Idaho State Department of Agriculture

Middle Henrys Fork Basin Regional Project
Pesticide Detections and Idaho's Pesticide Management Plan

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This fact sheet summarizes pesticide detections in ground water found by the Idaho State Department of Agriculture (ISDA) in the North Henry's Fork Central Basin, which covers portions of Fremont, Madison and Teton Counties in eastern Idaho (Figure 1). The North Henry's Fork Central Basin regional project (formally referred to as the Middle Henry's Fork Basin Regional Project) began in 2003 as a result of completion of the Idaho Ground Water Quality Plan and Agricultural Ground Water Protection Plan for Idaho. In part, these documents mandate regional-scale monitoring of aquifers in the state that may be vulnerable to agricultural activities. Additionally, previous monitoring by the U. S. Geological Survey and the Idaho Department of Environmental Quality (IDEQ) in 1997 and 1998 found that about 80 percent of the wells sampled within the project area had nitrate concentrations greater than 5 milligrams per liter (mg/L) and approximately 20 percent (20%) of the wells sampled had nitrate concentrations that exceeded the Environmental Protection Agency (EPA) Maximum Contaminant Level (MCL) of 10 mg/L (Yellowstone Conservation District, 2003).

The project area is located on the eastern edge of the Snake River Plain, in southeastern Idaho on a basalt plateau, encompassing part of Fremont County, Madison County, and Teton County (Figure 1). The Henry's Fork of the Snake River generally follows the project area's northwest boundary (Figure 2). Elevations range from 5,150 feet in the southwest to 6,230 feet in the east.

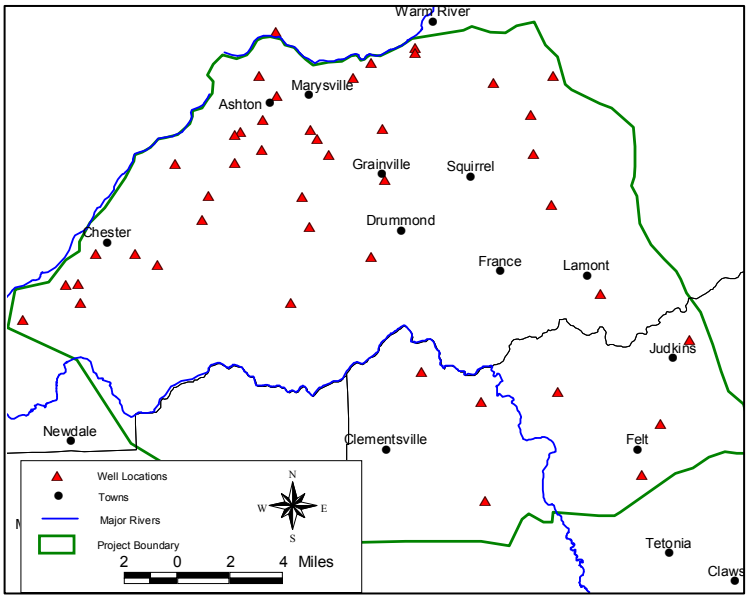

Figure 2. Location of project area and wells.

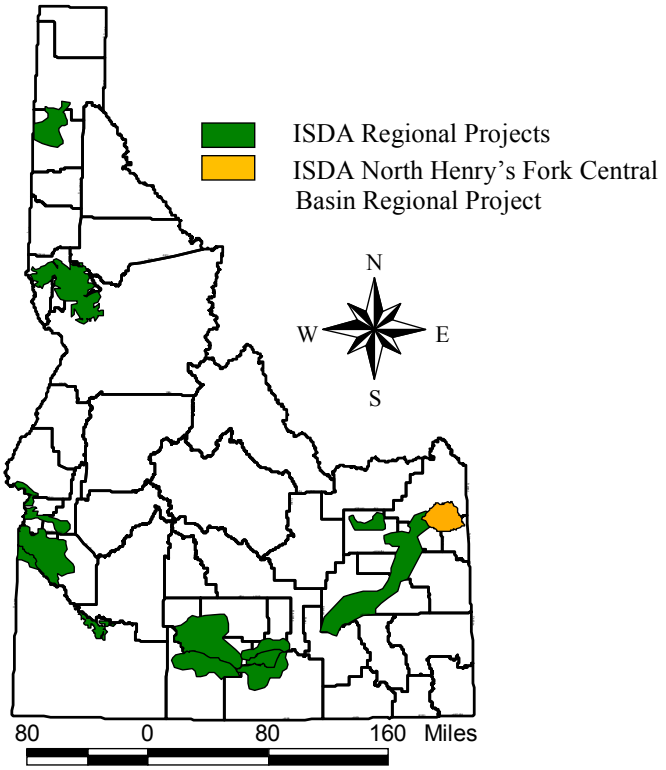

Figure 1. Location of North Henry's Fork Central Basin regional ground water monitoring project and other ISDA regional projects.

The geology in the project area is complex with Pleistocene-aged Huckleberry Ridge tuff and Falls river basalt present (IDEQ, 2001). Where the basalt is not exposed at the surface, it is overlain by alluvium, which varies in thickness from a few feet to several tens of feet (Jorgensen Engineering and Land Surveying, P.C., 1999). Loess deposits derived from the wind-blown flood plain of the Snake River Plain are found throughout the project area (IDEQ, 2001).

The ground water flow of the regional aquifer is to the southwest (Crosthwaite et al., 1970). In the Ashton area, irrigation and seepage from streams has caused an extensive perched aquifer in the basalt above the silicic volcanic rocks (Crosthwaite et al., 1970). The regional aquifer is recharged by precipitation and by the downward movement of water from the perched aquifer (Crosthwaite et al., 1970).

