of the examination has been established and agreed to by the Tank Structural Integrity Panel. A total of six tanks will be examined using ultrasonic methods to detect wall thinning, pits, and cracks. The selection of the six tanks that will represent all 28 tanks is based on the following factors (Schwenk): age, waste temperature, waste characteristics, and transients. The first tank to be examined is AW103 because of the high sludge level in this tank. The remaining tanks will be selected after the results from the first tank are evaluated. The results will be evaluated using acceptance criteria (Jensen) to screen out the insignificant findings and bring attention to the significant findings. The significant findings will be reviewed by a Hanford expert panel who will recommend any necessary actions to management.

Visual examinations of the tank interior surface will be conducted when the tank waste level is low, such as following an evaporator campaign. The evaporator plans (Koreski) show the waste level will be significantly reduced in about two tanks per year. The visual examinations will include different tanks and a larger area of inspection than the ultrasonic inspection. Results from the visual examination will provide less quantitative information but will detect areas that show degradation and that may merit ultrasonic inspection or further visual examination.

4.0 WASTE TRANSFER FACILITY INTEGRITY ASSESSMENT

The integrity assessment of the 242A evaporator and the 244U double-contained receiver tank are complete. By the end of FY1996, sufficient information will be available to complete the assessment of the transfer lines and pits. The remaining parts of the waste transfer facility will be assessed as described in the following.

4.1 DESIGN EVALUATION

The design evaluation will be conducted before the integrity examination because of the variety in age, failure history, and planned use among the waste transfer facility components. The design evaluation will guide the amount of examination that is necessary to technically and economically assess the components. Like the double-shell tanks, the design evaluation may show some components are sufficiently similar that examination of a representative number will be adequate to judge the integrity of the whole group.

4.2 INTEGRITY EXAMINATION

Integrity examination methods for waste transfer facilities are visual examination, leak test, and, where personnel access is possible, ultrasonic examination. One or more of these methods will be employed depending on the results of the design evaluation of the individual components.

5.0 INTEGRITY ASSESSMENT PROGRAM APPROVAL AND CERTIFICATION

Two important parts of the integrity assessment are the approval of the plans for the program and the certification of the results. Approval of the plans is important to ensure the extent of the assessment activities are sufficient to judge the integrity of the waste tank system. Certification of the results by an independent, qualified, registered professional engineer (IQRPE) is required by law. The IQRPE is the regulators technical agent.

The relationship of the interested parties in approving and certifying the program is complicated by the desire of all parties to perform a technically sound and economical assessment. Strictly following the regulations will not produce the desired result. The relationships are further complicated by the number of parties involved and the lack of agreement on their roles. A brief description of the parties involved and their role is provided in the following.

An independent, qualified, registered, professional engineer (IQRPE) must, by law (WAC 173-303), certify the integrity assessment of dangerous waste tank systems are adequate and correct before Ecology will issue the owner a final operating permit.

The tank structural integrity panel (TSIP) is a team of seasoned experts in structural integrity. They have drafted a guideline for assessing the integrity of DOE high level waste tanks. The guideline identifies the degradation mechanisms of concern and specifically suggests the type and extent of examinations needed to complete an integrity examination of double-shell tanks.

The Hanford UT expert panel is a yet to be formed group of three to four people with expertise in UT, failure/corrosion analysis, inspection codes, and operations. According to Jensen, "Acceptance Criteria for Non-Destructive Examination of Double-Shell Tanks", the expert panel will be joined when the Level III UT inspector finds indications that exceed the screening criteria. The expert panel will then recommend to TWRS Operations management a course of

action (more examinations, repair, remove from service, monitor, or no action).

The description of each of these entities is provided in the order of increasing technical and administrative detail. Each makes recommendations. The IQRPE must evaluate the results of the total waste tank system assessment whereas the others only evaluate the examination results for the DSTs.

By agreement with Ecology, the integrity examination of less than all 28 DSTs (six representative tanks is the number that the TSIP agreed is sufficient) is acceptable.

The relationship of these entities is as follows:

> The IQRPE accepts the integrity assessment plan, Ecology's waiver on examination of all 28 DSTs, and the role of the expert panel as intermediate evaluator of DST examination data. The IQRPE independently certifies as adequate and correct, all assessment activities, including the DST examination activities and actions. The IQRPE is the final judge of what constitutes adequate recommended actions, if any are necessary, to show the tank system is not leaking and will not collapse, rupture, or fail.
>
> The TSIP accepts the plans for integrity examination of the DSTs and provides other guidance as deemed necessary by DOE and Ecology.
>
> The Hanford expert panel provides recommended actions to TWRS Operations management as the data is collected. The panel convenes at any time the Level III UT inspector finds indications above the screening criteria.

6.0 PROGRAM SUMMARY

The integrity assessment program is divided into the assessment of the double-shell tanks and the assessment of the waste transfer facilities. Since the amount of resources to complete all the assessment activities is large, the assessment will be done in parts beginning with the integrity examination of the double-shell tanks. A selected number of the waste transfer facility design evaluations and integrity examinations will be conducted in parallel with the double-shell tank integrity examinations. The cumulative costs, starting in June 1996, for each assessment activity is shown in the following table. The schedule for completing each of the activities is based on early estimates of the funding available for the integrity assessment effort.

7.0 REFERENCES

Jensen, C. E., 1995, *Acceptance Criteria for Non-Destructive Examination of Double-Shell Tanks*, WHC-SD-WM-AP-036, Westinghouse Hanford Company, Richland, Washington.

Koreski, G. M., and J. N. Strode, 1995, *Operational Waste Volume Projection*, WHC-SD-WM-ER-029, Westinghouse Hanford Company, Richland, Washington.

Schwenk, E. B., and K. V. Scott, 1996, *Description of Double-Shell Tank Selection Criteria for Inspection*, WHC-SD-WM-ER-529, Westinghouse Hanford Company, Richland, Washington.

Table 1. Assessment Activity Cost and Schedule

Activity Number	Activity	Cost	Cumulative Cost	Date of Completion
1	Procure Ultrasonic Services	50	50	1996/7
2	Perform DST Visual Examinations	50	100	1996
3	Complete Transfer Line and Pit Assessment	50	150	1996
4	Evaluate Design of DCRTs and Catch Tanks	70	220	1996
5	Examine DCRT 244A and Catch Tank S304	60	280	1996
6	Perform Ultrasonic Examination of Two DSTs	1400	1680	1997
7	Perform DST Visual Examinations	50	1730	1997
8	Evaluate Design of Seal Pots and Other Waste Transfer Facilities(A350, 204AR, 244CR)	250	1980	1997
9	Perform Ultrasonic Examination of Four DSTs	1600	3580	1998
10	Issue DST Integrity Assessment Report	40	3620	1998
11	Perform DST Visual Examinations	50	3670	1998
12	Examine Last 3 DCRTs	180	3850	1999
13	Examine All 8 Catch Tanks	320	4170	1999
14	Examine 242A Evaporator	40	4150	1999
15	Perform DST Visual Examinations	50	4200	1999
16	Examine All 16 Seal Pots	320	4520	1999

17	Examine Remaining 3 Waste Transfer Facilities - A350, 204AR, 244CR	150	4670	1999
18	Issue Waste Transfer Facility Integrity Assessment Report	100	4780	1999

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