Annual Report for the 2009 Recharge Season, Hall-Wentland Shallow Aquifer Recharge Site, Umatilla County, Oregon, and Walla Walla County, Washington

Prepared for:
Walla Walla Basin Watershed Council
And
Walla Walla River Irrigation District

By
GSI Water Solutions, Inc.

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Executive Summary

Shallow aquifer recharge (SAR) has been conducted seasonally at the Hall-Wentland (H-W) Site in each of the previous four winter-spring seasons. During this time SAR did successfully recharge the underlying, shallow alluvial aquifer system. Furthermore, H-W Site SAR activities did not noticeably degrade local groundwater quality.

H-W Site SAR has been using passive infiltration focusing simply on letting water delivered to the site spread out across it, sink into the ground, and infiltrate through the vadose zone to the underlying alluvial aquifer system water table. The only site improvement done for the project this season focused on the water delivery system (ditches) through which water reaches it. Sediment and vegetative debris was periodically removed from them. Ditches, trenches, and other structures that might have been dug on-site to facilitate infiltration of water into the ground were not dug at the H-W Site in any of the four SAR seasons.

Water volumes delivered to the H-W Site were estimated from flow measurements collected at two locations, one where water was diverted from Wells Ditch into the ditch leading to the H-W Site (Branch Ditch) and one where the Branch Ditch enters the H-W Site. In the first SAR season, March and April 2006, the two water flow measurement points consisted of rectangular weirs. In subsequent SAR seasons, December 2006 through April 2007, April 2008, and February through April 2009, E-Z Flow® portable ramp flumes were installed at the upper end and lower end of the Branch Ditch to measure water flow. For all four SAR seasons, water flow through the measurement structures was calculated from stage (water depth) data recorded by a pressure transducer-datalogger installed on the upstream sides of the measurement structures. Water volumes estimated to have been diverted to the H-W Site in each of the four SAR seasons are as follows:

- 82 acre-feet diverted from Wells Ditch, with 68 acre-feet r to the H-W Site in the 40 day-long 2006 SAR season.

- 140 acre-feet diverted from Wells Ditch, with 106 acre-feet delivered to the H-W Site in the 116 day-long 2007 SAR season.

- 15.7 acre-feet diverted from Wells Ditch, with 14.9 acre-feet delivered to the H-W Site in the 14 day-long 2008 SAR season.

- 179.3 acre-feet diverted from Wells Ditch, with 171.8 acre-feet delivered to the H-W Site in the 68 day-long 2009 SAR season.

Water level data recorded by pressure transducer-dataloggers installed in three on-site, purpose-built monitoring wells indicates the shallow alluvial aquifer system responded rapidly to the delivery of water to the H-W Site. Within 24 hours of the start of SAR, or an increase in delivery rate of SAR water, water levels in the 3 monitoring wells rose. The shallow alluvial aquifer response to SAR is significantly quicker than that predicted by a large-scale infiltration rate evaluation conducted in the 2009 SAR season. This suggests recharge water infiltration through the vadose zone at the H-W Site occurs only beneath a small portion of the wetted surface area.

The water level data collected for the project also indicates that the shallow alluvial aquifer in the vicinity of the H-W Site responds to factors other than those related to H-W Site SAR operations. In some instances, off-season rises and falls in water level were at least as great, and sustained, as those resulting from SAR. Although these off-site influences on water level were not directly evaluated, likely phenomena influencing shallow alluvial aquifer water level include: (1) ditch operations, especially in unlined, leaky ditches, (2) well pumping, and (3) seasonal precipitation and run-off variation.

During the 2006, 2007, and 2008 SAR seasons, shallow alluvial aquifer water level data was manually measured in a number of off-site wells. The collection of this data indicated that the water table mound generated by H-W Site SAR extended for distances of several miles within 1 to 2 weeks of the start of the SAR season. Water level data from these same wells also showed a corresponding rapid decrease in the water table mound at the conclusion of each H-W Site SAR season.

H-W Site SAR surface-source water and groundwater samples were collected and analyzed for field parameters, basic water quality constituents, and synthetic organic compounds (SOC's) periodically before, during, and after each SAR season. The data collected to-date does not show discernable degradation of local groundwater as a result of H-W Site SAR operations. The data does show that surface-source water and groundwater are very similar geochemically. This, coupled with shallow alluvial aquifer water level data, strongly implies that the groundwater and surface water at the H-W Site have a high degree of direct hydraulic connection. A consequence of this direct hydraulic connection is that groundwater quality is largely controlled by surface water quality regardless of H-W Site SAR operations.

The main operational issues encountered with the H-W Site to-date are related to the very low gradient ditches, high silt and organic debris load in these ditches, and the fact that there is no single owner for the Wells Ditch system. The low gradient of the Branch Ditch made it difficult to build a water flow measurement weir or install a portable ramp flume with a sufficient head drop to result in stage measurements that could be used to calculate flow water volume. This may account for some of the differences in water volumes estimated at the upper and lower end of the Branch Ditch. The low gradient of Wells Ditch resulted in fouling of the fish screen placed at the Wells Ditch diversion weir. This fish screen, which was entirely passive as no power was available for it, relied on water flowing past it in Wells Ditch to remove fine sediment particles and larger suspended debris from the screen. These low flows were most common in December, January, and February. With the advent of the irrigation season, Wells Ditch flow generally increased enough to reduce fouling impacts.

With respect to operations and ownership, the lack of a single ditch owner/operator (either individual or corporate) hindered both operations and permitting. Because the Walla Wall River Irrigation District (WWRID), the Limited License holder does not own the H-W Site and ditches feeding it, and that they lie outside of the boundaries of the WWRID service area, meant that the WWRID had no control of the site. Consequently, WWRID could not invest resources into operations, maintenance, and upgrades. In addition, budget constraints limited the amount of on-site effort consultants could devote to operations. Day-to-day operations of the ditch system and H-W Site could only happen when local stakeholders, including Mr. Tom Page the local proponent, had the time and ability to operate gates, headboards, and other related equipment.

SAR at the H-W Site did result in aquifer recharge with no discernable groundwater degradation. Future site operations will benefit the shallow alluvial aquifer, but H-W Site operation and ownership will need to be addressed, likely by a local proponent stepping forward to assume any required operational maintenance, funding (including grants), and permitting responsibility.

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1.0 INTRODUCTION

This report describes the results of the 2009 shallow aquifer recharge (SAR) season at the Hall-Wentland Site (H-W Site), reviews the results of the four seasons of SAR work done at the H-W Site to-date, and presents some conclusions and recommendations for future H-W Site SAR. SAR work being done at the H-W Site (and other sites in the Walla Walla Basin) is one of several water resource management strategies being explored by water resources stakeholders in the Walla Walla Basin of southeastern Washington and northeastern Oregon (Figure 1). The H-W Site is located in the SE ¼, NE ¼, Section 14, T6N, R35E, on private property south of Stateline Road in Oregon (Figures 1 and 2).

SAR at the H-W Site is being done under Oregon Water Resources Department (OWRD) Limited License 915 issued to the Walla Walla River Irrigation District (WWRID) in the fall of 2005. H-W Site SAR work currently is being funded by Washington Department of Ecology (ECOLOGY) through grants awarded to the Walla Walla Basin Watershed Council (WWBWC). SAR activities done at the H-W Site under Limited License 915 are conducted seasonally (with several stipulations and conditions) between November and April of the succeeding calendar year. Limited License 915 expires in April 2010.

The 2009 SAR season operations at the H-W Site began on 03 February 2009 and ended on 15 April 2009. Topics and information presented in this report with respect to the 2009 SAR season include the following:

- A timeline listing the major events associated with the 2009 SAR season (Section 2.0).

- Descriptions of H-W Site modifications and changes (Section 3.0).

- Rates and volumes of water delivered to the H-W Site (Section 4.0). As was the case in previous seasons, source water was ambient flow from the East Little Walla Walla River (ELWW) delivered to the project area via Wells Ditch (Figure 3). Also as in previous seasons, water was not diverted from the mainstream of the Walla Walla River for this project.

- Results of infiltration testing done at the H-W Site during the 2009 season (Section 4.0).

- Shallow alluvial aquifer water levels (both on-site and off-site), before, during, and after the 2009 season (Section 5.0).

- Results of groundwater and surface water quality monitoring before, during, and after the 2009 season (Section 6.0).

- In addition, this report includes a summary and analysis of the 4 SAR seasons completed-to-date (Section 7.0) and conclusions and recommendations with respect to the H-W Site SAR (Section 8.0).

This report is accompanied by appendices that contain data and information collected during the course of the 2009 season. These appendices are as follows:

- Appendix A. Field notes.

- Appendix B. Water quality data, including laboratory reports.

Work described in this report was done by GSI Water Solutions, Inc. (GSI), under Task Order 8 of GSI's Continuing Services Contract with the WWBWC. For the 2009 SAR season the project team included GSI staff and subcontractors, and WWBWC staff, who are as follows:

- Kevin Lindsey, Ph.D., L.HG. (GSI) – GSI project manager and hydrogeologist (Washington).

- Terry Tolan, R.G, LGH. (GSI) – Hydrogeologist (Oregon).

- Jon Travis (GSI) – Project support.

- John Fazio, PE (Fazio Engineering) – Project engineer, under contract to GSI.

- Tom Page (independent land owner) – Site operator and local point of contact, under contract to GSI.

- Bob Bower (WWBWC) – WWBWC lead for water resources projects, and contract manager for the WWBWC's contracts with ECOLOGY.

- Troy Baker (WWBWC) – Water quality sampling.

- Nella Parks (WWBWC) – Data support.

The basic H-W Site layout for the 2009 SAR season was very similar to that of the preceding seasons (Figure 3).

2.0 2009 TIMELINE

The project timeline presented here lists the main project activities and actions for the 2009 SAR season. Notes and documents describing many of these actions and events are attached to this report in Appendix A. Laboratory reports for water quality analysis results are reproduced in Appendix B.

- 28 October 2008; initial pre-season water quality sampling event for field, basic and synthetic organic compound (SOC) groundwater parameters in wells HW-2 and HW-3. Well HW-1 was not accessible at the time of sampling. Source-water samples were not collected because of a lack of flow onto the site.

- 16 December 2008; second pre-season water quality sampling event for field, basic, and SOC parameters in wells HW-1, HW-2, and HW-3. Source-water samples were not collected because of a lack of flow onto the site.

- 09 January 2009; fish screen installed at the diversion on Wells Ditch. E-Z Flow® portable ramp flumes installed in the Branch Ditch just below the Wells Ditch diversion weir and where the Branch Ditch enters the H-W Site. Branch Ditch cleaned out with backhoe, removing excess silt, mud, and vegetative debris.

- Throughout January 2009; stream flow at Stateline Road gauge on the ELWW was calculated to be consistently below 3.5 cubic feet per second (cfs). Flow in the ELWW must exceed 3.5 cfs (the minimum required flow per Limited License 915) for SAR operations at the H-W Site to be conducted. This determination

was based on visual observation of water level on the staff gauge and comparison of that water level to preliminary rating curve provided by ECOLOGY staff.

- 03 February 2009; SAR season begins when flows in the ELWW exceed 3.5 cfs. Transducers installed in the two Branch Ditch ramp flumes.

- 13 February 2009; water quality sampling event for field and basic parameters in groundwater and source water.

- 03 February to 15 April, 2009; ongoing SAR operations with most of the recharge water delivered to the Hall (eastern) portion of the H-W Site. H-W Site visited every 1 to 2 days to clean fish screen and to check flow in ELWW at Stateline Rd. Maps showing the estimated wetted area of the Hall pasture (Appendix A) were made on 26 February and 03, 13, 20, and 26 March 2009.

- 12 March 2009; Mid-season water quality sampling event for the field and basic parameters in monitoring well HW-3 only. Sampler did not report reasons for not sampling the other locations.

- 15 April 2009; SAR season ends. Fish screen, weir boards used to control delivery of the water to Branch Ditch, and ramp flumes removed. Wells Ditch and Branch Ditch return to normal use.

- 23 April 2009; Post-SAR water quality sampling event for field and basic parameters in all three H-W Site monitoring wells and surface water.

- 28 May 2009; A second post-SAR season water quality sampling event in the three H-W Site monitoring wells and surface water was conducted.

- Summer and autumn 2009; SAR season report prepared.

3.0 ON-SITE WORK

Work done for the 2009 SAR season focused on improving water flow through the ditch

system that supplies water to the H-W Site, especially Branch Ditch. A backhoe was used to clear accumulated sediment and overgrown grasses from the Branch Ditch to improve water flow through it. This was done from the Wentland pump sump pond upstream to the north fence line of the pasture that contains the Wells Ditch diversion structure. This work was done in early January 2009.

In February 2009, in the SAR season a 20 foot by 20 foot grid was marked out on the Hall portion of the site using wooden posts and string. This grid was used to estimate the wetted area of the site periodically during the season. Field notes and sketched maps documenting the wetted area are reproduced in Appendix A. The use of these wetted area estimates are described in the following section.

4.0 WATER VOLUME USED IN 2009 TEST SEASON

The volume of water delivered to the H-W Site during the 2009 SAR season was calculated from staff gauge readings and transducer data collected between 03 February 2009 and 15 April 2009 at two E-Z Flow® ramp flumes installed in the Branch Ditch that delivers water to the H-W Site. One ramp flume was placed in the Branch Ditch just downstream of the diversion weir structure on Wells Ditch (Figure 4) and it was used to calculate the flow diverted from Wells Ditch into the Branch Ditch. The second ramp flume was placed in the Branch Ditch where it enters the H-W Site (Figure 5). This ramp flume was used to calculate water flow onto the H-W Site. Flow calculations from both flumes were used to estimate the total volume of water delivered to the H-W Site in the 2009 SAR season. Hydrographs plotting instantaneous water flow (cfs) calculated at each flume and calculated accumulative water volume (acre-feet) across the two ramp flumes are shown on Figure 6.

4.1 Transducer Data from On-Site and Diversion Flumes

The two portable ramp flumes used to measure water flow diverted from Wells Ditch and delivered to the H-W Site are equipped with staff gauges calibrated to cfs. For this project we also installed a 10 psi Levellogger® transducer on the upstream side of each flume. The Levellogger® was installed in a 2-inch tube anchored to a steel post, and was programmed to measure water level hourly.

Levellogger® data for both ramp flumes was calibrated to the 0 cfs flow mark on the staff gauge attached to the flume by using a correction factor. The correction factor corresponded to the vertical elevation difference between the 0 cfs mark on the flume staff gauge and the sampling port on the transducer. In both flumes the transducer sampling port was below the 0 mark on the corresponding staff gauge. The on-site ramp flume correction was done by subtracting 0.088 feet from the transducer water depth data. The diversion ramp flume correction was done by subtracting 0.100 feet from the transducer water depth data. Following the correction for water depth, transducer data for both the on-site flume and diversion flume was converted to instantaneous flow, using the following equation:

$$Q = 0.07106\ (h)^{1.615}$$

where,

Q = flow in cfs,

and

h = depth of water (in inches) across the measurement sill.

Calculated instantaneous water flow rate for the hourly stage (water level) measurements made at the on-side ramp flume, generally ranged from approximately 0.87 to 1.47 cfs with the average flow rate being approximately 1.12 cfs. For the ramp flume at the Wells Ditch diversion weir, water flow rates range during operation generally ranged between approximately 0.97 and 1.53 cfs, with average flow being approximately 1.25 cfs. The hourly instantaneous water flow rates were used to estimate the approximate volume of water that flowed past each ramp flume.

The primary assumption made to estimate the volume of water that flowed past each ramp flume is that the calculated hourly instantaneous water flow rate is generally representative of average hourly flow conditions during the following hour. While not completely accurate, the hour-to-hour variation seen in measured water level and calculated instantaneous flow rates suggests that flow through the two ramp flumes rarely varied by more than 0.05 feet, or 0.0005 cfs each hour. Given that small variability, it is assumed that the calculated instantaneous flow rate at any time generally

is representative of the water flow rate over the entire subsequent hour (e.g. until the next instantaneous water flow rate measurement is calculated from water depth). Calculated instantaneous water flow rate (in cfs) was converted to an estimated flow volume measured in acre-feet, for the subsequent hour.

Using these calculations, it is estimated that 173.7 acre-feet of water flowed through the on-site ramp flume and was delivered to the H-W Site between 03 February 2009 and 15 April 2009 during the 2009 SAR season (Figure 6). During the 72 day 2009 SAR season, the average daily volume of water delivered to the H-W Site was approximately 2.41 acre-feet. Total approximate volume of water diverted through the ramp flume at the diversion weir on Wells Ditch was 180.7 acre-feet, which is an average of approximately 2.51 acre-feet/day. Based on these estimated volumes, approximately 0.1 acre-feet/day of water was lost to seepage along the several hundred feet of the Branch Ditch between the two ramp flumes.

The average delivery rates noted above do not reflect changes in delivery and flow seen in the first portion of the season (before 13 March) versus those seen later. During the first portion of the season the daily average water delivery rate to the H-W Site was less than 2.41 acre-feet/day, later in the season it was higher. This can be readily seen in Figure 6. On many days prior to 13 March, average daily water delivery rate may have been as little as half (1.2 acre-feet/day) of the overall seasonal average.

4.2 Infiltration Rate Tests

One of the objectives of the work done during the 2009 SAR season was to estimate unit area infiltration rate(s) at the H-W Site. Use of a fixed size infiltrameter was discarded for this effort because the large size of the area of infiltrating water (wetted area) during operation, variability in surface materials (mud and silt to cobble gravel), and limited budget precluded collecting enough infiltrameter data to characterize the likely variability. Furthermore, because no infiltration structures (ditches, basins, etc.) were built, no fixed area on the site received water. This also limited our ability to estimate infiltration rate during operation as the foot print of the actual area of recharge was irregular and changing throughout SAR operations.

To work around these challenges and estimate an average infiltration rate over the whole site, the H-W Site was mapped and marked with a 20 foot by 20 foot grid. This was done only on the Hall portion of the site, as the Wentland portion generally was not used during the 2009 SAR season. Five times during the SAR season a scaled sketch map of the wetted area was made from field observations. From these sketch maps the approximate wetted area covered by recharge water delivered to the site at those times was estimated. The area of the wetted foot print for each of the five days is listed on Table 1. The scaled sketch maps are reproduced in Appendix A.

Using the wetted area at any given time, average infiltration rate over the entire area of the H-W Site was estimated using several approaches:

- The calculated instantaneous flow rate at the on-site flume at the time of the site visits was converted to gallons per day and divided by the wetted area to estimate infiltration rate (per day) on a unit volume and area basis, and a velocity basis.

- The second method used the average flow onto the site in the previous 24 hour period. This average flow was converted to gallons per day which was then divided by the size of the wetted area. This was then used to estimate infiltration rate (per day) on a unit volume and area basis, and a velocity basis.

- The third method used the average flow onto the site based on the pervious 5-day total volume delivered to the site. This 5-day average flow was then divided by the size of the wetted area to estimate infiltration rate on a unit volume and area basis, and a velocity basis.

Each approach yields, at best, a conservative average infiltration rate as they assume infiltration is the same across the entire wetted area. They do not account for heterogeneity across the site, including variation in underlying soils and geology and shifting wetting patterns as the shape of the wetted area changes – possibly in response to vadose zone moisture content, pore plugging, and vegetation changes. These estimates also do not account for the likelihood that infiltration to groundwater only occurs beneath a portion of the total wetted area. Depending on all of these variables, and probably others, minimum infiltration rates over the entire wetted area are estimated

to range between approximately 3.8 to 8.2 feet/day (measured as velocity) and 28 to 61 gallons/day/square foot (measured as volume per unit area). Comparing these estimates to water level changes seen in H-W Site monitoring wells suggests they are conservative.

Depth to groundwater data for the nearest down-gradient monitoring well, HW-1, offers additional insight into possible infiltration rate(s) at the H-W Site. Water level in HW-1, located just a few hundred yards down-gradient of the center of the H-W Site, generally began to rise within 24 hours of the start of recharge (Figure 7). Depth to water in this well generally ranges between 25 and 30 feet below ground surface (bgs). Its response to the start of recharge operations indicates the vertical velocity through the vadose zone must be in excess of 25 feet/day in order for recharge water to reach the water table and manifest as a rise in water level in the well. This is significantly higher than the infiltration rate estimated using the aforementioned methods, 3.8 to 8.2 feet/day. This suggests infiltration is variable across the site, and probably only occurs in portions of the total wetted area. Given the difference in estimated vadose velocity noted above (25 feet/day versus 3.8 to 8.2 feet/day) the active area of infiltration could be only 1/6 to 1/3 of the actual wetted area.

5.0 WATER LEVELS IN THE SHALLOW ALLUVIAL AQUIFER

As was done in previous SAR seasons, water levels were tracked in on-site monitoring wells HW-1, HW-2, and HW-3. Unlike previous years though, water level data collection in off-site wells was done in only 2 wells for the 2009 SAR season. Water level data in monitoring wells and the off-site wells was collected using digital transducers and data loggers. This differs from pervious SAR seasons where off-site water level data was collected manually, using an electric water level measuring tape (e-tape).

5.1 Transducer Data from On-Site Monitoring Wells

Water level data collected in the 2009 SAR season from each of the three on-site monitoring wells is summarized below and shown on Figure 7.

Water level in well HW-1 (at the north end of, and down-gradient of, the H-W Site) generally increased in the month prior to the start of the SAR season, reaching approximately 742.45 feet above mean sea level (amsl) on 03 February 2009 at the start of the SAR season. It continued to rise to an elevation of approximately 743.62 feet amsl on 12 February 2009. For the next month, the water level in HW-1 slowly declined, as did the delivery rate of water to the site (Figure 6). In mid-March, the water level began to rise after reaching a low of approximately 742.18 feet amsl on 12 March 2009. This rise began within several days of the beginning of increased water delivery to the H-W Site. On 08 April 2009 water level in HW-1 reached its highest point, 749.35 feet amsl, for the 2009 SAR season, 7 days before the end of the season. The final water level elevation measured at the end of the 2009 SAR season, 748.11 feet amsl, was 5.66 feet higher than the water level measured on the first day of the SAR season. On 15 April, following the end of the 2009 SAR season the water level in HW-1 declined to below the pre-season level.

Well HW-3 is, like HW-1, located down-gradient of the H-W Site and it displayed water level changes similar to, but more subdued than those seen in HW-1 (Figure 7). In the month prior to the start of the 2009 SAR season the water level in HW-3 generally increased, reaching approximately 738.06 feet amsl on 03 February 2009 at the start of the season. Following the start of the 2009 SAR season the water level in HW-3 continued to rise for several more days reaching a high of approximately 738.34 feet amsl on 13 February 2009. From then until 12 March 2009 water level fell, reaching a low of 737.54 feet amsl. Like in well HW-1, the water level in HW-3 began to rise reaching a high of 740.83 feet amsl on 10 April 2009, five days before the end of the SAR season. The beginning of this rising trend corresponded to increased delivery of water to the H-W Site. The water level in well HW-3 at the end of the SAR season, 740.66 feet amsl, was 2.6 feet higher than the water level measured at the start of the 2009 SAR season. Following the end of the season water level declined to below pre-season levels.

The hydrograph for well HW-2, the up-gradient well, displays some differences relative to the two down-gradient wells (Figure 7). Like the down-gradient wells, water level in HW-2 generally was rising in the month prior to the start of the 2009 SAR season, reaching a high of 758.55 feet amsl on 03 February 2009. However unlike the two

down-gradient wells, the water level in HW-2 began to fall within a few hours after the start of the 2009 SAR season.

Looking at a map of the H-W Site and immediate vicinity (Figure 3) offers some clues as to what may have caused this drop in water level in the HW-2 well at the start of the 2009 SAR season. Wells Ditch, the primary conduit for delivery of water to the immediate vicinity of the H-W Site is less than 100 yards south, up-gradient, of well HW-2, which is in turn up-gradient of the H-W Site. The diversion point on Wells Ditch where water is redirected into the Branch Ditch towards the H-W Site is southeast of well HW-2. This diversion location is up-gradient (groundwater flow direction) and up-stream (in Wells Ditch) of well HW-2 (Kennedy/Jenks, 2006; GSI, 2007, 2008). During the first month or more of the 2009 SAR season the majority of Wells Ditch flow was diverted down the Branch Ditch to the H-W Site and Wells Ditch flow was greatly reduced in the area immediately up-gradient of well HW-2. The steady water level decline seen in HW-2 throughout much of the first 2/3 of the 2009 SAR season is interpreted to reflect the loss of recharge to the aquifer up-gradient of HW-2 as most Wells Ditch flow was redirected to feed the H-W Site, down-gradient of well HW-2.

In late March, water level in HW-2 began to rise. The most likely explanation for this observed rise is the increased flow through Wells Ditch as the spring irrigation season began. With the advent of the irrigation season more water was flowing through the Wells Ditch, and other ditches up-gradient of HW-2, to meet irrigation demands. As a result, Wells Ditch, and other ditches, up-gradient of HW-2 leaked water, recharging the alluvial aquifer and causing rising water levels. A portion of this rise may reflect the continued operation of the H-W Site that generated a groundwater mound that propagated up-gradient to HW-2.

The fluctuations seen in water level in well HW-2 following the end of the 2009 SAR season can not be explained by H-W Site operation given that it is occurring days to weeks following the end of SAR operations. These water level fluctuations likely reflect Wells Ditch operation, well pumping, and other ditch operations in the project area.

Based on water level data collected from wells HW-1, HW-2, and HW-3 the alluvial aquifer underlying the H-W Site responded to SAR activities during the 2009 SAR season. Water levels in the down-gradient wells, HW-1 and HW-3, began to rise within

one day of the start of the SAR season. Additionally, when recharge volumes increased in late March, both down-gradient wells responded with rising water levels. The up-gradient well, HW-2, showed more changes in water level than the down-gradient wells, including a marked decline following the start of the SAR season. This decline is interpreted to be, at least in part, a result of the diversion of flow from Wells Ditch to the Branch Ditch and the H-W Site. Later in the SAR season, as irrigation demands increased and more water flowed down Wells Ditch and was not diverted into the Branch Ditch, HW-2 water level rose.

5.2 Manually Measured Water Supply Wells

For the 2009 SAR season, unlike previous seasons, water levels in off-site wells were collected using digital transducers and dataloggers. This was done in 2 wells, designated MC-9 and GW-102 (Figure 2). In preceding SAR seasons, MC-9 was measured manually, and GW-102 was not measured. However, GW-102 is close to a well (MC-3a) that in previous H-W SAR seasons occasionally had water level measurements taken. The transducers in wells MC-9 and GW-102 were installed and operated by WWBWC staff who then provided data from them to GSI for use in this report. Hydrographs for the 2 wells during the 2009 SAR season are shown in Figure 8.

Water level in well MC-9 appears to have responded to SAR activities at the H-W Site. Although the water level response is more subdued than seen in the H-W Site monitoring wells, it does display the pre-season rise followed by the early season drop which ends in mid-March. Also like the on-site monitoring wells, well MC-9 displays a generally increasing water level in the final month of the 2009 SAR season as more water was delivered to the H-W Site.

No apparent response to H-W Site SAR operations is observed in off-site well GW-102. Water level in this well at the beginning and end of the recharge season is essentially the same.

6.0 WATER QUALITY

Water quality sampling and analysis for the 2009 SAR season generally was performed as described in the project monitoring and testing plan (Kennedy/Jenks, 2005). However, unlike the preceding three seasons, sampling and analysis was not done by Kuo Testing Laboratories, Inc. Instead, sample collection was done by WWBWC staff and water quality analysis was performed by Edge Analytical, Inc. The results of 2009 source water and groundwater quality sampling and analysis are described below. Table 2 presents 2009 and previous SAR seasons data for field and basic parameters. Table 3 presents 2009 and previous SAR seasons SOC data. Laboratory reports are reproduced in Appendix B.

6.1 Field and Basic Water Quality

SAR source water samples were collected from the Branch Ditch where it enters the H-W Site. Up-gradient groundwater samples were collected from well HW-2. Down-gradient groundwater samples were collected from wells HW-1 and HW-3. Field parameters were measured at the time samples were collected.

The two pre-season sampling events were performed on 28 October 2008 and 16 December 2008, while the 2009 SAR season started on 03 February 2009. The long period of time between the final pre-season sampling event and the start of the 2009 SAR season was because cold snowy weather in late December 2008 and January 2009 hindered field work and resulted in ELWW flow levels below 3.5 cfs. During the 2009 SAR season, water quality samples were collected on 12 February and 12 March 2009. Post-season sampling was done on 23 April 2009 and 28 May 2009.

General observations with respect to field and basic water quality parameters during the 2009 SAR season are as follows:

- Groundwater pH decreased slightly from before the start of the SAR season (6.54 to 6.91) to following the end of the season (6.30 to 6.43) (Figure 8). The largest variation was seen in down-gradient well HW-1, dropping from 6.91 to 6.34. Up-gradient pH usually was slightly less than down-gradient pH. Source

water pH (7.27 to 7.54) was higher than groundwater pH.

- Electrical conductivity (EC) (Figure 10) generally decreased from before the 2009 season to following the end of the season (1490-1860 ms/cm to 1420-1750 ms/cm). No up-gradient to down-gradient trend could be ascertained and source water EC was less than groundwater EC.

- Nitrate-N (Figure 11) concentrations in source water and groundwater before, during, and after the 2009 SAR season were low (<3 mg/L). There was no obvious trend between the pre-season and post-season and up-gradient and down-gradient. Source water nitrate-N concentrations are lower than in groundwater.

- Total dissolved solids (TDS) (Figure 12) concentrations in groundwater decreased from before the 2009 SAR season to after the season, although there appears to be no readily apparent up-gradient to down-gradient variation or trend. Pre-season concentrations ranged from 125 to 149 mg/L, during the season they ranged from 105 to 125 mg/L, and in the post-season that ranged from 96 to 122 mg/L. Source water TDS was lower than groundwater TDS.

- Chloride (Figure 13) concentrations in all three monitoring wells generally were less than or equal to 3.2 mg/L before the 2009 SAR season. Shortly after the start of the season, concentrations in all wells increased slightly, ranging from 2.3 to 3.8 mg/L. Following the 2009 season chloride concentrations in all wells and source water decreased slightly, 2.6 to 3.7 mg/L. Source water chloride concentrations were less than those seen in groundwater.

- Soluble reactive phosphorus (SRP) (Figure 14) concentrations showed small fluctuations (exclusive of the early March sample in HW-3) before, during, and after the 2009 SAR season.

- Hardness (Figure 15) showed some variation, ranging between 53.7 and 74 mg/L before the season and between 44.8 and 70.40 mg/L following the season. There is no readily apparent up-gradient to down-gradient trend, although source water may have a slightly lower hardness than groundwater.

- Chemical oxygen demand (COD) (Table 2) generally was at, or below, the minimum detection limit (MDL) of 8 mg/L in all samples, except in source water which had a COD of 14 mg/l on 12 February 2009.

Basic and field water quality parameters for the 2009 SAR season are interpreted to indicate source and groundwater in the immediate vicinity of the H-W Site is very similar geochemically and that SAR activities have not degraded groundwater quality. Except for pH and SRP, source water parameter concentrations are lower than what is found in groundwater. This could indicate that the source of these constituents lie up-gradient of the H-W Site. Alternatively, SAR activities may be flushing small quantities of mineral salts from the soil column into the groundwater. However, because there is no consistent up-gradient to down-gradient trend suggesting the predominance of the later case, much of the variation in groundwater quality seen in the 2009 SAR season is inferred to be the result of off-site, up-gradient factors.

6.2 SOC Water Quality

Water samples that were analyzed for synthetic organic compounds (SOC) were collected during the 28 October 2008 and 16 December 2008 sampling events. There were no SOC detections in any of these samples. The SOC data for the 2009 SAR season is interpreted to indicate SOC's were most likely not present or at very small concentrations in source water and groundwater.

7.0 FOUR SAR SEASONS AT THE H-W SITE

This section presents a synthesis of basic observations and interpretations concerning the quantity of water delivered to the H-W Site during the past four SAR seasons, and how alluvial aquifer water level and water quality responded to SAR. Basic changes in H-W Site operation for each of the four SAR seasons also are summarized.

7.1 Operation of the H-W SAR site

Since SAR activities first started at the H-W Site under Limited License 915, four SAR seasons, of variable length, have been completed. The differences in SAR season length were the result of administrative factors (human-related) and environmental factors (natural). The most common administrative factors that influenced SAR season length were related to limitations, and/or delays, in project funding which tended to delay the start of the SAR season, this was most notable for the 2006 SAR season. Environmental factors that influenced H-W Site operations centered on weather conditions and stream flow. Cold winter weather conditions impacted H-W Site operations when freezing inhibited normal ditch operations. Low stream flows in the ELWW invoked Limited License 915 conditions which restricted operations. Low flow in Wells Ditch also impacted operations. The following sections summarize operational issues and conditions, including flow estimates and water volumes delivered, in each of the four past SAR seasons at the H-W Site.

7.1.1 2006 SAR Season Operations

This summary of 2006 SAR operations is taken from the 2006 H-W Site annual report (Kennedy/Jenks, 2006). The 2006 SAR season began on 06 March 2006 and ended on 15 April 2006. For the 2006 SAR season the volume of water diverted towards the H-W Site was calculated from stage measurements collected at the Diversion Weir where water was diverted from Wells Ditch into the Branch Ditch. The volume of water arriving at the H-W Site, via the Branch Ditch, was calculated from stage measurements made for a weir placed in the Branch Ditch where it enters the H-W Site.

During the 2006 SAR season instantaneous flow through the Branch Ditch to the H-W Site was calculated to have ranged from approximately 0.6 to 2.4 cfs, although it generally averaged less than 1.4 cfs. Flow variability is interpreted to be related primarily to fish screen plugging and variations in Wells Ditch flow. Based on flows calculated for the Diversion Weir on Wells Ditch, 82 acre-feet of water is estimated to have been diverted down the Branch Ditch towards the H-W Site during the 40 days of the 2006 SAR season. During that same period, 68 acre-feet is estimated to have been delivered to the site proper, based on flows calculated through the on-site weir. Given

these estimates, approximately 2.05 acre-feet/day was diverted to the H-W Site from Wells Ditch, 1.7 acre-feet/day arrived on-site, and approximately 0.35 acre-feet/day was lost from the Branch Ditch. This difference between diverted and delivered water probably resulted from a combination of measurement inaccuracy in the weirs, seepage of water out of the Branch Ditch into the ground, and undocumented diversions out of the Branch Ditch by other water users. In Kennedy/Jenks (2006) it was concluded that low gradient of the Branch Ditch resulted in lower flow calculations by inhibiting flow through the measurement weir.

7.1.2 2007 SAR Season Operations

This summary is taken from information in GSI (2007). The 2007 SAR Season began on 21 December 2006 and ended, as stipulated in Limited Licenses 915, on 15 April 2007. For the 2007 SAR season portable E-Z Flow® ramp flumes were installed in the Branch Ditch to measure flow in it just downstream of the Wells Ditch Diversion and where the Branch Ditch enters the H-W Site. A transducer-datalogger was installed in a perforated PVC tube placed a few feet upstream of each ramp flume.

For the 116 day long 2007 SAR season, the total volume of water calculated to have been diverted from Wells Ditch into the Branch Ditch was approximately 140 acre-feet. Flow calculates for the ramp flume at the H-W Site indicate approximately 106 acre-feet of water reached the H-W Site. For the first 2/3 of the 2007 SAR season flows through the Branch Ditch usually were less than 0.5 cfs. For the last 6 weeks of the 2007 SAR season average flow in the Branch Ditch generally exceeded 0.5 cfs, and commonly was greater than 1 cfs. As in the 2006 SAR season, the differences in calculated flow diverted from Wells Ditch and delivered to the H-W Site probably resulted from a combination of measurements, errors, seepage into the ground between the two ramp flumes, and undocumented diversions out of the Branch Ditch by other water users.

The change in flow onto the H-W Site calculated from ramp flume stage data during the 2007 SAR season is interpreted to reflect changing flow volumes in Wells Ditch and fish screen plugging. Throughout most of the 2007 SAR season, up until early March 2007, Wells Ditch flows were low and the fish screen installed at the Wells Ditch diversion repeatedly was plugged as flows in Wells Ditch were not enough to clean the screen.

With the advent of the spring irrigation season, as flow through Wells Ditch increased, the fish screen experienced less plugging and more water was diverted to the H-W Site.

7.1.3 2008 SAR Season Operations

This summary is taken from information in GSI (2008). The 2008 SAR season was the shortest of the four SAR seasons at the H-W Site, beginning on 01 April 2008 and ending on 15 April 2008. The reason the 2008 SAR season was only 15 days long was because flow in the ELWW at the Stateline gauge consistently fell below 3.5 cfs. As stipulated in Limited License 915, flow at that gauge must be at least 3.5 cfs for H-W Site operations to occur. For the 2008 SAR season this did not occur until 01 April 2008. Like the preceding SAR seasons, flow diverted from Wells Ditch and delivered onto the H-W Site were from stage data collected from two E-Z Flow® portable ramp flumes.

The total volume of water diverted from Wells Ditch for H-W SAR and than arriving on-site via the Branch Ditch were 15.8 acre-feet and 14.9 acre-feet, respectively. Average flows through both flumes in the 2008 SAR season rarely exceeded 1 cfs and commonly were less than 0.5 cfs. These low flows are directly attributed to a very small water supply in the ELWW and associated ditches during the 2008 SAR season.

7.1.4 2009 SAR Season Operations

As discussed earlier in this report, the 2009 SAR season began on 03 February 2009 and ended on 15 April 2009, lasting 72 days. Like the pervious two SAR seasons, flows diverted from Wells Ditch and delivered to the H-W Site were calculated from stage data collected at two E-Z Flow® portable ramp flumes placed in the Branch Ditch. Prior to mid-March flow through the Branch Ditch onto the H-W Site generally ranged from 0.8 to 1.3 cfs. During the last month of the 2009 SAR season flow in the Branch Ditch usually exceeded 1.0 cfs and commonly was greater than 1.75 cfs. This change in flow, which is similar to what was seen during the 2007 SAR season is interpreted to be the result of increased flow in the ditch system because of the advent of the irrigation season and a corresponding increase in fish screen cleaning efficiency.

For the 72 day long 2009 SAR season approximately 179.3 acre-feet of water was diverted from Wells Ditch, of which 171.8 acre-feet was delivered to the H-W Site. This difference, which is proportionally less than has been seen in previous seasons is attributed predominately to two factors: (1) ditch loss from water leaking out of the Branch Ditch between Wells Ditch and the H-W Site, and (2) increased measurement accuracy related to better set-up of the ramp flumes as the team learned how to use them.

7.1.5 Operations Summary

In the 2006 SAR season the amount of water diverted to the H-W Site was calculated from stage measurements taken at two weirs in the Branch Ditch. Stage data from portable ramp flumes were used in the subsequent three SAR seasons to calculated flow diverted from Wells Ditch and delivered to the H-W Site. In all cases, stage data was collected using digital data loggers-transducers and then used to calculate flow.

The 2007 and 2009 seasons saw fairly low flows early in each season and higher flows later in these seasons as spring irrigation got underway. The start dates for both the 2008 and 2009 SAR seasons were influenced by weathers conditions, 2008 being delayed by low flow conditions; 2009 being delayed by freezing conditions. In all four SAR seasons the fish screen at the Wells Ditch diversion was subject to repeated plugging problems, which were most severe during periods of low flow in Wells Ditch. With low flow, stream velocity was to low to effectively clean the screen.

For the four SAR seasons a total of approximately 368 acre-feet of water is estimated to have been delivered to the H-W Site while approximately 416 acre-feet was diverted from Wells Ditch. Average daily recharge at the H-W Site for the 2006, 2007, 2008, and 2009 SAR seasons was approximately 1.7 acre-feet/day, 0.91 acre-feet/day, 0.99 acre-feet/day, and 2.4 acre-feet/day, respectively. The changes in water delivery season-to-season are attributed largely to water availability in the Wells Ditch system and more effective fish screen cleaning at higher flows.

7.2 Shallow Alluvial Aquifer Water Level

Alluvial aquifer water level in the vicinity of the H-W Site varied in response to H-W SAR Site operation and external factors. Depth to water in the alluvial aquifer underlying the H-W Site during the four SAR seasons varies by 10 to 20 feet in the three on-site wells:

- In HW-1 groundwater usually lay 20 to 25 feet bgs, but it was as shallow as 15 feet bgs and as deep as 30 feet bgs.

- In HW-2 groundwater usually was found at 12 to 18 feet bgs, but it would be as shallow as 10 feet bgs and as deep as 30 feet bgs or more.

- In HW-3, groundwater was usually 18 to 22 feet bgs, but it could be as shallow as 15 feet bgs and as deep as 25 feet bgs or more.

When SAR was being done at the H-W Site, alluvial aquifer water levels rose in response to recharge (Figure 6). Infiltration rates estimated during the 2009 SAR season suggest SAR water should reach the water table within 2 to 4 days of the start of recharge. Monitoring well responses seen in the four SAR seasons indicates travel times from the surface to the water table are generally less than 24 hours. Comparing water level changes in the on-site wells to those manually measured in off-site wells (Kennedy/Jenks, 2006; GSI, 2007, 2008) suggest the pressure wave caused by recharge, manifest in water level rises, could be seen out to a distance of 1 or 2 miles within a few days to a week or two of the start of each SAR season.

The water level data collected to-date shows that SAR at the H-W Site does successfully recharge the alluvial aquifer system (Figure 17). In the 2006 and 2008 SAR seasons, the alluvial aquifer quickly and visibly responded to the delivery of water to the H-W Site (Figure 17). At the start of each season water levels in all 3 site wells increased. In the 2006 SAR season water levels also fell as soon as SAR ended on 15 April 2006. During the 2008 SAR season this was not observed, as water level continued to rise following the SAR season. The alluvial aquifer responded differently to H-W SAR during the 2007 and 2009 season (Figure 17). In the 2007 and 2009 SAR seasons aquifer water levels fell after showing early rises immediately following the start of each season. These water level drops coincided with declining water delivery to the H-W Site as fish screen

plugging issues and low ELWW flows persisted in January, February, and early March of each season. Both seasons saw an increase in surface water supplies beginning in mid-March, at which time water delivery to the H-W Site increased and water levels in site wells rose.

The water level data collected for this project also shows that there are other influences on the alluvial aquifer in the H-W Site area. Some of these have an equal, or even greater, impact on aquifer water level than H-W SAR did at the water volumes and flow rates used in the four SAR seasons. Based on the water level data collected to-date these factors may include, but are not limited to, the following:

1. Increased flow through the Wells Ditch system, resulting in increased ditch leakage and recharge of the underlying alluvial aquifer.

2. Conversely, decreased flow through Wells Ditch immediately south of the H-W Site lead to declines in groundwater level.

3. Increased flow through the East and West Little Walla Walla River systems, resulting in increased infiltration and recharge of the underlying alluvial aquifer in the general vicinity of the H-W Site, also may account for water level increases in alluvial aquifer. Decreased flow in these streams, the opposite effect.

4. Increased pumping of irrigation and water supply wells in the area, resulting in removal of water from the aquifer system and corresponding water level declines.

The work done for the project was unable to assess these possible influence and others, simply because access to off-site locations was limited by most being on private property.

7.3 Groundwater Chemistry

Basic and SOC water quality parameters in the four seasons of H-W Site SAR generally show little variation and are consistent with a surface water-groundwater system with a high degree of continuity, even in the absence of SAR. Observations specific to tested water quality basic parameters over the course of the four SAR seasons are as follows:

- Groundwater pH, with one exception – the May 2007 sampling event – never exceeds 7.0 and always is less than source-surface water pH (Figure 18). Throughout the project groundwater pH has generally ranged between 6.2 and 6.8 and it may have been declining slightly over the past 2 seasons.

