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ENGINEERING CHANGE NOTICEPage 1 of 21. ECN 633779Proj.
ECN

2. ECN Category (mark one) Supplemental <input type="checkbox"/> Direct Revision <input checked="" type="checkbox"/> Change ECN <input type="checkbox"/> Temporary <input type="checkbox"/> Standby <input type="checkbox"/> Supersedure <input type="checkbox"/> Cancel/Void <input type="checkbox"/>	3. Originator's Name, Organization, MSIN, and Telephone No. JW Lindberg, HTS, H6-06, 376-5005	3a. USQ Required? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	4. Date June 25, 1996
	5. Project Title/No./Work Order No. RCRA and Operational Monitoring	6. Bldg./Sys./Fac. No. 2440 STVCN	7. Approval Designator
	8. Document Numbers Changed by this ECN (includes sheet no. and rev.) WHC-SD-EN-AP-185, Rev. 0	9. Related ECN No(s). NA	10. Related PO No. NA

11a. Modification Work <input type="checkbox"/> Yes (fill out Blk. 11b) <input checked="" type="checkbox"/> No (NA Blks. 11b, 11c, 11d)	11b. Work Package No. NA	11c. Modification Work Complete NA	11d. Restored to Original Condition (Temp. or Standby ECN only) NA
		Cog. Engineer Signature & Date	Cog. Engineer Signature & Date

12. Description of Change

As a requirement by the Dept. of Ecology, four additional groundwater sampling constituents are being added to the groundwater monitoring plan for the 300 Area Process Trenches. They require that the groundwater monitoring plan be revised to reflect the additional constituents. The four additional constituents are thallium, PCBs, chrysene, and benzo(a)pyrene. The changes to the document (WHC-SD-EN-AP-185, Rev. 0) include revision of two paragraphs in Section 4.5.1 "Constituents To Be Analyzed."



13a. Justification (mark one)

Criteria Change Design Improvement Environmental Regulatory Deactivation
As-Found Facilitate Const Const. Error/Omission Design Error/Omission

13b. Justification Details

As a requirement by the Washington State Department of Ecology, four groundwater monitoring constituents must be added to the groundwater monitoring plan.

14. Distribution (include name, MSIN, and no. of copies)

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DATE:	HARTFORD
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Groundwater Monitoring Plan for the 300 Area Process Trenches

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EDT/ECN: 633779 UC: 630
Org Code: 8H200 Charge Code: R4069
B&R Code: EW3120100 Total Pages: 159

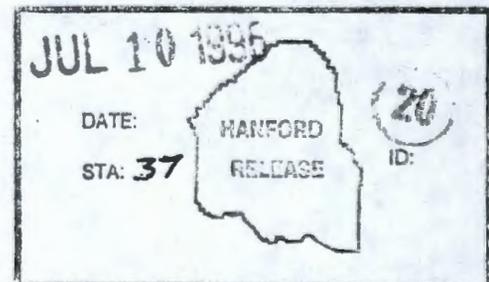
Key Words: RCRA, Final Status, Compliance Monitoring

Abstract: This document outlines the groundwater monitoring plan, under RCRA regulations in 40 CFR 264 Subpart R and WAC 173-300-645, for the 300 Area Process Trenches. The 300 Area Process Trenches will go into final status in the fall of 1996 and sampled under a compliance monitoring program. This plan provides current program conditions and requirements.

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4.5 SAMPLING AND ANALYSIS

Section 4.5 describes or references procedures for sample collection, sample preservation and shipment, chain of custody requirements, analytical procedures, and quality assurance. Specific sampling and analysis procedures are referenced. Work by subcontractors shall be conducted to their equivalent approved standard operating procedures.

