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Department of Energy
Richland Field Office
P.O. Box 550
Richland, Washington 99352

DEC 0 8 1992

93-TPA-034

Mr. Paul T. Day
Hanford Project Manager
U.S. Environmental Protection Agency
Region 10
712 Swift Boulevard, Suite 5
Richland, Washington 99352

Mr. David B. Jansen, P.E.
Hanford Project Manager
State of Washington
Department of Ecology
P.O. Box 47600
Olympia, Washington 98504-7600

Dear Messrs. Day and Jansen:

HANFORD FEDERAL FACILITY AGREEMENT AND CONSENT ORDER (TRI-PARTY AGREEMENT)
MILESTONE CHANGE REQUEST M-23-92-XX, RESPONSE

Reference: (1) Letter, J. D. Bauer, RL, to R. Stanley, Ecology, same subject, 93-TPA-027, dated November 19, 1992 - 0024777

(2) Letter, R. Stanley, Ecology, to J. Wagoner, RL, no subject, dated November 12, 1992

During discussions with the State of Washington Department of Ecology (Ecology) on December 3, 1992, requested by reference 1, the U.S. Department of Energy, Richland Field Office (RL) committed to provide a written response on proposed milestones. Reference 2, contained draft Change Request M-23-92-XX for modifying Tri-Party Agreement milestone M-23-00 by including several new milestones relating to assumed leaking single-shell tank (SST) 241-T-101. This correspondence serves to provide to U.S. Environmental Protection Agency (EPA) and Ecology the technical response to the proposed milestones. Future correspondence will serve to address the compliance issues contained within reference 2. That future correspondence will address the issues in accordance with the Tri-Party Agreement, Paragraph 28, as agreed at the December 3, 1992, meeting.

RL remains committed to the expeditious mitigation of the risks to the environment associated with assumed leaking tank T-101. As stated in reference 1, RL shares Ecology's concerns with the gravity of the situation surrounding a leak from any underground storage tank, and agree that activities to mitigate the environmental risks must proceed as expeditiously as possible. In fact, RL had proceeded to prepare to remove the pumpable liquid from this tank long before receipt of reference 2. RL continues in the preparation for this activity, conducting weekly meetings to coordinate this effort. RL welcomes the participation of EPA and Ecology representatives at

these meetings wherein they may share in the discussions and assist in reaching a rapid conclusion to this concern. Specifics on the meeting location and schedule are contained within attachment 1.

Many of the issues contained in reference 2 have been previously addressed in detail between RL and Ecology. The issue of secondary containment for these SSTs remains technically unfeasible. In the attached, RL describes activities in process which are pursuing subsurface barrier technologies. As more progress in this area develops, RL will share this information with EPA and Ecology. It is RL's plan that tank T-101 be pumped long before any substantial subsurface barrier could be emplaced as a mitigating factor.

RL recognizes the importance of the draft change request M-23-92-XX and the issues represented therein. Attachment 1 is the RL position on the draft change request, on a milestone by milestone discussion. The attachments provide discussion on actions in progress, identification of areas that are technically unfeasible or untimely, and reports completed activities. Supporting documents will be provided on December 9, 1992. Although some of the issues contained in the change request are not achievable as written, RL wishes to meet with EPA and Ecology representatives to negotiate a reasonable solution which will support an expedited response. Therefore, RL invites EPA and Ecology to attend a negotiating session with RL following the scheduled SST tank Unit Manager meeting scheduled for December 9, 1992. If this schedule is amenable to you, I will contact you with the specific time and location of these negotiations.

If you have any questions, please contact Mr. R. E. Gerton (RL Tank Farms Operations) at (509) 376-9106, or Mr. J. Yerxa of my staff at (509) 376-9628.