- Electrical conductivity, hardness, and TDS through the four seasons of the project generally are slightly lower in source water than in groundwater (Figure 19). This difference may to reflect the dissolution and transport of mineral salts from weathering and leaching in the vadose zone as recharge water (including but not limited to the H-W Site) infiltrates from the surface to groundwater. Elevated concentrations of each of these parameters early in several SAR seasons may reflect the initial leaching and transport to groundwater of low concentrations of mineral salts at the start of a SAR season. However, because these parameters in source water also appear to be changing at the same time as observed changes in groundwater, it is possible that groundwater changes are simply reflective of surface water variation elsewhere in the project area, and that H-W SAR has little to no impact on these parameters in groundwater.

- Nitrate-N concentrations never exceeded 1 mg/L in source water and rarely exceeded 2 mg/L in groundwater (Figure 20). If there is any nitrate-N impact of SAR on groundwater beneath the H-W Site likely it is due to flushing of nutrients in the vadose zone into groundwater and not due to the introduction of high nitrate-N water to the aquifer by SAR. Conversely, the groundwater nitrate-N concentrations may be unrelated to H-W SAR operations, and reflective of off-site conditions.

- Chloride concentrations, except in the 2006 SAR season, rarely exceed 5 mg/L in both source water and groundwater (Figure 21). The high initial chloride concentrations seen in the initial season (25 to 32 mg/L) may have reflected, at least in part, source water which was higher that season then in subsequent seasons. Conversely, laboratory error must be considered with such a large variation. Following the first SAR season, only slight differences were observed between source water and groundwater.

- Soluable reactive phosphorus (SRP) concentrations throughout the 4 SAR seasons varied between approximately 0.05 and 0.35 mg/l, rarely exceeding 0.25 mg/l (Figure 22). Source water and groundwater concentrations generally varied in the same ways, suggesting a close relationship. However, since the up-gradient well increased and decreased in concert with the source water and the down-gradient wells, much of the hydraulic continuity suggested by the data probably is independent of ASR at the H-W Site.

SOC detections at the H-W Site in the 4 SAR seasons were rare and inconsistent. Four SOC's have been detected at various times to-date, di(ethylhexyl) phthalate, diethyl phthalate, di-n-butyl phthalate, and malathion. All reported concentrations have been very low, generally at or near the method detection limit. SOC occurrence reported for the project area as follows:

- Di (ethylhexyl) phthalate was detected prior to the 2006 SAR season in 2 wells (HW-1 and HW-2) and source water, and during the 2008 SAR season in one well (HW-1). No trend is apparent.

- Diethyl phthalate was detected once prior to the 2006 SAR Season in two wells (HW-1 and HW-3) and source water. No trend is apparent.

- Di-n-butyl phthalate was detected twice in the 2007 SAR season. One detection was before the season in two wells (HW-2 and HW-3) and once during the season in the same two wells. No trend is apparent.

- Malathion was detected in all three wells once during the 2007 SAR season. It was not detected in source water.

The groundwater chemistry and surface-source water chemistry data collected to-date shows a close relationship between surface water and groundwater at the H-W Site and it also is strongly suggestive that H-W SAR does not degrade groundwater quality. The lack of consistent, discernable up-gradient to down-gradient groundwater quality changes suggests SAR had little impact on groundwater quality. In addition, increase and decreases in source water quality that corresponded to similar shifts in groundwater quality in the up-gradient and both down-gradient wells suggest changes in water quality

generally are occurring independently of anything being done at the H-W Site. Given the widespread occurrence of unlined ditches throughout the H-W Site area, this should be expected.

8.0 SUMMARY AND RECOMMENDATIONS

8.1 Summary

SAR has been conducted seasonally at the H-W Site in each of the previous four winter-spring seasons. Suring these seasonal recharge events, SAR did successfully provide recharge to the underlying, shallow alluvial aquifer system. Furthermore, H-W SAR activities did not result in degradation of local groundwater quality.

H-W Site SAR has been done using passive infiltration focusing simply on letting water delivered to the site spread out across it, sink into the ground, and infiltrate through the vadose zone to the underlying alluvial aquifer system. The only site improvement done for the project focused on the water delivery system (ditches) through which water reaches the H-W Site. Ditches, trenches, and other structures that might have facilitated infiltration of water into the ground were not dug at the H-W Site in any of the four SAR seasons.

Water volumes delivered to the H-W Site were estimated from flow measurements collected in the Branch Ditch at two locations, one where water was diverted from Wells Ditch into it and one where it enters the H-W Site. In the first SAR season, in March and April 2006, the two flow measurement points were rectangular weirs. In the subsequent three SAR seasons E-Z Flow® portable ramp flumes were installed at the upper end and lower end of the Branch Ditch. For all four SAR seasons flow through the measurement structures was calculated from stage (water depth) data recorded by a pressure transducer-datalogger. Water volumes estimated to have been diverted to the H-W Site in each of the four SAR seasons are as follows:

- 82 acre-feet diverted from Wells Ditch, with 68 acre-feet delivered to the H-W Site in the 40 day long 2006 SAR season.

- 140 acre-feet diverted from Wells Ditch, with 106 acre-feet delivered to the H-W Site in the 116 day long 2007 SAR season.

- 16 acre-feet diverted from Wells Ditch, with 15 acre-feet delivered to the H-W Site in the 14 day long 2008 SAR season.

- 179 acre-feet diverted from Wells Ditch, with 122 acre-feet delivered to the H-W Site in the 72 day long 2009 SAR season.

Water level data recorded by pressure transducer-dataloggers in the three on-site monitoring wells indicates the shallow alluvial aquifer system responded rapidly to the delivery of water to the H-W Site. Within 24 hours of the start of SAR, or an increase in delivery rate of SAR water, water levels in the monitoring wells rose. The aquifer response is significantly quicker than that predicted by a large-scale infiltration rate evaluation conducted in the 2009 SAR season. This suggests infiltration through the vadose zone at the H-W Site only occurs beneath a small portion of the wetted surface area.

The water level data collected for the project also shows that the shallow aquifer in the vicinity of the H-W Site responds to factors other than those related to H-W Site SAR operations. In some instances, off-season rises and falls in water level were at least as great, and sustained, as those resulting from SAR operations. Although these off-site influences on water level were not directly evaluated, likely phenomena influencing alluvial aquifer water level other than H-W SAR include: (1) ditch operations, especially in unlined, leaky ditches, (2) well pumping, and (3) seasonal precipitation and run-off variation.

During the 2006, 2007, and 2008 SAR seasons, water level data was collected manually from a number of off-site wells. This data indicated that the water table mound generated by SAR propagated up to several miles away from the H-W Site within 1 to 2 weeks of the start of the SAR season. This data also showed a corresponding rapid decrease in the mound at the conclusion of the SAR season. It is important to keep in mind that this data does not record movement of water, but rather the pressure wave generated by SAR water reaching the water table. Because aquifer hydraulic data was not collected during the project and a lack of funding to build and test an appropriate

sized well, only non-site specific data is available upon which to calculate likely groundwater velocities and residence time for SAR water in the vicinity of the H-W Site.

Source water and groundwater quality samples were collected and analyzed for field parameters, basic water quality constituents, and SOC's periodically before, during, and after each SAR season. The data collected to-date indicates that no discernable impact to local groundwater quality as a resulted from H-W SAR. This data does however show that surface water and groundwater in the project area are very similar geochemically and that they display a high degree of hydraulic connection. Given that connection, and the water quality data collected to-date, any impact on groundwater quality by surface water occurs regardless of the presence or absence of H-W SAR operations.

As stated in this report, and as has been previously described in the three previous seasonal reports (Kennedy/Jenks 2006; GSI 2007, 2008), the main issues encountered when operating the H-W Site were related to the very low gradient ditches, high silt and organic debris load in these ditches, and the fact that there is no single owner for the Wells Ditch system. The low gradient Branch Ditch made it very difficult to build a flow measurement weir or install a portable ramp flume with a sufficient head drop to result in stage measurements that could be used to calculate flow volume. This may account for some of the differences in water volume estimated for the upper and lower end of the Branch Ditch. The low gradient ditch system, when coupled with low water levels, lead to increased fouling of the fish screen placed at the Wells Ditch diversion weir. This screen, which was entirely passive, as no power was available to where it needed to be placed, relied on water flowing past it on Wells Ditch to remove from the screen any fine sediment particles and larger suspended debris. The flows in Wells Ditch commonly experienced in December, January, and February simply were to low to accomplish this. It wasn't until the start of the irrigation season that Wells Ditch flow increased enough to reduce plugging impacts.

Finally, with respect to operations and ownership, the lack of a single ditch owner/operator (either individual or corporate) hindered both operations and permitting. The fact that WWRID, the Limited License holder, does not own the H-W Site and ditches feeding it (they lay outside of the boundaries of the WWRID service area) meant they had no control of the site. This situation also limited the availability of up-steam flows in the ELWW which are regulated for fish habitat benefit and WWRID operations

within the district service area. Consequently, WWRID could not invest resources into operations, maintenance, and upgrades. The ditch system and H-W Site could only be operated when local stakeholder, primarily Mr. Tom Page – the local proponent, had the time and ability to operate gates, headboards, and other related equipment.

8.2 Conclusions and Recommendations

The H-W Site is a good example of how SAR can be made to work on a small or local scale. The data collected during the four seasons of SAR operations at the H-W Site indicate that the project did directly contribute to groundwater recharge, but just as importantly so did the ditches operating in the project area when they contain water. Given the aquifer recharge potential of the H-W Site and the additional water provide by leakage from the ditches that carry water to it is recommended that aquifer recharge activities at the H-W Site and/or other sites, including ditches that are channelized streams (such as East and West Little Walla Walla), continue.

This conclusion is accompanied by the following recommendations:

- A single operating entity, either public, corporate, or private should be identified for each site so that there is an entity to hold an operating permit and has jurisdiction, or at least an operational role, over the site and the nearest ditches.

- If more than one site is operated, including selected reaches of ditches, then a streamlined water quality monitoring system should be implemented for all of them in combination. Given the high degree of aquifer-surface water connection it is recommended that monitoring focus only on field and basic parameters, primarily to confirm general water quality trends. Where very leaky ditches convey water to the SAR sites, tracking SAR operations impacts on groundwater quality appears to be a redundant activity.

- Monitoring of groundwater levels should continue, but as part of larger scale, regional WWBWC effort.

- Given the existing ditch system at H-W Site and in adjacent areas, will limit the size of any SAR site, multiple sites should be found and operated together to increase the potential recharge of the alluvial aquifer system.

- Integrate any future SAR in the H-W area into a Basin-wide effort, both to minimize cost by getting an economy of scale on operations and monitoring and so that it is integrated with and compliments other recharge efforts by not competing for source-surface water and generating overlapping aquifer responses.

- Facilitate the operating of winter water rights to simply increase recharge potential when water is available, recharging the shallow alluvial aquifer in time of plenty so it might be available as base flow for springs and streams in times of need.

- Use the H-W Site, and similar sites, to mitigate for reduced groundwater recharge resulting from piping and lining of former stream canals, channelization of those stream reaches, and the loss of recharge through the reduction in flood plain areas and wetlands dewatering.

9.0 REFERENCES CITED

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Kennedy/Jenks, 2006, Results of the First Season of Shallow Aquifer Recharge Testing at the Hall-Wentland Site, Umatilla County, Oregon and Walla Walla County, Washington. Consultants report prepared for HDR, Inc., 23 June 2006, 35 Pages, 5 Tables, 34 Figures, 4 Appendices.

Hall- Wentland Infiltration Testing

Date	Time	Flow in On-site Flume (cfs)	Flow in On-site Flume (gpd)	Estimated Total Wetted Area (sq. ft.)	Average Downward Vertical Velocity (ft./day)	Average Infiltration Rate (gal./day/ sq. ft.)	Weather Conditions
2/26/2009	14:00	1.08	698022.24	12992	7.18	53.73	50° windy, cloudy
3/3/2009	13:15	1.33	859601.47	14724	7.80	58.38	60° parly cloudy
3/13/2009	14:02	0.97	626927.39	15652	5.35	40.05	60° sunny
3/20/2009	12:34	1.37	885454.14	19184	6.17	46.16	65° sunny
3/26/2009	15:32	1.46	943622.66	23212	5.43	40.65	60° sunny

Table 1A. Assuming flow onto site constant for subsequent 24 hours.

Date	Time	Flow in On-site Flume (cfs)	Flow in On-site Flume (gpd)	Estimated Total Wetted Area (sq. ft.)	Average Downward Vertical Velocity (ft./day)	Average Infiltration Rate (gal./day/ sq. ft.)	Weather Conditions
2/26/2009	14:00	1.24	798683.00	12992	8.22	61.47	50° windy, cloudy
3/3/2009	13:15	0.95	614554.00	14724	5.58	41.74	60° parly cloudy
3/13/2009	14:02	0.70	453707.00	15652	3.88	28.99	60° sunny
3/20/2009	12:34	1.12	721662.00	19184	5.03	37.62	65° sunny
3/26/2009	15:32	1.30	838003.00	23212	4.83	36.10	60° sunny

Table 1B. Calculating average flow onto site based on previous 24 hours.

Date	Time	Flow in On-site Flume (cfs)	Flow in On-site Flume (gpd)	Estimated Total Wetted Area (sq. ft.)	Average Downward Vertical Velocity (ft./day)	Average Infiltration Rate (gal./day/ sq. ft.)	Weather Conditions
2/26/2009	14:00	0.91	589173.00	12992	6.06	45.35	50° windy, cloudy
3/3/2009	13:15	0.90	584840.00	14724	5.31	39.72	60° parly cloudy
3/13/2009	14:02	0.78	502179.00	15652	4.29	32.08	60° sunny
3/20/2009	12:34	1.22	789883.00	19184	5.50	41.17	65° sunny
3/26/2009	15:32	1.25	808208.00	23212	4.65	34.82	60° sunny

Table 1C. Calcuting average flow onto site based on previous 120 hours.

Table 1. Results of the infiltration tests.

Sample ID	Date	Lab No.	pH	Temp. C	Electrical Conductivity (mS/cm)	Turbidity (NTU)	NO_3-N (mg/L)		NO_2-N (mg/L)	Hardness (mg/L)	TDS (mg/L)		Cl (mg/L)		Soluble Reactive Phosphorous (mg/L)		COD (mg/L)	Total Coliform (per 100ml)	E-Coli (per 100ml)
Surface	2/2/2006	80603	7.29	10.0	1027	14.40	0.206		0.0300	50.42	100.0		18.700		0.197		14	present	present
Surface	2/22/2006	80884	7.21	9.5	1044	10.80	0.620		NR	48.90	108.0		6.200		0.146		23	present	present
Surface	3/3/2006	81009	6.94	9.7	1144	26.50	0.940	<	0.0023	NR	160.0	<	0.297	<	0.043		820	present	present
Surface	4/12/2006	81717	7.29	14.9	1300	16.10	0.610	<	0.0023	51.50	66.0		6.000		0.100		14	present	present
Surface	10/31/2006	85494	7.33	8.7	1370	27.40	0.870	<	0.0023	53.60	92.0		2.190		0.150	<	8	NR	present
Surface	12/27/2006	86255	7.42	6.8	1530	8.36	1.130	<	0.0023	89.80	92.0	<	0.297		0.250	<	8	absent	NR
Surface	4/11/2007	87722	8.89	14.9	1100	5.68	0.290	<	0.0023	55.00	92.5		2.500		0.060		15	present	present
Surface	5/7/2007	88149	8.59	15.9	1100	6.51	0.600	<	0.0023	38.60	50.0		4.500		0.090	<	8	present	present
Surface	2/13/2008	4105	7.64	NR	1440	5.89	0.780		NR	58.80	115.0		2.000		0.310		17	NR	NR
Surface	4/8/2008	10001	7.74	NR	1150	9.90	0.380		NR	39.30	85.0		1.500		0.180	<	8	NR	NR
Surface	2/12/2009	4483	7.27	NR	1480	38.20	0.900		NR	56.10	97.0		2.300		0.240		14	present	absent
Surface	4/23/2009	11910	7.59	NR	1180	17.00	0.600		NR	44.80	83.0		1.800		0.160		ND	present	present

Sample ID	Date	Lab No.	pH	Temp. C	Electrical Conductivity (mS/cm)	Turbidity (NTU)	NO_3-N (mg/L)		NO_2-N (mg/L)	Hardness (mg/L)	TDS (mg/L)		Cl (mg/L)		Soluble Reactive Phosphorous (mg/L)		COD (mg/L)	Total Coliform (per 100ml)	E-Coli (per 100ml)
HW-1	2/2/2006	80600	6.67	10.3	1120	0.10	0.566		0.0200	57.75	110.0		25.000		0.224	<	8	absent	absent
HW-1	2/22/2006	80881	6.48	7.0	1000	0.34	1.690			55.00	98.0		9.400		0.139		9	present	present
HW-1	3/2/2006	81006	6.59	12.2	1178	0.15	0.680		0.0500	58.90	170.0		5.000		0.100		404	absent	absent
HW-1	3/9/2006	81156	6.62	11.3	1142	0.13	1.210	<	0.0023	62.00	112.0		5.000	<	0.043	<	8	absent	absent
HW-1	4/12/2006	81714	6.39	9.8	1400	0.12	1.420	<	0.0023	60.10	72.0		5.000		0.170	<	8	present	present
HW-1	5/10/2006	82240	6.55	12.0	1413	0.10	0.990	<	0.0020	59.30	116.0	<	0.200		0.150	<	10	absent	absent
HW-1	10/3/2006	85052	6.43	12.8	1440	0.50	0.750	<	0.0023	62.80	136.0	<	0.297		0.110	<	8	absent	NR
HW-1	10/31/2006	85491	6.84	12.2	1560	0.23	0.910	<	0.0023	64.40	108.0		2.100		0.130	<	8	NR	absent
HW-1	12/27/2006	86252	6.57	12.1	1590	0.13	0.710	<	0.0023	90.00	108.0	<	0.297		0.120	<	8	absent	NR
HW-1	4/11/2007	87719	6.90	12.9	1540	0.12	0.800	<	0.0023	83.30	115.0		0.500		0.090	<	8	absent	absent
HW-1	5/7/2007	88146	7.32	13.3	1520	0.89	1.140	<	0.0023	56.70	76.7		5.000		0.130	<	8	present	absent
HW-1	1/23/2008	2120	NR	NR	1810	NR	2.000		NR	67.20	126.0		3.200		NR	<	8	NR	NR
HW-1	2/13/2008	4102	6.67	NR	1750	0.98	1.820		NR	69.20	137.0		2.800		0.310	<	8	NR	NR
HW-1	4/8/2008	9998	6.51	NR	1640	1.98	1.160		NR	50.20	77.0		2.500		0.220	<	8	NR	NR
HW-1	5/27/2008	15131	6.75	NR	1630	0.56	1.030		NR	61.20	122.0		2.400		0.240	<	8	NR	NR
HW-1	12/16/2008	37232	6.91	NR	1490	4.32	2.110		NR	53.70	125.0		2.200		0.150		ND	absent	absent
HW-1	2/12/2009	4480	6.45	NR	1580	0.98	1.710		NR	57.60	105.0		3.000		0.230		ND	present	present
HW-1	4/23/2009	11908	6.34	NR	1420	2.02	1.150		NR	56.80	96.0		2.700		0.210		ND	present	absent
HW-1	5/28/2009	16101	6.43	NR	1670	0.30	1.550		NR	66.55	116.0		2.900		0.260		ND	present	absent

Table 2. Field and basic water quality results for the 2006, 2007, 2008, and 2009 SAR season.

NR = Not Reported; ND = Not Detectable

Sample ID	Date	Lab No.	pH	Temp. C	Electrical Conductivity (mS/cm)	Turbidity (NTU)	NO_3-N (mg/L)		NO_2-N (mg/L)	Hardness (mg/L)	TDS (mg/L)		Cl (mg/L)		Soluble Reactive Phosphorous (mg/L)		COD (mg/L)	Total Coliform (per 100ml)	E-Coli (per 100ml)
HW-2	2/2/2006	80601	6.60	14.0	1434	6.82	0.390		0.0210	72.41	126.0		25.000		0.208	<	8	present	absent
HW-2	2/22/2006	80882	6.60	13.1	1441	1.23	0.930		NR	77.00	128.0		7.800		0.114		19	present	absent
HW-2	3/3/2006	81007	6.74	12.8	1506	0.02	0.720		0.0500	77.50	166.0		5.000		0.100		743	absent	absent
HW-2	3/9/2006	81157	6.78	12.5	1470	0.71	0.950	<	0.0023	82.00	126.0	<	0.297	<	0.043	<	8	absent	absent
HW-2	4/12/2006	81715	6.30	13.4	1400	12.50	1.690	<	0.0023	63.00	82.0		5.000		0.120	<	8	present	present
HW-2	5/10/2006	82241	6.65	13.4	1708	4.53	1.710	<	0.0020	71.90	132.0	<	0.200		0.130	<	10	present	present
HW-2	10/3/2006	85053	5.95	18.0	1450	0.61	0.470	<	0.0023	63.10	130.0	<	0.297		0.090	<	8	absent	NR
HW-2	10/31/2006	85492	6.24	15.1	1570	2.23	0.740	<	0.0023	62.90	114.0		1.900		0.200	<	8	NR	absent
HW-2	12/27/2006	86253	6.79	14.4	1370	4.12	0.780	<	0.0023	87.20	90.0		0.600		0.130	<	8	present	
HW-2	4/11/2007	87720	6.96	11.3	1370	0.83	0.810	<	0.0023	69.00	108.0		2.700		0.050	<	8	present	absent
HW-2	5/7/2007	88147	7.02	10.8	1360	1.67	0.850	<	0.0023	48.70	53.3		1.500		0.120	<	8	present	present
HW-2	1/23/2008	2121	6.51	NR	1800	5.43	0.940		NR	67.70	125.0		2.200		0.340	<	8	NR	NR
HW-2	2/13/2008	4103	6.59	NR	1780	0.88	3.460		NR	72.90	137.0		5.000		0.340	<	8	NR	NR
HW-2	4/8/2008	9999	6.44	NR	1820	11.50	0.800		NR	61.90	131.0		2.100		0.260	<	8	NR	NR
HW-2	5/27/2008	15132	6.61	NR	1350	1.24	0.840		NR	48.60	112.0		1.600		0.250		12	NR	NR
HW-2	10/28/2008	32784	6.38	NR	1760	6.00	0.850		NR	72.10	132.0		3.200		0.250		ND	present	absent
HW-2	12/16/2008	37234	6.54	NR	1860	1.34	0.890		NR	74.00	149.0		2.400		0.190		ND	present	absent
HW-2	2/12/2009	4481	6.49	NR	1600	20.30	1.940		NR	54.70	105.0		3.800		0.200		ND	present	absent
HW-2	4/23/2009	11909	6.30	NR	1620	1.75	1.920		NR	61.70	110.0		3.700		0.170		ND	present	absent
HW-2	5/28/2009	16102	6.36	NR	1750	1.56	1.420		NR	70.40	113.0		2.630		0.240		ND	present	present

Sample ID	Date	Lab No.	pH	Temp. C	Electrical Conductivity (mS/cm)	Turbidity (NTU)	NO_3-N (mg/L)		NO_2-N (mg/L)	Hardness (mg/L)	TDS (mg/L)		Cl (mg/L)		Soluble Reactive Phosphorous (mg/L)		COD (mg/L)	Total Coliform (per 100ml)	E-Coli (per 100ml)
HW-3	2/2/2006	80602	6.53	12.4	1193	0.16	0.391		0.0170	60.38	108.0		31.200		0.083	<	8	absent	absent
HW-3	2/22/2006	80883	6.64	12.3	1181	0.14	0.900		NR	62.70	106.0		15.600		0.107		14	absent	absent
HW-3	3/3/2006	81008	6.48	13.0	1223	0.12	0.700	<	0.0023	60.80	158.0	<	0.297	<	0.043		615	absent	absent
HW-3	3/9/2006	81158	6.86	12.4	1178	0.20	0.920	<	0.0023	64.00	96.0		8.000	<	0.043		13	absent	absent
HW-3	4/12/2006	81716	6.52	13.2	1500	0.05	1.020	<	0.0023	62.60	88.0		5.000		0.100	<	8	absent	absent
HW-3	5/10/2006	82242	6.45	13.2	1447	16.90	1.020	<	0.0020	62.20	144.0	<	0.297		0.160	<	10	present	present
HW-3	10/3/2006	85054	6.32	13.2	1430	0.20	0.700	<	0.0023	67.90	122.0	<	0.297		0.080	<	8	absent	NR
HW-3	10/31/2006	85493	6.76	12.7	1430	3.17	0.760	<	0.0023	59.40	98.0	<	0.297		0.090	<	8	NR	absent
HW-3	12/27/2006	86254	6.8	12.5	1470	2.44	1.120	<	0.0023	98.70	94.0		2.800		0.060	<	8	absent	NR
HW-3	4/11/2007	87721	6.96	13.1	1490	0.27	0.870	<	0.0023	78.90	105.0		3.000	<	0.043	<	8	absent	absent
HW-3	5/7/2007	88148	7.07	13.2	1480	0.11	1.160	<	0.0023	56.80	76.7		2.000		0.070	<	8	absent	absent
HW-3	1/23/2008	2122	6.88	NR	1580	29.00	1.210		NR	64.20	113.0		2.600		0.290		11	NR	NR
HW-3	2/13/2008	4104	6.64	NR	1610	6.94	3.610		NR	63.20	130.0		5.100		0.290	<	8	NR	NR
HW-3	4/8/2008	10000	6.5	NR	1570	0.43	1.120		NR	64.40	112.0		1.500		0.210	<	8	NR	NR
HW-3	5/27/2008	15133	6.74	NR	1520	8.45	1.110		NR	61.80	120.0		2.300		0.230		10	NR	NR
HW-3	10/28/2008	32783	6.43	NR	1630	0.40	1.420		NR	64.30	127.0		2.300		0.200		ND	absent	absent
HW-3	12/16/2008	37235	6.58	NR	1690	0.30	1.620		NR	64.40	133.0		2.400		0.160		ND	absent	absent
HW-3	2/12/2009	4482	6.58	NR	1940	4.53	2.970		NR	71.80	125.0		2.800		0.200		ND	present	absent
HW-3	3/12/2009	7341	6.51	NR	1670	4.70	1.950		NR	68.40	118.0		2.900		ND		ND	present	absent
HW-3	4/23/2009	11907	6.31	NR	1640	2.44	1.960		NR	63.00	122.0		2.800		0.170		ND	absent	absent
HW-3	5/28/2009	16103	6.39	NR	1640	2.74	1.540		NR	65.80	112.0		2.600		0.240		ND	absent	absent

Table 2. (continued)

Date	2/2/2006	2/2/2006	2/2/2006	2/2/2006
Well ID	HW-1	HW-2	HW-3	Surface
Chemical				
Carbamates in Drinking water				
Carbofuran	ND	ND	ND	ND
Oxymal	ND	ND	ND	ND
3-Hydroxycabofuran	ND	ND	ND	ND
Aldicarb	ND	ND	ND	ND
Aldicarb sulfone	ND	ND	ND	ND
Aldicarb sulfoxide	ND	ND	ND	ND
Carbaryl	ND	ND	ND	ND
Methomyl	ND	ND	ND	ND
Propoxur (Baygon)	ND	ND	ND	ND
Methiocarb	ND	ND	ND	ND
Synthetic Organic Compounds				
Endrin	ND	ND	ND	ND
Lindane (BHC-Gamma)	ND	ND	ND	ND
Methoxychlor	ND	ND	ND	ND
Alachlor	ND	ND	ND	ND
Atrazine	ND	ND	ND	ND
Benzo(a)pyrene	ND	ND	ND	ND
Chlordane Technical	ND	ND	ND	ND
Di(ethylhexyl)-Adipate	ND	ND	ND	ND
Di(ethylhexyl)-phthalate	**3.7**	**1.6**	ND	**4.1**
Heptachlor	ND	ND	ND	ND
Heptachlor Epoxide A&B	ND	ND	ND	ND
Hexachlorobenzene	ND	ND	ND	ND
Hexachlorocyclo-Pentadiene	ND	ND	ND	ND
Simazine	ND	ND	ND	ND
Aldrin	ND	ND	ND	ND
Butachlor	ND	ND	ND	ND
Dieldrin	ND	ND	ND	ND
Metolachlor	ND	ND	ND	ND
Metribuzin	ND	ND	ND	ND
Propachlor	ND	ND	ND	ND
Bromacil	ND	ND	ND	ND
Prometon	ND	ND	ND	ND
Terbacil	ND	ND	ND	ND
Diazinon	ND	ND	ND	ND
EPTC	ND	ND	ND	ND
4,4-DDD	ND	ND	ND	ND
4,4-DDE	ND	ND	ND	ND
4,4-DDT	ND	ND	ND	ND
Cyanazine	ND	ND	ND	ND
Malathion	ND	ND	ND	ND
Trifluralin	ND	ND	ND	ND
Napthalene	ND	ND	ND	ND
Fluorene	ND	ND	ND	ND
Acenaphthylene	ND	ND	ND	ND
Acenaphthene	ND	ND	ND	ND
Anthracene	ND	ND	ND	ND
Benz(A)anthracene	ND	ND	ND	ND
Benzo(B)fluoranthene	ND	ND	ND	ND
Benzo(G,H,I)peryene	ND	ND	ND	ND
Benzo(K)fluoranthene	ND	ND	ND	ND
Chrysene	ND	ND	ND	ND
Dibenzo(A,H)anthracene	ND	ND	ND	ND
Fluoranthene	ND	ND	ND	ND
Indeno(1,2,3-CD)pyrene	ND	ND	ND	ND
Phenanthrene	ND	ND	ND	ND
Pyrene	ND	ND	ND	ND
Benzyl Butyl Phthalate	ND	ND	ND	ND
Di-N-Butyl Phthalate	ND	ND	ND	ND
Diethyl Phthalate	**1.1**	ND	**1.5**	**2.2**
Dimethyl Phthalate	ND	ND	ND	ND
Toxaphene	ND	ND	ND	ND
Aroclor 1221	ND	ND	ND	ND
Aroclor 1232	ND	ND	ND	ND
Aroclor 1242	ND	ND	ND	ND
Aroclor 1248	ND	ND	ND	ND
Aroclor 1254	ND	ND	ND	ND
Aroclor 1260	ND	ND	ND	ND
Aroclor 1016	ND	ND	ND	ND
Herbicides in Drinking Water				
2,4-D	ND	ND	ND	ND
2,4,5-TP (Silvex)	ND	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND
Dalapon	ND	ND	ND	ND
Dinoseb	ND	ND	ND	ND
Picloram	ND	ND	ND	ND
Dicamba	ND	ND	ND	ND
2,4 DB	ND	ND	ND	ND
2,4,5 T	ND	ND	ND	ND
Bentazon	ND	ND	ND	ND
Dichlorprop	ND	ND	ND	ND
Actiflorfin	ND	ND	ND	ND
Dacthal (DCPA)	ND	ND	ND	ND
3,5-Dichlorobenzoic Acid	ND	ND	ND	ND
Velpar (hexazinone)	ND	ND	ND	ND
Bronate (bromoxynil)				
Gramoxone (paraquat)				

Table 3. SOC results for the H-W Site.

ND = Not Detectable

Date	3/3/2006	3/3/2006	3/3/2006	3/3/2006
Well ID	HW-1	HW-2	HW-3	Surface
Chemical				
Carbamates in Drinking water				
Carbofuran	ND	ND	ND	ND
Oxymal	ND	ND	ND	ND
3-Hydroxycabofuran	ND	ND	ND	ND
Aldicarb	ND	ND	ND	ND
Aldicarb sulfone	ND	ND	ND	ND
Aldicarb sulfoxide	ND	ND	ND	ND
Carbaryl	ND	ND	ND	ND
Methomyl	ND	ND	ND	ND
Propoxur (Baygon)	ND	ND	ND	ND
Methiocarb	ND	ND	ND	ND
Synthetic Organic Compounds				
Endrin	ND	ND	ND	ND
Lindane (BHC-Gamma)	ND	ND	ND	ND
Methoxychlor	ND	ND	ND	ND
Alachlor	ND	ND	ND	ND
Atrazine	ND	ND	ND	ND
Benzo(a)pyrene	ND	ND	ND	ND
Chlordane Technical	ND	ND	ND	ND
Di(ethylhexyl)-Adipate	ND	ND	ND	ND
Di(ethylhexyl)-phthalate	ND	ND	ND	ND
Heptachlor	ND	ND	ND	ND
Heptachlor Epoxide A&B	ND	ND	ND	ND
Hexachlorobenzene	ND	ND	ND	ND
Hexachlorocyclo-Pentadiene	ND	ND	ND	ND
Simazine	ND	ND	ND	ND
Aldrin	ND	ND	ND	ND
Butachlor	ND	ND	ND	ND
Dieldrin	ND	ND	ND	ND
Metolachlor	ND	ND	ND	ND
Metribuzin	ND	ND	ND	ND
Propachlor	ND	ND	ND	ND
Bromacil	ND	ND	ND	ND
Prometon	ND	ND	ND	ND
Terbacil	ND	ND	ND	ND
Diazinon	ND	ND	ND	ND
EPTC	ND	ND	ND	ND
4,4-DDD	ND	ND	ND	ND
4,4-DDE	ND	ND	ND	ND
4,4-DDT	ND	ND	ND	ND
Cyanazine	ND	ND	ND	ND
Malathion	ND	ND	ND	ND
Trifluralin	ND	ND	ND	ND
Napthalene	ND	ND	ND	ND
Fluorene	ND	ND	ND	ND
Acenaphthylene	ND	ND	ND	ND
Acenaphthene	ND	ND	ND	ND
Anthracene	ND	ND	ND	ND
Benz(A)anthracene	ND	ND	ND	ND
Benzo(B)fluoranthene	ND	ND	ND	ND
Benzo(G,H,I)peryene	ND	ND	ND	ND
Benzo(K)fluoranthene	ND	ND	ND	ND
Chrysene	ND	ND	ND	ND
Dibenzo(A,H)anthracene	ND	ND	ND	ND
Fluoranthene	ND	ND	ND	ND
Indeno(1,2,3-CD)pyrene	ND	ND	ND	ND
Phenanthrene				
Pyrene	ND	ND	ND	ND
Benzyl Butyl Phthalate	ND	ND	ND	ND
Di-N-Butyl Phthalate	ND	ND	ND	ND
Diethyl Phthalate	ND	ND	ND	ND
Dimethyl Phthalate	ND	ND	ND	ND
Toxaphene	ND	ND	ND	ND
Aroclor 1221	ND	ND	ND	ND
Aroclor 1232	ND	ND	ND	ND
Aroclor 1242	ND	ND	ND	ND
Aroclor 1248	ND	ND	ND	ND
Aroclor 1254	ND	ND	ND	ND
Aroclor 1260	ND	ND	ND	ND
Aroclor 1016	ND	ND	ND	ND
Herbicides in Drinking Water				
2,4-D				
2,4,5-TP (Silvex)	ND	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND
Dalapon	ND	ND	ND	ND
Dinoseb	ND	ND	ND	ND
Picloram	ND	ND	ND	ND
Dicamba	ND	ND	ND	ND
2,4 DB				
2,4,5 T				
Bentazon				
Dichlorprop				
Actiflorfin				
Dacthal (DCPA)				
3,5-Dichlorobenzoic Acid				
Velpar (hexazinone)	ND	ND	ND	ND
Bronate (bromoxynil)	ND	ND	ND	ND
Gramoxone (paraquat)	ND	ND	ND	ND

Table 3. Continued

Date	10/31/2006	10/31/2006	10/31/2006	10/31/2006
Well ID	HW-1	HW-2	HW-3	Surface
Chemical				
Carbamates in Drinking water				
Carbofuran	ND	ND	ND	ND
Oxymal	ND	ND	ND	ND
3-Hydroxycabofuran	ND	ND	ND	ND
Aldicarb	ND	ND	ND	ND
Aldicarb sulfone	ND	ND	ND	ND
Aldicarb sulfoxide	ND	ND	ND	ND
Carbaryl	ND	ND	ND	ND
Methomyl	ND	ND	ND	ND
Propoxur (Baygon)	ND	ND	ND	ND
Methiocarb	ND	ND	ND	ND
Synthetic Organic Compounds				
Endrin	ND	ND	ND	ND
Lindane (BHC-Gamma)	ND	ND	ND	ND
Methoxychlor	ND	ND	ND	ND
Alachlor	ND	ND	ND	ND
Atrazine	ND	ND	ND	ND
Benzo(a)pyrene	ND	ND	ND	ND
Chlordane Technical	ND	ND	ND	ND
Di(ethylhexyl)-Adipate	ND	ND	ND	ND
Di(ethylhexyl)-phthalate	ND	ND	ND	ND
Heptachlor	ND	ND	ND	ND
Heptachlor Epoxide A&B	ND	ND	ND	ND
Hexachlorobenzene	ND	ND	ND	ND
Hexachlorocyclo-Pentadiene	ND	ND	ND	ND
Simazine	ND	ND	ND	ND
Aldrin	ND	ND	ND	ND
Butachlor	ND	ND	ND	ND
Dieldrin	ND	ND	ND	ND
Metolachlor	ND	ND	ND	ND
Metribuzin	ND	ND	ND	ND
Propachlor	ND	ND	ND	ND
Bromacil	ND	ND	ND	ND
Prometon	ND	ND	ND	ND
Terbacil	ND	ND	ND	ND
Diazinon	ND	ND	ND	ND
EPTC	ND	ND	ND	ND
4,4-DDD	ND	ND	ND	ND
4,4-DDE	ND	ND	ND	ND
4,4-DDT	ND	ND	ND	ND
Cyanazine	ND	ND	ND	ND
Malathion	ND	ND	ND	ND
Trifluralin	ND	ND	ND	ND
Napthalene	ND	ND	ND	ND
Fluorene	ND	ND	ND	ND
Acenaphthylene	ND	ND	ND	ND
Acenaphthene	ND	ND	ND	ND
Anthracene	ND	ND	ND	ND
Benz(A)anthracene	ND	ND	ND	ND
Benzo(B)fluoranthene	ND	ND	ND	ND
Benzo(G,H,I)peryene	ND	ND	ND	ND
Benzo(K)fluoranthene	ND	ND	ND	ND
Chrysene	ND	ND	ND	ND
Dibenzo(A,H)anthracene	ND	ND	ND	ND
Fluoranthene	ND	ND	ND	ND
Indeno(1,2,3-CD)pyrene	ND	ND	ND	ND
Phenanthrene	ND	ND	ND	ND
Pyrene	ND	ND	ND	ND
Benzyl Butyl Phthalate	ND	ND	ND	ND
Di-N-Butyl Phthalate	ND	**1.1BQ**	**0.9**	ND
Diethyl Phthalate	ND	ND	ND	ND
Dimethyl Phthalate	ND	ND	**3**	ND
Toxaphene	ND	ND	ND	ND
Aroclor 1221	ND	ND	ND	ND
Aroclor 1232	ND	ND	ND	ND
Aroclor 1242	ND	ND	ND	ND
Aroclor 1248	ND	ND	ND	ND
Aroclor 1254	ND	ND	ND	ND
Aroclor 1260	ND	ND	ND	ND
Aroclor 1016	ND	ND	ND	ND
Herbicides in Drinking Water				
2,4-D	ND	ND	ND	ND
2,4,5-TP (Silvex)	ND	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND
Dalapon	ND	ND	ND	ND
Dinoseb	ND	ND	ND	ND
Picloram	ND	ND	ND	ND
Dicamba	ND	ND	ND	ND
2,4 DB	ND	ND	ND	ND
2,4,5 T	ND	ND	ND	ND
Bentazon	ND	ND	ND	ND
Dichlorprop	ND	ND	ND	ND
Actiflorfin	ND	ND	ND	ND
Dacthal (DCPA)	ND	ND	ND	ND
3,5-Dichlorobenzoic Acid	ND	ND	ND	ND
Velpar (hexazinone)	ND	ND	ND	ND
Bronate (bromoxynil)	ND	ND	ND	ND
Gramoxone (paraquat)	ND	ND	ND	ND

Table 3. Continued.

Date	4/11/2007	4/11/2007	4/11/2007	4/11/2007
Well ID	HW-1	HW-2	HW-3	Surface
Chemical				
Carbamates in Drinking water				
Carbofuran	ND	ND	ND	ND
Oxymal	ND	ND	ND	ND
3-Hydroxycabofuran	ND	ND	ND	ND
Aldicarb	ND	ND	ND	ND
Aldicarb sulfone	ND	ND	ND	ND
Aldicarb sulfoxide	ND	ND	ND	ND
Carbaryl	ND	ND	ND	ND
Methomyl	ND	ND	ND	ND
Propoxur (Baygon)	ND	ND	ND	ND
Methiocarb	ND	ND	ND	ND
Synthetic Organic Compounds				
Endrin	ND	ND	ND	ND
Lindane (BHC-Gamma)	ND	ND	ND	ND
Methoxychlor	ND	ND	ND	ND
Alachlor	ND	ND	ND	ND
Atrazine	ND	ND	ND	ND
Benzo(a)pyrene	ND	ND	ND	ND
Chlordane Technical	ND	ND	ND	ND
Di(ethylhexyl)-Adipate	ND	ND	ND	ND
Di(ethylhexyl)-phthalate	ND	ND	ND	ND
Heptachlor	ND	ND	ND	ND
Heptachlor Epoxide A&B	ND	ND	ND	ND
Hexachlorobenzene	ND	ND	ND	ND
Hexachlorocyclo-Pentadiene	ND	ND	ND	ND
Simazine	ND	ND	ND	ND
Aldrin	ND	ND	ND	ND
Butachlor	ND	ND	ND	ND
Dieldrin	ND	ND	ND	ND
Metolachlor	ND	ND	ND	ND
Metribuzin	ND	ND	ND	ND
Propachlor	ND	ND	ND	ND
Bromacil	ND	ND	ND	ND
Prometon	ND	ND	ND	ND
Terbacil	ND	ND	ND	ND
Diazinon	ND	ND	ND	ND
EPTC	ND	ND	ND	ND
4,4-DDD	ND	ND	ND	ND
4,4-DDE	ND	ND	ND	ND
4,4-DDT	ND	ND	ND	ND
Cyanazine	ND	ND	ND	ND
Malathion	**0.4**	**0.3**	**0.4**	ND
Trifluralin	ND	ND	ND	ND
Napthalene	ND	ND	ND	ND
Fluorene	ND	ND	ND	ND
Acenaphthylene	ND	ND	ND	ND
Acenaphthene	ND	ND	ND	ND
Anthracene	ND	ND	ND	ND
Benz(A)anthracene	ND	ND	ND	ND
Benzo(B)fluoranthene	ND	ND	ND	ND
Benzo(G,H,I)peryene	ND	ND	ND	ND
Benzo(K)fluoranthene	ND	ND	ND	ND
Chrysene	ND	ND	ND	ND
Dibenzo(A,H)anthracene	ND	ND	ND	ND
Fluoranthene	ND	ND	ND	ND
Indeno(1,2,3-CD)pyrene	ND	ND	ND	ND
Phenanthrene	ND	ND	ND	ND
Pyrene	ND	ND	ND	ND
Benzyl Butyl Phthalate	ND	ND	ND	ND
Di-N-Butyl Phthalate	**0.7**	**0.5KK**	**0.6**	ND
Diethyl Phthalate	ND	ND	ND	ND
Dimethyl Phthalate	ND	ND	ND	ND
Toxaphene	ND	ND	ND	ND
Aroclor 1221	ND	ND	ND	ND
Aroclor 1232	ND	ND	ND	ND
Aroclor 1242	ND	ND	ND	ND
Aroclor 1248	ND	ND	ND	ND
Aroclor 1254	ND	ND	ND	ND
Aroclor 1260	ND	ND	ND	ND
Aroclor 1016	ND	ND	ND	ND
Herbicides in Drinking Water				
2,4-D	ND	ND	ND	ND
2,4,5-TP (Silvex)	ND	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND
Dalapon	ND	ND	ND	ND
Dinoseb	ND	ND	ND	ND
Picloram	ND	ND	ND	ND
Dicamba	ND	ND	ND	ND
2,4 DB	ND	ND	ND	ND
2,4,5 T	ND	ND	ND	ND
Bentazon	ND	ND	ND	ND
Dichlorprop	ND	ND	ND	ND
Actiflorfin	ND	ND	ND	ND
Dacthal (DCPA)	ND	ND	ND	ND
3,5-Dichlorobenzoic Acid	ND	ND	ND	ND
Velpar (hexazinone)	ND	ND	ND	ND
Bronate (bromoxynil)	ND	ND	ND	ND
Gramoxone (paraquat)	ND	ND	ND	ND

Table 3. Continued.

