

IDAWRA Presentation: "Water-quality trends for selected sites at and near the Idaho National Laboratory, Idaho"

Speaker: Roy Bartholomay, USGS Idaho National Laboratory Project Office Chief

Monday, February 29, 2016, 4 PM (Please note the time is different from our usual schedule).

Location: Washington Group Plaza Executive Dining Room (Turn left at the front desk and right at the cafeteria). 720 Park Blvd, Boise, ID

Cost: Free, no reservations required.

The U.S. Geological Survey in cooperation with the U. S. Department of Energy has maintained a water quality monitoring network at the Idaho National Laboratory (INL) since 1949 to define the quality of water for human and industrial use and to better understand the location and movement of contaminants in the eastern Snake River Plain (ESRP) aquifer at the INL. As part of two studies, water-quality trends for 131 ESRP aquifer wells, 35 perched aquifer wells, and 7 surface water sites were examined for selected constituents including major cations, anions, nutrients, trace elements, tritium, strontium-90, and volatile organic compounds. Water quality trends for sites believed to be not influenced by wastewater disposal were determined using the nonparametric Kendall's tau correlation coefficient, p -value, and the Theil-Sen slope estimator, and summary statistics were calculated for uncensored data. Kendall's tau, p -value, the Akritas-Theil-Sen slope estimator for robust linear regression and summary statistics were computed for censored data. Trends for wells believed to be influenced by wastewater disposal were determined using a parametric survival regression model to fit left censored, interval censored and uncensored data. Water quality trends were determined to assist with future management decisions concerning the number of wells to sample and the type of constituents.

Tritium and strontium-90 trends in almost all the wells showed either decreasing or no trends because of discontinued disposal, dilution, dispersion and radioactive decay. Chloride results from non-wastewater affected wells indicate that water influenced by Big Lost River recharge have decreasing trends or have variable changes that correlate with wet and dry cycles of recharge. Wet and dry cycles of recharge also affect concentration trends for sodium, sulfate, nitrate, and a few trace elements in several wells. Several of the wells that sample mostly regionally derived groundwater generally show an increasing trend in chloride, sodium, sulfate, and nitrate concentrations. These increases are attributed to agricultural or other anthropogenic influences upgradient of the INL. Wells influenced by wastewater disposal show mostly decreasing trends near the main facilities where disposal occurred, but show some increasing trends downgradient.

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9	Greg Clark	USGS	"	Greg Clark
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