Sincerely,

Steven H. Wisness
Hanford Project Manager

EAP:JKY

Attachment

cc w/attach:
B. Austin, WHC
D. Nylander, Ecology
S. McKinney, Ecology
T. Michelena, Ecology
D. Sherwood, EPA
R. Stanley, Ecology
T. Tebb, Ecology

Attachment 1
Department of Energy Response
to
Ecology Change Request M-23-92-XX

Organizations	USDOE	- U.S. Department of Energy
	RL	- U.S. Department of Energy, Richland Field Office
	Ecology	- Washington State Department of Ecology
	EPA	- U.S. Environmental Protection Agency
	WHC	- Westinghouse Hanford Company

Proposed Milestone and RL Response

M-23-21 *USDOE shall, no later than December 18, 1992, submit a report to Ecology detailing options, the feasibility of each option, the amount of time necessary to implement each option assuming an accelerated schedule, and comparative overall implementation costs associated with securing secondary containment or its equivalent at single-shell tank T-101.*

The WAC 173-303 requires secondary containment for underground storage tanks. The specific wording of the code is lengthy, but in general requires that containers have a containment system that is capable of holding spills and leaks from the primary container. The capacity and integrity of any secondary containment system must be such that the secondary containment must prevent release of contaminated liquids to the environment.

The request in the referenced letter to provide "secondary containment" at T-101 (or any single-shell tank) provides a desirable, but unreasonable goal. RL has previously presented in discussions with Ecology and EPA the fundamental and technical obstacles to providing secondary containment for the existing single-shell tanks at Hanford. As early as 1987, while discussing the RCRA Part A Permit application, RL and WHC advised Mr. Stanley and others from Ecology that secondary containment cannot feasibly be provided for these tanks. RL's position on secondary containment has been reiterated in all subsequent discussions.

RL is making all haste to retrieve the pumpable liquids from this tank. This is in consonance with the HDW-EIS Record of Decision and Tri-Party Agreement milestone M-05-00 which direct the removal of pumpable liquids to reduce the risk of environmental damage resulting from tank leaks. The milestone was generated in recognition of the unfeasibility of secondary containment. By the time any subsurface barrier could be designed, all the analyses completed, mock-up tested, and installed, the environmental risk from further leakage will have been mitigated by the interim stabilization process. RL believes that the prioritization of limited resources would be better utilized by emphasizing liquids retrieval, with a lower priority established for expending resources to study, design, and possibly implement subsurface barriers for this specific tank.

RL realizes that the potential exists wherein studies required prior to removing the pumpable liquid will determine that removing the liquid would

create an unsafe condition. Therefore, RL will continue its on-going studies of subsurface barriers. Two such studies are underway. The first is in accordance with the requirement to perform an Engineering Evaluation of Alternatives in specific regards to pumping the liquids from assumed leaking tank T-101. By the end of January 1993 RL will have available an analysis which will cover the full range of options available to manage the assumed leaking tank. The time and schedule constraints (imposed so as to not impede progress for removing the pumpable liquid from T-101) limit the scope of the study to screening known possible alternatives using engineering judgement and experience.

The second study on sub-surface barriers is in accordance with plans surrounding the full retrieval of the single-shell tanks, in specific, C-106. This study is in its infancy. Discussions on this topic will commence with EPA and Ecology on December 9, 1992, as part of the single-shell tank Unit Manager Meeting.

M-23-22 *USDOE shall, no later than December 18, 1992, provide an adequate in-tank liquid level leak detection system at tank T-101 and ensure that the system is monitored/inspected daily.*

WHC has recently completed a major campaign to repair all waste tank level detection instrumentation in order to achieve full compliance with the requirements of WHC-SD-WM-TI-357, Rev. 1F (Waste Storage Tank Status and Leak Detection Criteria). The priority system used to allocate resources to operational and maintenance tasks was also revised recently so that priorities on par with OSR and environmental compliance activities are now placed on in-tank liquid level leak detection systems. Even with these new initiatives, it will remain difficult to maintain the existing level detection systems in service and to ensure that the requirements of WHC-SD-WM-TI-357 are satisfied in the future. This is the result of the inherent difficulties in maintaining systems that have exceeded their design life and that are no longer commercially available. WHC has an aggressive program to identify, test, and qualify new state of the art level detection devices to replace or supplement the existing FIC instruments.

In the interim, until new devices can be installed in Tank T-101, the existing FIC will be replaced or augmented with another refurbished FIC or a manual tape. Daily "zip cord" readings will be obtained on T-101 until such time as the tank is pumped, or the existing FIC can be replaced or augmented with a new device.

