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U.S. ENVIRONMENTAL PROTECTION AGENCY
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Hanford Project Oiffce
712 Swift Blvd., Suite 5
Richland, Washington 99352

REPLY TO ATTN OF: B5-01

July 16, 1990

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Steven H. Wisness
Hanford Project Manager
U.S. Department of Energy
P.O. Box 550, A6-95
Richland, Washington 99352

Re: Policy on Remediation of Existing Wells and Acceptance Criteria for RCRA and CERCLA

Dear Mr. Wisness:

The Washington State Department of Ecology and the Environmental Protection Agency have developed a policy in response to the issue of using existing wells for RCRA and CERCLA work. This policy should be considered to be effective immediately upon receipt of this letter and the attached description.

Sincerely,

Timothy L. Nord
Hanford Project Manager
Washington State Department of Ecology

Paul T. Day
Hanford Project Manager
Environmental Protection Agency

Enclosure

cc: R. Brown, Ecology
C. Cline, Ecology
K. Fecht, WHC
L. Goldstein, Ecology
T. Michelena, Ecology
L. Powers, WHC
D. Sherwood/D. Einan, EPA
R. Stanley, Ecology
W. Staubitz, USGS
K. Thompson, DOE

DATA QUALITY OBJECTIVES AND REMEDIATION CRITERIA
FOR RCRA AND CERCLA WELLS AT THE HANFORD SITE
JUNE 1990

Introduction

Numerous groundwater monitoring wells exist at the Hanford Site. Some of these wells were recently constructed for use in the Resource Conservation and Recovery Act (RCRA) (42 USC 6901 et seq) [authorized state program is the Washington State Hazardous Waste Management Act RCW 70.105] and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Such wells have been installed in accordance with the design specifications of the Environmental Protection Agency's (EPA) RCRA Technical Enforcement Guidance Document (OSWER 9950.1). These wells are referred to as "RCRA standard" wells.

Other monitoring wells have been developed for different purposes over the years of Hanford operations and clearly do not meet the current design standards for monitoring wells. For example, some of these wells were designed to monitor the radionuclide levels in groundwater, long before the lists of RCRA and CERCLA parameters were established.

The Washington State Department of Ecology (Ecology), the Department of Energy (DOE), and EPA recognize that each monitoring well used to support the RCRA or CERCLA programs at Hanford must meet the specified data quality objectives (DQO). The most stringent DQOs for a proposed RCRA or CERCLA monitoring well will provide for full chemical analyses of RCRA hazardous constituents (40 CFR Part 264 Appendix IX) and CERCLA hazardous substances, including radioactive constituents. These data would be used to support a risk assessment or final decision by the lead regulatory agency. At the other end of the spectrum, DQOs may limit the data collected to groundwater level measurements for the purpose of aquifer characterization. The DQO established for each well will be dependent on the level of confidence in the quality of data generated. In some cases, an existing monitoring well may be remediated to achieve a higher level of confidence in the quality of data. In other cases, an existing well may present a cross contamination hazard, requiring abandonment in accordance with state regulations (WAC 173-160-560).

Situations Requiring Well Abandonment

The Washington State Attorney General's office has advised Ecology that construction standards for wells (WAC 173-160 et seq.) can only be relaxed if such action does not result in a threat to human health and/or the environment. This criteria must be met for each well at the Hanford Site, regardless of the DQO for the well, irrespective of whether it is being used to directly support the RCRA or CERCLA programs. Any well causing such a threat will have to be abandoned or remediated to the extent necessary to alleviate the threat.

Requirement to Include RCRA Standard Wells

RCRA standard wells are clearly recognized as the highest quality wells by Ecology and EPA. Therefore, some number of RCRA standard wells will be required

in each area of investigation (past-practice operable unit or RCRA disposal unit) (WAC 173-303-645(8)(a)). The number of RCRA standard wells required will be dependent upon the site specific conditions. The locations of proposed new RCRA standard wells will be proposed by DOE and will be subject to approval by the lead regulatory agency.