Date	2/13/2008	2/13/2008	2/13/2008	2/13/2008
Well ID	HW-1	HW-2	HW-3	Surface
Chemical				
Carbamates in Drinking water				
Carbofuran	ND	ND	ND	ND
Oxymal	ND	ND	ND	ND
3-Hydroxycabofuran	ND	ND	ND	ND
Aldicarb	ND	ND	ND	ND
Aldicarb sulfone	ND	ND	ND	ND
Aldicarb sulfoxide	ND	ND	ND	ND
Carbaryl	ND	ND	ND	ND
Methomyl	ND	ND	ND	ND
Propoxur (Baygon)	ND	ND	ND	ND
Methiocarb	ND	ND	ND	ND
Synthetic Organic Compounds				
Endrin	ND	ND	ND	ND
Lindane (BHC-Gamma)	ND	ND	ND	ND
Methoxychlor	ND	ND	ND	ND
Alachlor	ND	ND	ND	ND
Atrazine	ND	ND	ND	ND
Benzo(a)pyrene	ND	ND	ND	ND
Chlordane Technical	ND	ND	ND	ND
Di(ethylhexyl)-Adipate	ND	ND	ND	ND
Di(ethylhexyl)-phthalate	ND	ND	ND	ND
Heptachlor	ND	ND	ND	ND
Heptachlor Epoxide A&B	ND	ND	ND	ND
Hexachlorobenzene	ND	ND	ND	ND
Hexachlorocyclo-Pentadiene	ND	ND	ND	ND
Simazine	ND	ND	ND	ND
Aldrin	ND	ND	ND	ND
Butachlor	ND	ND	ND	ND
Dieldrin	ND	ND	ND	ND
Metolachlor	ND	ND	ND	ND
Metribuzin	ND	ND	ND	ND
Propachlor	ND	ND	ND	ND
Bromacil	ND	ND	ND	ND
Prometon	ND	ND	ND	ND
Terbacil	ND	ND	ND	ND
Diazinon	ND	ND	ND	ND
EPTC	ND	ND	ND	ND
4,4-DDD	ND	ND	ND	ND
4,4-DDE	ND	ND	ND	ND
4,4-DDT	ND	ND	ND	ND
Cyanazine	ND	ND	ND	ND
Malathion	ND	ND	ND	ND
Trifluralin	ND	ND	ND	ND
Napthalene	ND	ND	ND	ND
Fluorene	ND	ND	ND	ND
Acenaphthylene	ND	ND	ND	ND
Acenaphthene	ND	ND	ND	ND
Anthracene	ND	ND	ND	ND
Benz(A)anthracene	ND	ND	ND	ND
Benzo(B)fluoranthene	ND	ND	ND	ND
Benzo(G,H,I)peryene	ND	ND	ND	ND
Benzo(K)fluoranthene	ND	ND	ND	ND
Chrysene	ND	ND	ND	ND
Dibenzo(A,H)anthracene	ND	ND	ND	ND
Fluoranthene	ND	ND	ND	ND
Indeno(1,2,3-CD)pyrene	ND	ND	ND	ND
Phenanthrene	ND	ND	ND	ND
Pyrene	ND	ND	ND	ND
Benzyl Butyl Phthalate	ND	ND	ND	ND
Di-N-Butyl Phthalate	ND	ND	ND	ND
Diethyl Phthalate	ND	ND	ND	ND
Dimethyl Phthalate	ND	ND	ND	ND
Toxaphene	ND	ND	ND	ND
Aroclor 1221	ND	ND	ND	ND
Aroclor 1232	ND	ND	ND	ND
Aroclor 1242	ND	ND	ND	ND
Aroclor 1248	ND	ND	ND	ND
Aroclor 1254	ND	ND	ND	ND
Aroclor 1260	ND	ND	ND	ND
Aroclor 1016	ND	ND	ND	ND
Herbicides in Drinking Water				
2,4-D	ND	ND	ND	ND
2,4,5-TP (Silvex)	ND	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND
Dalapon	ND	ND	ND	ND
Dinoseb	ND	ND	ND	ND
Picloram	ND	ND	ND	ND
Dicamba	ND	ND	ND	ND
2,4 DB	ND	ND	ND	ND
2,4,5 T	ND	ND	ND	ND
Bentazon	ND	ND	ND	ND
Dichlorprop	ND	ND	ND	ND
Actiflorfin	ND	ND	ND	ND
Dacthal (DCPA)	ND	ND	ND	ND
3,5-Dichlorobenzoic Acid	ND	ND	ND	ND
Velpar (hexazinone)	ND	ND	ND	ND
Bronate (bromoxynil)	ND	ND	ND	ND
Gramoxone (paraquat)	ND	ND	ND	ND

Table 3. Continued

Date	4/8/2008	4/8/2008	4/8/2008	4/8/2008
Well ID	HW-1	HW-2	HW-3	Surface
Chemical				
Carbamates in Drinking water				
Carbofuran	ND	ND	ND	ND
Oxymal	ND	ND	ND	ND
3-Hydroxycabofuran	ND	ND	ND	ND
Aldicarb	ND	ND	ND	ND
Aldicarb sulfone	ND	ND	ND	ND
Aldicarb sulfoxide	ND	ND	ND	ND
Carbaryl	ND	ND	ND	ND
Methomyl	ND	ND	ND	ND
Propoxur (Baygon)	ND	ND	ND	ND
Methiocarb	ND	ND	ND	ND
Synthetic Organic Compounds				
Endrin	ND	ND	ND	ND
Lindane (BHC-Gamma)	ND	ND	ND	ND
Methoxychlor	ND	ND	ND	ND
Alachlor	ND	ND	ND	ND
Atrazine	ND	ND	ND	ND
Benzo(a)pyrene	ND	ND	ND	ND
Chlordane Technical	ND	ND	ND	ND
Di(ethylhexyl)-Adipate	ND	ND	ND	ND
Di(ethylhexyl)-phthalate	1.8*	ND	ND	ND
Heptachlor	ND	ND	ND	ND
Heptachlor Epoxide A&B	ND	ND	ND	ND
Hexachlorobenzene	ND	ND	ND	ND
Hexachlorocyclo-Pentadiene	ND	ND	ND	ND
Simazine	ND	ND	ND	ND
Aldrin	ND	ND	ND	ND
Butachlor	ND	ND	ND	ND
Dieldrin	ND	ND	ND	ND
Metolachlor	ND	ND	ND	ND
Metribuzin	ND	ND	ND	ND
Propachlor	ND	ND	ND	ND
Bromacil	ND	ND	ND	ND
Prometon	ND	ND	ND	ND
Terbacil	ND	ND	ND	ND
Diazinon	ND	ND	ND	ND
EPTC	ND	ND	ND	ND
4,4-DDD	ND	ND	ND	ND
4,4-DDE	ND	ND	ND	ND
4,4-DDT	ND	ND	ND	ND
Cyanazine	ND	ND	ND	ND
Malathion	ND	ND	ND	ND
Trifluralin	ND	ND	ND	ND
Napthalene	ND	ND	ND	ND
Fluorene	ND	ND	ND	ND
Acenaphthylene	ND	ND	ND	ND
Acenaphthene	ND	ND	ND	ND
Anthracene	ND	ND	ND	ND
Benz(A)anthracene	ND	ND	ND	ND
Benzo(B)fluoranthene	ND	ND	ND	ND
Benzo(G,H,I)peryene	ND	ND	ND	ND
Benzo(K)fluoranthene	ND	ND	ND	ND
Chrysene	ND	ND	ND	ND
Dibenzo(A,H)anthracene	ND	ND	ND	ND
Fluoranthene	ND	ND	ND	ND
Indeno(1,2,3-CD)pyrene	ND	ND	ND	ND
Phenanthrene	ND	ND	ND	ND
Pyrene	ND	ND	ND	ND
Benzyl Butyl Phthalate	ND	ND	ND	ND
Di-N-Butyl Phthalate	ND	ND	ND	ND
Diethyl Phthalate	ND	ND	ND	ND
Dimethyl Phthalate	ND	ND	ND	ND
Toxaphene	ND	ND	ND	ND
Aroclor 1221	ND	ND	ND	ND
Aroclor 1232	ND	ND	ND	ND
Aroclor 1242	ND	ND	ND	ND
Aroclor 1248	ND	ND	ND	ND
Aroclor 1254	ND	ND	ND	ND
Aroclor 1260	ND	ND	ND	ND
Aroclor 1016	ND	ND	ND	ND
Herbicides in Drinking Water				
2,4-D	ND	ND	ND	ND
2,4,5-TP (Silvex)	ND	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND
Dalapon	ND	ND	ND	ND
Dinoseb	ND	ND	ND	ND
Picloram	ND	ND	ND	ND
Dicamba	ND	ND	ND	ND
2,4 DB	ND	ND	ND	ND
2,4,5 T	ND	ND	ND	ND
Bentazon	ND	ND	ND	ND
Dichlorprop	ND	ND	ND	ND
Actiflorfin	ND	ND	ND	ND
Dacthal (DCPA)	ND	ND	ND	ND
3,5-Dichlorobenzoic Acid	ND	ND	ND	ND
Velpar (hexazinone)	ND	ND	ND	ND
Bronate (bromoxynil)	ND	ND	ND	ND
Gramoxone (paraquat)	ND	ND	ND	ND

* - Data is "suspect", the field duplicate sample does not agree

Table 3. Continued.

Date	5/27/2008	5/27/2008	5/27/2008
Well ID	HW-1	HW-2	HW-3
Chemical			
Carbamates in Drinking water			
Carbofuran	ND	ND	ND
Oxymal	ND	ND	ND
3-Hydroxycabofuran	ND	ND	ND
Aldicarb	ND	ND	ND
Aldicarb sulfone	ND	ND	ND
Aldicarb sulfoxide	ND	ND	ND
Carbaryl	ND	ND	ND
Methomyl	ND	ND	ND
Propoxur (Baygon)	ND	ND	ND
Methiocarb	ND	ND	ND
Synthetic Organic Compounds			
Endrin	ND	ND	ND
Lindane (BHC-Gamma)	ND	ND	ND
Methoxychlor	ND	ND	ND
Alachlor	ND	ND	ND
Atrazine	ND	ND	ND
Benzo(a)pyrene	ND	ND	ND
Chlordane Technical	ND	ND	ND
Di(ethylhexyl)-Adipate	ND	ND	ND
Di(ethylhexyl)-phthalate	ND	ND	ND
Heptachlor	ND	ND	ND
Heptachlor Epoxide A&B	ND	ND	ND
Hexachlorobenzene	ND	ND	ND
Hexachlorocyclo-Pentadiene	ND	ND	ND
Simazine	ND	ND	ND
Aldrin	ND	ND	ND
Butachlor	ND	ND	ND
Dieldrin	ND	ND	ND
Metolachlor	ND	ND	ND
Metribuzin	ND	ND	ND
Propachlor	ND	ND	ND
Bromacil	ND	ND	ND
Prometon	ND	ND	ND
Terbacil	ND	ND	ND
Diazinon	ND	ND	ND
EPTC	ND	ND	ND
4,4-DDD	ND	ND	ND
4,4-DDE	ND	ND	ND
4,4-DDT	ND	ND	ND
Cyanazine	ND	ND	ND
Malathion	ND	ND	ND
Trifluralin	ND	ND	ND
Napthalene	ND	ND	ND
Fluorene	ND	ND	ND
Acenaphthylene	ND	ND	ND
Acenaphthene	ND	ND	ND
Anthracene	ND	ND	ND
Benz(A)anthracene	ND	ND	ND
Benzo(B)fluoranthene	ND	ND	ND
Benzo(G,H,I)peryene	ND	ND	ND
Benzo(K)fluoranthene	ND	ND	ND
Chrysene	ND	ND	ND
Dibenzo(A,H)anthracene	ND	ND	ND
Fluoranthene	ND	ND	ND
Indeno(1,2,3-CD)pyrene	ND	ND	ND
Phenanthrene	ND	ND	ND
Pyrene	ND	ND	ND
Benzyl Butyl Phthalate	ND	ND	ND
Di-N-Butyl Phthalate	ND	ND	ND
Diethyl Phthalate	ND	ND	ND
Dimethyl Phthalate	ND	ND	ND
Toxaphene	ND	ND	ND
Aroclor 1221	ND	ND	ND
Aroclor 1232	ND	ND	ND
Aroclor 1242	ND	ND	ND
Aroclor 1248	ND	ND	ND
Aroclor 1254	ND	ND	ND
Aroclor 1260	ND	ND	ND
Aroclor 1016	ND	ND	ND
Herbicides in Drinking Water			
2,4-D	ND	ND	ND
2,4,5-TP (Silvex)	ND	ND	ND
Pentachlorophenol	ND	ND	ND
Dalapon	ND	ND	ND
Dinoseb	ND	ND	ND
Picloram	ND	ND	ND
Dicamba	ND	ND	ND
2,4 DB	ND	ND	ND
2,4,5 T	ND	ND	ND
Bentazon	ND	ND	ND
Dichlorprop	ND	ND	ND
Actiflorfin	ND	ND	ND
Dacthal (DCPA)	ND	ND	ND
3,5-Dichlorobenzoic Acid	ND	ND	ND
Velpar (hexazinone)	ND	ND	ND
Bronate (bromoxynil)	ND	ND	ND
Gramoxone (paraquat)	ND	ND	ND

Table 3. Continued.

Date	10/28/2008	10/28/2008	10/28/2008
Well ID	HW-1	HW-2	HW-3
Chemical			
Carbamates in Drinking water			
Carbofuran	NS	ND	ND
Oxymal	NS	ND	ND
3-Hydroxycabofuran	NS	ND	ND
Aldicarb	NS	ND	ND
Aldicarb sulfone	NS	ND	ND
Aldicarb sulfoxide	NS	ND	ND
Carbaryl	NS	ND	ND
Methomyl	NS	ND	ND
Propoxur (Baygon)	NS	ND	ND
Methiocarb	NS	ND	ND
Synthetic Organic Compounds			
Endrin	NS	ND	ND
Lindane (BHC-Gamma)	NS	ND	ND
Methoxychlor	NS	ND	ND
Alachlor	NS	ND	ND
Atrazine	NS	ND	ND
Benzo(a)pyrene	NS	ND	ND
Chlordane Technical	NS	ND	ND
Di(ethylhexyl)-Adipate	NS	ND	ND
Di(ethylhexyl)-phthalate	NS	ND	ND
Heptachlor	NS	ND	ND
Heptachlor Epoxide A&B	NS	ND	ND
Hexachlorobenzene	NS	ND	ND
Hexachlorocyclo-Pentadiene	NS	ND	ND
Simazine	NS	ND	ND
Aldrin	NS	ND	ND
Butachlor	NS	ND	ND
Dieldrin	NS	ND	ND
Metolachlor	NS	ND	ND
Metribuzin	NS	ND	ND
Propachlor	NS	ND	ND
Bromacil	NS	ND	ND
Prometon	NS	ND	ND
Terbacil	NS	ND	ND
Diazinon	NS	ND	ND
EPTC	NS	ND	ND
4,4-DDD	NS	ND	ND
4,4-DDE	NS	ND	ND
4,4-DDT	NS	ND	ND
Cyanazine	NS	ND	ND
Malathion	NS	ND	ND
Trifluralin	NS	ND	ND
Napthalene	NS	ND	ND
Fluorene	NS	ND	ND
Acenaphthylene	NS	ND	ND
Acenaphthene	NS	ND	ND
Anthracene	NS	ND	ND
Benz(A)anthracene	NS	ND	ND
Benzo(B)fluoranthene	NS	ND	ND
Benzo(G,H,I)peryene	NS	ND	ND
Benzo(K)fluoranthene	NS	ND	ND
Chrysene	NS	ND	ND
Dibenzo(A,H)anthracene	NS	ND	ND
Fluoranthene	NS	ND	ND
Indeno(1,2,3-CD)pyrene	NS	ND	ND
Phenanthrene	NS	ND	ND
Pyrene	NS	ND	ND
Benzyl Butyl Phthalate	NS	ND	ND
Di-N-Butyl Phthalate	NS	ND	ND
Diethyl Phthalate	NS	ND	ND
Dimethyl Phthalate	NS	ND	ND
Toxaphene	NS	ND	ND
Aroclor 1221	NS	ND	ND
Aroclor 1232	NS	ND	ND
Aroclor 1242	NS	ND	ND
Aroclor 1248	NS	ND	ND
Aroclor 1254	NS	ND	ND
Aroclor 1260	NS	ND	ND
Aroclor 1016	NS	ND	ND
Herbicides in Drinking Water			
2,4-D	NS	ND	ND
2,4,5-TP (Silvex)	NS	ND	ND
Pentachlorophenol	NS	ND	ND
Dalapon	NS	ND	ND
Dinoseb	NS	ND	ND
Picloram	NS	ND	ND
Dicamba	NS	ND	ND
2,4 DB	NS	ND	ND
2,4,5 T	NS	ND	ND
Bentazon	NS	ND	ND
Dichlorprop	NS	ND	ND
Actiflorfin	NS	ND	ND
Dacthal (DCPA)	NS	ND	ND
3,5-Dichlorobenzoic Acid	NS	ND	ND
Velpar (hexazinone)	NS	ND	ND
Bronate (bromoxynil)	NS	ND	ND
Gramoxone (paraquat)	NS	ND	ND

NS - Not Sampled

Table 3. Continued.

Date	12/16/2008	12/16/2008	12/16/2008
Well ID	HW-1	HW-2	HW-3
Chemical			
Carbamates in Drinking water			
Carbofuran	ND	ND	ND
Oxymal	ND	ND	ND
3-Hydroxycabofuran	ND	ND	ND
Aldicarb	ND	ND	ND
Aldicarb sulfone	ND	ND	ND
Aldicarb sulfoxide	ND	ND	ND
Carbaryl	ND	ND	ND
Methomyl	ND	ND	ND
Propoxur (Baygon)	ND	ND	ND
Methiocarb	ND	ND	ND
Synthetic Organic Compounds			
Endrin	ND	ND	ND
Lindane (BHC-Gamma)	ND	ND	ND
Methoxychlor	ND	ND	ND
Alachlor	ND	ND	ND
Atrazine	ND	ND	ND
Benzo(a)pyrene	ND	ND	ND
Chlordane Technical	ND	ND	ND
Di(ethylhexyl)-Adipate	ND	ND	ND
Di(ethylhexyl)-phthalate	ND	ND	ND
Heptachlor	ND	ND	ND
Heptachlor Epoxide A&B	ND	ND	ND
Hexachlorobenzene	ND	ND	ND
Hexachlorocyclo-Pentadiene	ND	ND	ND
Simazine	ND	ND	ND
Aldrin	ND	ND	ND
Butachlor	ND	ND	ND
Dieldrin	ND	ND	ND
Metolachlor	ND	ND	ND
Metribuzin	ND	ND	ND
Propachlor	ND	ND	ND
Bromacil	ND	ND	ND
Prometon	ND	ND	ND
Terbacil	ND	ND	ND
Diazinon	ND	ND	ND
EPTC	ND	ND	ND
4,4-DDD	ND	ND	ND
4,4-DDE	ND	ND	ND
4,4-DDT	ND	ND	ND
Cyanazine	ND	ND	ND
Malathion	ND	ND	ND
Trifluralin	ND	ND	ND
Napthalene	ND	ND	ND
Fluorene	ND	ND	ND
Acenaphthylene	ND	ND	ND
Acenaphthene	ND	ND	ND
Anthracene	ND	ND	ND
Benz(A)anthracene	ND	ND	ND
Benzo(B)fluoranthene	ND	ND	ND
Benzo(G,H,I)peryene	ND	ND	ND
Benzo(K)fluoranthene	ND	ND	ND
Chrysene	ND	ND	ND
Dibenzo(A,H)anthracene	ND	ND	ND
Fluoranthene	ND	ND	ND
Indeno(1,2,3-CD)pyrene	ND	ND	ND
Phenanthrene	ND	ND	ND
Pyrene	ND	ND	ND
Benzyl Butyl Phthalate	ND	ND	ND
Di-N-Butyl Phthalate	ND	ND	ND
Diethyl Phthalate	ND	ND	ND
Dimethyl Phthalate	ND	ND	ND
Toxaphene	ND	ND	ND
Aroclor 1221	ND	ND	ND
Aroclor 1232	ND	ND	ND
Aroclor 1242	ND	ND	ND
Aroclor 1248	ND	ND	ND
Aroclor 1254	ND	ND	ND
Aroclor 1260	ND	ND	ND
Aroclor 1016	ND	ND	ND
Herbicides in Drinking Water			
2,4-D	ND	ND	ND
2,4,5-TP (Silvex)	ND	ND	ND
Pentachlorophenol	ND	ND	ND
Dalapon	ND	ND	ND
Dinoseb	ND	ND	ND
Picloram	ND	ND	ND
Dicamba	ND	ND	ND
2,4 DB	ND	ND	ND
2,4,5 T	ND	ND	ND
Bentazon	ND	ND	ND
Dichlorprop	ND	ND	ND
Actiflorfin	ND	ND	ND
Dacthal (DCPA)	ND	ND	ND
3,5-Dichlorobenzoic Acid	ND	ND	ND
Velpar (hexazinone)	ND	ND	ND
Bronate (bromoxynil)	ND	ND	ND
Gramoxone (paraquat)	ND	ND	ND

Table 3. Continued.

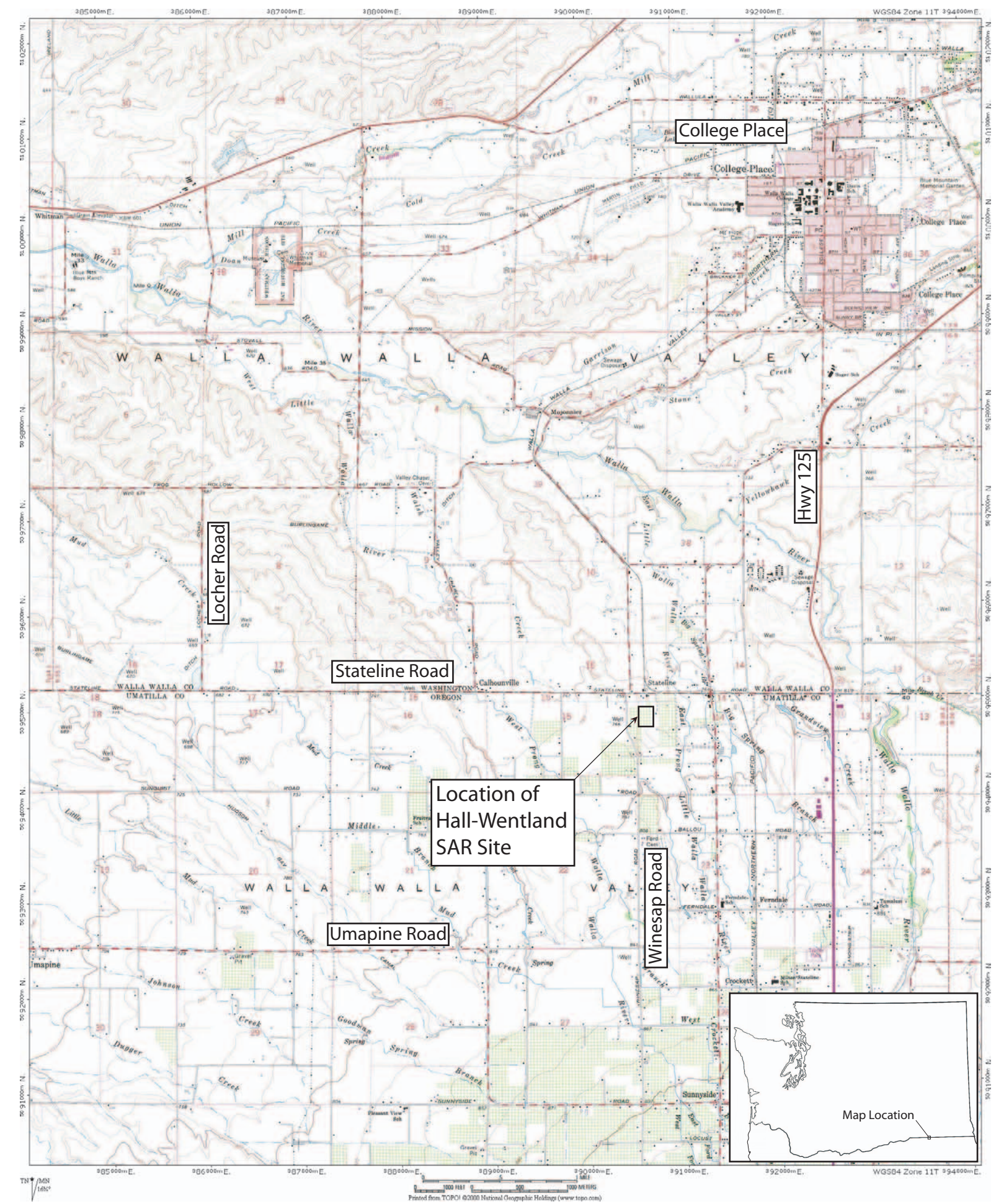


Figure 1. Area and regional setting.

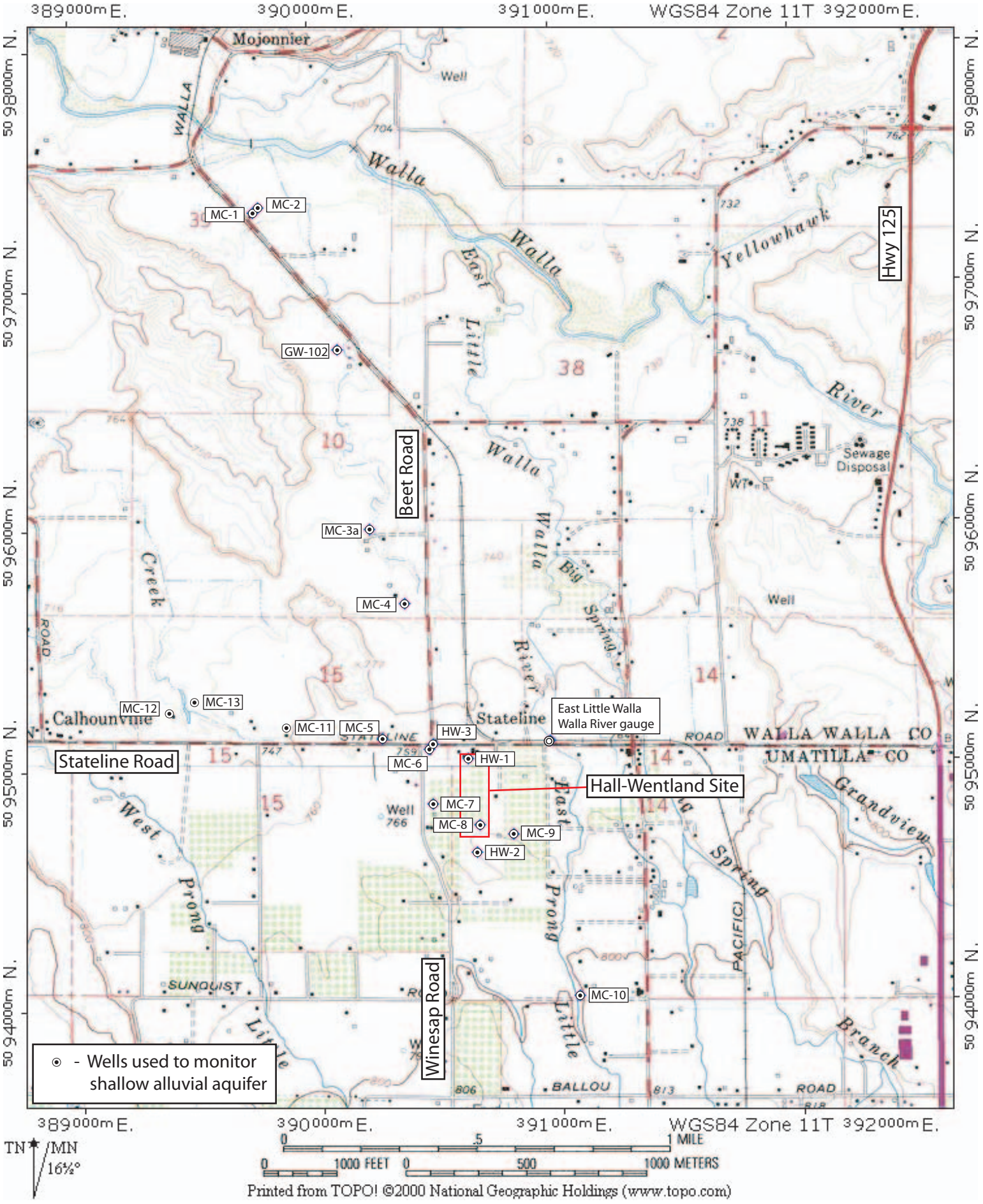
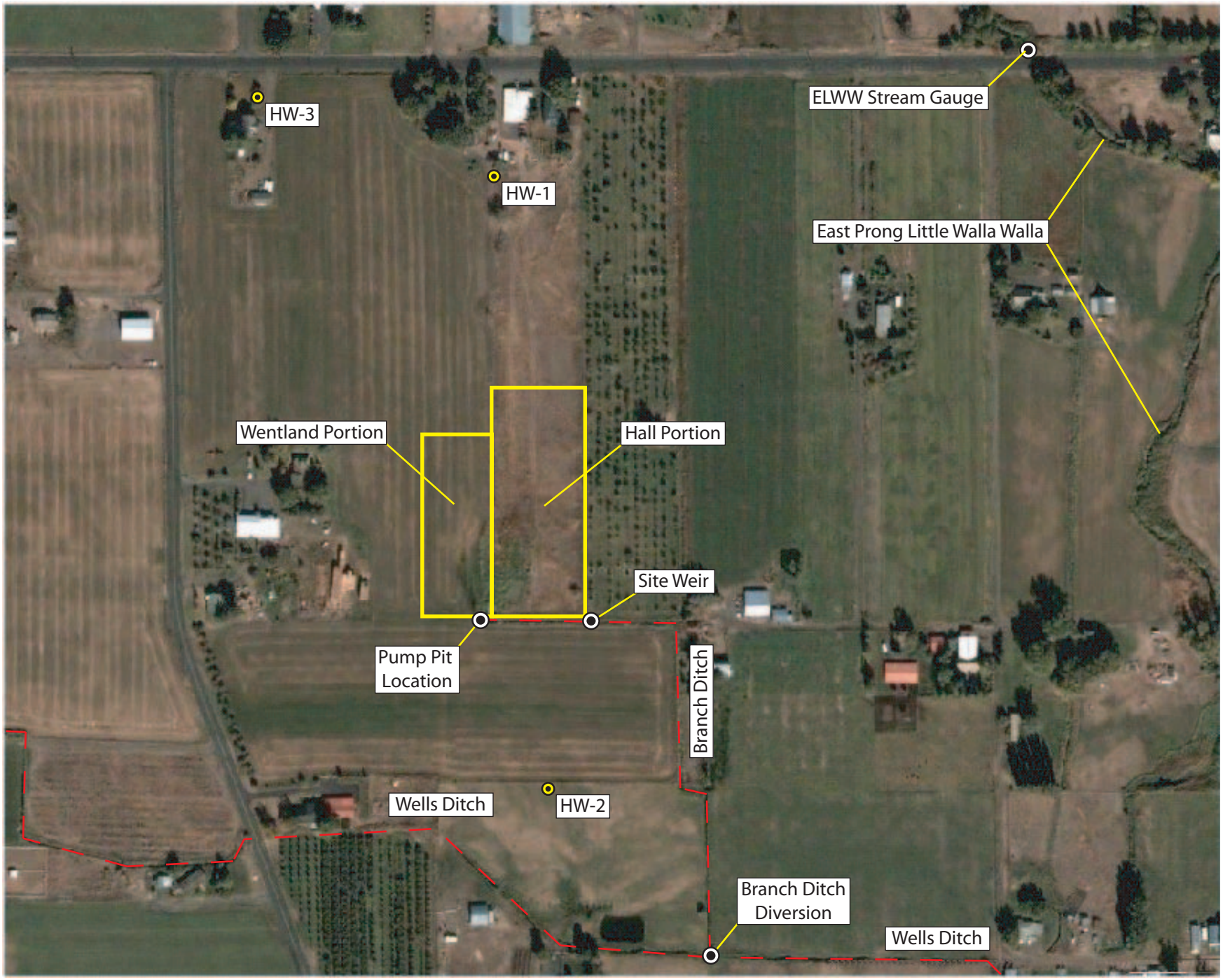


Figure 2. Local setting, including locations of both off-site and on-site wells used for water level monitoring.



GSI Water Solutions, Inc.

Figure 3. Local setting, showing ditches, site boundaries, and location of water quality monitoring wells.

Figure 4. Ramp flume at upstream end of Branch Ditch. The vertical white tube is where the transducer is installed. The Wells Ditch fish screen and diversion weir is in the foreground. This view is to the north.

Figure 5. Ramp flume in Branch Ditch where it enters the H-W Site. This view is to the west.

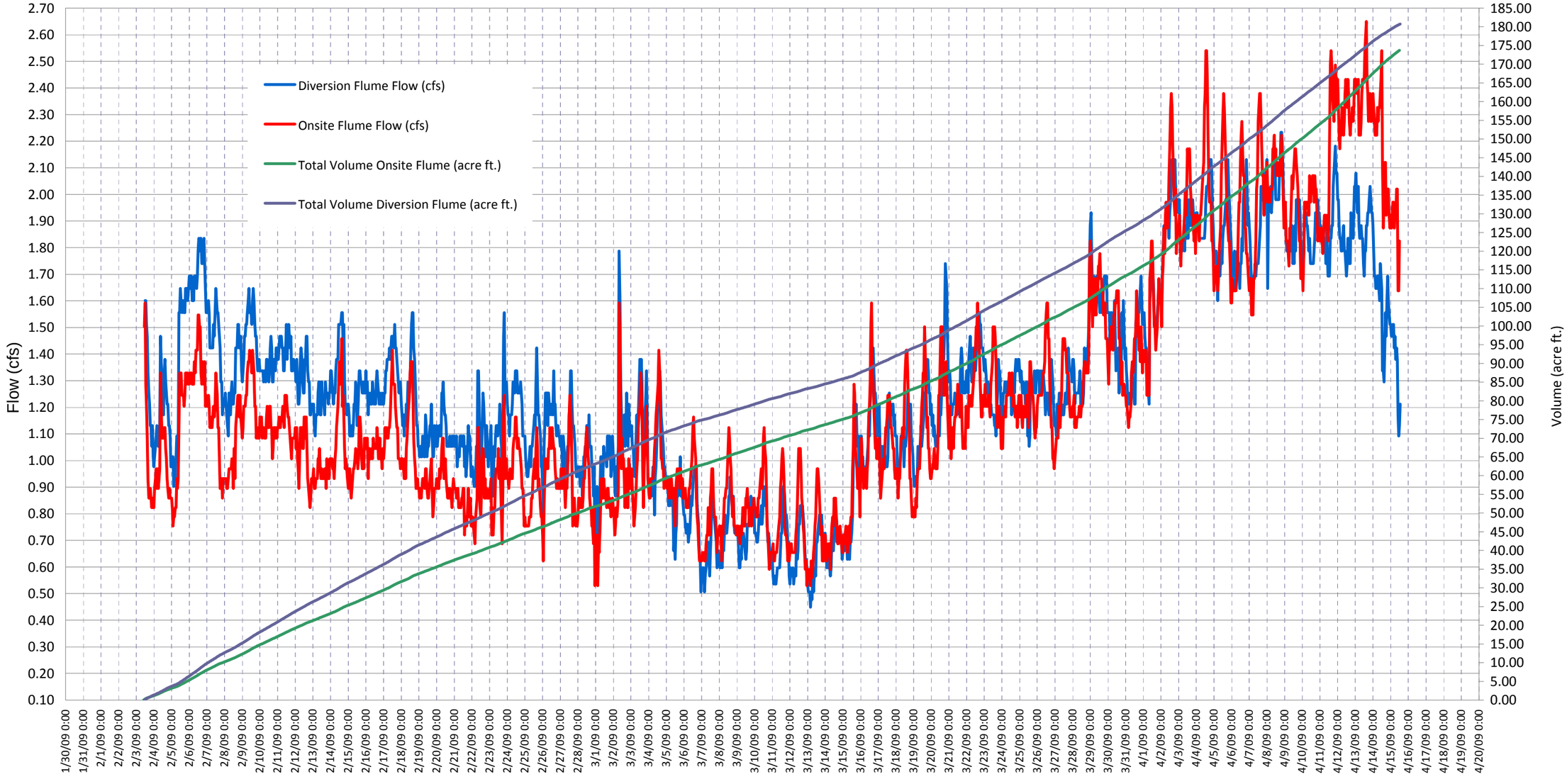


Figure 6. Calculated instantaneous water flow through the two ramp flumes and accumulative total acre-feet delivered to the H-W Site during the 2009 SAR season.

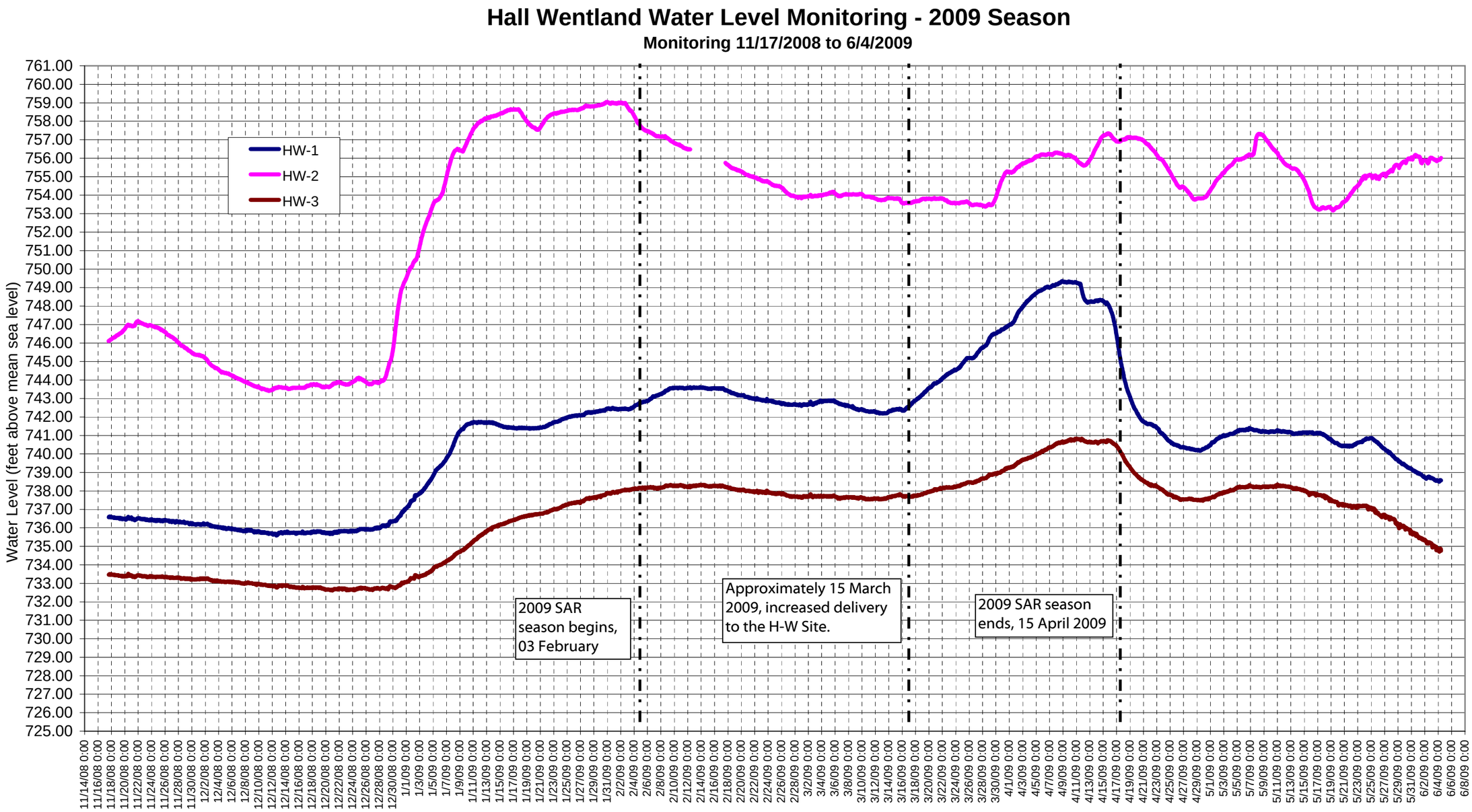


Figure 7. Water levels in feet amsl before, during, and after the 2009 SAR season in the three H-W Site monitoring wells.