All field sampling activities will be recorded in the proper field logbook as specified in EII 1.5 and subsequent revisions (WHC 1988). Electric submersible or Hydrostar³ pumps will continue to be used in existing monitoring wells for purging and sampling. Before sampling each well, the static water level will be measured and recorded as specified in EII 10.2 (WHC 1988). Based on the measured water level and well construction details, the volume of water in the well will be calculated and documented in the well sampling form or field notebook. These steps will be performed electronically in the field. As specified in EII 5.8, each well will be purged before sampling until the approved criteria are met (WHC 1988). Purge water will be managed according to EII 10.3 (WHC 1988). In the situations where the well pumps dry because of very slow recharge, the sample will be collected after recharge. Samples will be collected and field preserved as specified in EII 5.8. Sampling equipment decontamination will follow procedures specified in EII 5.4 (WHC 1988).

Sample chain-of-custody, sample packaging, and shipping required by WAC 173-303-645(8)(d) are discussed in EII 5.1 and 5.11 (WHC 1988). The general quality assurance/control (QA/QC) protocols will include the site-specific analytes for this plan (WHC 1993). The purpose of the QC activities is to determine and document that samples were carefully collected and transferred to an analytical laboratory, that the quality of the analytical results being produced by the laboratory are defensible, and that corrective actions will be taken as necessary.

Under the proposed compliance-level monitoring program, water-level elevation data will be evaluated annually to determine if the monitoring wells are strategically located. If the evaluation indicates that existing wells are no longer adequately located, the groundwater monitoring network will be modified to bring it into compliance with WAC 173-303-645(8)(a). Descriptions of monitoring constituents, monitoring frequency, and analytical procedures specific to the 300 APT are provided below.

4.5.1 Constituents to be Analyzed

The constituents to be analyzed initially for the 300 APT include:

- (1) The detected constituents of concern identified in Section 4.2 (including uranium and biodegradation products of tetrachloroethylene). These constituents of concern will be sampled independently four times in each sampling event (semiannually).

³Hydrostar is a registered trademark of Instrumentation Northwest, Inc.

(2) Metals (iron and manganese). Groundwater samples will be analyzed semiannually for these metals together with dissolved oxygen and redox potential as part of the follow-up geochemical investigation (Section 4.2). They will be added to the constituents of concern list if elevated levels are not due to chemical reducing conditions.

(3) Four constituents required by Ecology including thallium, PCBs, chrysene, and benzo(a)pyrene. These four constituents are required by Ecology in response to their concern about dangerous wastes leaching from the relocated sediments stockpiled at the north ends of the trenches. Groundwater samples will be analyzed for these constituents semiannually for two years (four sampling periods). If the constituents are detected they will be added to the list of constituents of concern.

(4) Field parameters that are routinely measured at the well head (including pH, conductivity, turbidity, and temperature).

A large number of wells were sampled periodically during the 1988-1991 time period for dangerous waste constituents per WAC 173-303-9905 and site specific constituents (see Section 3.3). This effort established the constituents of concern for the interim remedial action and the final status monitoring plan. Since 300 APT discharges have ceased, only residual contaminants from past practice discharges should be present in groundwater in the vicinity of the trenches. Thus, previous groundwater characterization and monitoring data (historical data) are considered adequate for addressing the Appendix IX requirements for this final status monitoring plan.

4.5.2 Background Values

Background values (area) are defined as the levels of chemical, physical, biological, or radiological constituents or parameters upgradient of a unit, practice, or activity that have not been affected by the unit. Groundwater monitoring data obtained from upgradient wells will be used to track the encroachment of upgradient sources of contaminant plumes. Background data also will be reevaluated if changes in groundwater flow directions result in changes in definition of upgradient wells.

4.5.3 Sample Frequency

In compliance with regulations, all wells (compliance and background) will be sampled at least semiannually during the compliance period. During each semiannual sampling event, a sequence of at least four independent samples will be collected from compliance wells and results compared to the groundwater concentration limits established in Section 4.4.1. Statistical methods are discussed in Section 4.6.

The requirement of obtaining four independent samples could be accomplished by reference to the uppermost aquifer's effective porosity (n_e); horizontal hydraulic conductivity (K_h); and hydraulic gradient (i). The