**INTERIM CHANGE NOTICE
(ICN)**

ICN – PNNL-11523 R0.1

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A.

Document Number: PNNL-11523 Revision Number: R0

Document Title: Combination RCRA Groundwater Monitoring Plan for the
216-A-10, 216-A-36B, and 216-A-37-1 PUREX Crib

Document's Original Author: JW Lindberg

Effective Date

of ICN: 11 / 30 / 98

Change Requested by:

JW Lindberg

B. Action:

Replace pages 5.7 and 5.8 with the attached 2 pages. Attach this ICN to the front of the document.

On page iii, the third paragraph, third sentence, strike out the word "annually" and replace with "at least once every three years". Initial and date change, and place the ICN# near the change.

Add the following reference to the reference list on page 6.2:

Hartman, M.J., P.E. Dresel, J.P. McDonald, R.B. Mercer, D.R. Newcomer, and E.C. Thornton. 1998. *Integrated Monitoring Plan for the Hanford Groundwater Monitoring Project*, PNNL-11989, Pacific Northwest National Laboratory, Richland, Washington. Initial and date change, and place the ICN# near the change.

C. Effect of Change:

The schedule for sampling far-field wells changes from annual to once every three years.

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D. Reason for Change/Description of Change:

The far-field wells sample the large regional plumes (nitrate, tritium, and iodine-129). Major changes in these large plumes occur very slowly. The Washington State Department of Ecology has agreed to allow a reduction in the frequency of sampling these larger, more regional plumes from annual sampling to sampling once every three years. The results of sampling these far-field wells are also used by the general site surveillance portion of the overall Hanford Site Groundwater Monitoring Program.

OSTI

E. Approval Signatures:

(Please sign and date)

Type of Change: (Check one):

 Minor X Major

Process

Quality Department: TL Almeida

Date: 11 / 24 / 98

Approval Authority: RM Smith/SP Luttrell (Project Management)

Date: 11 / 24 / 98

Other Approvals: JW Lindberg (Technical)

Date: 11 / 24 / 98

: MJ Hartman (Technical Review)

Date: 24 / Nov 1998

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Table 5.1. Proposed Groundwater Monitoring Network

Far-Field Wells (Within 2,000 pCi/L Tritium Plume)			
Sampled Once Every Three Years (As a Minimum)			
699-47-5	699-46-21B	699-46-4	699-43-3
699-42-12A	699-41-1	699-41-23	699-40-1
699-38-15	699-35-9	699-33-42	699-32-43
699-32-22A	699-31-11	699-31-31	699-29-4
699-28-40	699-27-8	699-26-15A	699-25-33A
699-24-34B	699-22-35	699-21-6	699-20-E12
699-20-20	699-20-E5	699-17-5	699-10-E12
699-9-E2	699-8-17	699-8-25	699-2-3
699-2-7	699-1-18A	699-S3-E12	699-S6-E4A
699-S6-E14	699-S19-E13	699-S19-E14	699-S0-7
499-S0-8	399-1-18A		
Far-Field Wells (Immediately Outside 2,000 pCi/L Tritium Plume)			
Sampled Once Every Three Years (As a Minimum)			
699-48-7A	399-6-1	699-40-33A	699-24-46
699-19-43	699-14-38	699-S3-25	699-S8-19
699-S12-3	699-S31-1	699-S27-E14	699-S29-E16A
Near-Field Wells			
Sampled Semi-Annually (except for one well at each crib ^(b))			
Upgradient			
299-E24-18 ^(a) (A-10 Crib)			
299-E25-31 ^(a) (A-37-1 Crib)			
Downgradient			
A-10 Crib	A-36B Crib	A-37-1 Crib	
299-E17-1	299-E17-14 ^(a,b)	299-E25-19 ^(b)	
299-E24-16 ^(a,b)	299-E17-17 ^(a)	299-E25-17	
299-E17-19 ^(a)	299-E17-9	299-37-47A ^(a)	
(a) Well meets standards of WAC 173-160			
(b) Well sampled quarterly			

wells will be added. Conversely, in areas where the tritium concentration drops below 2,000 pCi/L, wells will be dropped from the list. The same wells will be adequate to monitor the I-129 and nitrate plumes because they are within the area covered by the tritium plume.

Although the majority of proposed far-field wells do not meet the construction requirements of WAC 173-160 (and are by reference not RCRA compliant), they are considered adequate to meet the far-field monitoring requirements of this plan for the following reasons:

1. Well construction materials (i.e., casing of carbon steel with or without stainless steel screen) will not react adversely with the constituents of concern.
2. The Hanford Site is in an arid environment where the lack of surface and annular seals is not expected to allow water to move through the well annulus. Furthermore, most wells are screened or perforated at, or immediately below, the water table. Inter-aquifer communication is not a problem.

Several of the wells are screened in deeper portions of the unconfined aquifer. These wells will be sampled to help provide an indication of the vertical nature of the plumes.

The issue of the anomalous U and As found below the Ringold Formation lower mud unit in well 699-37-47A remains unresolved. With the data collected thus far, it is not possible to completely rule out past PUREX operations as a source for the U and As. This issue will continue to be examined as additional data are received from well 600-37-47A and other wells surrounding the PUREX cribs and more information is gathered about the operational history of the PUREX Plant.

5.3.3 Determination of Groundwater Flow Paths

In addition to measuring depth to water in all wells at the time of sampling, water levels will be measured annually during a month that is representative for the year (assuming that the month chosen does not typically exhibit severe weather that would interfere with the taking of field measurements). The larger data set will be used to construct water table maps and estimate the direction of groundwater flow and the horizontal hydraulic gradient.

5.3.4 Sampling and Analysis

The majority of the near-field network wells will be sampled semi-annually. Three wells, one in or near each of the PUREX Cribs, will be monitored quarterly. Two of these three wells are compliant with WAC 173-160 and are immediately downgradient of each of the cribs they are near (there are no RCRA-compliant wells near the A-37-1 Crib). Data from these three wells will be assessed quarterly to determine if there are any changing contaminant conditions near the cribs (required by 40 CFR 265.93[d][7][I]). Far-field wells will be sampled (as a minimum) once every three years because in these more distant areas major changes in plume characteristics occur very slowly. The schedule for sampling the far-field wells is designed to be consistent with the Hanford Site Surveillance Monitoring Network (Hartman et al. 1998). The list of far-field wells (Table 5.1) is subject to change based on the needs of site surveillance monitoring. Depth to water will be measured before samples are collected. The wells will be purged, and samples will be collected after