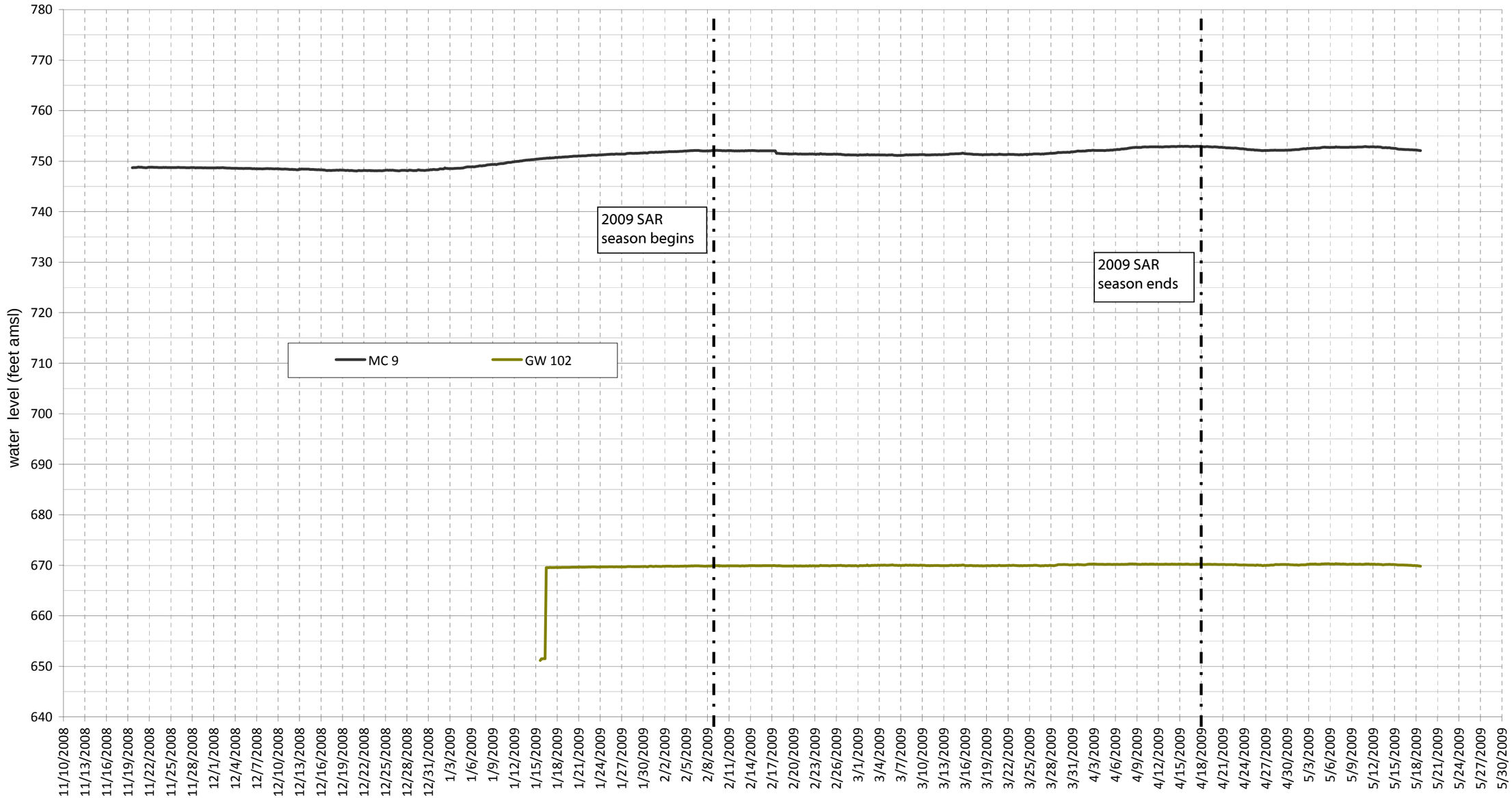


Figure 8. Measured water levels in the two off-site wells.

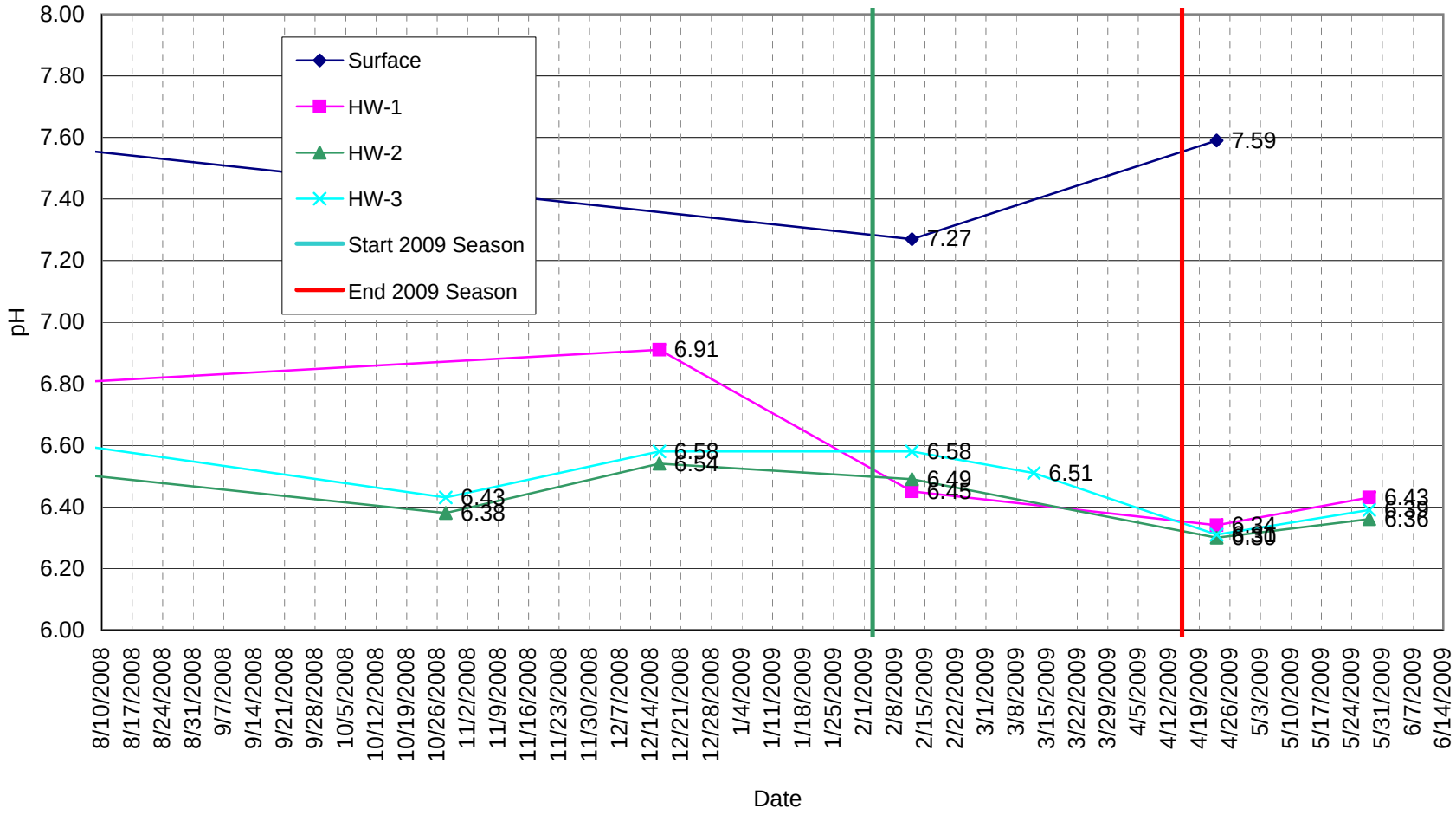


Figure 9. Source water and groundwater pH during the 2009 SAR season.

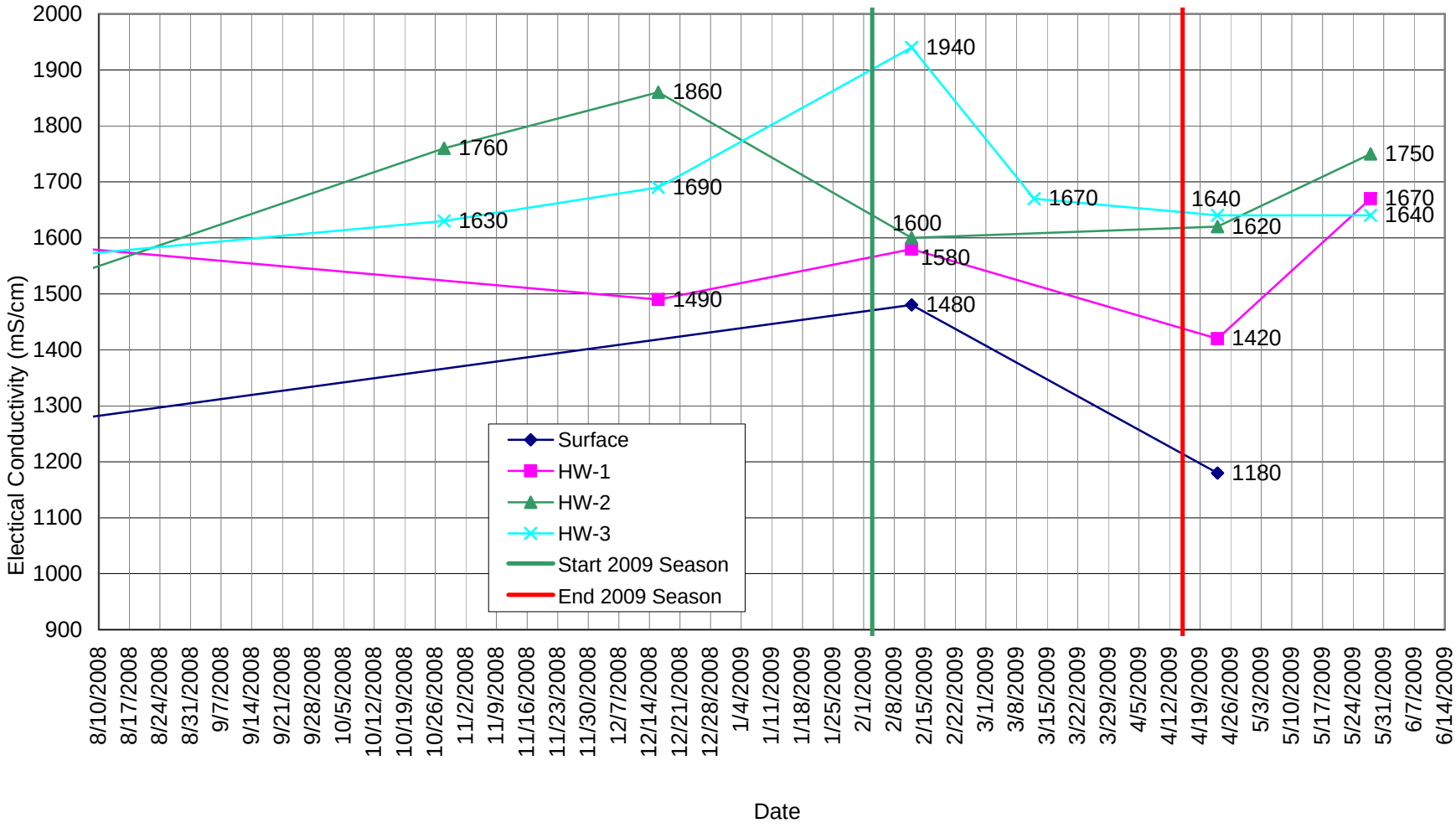


Figure 10. Electrical conductance (EC) in source water and groundwater during the 2009 SAR Season.

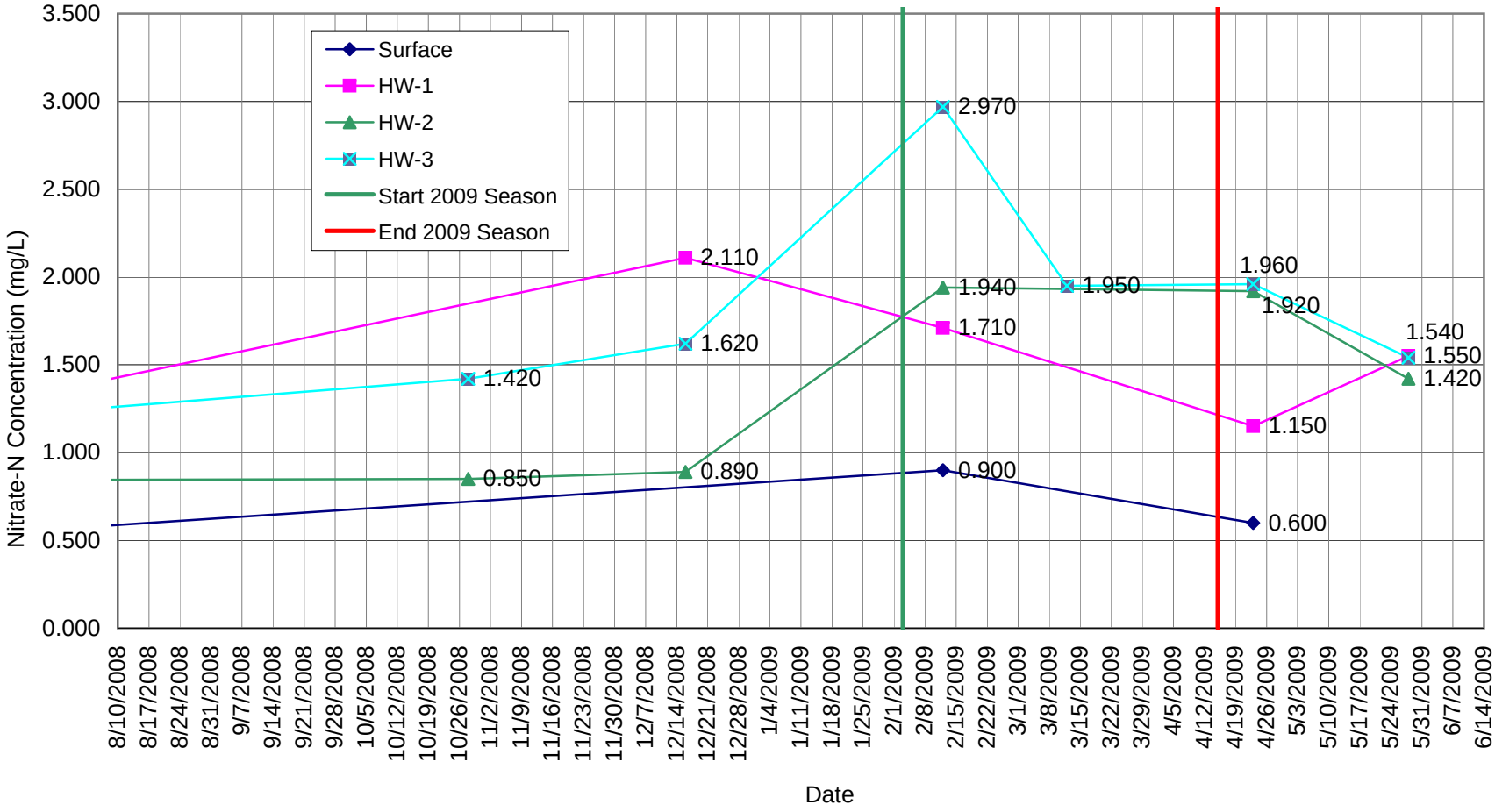


Figure 11. Nitrate-N concentrations in source water and groundwater during the 2009 SAR Season.

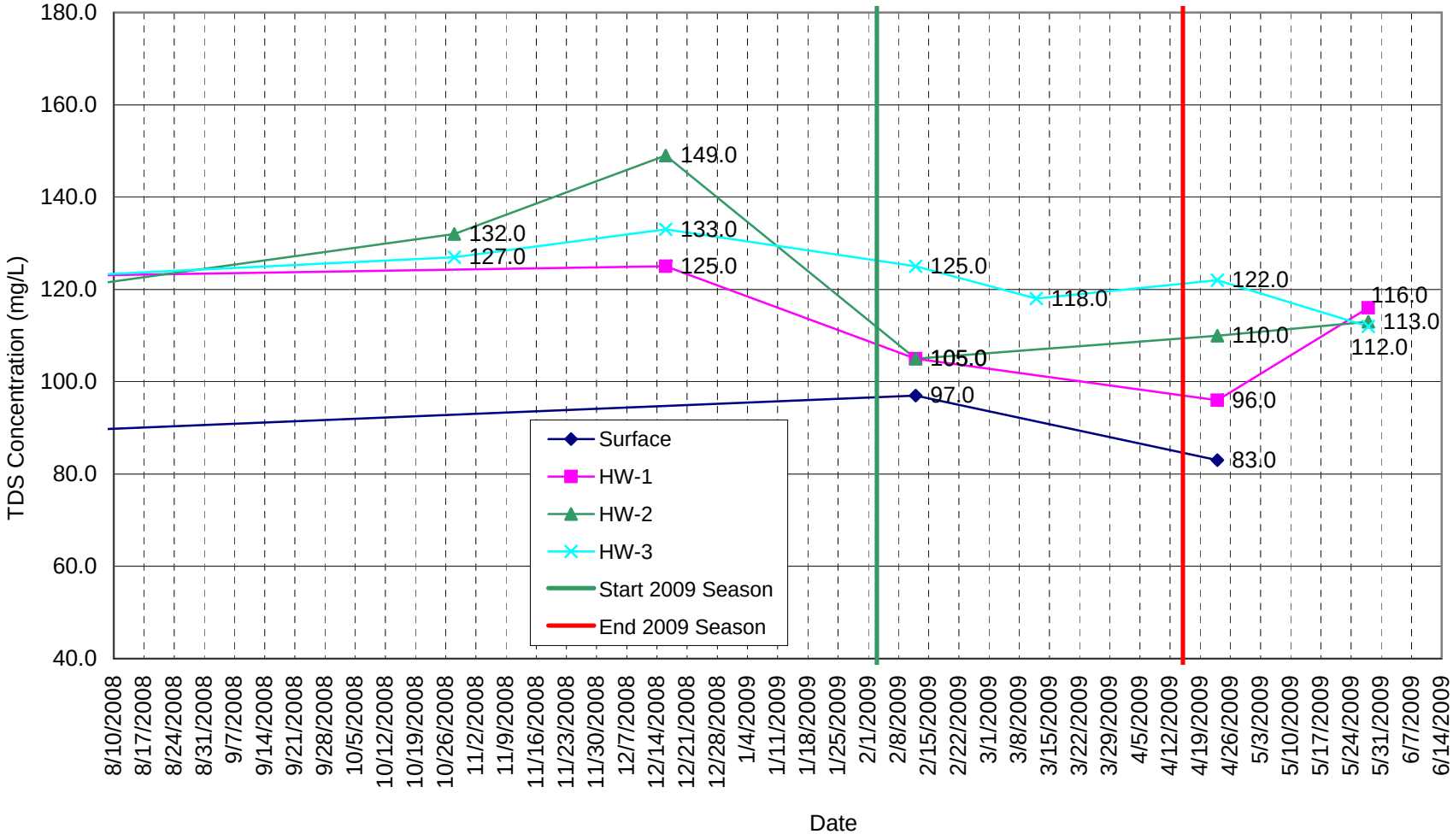


Figure 12. Total disolved solids (TDS) in source water and groundwater during the 2009 SAR Season.

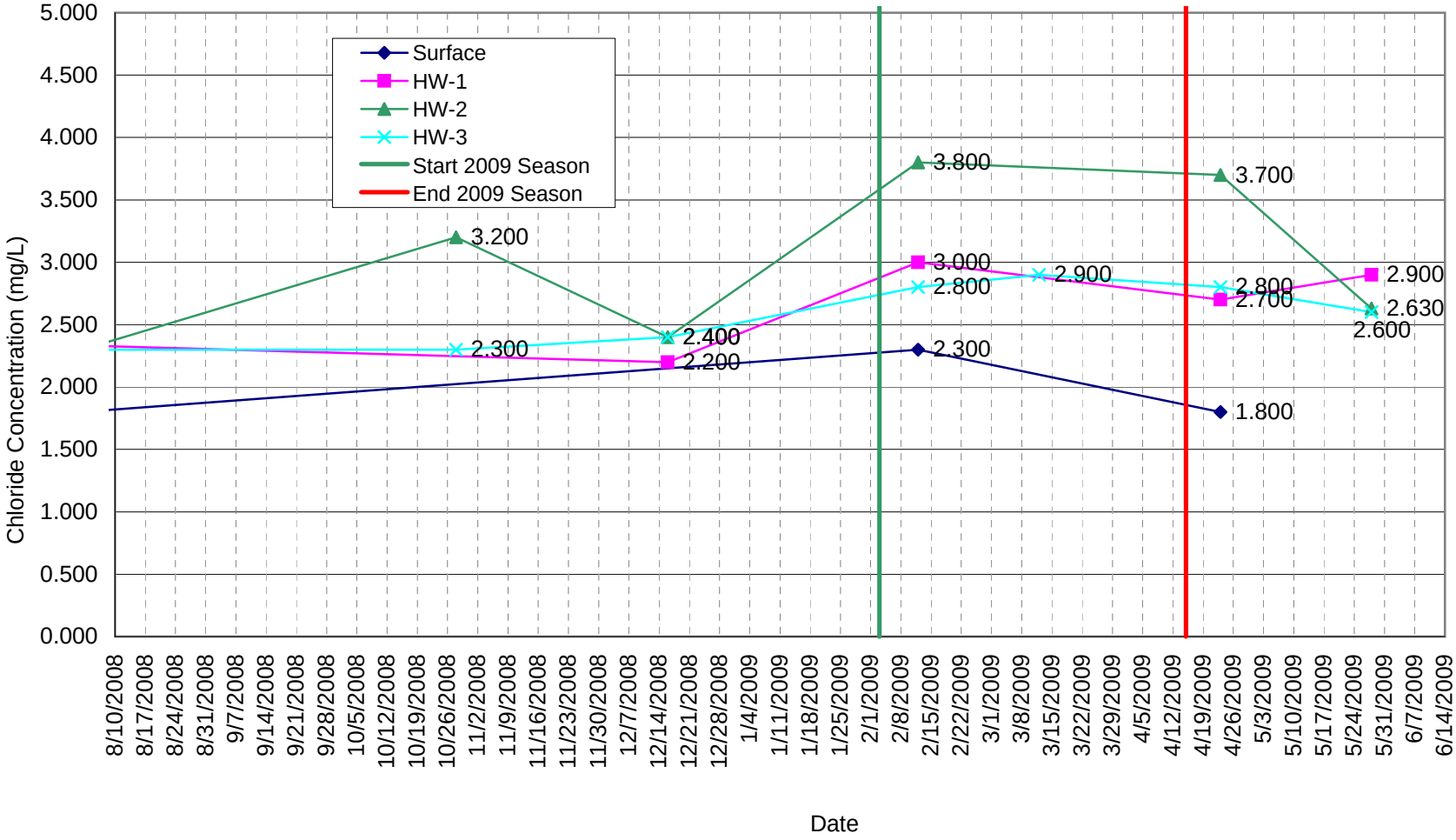


Figure 13. Chloride concentration in source water and groundwater during the 2009 SAR Season.

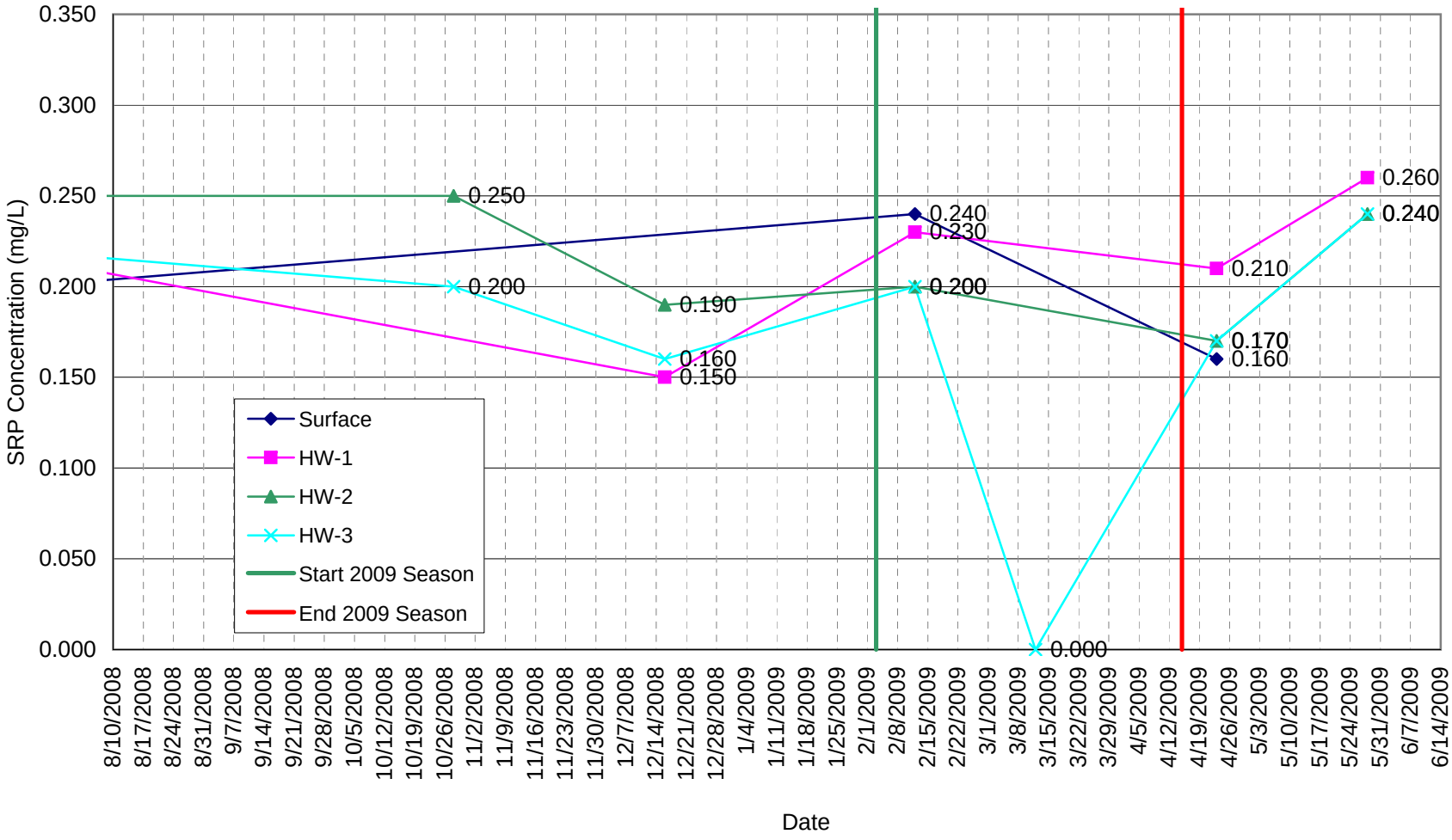


Figure 14. Soluable reactive phosphorus (SRP) in source water and groundwater during the 2009 SAR Season.

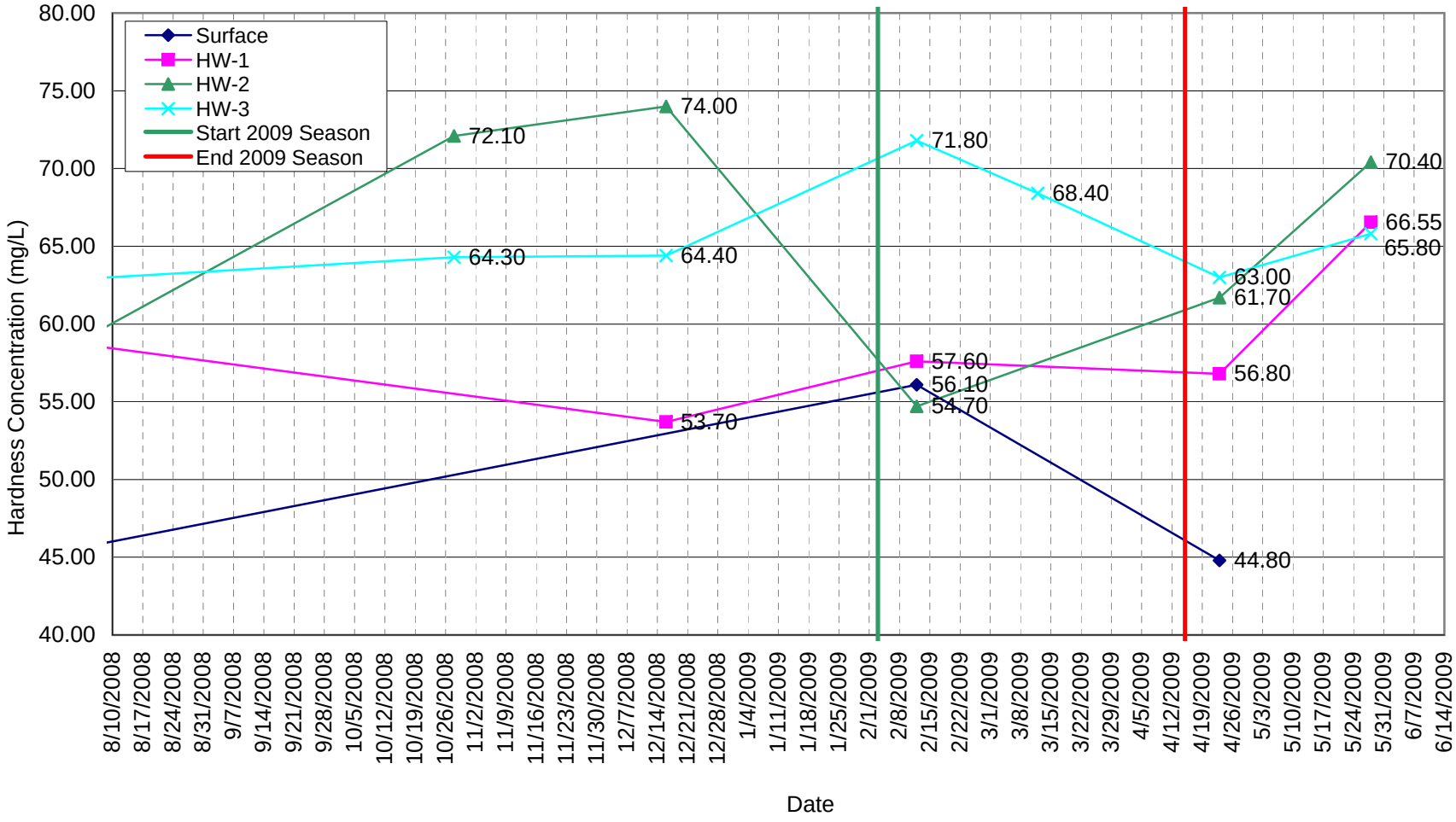


Figure 15. Hardness in source water and groundwater during the 2009 SAR Season.

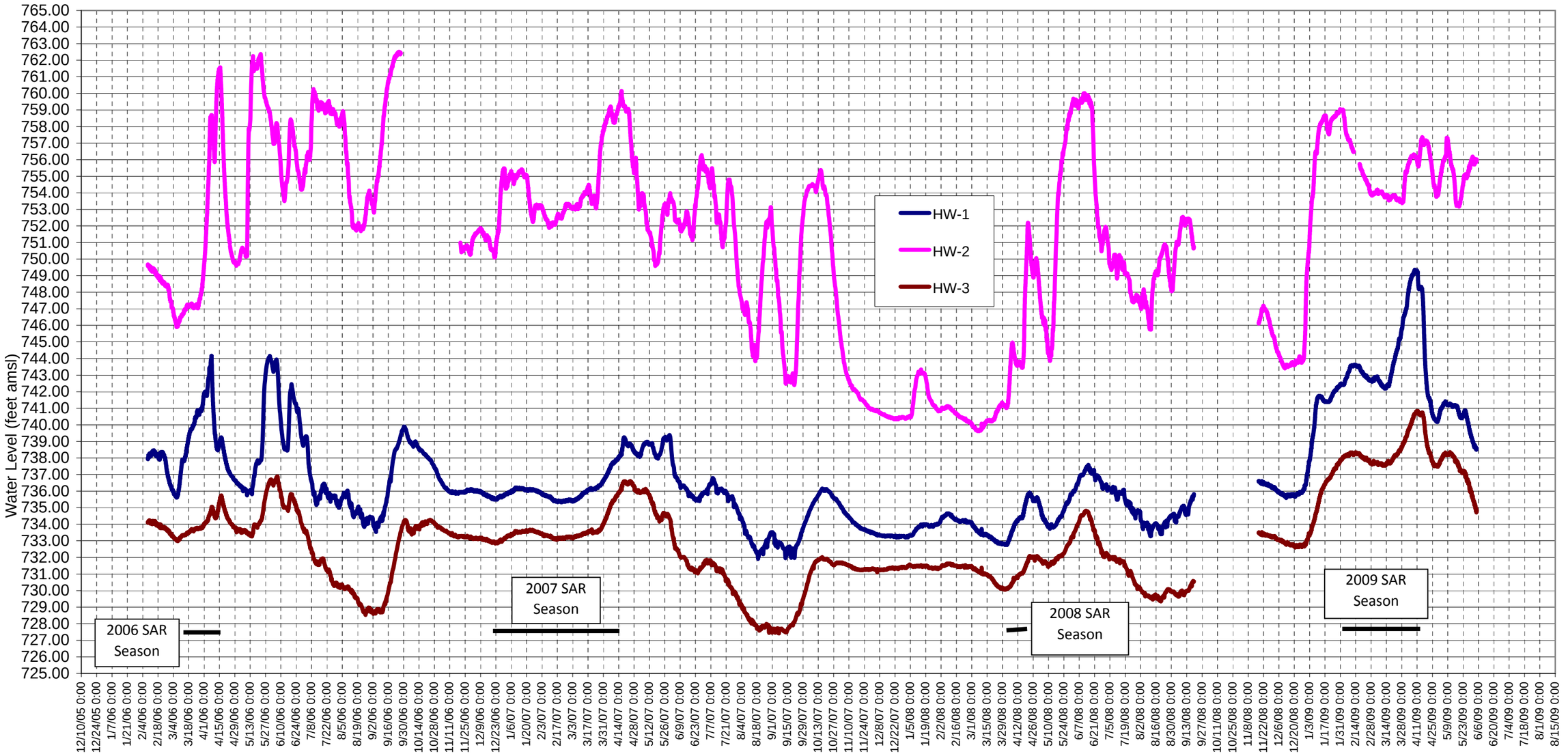


Figure 16. Hydrographs for wells HW-1, HW-2, and HW-3 from February 2006 through June 2009, for the 2006, 2007, 2008, and 2009 SAR Seasons.

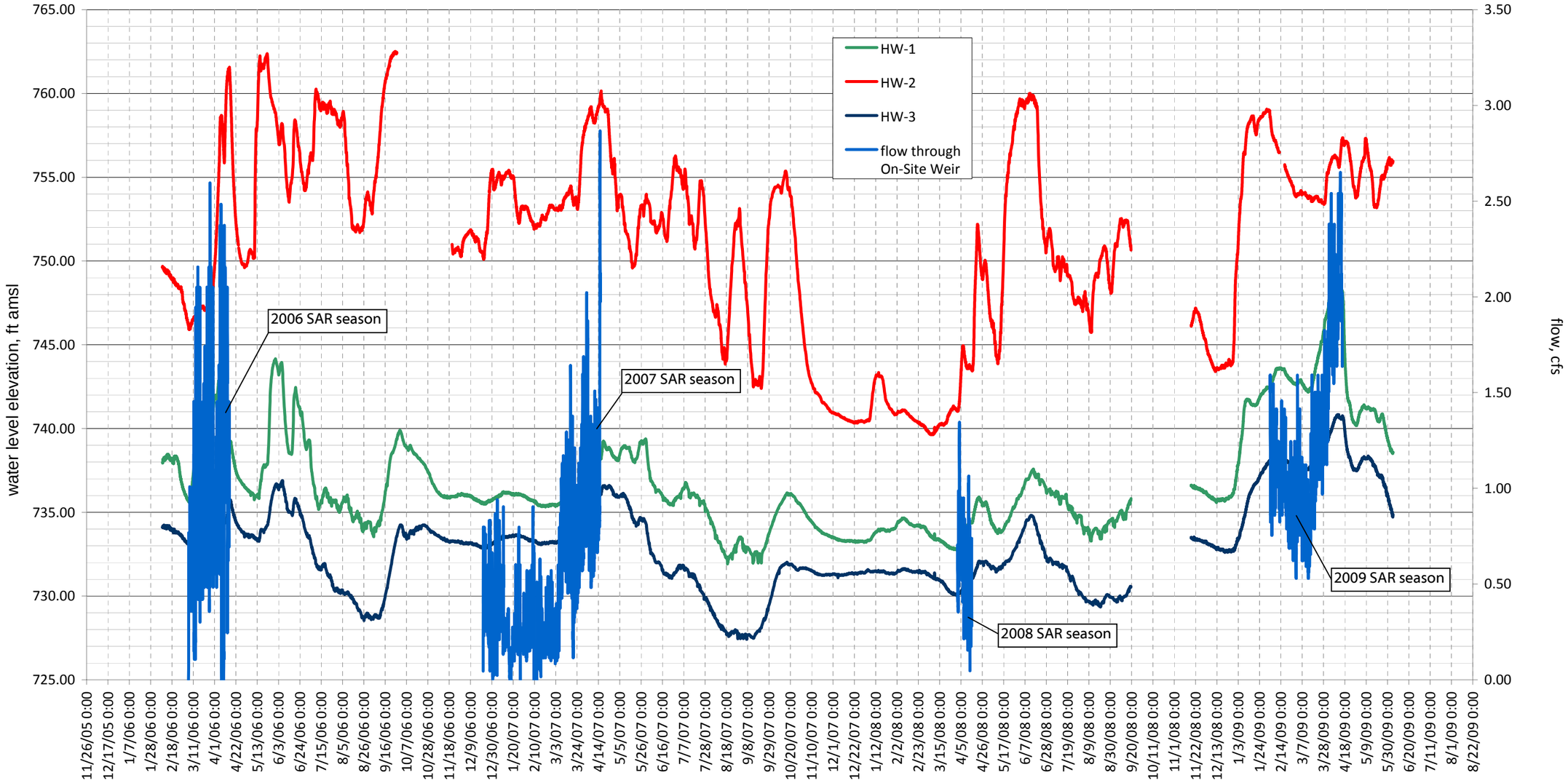


Figure 17. Water levels in wells HW-1, HW-2, and HW-3 compared to flows onto the H-W Site calculated for the 2006, 2007, 2008, and 2009 SAR seasons.

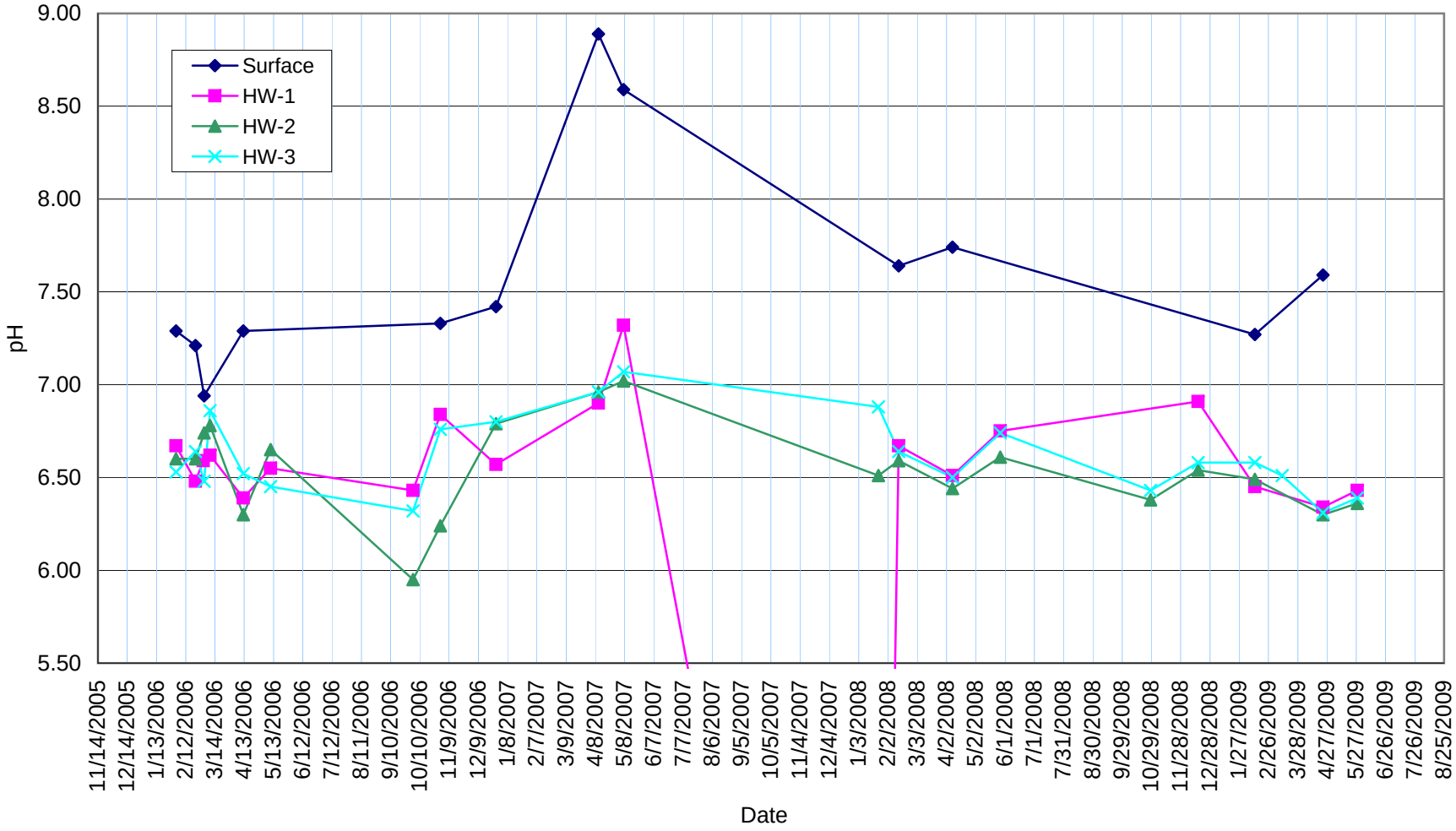


Figure 18. pH in source water and groundwater during the 2006, 2007, 2008, and 2009 SAR seasons.

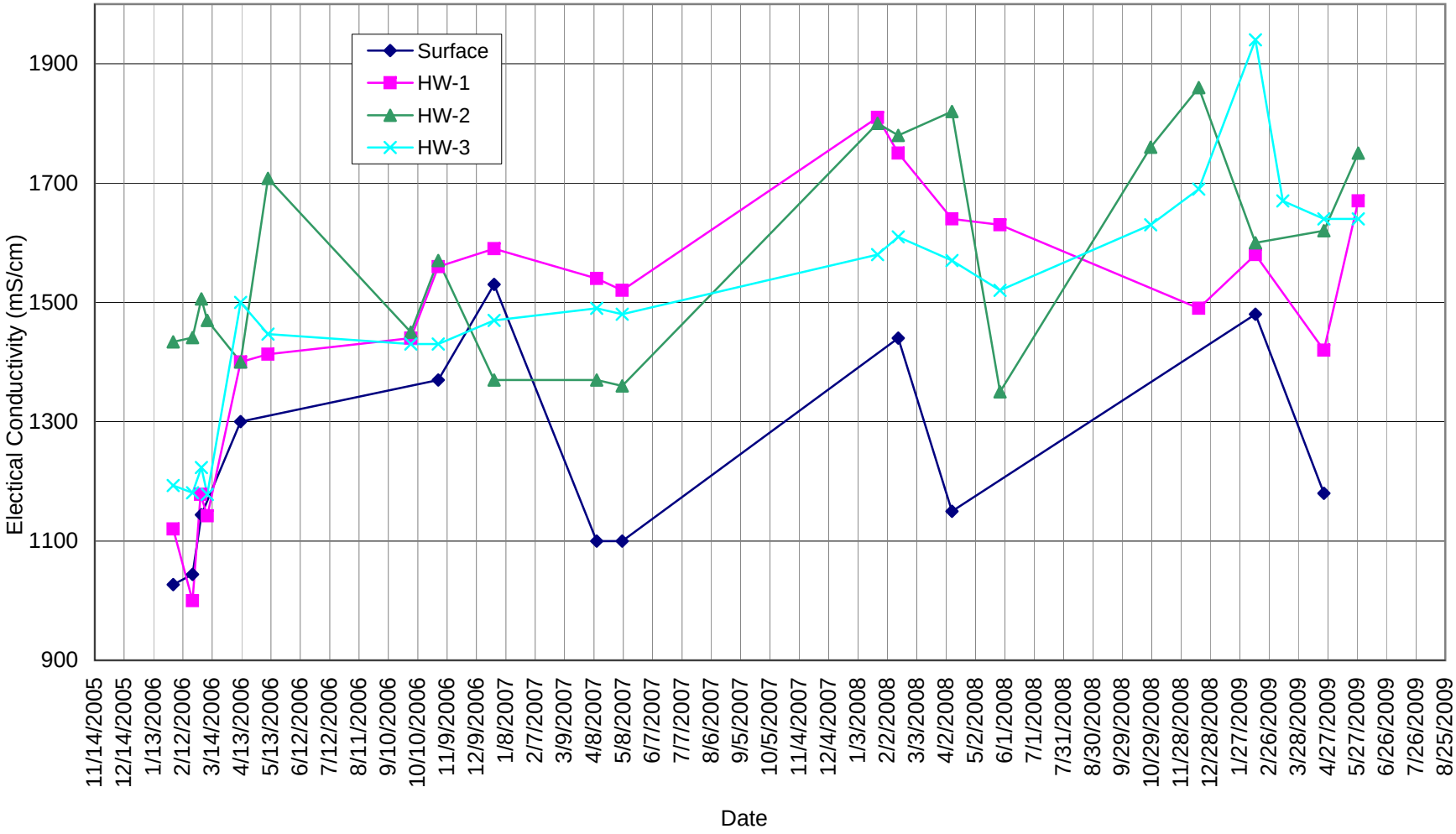


Figure 19. EC in source water and groundwater during the 2006, 2007, 2008, and 2009 SAR seasons.

