

**300 Area Data Base Inventory  
(July 2007)**

<b>Entry #</b>	<b>Type of Data:</b>	<b>Nature of data:</b>	<b>Date of Collection</b>	<b>Identified by:</b>	<b>Data Steward:</b>	<b>Publication &amp; Report:</b>
1	Characterization	LFI cores, borehole logs, and interpreted cross section data captured in the LFI report	2006-2007	M. Freshley	R. Smith and others	PNNL-16435 (P06-00220-01)
2	Geochemical	Major/trace element data for 50 bulk sediment samples from Hanford and Ringold fms in 399-1-16, -17, and -18	1988-1989	B. Bjornstad	B. Bjornstad	Gaylord, Poeter and others, 1989 report
3	Geochemical	U(VI) concentrations in sediments from North and South Process Pond Excavations; approximately 30 sediment analyses of U and other analytes.	May-04	J. Zachara	J. Zachara/J. Davis(USGS)	PNNL-15121; Bond et al. 2007; Zachara et al.
4	Geochemical	Desorption of U(VI) in laboratory columns of <2mm sediment, four different 300 A vadose zone sediments (NPP1-14, NPP1-16, NPP4-2, SPP2-18), at multiple pH's and carbonate; approximately 12 column experiments total.	Dec 2004-Mar 2007	J. Zachara	J. Zachara/C. Liu	Qafoku et al., 2005 Qafoku et al., 2007 (in prep)
5	Geochemical	Desorption of U(VI) in laboratory columns of field textured, capillary fringe sediment, one 80 kg column, one pH and carbonate concentration.	Dec-April 2005	J. Zachara	C. Liu	Liu et al., 2007 (in prep)
6	Geochemical	Batch isotopic exchange (w 233U) and kinetic desorption measurements conducted over time on 25 vadose zone sediments from the North and South Process ponds.	Jan-Dec 2006	J. Zachara	J. Davis(USGS)	Bond et al., 2007
7	Geochemical	Synchrotron x-ray fluorescence imaging of U/Cu and other element distributions. EXAFS spectroscopy and derived/fitted molecular species (primarily upper vadose zone sample with > 50 ppm U-total)	2004-1006	J. Zachara	J. Zachara/J. Davis/J. McKinley	Catalano et al., 2006 Arai et al., 2007
8	Geochemical	Cryogenic laser-induced spectroscopy measurements on approximately ten 300 A vadose zone and saturated zone sediments with > 10 ppm U-total. Measurements show speciation changes with depths through the vadose zone	2004-2007	J. Zachara	Z. Wang	Wang et al., 2005 Wang et al., 2007
9	Geochemical	SEM/TEM and electron microprobe of various 300 A sediments including NPP 2-4, NPP 1-16, SPP 2-18	2004-2006	J. Zachara	J. McKinley	PNNL-15121; Wang et al., 2005 Zachara et al., 2005 McKinley et al., 2007