Ground water underlying the project area is used for human consumption, by private wells and public water systems, and irrigation. Wells within the project area (Figure 2) draw water from Snake River Group basalts or the silicic volcanic rocks from the Yellowstone Group.

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2006 ISDA Pesticide Detections

In 2006, a total of 45 wells were sampled for pesticides; 11 wells had one or more pesticide detections (Figure 3). The most frequently detected pesticide was 2,4-D, which was detected in six wells. Dinoseb was detected in two wells. Atrazine, desisopropyl atrazine (DIA) and desethyl atrazine (DEA), breakdown products of the pesticide atrazine, metribuzin, tebuthiuron, and triallate were each detected once. All detections were below any health standards set by the EPA or the state of Idaho. Three wells had elevated detections (Level 2 or higher) (Figure 3). Each well that had a Level 2 or greater pesticide detection in 2006 was re-sampled in 2007 for pesticides. The wells with the Level 2 dinoseb, Level 2 DEA and Level 3 atrazine detections all dropped to Level 1 detections. The well with the elevated triallate detection is sampled annually as part of the Fremont County Triallate PMP project and remained at a Level 2 detection in 2007 and 2008.

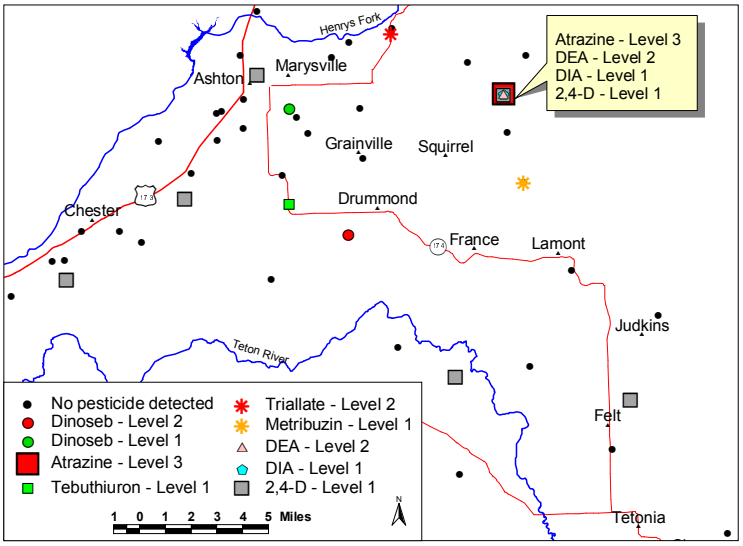

Figure 3. Pesticide detections from 2006 sampling.

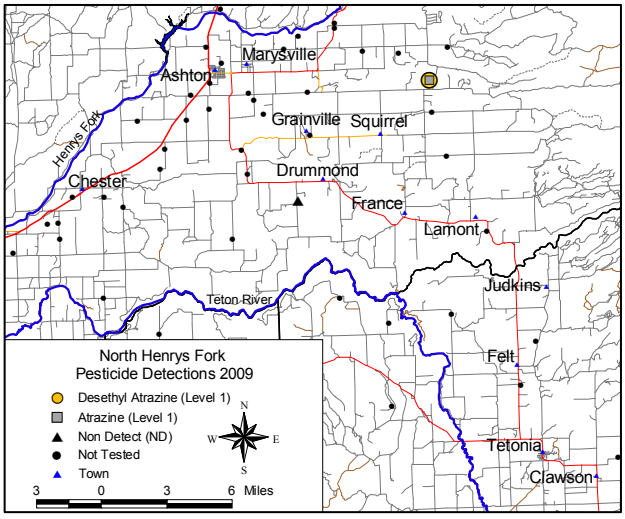

Figure 4. Pesticide detections from 2009 sampling.

2009 ISDA Pesticide Detections

In 2009, 2 wells in the regional project were tested for pesticides as follow up to previous elevated detections. The well with Level 3 atrazine, Level 2 DEA, Level 1 DIA and 2,4-D in 2006 only had two pesticide detections in 2009. The pesticides detected were atrazine and DEA (Figure 4). Both detections were below any health-based standards set by the EPA or the State of Idaho and are defined as Level 1 detections based on the Idaho PMP.

The well with a Level 2 dinoseb detection in 2006 was also sampled in 2009 (after being resampled in 2007 and 2008 as follow up to the elevated detection). In 2009, the well had no pesticide detections.

Idaho Pesticide Management Plan (PMP)

The Idaho State Department of Agriculture (ISDA) is the lead agency in developing the *Idaho Pesticide Management Plan (PMP) for Ground Water Protection*. ISDA has the authority to implement pesticide programs through a cooperative working agreement with the Environmental Protection Agency (EPA), Idaho state laws, and department rules. The Idaho PMP outlines processes to protect ground water from pesticides and defines pesticide detections based on the concentration of the detection compared to a reference point. The reference point refers to health based concentrations. Idaho has adopted the EPA's Maximum Contaminant Levels (MCLs) in the Idaho Ground Water Quality Rule (1997). Where no MCL exists, ISDA will use EPA Lifetime Health Advisories (HAL) first if they exist, and then an EPA Reference Dose (RfD) number.

The PMP categorizes detection levels into the following levels:

Level 1: Detection above the detection limit to less than 20% of Reference Point.

Level 2: Detection at 20% to less than 50% of Reference Point.

Level 3: Detection at 50% to less than 100% of Reference Point

Level 4: Detection equal to or greater than 100% of Reference Point.

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