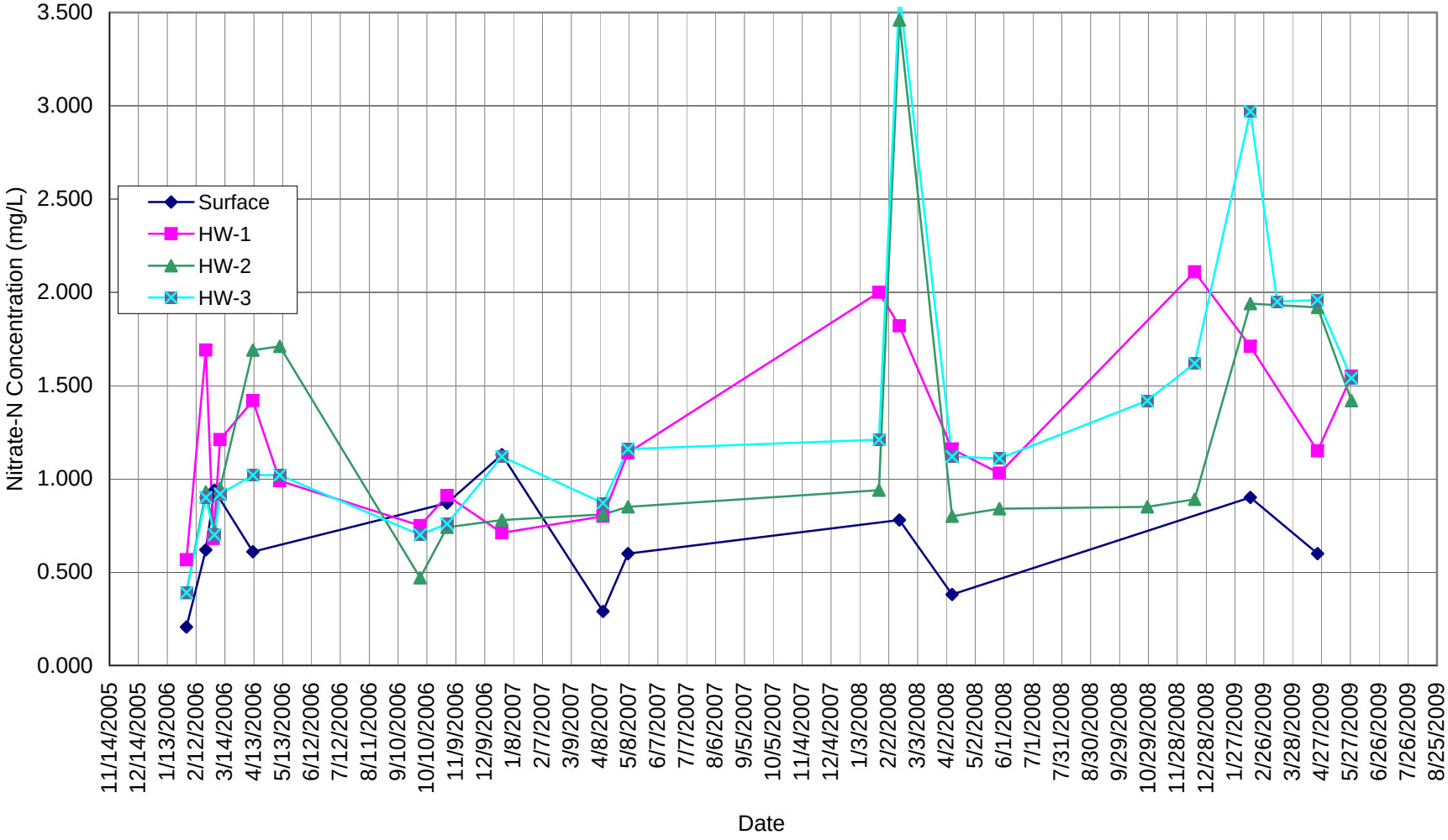


Figure 20. Nitrate-N in source water and groundwater during the 2006, 2007, 2008, and 2009 SAR seasons.

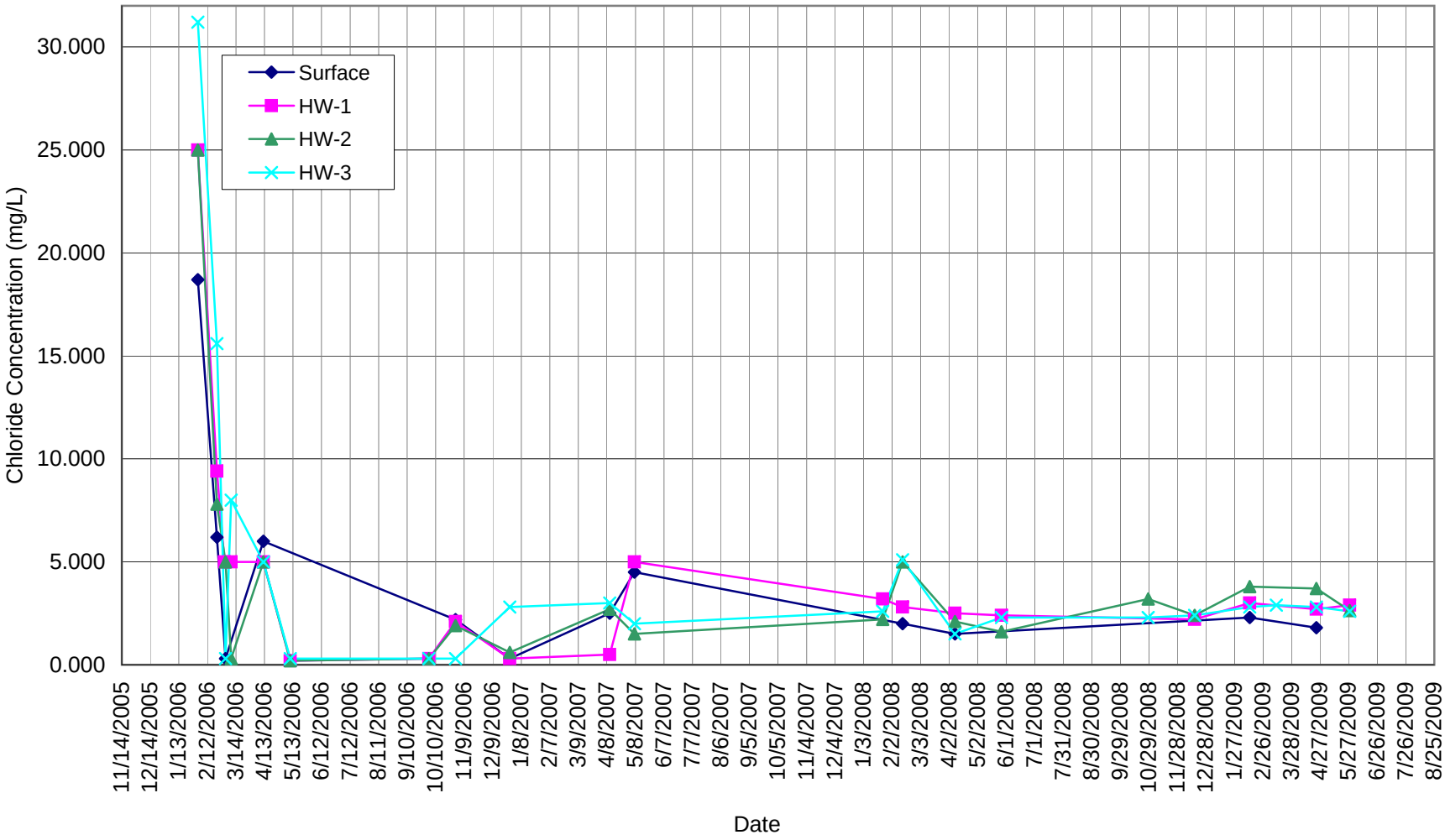


Figure 21. Chloride in source water and groundwater during the 2006, 2007, 2008, and 2009 SAR seasons.

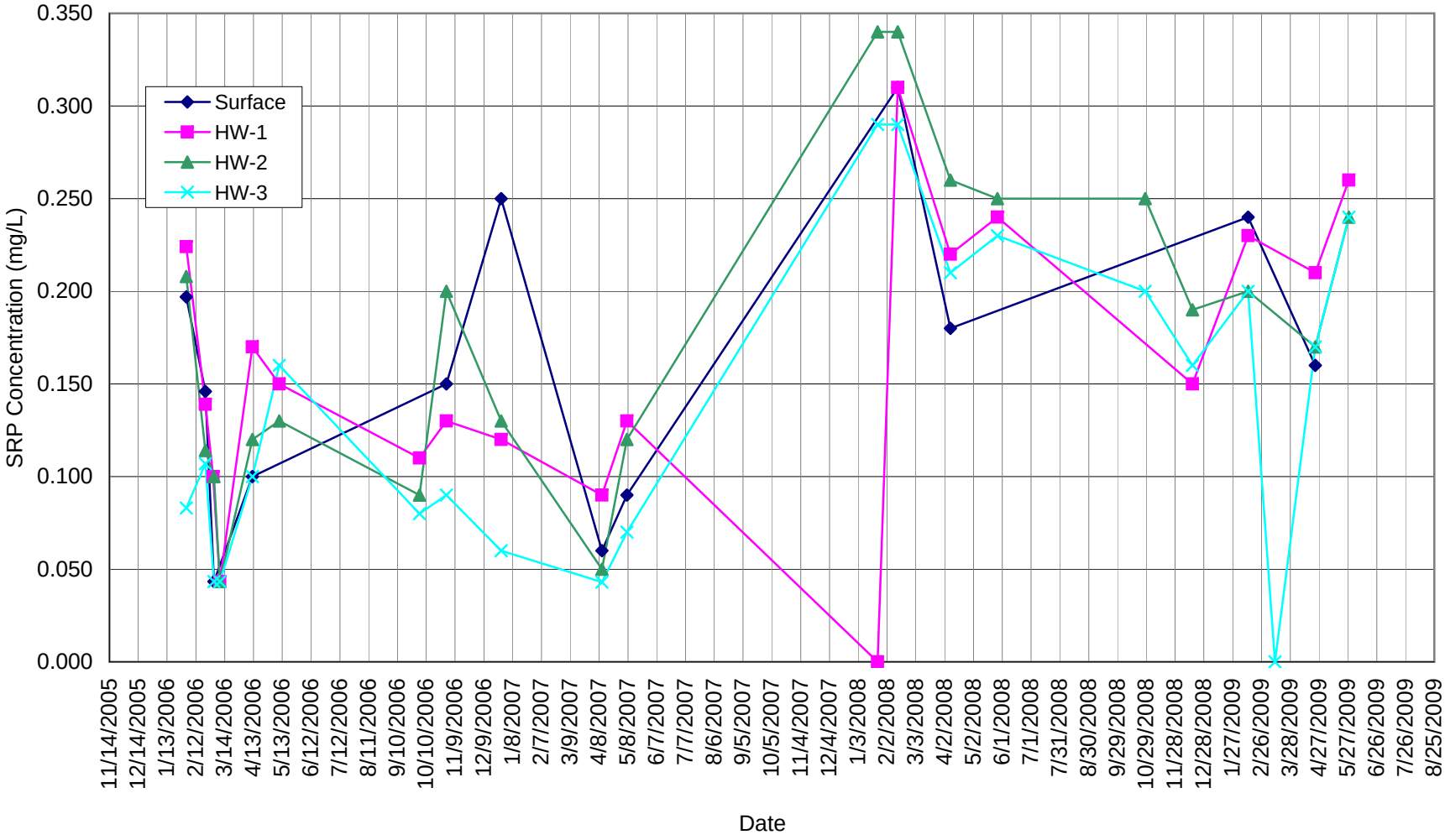


Figure 22. SRP in source water and groundwater during the 2006, 2007, 2008, and 2009 SAR season.

APPENDIX A

2009 Field Notes

11/13/05

Tom P removed transducers in branch ditch until official start @ about 9:00

2/3/09

10:54 EPLWW gauge @ 0.73
4.13 cfs

11:35 fish screen installed
Diversion staff 0.94'
flume 1.5 cfs

12:00 Diversion staff 0.95
flume 1.6 cfs

12:10 cleaned screen
staff 1.1
flume 1.7 cfs

12 18 onsite staff 0.95
flume 1.35 cfs

12 23 onsite staff 0.96
flume 1.38

12 30 onsite staff 0.97
1.40

12 38 onsite ~~Staff~~ 0.95
1.35

DTW - 13.26 12:53
DTW - 21.20 13:08
DTW - 18.79 13:55

2/3/09

~~13~~ 22 onsite flume 1.5 cfs
water is only going to Hall
pasture since 13:20

14 02 onsite staff 0.93
flume 1.3 cfs

3/3/09

made drawing of wetted area

MW-1 – 20.56' 2 20
MW-3 – 19.13' 2 35

on site flume staff 1.2 cfs 2:40
0.90'

MW-2 – 18.86' 3 15

diversion flume staff 1.3 cfs 3:35
0.86'

EPLWW gauge 0.78

3/13/09

mapped wet spots on Hall pasture

flume had no drop and read 1.1 cfs
cleaned out inlet to sump pond

2:03 flume has drop now reads 1.0 cfs

3/20/09

made infiltration Map
on site flume 1.4 cfs 12:35

4/15/09

onsite Stall pasture
flow of water has been diverted
to the East side of pasture
using make shift diversion. there
is no drop off of the flume
changed on Sat 4/11

1840 removed flume
pulled Tx

1353	HW-1	15.40'
1411	HW-3	16.19'
1420	HW-2	13.52'

diversion staff 0.5
diversion flume 1.5
transducer tube is buried
in muck loose muck

1505 pulled flume at diversion and
fish screen, to be picked up
next week. Also pulled weir boards
to equalize flow down branch
ditch and wells ditch

5/19/09

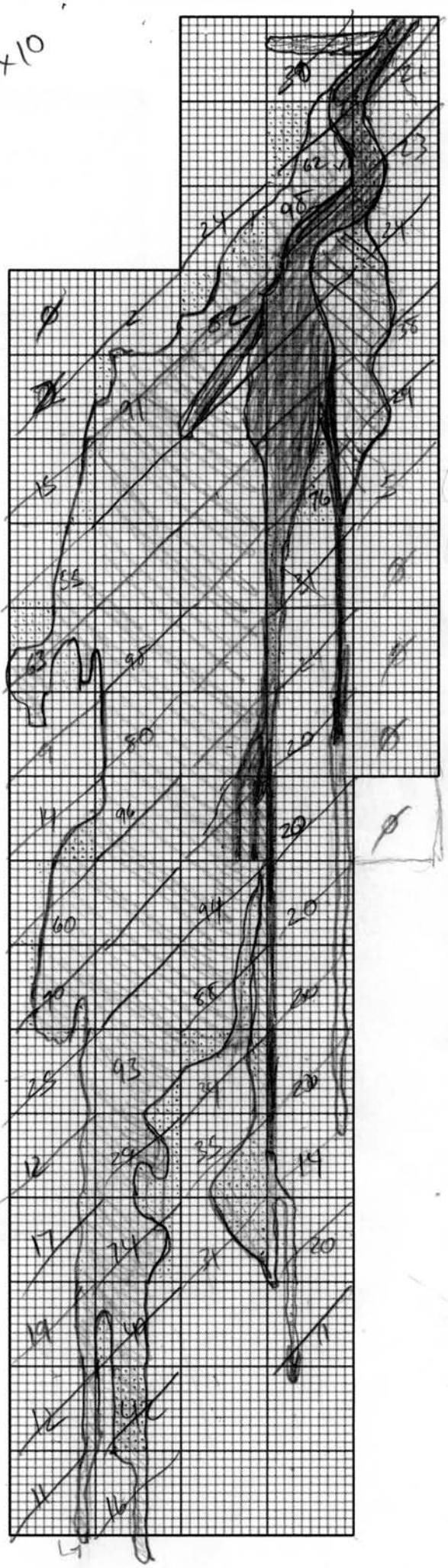
HW-1	23.03	13:19
HW-3	19.41	13:28
HW-2	17.57	13:38

6/4/09

HW-2	DTW	19.80'	11:37
HW-3	DTW	22.04	11:52
HW-1	DTW	25.02	12:54

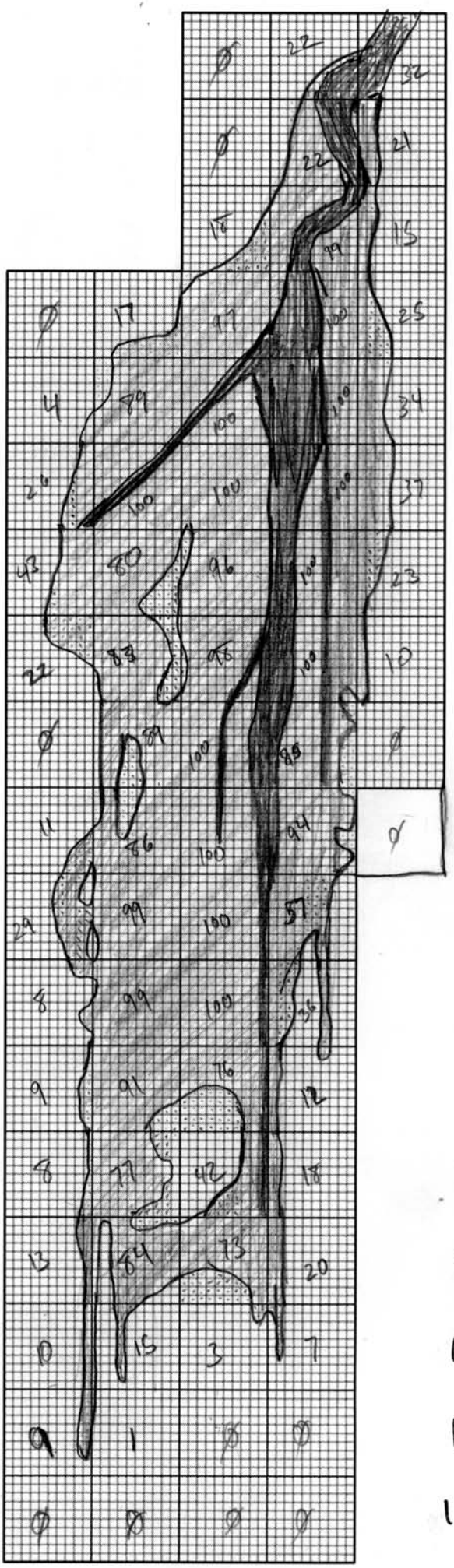
Date: 2/20/09
Time: 13:15
Temp: cold
Weather: windy partly cloudy
Flume: 1.15 cfs

Comments:
dark shade = higher flow
light shade = lower flow to standing H2O



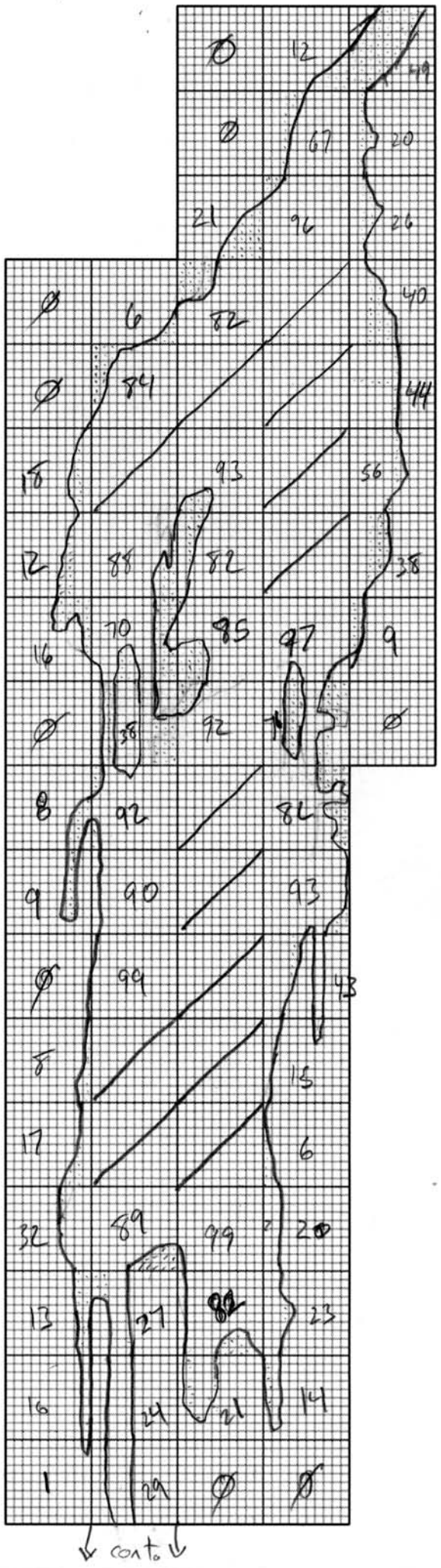
Date: 3/3/09
Time: 14:00
Temp: 60°
Weather: ptly cloudy
Flume: 1.2 cfs

Comments:



Date: 3/13/09
Time: 14:02
Temp: 60°
Weather: sunny
Flume: 1.10 ~~no flow~~

Comments:

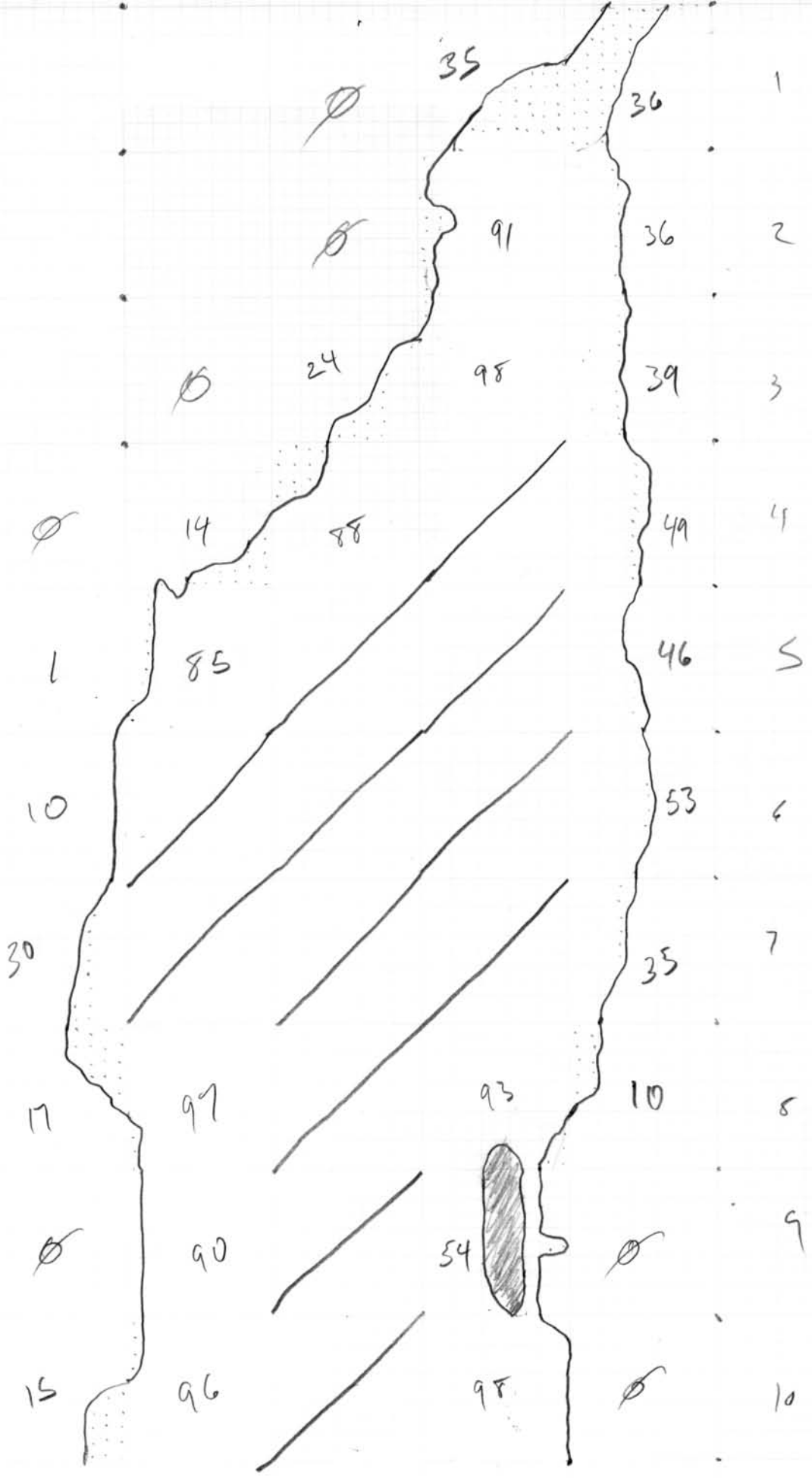


3/13/2009
Continued

3/20/09

Sunny 65°F

1.4 cfs 12:34



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3/20/2009
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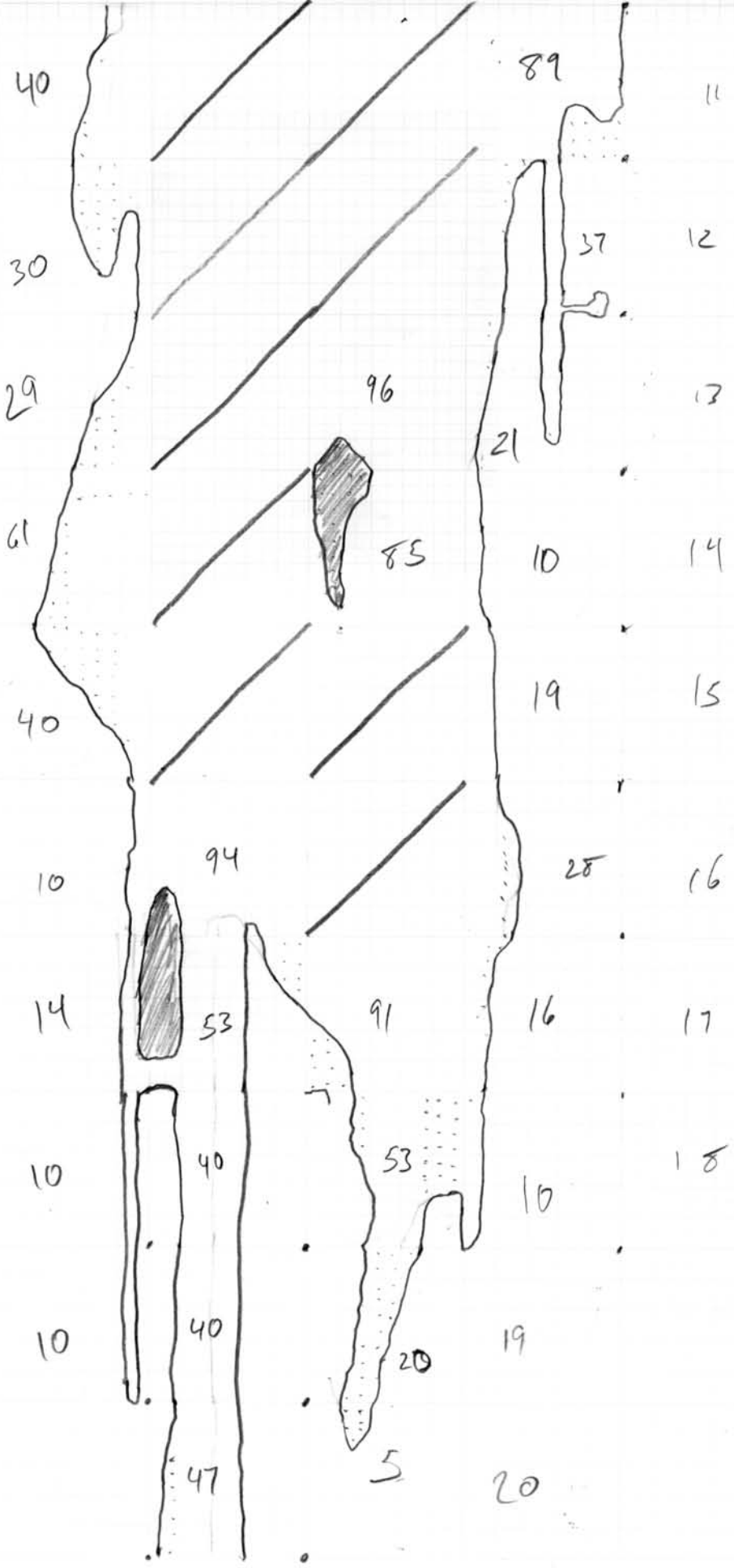

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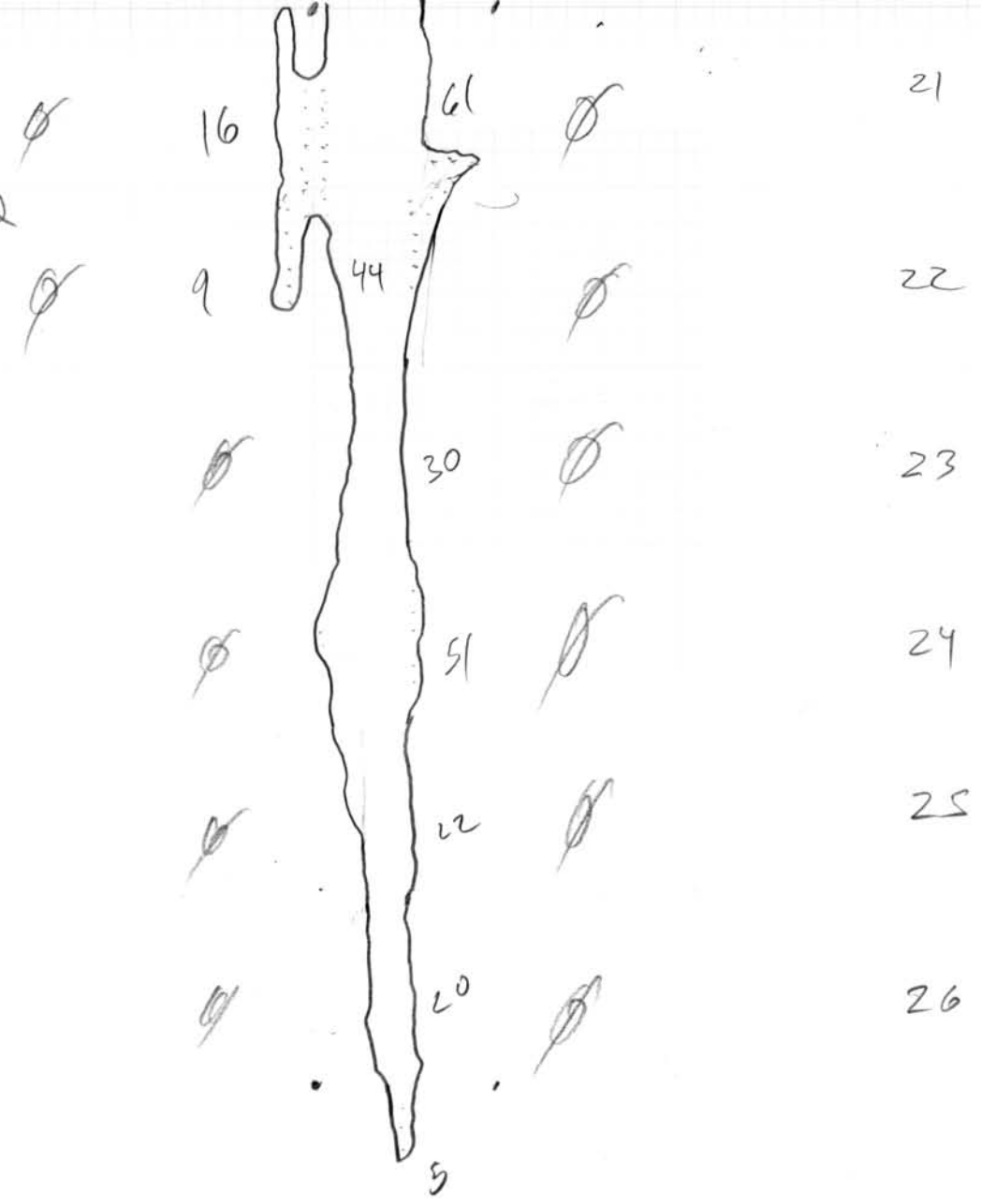
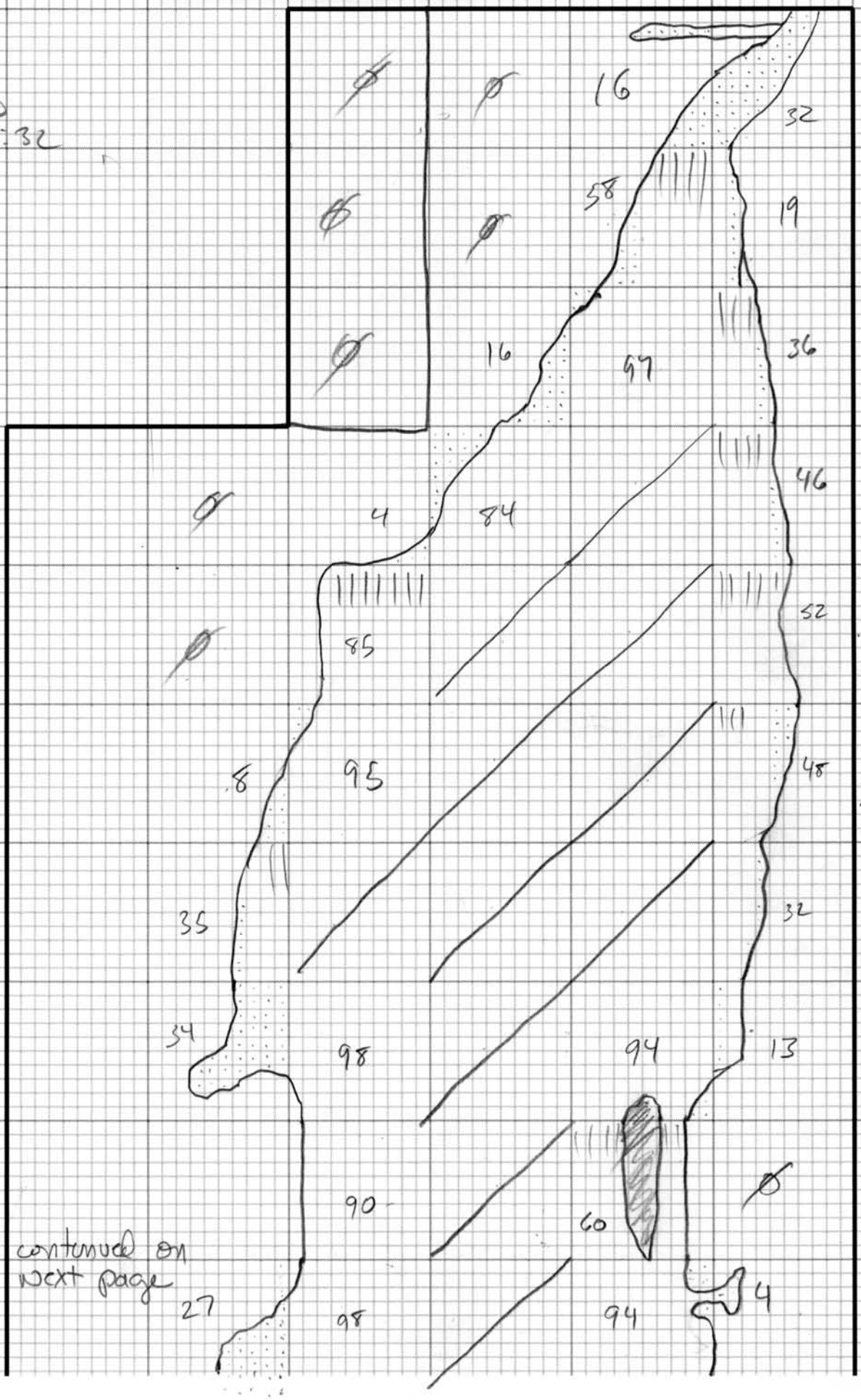
3/29/2009
continued



3/26

60° F sunny
1.5 cfs 15:32



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3/26/2009
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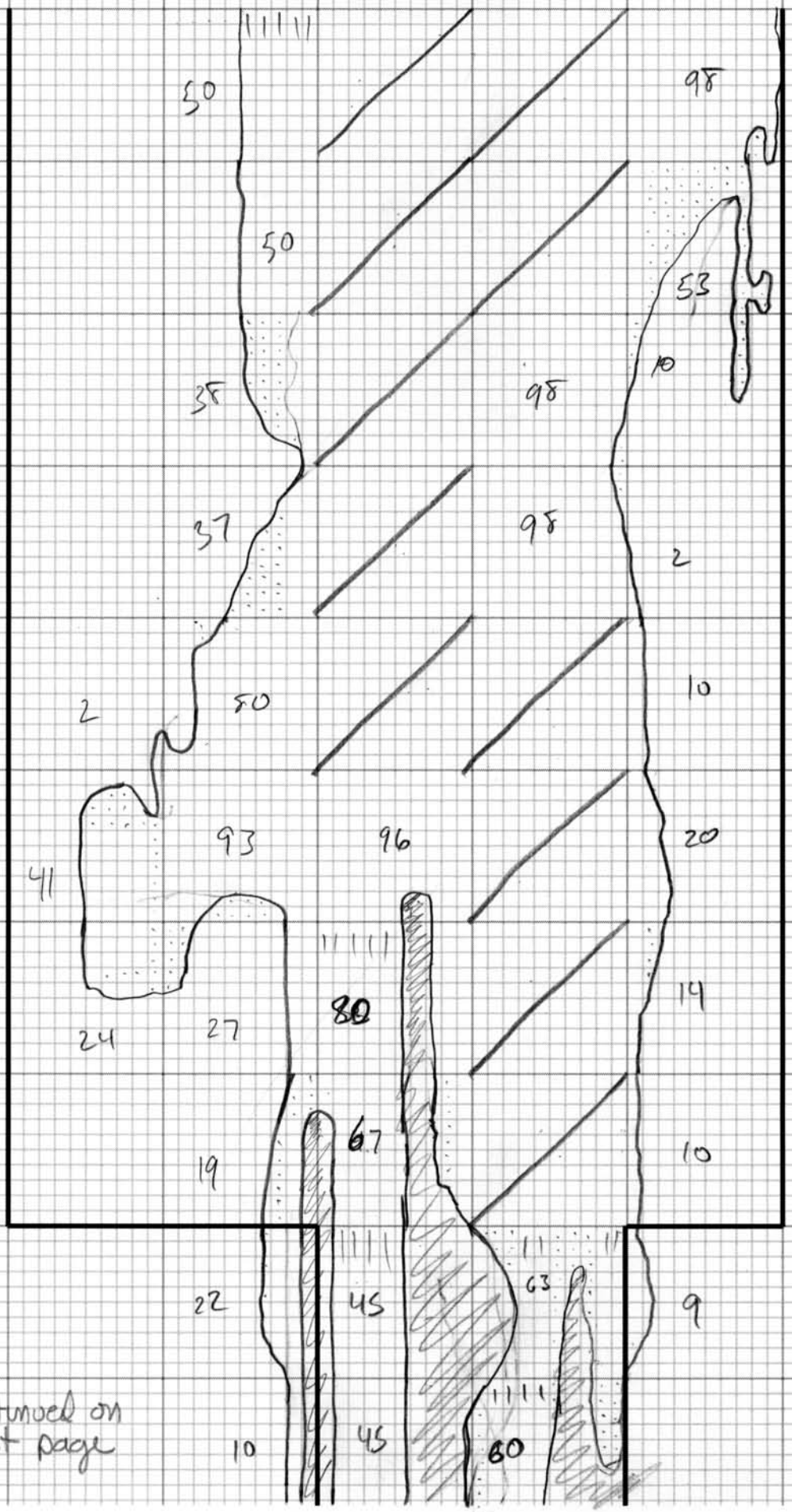

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3/26/2009
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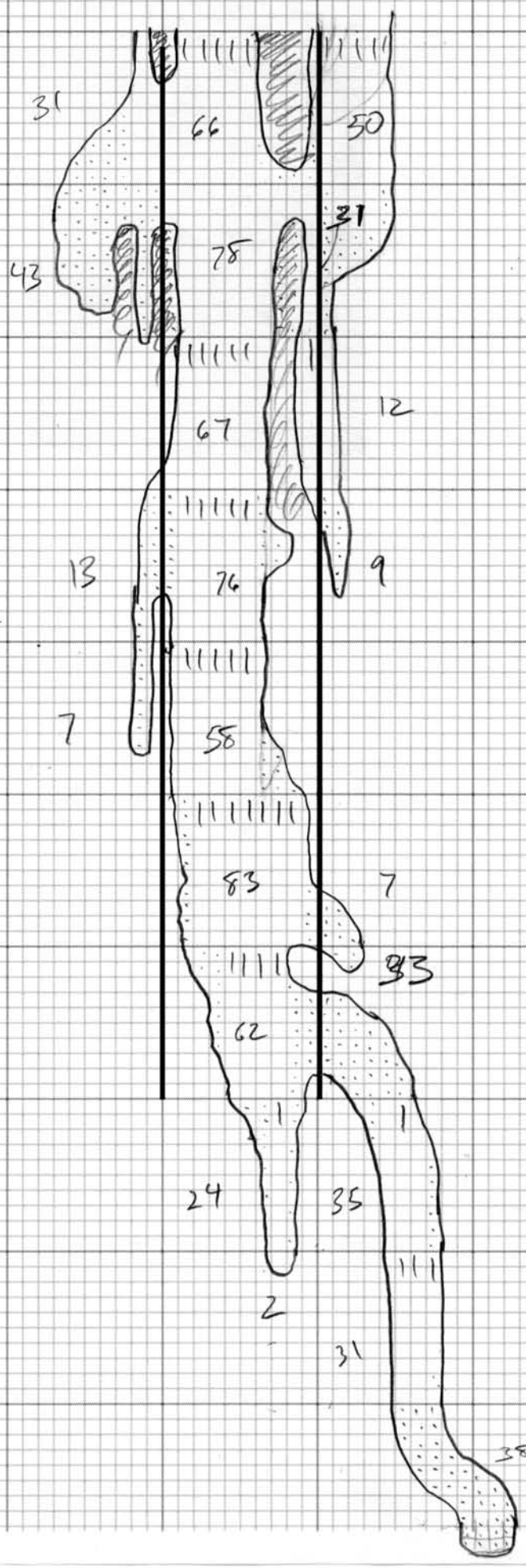

APPENDIX B

2009 Water Quality Data

EDGE ANALYTICAL LABORATORIES

Burlington WA | 1620 S Walnut St - 98233
Corporate Office | 800.755.9295 • 360.757.1400 • 360.757.1402fax
Bellingham WA | 805 Orchard Dr Suite 4 - 98225
Microbiology | 360.671.0688 • 360.671.1577fax

December 10, 2008

Mr. Troy Baker
Walla Walla Basin Watershed Council
810 S Main Street
Milton-Freewater, OR 97862

RE: 08-15517 - Locker/Hall-Wetland

Dear Mr. Troy Baker,

Your project: Locker/Hall-Wetland, was received on Wednesday October 29, 2008.
The following comments are reported for your project:

Samples 32783 (H-3) and 32784 (H-2) were also analyzed for PCBs and Toxaphene under method 508.1. Both sample were non-detect for these compounds. There was no charge for this analysis.