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10	Geochemical	300 area uranium leach and adsorption task (300-FF-1 and 300-FF-2 OU). Three uncontaminated sediments (B11491, B11492, and B11493), two uranium-contaminated samples collected from the 300 Area North Process Pond (B11494 and B11495), and three uranium-contaminated samples collected in the vicinity of the 303-K building (B11BY4, B11BY5, and B11BY6). Column U-leaching test and laboratory batch U-adsorption test were conducted.	Dec. 2000-Sept. 2002	W. Um	R.J. Serne/C. Brown	PNNL-14022; PNNL-16435 (P06-00220-01); PNNL-16435, Appendix D (P06-00220-05)
11	Geochemical	Limited field investigation for uranium contamination in the 300 area, 300-FF-5 Operable Unit for 4 wells; 399-3-18 (C4999), 399-1-23 (C5000), 399-3-19 (C5001), and 399-3-20 (C5002). Tier 1 analysis (core opening, geological characterization, moisture content, and GEA). Tier 2 analysis (water extract, acid extract, major cation and anion analysis, microwave-digestion, particle size analysis, total carbon analysis, labile carbonate uranium leaching, batch uranium leaching with synthetic pore water, groundwater and river water)	Sept 2005-Jan 2007	W. Um	W. Um	PNNL-16435
12	Geochemical	Adsorption isotherms of U(VI) on 4 uncontaminated Hanford formation sediments from the 300 A unconfined aquifer. Used synthetic groundwater #2 (SWW-2) and the < 2.8 mm fraction	Mar 2007 - ongoing	J. Zachara	W. Um	None yet
13	Geochemical	Column breakthrough experiments of U(VI) on 4, uncontaminated Hanford formation sediments from the 300 A unconfined aquifer. Used synthetic groundwater #2 (SGW-2) and the < 2.0 mm particle size fraction	Apr 2007 - ongoing	J. Zachara	W. Um	None yet
14	Geochemical	U(VI) desorption under simulated rising and falling water table conditions with 4 contaminated capillary fringe sediments. Experiments used columns that were saturated, drained, and resaturated for various lengths of time	Ongoing	J. Zachara	W. Um	None yet
15	Geochemical	Uranium desorption from six particle size fractions of U(VI)-contaminated 300 A vadose zone sediments. Kinetic experiments were performed in batch mode to 100 h. The sediments included NPP1-16, NPP1-20, and SPP2-8	Ongoing	J. Zachara	D. Stoliker/J. Davis	None yet
16	Geochemistry & Characterization	Laboratory geochemical characterization and testing, borehole characterization, tracer tests, and injection tests for the EM-22 Polyphosphate treatability test	2006-2007	M. Freshley	V. Vermeul and D. Wellman	

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17	Geologic	Geologic description of vadose sediments in four North and South process pond excavations to groundwater (with pictures).	May-04	J. Zachara	B. Bjornstad	PNNL-14834
18	Geologic	Particle size data from sediment samples	Historical - Oct 2006	M. Rockhold	M. Rockhold	Only one well analyzed - in Virtual Library
19	Geologic	Stratigraphic information along shoreline from coring and drive points in the river	2006	M. Freshley	G. Patton	
20	Geologic	Borehole data package for CY2005 CERCLA Well #699-S20-E10, 300-FF-5 Operable Unit, Hanford Site	Mar-06	J. Zachara	B. Williams	PNNL-15417
21	Geologic	Contact picks for stratigraphic units In 300 Area	2006-2007	B. Bjornstad	B. Bjornstad, M. Williams, P. Thorne	
22	Geologic, Hydrologic, Geochemical	Grain size, Kd, environmental monitoring, water levels	1940's to present	B. Bjornstad	Virtual Library	<a href="http://vlprod.rl.gov/vlib/app/index.cfm?TID=6E62FED EAB928ADAA4A9B8D22 83EB4F314E2FA4A">http://vlprod.rl.gov/vlib/app/index.cfm?TID=6E62FED EAB928ADAA4A9B8D22 83EB4F314E2FA4A</a>
23	Geologic/Hydrologic	Borehole logs, contacts, well construction, etc. for 15 new wells drilled at test polyphosphate injection site	2006-2007	B. Bjornstad	B. Bjornstad	
24	Geologic/Hydrologic	As built diagrams, geologist logs, driller's logs, well completions for all 300 Area wells	1940's to present	B. Bjornstad	HWIS Database	<a href="http://apweb02.rl.gov/cfro/rapidweb/phmc/cp/hwis/app/">http://apweb02.rl.gov/cfro/rapidweb/phmc/cp/hwis/app/</a>
25	Geologic/Hydrologic	Borehole data for 300 Area Process Trenches	1989	B. Bjornstad	B. Bjornstad	Schalla et al. (1989), PNL-6671
26	Geologic/Hydrologic	Borehole data for 300-FF-5 Operable Unit	1992	B. Bjornstad	B. Bjornstad	Swanson (1992), WHC-SD-EN-TI-052
27	Hydrologic	Historical water levels for all 300 Area monitoring wells	1940's to present	B. Bjornstad	HEIS database	Access via DAVE and Virtual Library
28	Geologic	A catalog of Geologic Data for the Hanford Site	Jul-05	J. Zachara	D.G. Horton	PNNL-13653 Rev. 2
29	Geologic	Borehole data package for nine CY 2006 polyphosphate treatability testing wells, 300-FF-5 Operable Unit, Hanford Site, Washington	Mar-07	J. Zachara	A. Ward	PNNL-16522
30	Geophysical	Surface Ground penetrating radar reflection and common mid point surveys, interpreted lithofacies, correlation lengths	Aug-05	AL Ward	AL Ward	

