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STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

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March 3, 2000

Mr. W. Wade Ballard
Assistant Manager, Planning & Integration Program
United States Department of Energy
P.O. Box 550, MSIN A5-12
Richland, Washington 99352

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EDMC

Dear Mr. Ballard:

Re: Establishment of Calendar Year 2000 Interim Milestone M-24-00L
Groundwater Monitoring Well Construction Requirements

The Washington State Department of Ecology (Ecology) understands that, to date, the United States Department of Energy (USDOE) has not identified adequate funding for the construction of Resource Conservation and Recovery Act (RCRA) groundwater monitoring wells at the Hanford Site. Ecology has prepared this letter to emphasize the urgency of installing groundwater monitoring wells at Single-shell Tank Farms and RCRA Treatment, Storage, and Disposal (TSD) facilities. These units are identified in the enclosed change control form. Regulatorily, these Calendar Year (CY) 2000 monitoring well installations are required by the Washington Administrative Code (WAC) 173-303-400 (technically adequate indicator parameter monitoring systems) and -646 (requirements associated with releases).

Ecology believed the need for installing these wells was clearly understood. During three recent meetings with USDOE and their contractor scientists regarding the M-24-00L Change Control Form, there was no debate regarding the justification for monitoring well construction, only the assertion by USDOE that funding was unavailable. These meetings also resulted in agreement among the parties that characterization during construction of these monitoring wells would provide critical information on both vadose zone and aquifer properties and on the distribution of contamination. Ecology has estimated that the funding requirement for the construction of CY 2000 monitoring wells and the associated characterization activities will be approximately three and one-half million dollars (\$3,500,000) to complete nineteen (19) wells. Ecology is concerned that at this point in the calendar year USDOE has not committed the necessary resources to ensure the emplacement of technically defensible monitoring systems at land based and/or corrective action units. Due to the necessity of maintaining a viable groundwater data-base on which to make remedial, risk, and land-use decisions, Ecology advises the USDOE that it will seek appropriate legal remedies to ensure that the monitoring wells identified in the change control form are constructed during CY 2000.

The justification for CY 2000 well construction is based primarily on the risk posed by the single-shell tanks, the technical inadequacy of facility indicator parameter monitoring systems,



Mr. W. Wade Ballard
March 3, 2000
Page 2

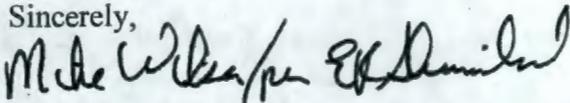
and the changing groundwater flow dynamics across much of the Hanford Site. Specifically, the justification for installing groundwater monitoring wells is based on the following:

- Decreasing water elevations and the need to replace dry groundwater monitoring wells in the 200 East and West Areas
- Changing groundwater flow directions, particularly where groundwater mounds are dissipating, that allow groundwater that may be impacted by TSDs to bypass existing monitoring wells
- Inadequate groundwater monitoring well coverage at facility perimeters
- Meeting assessment monitoring requirements to define the nature and extent of groundwater contamination downgradient of RCRA units

Ecology also wishes to convey to USDOE that the installation of the CY 2000 groundwater monitoring wells only partially satisfies the groundwater monitoring needs for the Hanford Site. Continued changes to the groundwater flow regime at Hanford and the potential for the disposal at Hanford of off-site Low Level Waste and Low Level Mixed Waste will require an ongoing program of groundwater monitoring well installation. Additional wells will have to be constructed in CYs 2001 through 2004 to meet requirements for technical defensibility of groundwater monitoring systems at SSTs and TSDs. Ecology will pursue the installation of these outyear wells under a separate change control form.

Pursuant to Section 12.3.3 of the Tri-Party Agreement, within fourteen (14) days of receipt of a signed change control form, USDOE must, in writing, approve or disapprove the request. If you have any questions, please contact Jane Hedges, Ecology Cleanup Section Manager, at (509) 736-3016 or Stan Leja, Ecology RCRA groundwater monitoring lead, at (509) 736-3046.

Sincerely,



Mike Wilson, Manager
Nuclear Waste Program

MW:SL:lkd

Enclosure

cc: Doug Sherwood, USEPA
Marvin Furman, USDOE
George Sanders, USDOE
Michael Thompson, USDOE
George Henckel, BHI
Floyd Hodges, PNNL
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Stuart Harris, CTUIR
Stan Sobczyk, NPT
Wade Riggsbee, YIN
Mary Lou Blazek, OOE

Administrative Record: SST WMA T/TX/TY,
SST WMA S/SX, U-12 Crib, LLWMA 3

Twenty-four TSD units are monitored under RCRA to determine if they are impacting groundwater. The TSD units, located in various parts of the Hanford Site, include:

<u>100 AREA</u>	<u>200 EAST AREA</u>	<u>200 WEST AREA</u>	<u>300 AREA</u>
(1) 1301-N LWDF	(5) 216-A-29 Ditch	(15) 216-S-10 Pond & Ditch	(23) 316-5 Process Trenches
(2) 1324-N/NA LWDF	(6) 216-B-63 Trench	(16) 216-U-12 Crib	
(3) 1325-N LWDF	(7) 216-B-3 Pond	(17) WMA S-SX	
(4) 183-H Solar Evaporation Basins	(8) LERF	(18) WMA T	
	(9) 216-A-10 Crib ^(a)	(19) WMA TX-TY	<u>600 Area</u>
	(9) 216-A-36-B Crib ^(a)	(20) WMA U	(24) NRDWL
	(9) 216-A-37-1 Crib ^(a)	(21) LLWMA 3	
	(10) WMA A-AX	(22) LLWMA 4	
	(11) WMA B-BX-BY		
	(12) WMA C		
	(13) LLWMA 1		
	(14) LLWMA 2		

(a) Combined into one RCRA Monitoring Unit.