If you have questions phone me at 800 755-9295.

Respectfully Submitted,

CJ for LJH

Lawrence J Henderson, PhD
Director of Laboratories

Enclosures Data Report
QC Reports
Chain of Custody

Reference Number: 08-15517
Report Date: 11/7/2008

Data Report

Collected By: Baker

Date Received: 10/29/2008

Lab Number: 32783 Sample Description: H-3 - Hall-Wetland #3 Sample Date: 10/28/2008

CAS ID#	Analyte	Result	PQL	MDL	Units	DF	Method	Analyzed	Analyst	Batch	Comments
E-10139	HYDROGEN ION (pH)	6.43			pH Units	1.0	SM4500-H+ B	10/29/2008	MAK	PH_081029	
14797-55-8	NITRATE-N	1.42	0.100	0.015	mg/L	1.0	300.0	10/29/2008	BJ	I081029A	
16887-00-6	CHLORIDE	2.3	0.1	0.012	mg/L	1.0	300.0	10/29/2008	BJ	I081029A	
E-10173	TOTAL DISSOLVED SOLIDS	127	10	6	mg/L	1.0	SM2540 C	10/29/2008	CCN	TDS_081029	
14265-44-2	ORTHO-PHOSPHATE	0.20	0.01	0.002	mg/L	1.0	SM4500-P F	10/29/2008	SO	OPHOS-081029	
E-10184	ELECTRICAL CONDUCTIVITY	163	10		uS/cm	1.0	SM2510 B	11/3/2008	CCN	EC_081103	
E-10617	TURBIDITY	0.40	0.05	0.02	NTU	1.0	180.1	10/29/2008	MAK	TURB_081029	
15541-45-4	BROMATE	ND	0.005	0.0013	mg/L	1.0	300.1	11/4/2008	MVP	D081104A	
E-11778	HARDNESS	64.3	3.30	0.055	mg CaC(	1.0	200.7	11/3/2008	BJ	200.7-081103A	
E-10117	CHEMICAL OXYGEN DEMAND	ND	8	2	mg/L	1.0	SM5220 D	11/4/2008	MAK	COD_081104	

Lab Number: 32784 Sample Description: H-2 - Hall-Wetland #2 Sample Date: 10/28/2008

CAS ID#	Analyte	Result	PQL	MDL	Units	DF	Method	Analyzed	Analyst	Batch	Comments
E-10139	HYDROGEN ION (pH)	6.38			pH Units	1.0	SM4500-H+ B	10/29/2008	MAK	PH_081029	
14797-55-8	NITRATE-N	0.85	0.100	0.015	mg/L	1.0	300.0	10/29/2008	BJ	I081029A	
16887-00-6	CHLORIDE	3.2	0.1	0.012	mg/L	1.0	300.0	10/29/2008	BJ	I081029A	
E-10173	TOTAL DISSOLVED SOLIDS	132	10	6	mg/L	1.0	SM2540 C	10/29/2008	CCN	TDS_081029	
14265-44-2	ORTHO-PHOSPHATE	0.25	0.01	0.002	mg/L	1.0	SM4500-P F	10/29/2008	SO	OPHOS-081029	
E-10184	ELECTRICAL CONDUCTIVITY	176	10		uS/cm	1.0	SM2510 B	11/3/2008	CCN	EC_081103	
E-10617	TURBIDITY	6.00	0.05	0.02	NTU	1.0	180.1	10/29/2008	MAK	TURB_081029	
15541-45-4	BROMATE	ND	0.005	0.0013	mg/L	1.0	300.1	11/4/2008	MVP	D081104A	
E-11778	HARDNESS	72.1	3.30	0.055	mg CaC(	1.0	200.7	11/3/2008	BJ	200.7-081103A	
E-10117	CHEMICAL OXYGEN DEMAND	ND	8	2	mg/L	1.0	SM5220 D	11/4/2008	MAK	COD_081104	

PQL = Practical Quantitation Limit is the lowest level that can be acheived within specified limits of precision and accuracy during routine laboratory operating conditions.
ND = Not detected above the listed practical quantitation limit (PQL) or not above the Method Detection Limit (MDL), if requested.
D.F. - Dilution Factor

WSDOE Lab C1251
WSDOH Lab 046

FORM: MULT_RESULT

EDGE ANALYTICAL
The lab you can trust!
11525 Knudson Rd.
Burlington, WA 98233
(800) 755-9295
(360) 757-1400 - FAX (360) 757-1402

HERBICIDES IN DRINKING WATER

Client Name: Walla Walla Basin Watershed Council
810 S Main Street
Milton-Freewater, OR 97862

Reference Number: 08-15517

Project: Locker/Hall-Wetland
Field ID: H-3
Sample Description: Hall-Wetland #3
Sampled By: Baker
Sample Date: 10/28/2008
Source Type:
Sampler Phone:

Lab Number: 04632783
Report Date: 11/13/2008
Date Analyzed: 11/7/2008
Extraction Date: 515_081031
Analyst: CQ
Supervisor:
Analytical Method: 515.1
Chlorophenoxy Herbicides

CAS	COMPOUND	RESULTS	Units	PQL	MDL	MCL	COMMENT
	EPA Regulated						
94-75-7	2,4 - D	ND	ug/L	0.2	0.11	70	
93-72-1	2,4,5 - TP (SILVEX)	ND	ug/L	0.1	0.02	50	
87-86-5	PENTACHLOROPHENOL	ND	ug/L	0.1	0.044	1	
75-99-0	DALAPON	ND	ug/L	1.3	0.80	200	
88-85-7	DINOSEB	ND	ug/L	0.2	0.16	7	
1918-02-1	PICLORAM	ND	ug/L	0.1	0.089	500	
	EPA Unregulated						
1918-00-9	DICAMBA	ND	ug/L	0.1	0.045		
	State Unregulated						
1861-32-1	TOTAL (DCPA & Metabolites)	ND	ug/L	0.1	0.089		
E-14-02-8	DCPA (ACID METABOLITES)	ND	ug/L	0.1	0.1		
94-82-6	2,4 DB	ND	ug/L	0.8	0.10		
93-76-5	2,4,5 T	ND	ug/L	0.1	0.044		
25057-89-0	BENTAZON	ND	ug/L	0.2	0.067		
120-36-5	DICHLORPROP	ND	ug/L	0.3	0.089		
50594-66-6	ACIFLUORFEN	ND	ug/L	0.1	0.089		
133-90-4	CHLORAMBEN	ND	ug/L	0.2	0.2		
51-36-5	3,5 - DICHLOROBENZOIC ACID	ND	ug/L	0.1	0.044		

An amount of "ND" indicates that the compound was not detected above the Lab's Method Detection Limit - MDL.
MCL- Maximum Contaminant Level, maximum permissible level of a contaminant in water established by EPA, NPDWR. State Advisory Level (SAL) for Unregulated compounds.
A blank MCL or SAL value indicates a level is not currently established.
PQL - Practical Quantitation Limit is the concentration of the standard analyzed during the initial calibration.
MDL - Method Detection Limit is the lab's minimum concentration a compound can be measured and reported with 99% confidence that the compound concentration is greater than zero.
J - Estimated value.

These test results meet all the requirements of NELAC, unless otherwise stated in writing, and relate only to these samples.

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HERBICIDES IN DRINKING WATER

Client Name: Walla Walla Basin Watershed Council
810 S Main Street
Milton-Freewater, OR 97862

Reference Number: 08-15517

Project: Locker/Hall-Wetland
Field ID: H-2
Sample Description: Hall-Wetland #2
Sampled By: Baker
Sample Date: 10/28/2008
Source Type:
Sampler Phone:

Lab Number: 04632784
Report Date: 11/13/2008
Date Analyzed: 11/7/2008
Extraction Date: 515_081031
Analyst: CQ
Supervisor:
Analytical Method: 515.1
Chlorophenoxy Herbicides

CAS	COMPOUND	RESULTS	Units	PQL	MDL	MCL	COMMENT
	EPA Regulated						
94-75-7	2,4 - D	ND	ug/L	0.2	0.11	70	
93-72-1	2,4,5 - TP (SILVEX)	ND	ug/L	0.1	0.02	50	
87-86-5	PENTACHLOROPHENOL	ND	ug/L	0.1	0.044	1	
75-99-0	DALAPON	ND	ug/L	1.3	0.80	200	
88-85-7	DINOSEB	ND	ug/L	0.2	0.16	7	
1918-02-1	PICLORAM	ND	ug/L	0.1	0.089	500	
	EPA Unregulated						
1918-00-9	DICAMBA	ND	ug/L	0.1	0.045		
	State Unregulated						
1861-32-1	TOTAL (DCPA & Metabolites)	ND	ug/L	0.1	0.089		
E-14-02-8	DCPA (ACID METABOLITES)	ND	ug/L	0.1	0.1		
94-82-6	2,4 DB	ND	ug/L	0.8	0.10		
93-76-5	2,4,5 T	ND	ug/L	0.1	0.044		
25057-89-0	BENTAZON	ND	ug/L	0.2	0.067		
120-36-5	DICHLORPROP	ND	ug/L	0.3	0.089		
50594-66-6	ACIFLUORFEN	ND	ug/L	0.1	0.089		
133-90-4	CHLORAMBEN	ND	ug/L	0.2	0.2		
51-36-5	3,5 - DICHLOROBENZOIC ACID	ND	ug/L	0.1	0.044		

An amount of "ND" indicates that the compound was not detected above the Lab's Method Detection Limit - MDL.
MCL- Maximum Contaminant Level, maximum permissible level of a contaminant in water established by EPA, NPDWR. State Advisory Level (SAL) for Unregulated compounds.
A blank MCL or SAL value indicates a level is not currently established.
PQL - Practical Quantitation Limit is the concentration of the standard analyzed during the initial calibration.
MDL - Method Detection Limit is the lab's minimum concentration a compound can be measured and reported with 99% confidence that the compound concentration is greater than zero.
J - Estimated value.

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CARBAMATES IN DRINKING WATER

Client Name: Walla Walla Basin Watershed Council
810 S Main Street
Milton-Freewater, OR 97862

Reference Number: 08-15517

Project: Locker/Hall-Wetland
Field ID: H-3
Sample Description: Hall-Wetland #3
Sampled By: Baker
Sample Date: 10/28/2008
Source Type:
Sampler Phone:

Lab Number: 04632783
Report Date: 11/4/2008
Date Analyzed: 10/31/2008
Extraction Date: 531_081031
Analyst: CO
Supervisor: YM
Analytical Method: 531.2 Carbamates

CAS	COMPOUND	RESULTS	Units	PQL	MDL	MCL	COMMENT
	EPA Regulated						
23135-22-0	OXYMAL	ND	ug/L	1.0	0.3	200	
1563-66-2	CARBOFURAN	ND	ug/L	1.0	0.2	40	
	EPA Unregulated						
1646-87-3	ALDICARB SULFOXIDE	ND	ug/L	1.0	0.3		
1646-88-4	ALDICARB SULFONE	ND	ug/L	1.0	0.3		
16752-77-5	METHOMYL	ND	ug/L	1.0	0.3		
16655-82-6	3-HYDROXYCARBOFURAN	ND	ug/L	1.0	0.3		
116-06-3	ALDICARB	ND	ug/L	1.0	0.3		
63-25-2	CARBARYL	ND	ug/L	1.0	0.2		
	State Unregulated - Other						
114-26-1	PROPOXUR (BAYGON)	ND	ug/L	1.0	0.4		
2032-65-7	METHIOCARB	ND	ug/L	1.0	0.3		

An amount of "ND" indicates that the compound was not detected above the Lab's Method Detection Limit - MDL.
MCL- Maximum Contaminant Level, maximum permissible level of a contaminant in water established by EPA, NPDWR. State Advisory Level (SAL) for Unregulated compounds.
A blank MCL or SAL value indicates a level is not currently established.
PQL - Practical Quantitation Limit is the concentration of the standard analyzed during the initial calibration.
MDL - Method Detection Limit is the lab's minimum concentration a compound can be measured and reported with 99% confidence that the compound concentration is greater than zero.
J - Estimated value.

These test results meet all the requirements of NELAC, unless otherwise stated in writing, and relate only to these samples.

FORM: SOC_GEN

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CARBAMATES IN DRINKING WATER

Client Name: Walla Walla Basin Watershed Council
810 S Main Street
Milton-Freewater, OR 97862

Reference Number: 08-15517

Project: Locker/Hall-Wetland
Field ID: H-2
Sample Description: Hall-Wetland #2
Sampled By: Baker
Sample Date: 10/28/2008
Source Type:
Sampler Phone:

Lab Number: 04632784
Report Date: 11/4/2008
Date Analyzed: 10/31/2008
Extraction Date: 531_081031
Analyst: CO
Supervisor:
Analytical Method: 531.2 Carbamates

CAS	COMPOUND	RESULTS	Units	PQL	MDL	MCL	COMMENT
	EPA Regulated						
23135-22-0	OXYMAL	**ND**	ug/L	1.0	0.3	200	
1563-66-2	CARBOFURAN	**ND**	ug/L	1.0	0.2	40	
	EPA Unregulated						
1646-87-3	ALDICARB SULFOXIDE	**ND**	ug/L	1.0	0.3		
1646-88-4	ALDICARB SULFONE	**ND**	ug/L	1.0	0.3		
16752-77-5	METHOMYL	**ND**	ug/L	1.0	0.3		
16655-82-6	3-HYDROXYCARBOFURAN	**ND**	ug/L	1.0	0.3		
116-06-3	ALDICARB	**ND**	ug/L	1.0	0.3		
63-25-2	CARBARYL	**ND**	ug/L	1.0	0.2		
	State Unregulated - Other						
114-26-1	PROPOXUR (BAYGON)	**ND**	ug/L	1.0	0.4		
2032-65-7	METHIOCARB	**ND**	ug/L	1.0	0.3		

An amount of "ND" indicates that the compound was not detected above the Lab's Method Detection Limit - MDL.
MCL- Maximum Contaminant Level, maximum permissible level of a contaminant in water established by EPA, NPDWR. State Advisory Level (SAL) for Unregulated compounds.
A blank MCL or SAL value indicates a level is not currently established.
PQL - Practical Quantitation Limit is the concentration of the standard analyzed during the initial calibration.
MDL - Method Detection Limit is the lab's minimum concentration a compound can be measured and reported with 99% confidence that the compound concentration is greater than zero.
J - Estimated value.

These test results meet all the requirements of NELAC, unless otherwise stated in writing, and relate only to these samples.

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Microbiology | 360.671.0688 • 360.671.1577fax

SYNTHETIC ORGANIC COMPOUNDS (SOC) REPORT

Client Name: Walla Walla Basin Watershe
810 S Main Street
Milton-Freewater, OR 97862

Project::
Field ID: H-3
Sample Description: Hall-Wetland #3
Sampled By: Baker
Sample Date: 10/28/08
Source Type:
Sampler Phone:

Reference Number: 08-15517
Project: Locker/Hall-Wetland

Lab Number: 046-32783
Report Date: 11/18/08
Date Analyzed: 12/01/08
Date Extracted: 525X_081105
Analyst: CO
Peer Review: TM
Analytical Method: 525.2
SOC for Walla Walla

CAS	COMPOUND	RESULTS	UNITS	PQL	MDL	MCL	COMMENT
2312-35-8	PROPARGITE	ND	ug/L	0.5	-		
80-05-7	BISPHENOL-A	ND	ug/L	1	-		
60-51-5	DIMETHOATE	ND	ug/L	0.5	0.03		
57837-19-1	METALAXYL	ND	ug/L	0.1	-		
15299-99-7	NAPROPAMIDE	ND	ug/L	0.1	0.05		
122-34-9	SIMAZINE	ND	ug/L	0.1	0.03		
86-86-2	1-NAPHTHALENEACETAMIDE	ND	ug/L	0.5	-		
333-41-5	DIAZINON	ND	ug/L	0.1	0.04		
60168-88-9	FENARIMOL	ND	ug/L	0.1	0.03		
58-89-9	LINDANE (BHC - GAMMA)	ND	ug/L	0.1	0.03		
7786-34-7	MEVINPHOS	ND	ug/l	0.1	0.03		
86-50-0	AZINPHOS-METHYL	ND	ug/L	0.5	0.12		
2921-88-2	CHLORPYRIFOS	ND	ug/L	0.1	0.04		
72-54-8	4,4-DDD	ND	ug/L	0.1	0.02		
72-55-9	4,4-DDE	ND	ug/L	0.1	0.02		
50-29-3	4,4-DDT	ND	ug/L	0.1	0.03		
115-32-2	DICOFOL	ND	ug/L	1	-		
121-75-5	MALATHION	ND	ug/L	0.1	0.05		
298-00-0	METHYL PARATHION	ND	ug/L	0.5	0.1		
56-38-2	PARATHION-ETHYL	ND	ug/L	0.1	0.05		
732-11-6	PHOSMET	ND	ug/L	0.5	-		
43121-43-3	TRIADIMEFON	ND	ug/L	0.1	0.07		
68694-11-1	TRIFLUMIZOLE	ND	ug/L	1.0	1.0		
950-37-8	METHIDATHINON	ND	ug/L	0.5	0.5		

NOTES:
If a compound is detected > or = to the State Reporting Level, SRL, specified increased monitoring frequencies may occur per DOH.
MCL (Maximum Contaminant Level) maximum permissible level of a contaminant in water established by EPA; Federal Action Levels are 0.015 mg/L for Lead and 1.3 mg/L for Copper. Sodium has a recommended limit of 20 mg/L. A blank MCL value indicates a level is not currently established.
Trigger Level: DOH Drinking Water Response level. Systems with compounds detected in excess of this level are required to take additional samples. Contact your regional DOH office.
ND (Not Detected): indicates that the parameter was not detected above the State Reporting Limit (SRL).

If you have any questions concerning this report contact at the above phone number.

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SYNTHETIC ORGANIC COMPOUNDS (SOC) REPORT

CAS	COMPOUND	RESULTS	UNITS	PQL	MDL	MCL	COMMENT
88671-89-0	MYCLOBUTANIL	**ND**	ug/L	0.5	0.5		
51235-04-2	HEXAZINONE	**ND**	ug/L	0.1	0.05		

NOTES:
If a compound is detected > or = to the State Reporting Level, SRL, specified increased monitoring frequencies may occur per DOH.
MCL (Maximum Contaminant Level) maximum permissible level of a contaminant in water established by EPA; Federal Action Levels are 0.015 mg/L for Lead and 1.3 mg/L for Copper. Sodium has a recommended limit of 20 mg/L. A blank MCL value indicates a level is not currently established.
Trigger Level: DOH Drinking Water Response level. Systems with compounds detected in excess of this level are required to take additional samples. Contact your regional DOH office.
ND (Not Detected): indicates that the parameter was not detected above the State Reporting Limit (SRL).

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SYNTHETIC ORGANIC COMPOUNDS (SOC) REPORT

Client Name: Walla Walla Basin Watershe
810 S Main Street
Milton-Freewater, OR 97862

Project::
Field ID: H-2
Sample Description: Hall-Wetland #2
Sampled By: Baker
Sample Date: 10/28/08
Source Type:
Sampler Phone:

Reference Number: 08-15517
Project: Locker/Hall-Wetland

Lab Number: 046-32784
Report Date: 11/18/08
Date Analyzed: 12/01/08
Date Extracted: 525X_081105
Analyst: CO
Peer Review:
Analytical Method: 525.2
SOC for Walla Walla

CAS	COMPOUND	RESULTS	UNITS	PQL	MDL	MCL	COMMENT
2312-35-8	PROPARGITE	ND	ug/L	0.5	-		
80-05-7	BISPHENOL-A	ND	ug/L	1	-		
60-51-5	DIMETHOATE	ND	ug/L	0.5	0.03		
57837-19-1	METALAXYL	ND	ug/L	0.1	-		
15299-99-7	NAPROPAMIDE	ND	ug/L	0.1	0.05		
122-34-9	SIMAZINE	ND	ug/L	0.1	0.03		
86-86-2	1-NAPHTHALENEACETAMIDE	ND	ug/L	0.5	-		
333-41-5	DIAZINON	ND	ug/L	0.1	0.04		
60168-88-9	FENARIMOL	ND	ug/L	0.1	0.03		
58-89-9	LINDANE (BHC - GAMMA)	ND	ug/L	0.1	0.03		
7786-34-7	MEVINPHOS	ND	ug/l	0.1	0.03		
86-50-0	AZINPHOS-METHYL	ND	ug/L	0.5	0.12		
2921-88-2	CHLORPYRIFOS	ND	ug/L	0.1	0.04		
72-54-8	4,4-DDD	ND	ug/L	0.1	0.02		
72-55-9	4,4-DDE	ND	ug/L	0.1	0.02		
50-29-3	4,4-DDT	ND	ug/L	0.1	0.03		
115-32-2	DICOFOL	ND	ug/L	1	-		
121-75-5	MALATHION	ND	ug/L	0.1	0.05		
298-00-0	METHYL PARATHION	ND	ug/L	0.5	0.1		
56-38-2	PARATHION-ETHYL	ND	ug/L	0.1	0.05		
732-11-6	PHOSMET	ND	ug/L	0.5	-		
43121-43-3	TRIADIMEFON	ND	ug/L	0.1	0.07		
68694-11-1	TRIFLUMIZOLE	ND	ug/L	1.0	1.0		
950-37-8	METHIDATHINON	ND	ug/L	0.5	0.5		

NOTES:
If a compound is detected > or = to the State Reporting Level, SRL, specified increased monitoring frequencies may occur per DOH.
MCL (Maximum Contaminant Level) maximum permissible level of a contaminant in water established by EPA; Federal Action Levels are 0.015 mg/L for Lead and 1.3 mg/L for Copper. Sodium has a recommended limit of 20 mg/L. A blank MCL value indicates a level is not currently established.
Trigger Level: DOH Drinking Water Response level. Systems with compounds detected in excess of this level are required to take additional samples. Contact your regional DOH office.
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SYNTHETIC ORGANIC COMPOUNDS (SOC) REPORT

CAS	COMPOUND	RESULTS	UNITS	PQL	MDL	MCL	COMMENT
88671-89-0	MYCLOBUTANIL	**ND**	ug/L	0.5	0.5		
51235-04-2	HEXAZINONE	**ND**	ug/L	0.1	0.05		

NOTES:
If a compound is detected > or = to the State Reporting Level, SRL, specified increased monitoring frequencies may occur per DOH.
MCL (Maximum Contaminant Level) maximum permissible level of a contaminant in water established by EPA; Federal Action Levels are 0.015 mg/L for Lead and 1.3 mg/L for Copper. Sodium has a recommended limit of 20 mg/L. A blank MCL value indicates a level is not currently established.
Trigger Level: DOH Drinking Water Response level. Systems with compounds detected in excess of this level are required to take additional samples. Contact your regional DOH office.
ND (Not Detected): indicates that the parameter was not detected above the State Reporting Limit (SRL).

If you have any questions concerning this report contact at the above phone number.

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SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Laboratory Fortified Blank

Reference Number: 08-15517
Report Date: 12/10/08

Batch	Analyte	Result	True Value	Units	Method	% Recovery	Limits	QC Qualifier	Type*	Comment
200.7-081103A	HARDNESS	73.3	69.5	mg/L	200.7	105	80-120		LFB	
515_081031	2,4 - D	1.87	2	ug/L	515.1	94	70-130		LFB	
	2,4 - DCAA (SURR)	101		%	515.1		70-130			
	2,4 DB	7.69	8	ug/L	515.1	96	70-130			
	2,4,5 - TP (SILVEX)	0.92	1	ug/L	515.1	92	70-130			
	2,4,5 T	0.91	1	ug/L	515.1	91	70-130			
	ACIFLUORFEN	1.04	1	ug/L	515.1	104	70-130			
	BENTAZON	1.79	2	ug/L	515.1	90	70-130			
	CHLORAMBEN	0.73	1	ug/L	515.1	73	70-130			
	DALAPON	10.1	13	ug/L	515.1	78	70-130			
	DICAMBA	0.89	1	ug/L	515.1	89	70-130			
	DICHLORPROP	2.63	3	ug/L	515.1	88	70-130			
	DINOSEB	1.74	2	ug/L	515.1	87	70-130			
	PENTACHLOROPHENOL	0.88	1	ug/L	515.1	88	70-130			
	PICLORAM	0.91	1	ug/L	515.1	91	70-130			
	TOTAL (DCPA & Metabolites)	0.87	1	ug/L	515.1	87	70-130			
525_081105	1,3-DIMETHYL-2-NITROBENZENE (Surr)	79		%	525.2		70-130		LFB	
	4,4-DDD	1.2	1	ug/L	525.2	120	70-130			
	4,4-DDE	1.12	1	ug/L	525.2	112	70-130			
	4,4-DDT	1.09	1	ug/L	525.2	109	70-130			
	BISPHENOL-A	4.1	5	ug/L	525.2	82	85-115			
	DIAZINON	0.9	1	ug/L	525.2	90	70-130			
	LINDANE (BHC - GAMMA)	1.01	1	ug/L	525.2	101	70-130			
	PERYLENE-D12 (Surr)	94		%	525.2		70-130			
	PYRENE-D10 (Surr)	89		%	525.2		70-130			
	SIMAZINE	0.97	1	ug/L	525.2	97	70-130			
	TRIPHENYLPHOSPHATE (Surr)	120		%	525.2		70-130			
525X_081105	1-NAPHTHALENEACETAMIDE	2.07	2	ug/L	525.2	104	70-130		LFB	
	CHLORPYRIFOS	1.05	1	ug/L	525.2	105	70-130			
	DICOFOL	2.57	2	ug/L	525.2	129	70-130			

*Notation:

% Recovery = (Result of Analysis)/(True Value) * 100

NA = Indicates % Recovery could not be calculated.

QCS: Quality Control Sample, a solution containing known concentrations of method analytes which is used to fortify an aliquot of reagent matrix. The QCS is obtained from an external source and is used to check lab performance.

LFB: Laboratory Fortified Blank, an aliquot of reagent matrix to which known quantities of method analytes are added in the lab. The LFB is analyzed exactly like a sample, and its purpose is to determine whether method performance is within accepted control limits.

MB or LRB: Method Blank or Laboratory Reagent Blank, an aliquot of reagent matrix is analyzed exactly like a sample, and its purpose is to determine if there is background contamination.

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SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Laboratory Fortified Blank

Reference Number: 08-15517
Report Date: 12/10/08

Batch	Analyte	Result	True Value	Units	Method	% Recovery	Limits	QC Qualifier	Type*	Comment
525X_081105	FENARIMOL	1.29	1	ug/L	525.2	129	70-130		LFB	
	HEXAZINONE	1.26	1	ug/L	525.2	126	70-130			
	MALATHION	1.04	1	ug/L	525.2	104	70-130			
	METALAXYL	2.26	2	ug/L	525.2	113	70-130			
	METHIDATHINON	2.92	2	ug/L	525.2	146	85-115	HR		
	MEVINPHOS	1.12	1	ug/L	525.2	112	70-130			
	MYCLOBUTANIL	2.43	2	ug/L	525.2	122	85-115			
	NAPROPAMIDE	1.16	1	ug/L	525.2	116	70-130			
	PARATHION-ETHYL	1.05	1	ug/L	525.2	105	70-130			
	PHOSMET	2.68	2	ug/L	525.2	134	70-130	HR		
	PROPARGITE	2.23	2	ug/L	525.2	112	85-115			
	TRIADIMEFON	1.05	1	ug/L	525.2	105	70-130			
	TRIFLUMIZOLE	1.35	2	ug/L	525.2	68	85-115	N1		
531_081031	3-HYDROXYCARBOFURAN	8	10	ug/L	531.2	80	70-130		LFB	
	ALDICARB	7.9	10	ug/L	531.2	79	70-130			
	ALDICARB SULFONE	8.1	10	ug/L	531.2	81	70-130			
	ALDICARB SULFOXIDE	8.4	10	ug/L	531.2	84	70-130			
	BDMC (SURR)	85		%	531.2		70-130			
	CARBARYL	10	10	ug/L	531.2	100	70-130			
	CARBOFURAN	8	10	ug/L	531.2	80	70-130			
	METHIOCARB	7.9	10	ug/L	531.2	79	70-130			
	METHOMYL	9.8	10	ug/L	531.2	98	70-130			
	OXYMAL	8	10	ug/L	531.2	80	70-130			
	PROPOXUR (BAYGON)	7.3	10	ug/L	531.2	73	70-130			
COD_081104	CHEMICAL OXYGEN DEMAND	49	50	mg/L	SM5220 D	98	80-120		LFB	
OPHOS-081029	ORTHO-PHOSPHATE	1.02	1.00	mg/L	SM4500-P F	102	70-130		LFB	
tds_081029	TOTAL DISSOLVED SOLIDS	494	500	mg/L	SM2540 C	99	80-120		LFB	
tds_081029	TOTAL DISSOLVED SOLIDS	496	500	mg/L	SM2540 C	99	80-120		LFB	

*Notation:

% Recovery = (Result of Analysis)/(True Value) * 100

NA = Indicates % Recovery could not be calculated.

QCS: Quality Control Sample, a solution containing known concentrations of method analytes which is used to fortify an aliquot of reagent matrix. The QCS is obtained from an external source and is used to check lab performance.

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SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Laboratory Fortified Blank

Reference Number: 08-15517
Report Date: 12/10/08

Batch	Analyte	Result	True Value	Units	Method	% Recovery	Limits	QC Qualifier	Type*	Comment
tds_081029	TOTAL DISSOLVED SOLIDS	498	500	mg/L	SM2540 C	100	80-120		LFB	
tds_081029	TOTAL DISSOLVED SOLIDS	500	500	mg/L	SM2540 C	100	80-120		LFB	

*Notation:

% Recovery = (Result of Analysis)/(True Value) * 100

NA = Indicates % Recovery could not be calculated.

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SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Low Level Laboratory Fortified Blank

Reference Number: 08-15517
Report Date: 12/10/08

Batch	Analyte	Result	True Value	Units	Method	% Recovery	Limits	QC Qualifier	Type*	Comment
531_081031	3-HYDROXYCARBOFURAN	0.6	1	ug/L	531.2	60	50-150		LFBD	
	ALDICARB	0.8	1	ug/L	531.2	80	50-150			
	ALDICARB SULFONE	0.6	1	ug/L	531.2	60	50-150			
	ALDICARB SULFOXIDE	0.8	1	ug/L	531.2	80	50-150			
	BDMC (SURR)	79		%	531.2		50-150			
	CARBARYL	0.8	1	ug/L	531.2	80	50-150			
	CARBOFURAN	0.6	1	ug/L	531.2	60	50-150			
	METHIOCARB	0.6	1	ug/L	531.2	60	50-150			
	METHOMYL	0.7	1	ug/L	531.2	70	50-150			
	OXYMAL	1	1	ug/L	531.2	100	50-150			
	PROPOXUR (BAYGON)	0.6	1	ug/L	531.2	60	50-150			

*Notation:

% Recovery = (Result of Analysis)/(True Value) * 100

NA = Indicates % Recovery could not be calculated.

QCS: Quality Control Sample, a solution containing known concentrations of method analytes which is used to fortify an aliquot of reagent matrix. The QCS is obtained from an external source and is used to check lab performance.

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SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Laboratory Reagent Blank

Reference Number: 08-15517
Report Date: 12/10/08

Batch	Analyte	Result	True Value	Units	Method	% Recovery	QC Limits	Qualifier	Type*	Comment
200.7-081103A	HARDNESS	ND		mg/L	200.7		10.0000(		LRB	
COD_081104	CHEMICAL OXYGEN DEMAND	ND		mg/L	SM5220 D		4.00000		LRB	
D081104A	BROMATE	ND		mg/L	300.1		0.00500		LRB	
I081029A	CHLORIDE	ND		mg/L	300.0		0.10000		LRB	
	NITRATE-N	ND		mg/L	300.0		0.10000			
OPHOS-081029	ORTHO-PHOSPHATE	ND		mg/L	SM4500-P F		0.10000		LRB	

*Notation:

% Recovery = (Result of Analysis)/(True Value) * 100

NA = Indicates % Recovery could not be calculated.

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SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Method Blank

Reference Number: 08-15517
Report Date: 12/10/08

Batch	Analyte	Result	True Value	Units	Method	% Recovery	QC Limits	Qualifier	Type*	Comment
200.7-081103A	HARDNESS	ND		mg/L	200.7		0.82000		MB	
515_081031	2,4 - D	ND		ug/L	515.1		0.05000		MB	
	2,4 - DCAA (SURR)	96		%	515.1					
	2,4 DB	ND		ug/L	515.1		0.25000			
	2,4,5 - TP (SILVEX)	ND		ug/L	515.1		0.10000			
	2,4,5 T	ND		ug/L	515.1		0.10000			
	ACIFLUORFEN	ND		ug/L	515.1		0.50000			
	BENTAZON	ND		ug/L	515.1		0.12000			
	CHLORAMBEN	ND		ug/L	515.1		0.20000			
	DALAPON	ND		ug/L	515.1		0.50000			
	DCPA (ACID METABOLITES)	ND		ug/L	515.1		0.10000			
	DICAMBA	ND		ug/L	515.1		0.05000			
	DICHLORPROP	ND		ug/L	515.1		0.12000			
	DINOSEB	ND		ug/L	515.1		0.10000			
	PENTACHLOROPHENOL	ND		ug/L	515.1		0.02000			
	PICLORAM	ND		ug/L	515.1		0.05000			
	TOTAL (DCPA & Metabolites)	ND		ug/L	515.1		0.02000			
525_081105	1,3-DIMETHYL-2-NITROBENZENE (Surr)	80		%	525.2				MB	
	4,4-DDD	ND		ug/L	525.2		0.05000			
	4,4-DDE	ND		ug/L	525.2		0.05000			
	4,4-DDT	ND		ug/L	525.2		0.05000			
	BISPHENOL-A	ND		ug/L	525.2		1.00000			
	DIAZINON	ND		ug/L	525.2		0.05000			
	LINDANE (BHC - GAMMA)	ND		ug/L	525.2		0.02000			
	PERYLENE-D12 (Surr)	85		%	525.2					
	PYRENE-D10 (Surr)	91		%	525.2					
	SIMAZINE	ND		ug/L	525.2		0.02000			
	TRIPHENYLPHOSPHATE (Surr)	117		%	525.2					
525X_081105	1-NAPHTHALENEACETAMIDE	ND		ug/L	525.2		0.10000		MB	
	AZINPHOS-METHYL	ND		ug/L	525.2		0.00000			

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SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Method Blank

Reference Number: 08-15517
Report Date: 12/10/08

Batch	Analyte	Result	True Value	Units	Method	% Recovery	Limits	QC Qualifier	Type*	Comment
525X_081105	CHLORPYRIFOS	ND		ug/L	525.2		0.00000		MB	
	DICOFOL	ND		ug/L	525.2		0.00000			
	DIMETHOATE	ND		ug/L	525.2		0.00000			
	FENARIMOL	ND		ug/L	525.2		0.00000			
	HEXAZINONE	ND		ug/L	525.2		0.00000			
	MALATHION	ND		ug/L	525.2		0.05000			
	METALAXYL	ND		ug/L	525.2		0.10000			
	METHIDATHINON	ND		ug/L	525.2		0.50000			
	METHYL PARATHION	ND		ug/L	525.2		0.00000			
	MEVINPHOS	ND		ug/L	525.2		0.00000			
	MYCLOBUTANIL	ND		ug/L	525.2		0.50000			
	NAPROPAMIDE	ND		ug/L	525.2		0.00000			
	PARATHION-ETHYL	ND		ug/L	525.2		0.05000			
	PHOSMET	ND		ug/L	525.2		0.10000			
	PROPARGITE	ND		ug/L	525.2		0.00000			
	TRIADIMEFON	ND		ug/L	525.2		0.00000			
	TRIFLUMIZOLE	ND		ug/L	525.2		1.00000			
531_081031	3-HYDROXYCARBOFURAN	ND		ug/L	531.2		0.50000		MB	
	ALDICARB	ND		ug/L	531.2		0.25000			
	ALDICARB SULFONE	ND		ug/L	531.2		0.40000			
	ALDICARB SULFOXIDE	ND		ug/L	531.2		0.25000			
	BDMC (SURR)	110		%	531.2		0.00000			
	CARBARYL	ND		ug/L	531.2		0.50000			
	CARBOFURAN	ND		ug/L	531.2		0.45000			
	METHIOCARB	ND		ug/L	531.2		1.00000			
	METHOMYL	ND		ug/L	531.2		0.25000			
	OXYMAL	ND		ug/L	531.2		1.00000			
	PROPOXUR (BAYGON)	ND		ug/L	531.2		0.25000			
ec_081103	ELECTRICAL CONDUCTIVITY	ND		uS/cm	SM2510 B		2.50000		MB	
ec_081103	ELECTRICAL CONDUCTIVITY	ND		uS/cm	SM2510 B		2.50000		MB	
ec_081103	ELECTRICAL CONDUCTIVITY	ND		uS/cm	SM2510 B		2.50000		MB	

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SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Method Blank

Reference Number: 08-15517
Report Date: 12/10/08

Batch	Analyte	Result	True Value	Units	Method	% Recovery	Limits	QC Qualifier	Type*	Comment
ec_081103	ELECTRICAL CONDUCTIVITY	ND		uS/cm	SM2510 B		2.50000		MB	
OPHOS-081029	ORTHO-PHOSPHATE	ND		mg/L	SM4500-P F		0.10000		MB	
tds_081029	TOTAL DISSOLVED SOLIDS	ND		mg/L	SM2540 C		2.50000		MB	
tds_081029	TOTAL DISSOLVED SOLIDS	ND		mg/L	SM2540 C		2.50000		MB	
tds_081029	TOTAL DISSOLVED SOLIDS	ND		mg/L	SM2540 C		2.50000		MB	
tds_081029	TOTAL DISSOLVED SOLIDS	ND		mg/L	SM2540 C		2.50000		MB	
turb_081029	TURBIDITY	ND		NTU	180.1		0.02000		MB	

*Notation:

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SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Quality Control Sample

Reference Number: 08-15517
Report Date: 12/10/08

Batch	Analyte	Result	True Value	Units	Method	% Recovery	Limits	QC Qualifier	Type*	Comment
200.7-081103A	HARDNESS	133	132.3	mg/L	200.7	101	80-120		QCS	
COD_081104	CHEMICAL OXYGEN DEMAND	125	133	mg/L	SM5220 D	94	80-120		QCS	
D081104A	BROMATE	0.0181	0.0182	mg/L	300.1	99	75-125		QCS	
ec_081103	ELECTRICAL CONDUCTIVITY	158	150.5	uS/cm	SM2510 B	105	80-120		QCS	
ec_081103	ELECTRICAL CONDUCTIVITY	158	150.5	uS/cm	SM2510 B	105	80-120		QCS	
ec_081103	ELECTRICAL CONDUCTIVITY	158	150.5	uS/cm	SM2510 B	105	80-120		QCS	
ec_081103	ELECTRICAL CONDUCTIVITY	158	150.5	uS/cm	SM2510 B	105	80-120		QCS	
I081029A	CHLORIDE	30.4	30.0	mg/L	300.0	101	80-120		QCS	
	NITRATE-N	2.58	2.50	mg/L	300.0	103	80-120			
OPHOS-081029	ORTHO-PHOSPHATE	0.47	0.49	mg/L	SM4500-P F	96	70-130		QCS	
ph_081029	HYDROGEN ION (pH)	7.97	8.00	pH Units	SM4500-H+ B	100	80-120		QCS	
ph_081029	HYDROGEN ION (pH)	8.05	8.00	pH Units	SM4500-H+ B	101	80-120		QCS	
turb_081029	TURBIDITY	0.95	1.00	NTU	180.1	95	70-130		QCS	

*Notation:

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QUALITY CONTROL REPORT

Duplicate and Matrix Spike/Matrix Spike Duplicate Report

Reference Number: 08-15517
Report Date: 12/10/2008

Duplicate

Batch	Sample	Analyte	Result	Duplicate Result	Units	%RPD	Limits	QC Qualifier	Comments
200.7-081103A									
	32853	HARDNESS	161	158	mg CaCO3/L	**1.9**	0-45		DUP
	32892	HARDNESS	89.4	89.8	mg/L	**0.4**	0-45		DUP
525_081105									
COD_081104									
	33136	CHEMICAL OXYGEN DEMAND	13	15	mg/L	**14.3**	0-45		DUP
	33163	CHEMICAL OXYGEN DEMAND	9	9	mg/L	**0.0**	0-45		DUP
D081104A									
	32565	BROMATE	0.0130	0.0126	mg/L	**3.1**	0-30		DUP
EC_081103									
	32571	ELECTRICAL CONDUCTIVITY	514	512	uS/cm	**0.4**	0-45		DUP
	32782	ELECTRICAL CONDUCTIVITY	122	122	uS/cm	**0.0**	0-45		DUP
	33010	ELECTRICAL CONDUCTIVITY	7440	7390	uS/cm	**0.7**	0-45		DUP
I081029A									
	32775	NITRATE-N	10.8	10.8	mg/L	**0.0**	0-45		DUP
	32775	CHLORIDE	7.1	7.1	mg/L	**0.0**	0-45		DUP
	32817	CHLORIDE	68	68	mg/L	**0.0**	0-45		DUP
	32853	CHLORIDE	1.7	1.8	mg/L	**5.7**	0-45		DUP
OPHOS-081029									
	32784	ORTHO-PHOSPHATE	0.25	0.24	mg/L	**4.1**	0-50		DUP
PH_081029									
	32784	HYDROGEN ION (pH)	6.38	6.42	pH Units	**0.6**	0-45		DUP
TDS_081029									
	32571	TOTAL DISSOLVED SOLIDS	516	519	mg/L	**0.6**	0-45		DUP
	32762	TOTAL DISSOLVED SOLIDS	95	99	mg/L	**4.1**	0-45		DUP
	32817	TOTAL DISSOLVED SOLIDS	554	552	mg/L	**0.4**	0-45		DUP
TURB_081029									

%RPD = Relative Percent Difference

NA = Indicates %RPD could not be calculated

Matrix Spike (MS)/Matrix Spike Duplicate (MSD) analyses are used to determine the accuracy (MS) and precision (MSD) of a analytical method in a given sample matrix. Therefore, the usefulness of this report is limited to samples of similar matrices analyzed in the same analytical batch.

