

INTERIM CHANGE NOTICE  
(ICN)

067731

<p>A. Document No.: WHC-SD-EN-AP-038      Revision No.: 2</p> <p>Document Title: Groundwater Monitoring Plan for the 1301-N, 1325-N, and 1324-N/NA Sites</p> <p>Document's Original Author: M.J. Hartman</p>	<p>Effective Date of ICN: 4/7/99</p> <hr/> <p>Change Requested By: M.J. Hartman</p>
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B. Action:  
Mark through Sections 4.4, 4.5, 5.0, and 5.1 in the original document. Place a reference to this ICN number near these cross-outs and refer to this ICN in Section 7.0. Initial and date all changes. Attach this ICN to the front of the document.

C. Effect of Change:  
Project personnel are already using the current procedures and QA plan; this update brings the monitoring plan up to date.



D. Reason for Change/Description of Change:  
Reason for Change: Since the document was written, the groundwater project was transferred to Battelle and a new QA plan has been prepared.  
Description of Change: Replaces outdated sections with current ones (see attached).

E. Document Management Decisions:  
Original review/approvals no longer relevant because groundwater project has since been transferred to PNNL. Previous distribution list is also obsolete. Current distribution:  
JV Borghese  
MJ Furman  
MJ Hartman  
SP Luttrell  
RM Smith  
DL Stewart

<p>F. Approval Signatures (Please Sign and Date)</p> <p><i>[Signature]</i></p>	<p>Type of Change: (Check one): <input checked="" type="checkbox"/> Minor    <input type="checkbox"/> Major</p>
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Approval Authority: SP Luttrell, project management      Date: 4-7-99

Other Approvals: MJ Hartman      Date: 5 April 99  
TL Almeida, QA      Date: 4-7-99

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#### 4.4 SAMPLING AND ANALYSIS PROTOCOL

Monitoring for the 100-N Area RCRA sites is part of the Hanford Groundwater Monitoring Project. Procedures for groundwater sampling, documentation, sample preservation, shipment, and chain-of-custody requirements are described in PNNL or subcontractor manuals (e.g. WMNW procedures manual ES-SSPM-001) and in the quality assurance plan (PNNL 1998 or most recent revision). Samples generally are collected after three casing volumes of water have been purged from the well or after field parameters (pH, temperature, specific conductance, and turbidity) have stabilized. For routine groundwater samples, preservatives are added to the collection bottles before their use in the field. Samples to be analyzed for metals are usually filtered in the field so that results represent dissolved metals.

Procedures for field measurements are specified in the subcontractor's or manufacturer's manuals. Analytical methods are specified in contracts with laboratories, and most are standard methods from *Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods* (EPA 1990). Alternative procedures meet the guidelines of EPA 1990, Chapter 10.

The groundwater monitoring project's quality assurance/quality control (QA/QC) program is designed to assess and enhance the reliability and validity of groundwater data. The primary quantitative measures or parameters used to assess data quality are accuracy, precision, completeness, and the method detection limit. Qualitative measures include representativeness and comparability. Goals for data representativeness for groundwater monitoring projects are addressed qualitatively by the specification of well locations, well construction, sampling intervals, and sampling and analysis techniques in the groundwater monitoring plan for each RCRA facility. Comparability is the confidence with which one data set can be compared to another. The QC parameters are evaluated through laboratory checks (e.g. matrix spikes, laboratory blanks), replicate sampling and analysis, analysis of blind standards and blanks, and interlaboratory comparisons. Acceptance criteria have been established for each of these parameters (PNNL 1998), based on guidance from the U.S. Environmental Protection Agency (EPA 1986, 1990). When a parameter is outside the criteria, corrective actions are taken to prevent a future occurrence and affected data are flagged in the database.

#### 4.5 WATER LEVELS

Water levels are measured before wells are sampled. Many of the wells in the 100-N Area are also measured semiannually. The Environmental Restoration Contractor has equipped some of these wells with pressure transducers and data loggers. Any of these data can be used to construct water table maps to aid in determining groundwater flow directions.

### 5.0 DATA MANAGEMENT AND REPORTING

#### 5.1 DATA MANAGEMENT

The contract laboratories report analytical results electronically. The results are verified as described in the project QA plan and loaded into the Hanford Environmental Information System (HEIS) database. Field-measured parameters are entered manually or through electronic transfer. Data from HEIS may be downloaded to smaller databases, such as the Geosciences Data Analysis Toolkit (GeoDAT) for review and interpretation. Paper data reports and field records are considered to be the record copies and are stored at PNNL.

The data are reviewed at least quarterly according to a documented procedure, as described in the project QA plan. QC data are evaluated against the criteria listed in the project QA plan and data flags are assigned when appropriate. In addition, data are screened by scientists familiar with the hydrogeology of the unit, compared to historical trends or spatial patterns, and flagged if they are not representative. Other checks on data may include comparison of general parameters to their specific counterparts (e.g. conductivity to ions; gross alpha to uranium), calculation of charge balances, and comparison of calculated vs measured conductivity. If necessary, the lab may be asked to check calculations or reanalyze the sample, or the well may be resampled.

#### 7.0 REFERENCES

EPA, 1986, *RCRA Groundwater Monitoring Technical Enforcement Guidance Document*. OSWER-9950.1, U.S. Environmental Protection Agency, Washington DC.

PNNL, 1998, *The Hanford Ground-Water Monitoring Project Quality Assurance Project Plan*, ETD-012, Rev. 1, Pacific Northwest National Laboratory, Richland, Washington.