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Also available via DOE  
(<http://www.hanford.gov/cp/gpp/data/vzcp/vzcp.cfm>)  
and PNNL websites  
(<http://boreholelogs.pnl.gov/>)

31	Geophysical	Gross and spectral gamma, neutron, and density log data from	1963 - Oct 2006	M. Rockhold	M. Rockhold	
32	Geophysical	D.C Resistivity and time lapse electrical resistivity surveys- characterize lithofacies and hydrofacies	Jun-06	AL Ward	AL Ward/R. Versteeg	
33	Geophysical	Topography- GPS	Jun-06	AL Ward	AL Ward/A. Coleman	
34	Geophysical	Surface Nuclear Magnetic Resonance Surveys- field scale estimates of water retention and permeability	Sep-06	AL Ward	AL Ward/D. Walsh	
35	Geophysical	Time domain Induced polarization surveys- used to estimate field-scale specific surface area, pore volume, cation exchange capacity (0.2, 0.6, 1.0, 5.0,10 Hz)	Sep-06	AL Ward	AL Ward/R. Versteeg	
36	Geophysical	Self potential surveys- used to estimate ground water velocities; map paleochannels	Jan-07	AL Ward	AL Ward/R. Versteeg	
37	Hydrogeologic	Hydraulic conductivity from slug tests conducted at multiple depths at multiple locations within the hyporheic zone along the 300 Area shoreline.	2005-2006	M. Freshley	G. Patton/B. Fritz	Summary report being prepared by Patton et al, will be published in July.
38	Hydrogeologic	Flux chamber (bi-directional electromagnetic) built and operated for several months in 2006	2006	M. Freshley	G. Patton/B. Fritz	Summary report being prepared by Patton et al, will be published in July.
39	Hydrologic	Water level, temperature, and EC data from 300 Area wells	1991-1994, 2004-present	M. Rockhold	M. Williams	
40	Hydrologic	Water-level data for wells in the 300 Area on 15 minute intervals since Summer 2004. Includes water level, specific conductivity, and temperature for approximately 8 wells.	2005-2007	M. Freshley	G. Patton	Summary report being prepared by Patton et al, will be published in July.
41	Hydrologic	River level and hyporheic zone (aquifer tubes) every half hour since Summer 2004. Longer time series available from river stage gage at the 300 Area water intake.	2004-present	M. Freshley	G. Patton	Summary report being prepared by Patton et al, will be published in July.
42	Hydrologic	Priest Rapids River Flowrate hourly ( <a href="http://www.nwd-wc.usace.army.mil/ftppub/project_data/hourly/prd_0daysback.txt">http://www.nwd-wc.usace.army.mil/ftppub/project_data/hourly/prd_0daysback.txt</a> ) and USGS real time data ( <a href="http://nwis.waterdata.usgs.gov/wa/nwis/uv/?site_no=12472800&amp;PARAMeter_cd=00060,00065">http://nwis.waterdata.usgs.gov/wa/nwis/uv/?site_no=12472800&amp;PARAMeter_cd=00060,00065</a> )	Continuous	M. Freshley	Grant County PUD and USGS	

