
5.0 Well Installation, Maintenance and Decommissioning

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This section describes well installation, maintenance, and decommissioning activities conducted on the Hanford Site during fiscal year 1999.

5.1 Well Installation

The Hanford Groundwater Monitoring Project defines needs for new monitoring wells in a description of work between Pacific Northwest National Laboratory and Bechtel Hanford, Inc. Each year, the groundwater project installs new wells to maintain network compliance with the *Resource Conservation and Recovery Act of 1976* (RCRA) groundwater monitoring requirements and U.S. Department of Energy (DOE) orders. These compliance issues include ongoing RCRA facility groundwater assessments, replacement of monitoring wells that go dry because of the declining water table, replacement of wells that pose contamination risks to the environment, improvement of spatial coverage of the monitoring networks, and vertical characterization of groundwater contamination. The environmental restoration contractor also determines its needs for new wells annually.

Well Installation

Twenty-six new wells were installed on the Hanford Site in fiscal year 1999:

- ▶ 8 for RCRA monitoring
- ▶ 16 for CERCLA investigations or remediation
- ▶ 1 for a proposed low-level waste site
- ▶ 1 for vadose-zone characterization at a tank farm.

Each year DOE and the Washington State Department of Ecology (Ecology) approve RCRA wells through a process that integrates data quality objectives. This process integrates the data needs of various Hanford Site projects in the proposed wells (i.e., *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* and Tank Waste Remediation System).

Milestone M-24-00K (Ecology et al. 1989) required the installation of eight new RCRA groundwater monitoring wells (Table 5.1-1) by February 29, 2000. Well data packages will be published in fiscal year 2000 with more detailed information about these new wells, including the detailed geologic and geophysical descriptions and a complete set of sampling data results. Sixteen new wells were installed in the 100 Areas for activities related to environmental restoration. One well was installed to support characterization for a proposed immobilized low-activity waste repository and another for vadose zone characterization at the SX Tank Farm (see Table 5.1-1).

5.2 Well Maintenance

Maintenance of groundwater wells is performed to meet regulatory requirements as part of a scheduled preventive maintenance cycle (routine) or in response to problems identified in the field (non-routine). Non-routine maintenance includes both surface and subsurface tasks. Surface tasks include conducting field inspections, well labeling, maintenance and replacement of locking well caps, casing repairs, and diagnosis and repair of surface electrical and pump-discharge deficiencies. Subsurface tasks include repairing and replacing sampling pumps; performing camera surveys; brushing casing perforations or screens; developing wells to improve yield, recovery, and sample quality; or removing sediment accumulation. Routine maintenance is performed on a 5-year cycle in support of

groundwater sampling and to minimize non-routine maintenance activities. At a minimum, routine maintenance includes the following tasks:

- removal of groundwater sampling pump system and/or aquifer testing instrumentation/equipment
- inspection and repair or replacement of sampling pump system and/or aquifer testing instrumentation/equipment
- brushing/cleaning of well casing perforations/well screen
- removing debris and fill material
- developing the well
- performing borehole video camera survey
- reinstallation of sampling and/or aquifer-testing instrumentation/equipment
- documenting well conditions and maintenance activities.

About 110 wells were repaired or cleaned and 6 wells were decommissioned in fiscal year 1999.

Non-routine tasks are performed in response to a problem identified in the field. Non-routine maintenance tasks are varied and dependent on the specific problem encountered at a well.

A summary of the number of maintenance activities by regulatory program, on which routine and maintenance tasks were performed in fiscal year 1999, is presented in Table 5.2-1.

5.3 Well Decommissioning

Decommissioning activities result in the permanent removal of a well from service and from the Hanford Site well inventory. Well decommissioning is performed in accordance with Ecology standards (WAC 173-160). A well becomes a candidate for decommissioning if its use has been permanently discontinued; if its condition is so poor that its continued use is impractical; or it poses an environmental, safety, or public health hazard.

Wells that present the risk of being immediate hazards to the public health or safety are categorized into basic risk groups (high, medium, and low). These categories identify wells that have the potential to provide preferential pathways that allow movement of contaminants deeper into the subsurface strata. Well classifications are shown in Figure 5.3-1.

At this time, well decommissioning is generally driven by the long-range environmental restoration schedule (DOE/RL-96-105, Rev. 1). During fiscal year 1999, six Hanford Site wells were decommissioned (Table 5.3-1). Wells decommissioned to date on the Hanford Site are illustrated also in Figure 5.3-1.

Table 5.1-1. Well Installations for Fiscal Year 1999

<u>Well Number</u>	<u>Well ID</u>	<u>Program</u>	<u>Project</u>
199-D4-19	B8746	CERCLA	100-HR-3 Operable Unit
199-D4-20	B8750	CERCLA	100-HR-3 Operable Unit
199-D4-21	B8755	CERCLA	100-HR-3 Operable Unit
199-D4-22	B8778	CERCLA	100-HR-3 Operable Unit
199-D4-23	B8779	CERCLA	100-HR-3 Operable Unit
199-D5-36	B8744	CERCLA	100-HR-3 Operable Unit
199-D5-37	B8745	CERCLA	100-HR-3 Operable Unit
199-D5-38	B8747	CERCLA	100-HR-3 Operable Unit
199-D5-39	B8748	CERCLA	100-HR-3 Operable Unit
199-D5-40	B8749	CERCLA	100-HR-3 Operable Unit
199-D5-41	B8751	CERCLA	100-HR-3 Operable Unit
199-D5-42	B8752	CERCLA	100-HR-3 Operable Unit
199-D5-43	B8753	CERCLA	100-HR-3 Operable Unit
199-D5-44	B8754	CERCLA	100-HR-3 Operable Unit
199-H4-65	B8759	CERCLA	100-HR-3 Operable Unit
199-K-126	B8760	CERCLA	100-KR-4 Operable Unit
299-E17-21	B8500	ILAW	ILAW
299-E33-334	B8810	RCRA	B-BX-BY tank farms
299-E33-335	B8811	RCRA	B-BX-BY tank farms
299-W15-41	B8815	RCRA	TX-TY tank farms
299-W22-48	B8812	RCRA	S-SX tank farms
299-W22-49	B8813	RCRA	S-SX tank farms
299-W22-50	B8814	RCRA	S-SX tank farms
299-W23-19	B8809	RPP	RPP
299-W26-13	B8817	RCRA	216-S-10 pond and ditch
699-43-44	B8758	RCRA	B Pond