Accelerated efforts to evaluate new technologies for waste tank level measurement have been in progress since October 1992. Some of the technologies being considered include radar gauges, lasers, and ultrasonic devices. A radar gauge was installed in Double Shell Tank SY-101 in 1991. The in-situ testing of this device has produced mixed results. The inconsistent readings obtained during the latter part of Window G have caused RL to reconsider plans to install similar devices in other tanks in fiscal year 1993. Other level detection devices are also being considered for

installation in T-101. Work will proceed in parallel with pumping to plan the installation of a new device in T-101 as soon as the prerequisite vapor samples and safety documentation are completed. Given the time involved to complete this work and the accelerated schedule for emergency pumping, it is unlikely that such a device could be installed prior to stabilization. It would not be advisable to install a new device in tank T-101 after pumping. A letter report on level detection options will be provided to EPA and Ecology in March 1993.

M-23-23 *USDOE shall, no later than December 18, 1992, inspect all other tank T-101 monitoring systems (e.g., dry well and temperature), and shall submit a written report to Ecology detailing the status and capability of these and other T-101 leak detection systems to immediately detect a release to the environment.*

Should the aforementioned inspections and report document system inadequacy (or inadequacies), system upgrades shall be completed no later than February 12, 1993 or other time frame as approved by Ecology.

The other monitoring systems for 241-T-101 consist of dry wells, one thermocouple tree, and a dome elevation survey. There is no liquid observation well (LOW) installed in this tank. All of these monitoring systems are in compliance, as specified in applicable documents. There is no method available to immediately detect a release to the environment from Hanford's single-shell tanks using these instruments or systems.

The frequency of dry well readings with a gross gamma prove have been increased to weekly. Previous and current drywell scans are stable and give no indication of tank leaks. Readings with a spectral gamma probe were also taken recently. These readings confirmed the gross gamma reading and provide a baseline for future spectral gamma measurements.

One thermocouple tree is installed in T-101. Readings are taken on a weekly basis. There are eleven (11) thermocouples on the tree. Thermocouples #2, and 4 through 11 are currently operable and thermocouples #1 and 3 are inoperable. The highest reading from any thermocouple for the last two months is 72° F from thermocouple #2.

The status of the waste tank monitoring systems (including 241-T-101) is provided in the Tank Farm Surveillance and Waste Status Summary Reports (WHC-EP-0182-53) which are transmitted to EPA and Ecology on a monthly basis.

On July 22, 1992, Ecology and RL committed to several actions regarding the monitoring of Single-Shell Tanks C-105 and C-106. One of the commitments agreed to by RL and Ecology is outlined in proposed milestone M-05-13-T5. This milestone requested that by December 1992 RL provide to Ecology and EPA a plan for further improvements in gross gamma surveillance technology (probes). This plan, which would also be applicable to 241-T-101, will be provided to EPA and Ecology in December 1992.

M-23-24 *USDOE Shall, no later than December 18, 1992, take preparatory actions necessary for the removal of liquid waste from tank T-101. Actions taken by USDOE within this period shall include, but are not limited to, the following:*

M-23-24a *USDOE shall complete evaluation of tank T-101 wastes sufficient to assess compatibility and criticality concerns in order to determine the most feasible receiver tank. Tank waste evaluation data shall be submitted to Ecology and EPA immediately on completion of analysis.*

M-23-24b *USDOE shall plan for and initiate physical testing of underground transfer lines needed to begin pumping T-101 tank liquids to a compatible tank.*

M-23-24c *Concurrent with M-23-24b above, USDOE shall initiate engineering and procurement processes needed for acquisition of double contained piping systems meeting the requirements of Chapter 173-303 WAC (to be implemented in the event that the existing tank transfer lines do not pass required testing).*

Preparatory actions for emergency pumping of T-101 have been in progress since October 1, 1992, when the tank was reported as an assumed leaker. At present, all required transfer line hydrostatic testing has been satisfactorily completed. A criticality evaluation of the T-101 waste has also been prepared. The results of this evaluation were submitted to RL under Amendment 1 to the Justification for Continued Operation of the Hanford High Level Waste Tanks which was prepared in response to the unreviewed safety question on criticality. The report is undergoing final revision to incorporate review comments. A preliminary waste compatibility evaluation has been performed for the T-101 waste. Although there are no outstanding issues for transfer to holding tank 244-TX, an additional sample will be required after transfer to 244-TX and prior to final transfer from 244-TX to a suitable DST. Based on this, the actions specified in proposed milestones M-23-24a and M-23-24b have been completed. Since there are no known obstacles to pumping T-101 using the existing transfer lines, proposed milestone M-23-24c is considered unnecessary. The results of the transfer line hydrostatic test will be provided to EPA and Ecology by December 18, 1992. The criticality evaluation and results of the additional laboratory sample analysis data will be provided to EPA and Ecology in February 1993.