Only Duplicate sample with detections are listed in this report

Reference Number: 08-15517
Report Date: 12/10/2008

Duplicate

Batch	Sample	Analyte	Result	Duplicate Result	Units	%RPD	Limits	QC Qualifier	Comments
	32853	TURBIDITY	0.10	0.11	NTU	**9.5**	0-50	DUP	

%RPD = Relative Percent Difference

NA = Indicates %RPD could not be calculated

Matrix Spike (MS)/Matrix Spike Duplicate (MSD) analyses are used to determine the accuracy (MS) and precision (MSD) of a analytical method in a given sample matrix. Therefore, the usefulness of this report is limited to samples of similar matrices analyzed in the same analytical batch.

Only Duplicate sample with detections are listed in this report

Reference Number: 08-15517
Report Date: 12/10/2008

Matrix Spike

Batch	Sample	Analyte	Result	Spike Result	Duplicate Spike Result	Spike Conc	Units	Percent Recovery MS	Percent Recovery MSD	Limits	%RPD	Limits	QC Qualifier	Comments
200.7-081103A														
	32853	HARDNESS	161	230	229	69.5	mg CaCO3/L	99	98	80-120	1.5	0-60		LFM
	32892	HARDNESS	89.4	158	162	69.5	mg/L	99	104	80-120	5.7	0-60		LFM
515_081031														
	29825	2,4 - D	ND	1.69		2	ug/L	85	NA	65-135	NA	0-60		LFM
	29825	2,4,5 - TP (SILVEX)	ND	0.88		1	ug/L	88	NA	65-135	NA	0-60		LFM
	29825	PENTACHLOROPHENOL	ND	0.78		1	ug/L	78	NA	65-135	NA	0-60		LFM
	29825	DALAPON	ND	10.4		13	ug/L	80	NA	65-135	NA	0-60		LFM
	29825	DINOSEB	ND	1.66		2	ug/L	83	NA	65-135	NA	0-60		LFM
	29825	PICLORAM	ND	1.13		1	ug/L	113	NA	65-135	NA	0-60		LFM
	29825	DICAMBA	ND	0.83		1	ug/L	83	NA	65-135	NA	0-60		LFM
	29825	TOTAL (DCPA & Metabolites)	ND	0.9		1	ug/L	90	NA	65-135	NA	0-60		LFM
	29825	2,4 DB	ND	7.9		8	ug/L	99	NA	65-135	NA	0-60		LFM
	29825	2,4,5 T	ND	0.93		1	ug/L	93	NA	65-135	NA	0-60		LFM
	29825	BENTAZON	ND	1.77		2	ug/L	89	NA	65-135	NA	0-60		LFM
	29825	DICHLORPROP	ND	2.52		3	ug/L	84	NA	65-135	NA	0-60		LFM
	29825	ACIFLUORFEN	ND	1		1	ug/L	100	NA	65-135	NA	0-60		LFM
	29825	CHLORAMBEN	ND	0.75		1	ug/L	75	NA	65-135	NA	0-50		LFM
	29825	2,4 - DCAA (SURR)	105	98			%		NA	70-130	NA	0-60		LFM
	32909	2,4 - D	ND	1.75		2	mg/L	88	NA	65-135	NA	0-60		LFM
	32909	2,4,5 - TP (SILVEX)	ND	0.82		1	mg/L	82	NA	65-135	NA	0-60		LFM
	32909	PENTACHLOROPHENOL	ND	0.78		1	ug/L	78	NA	65-135	NA	0-60		LFM
	32909	DALAPON	ND	10.4		13	mg/L	80	NA	65-135	NA	0-60		LFM
	32909	DINOSEB	ND	1.59		2	mg/L	80	NA	65-135	NA	0-60		LFM
	32909	PICLORAM	ND	0.92		1	mg/L	92	NA	65-135	NA	0-60		LFM
	32909	DICAMBA	ND	0.86		1	ug/L	86	NA	65-135	NA	0-60		LFM
	32909	TOTAL (DCPA & Metabolites)	ND	0.9		1	ug/L	90	NA	65-135	NA	0-60		LFM
	32909	2,4 DB	ND	7.37		8	ug/L	92	NA	65-135	NA	0-60		LFM
	32909	2,4,5 T	ND	0.83		1	ug/L	83	NA	65-135	NA	0-60		LFM
	32909	BENTAZON	ND	1.8		2	ug/L	90	NA	65-135	NA	0-60		LFM
	32909	DICHLORPROP	ND	2.41		3	ug/L	80	NA	65-135	NA	0-60		LFM
	32909	ACIFLUORFEN	ND	0.92		1	ug/L	92	NA	65-135	NA	0-60		LFM
	32909	CHLORAMBEN	ND	0.73		1	ug/L	73	NA	65-135	NA	0-50		LFM
	32909	2,4 - DCAA (SURR)	95	89			%		NA	70-130	NA	0-60		LFM
525_081105														
	32424	BISPHENOL-A	ND	5		5	ug/L	100	NA	70-130	NA	0-50		LFM

%RPD = Relative Percent Difference

NA = Indicates %RPD could not be calculated

Matrix Spike (MS)/Matrix Spike Duplicate (MSD) analyses are used to determine the accuracy (MS) and precision (MSD) of a analytical method in a given sample matrix. Therefore, the usefulness of this report is limited to samples of similar matrices analyzed in the same analytical batch.

Only Duplicate sample with detections are listed in this report

Matrix Spike

Batch	Sample	Analyte	Result	Spike Result	Duplicate Spike Result	Spike Conc	Units	Percent Recovery MS	Percent Recovery MSD	Limits	%RPD	Limits	QC Qualifier	Comments
	32424	SIMAZINE	ND	1		1	ug/L	100	NA	70-130	NA	0-60		LFM
	32424	DIAZINON	ND	0.93		1	ug/L	93	NA	70-130	NA	0-60		LFM
	32424	LINDANE (BHC - GAMMA)	ND	0.97		1	ug/L	97	NA	70-130	NA	0-60		LFM
	32424	4,4-DDD	ND	1.15		1	ug/L	115	NA	70-130	NA	0-60		LFM
	32424	4,4-DDE	ND	1.12		1	ug/L	112	NA	70-130	NA	0-60		LFM
	32424	4,4-DDT	ND	1.1		1	ug/L	110	NA	70-130	NA	0-60		LFM
	32424	MALATHION	ND	1.23		1	ug/L	123	NA	70-130	NA	0-60		LFM
	32424	PARATHION-ETHYL	ND	1.3		1	ug/L	130	NA	70-130	NA	0-60		LFM
	32424	1,3-DIMETHYL-2-NITROBENZENE (Surr	80	79			%		NA	70-130	NA	0-60		LFM
	32424	PYRENE-D10 (Surr)	90	90			%		NA	70-130	NA	0-60		LFM
	32424	PERYLENE-D12 (Surr)	91	99			%		NA	70-130	NA	0-60		LFM
	32424	TRIPHENYLPHOSPHATE (Surr)	120	121			%		NA	70-130	NA	0-60		LFM
525X_081105														
	32424	PROPARGITE	ND	2.4		2	ug/L	120	NA	70-130	NA	0-50		LFM
	32424	METALAXYL	ND	2.28		2	ug/L	114	NA	70-130	NA	0-50		LFM
	32424	NAPROPAMIDE	ND	1.16		1	ug/L	116	NA	70-130	NA	0-50		LFM
	32424	1-NAPHTHALENEACETAMIDE	ND	2.26		2	ug/L	113	NA	70-130	NA	0-50		LFM
	32424	FENARIMOL	ND	1.58		1	ug/L	158	NA	70-130	NA	0-50		LFM
	32424	MEVINPHOS	ND	1.16		1	ug/L	116	NA	70-130	NA	0-50		LFM
	32424	CHLORPYRIFOS	ND	1.08		1	ug/L	108	NA	70-130	NA	0-50		LFM
	32424	DICOFOL	ND	3.06		2	ug/L	153	NA	70-130	NA	0-50	HR	LFM
	32424	MALATHION	ND	1.15		1	ug/L	115	NA	70-130	NA	0-60		LFM
	32424	PARATHION-ETHYL	ND	1.13		1	ug/L	113	NA	70-130	NA	0-60		LFM
	32424	PHOSMET	ND	3		2	ug/L	150	NA	70-130	NA	0-50	HR	LFM
	32424	TRIADIMEFON	ND	1.18		1	ug/L	118	NA	70-130	NA	0-50		LFM
	32424	TRIFLUMIZOLE	ND	0.77		2	ug/L	39	NA	70-130	NA	0-50	N1	LFM
	32424	METHIDATHINON	ND	3.02		2	ug/L	151	NA	70-130	NA	0-50	HR	LFM
	32424	MYCLOBUTANIL	ND	2.5		2	ug/L	125	NA	70-130	NA	0-50		LFM
	32424	HEXAZINONE	ND	1.29		1	ug/L	129	NA	70-130	NA	0-50		LFM
531_081031														
	31657	OXYMAL	ND	14.3	13	15	mg/L	95	87	70-130	9.5	0-50		LFM
	31657	CARBOFURAN	ND	14	12.7	15	mg/L	93	85	70-130	9.7	0-50		LFM
	31657	ALDICARB SULFOXIDE	ND	15.6	14.7	15	mg/L	104	98	70-130	5.9	0-50		LFM
	31657	ALDICARB SULFONE	ND	13.9	13.6	15	mg/L	93	91	70-130	2.2	0-50		LFM
	31657	METHOMYL	ND	13.7	13	15	ug/L	91	87	70-130	5.2	0-50		LFM
	31657	3-HYDROXYCARBOFURAN	ND	13.6	12.2	15	ug/L	91	81	70-130	10.9	0-50		LFM

%RPD = Relative Percent Difference

NA = Indicates %RPD could not be calculated

Matrix Spike (MS)/Matrix Spike Duplicate (MSD) analyses are used to determine the accuracy (MS) and precision (MSD) of a analytical method in a given sample matrix. Therefore, the usefulness of this report is limited to samples of similar matrices analyzed in the same analytical batch.

Only Duplicate sample with detections are listed in this report

Matrix Spike

Batch	Sample	Analyte	Result	Spike Result	Duplicate Spike Result	Spike Conc	Units	Percent Recovery MS	Percent Recovery MSD	Limits	%RPD	Limits	QC Qualifier	Comments
	31657	ALDICARB	ND	12.8	11.9	15	mg/L	85	79	70-130	7.3	0-50	LFM	
	31657	CARBARYL	ND	15.1	14.8	15	ug/L	101	99	70-130	2.0	0-50	LFM	
	31657	PROPOXUR (BAYGON)	ND	12.9	12	15	ug/L	86	80	70-130	7.2	0-50	LFM	
	31657	METHIOCARB	ND	13.4	11.7	15	ug/L	89	78	70-130	13.5	0-50	LFM	
	31657	BDMC (SURR)	77	98			%		NA	70-130	NA	0-50	LFM	
	32780	OXYMAL	ND	10.5		10	ug/L	105	NA	70-130	NA	0-50	LFM	
	32780	CARBOFURAN	ND	9.2		10	ug/L	92	NA	70-130	NA	0-50	LFM	
	32780	ALDICARB SULFOXIDE	ND	11.7		10	ug/L	117	NA	70-130	NA	0-50	LFM	
	32780	ALDICARB SULFONE	ND	10.7		10	ug/L	107	NA	70-130	NA	0-50	LFM	
	32780	METHOMYL	ND	10.2		10	ug/L	102	NA	70-130	NA	0-50	LFM	
	32780	3-HYDROXYCARBOFURAN	ND	9.4		10	ug/L	94	NA	70-130	NA	0-50	LFM	
	32780	ALDICARB	ND	9.4		10	ug/L	94	NA	70-130	NA	0-50	LFM	
	32780	CARBARYL	ND	11.3		10	ug/L	113	NA	70-130	NA	0-50	LFM	
	32780	PROPOXUR (BAYGON)	ND	8.5		10	ug/L	85	NA	70-130	NA	0-50	LFM	
	32780	METHIOCARB	ND	8.7		10	ug/L	87	NA	70-130	NA	0-50	LFM	
	32780	BDMC (SURR)	83	76			%		NA	70-130	NA	0-50	LFM	
COD_081104														
	32782	CHEMICAL OXYGEN DEMAND	ND	45	47	50	mg/L	90	94	80-120	4.3	0-60	LFM	
	32820	CHEMICAL OXYGEN DEMAND	ND	54	53	50	mg/L	108	106	80-120	1.9	0-60	LFM	
	33136	CHEMICAL OXYGEN DEMAND	13	67	66	50	mg/L	108	106	80-120	1.9	0-60	LFM	
	33163	CHEMICAL OXYGEN DEMAND	9	63	61	50	mg/L	108	104	80-120	3.8	0-60	LFM	
	33171	CHEMICAL OXYGEN DEMAND	ND	47	49	50	mg/L	94	98	80-120	4.2	0-60	LFM	
D081104A														
	31652	BROMATE	ND	0.010		0.010	mg/L	100		75-125	NA	0-60	LFM	
I081029A														
	32775	NITRATE-N	10.8	30.1		20.00	mg/L	97	NA	80-120	NA	0-60	LFM	
	32775	CHLORIDE	7.1	28.5		20.00	mg/L	107	NA	80-120	NA	0-60	LFM	
	32817	CHLORIDE	68	69		1.00	mg/L	100	NA	80-120	NA	0-60	LFM	
	32853	NITRATE-N	ND	1.09		1.00	mg/L	109	NA	80-120	NA	0-60	LFM	
	32853	CHLORIDE	1.7	2.7		1.00	mg/L	100	NA	80-120	NA	0-60	LFM	
OPHOS-081029														
	32784	ORTHO-PHOSPHATE	0.25	1.26	1.30	1.00	mg/L	101	105	70-130	3.9	0-50	LFM	

%RPD = Relative Percent Difference

NA = Indicates %RPD could not be calculated

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Only Duplicate sample with detections are listed in this report

Qualifier Definitions

Reference Number: 08-15517
Report Date: 12/10/08

Qualifier	Definition
B1	The source of the contamination has been identified as a contaminate in the lab purified water. Data for this compound is suspect if reported.
HR	High QCS recovery due to increased detector response No sample dectections, therefore, no further action taken for this analysis set.
ME	Matrix spike shows a possible matrix induced bias. The LFB was within acceptance limits, results for this compound are suspect.
N1	Acceptance limits have not been established, the limits listed are for guidance only.

Note: Some qualifier definitions found on this page may pertain to results or QC data which are not printed with this report.

QUALITY CONTROL REPORT
SURROGATE REPORT

Reference Number: 08-15517
Report Date: 12/10/08

Lab No	Analyte	Result	Qualifier	Units	Method	Limit
531_081031						
32780	BDMC (SURR)	83		%	531.2	
531_081031						
32781	BDMC (SURR)	79		%	531.2	
531_081031						
32782	BDMC (SURR)	75		%	531.2	
515_081031						
32783	2,4 - DCAA (SURR)	96		%	515.1	Acceptance Range is 70 - 130%
525_081105						
32783	1,3-DIMETHYL-2-NITROBENZENE (Surr)	79		%	525.2	Acceptance Range is 70% to 130%
	PYRENE-D10 (Surr)	90		%		Acceptance Range is 70% to 130%
	PERYLENE-D12 (Surr)	84		%		Acceptance Range is 70% to 130%
	TRIPHENYLPHOSPHATE (Surr)	114		%		Acceptance Range is 70% to 130%
531_081031						
32783	BDMC (SURR)	75		%	531.2	
515_081031						
32784	2,4 - DCAA (SURR)	94		%	515.1	Acceptance Range is 70 - 130%
525_081105						
32784	1,3-DIMETHYL-2-NITROBENZENE (Surr)	80		%	525.2	Acceptance Range is 70% to 130%
	PYRENE-D10 (Surr)	89		%		Acceptance Range is 70% to 130%
	PERYLENE-D12 (Surr)	82		%		Acceptance Range is 70% to 130%
	TRIPHENYLPHOSPHATE (Surr)	113		%		Acceptance Range is 70% to 130%
531_081031						
32784	BDMC (SURR)	81		%	531.2	

*Notation:

A surrogate is a pure compound added to a sample in the laboratory just before processing so that the overall efficiency of a method can be determined.

The Acceptance Limits (or Control Limits) approximate a 99% confidence interval around the mean recovery.

Page_____ of_____

4.495

Chain of Custody / Analysis Request (Please complete all applicable shaded sections)

Report to:	Walla Walla Basin Watershed Cour	Bill to:	Walla Walla Basin Watershed Counc	**For Lab Use Only**	
Ship Address:	810 S Main Street	Address:	810 S Main Street	Ref #	
City:	Milton-Freewa St: OR Zip: 97862	City:	Milton-Freewa St: OR Zip: 97862	**Check Regulatory Program**	
Attn:	~~Bob Bowa~~ Troy Baker	Phone:	FAX:	☐ Safe Drinking Water Act	
Phone:	541.938-2170 FAX:	P.O.#:	Attn:	☐ Clean Water Act	
Email:		☐ Visa ☐ M/C ☐ A/E	Expires /	☐ RCRA / CERCLA	
Project	Locher/Hall-Wentland/~~[illegible]~~	Card#:		☒ Other	

ANALYTICAL LABORATORIES
1620 S. Walnut St.
Burlington, WA 98233
1.800.755.9295

805 W. Orchard Dr. Suite 4
Bellingham, WA 98225

Instructions

1. Use one line per sample **(Location).**
2. Be specific in analysis requests.
3. Check off analyses to be performed for each sample Location.
4. Enter number of containers.

Turn Around Time Required

- ☒ Standard
- ☐ Half-time (50% surcharge)
- ☐ Quickest (100% surcharge)
- ☐ Emergency (Phone Call Req.)

Analyses Requested (Hall Wentland only)

CO004495

	Field ID	Location	Grab/ Comp	Matrix	Date	Time	Nitrate	TDS, Cl, O-Phos,pH,Turb,Ec	Hardness	COD	Bromate	525(Hexazinone)	531	515	Number of Containers	Special Instructions Conditions on Receipt
1	[illegible]	Locher Obs#1	/	/	10/28/08	1:3[illegible]	X	X	X	X	X	X				
2	H[illegible]	[illegible]	/	/	10/28/08	[illegible]	X	X	X	X	X	X	X			
3							☐	☐	☐	☐	☐	☐	☐	☐		
4	L-1	Locher OBS #1	/	/	10/28/08	8:50	X	X	X	X	X	X	X	☐	6	NO 525
5	L-2	Locher OBS #2	/	/	10/28/08	9:40	X	X	X	X	X	X	X	☐	6	NO 525
6	L-3	Locher OBS #3	/	/	10/28/08	10:00	X	X	X	X	X	X	X	☐	6	NO 525
7	H-3	Hall-Wentland #3	/	/	10/28/08	10:40	X	X	X	X	X	X	X	X	7	
8	H-2	Hall-Wentland #2	/	/	10/28/08	11:25	X	X	X	X	X	X	X	X	7	
9							☐	☐	☐	☐	☐	☐	☐	☐		
10							☐	☐	☐	☐	☐	☐	☐	☐		

Sampled by: ~~Bob~~ Baker Phone: 938-2173 FAX: — Email: Bob Baker@wwbwc.org troy.baker@wwbwc.org Total Containers

Sample Receipt Request (Must include FAX or Email) ☐

Relinquished by	Date	Time	Received by	Date	Time
			ONY	10/29/08	855

UPS

	Yes	No	N/A
Custody seals intact			
Sample temp 5 C satisfactory			
Samples received intact			
Chain of custody & labels agree			

08-15517
32780 - 32784

08-15517

EDGE ANALYTICAL LABORATORIES

Burlington WA | 1620 S Walnut St - 98233
Corporate Office | 800.755.9295 • 360.757.1400 • 360.757.1402fax
Bellingham WA | 805 Orchard Dr Suite 4 - 98225
Microbiology | 360.671.0688 • 360.671.1577fax

January 28, 2009

Mr. Troy Baker
Walla Walla Basin Watershed Council
810 S Main Street
Milton-Freewater, OR 97862

RE: 08-17751 - Locher Road Recharge Sites/Hall Wetland

Dear Mr. Troy Baker,

Your project: Locher Road Recharge Sites/Hall Wetland, was received on Wednesday December 17, 2008. The following comments are reported for your project:

Sample 37231 - BisPhenol-A was detected in the EPA Method 525.2 analysis, estimated at 1.7 ug/L.

If you have questions phone me at 800 755-9295.

Respectfully Submitted,

Lawrence J Henderson, PhD
Director of Laboratories

Enclosures Data Report

Reference Number: **08-17751**
Report Date: 1/28/09

Data Report

Sample Description: HW1 - Hall Wentland
Lab Number: 37233
Sample Date: 12/16/08
Collected By: Unknown

CAS ID#	Parameter	Result	PQL	MDL	Units	DF	Method	Analyzed	Analyst	Batch	Comment
E-10139	**HYDROGEN ION (pH)**	6.63			pH Units	1	SM4500-H+ B	12/17/08	MAK	PH_081217	
14797-55-8	**NITRATE-N**	1.75	0.100	0.015	mg/L	1	300.0	12/17/08	BJ	I081217A	
16887-00-6	**CHLORIDE**	2.5	0.1	0.012	mg/L	1	300.0	12/17/08	BJ	I081217A	
E-10173	**TOTAL DISSOLVED SOLIDS**	145	10	6	mg/L	1	SM2540 C	12/19/08	CCN	TDS_081219	
14265-44-2	**ORTHO-PHOSPHATE**	0.17	0.01	0.002	mg/L	1	SM4500-P F	12/17/08	SO	OPHOS-081217	
E-10184	**ELECTRICAL CONDUCTIVITY**	171	10		uS/cm	1	SM2510 B	12/23/08	CCN	EC_081223	
E-10617	**TURBIDITY**	0.11	0.05	0.02	NTU	1	180.1	12/17/08	MAK	TURB_081217	
15541-45-4	**BROMATE**	ND	0.005	0.0016	mg/L	1	300.1	12/30/08	MVP	D081230A	
E-11778	**HARDNESS**	64.9	3.30	0.055	mg CaCO3/L	1	200.7	12/23/08	BJ	200.7-081223A	
E-10117	**CHEMICAL OXYGEN DEMAND**	ND	8	2	mg/L	1	SM5220 D	12/29/08	MAK	COD_081229	

Sample Description: HW2 - Hall Wentland
Lab Number: 37234
Sample Date: 12/16/08
Collected By: Unknown

CAS ID#	Parameter	Result	PQL	MDL	Units	DF	Method	Analyzed	Analyst	Batch	Comment
E-10139	**HYDROGEN ION (pH)**	6.54			pH Units	1	SM4500-H+ B	12/17/08	MAK	PH_081217	
14797-55-8	**NITRATE-N**	0.89	0.100	0.015	mg/L	1	300.0	12/17/08	BJ	I081217A	
16887-00-6	**CHLORIDE**	2.4	0.1	0.012	mg/L	1	300.0	12/17/08	BJ	I081217A	
E-10173	**TOTAL DISSOLVED SOLIDS**	149	10	6	mg/L	1	SM2540 C	12/19/08	CCN	TDS_081219	
14265-44-2	**ORTHO-PHOSPHATE**	0.19	0.01	0.002	mg/L	1	SM4500-P F	12/17/08	SO	OPHOS-081217	
E-10184	**ELECTRICAL CONDUCTIVITY**	186	10		uS/cm	1	SM2510 B	12/23/08	CCN	EC_081223	

Notes:

ND = Not detected above the listed practical quantitation limit (PQL) or not above the Method Detection Limit (MDL), if requested.
PQL = Practical Quantitation Limit is the lowest level that can be acheived within specified limits of precision and accuracy during routine laboratory operating conditions.
D.F. - Dilution Factor

Reference Number: **08-17751**
Report Date: 1/28/09

Data Report

E-10617	**TURBIDITY**	1.34	0.05	0.02	NTU	1	180.1	12/17/08	MAK	TURB_081217
15541-45-4	**BROMATE**	ND	0.005	0.0016	mg/L	1	300.1	12/30/08	MVP	D081230A
E-11778	**HARDNESS**	74.0	3.30	0.055	mg CaCO3/L	1	200.7	12/23/08	BJ	200.7-081223A
E-10117	**CHEMICAL OXYGEN DEMAND**	ND	8	2	mg/L	1	SM5220 D	12/29/08	MAK	COD_081229

Sample Description: HW3 - Hall Wentland
Lab Number: 37235
Sample Date: 12/16/08
Collected By: Unknown

CAS ID#	Parameter	Result	PQL	MDL	Units	DF	Method	Analyzed	Analyst	Batch	Comment
E-10139	**HYDROGEN ION (pH)**	6.58			pH Units	1	SM4500-H+ B	12/17/08	MAK	PH_081217	
14797-55-8	**NITRATE-N**	1.62	0.100	0.015	mg/L	1	300.0	12/17/08	BJ	I081217A	
16887-00-6	**CHLORIDE**	2.4	0.1	0.012	mg/L	1	300.0	12/17/08	BJ	I081217A	
E-10173	**TOTAL DISSOLVED SOLIDS**	133	10	6	mg/L	1	SM2540 C	12/19/08	CCN	TDS_081219	
14265-44-2	**ORTHO-PHOSPHATE**	0.16	0.01	0.002	mg/L	1	SM4500-P F	12/17/08	SO	OPHOS-081217	
E-10184	**ELECTRICAL CONDUCTIVITY**	169	10		uS/cm	1	SM2510 B	12/23/08	CCN	EC_081223	
E-10617	**TURBIDITY**	0.30	0.05	0.02	NTU	1	180.1	12/17/08	MAK	TURB_081217	
15541-45-4	**BROMATE**	ND	0.005	0.0016	mg/L	1	300.1	12/30/08	MVP	D081230A	
E-11778	**HARDNESS**	64.4	3.30	0.055	mg CaCO3/L	1	200.7	12/23/08	BJ	200.7-081223A	
E-10117	**CHEMICAL OXYGEN DEMAND**	ND	8	2	mg/L	1	SM5220 D	12/29/08	MAK	COD_081229	

Notes:

ND = Not detected above the listed practical quantitation limit (PQL) or not above the Method Detection Limit (MDL), if requested.
PQL = Practical Quantitation Limit is the lowest level that can be acheived within specified limits of precision and accuracy during routine laboratory operating conditions.
D.F. - Dilution Factor

EDGE ANALYTICAL LABORATORIES

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Bellingham WA | 805 Orchard Dr Suite 4 - 98225
Microbiology | 360.671.0688 • 360.671.1577fax

WSDOE Lab C1251

DATA REPORT

Client Name: Walla Walla Basin Watershed Council
810 S Main Street
Milton-Freewater, OR 97862

Reference Number: **08-17751**
Project: Locher Road Recharge Sites

Lab Number: 37233
Field ID: HW1
Sample Description: Hall Wentland
Matrix: Water
Sample Date: 12/16/08
Extraction Date: 12/22/08
Extraction Method: 3535

Report Date: 1/28/09
Date Analyzed: 12/29/08
Analyst: CO
Peer Review: JM
Analytical Method: 525.2
Batch: 525X_081222

CAS	Compound	RESULT	Flag	UNITS	PQL	MDL	D.F.	COMMENT
80-05-7	BISPHENOL-A	ND		ug/L	1		1.00	
60-51-5	DIMETHOATE	ND		ug/L	0.5	0.03	1.00	
57837-19-	METALAXYL	ND		ug/L	0.1	-	1.00	
15299-99-	NAPROPAMIDE	ND		ug/L	0.1	0.05	1.00	
86-86-2	1-NAPHTHALENEACETAMIDE	ND		ug/L	0.5	-	1.00	
60168-88-	FENARIMOL	ND		ug/L	0.1	0.03	1.00	
7786-34-7	MEVINPHOS	ND		ug/l	0.1	0.03	1.00	
86-50-0	AZINPHOS-METHYL	ND		ug/L	0.5	0.12	1.00	
2921-88-2	CHLORPYRIFOS	ND		ug/L	0.1	0.04	1.00	
115-32-2	DICOFOL	ND		ug/L	1	-	1.00	
298-00-0	METHYL PARATHION	ND		ug/L	0.5	0.1	1.00	
732-11-6	PHOSMET	ND		ug/L	0.5	-	1.00	
43121-43-	TRIADIMEFON	ND		ug/L	0.1	0.07	1.00	
68694-11-	TRIFLUMIZOLE	ND		ug/L	1.0	1.0	1.00	
950-37-8	METHIDATHINON	ND		ug/L	0.5	0.5	1.00	
88671-89-	MYCLOBUTANIL	ND		ug/L	0.5	0.5	1.00	
51235-04-	HEXAZINONE	ND		ug/L	0.1	0.05	1.00	
2312-35-8	PROPARGITE	ND		ug/L		-	1.00	Qualitative analysis

Notes:

Flags are data qualifiers. If there are data qualifiers on your report definitions can be found on an accompanying sheet.
ND - indicates the compound was not detected above the PQL or MDL.
PQL = Practical Quantitation Limit is the lowest level that can be acheived within specified limits of precision and accuracy during routine laboratory operating conditions.
D.F. - Dilution Factor.

If you have any questions concerning this report contact at the above phone number.

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Microbiology | 360.671.0688 • 360.671.1577fax

SYNTHETIC ORGANIC COMPOUNDS (SOC) REPORT

Client Name: Walla Walla Basin Watershed Council
810 S Main Street
Milton-Freewater, OR 97862

Project::
Field ID: HW1
Sample Description: Hall Wentland
Sampled By: Unknown
Sample Date: 12/16/08
Source Type:
Sampler Phone:

Reference Number: 08-17751
Project: Locher Road Recharge Sites/Ha

Lab Number: 37233
Report Date: 1/7/09
Date Analyzed: 12/23/08
Date Extracted: 525_081222
Analyst: CO
Peer Review: PM
Analytical Method: 525.2
SOC for Walla Walla

CAS	COMPOUND	RESULTS	UNITS	PQL	MDL	MCL	COMMENT
122-34-9	SIMAZINE	ND	ug/L	0.1	0.030	4	
333-41-5	DIAZINON	ND	ug/L	0.1	0.035		
58-89-9	LINDANE (BHC - GAMMA)	ND	ug/L	0.1	0.028	0.2	
72-54-8	4,4-DDD	ND	ug/L	0.1	0.024		
72-55-9	4,4-DDE	ND	ug/L	0.1	0.024		
50-29-3	4,4-DDT	ND	ug/L	0.1	0.022		
121-75-5	MALATHION	ND	ug/L	0.1	0.015		
56-38-2	PARATHION-ETHYL	ND	ug/L	0.1	0.022		

NOTES:
If a compound is detected > or = to the State Reporting Level, SRL, specified increased monitoring frequencies may occur per DOH.
MCL (Maximum Contaminant Level) maximum permissible level of a contaminant in water established by EPA; Federal Action Levels are 0.015 mg/L for Lead and 1.3 mg/L for Copper. Sodium has a recommended limit of 20 mg/L. A blank MCL value indicates a level is not currently established.
Trigger Level: DOH Drinking Water Response level. Systems with compounds detected in excess of this level are required to take additional samples. Contact your regional DOH office.
ND (Not Detected): indicates that the parameter was not detected above the State Reporting Limit (SRL).

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FORM: SOC_gen.rpt

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WSDOE Lab C1251

DATA REPORT

Client Name: Walla Walla Basin Watershed Council
810 S Main Street
Milton-Freewater, OR 97862

Reference Number: **08-17751**
Project: Locher Road Recharge Sites

Lab Number: 37234
Field ID: HW2
Sample Description: Hall Wentland
Matrix: Water
Sample Date: 12/16/08
Extraction Date: 12/22/08
Extraction Method: 3535

Report Date: 1/28/09
Date Analyzed: 12/29/08
Analyst: CO
Peer Review:
Analytical Method: 525.2
Batch: 525X_081222

CAS	Compound	RESULT	Flag	UNITS	PQL	MDL	D.F.	COMMENT
80-05-7	BISPHENOL-A	ND		ug/L	1		1.00	
60-51-5	DIMETHOATE	ND		ug/L	0.5	0.03	1.00	
57837-19-	METALAXYL	ND		ug/L	0.1	-	1.00	
15299-99-	NAPROPAMIDE	ND		ug/L	0.1	0.05	1.00	
86-86-2	1-NAPHTHALENEACETAMIDE	ND		ug/L	0.5	-	1.00	
60168-88-	FENARIMOL	ND		ug/L	0.1	0.03	1.00	
7786-34-7	MEVINPHOS	ND		ug/l	0.1	0.03	1.00	
86-50-0	AZINPHOS-METHYL	ND		ug/L	0.5	0.12	1.00	
2921-88-2	CHLORPYRIFOS	ND		ug/L	0.1	0.04	1.00	
115-32-2	DICOFOL	ND		ug/L	1	-	1.00	
298-00-0	METHYL PARATHION	ND		ug/L	0.5	0.1	1.00	
732-11-6	PHOSMET	ND		ug/L	0.5	-	1.00	
43121-43-	TRIADIMEFON	ND		ug/L	0.1	0.07	1.00	
68694-11-	TRIFLUMIZOLE	ND		ug/L	1.0	1.0	1.00	
950-37-8	METHIDATHINON	ND		ug/L	0.5	0.5	1.00	
88671-89-	MYCLOBUTANIL	ND		ug/L	0.5	0.5	1.00	
51235-04-	HEXAZINONE	ND		ug/L	0.1	0.05	1.00	
2312-35-8	PROPARGITE	ND		ug/L		-	1.00	Qualitative analysis

Notes:

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Form: c608.rpt

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SYNTHETIC ORGANIC COMPOUNDS (SOC) REPORT

Client Name: Walla Walla Basin Watershed Council
810 S Main Street
Milton-Freewater, OR 97862

Project::
Field ID: HW2
Sample Description: Hall Wentland
Sampled By: Unknown
Sample Date: 12/16/08
Source Type:
Sampler Phone:

Reference Number: 08-17751
Project: Locher Road Recharge Sites/Hz

Lab Number: 37234
Report Date: 1/7/09
Date Analyzed: 12/23/08
Date Extracted: 525_081222
Analyst: CO
Peer Review:
Analytical Method: 525.2
SOC for Walla Walla

CAS	COMPOUND	RESULTS	UNITS	PQL	MDL	MCL	COMMENT
122-34-9	SIMAZINE	**ND**	ug/L	0.1	0.030	4	
333-41-5	DIAZINON	**ND**	ug/L	0.1	0.035		
58-89-9	LINDANE (BHC - GAMMA)	**ND**	ug/L	0.1	0.028	0.2	
72-54-8	4,4-DDD	**ND**	ug/L	0.1	0.024		
72-55-9	4,4-DDE	**ND**	ug/L	0.1	0.024		
50-29-3	4,4-DDT	**ND**	ug/L	0.1	0.022		
121-75-5	MALATHION	**ND**	ug/L	0.1	0.015		
56-38-2	PARATHION-ETHYL	**ND**	ug/L	0.1	0.022		

NOTES:
If a compound is detected > or = to the State Reporting Level, SRL, specified increased monitoring frequencies may occur per DOH.
MCL (Maximum Contaminant Level) maximum permissible level of a contaminant in water established by EPA; Federal Action Levels are 0.015 mg/L for Lead and 1.3 mg/L for Copper. Sodium has a recommended limit of 20 mg/L. A blank MCL value indicates a level is not currently established.
Trigger Level: DOH Drinking Water Response level. Systems with compounds detected in excess of this level are required to take additional samples. Contact your regional DOH office.
ND (Not Detected): indicates that the parameter was not detected above the State Reporting Limit (SRL).

If you have any questions concerning this report contact at the above phone number.

FORM: SOC_gen.rpt

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WSDOE Lab C1251

DATA REPORT

Client Name: Walla Walla Basin Watershed Council
810 S Main Street
Milton-Freewater, OR 97862

Reference Number: **08-17751**
Project: Locher Road Recharge Sites

Lab Number: 37235
Field ID: HW3
Sample Description: Hall Wentland
Matrix: Water
Sample Date: 12/16/08
Extraction Date: 12/22/08
Extraction Method: 3535

Report Date: 1/28/09
Date Analyzed: 12/29/08
Analyst: CO
Peer Review:
Analytical Method: 525.2
Batch: 525X_081222

CAS	Compound	RESULT	Flag	UNITS	PQL	MDL	D.F.	COMMENT
80-05-7	BISPHENOL-A	ND		ug/L	1		1.00	
60-51-5	DIMETHOATE	ND		ug/L	0.5	0.03	1.00	
57837-19-	METALAXYL	ND		ug/L	0.1	-	1.00	
15299-99-	NAPROPAMIDE	ND		ug/L	0.1	0.05	1.00	
86-86-2	1-NAPHTHALENEACETAMIDE	ND		ug/L	0.5	-	1.00	
60168-88-	FENARIMOL	ND		ug/L	0.1	0.03	1.00	
7786-34-7	MEVINPHOS	ND		ug/l	0.1	0.03	1.00	
86-50-0	AZINPHOS-METHYL	ND		ug/L	0.5	0.12	1.00	
2921-88-2	CHLORPYRIFOS	ND		ug/L	0.1	0.04	1.00	
115-32-2	DICOFOL	ND		ug/L	1	-	1.00	
298-00-0	METHYL PARATHION	ND		ug/L	0.5	0.1	1.00	
732-11-6	PHOSMET	ND		ug/L	0.5	-	1.00	
43121-43-	TRIADIMEFON	ND		ug/L	0.1	0.07	1.00	
68694-11-	TRIFLUMIZOLE	ND		ug/L	1.0	1.0	1.00	
950-37-8	METHIDATHINON	ND		ug/L	0.5	0.5	1.00	
88671-89-	MYCLOBUTANIL	ND		ug/L	0.5	0.5	1.00	
51235-04-	HEXAZINONE	ND		ug/L	0.1	0.05	1.00	
2312-35-8	PROPARGITE	ND		ug/L		-	1.00	Qualitative analysis

Notes:

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SYNTHETIC ORGANIC COMPOUNDS (SOC) REPORT

Client Name: Walla Walla Basin Watershed Council
810 S Main Street
Milton-Freewater, OR 97862

Project::
Field ID: HW3
Sample Description: Hall Wentland
Sampled By: Unknown
Sample Date: 12/16/08
Source Type:
Sampler Phone:

Reference Number: 08-17751
Project: Locher Road Recharge Sites/Ha

Lab Number: 37235
Report Date: 1/7/09
Date Analyzed: 12/23/08
Date Extracted: 525_081222
Analyst: CO
Peer Review:
Analytical Method: 525.2
SOC for Walla Walla

CAS	COMPOUND	RESULTS	UNITS	PQL	MDL	MCL	COMMENT
122-34-9	SIMAZINE	ND	ug/L	0.1	0.030	4	
333-41-5	DIAZINON	ND	ug/L	0.1	0.035		
58-89-9	LINDANE (BHC - GAMMA)	ND	ug/L	0.1	0.028	0.2	
72-54-8	4,4-DDD	ND	ug/L	0.1	0.024		
72-55-9	4,4-DDE	ND	ug/L	0.1	0.024		
50-29-3	4,4-DDT	ND	ug/L	0.1	0.022		
121-75-5	MALATHION	ND	ug/L	0.1	0.015		
56-38-2	PARATHION-ETHYL	ND	ug/L	0.1	0.022		

NOTES:
If a compound is detected > or = to the State Reporting Level, SRL, specified increased monitoring frequencies may occur per DOH.
MCL (Maximum Contaminant Level) maximum permissible level of a contaminant in water established by EPA; Federal Action Levels are 0.015 mg/L for Lead and 1.3 mg/L for Copper. Sodium has a recommended limit of 20 mg/L. A blank MCL value indicates a level is not currently established.
Trigger Level: DOH Drinking Water Response level. Systems with compounds detected in excess of this level are required to take additional samples. Contact your regional DOH office.
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HERBICIDES IN DRINKING WATER

Client Name: Walla Walla Basin Watershe
810 S Main Street
Milton-Freewater, OR 97862

Project::
Field ID: HW1
Sample Description: Hall Wentland
Sampled By: Unknown
Sample Date: 12/16/08
Source Type:
Sampler Phone:

Reference Number: 08-17751
Project: Locher Road Recharge Sites/Hz

Lab Number: 37233
Report Date: 1/6/09
Date Analyzed: 12/31/08
Date Extracted: 515_081222
Analyst: CO
Peer Review:
Analytical Method: 515.1
Chlorophenoxy Herbicides

CAS	COMPOUND	RESULTS	UNITS	PQL	MDL	MCL	COMMENT
EPA Regulated							
94-75-7	2,4 - D	ND	ug/L	0.2	0.11	70	
93-72-1	2,4,5 - TP (SILVEX)	ND	ug/L	0.1	0.02	50	
87-86-5	PENTACHLOROPHENOL	ND	ug/L	0.1	0.044	1	
75-99-0	DALAPON	ND	ug/L	1.3	0.80	200	
88-85-7	DINOSEB	ND	ug/L	0.2	0.16	7	
1918-02-1	PICLORAM	ND	ug/L	0.1	0.089	500	
EPA Unregulated							
1918-00-9	DICAMBA	ND	ug/L	0.1	0.045		
State Unregulated							
1861-32-1	TOTAL (DCPA & Metabolites)	ND	ug/L	0.1	0.089		
E-14028	DCPA (ACID METABOLITES)	ND	ug/L	0.1	0.1		
94-82-6	2,4 DB	ND	ug/L	0.8	0.10		
93-76-5	2,4,5 T	ND	ug/L	0.1	0.044		
25057-89-0	BENTAZON	ND	ug/L	0.2	0.067		
120-36-5	DICHLORPROP	ND	ug/L	0.3	0.089		
50594-66-6	ACIFLUORFEN	ND	ug/L	0.1	0.089		
133-90-4	CHLORAMBEN	ND	ug/L	0.2	0.2		
51-36-5	3,5 - DICHLOROBENZOIC ACID	ND	ug/L	0.1	0.044		

NOTES:
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If you have any questions concerning this report contact at the above phone number.

FORM: SOC_gen.rpt

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HERBICIDES IN DRINKING WATER

Client Name: Walla Walla Basin Watershe
810 S Main Street
Milton-Freewater, OR 97862

Project::
Field ID: HW2
Sample Description: Hall Wentland
Sampled By: Unknown
Sample Date: 12/16/08
Source Type:
Sampler Phone:

Reference Number: 08-17751
Project: Locher Road Recharge Sites/Ha

Lab Number: 37234
Report Date: 1/6/09
Date Analyzed: 12/31/08
Date Extracted: 515_081222
Analyst: CO
Peer Review:
Analytical Method: 515.1
Chlorophenoxy Herbicides

CAS	COMPOUND	RESULTS	UNITS	PQL	MDL	MCL	COMMENT
EPA Regulated							
94-75-7	2,4 - D	ND	ug/L	0.2	0.11	70	
93-72-1	2,4,5 - TP (SILVEX)	ND	ug/L	0.1	0.02	50	
87-86-5	PENTACHLOROPHENOL	ND	ug/L	0.1	0.044	1	
75-99-0	DALAPON	ND	ug/L	1.3	0.80	200	
88-85-7	DINOSEB	ND	ug/L	0.2	0.16	7	
1918-02-1	PICLORAM	ND	ug/L	0.1	0.089	500	
EPA Unregulated							
1918-00-9	DICAMBA	ND	ug/L	0.1	0.045		
State Unregulated							
1861-32-1	TOTAL (DCPA & Metabolites)	ND	ug/L	0.1	0.089		
E-14028	DCPA (ACID METABOLITES)	ND	ug/L	0.1	0.1		
94-82-6	2,4 DB	ND	ug/L	0.8	0.10		
93-76-5	2,4,5 T	ND	ug/L	0.1	0.044		
25057-89-0	BENTAZON	ND	ug/L	0.2	0.067		
120-36-5	DICHLORPROP	ND	ug/L	0.3	0.089		
50594-66-6	ACIFLUORFEN	ND	ug/L	0.1	0.089		
133-90-4	CHLORAMBEN	ND	ug/L	0.2	0.2		
51-36-5	3,5 - DICHLOROBENZOIC ACID	ND	ug/L	0.1	0.044		

NOTES:
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Trigger Level: DOH Drinking Water Response level. Systems with compounds detected in excess of this level are required to take additional samples. Contact your regional DOH office.
ND (Not Detected): indicates that the parameter was not detected above the State Reporting Limit (SRL).