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43	Hydrologic	Recharge Rates from 300 Area Lysimeters	Unsure	M. Freshley	M. Fayer	
44	Hydrologic	Borehole C4855, C4999, estimated hydraulic properties based on grain size distributions	12/1/2006	AL Ward	AL Ward	
45	Literature	Historical Info on disposal facilities and lots of old document references	1991	RJ Serne	RJ Serne	"Addendum to Data Compilation Task Report for the Source Investigation of the 300-FF-1 Operable Unit" EMO-1026
46	Microbial	Sediment/Soil Microbial Biomass: Cells, CFU, MPN or phospholipid content per sediment mass or volume (include medium composition or reference for cultivations); total organic P		J. Fredrickson		
47	Microbial	Community Composition: PLFA profiles; DNA profiling (T-RLFP etc., includes gel images); 16S clone sequence & phylogeny		J. Fredrickson		
48	Microbial	Culture/Isolate: strain ID; medium of isolation; 16S sequence & nearest relative; physiological characteristics		J. Fredrickson		
49	Microbial	Activity measurements: Geochip functional gene and/or Phylochip analyses (gene chip-based hybridization assays); substrate catabolism (i.e., <sup>14</sup> C-acetate mineralization to CO <sub>2</sub> )		J. Fredrickson		
50	Mineralogic	X-ray diffraction measurements of bulk and isolated silt- and clay-sized fractions of four capillary fringe sediments beneath the North and South Process ponds to determine crystalline mineral phases.	Aug-04	J. Zachara	J. Zachara	Qafoku et al., 2005
51	Modeling	Cross section models of reactive transport between well 3-6-1 and river stage gauge SWS-1	2005-2006	M. Freshley	S. Yabusaki	None yet
52	Modeling	Regional (300 Area) modeling results for the U.S. NRC and the 300 Area LFI	2005-2007	M. Freshley	M. Rockhold and M. Williams	NRC Reports by Rockhold PNNL-15133 and PNNL-16396 (both limited distribution)
53	Photogrammetric	Aerial photos and interpreted vegetative distributions for use in recharge estimations	Mar-05	G. Seedahmed	AL Ward	

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54	Radiochemistry	Radionuclide analysis data for tritium and uranium in hyporheic zone springs (springs 7 through 10, multiple depths at spring 9)	2004-2006	M. Freshley	G. Patton	
55	Sediment Characterization	3 near-surface sediment samples from N Process Pond characterized for U content as a function of particle size (using dry sieving) for physical soil washing projections	1992	RJ Serne	RJ Serne	PNL-8401/WHC-SD-EN-TI-049 Rev. 0
56	Sediment Characterization	300 N Process pond sediment characterization U vs particle size before and after physical soil washing; analysis of soil washing water; mineralogy of "green" and "white" agglomerates	1993	RJ Serne	RJ Serne	PNL-9221/WHC-SD-EN-TI-214 Rev. 0
57	Water Chemistry	HEIS quarterly monitoring well water chemistry and annual spring monitoring for radionuclides	Quarterly	M. Freshley	SESP (G. Patton)	Documented in HEIS (Hanford Environmental Information System) that can be downloaded
58	Water Chemistry	Hyporheic zone water chemistry; samples analyzed for ions, carbonate, alkalinity, nitrate, metals, etc.	Sporadic	M. Freshley	G. Patton	Documented in HEIS (Hanford Environmental Information System) that can be downloaded
59	Water Chemistry	Hanford Site Wide Groundwater Monitoring Summary for FY06	Mar-07	J. Zachara	M.J. Hartman	PNNL-16346
60	Water Chemistry	Data trends for U(VI) in 300 A groundwaters and hydrologic and geochemical conceptual models for the U(VI) vadose zone and groundwater plume	2004	J. Zachara	R. Peterson	PNNL-15127
61	Water Quality	Columbia River Water Quality at Vernita and Richland	Sporadic	M. Freshley	SESP (G. Patton) and USGS web link	<a href="http://nwis.waterdata.usgs.gov/wa/nwis/qwdata?search_site_no=12472900&amp;search_site_no_match_type=exact&amp;sort_key=site_no&amp;group_key=NONE&amp;sitefile_output_format=html_table&amp;column_name=agency_cd&amp;column_name=site_no&amp;column_name=station_nm&amp;format=qw_sample_report_table&amp;begin_date=&amp;end_date=&amp;inventory_output=0&amp;rdb_inventory_output=file&amp;date_format=YYYY-MM-DD&amp;rdb_compression=file">http://nwis.waterdata.usgs.gov/wa/nwis/qwdata?search_site_no=12472900&amp;search_site_no_match_type=exact&amp;sort_key=site_no&amp;group_key=NONE&amp;sitefile_output_format=html_table&amp;column_name=agency_cd&amp;column_name=site_no&amp;column_name=station_nm&amp;format=qw_sample_report_table&amp;begin_date=&amp;end_date=&amp;inventory_output=0&amp;rdb_inventory_output=file&amp;date_format=YYYY-MM-DD&amp;rdb_compression=file</a>