M-23-25 *Pursuant to actions under M-23-24b and/or M-23-24c, USDOE shall complete necessary transfer line system acquisition and installation, and shall initiate full scale removal of T-101 liquids no later than February 15, 1993.*

By December 18, 1992, RL will have submitted a request to pump T-101 and safety documentation for emergency pumping tank T-101 to USDOE-HQ. USDOE-HQ must authorize the beginning of pumping operations. RL will have completed

all physical preparations prior to February 15, 1993, therefore allowing the immediate commencement of pumping this tank upon receipt of approval. As discussed above, design and installation of a new transfer line system is unnecessary.

M-23-26 *USDOE shall, no later than December 18, 1882, provide Ecology with copies of all data/correspondence pertaining to tank T-101 including all data/correspondence related to past and present releases or spills from tank T-101, and shall submit weekly progress reports throughout the duration of work under this change request which document all work performed, detail USDOE's compliance with these interim milestones, explains any anticipated noncompliance and all actions being taken by USDOE to ensure schedule recovery. Such data, memoranda, reports and other correspondence shall include, but not be limited to the following subject matters:*

- -- *Environmental Degradation*
- -- *Leak Detection Systems*
- -- *Waste Characterization*
- -- *Tank Compatibility*
- -- *Transfer Lines*
- -- *Engineering Studies*
- -- *Maintenance of Monitoring Equipment*

In November, 1992, RL and WHC initiated weekly planning and schedule status meetings for T-101 corrective actions. The minutes of these meetings document work progress in all matters identified in this proposed milestone. Effective the week of December 7, 1992, copies of these meeting minutes will be provided to EPA and Ecology on a weekly basis. A brief summary of the status of critical path activities for emergency pumping will be included in these transmittals to EPA and Ecology. The meeting minutes from the November 19, 1992, meeting will be provided on December 9, 1992. The December 1, 1992 and December 3, 1992 meeting minutes will be transmitted to EPA and Ecology as soon as possible.

RL believes that providing the weekly reports with critical path summaries and the other documents that will be provided under the terms contained in this letter, will satisfy the intent of this proposed milestone.

M-23-27 *USDOE shall, no later than January 15, 1993, devise and implement an operator and tank farm management training program to ensure adequate and appropriate training in areas including monitoring and potential incidents at tank T-101.*

RL and WHC have developed an upgraded Tank Farm Operator Training Program. This program is comprised of four major phases: fundamentals class (mathematics, chemistry and instrumentation, and mechanical system theory), Nuclear Operator systems class (system design and operations, limits and

precautions, and monitoring requirements), Nuclear Operator on-the-job training (OJT), and specific skill training for Nuclear Process Operators. Implementation of this training program began in January, 1992. Phase 1 (fundamentals class) was completed in September, 1992, and Phase 2 (systems class) has been in progress since October 1992. The schedule for completion of Phase 2, 3, and 4 will be provided on December 9, 1992.

The training material developed for the upgraded Operator Training Program covers all topics discussed in this proposed milestone. The Liquid Level Monitoring and Routines certification packages (to be provided on December 9, 1992) which are being taught in the Nuclear Operator systems class and the Nuclear Operator OJT are in progress. Copies will be provided on December 9, 1992. These certification packages include details of the design and operation of all level detection systems, the requirements for periodic monitoring of these systems, and the requirements for reporting out of limit measurements or abnormal conditions.

In addition to the Liquid Level Monitoring and Routines certification packages, a revised certification package has been developed for Drywells. The Drywells certification package (a copy will be provided on December 9, 1992) contains similar details for system design and operations and monitoring requirements. This material will either be taught as part of the Nuclear Operator training (systems class and OJT) or as part of the specific skills training for Nuclear Process Operators, depending on the outcome of negotiations with the bargaining unit.