ILAW = Immobilized low-activity waste.

RPP = River Protection Project.

Table 5.2-1. Well Maintenance Summary

<u>Program</u>	<u>Routine</u>	<u>Nonroutine</u>
RCRA	11	42
CERCLA	5	23
Surveillance	14	16
Total	30	81

RCRA = Resource Conservation and Recovery Act of 1976.

CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act of 1980.

Table 5.3-1. Wells Decommissioned in Fiscal Year 1999

<u>Well Name</u>	<u>Well ID</u>	<u>Location</u>	<u>Date</u>
199-D5-12	A4569	100 D	September 30, 1999
299-E25-27	A4772	200 East	December 9, 1999
299-E25-33	A4781	200 East	December 9, 1999
299-E25-49	A6038	200 East	December 14, 1999
299-E25-50	A6039	200 East	December 10, 1999
299-W23-234	B2828	200 West	August 30, 1999

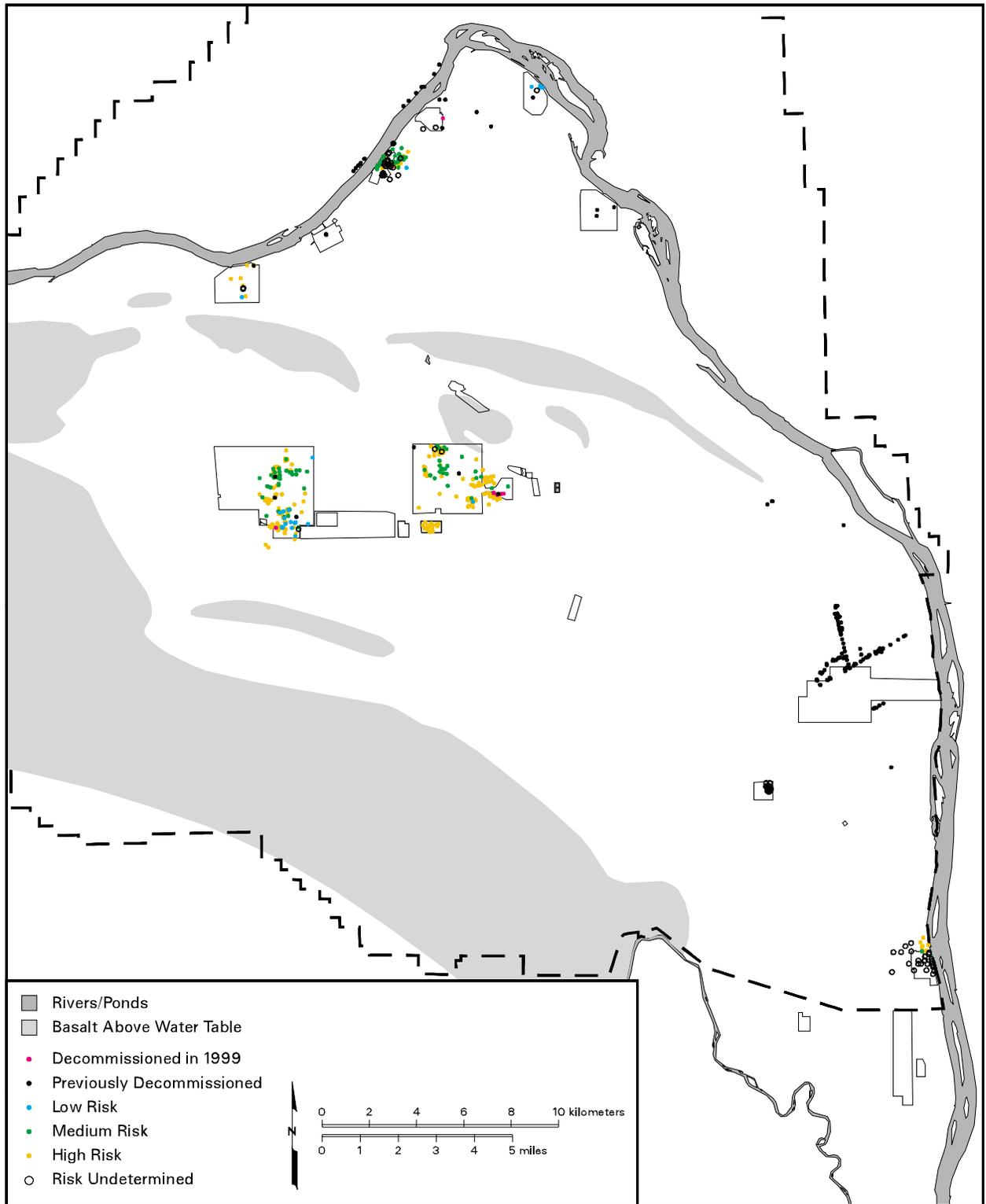


Figure 5.3-1. Classification of Wells for Decommissioning