LERF = Liquid effluent-retention facility.

WMA = Waste management area.

LLWMA = Low-level waste management area.

LWDF = Liquid waste-disposal facility.

NRDWL = Nonradioactive dangerous waste landfill.

The RCRA groundwater monitoring requirements for TSD units fall under one of two categories: interim status or final status. A permitted or closed RCRA TSD unit requires final status groundwater monitoring as specified in 40 CFR 264. Non-permitted RCRA units require interim status groundwater monitoring as specified in 40 CFR 265. Ecology was authorized by the EPA to implement its dangerous waste program in lieu of the EPA's. Ecology's interim status TSD requirements, established in WAC 173-303-400, invoke 40 CFR 265 governing RCRA groundwater monitoring activities. RCRA final status TSD facilities follow WAC 173-303-645, which specifies the groundwater monitoring requirements.

Both interim and final status groundwater monitoring are conducted under one of three possible phases: 1) indicator parameter (interim status)/detection (final status), 2) assessment (interim status)/compliance (final status), and 3) corrective action (interim or final status). Initially, a detection-level program is developed to determine and monitor the impact of facility operations on the groundwater. If the detection monitoring results indicate a statistical increase in the concentrations of key indicator parameters or dangerous waste constituents in the groundwater, then an assessment (interim status) or compliance (final status) phase of monitoring and investigation is initiated. If the source of the contaminants is determined to be the TSD unit, and those concentrations exceed maximum contaminant levels as defined in the monitoring program plan or permit, then Ecology may require corrective action to reduce the contaminant hazards to the public and environment.

Changing groundwater conditions at Hanford will require that monitoring systems throughout the site be upgraded and made compliant. Changes to the groundwater flow regime have been most pronounced in the 200 East and West Areas, due primarily to the dissipation of large groundwater mounds. These areas also contain the single-shell tank farms, which have impacted the groundwater with mixed wastes and will continue to impact groundwater for the foreseeable future. The large number of TSD units at Hanford and the continued changes to groundwater elevations and flow direction will require a multi-year effort to improve the groundwater monitoring systems at these TSD units. Due to the risk to human health and the environment posed by releases from the 200 West Area tank farms, Ecology has focused its attention for Calendar Year (CY) 2000 monitoring well installation on those facilities. Of the nineteen monitoring well locations which Ecology and USDOE have identified, sixteen are located along the perimeters of the 200 West SST WMAs. When Ecology has determined that the monitoring wells comprising the indicator parameter monitoring systems will be able to detect groundwater plumes emanating from the tank farms, the primary focus of well construction will switch from interim status monitoring to assessment monitoring, and the delineation of plumes downgradient of these facilities. Thus, most outyear

(CY 2001 and 2002) monitoring well construction at the tank farms will occur at mid and far field locations.

Where groundwater monitoring is no longer feasible, (i.e. LERF) Ecology will require that a vadose zone monitoring system be installed. Based on the projected decline in water table elevation, this system must be installed in CY 2001. The potential disposal at Hanford of large quantities of off-site generated mixed low-level and low-level waste will require that receiving low-level burial grounds be equipped with state-of-the-art groundwater monitoring systems. The upgrading of monitoring systems at the low-level burial grounds will begin in CY 2001. Should similar changes to groundwater conditions in the 100 or 300 Areas render monitoring systems at TSD units incapable of detecting groundwater contamination, Ecology will require similar monitoring system improvements.

The following CY 2000 RCRA well locations are in support of Milestone M-24-00, "Install RCRA groundwater monitoring wells at the rate of up to 50 per year" after 1991 "as specified by agreed interim milestones." These agreed upon locations are based on RCRA permitting and indicator parameter and assessment monitoring requirements. The justification for well construction is as follows: (1) replace dry groundwater monitoring wells; (2) install monitoring wells at new locations as a response to changes in flow directions; (3) improve the detection capability of the monitoring systems by decreasing the spacing between monitoring wells at facility perimeters; and (4) install wells for the purpose of defining groundwater plumes downgradient of TSD units.

Interim Milestones:

The following interim milestones are hereby established:

<u>Milestone M-24-46</u>	<u>Milestone Description</u>	<u>Due Date</u>
M-24-46	Install five (5) additional wells at SST WMA T	Dec 2000
M-24-47	Install five (5) additional wells at SST WMA TX-TY	Dec 2000
M-24-48	Install six (6) additional wells at SST WMA S-SX	Dec 2000
M-24-49	Install one (1) additional well at the U-12 Crib	Dec 2000
M-24-50	Install two (2) additional wells at LLWMA 3	Dec 2000