Criteria for Existing Well as "Equivalent" to RCRA Standard Well

DOE may propose to use an existing monitoring well (non-RCRA standard) as an "equivalent" to a RCRA standard well, thereby justifying the same level of DQOs as established for RCRA standard wells. The proposal must be made in a RCRA Part B permit application, RCRA closure plan, RCRA interim status groundwater monitoring plan, or past-practice operable unit work plan. Ecology or EPA, whichever is the lead regulatory agency, will then determine whether an adequate demonstration of equivalency has been made. This determination will be made in consideration of the following:

1. Construction standards of the existing well must be generally consistent with EPA's RCRA Technical Enforcement Guidance Document. The materials of construction, construction methods, and sampling equipment must be similar to the extent that Ecology or EPA can agree that the most stringent DQOs can be met with the use of that well. Information on the screened interval and the annular seal will be required.

2. If DOE is unable to provide documentation that the construction standards are generally consistent with those required for a RCRA standard well, as stated above, it may provide other documentation attesting to the suitability of that well as an equivalent well. This may include an appropriate statistical demonstration of the analytical data, showing that there is no statistically significant difference between the existing well and an adjacent RCRA standard well. The statistical approach will be subject to approval by the lead regulatory agency. Any statistical demonstration must also be accompanied by all known construction characteristics of the existing well and the RCRA standard well for which the comparison is being made.

Setting Data Quality Objectives

DQOs for each monitoring well used to support the RCRA and CERCLA programs will be proposed by DOE. DQOs for any well are subject to change over time, based on additional information collected. Each monitoring well will fit into one of the following DQO categories, subject to approval by the lead regulatory agency:

1. RCRA standard well or equivalent well. The most stringent DQOs can be met consistently with these wells. Physical and analytical data will be used to support RCRA permit and closure plan decisions, RCRA interim status groundwater monitoring requirements, risk assessments, CERCLA records of decision, effectiveness of remedial or corrective actions, and monitoring during the operation and maintenance phase.

2. Screening well. DQOs for these wells will be limited to screening activities. Wells may be used as indicators to assist in defining the extent of contamination, but may not be used in lieu of RCRA standard

wells or equivalent wells. Such wells may be suitable for certain types of chemical analyses, but not suitable for others. Design, construction, and equipment standards for these wells are substantively inconsistent with EPA's Technical Enforcement Guidance Document, but are not in such condition that remediation or abandonment is required.

3. Radiation Monitoring Well. These wells do not meet design standards for RCRA standard wells or equivalent wells, but documentation is available to show that the screened interval is properly located to monitor the zone in question and that the annular space is properly sealed. The wells are not suitable for monitoring of RCRA constituents, but the design is acceptable for monitoring various radiological parameters. Therefore, such wells can be used for decision making purposes pertaining only to radioactive constituents in the same manner as a RCRA standard well can be used for all constituents.

4. Water Level Measurement Well or Piezometer. The DQO for these wells is restricted to obtaining water level measurements or piezometric heads for the purpose of aquifer characterization and monitoring the flow direction. Such wells must be screened or perforated at the appropriate intervals to meet the DQO and the screens or perforations must be of an acceptable length. Documentation must also be provided that the well design and condition is such that the well does not have to be remediated or abandoned.

Minimum Acceptable Standards for Monitoring Well Construction

All monitoring wells, are subject to the following criteria in order to be used to support the RCRA or CERCLA programs at the Hanford Site:

1. Screened or perforated intervals must monitor the appropriate zone of the aquifer, based on the DQO for each well. For a water table well, this means that the screened or perforated interval shall generally not exceed twenty feet in length and shall extend approximately five feet above the seasonal high water table. For piezometers, the screened or perforated intervals shall generally not exceed twenty feet. Exceptions to these distances may be necessary in cases where water table variations or the thickness of the contaminated aquifer are significant. Such exceptions shall be explained in the DQOs for each well and shall be subject to approval by the lead regulatory agency.

2. All wells must be plugged at the bottom and surface pad and eighteen feet of surface annular seal, in accordance with Design and construction -- Well seals (WAC 173-160-550). Depending on location, some wells may require a full annular seal. This will be determined by the lead regulatory agency on a case-by-case basis depending on: (1) the hydraulic characteristics of the soil and aquifer matrix, (2) the known extent of contamination in the vicinity of the well, (3) the proximity of the well to an actual liquid disposal site or a perched saturated zone, and (4) whether the well penetrates a confining layer.