The upgraded training material that has been developed for the Operators has also been incorporated into a new supervisor training program which is in the final stages of development. A draft outline of the course content is to be provided on December 9, 1992. All Operations supervisory and line management personnel and Maintenance first line supervisors will be required to complete this training program. The schedule for training the first group of supervisors will be provided December 9, 1992. In order to train the entire Operations and Maintenance supervisory staffs, two to four additional classes will have to be conducted in series after the first class. A schedule for completion of the entire supervisor training effort will be finalized after the first class has been completed and the course content and duration are revised based on the experience gained in the first class.

The current Maintenance Training Program contains little classroom training and formally evaluated OJT. An upgraded Maintenance training program will be developed in fiscal year 1994. This program will be patterned after the upgraded Operator Training Program although the focus will be on skill areas for corrective and preventive maintenance performed by Maintenance and Instrument Technicians. The general content of the Maintenance Training Program will be defined in early fiscal year 1994 to be followed by an implementation schedule.

RL believes that completion of the upgraded Tank Farm Operator and Supervisor Training Programs is essential to improving performance, and with full implementation of the actions described above, RL believes the intent of proposed milestone M-23-27 will be met.

M-23-28 *USDOE shall, no later than December 18, 1992, provide to Ecology and EPA for comment documentation of actions taken in revising its operator and tank farm management training program. Such program shall include, but not be limited to, the following:*

M-23-28a *Training which ensure the timely identification and confirmation of "tank leaks". "Tank leak" shall be defined as any release to the environment such that human health or the environment is threatened, regardless of quantity (Chapter 173-303-145(1) WAC).*

M-23-28b *Training which ensure adequate and timely USDOE and USDOE contractor tank farm management response, and notification of Ecology staff as required by Chapter 173-303-145(2)(c)(i) WAC.*

M-23-28c *The identification of operational requirements for personnel responsible for reading and maintaining tank monitoring and leak detection systems.*

As discussed in the response to proposed milestone M-23-27, the training material for the upgraded Operator and Supervisor Training Program has been developed. This material covers all subject areas outlined in proposed milestones M-23-27 and M-23-28 including subsections (a) through (c). The training material and the schedules for completing the required training will be provided by December 9, 1992. This information is provided to EPA and Ecology as requested in proposed milestone M-23-28. The intent of this proposed milestone is, therefore, completed.

M-23-29 *USDOE shall, no later than December 18, 1992, provide management control and/or tracking procedures which ensure that issues identified on Discrepancy Reports are tracked and acted on as necessary in order to verify proper closure of identified discrepancies. Copies of the amended procedures and other relevant documentation shall be provided to Ecology and EPA no later than January 15, 1993.*

As was discussed in our meeting with Ecology on December 3, 1992, the primary responsibility for identifying out of limit or abnormal level measurement reading is being shifted from Waste Tank Engineering and Projects to Waste Tank Operations. The data sheets used buy the Operators to record SST levels are being revised to include baseline levels and the normal/allowable range

for all tanks that are monitored by FICs. This work will be competed by January 15, 1993. Operators are required by procedures to immediately report out of specification or abnormal readings to the Shift Supervisor or Shift Manager. The Shift Supervisors and Shift Managers are responsible for reporting suspected or known leaks from the waste tanks. The reporting procedures will be revised to clearly require reporting any out-of-specification SST level readings and to report failure to obtain the readings (e.g., equipment failure) required by WHC-SD-WM-TI-357.

Training on the changes in the reporting procedures(s) and data sheets associated with the lessons learned on tank T-101 will be competed by February 26, 1993. documentation of the completion of the data sheet revisions, procedure changes and the associated Operator Training will be provided to Ecology by March 8, 1993.

Even though Waste Tank Operations will have the primary responsibility for identifying and reporting indications of waste tank leaks, the Engineering and Operations Projects organization will continue to perform subsequent reviews and analysis of the leak detection data. These reviews will be conducted to trend the data and identify adverse trends or anomalies in the data. The Discrepancy Reports issued to document adverse trends or data anomalies will be controlled and tracked as requested in proposed milestone M-23-29. Copies of the revised procedures to accomplish this will be provided to EPA and Ecology in January 1993.

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		T. E. Rainey	R1-49	X
		R. E. Raymond	R1-80	X
		J. H. Roecker	B1-59	X
		C. M. Smith	H6-21	X
		J. D. Thomson	R1-30	X
		R. K. Welty	R1-80	X