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HERBICIDES IN DRINKING WATER

Client Name: Walla Walla Basin Watershe
810 S Main Street
Milton-Freewater, OR 97862

Project::
Field ID: HW3
Sample Description: Hall Wentland
Sampled By: Unknown
Sample Date: 12/16/08
Source Type:
Sampler Phone:

Reference Number: 08-17751
Project: Locher Road Recharge Sites/Ha

Lab Number: 37235
Report Date: 1/6/09
Date Analyzed: 12/31/08
Date Extracted: 515_081222
Analyst: CO
Peer Review: Dn
Analytical Method: 515.1
Chlorophenoxy Herbicides

CAS	COMPOUND	RESULTS	UNITS	PQL	MDL	MCL	COMMENT
EPA Regulated							
94-75-7	2,4 - D	ND	ug/L	0.2	0.11	70	
93-72-1	2,4,5 - TP (SILVEX)	ND	ug/L	0.1	0.02	50	
87-86-5	PENTACHLOROPHENOL	ND	ug/L	0.1	0.044	1	
75-99-0	DALAPON	ND	ug/L	1.3	0.80	200	
88-85-7	DINOSEB	ND	ug/L	0.2	0.16	7	
1918-02-1	PICLORAM	ND	ug/L	0.1	0.089	500	
EPA Unregulated							
1918-00-9	DICAMBA	ND	ug/L	0.1	0.045		
State Unregulated							
1861-32-1	TOTAL (DCPA & Metabolites)	ND	ug/L	0.1	0.089		
E-14028	DCPA (ACID METABOLITES)	ND	ug/L	0.1	0.1		
94-82-6	2,4 DB	ND	ug/L	0.8	0.10		
93-76-5	2,4,5 T	ND	ug/L	0.1	0.044		
25057-89-0	BENTAZON	ND	ug/L	0.2	0.067		
120-36-5	DICHLORPROP	ND	ug/L	0.3	0.089		
50594-66-6	ACIFLUORFEN	ND	ug/L	0.1	0.089		
133-90-4	CHLORAMBEN	ND	ug/L	0.2	0.2		
51-36-5	3,5 - DICHLOROBENZOIC ACID	ND	ug/L	0.1	0.044		

NOTES:
If a compound is detected > or = to the State Reporting Level, SRL, specified increased monitoring frequencies may occur per DOH.
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FORM: SOC_gen.rpt

EDGE ANALYTICAL LABORATORIES

Burlington WA | 1620 S Walnut St - 98233
Corporate Office | 800.755.9295 • 360.757.1400 • 360.757.1402fax
Bellingham WA | 805 Orchard Dr Suite 4 - 98225
Microbiology | 360.671.0688 • 360.671.1577fax

CARBAMATES IN DRINKING WATER

Client Name: Walla Walla Basin Watershe
810 S Main Street
Milton-Freewater, OR 97862

Project::
Field ID: HW1
Sample Description: Hall Wentland
Sampled By: Unknown
Sample Date: 12/16/08
Source Type:
Sampler Phone:

Reference Number: 08-17751
Project: Locher Road Recharge Sites/Hz

Lab Number: 37233
Report Date: 12/22/08
Date Analyzed: 12/17/08
Date Extracted: 531_081217
Analyst: CO
Peer Review:
Analytical Method: 531.2
Carbamates

CAS	COMPOUND	RESULTS	UNITS	PQL	MDL	MCL	COMMENT
EPA Regulated							
23135-22-0	OXYMAL	ND	ug/L	1.0	0.3	200	
1563-66-2	CARBOFURAN	ND	ug/L	1.0	0.2	40	
EPA Unregulated							
1646-87-3	ALDICARB SULFOXIDE	ND	ug/L	1.0	0.3		
1646-88-4	ALDICARB SULFONE	ND	ug/L	1.0	0.3		
16752-77-5	METHOMYL	ND	ug/L	1.0	0.3		
16655-82-6	3-HYDROXYCARBOFURAN	ND	ug/L	1.0	0.3		
116-06-3	ALDICARB	ND	ug/L	1.0	0.3		
63-25-2	CARBARYL	ND	ug/L	1.0	0.2		
State Unregulated - Other							
114-26-1	PROPOXUR (BAYGON)	ND	ug/L	1.0	0.4		
2032-65-7	METHIOCARB	ND	ug/L	1.0	0.3		

NOTES:
If a compound is detected > or = to the State Reporting Level, SRL, specified increased monitoring frequencies may occur per DOH.
MCL (Maximum Contaminant Level) maximum permissible level of a contaminant in water established by EPA; Federal Action Levels are 0.015 mg/L for Lead and 1.3 mg/L for Copper. Sodium has a recommended limit of 20 mg/L. A blank MCL value indicates a level is not currently established.
Trigger Level: DOH Drinking Water Response level. Systems with compounds detected in excess of this level are required to take additional samples. Contact your regional DOH office.
ND (Not Detected): indicates that the parameter was not detected above the State Reporting Limit (SRL).

If you have any questions concerning this report contact at the above phone number.

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ACCREDITED IN ACCORDANCE WITH nelac

CARBAMATES IN DRINKING WATER

Client Name: Walla Walla Basin Watershe
810 S Main Street
Milton-Freewater, OR 97862

Project::
Field ID: HW2
Sample Description: Hall Wentland
Sampled By: Unknown
Sample Date: 12/16/08
Source Type:
Sampler Phone:

Reference Number: 08-17751
Project: Locher Road Recharge Sites/Hz

Lab Number: 37234
Report Date: 1/15/09
Date Analyzed: 01/13/09
Date Extracted: 531_090113
Analyst: CO
Peer Review:
Analytical Method: 531.2
Carbamates

CAS	COMPOUND	RESULTS	UNITS	PQL	MDL	MCL	COMMENT
EPA Regulated							
23135-22-0	OXYMAL	ND	ug/L	1.0	0.3	200	
1563-66-2	CARBOFURAN	ND	ug/L	1.0	0.2	40	
EPA Unregulated							
1646-87-3	ALDICARB SULFOXIDE	ND	ug/L	1.0	0.3		
1646-88-4	ALDICARB SULFONE	ND	ug/L	1.0	0.3		
16752-77-5	METHOMYL	ND	ug/L	1.0	0.3		
16655-82-6	3-HYDROXYCARBOFURAN	ND	ug/L	1.0	0.3		
116-06-3	ALDICARB	ND	ug/L	1.0	0.3		
63-25-2	CARBARYL	ND	ug/L	1.0	0.2		
State Unregulated - Other							
114-26-1	PROPOXUR (BAYGON)	ND	ug/L	1.0	0.4		
2032-65-7	METHIOCARB	ND	ug/L	1.0	0.3		

NOTES:
If a compound is detected > or = to the State Reporting Level, SRL, specified increased monitoring frequencies may occur per DOH.
MCL (Maximum Contaminant Level) maximum permissible level of a contaminant in water established by EPA; Federal Action Levels are 0.015 mg/L for Lead and 1.3 mg/L for Copper. Sodium has a recommended limit of 20 mg/L. A blank MCL value indicates a level is not currently established.
Trigger Level: DOH Drinking Water Response level. Systems with compounds detected in excess of this level are required to take additional samples. Contact your regional DOH office.
ND (Not Detected): indicates that the parameter was not detected above the State Reporting Limit (SRL).

If you have any questions concerning this report contact at the above phone number.

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ACCREDITED IN ACCORDANCE WITH nelac

CARBAMATES IN DRINKING WATER

Client Name: Walla Walla Basin Watershe
810 S Main Street
Milton-Freewater, OR 97862

Project::
Field ID: HW3
Sample Description: Hall Wentland
Sampled By: Unknown
Sample Date: 12/16/08
Source Type:
Sampler Phone:

Reference Number: 08-17751
Project: Locher Road Recharge Sites/Ha

Lab Number: 37235
Report Date: 1/15/09
Date Analyzed: 01/13/09
Date Extracted: 531_090113
Analyst: CO
Peer Review: [signature]
Analytical Method: 531.2
Carbamates

CAS	COMPOUND	RESULTS	UNITS	PQL	MDL	MCL	COMMENT
EPA Regulated							
23135-22-0	OXYMAL	**ND**	ug/L	1.0	0.3	200	
1563-66-2	CARBOFURAN	**ND**	ug/L	1.0	0.2	40	
EPA Unregulated							
1646-87-3	ALDICARB SULFOXIDE	**ND**	ug/L	1.0	0.3		
1646-88-4	ALDICARB SULFONE	**ND**	ug/L	1.0	0.3		
16752-77-5	METHOMYL	**ND**	ug/L	1.0	0.3		
16655-82-6	3-HYDROXYCARBOFURAN	**ND**	ug/L	1.0	0.3		
116-06-3	ALDICARB	**ND**	ug/L	1.0	0.3		
63-25-2	CARBARYL	**ND**	ug/L	1.0	0.2		
State Unregulated - Other							
114-26-1	PROPOXUR (BAYGON)	**ND**	ug/L	1.0	0.4		
2032-65-7	METHIOCARB	**ND**	ug/L	1.0	0.3		

NOTES:
If a compound is detected > or = to the State Reporting Level, SRL, specified increased monitoring frequencies may occur per DOH.
MCL (Maximum Contaminant Level) maximum permissible level of a contaminant in water established by EPA; Federal Action Levels are 0.015 mg/L for Lead and 1.3 mg/L for Copper. Sodium has a recommended limit of 20 mg/L. A blank MCL value indicates a level is not currently established.
Trigger Level: DOH Drinking Water Response level. Systems with compounds detected in excess of this level are required to take additional samples. Contact your regional DOH office.
ND (Not Detected): indicates that the parameter was not detected above the State Reporting Limit (SRL).

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QUALITY CONTROL REPORT
SURROGATE REPORT

Reference Number: 08-17751
Report Date: 01/28/09

Lab No	Analyte	Result	Qualifier	Units	Method	Limit
515_081222						
37230	2,4 - DCAA (SURR)	94		%	515.1	Acceptance Range is 70 - 130%
525_081222						
37230	1,3-DIMETHYL-2-NITROBENZENE (Surr)	109		%	525.2	Acceptance Range is 70% to 130%
	PYRENE-D10 (Surr)	93		%		Acceptance Range is 70% to 130%
	PERYLENE-D12 (Surr)	109		%		Acceptance Range is 70% to 130%
	TRIPHENYLPHOSPHATE (Surr)	106		%		Acceptance Range is 70% to 130%
515_081222						
37231	2,4 - DCAA (SURR)	94		%	515.1	Acceptance Range is 70 - 130%
525_081222						
37231	1,3-DIMETHYL-2-NITROBENZENE (Surr)	109		%	525.2	Acceptance Range is 70% to 130%
	PYRENE-D10 (Surr)	93		%		Acceptance Range is 70% to 130%
	PERYLENE-D12 (Surr)	102		%		Acceptance Range is 70% to 130%
	TRIPHENYLPHOSPHATE (Surr)	107		%		Acceptance Range is 70% to 130%
531_081217						
37231	BDMC (SURR)	118		%	531.2	
515_081222						
37232	2,4 - DCAA (SURR)	88		%	515.1	Acceptance Range is 70 - 130%
525_081222						
37232	1,3-DIMETHYL-2-NITROBENZENE (Surr)	103		%	525.2	Acceptance Range is 70% to 130%
	PYRENE-D10 (Surr)	92		%		Acceptance Range is 70% to 130%
	PERYLENE-D12 (Surr)	109		%		Acceptance Range is 70% to 130%
	TRIPHENYLPHOSPHATE (Surr)	110		%		Acceptance Range is 70% to 130%
531_081217						
37232	BDMC (SURR)	110		%	531.2	
515_081222						
37233	2,4 - DCAA (SURR)	97		%	515.1	Acceptance Range is 70 - 130%
525_081222						
37233	1,3-DIMETHYL-2-NITROBENZENE (Surr)	99		%	525.2	Acceptance Range is 70% to 130%
	PYRENE-D10 (Surr)	94		%		Acceptance Range is 70% to 130%
	PERYLENE-D12 (Surr)	102		%		Acceptance Range is 70% to 130%
	TRIPHENYLPHOSPHATE (Surr)	104		%		Acceptance Range is 70% to 130%
531_081217						
37233	BDMC (SURR)	116		%	531.2	
515_081222						
37234	2,4 - DCAA (SURR)	91		%	515.1	Acceptance Range is 70 - 130%
525_081222						
37234	1,3-DIMETHYL-2-NITROBENZENE (Surr)	102		%	525.2	Acceptance Range is 70% to 130%
	PYRENE-D10 (Surr)	92		%		Acceptance Range is 70% to 130%
	PERYLENE-D12 (Surr)	99		%		Acceptance Range is 70% to 130%
	TRIPHENYLPHOSPHATE (Surr)	109		%		Acceptance Range is 70% to 130%
531_090113						
37234	BDMC (SURR)	107		%	531.2	
515_081222						
37235	2,4 - DCAA (SURR)	95		%	515.1	Acceptance Range is 70 - 130%
525_081222						
37235	1,3-DIMETHYL-2-NITROBENZENE (Surr)	106		%	525.2	Acceptance Range is 70% to 130%
	PYRENE-D10 (Surr)	88		%		Acceptance Range is 70% to 130%
	PERYLENE-D12 (Surr)	103		%		Acceptance Range is 70% to 130%
	TRIPHENYLPHOSPHATE (Surr)	106		%		Acceptance Range is 70% to 130%
531_090113						
37235	BDMC (SURR)	117		%	531.2	

*Notation:

A surrogate is a pure compound added to a sample in the laboratory just before processing so that the overall efficiency of a method can be determined.

The Acceptance Limits (or Control Limits) approximate a 99% confidence interval around the mean recovery.

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SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Laboratory Fortified Blank

Reference Number: 08-17751
Report Date: 01/28/09

Batch	Analyte	Result	True Value	Units	Method	% Recovery	Limits	QC Qualifier	Type*	Comment
200.7-081223A	HARDNESS	71.3	69.5	mg/L	200.7	103	80-120		LFB	
515_081222	2,4 - D	1.61	2	ug/L	515.1	81	70-130		LFB	
	2,4 - DCAA (SURR)	100		%	515.1		70-130			
	2,4 DB	7.25	8	ug/L	515.1	91	70-130			
	2,4,5 - TP (SILVEX)	0.88	1	ug/L	515.1	88	70-130			
	2,4,5 T	0.79	1	ug/L	515.1	79	70-130			
	ACIFLUORFEN	0.72	1	ug/L	515.1	72	70-130			
	BENTAZON	1.7	2	ug/L	515.1	85	70-130			
	CHLORAMBEN	0.98	1	ug/L	515.1	98	70-130			
	DALAPON	15.3	13	ug/L	515.1	118	70-130			
	DICAMBA	0.86	1	ug/L	515.1	86	70-130			
	DICHLORPROP	2.63	3	ug/L	515.1	88	70-130			
	DINOSEB	1.69	2	ug/L	515.1	85	70-130			
	PENTACHLOROPHENOL	0.92	1	ug/L	515.1	92	70-130			
	PICLORAM	0.97	1	ug/L	515.1	97	70-130			
	TOTAL (DCPA & Metabolites)	1.34	1	ug/L	515.1	134	70-130	HQ		
525_081222	1,3-DIMETHYL-2-NITROBENZENE (Surr)	100		%	525.2		70-130		LFB	
	4,4-DDD	1	1	ug/L	525.2	100	70-130			
	4,4-DDD	1	1	ug/L	525.2	100	70-130			
	4,4-DDE	1	1	ug/L	525.2	100	70-130			
	4,4-DDE	1	1	ug/L	525.2	100	70-130			
	4,4-DDT	1.12	1	ug/L	525.2	112	70-130			
	4,4-DDT	1.12	1	ug/L	525.2	112	70-130			
	ACENAPHTHYLENE	1.11	1	ug/L	525.2	111	70-130			
	ALACHLOR	2.27	2	ug/L	525.2	114	70-130			
	ALDRIN	0.98	1	ug/L	525.2	98	70-130			
	ANTHRACENE	1.06	1	ug/L	525.2	106	70-130			
	ATRAZINE	2.35	2	ug/L	525.2	118	70-130			
	BENZ(A)ANTHRACENE	1.09	1	ug/L	525.2	109	70-130			
	BENZO(A)PYRENE	0.96	1	ug/L	525.2	96	70-130			
	BENZO(B)FLUORANTHENE	1.05	1	ug/L	525.2	105	70-130			
	BENZO(G,H,I)PERYLENE	0.82	1	ug/L	525.2	82	70-130			

*Notation:

% Recovery = (Result of Analysis)/(True Value) * 100

NA = Indicates % Recovery could not be calculated.

QCS: Quality Control Sample, a solution containing known concentrations of method analytes which is used to fortify an aliquot of reagent matrix. The QCS is obtained from an external source and is used to check lab performance.

LFB: Laboratory Fortified Blank, an aliquot of reagent matrix to which known quantities of method analytes are added in the lab. The LFB is analyzed exactly like a sample, and its purpose is to determine whether method performance is within accepted control limits.

MB or LRB: Method Blank or Laboratory Reagent Blank, an aliquot of reagent matrix is analyzed exactly like a sample, and its purpose is to determine if there is background contamination.

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SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Laboratory Fortified Blank

Reference Number: 08-17751
Report Date: 01/28/09

Batch	Analyte	Result	True Value	Units	Method	% Recovery	Limits	QC Qualifier	Type*	Comment
525_081222	BENZO(K)FLUORANTHENE	1.04	1	ug/L	525.2	104	70-130		LFB	
	BENZYL BUTYL PHTHALATE	1.14	1	ug/L	525.2	114	70-130			
	BROMACIL	1.05	1	ug/L	525.2	105	70-130			
	BUTACHLOR	1.13	1	ug/L	525.2	113	70-130			
	CHLORDANE, TECHNICAL	1.04	1	ug/L	525.2	104	70-130			
	CHRYSENE	1.09	1	ug/L	525.2	109	70-130			
	CYANAZINE	2.13	2	ug/L	525.2	107	70-130			
	DI(ETHYLHEXYL)-ADIPATE	1.09	1	ug/L	525.2	109	70-130			
	DI(ETHYLHEXYL)-PHTHALATE	1.4	1	ug/L	525.2	140	70-130	AC		
	DIAZINON	3.12	3	ug/L	525.2	104	70-130			
	DIAZINON	3.12	3	ug/L	525.2	104	70-130			
	DIBENZO(A,H)ANTHRACENE	0.92	1	ug/L	525.2	92	70-130			
	DIELDRIN	1.18	1	ug/L	525.2	118	70-130			
	DIETHYL PHTHALATE	1.2	1	ug/L	525.2	120	70-130			
	DIMETHYL PHTHALATE	1.11	1	ug/L	525.2	111	70-130			
	DI-N-BUTYL PHTHALATE	1.15	1	ug/L	525.2	115	70-130			
	ENDRIN	1.06	1	ug/L	525.2	106	70-130			
	EPTC	1.14	1	ug/L	525.2	114	70-130			
	FLUORENE	1.16	1	ug/L	525.2	116	70-130			
	HEPTACHLOR	1.02	1	ug/L	525.2	102	70-130			
	HEPTACHLOR EPOXIDE	1.11	1	ug/L	525.2	111	70-130			
	HEXACHLOROBENZENE	1.12	1	ug/L	525.2	112	70-130			
	HEXACHLOROCYCLO-PENTADIENE	1.13	1	ug/L	525.2	113	70-130			
	INDENO(1,2,3-CD)PYRENE	0.91	1	ug/L	525.2	91	70-130			
	LINDANE (BHC - GAMMA)	1.01	1	ug/L	525.2	101	70-130			
	LINDANE (BHC - GAMMA)	1.01	1	ug/L	525.2	101	70-130			
	MALATHION	2.15	2	ug/L	525.2	108	70-130			
	MALATHION	2.15	2	ug/L	525.2	108	70-130			
	METHOXYCHLOR	1.09	1	ug/L	525.2	109	70-130			
	METOLACHLOR	1.15	1	ug/L	525.2	115	70-130			
	METRIBUZIN	0.82	1	ug/L	525.2	82	70-130			
	PARATHION	2.39	2	ug/L	525.2	120	70-130			
	PARATHION-ETHYL	2.39	2	ug/L	525.2	120	70-130			
	PENTACHLOROPHENOL	4.99	4	ug/L	525.2	125	70-130			
	PERYLENE-D12 (Surr)	95		%	525.2		70-130			
	PHENANTHRENE	1.11	1	ug/L	525.2	111	70-130			

*Notation:

% Recovery = (Result of Analysis)/(True Value) * 100

NA = Indicates % Recovery could not be calculated.

QCS: Quality Control Sample, a solution containing known concentrations of method analytes which is used to fortify an aliquot of reagent matrix. The QCS is obtained from an external source and is used to check lab performance.

LFB: Laboratory Fortified Blank, an aliquot of reagent matrix to which known quantities of method analytes are added in the lab. The LFB is analyzed exactly like a sample, and its purpose is to determine whether method performance is within accepted control limits.

MB or LRB: Method Blank or Laboratory Reagent Blank, an aliquot of reagent matrix is analyzed exactly like a sample, and its purpose is to determine if there is background contamination.

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SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Laboratory Fortified Blank

Reference Number: 08-17751
Report Date: 01/28/09

Batch	Analyte	Result	True Value	Units	Method	% Recovery	Limits	QC Qualifier	Type*	Comment
525_081222	PROPACHLOR	1.21	1	ug/L	525.2	121	70-130		LFB	
	PYRENE	1.11	1	ug/L	525.2	111	70-130			
	PYRENE-D10 (Surr)	90		%	525.2		70-130			
	SIMAZINE	1.04	1	ug/L	525.2	104	70-130			
	SIMAZINE	1.04	1	ug/L	525.2	104	70-130			
	TERBACIL	1.07	1	ug/L	525.2	107	70-130			
	TRIFLURALIN	1.15	1	ug/L	525.2	115	70-130			
	TRIPHENYLPHOSPHATE (Surr)	105		%	525.2		70-130			
525X_081222	1-NAPHTHALENEACETAMIDE	2.1	2	ug/L	525.2	105	70-130		LFB	
	AZINPHOS-METHYL	1.1	1	ug/L	525.2	110	70-130			
	CHLORPYRIFOS	3.6	3	ug/L	525.2	120	70-130			
	DICOFOL	3.5	3	ug/L	525.2	117	70-130			
	DIMETHOATE	0.7	1	ug/L	525.2	70	70-130			
	FENARIMOL	1.9	2	ug/L	525.2	95	70-130			
	HEXAZINONE	1	1	ug/L	525.2	100	70-130			
	HEXAZINONE (Velpar)	1	1	ug/L	525.2	100	70-130			
	METALAXYL	2.2	2	ug/L	525.2	110	70-130			
	METHIDATHINON	3.4	2	ug/L	525.2	170	85-115			
	METHYL PARATHION	1.6	2	ug/L	525.2	80	70-130			
	MEVINPHOS	2.5	2	ug/L	525.2	125	70-130			
	MYCLOBUTANIL	2.4	2	ug/L	525.2	120	85-115			
	NAPROPAMIDE	1.08	1	ug/L	525.2	108	70-130			
	PHOSMET	3.3	2	ug/L	525.2	165	70-130	N1		
	PROPARGITE	3.5	2	ug/L	525.2	175	85-115	N1		
	TRIADIMEFON	2.45	2	ug/L	525.2	123	70-130			
	TRIFLUMIZOLE	2.3	2	ug/L	525.2	115	85-115			
525X_081222	1-NAPHTHALENEACETAMIDE	2.5	2	ug/L	525.2	125	70-130		LFB	
	AZINPHOS-METHYL	1.5	1	ug/L	525.2	150	70-130	HQ		
	CHLORPYRIFOS	3.7	3	ug/L	525.2	123	70-130			
	DICOFOL	3.5	3	ug/L	525.2	117	70-130			
	DIMETHOATE	0.8	1	ug/L	525.2	80	70-130			
	FENARIMOL	2.3	2	ug/L	525.2	115	70-130			
	HEXAZINONE	1.2	1	ug/L	525.2	120	70-130			
	HEXAZINONE (Velpar)	1.2	1	ug/L	525.2	120	70-130			

*Notation:

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Microbiology | 360.671.0688 • 360.671.1577fax

SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Laboratory Fortified Blank

Reference Number: 08-17751
Report Date: 01/28/09

Batch	Analyte	Result	True Value	Units	Method	% Recovery	Limits	QC Qualifier	Type*	Comment
525X_081222	METALAXYL	2.3	2	ug/L	525.2	115	70-130		LFB	
	METHIDATHINON	3.8	2	ug/L	525.2	190	85-115	N1		
	METHYL PARATHION	1.6	2	ug/L	525.2	80	70-130			
	MEVINPHOS	2.8	2	ug/L	525.2	140	70-130	HQ		
	MYCLOBUTANIL	2.7	2	ug/L	525.2	135	85-115	N1		
	NAPROPAMIDE	1.1	1	ug/L	525.2	110	70-130			
	PHOSMET	3.3	2	ug/L	525.2	165	70-130	N1		
	PROPARGITE	3.5	2	ug/L	525.2	175	85-115	N1		
	TRIADIMEFON	2.3	2	ug/L	525.2	115	70-130			
	TRIFLUMIZOLE	2.3	2	ug/L	525.2	115	85-115			
531_081217	3-HYDROXYCARBOFURAN	11.4	10	ug/L	531.2	114	70-130		LFB	
	ALDICARB	11.3	10	ug/L	531.2	113	70-130			
	ALDICARB SULFONE	11.2	10	ug/L	531.2	112	70-130			
	ALDICARB SULFOXIDE	10.8	10	ug/L	531.2	108	70-130			
	BDMC (SURR)	101		%	531.2		70-130			
	CARBARYL	11.3	10	ug/L	531.2	113	70-130			
	CARBOFURAN	10.4	10	ug/L	531.2	104	70-130			
	METHIOCARB	10.4	10	ug/L	531.2	104	70-130			
	METHOMYL	11	10	ug/L	531.2	110	70-130			
	OXYMAL	10.6	10	ug/L	531.2	106	70-130			
	PROPOXUR (BAYGON)	11.1	10	ug/L	531.2	111	70-130			
531_081217	3-HYDROXYCARBOFURAN	17.4	20	ug/L	531.2	87	70-130		LFB	
	ALDICARB	18	20	ug/L	531.2	90	70-130			
	ALDICARB SULFONE	17.7	20	ug/L	531.2	89	70-130			
	ALDICARB SULFOXIDE	17.6	20	ug/L	531.2	88	70-130			
	BDMC (SURR)	97		%	531.2		70-130			
	CARBARYL	18.5	20	ug/L	531.2	93	70-130			
	CARBOFURAN	16.9	20	ug/L	531.2	85	70-130			
	METHIOCARB	19.5	20	ug/L	531.2	98	70-130			
	METHOMYL	18	20	ug/L	531.2	90	70-130			
	OXYMAL	17.3	20	ug/L	531.2	87	70-130			
	PROPOXUR (BAYGON)	18.1	20	ug/L	531.2	91	70-130			

*Notation:

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SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Laboratory Fortified Blank

Reference Number: 08-17751
Report Date: 01/28/09

Batch	Analyte	Result	True Value	Units	Method	% Recovery	Limits	QC Qualifier	Type*	Comment
531_090113	BDMC (SURR)	113		%	531.2		70-130		LFB	
531_090113	3-HYDROXYCARBOFURAN	21.6	20	ug/L	531.2	108	70-130		LFB	
	ALDICARB	21.6	20	ug/L	531.2	108	70-130			
	ALDICARB SULFONE	21.2	20	ug/L	531.2	106	70-130			
	ALDICARB SULFOXIDE	21.3	20	ug/L	531.2	107	70-130			
	BDMC (SURR)	89		%	531.2		70-130			
	CARBARYL	21.2	20	ug/L	531.2	106	70-130			
	CARBOFURAN	19.6	20	ug/L	531.2	98	70-130			
	METHIOCARB	17.3	20	ug/L	531.2	87	70-130			
	METHOMYL	21.7	20	ug/L	531.2	109	70-130			
	OXYMAL	20.6	20	ug/L	531.2	103	70-130			
	PROPOXUR (BAYGON)	21.1	20	ug/L	531.2	106	70-130			
COD_081229	CHEMICAL OXYGEN DEMAND	55	50	mg/L	SM5220 D	110	80-120		LFB	
OPHOS-081217	ORTHO-PHOSPHATE	1.01	1.00	mg/L	SM4500-P F	101	70-130		LFB	
tds_081219	TOTAL DISSOLVED SOLIDS	514	500	mg/L	SM2540 C	103	80-120		LFB	
tds_081219	TOTAL DISSOLVED SOLIDS	500	500	mg/L	SM2540 C	100	80-120		LFB	
tds_081219	TOTAL DISSOLVED SOLIDS	494	500	mg/L	SM2540 C	99	80-120		LFB	
tds_081219	TOTAL DISSOLVED SOLIDS	472	500	mg/L	SM2540 C	94	80-120		LFB	

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SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Low Level Laboratory Fortified Blank

Reference Number: 08-17751
Report Date: 01/28/09

Batch	Analyte	Result	True Value	Units	Method	% Recovery	Limits	QC Qualifier	Type*	Comment
531_081217	3-HYDROXYCARBOFURAN	0.73	1	ug/L	531.2	73	50-150		LFBD	
	ALDICARB	0.99	1	ug/L	531.2	99	50-150			
	ALDICARB SULFONE	0.95	1	ug/L	531.2	95	50-150			
	ALDICARB SULFOXIDE	0.86	1	ug/L	531.2	86	50-150			
	BDMC (SURR)	91		%	531.2		50-150			
	CARBARYL	1.1	1	ug/L	531.2	110	50-150			
	CARBOFURAN	0.89	1	ug/L	531.2	89	50-150			
	METHIOCARB	1.1	1	ug/L	531.2	110	50-150			
	METHOMYL	0.81	1	ug/L	531.2	81	50-150			
	OXYMAL	0.96	1	ug/L	531.2	96	50-150			
	PROPOXUR (BAYGON)	0.99	1	ug/L	531.2	99	50-150			
531_090113	3-HYDROXYCARBOFURAN	1.1	1	ug/L	531.2	110	50-150		LFBD	
	ALDICARB	1.15	1	ug/L	531.2	115	50-150			
	ALDICARB SULFONE	0.95	1	ug/L	531.2	95	50-150			
	ALDICARB SULFOXIDE	0.97	1	ug/L	531.2	97	50-150			
	BDMC (SURR)	113		%	531.2		50-150			
	CARBARYL	1.16	1	ug/L	531.2	116	50-150			
	CARBOFURAN	0.96	1	ug/L	531.2	96	50-150			
	METHIOCARB	1.13	1	ug/L	531.2	113	50-150			
	METHOMYL	1	1	ug/L	531.2	100	50-150			
	OXYMAL	0.93	1	ug/L	531.2	93	50-150			
	PROPOXUR (BAYGON)	0.95	1	ug/L	531.2	95	50-150			

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SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Laboratory Reagent Blank

Reference Number: 08-17751
Report Date: 01/28/09

Batch	Analyte	Result	True Value	Units	Method	% Recovery	Limits	QC Qualifier	Type*	Comment
200.7-081223A	HARDNESS	ND		mg/L	200.7		10.0000(		LRB	
COD_081229	CHEMICAL OXYGEN DEMAND	ND		mg/L	SM5220 D		4.00000		LRB	
D081230A	BROMATE	ND		mg/L	300.1		0.00500		LRB	
I081217A	CHLORIDE	ND		mg/L	300.0		0.10000		LRB	
	NITRATE-N	ND		mg/L	300.0		0.10000			
OPHOS-081217	ORTHO-PHOSPHATE	ND		mg/L	SM4500-P F		0.10000		LRB	
TURB_081217	TURBIDITY	ND		NTU	180.1		0.02000		LRB	

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SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Method Blank

Reference Number: 08-17751
Report Date: 01/28/09

Batch	Analyte	Result	True Value	Units	Method	% Recovery	Limits	QC Qualifier	Type*	Comment
200.7-081223A	HARDNESS	ND		mg/L	200.7		0.82000		MB	
515_081222	2,4 - D	ND		ug/L	515.1		0.05000		MB	
	2,4 - DCAA (SURR)	95		%	515.1					
	2,4 DB	ND		ug/L	515.1		0.25000			
	2,4,5 - TP (SILVEX)	ND		ug/L	515.1		0.10000			
	2,4,5 T	ND		ug/L	515.1		0.10000			
	ACIFLUORFEN	ND		ug/L	515.1		0.50000			
	BENTAZON	ND		ug/L	515.1		0.12000			
	CHLORAMBEN	ND		ug/L	515.1		0.20000			
	DALAPON	ND		ug/L	515.1		0.50000			
	DCPA (ACID METABOLITES)	ND		ug/L	515.1		0.10000			
	DICAMBA	ND		ug/L	515.1		0.05000			
	DICHLORPROP	ND		ug/L	515.1		0.12000			
	DINOSEB	ND		ug/L	515.1		0.10000			
	PENTACHLOROPHENOL	ND		ug/L	515.1		0.02000			
	PICLORAM	ND		ug/L	515.1		0.05000			
	TOTAL (DCPA & Metabolites)	ND		ug/L	515.1		0.02000			
525_081222	1,3-DIMETHYL-2-NITROBENZENE (Surr)	106		%	525.2				MB	
	4,4-DDD	ND		ug/L	525.2		0.05000			
	4,4-DDD	ND		ug/L	525.2		0.05000			
	4,4-DDE	ND		ug/L	525.2		0.05000			
	4,4-DDE	ND		ug/L	525.2		0.05000			
	4,4-DDT	ND		ug/L	525.2		0.05000			
	4,4-DDT	ND		ug/L	525.2		0.05000			
	ACENAPHTHENE	ND		ug/L	525.2		0.05000			
	ALACHLOR	ND		ug/L	525.2		0.02000			
	ALDRIN	ND		ug/L	525.2		0.05000			
	ANTHRACENE	ND		ug/L	525.2		0.05000			
	ATRAZINE	ND		ug/L	525.2		0.02000			
	BENZ(A)ANTHRACENE	ND		ug/L	525.2		0.02000			
	BENZO(A)PYRENE	ND		ug/L	525.2		0.02000			
	BENZO(B)FLUORANTHENE	ND		ug/L	525.2		0.05000			

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Method Blank

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525_081222	BENZO(G,H,I)PERYLENE	ND		ug/L	525.2		0.05000		MB	
	BENZO(K)FLUORANTHENE	ND		ug/L	525.2		0.05000			
	BENZYL BUTYL PHTHALATE	ND		ug/L	525.2		0.60000			
	BROMACIL	ND		ug/L	525.2		0.05000			
	BUTACHLOR	ND		ug/L	525.2		0.10000			
	CHLORDANE, TECHNICAL	ND		ug/L	525.2		0.02000			
	CHRYSENE	ND		ug/L	525.2		0.05000			
	CYANAZINE	ND		ug/L	525.2		0.05000			
	DI(ETHYLHEXYL)-ADIPATE	ND		ug/L	525.2		0.02000			
	DI(ETHYLHEXYL)-PHTHALATE	ND		ug/L	525.2		0.60000			
	DIAZINON	ND		ug/L	525.2		0.05000			
	DIAZINON	ND		ug/L	525.2		0.05000			
	DIBENZO(A,H)ANTHRACENE	ND		ug/L	525.2		0.05000			
	DIELDRIN	ND		ug/L	525.2		0.05000			
	DIETHYL PHTHALATE	ND		ug/L	525.2		0.60000			
	DIMETHYL PHTHALATE	ND		ug/L	525.2		0.60000			
	DI-N-BUTYL PHTHALATE	ND		ug/L	525.2		0.60000			
	ENDRIN	ND		ug/L	525.2		0.02000			
	EPTC	ND		ug/L	525.2		0.07000			
	FLUORANTHENE	ND		ug/L	525.2		0.05000			
	FLUORENE	ND		ug/L	525.2		0.05000			
	HEPTACHLOR	ND		ug/L	525.2		0.02000			
	HEPTACHLOR EPOXIDE	ND		ug/L	525.2		0.02000			
	HEXACHLOROBENZENE	ND		ug/L	525.2		0.02000			
	HEXACHLOROCYCLO-PENTADIENE	ND		ug/L	525.2		0.02000			
	INDENO(1,2,3-CD)PYRENE	ND		ug/L	525.2		0.05000			
	LINDANE (BHC - GAMMA)	ND		ug/L	525.2		0.02000			
	LINDANE (BHC - GAMMA)	ND		ug/L	525.2		0.02000			
	MALATHION	ND		ug/L	525.2		0.05000			
	MALATHION	ND		ug/L	525.2		0.05000			
	METHOXYCHLOR	ND		ug/L	525.2		0.02000			
	METOLACHLOR	ND		ug/L	525.2		0.25000			
	METRIBUZIN	ND		ug/L	525.2		0.05000			
	NAPTHALENE	ND		ug/L	525.2		0.02000			
	PARATHION	ND		ug/L	525.2		0.05000			
	PARATHION-ETHYL	ND		ug/L	525.2		0.05000			

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SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Method Blank

Reference Number: 08-17751
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525_081222	PENTACHLOROPHENOL	ND		ug/L	525.2		0.04000		MB	
	PERYLENE-D12 (Surr)	100		%	525.2					
	PHENANTHRENE	ND		ug/L	525.2		0.05000			
	PROPACHLOR	ND		ug/L	525.2		0.05000			
	PYRENE	ND		ug/L	525.2		0.05000			
	PYRENE-D10 (Surr)	94		%	525.2					
	SIMAZINE	ND		ug/L	525.2		0.02000			
	SIMAZINE	ND		ug/L	525.2		0.02000			
	TERBACIL	ND		ug/L	525.2		0.05000			
	TRIFLURALIN	ND		ug/L	525.2		0.05000			
	TRIPHENYLPHOSPHATE (Surr)	107		%	525.2					
525X_081222	1-NAPHTHALENEACETAMIDE	ND		ug/L	525.2		0.10000		MB	
	AZINPHOS-METHYL	ND		ug/L	525.2		0.00000			
	CHLORPYRIFOS	ND		ug/L	525.2		0.00000			
	DICOFOL	ND		ug/L	525.2		0.00000			
	DIMETHOATE	ND		ug/L	525.2		0.00000			
	FENARIMOL	ND		ug/L	525.2		0.00000			
	HEXAZINONE	ND		ug/L	525.2		0.00000			
	HEXAZINONE (Velpar)	ND		ug/L	525.2		0.02000			
	METALAXYL	ND		ug/L	525.2		0.10000			
	METHIDATHINON	ND		ug/L	525.2		0.50000			
	METHYL PARATHION	ND		ug/L	525.2		0.00000			
	MEVINPHOS	ND		ug/L	525.2		0.00000			
	MYCLOBUTANIL	ND		ug/L	525.2		0.50000			
	NAPROPAMIDE	ND		ug/L	525.2		0.00000			
	PHOSMET	ND		ug/L	525.2		0.10000			
	PROPARGITE	ND		ug/L	525.2		0.00000			
	TRIADIMEFON	ND		ug/L	525.2		0.00000			
	TRIFLUMIZOLE	ND		ug/L	525.2		1.00000			
531_081217	3-HYDROXYCARBOFURAN	ND		ug/L	531.2		0.50000		MB	
	ALDICARB	ND		ug/L	531.2		0.25000			
	ALDICARB SULFONE	ND		ug/L	531.2		0.40000			

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SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Method Blank

Reference Number: 08-17751
Report Date: 01/28/09

Batch	Analyte	Result	True Value	Units	Method	% Recovery	Limits	QC Qualifier	Type*	Comment
531_081217	ALDICARB SULFOXIDE	ND		ug/L	531.2		0.25000		MB	
	BDMC (SURR)	96		%	531.2		0.00000			
	CARBARYL	ND		ug/L	531.2		0.50000			
	CARBOFURAN	ND		ug/L	531.2		0.45000			
	METHIOCARB	ND		ug/L	531.2		1.00000			
	METHOMYL	ND		ug/L	531.2		0.25000			
	OXYMAL	ND		ug/L	531.2		1.00000			
	PROPOXUR (BAYGON)	ND		ug/L	531.2		0.25000			
531_090113	3-HYDROXYCARBOFURAN	ND		ug/L	531.2		0.50000		MB	
	ALDICARB	ND		ug/L	531.2		0.25000			
	ALDICARB SULFONE	ND		ug/L	531.2		0.40000			
	ALDICARB SULFOXIDE	ND		ug/L	531.2		0.25000			
	BDMC (SURR)	121		%	531.2		0.00000			
	CARBARYL	ND		ug/L	531.2		0.50000			
	CARBOFURAN	ND		ug/L	531.2		0.45000			
	METHIOCARB	ND		ug/L	531.2		1.00000			
	METHOMYL	ND		ug/L	531.2		0.25000			
	OXYMAL	ND		ug/L	531.2		1.00000			
	PROPOXUR (BAYGON)	ND		ug/L	531.2		0.25000			
ec_081223	ELECTRICAL CONDUCTIVITY	ND		uS/cm	SM2510 B		2.50000		MB	
ec_081223	ELECTRICAL CONDUCTIVITY	ND		uS/cm	SM2510 B		2.50000		MB	
ec_081223	ELECTRICAL CONDUCTIVITY	ND		uS/cm	SM2510 B		2.50000		MB	
ec_081223	ELECTRICAL CONDUCTIVITY	ND		uS/cm	SM2510 B		2.50000		MB	
OPHOS-081217	ORTHO-PHOSPHATE	ND		mg/L	SM4500-P F		0.10000		MB	
tds_081219	TOTAL DISSOLVED SOLIDS	ND		mg/L	SM2540 C		2.50000		MB	
tds_081219	TOTAL DISSOLVED SOLIDS	ND		mg/L	SM2540 C		2.50000		MB	

*Notation:

% Recovery = (Result of Analysis)/(True Value) * 100

NA = Indicates % Recovery could not be calculated.

QCS: Quality Control Sample, a solution containing known concentrations of method analytes which is used to fortify an aliquot of reagent matrix. The QCS is obtained from an external source and is used to check lab performance.

LFB: Laboratory Fortified Blank, an aliquot of reagent matrix to which known quantities of method analytes are added in the lab. The LFB is analyzed exactly like a sample, and its purpose is to determine whether method performance is within accepted control limits.

MB or LRB: Method Blank or Laboratory Reagent Blank, an aliquot of reagent matrix is analyzed exactly like a sample, and its purpose is to determine if there is background contamination.

EDGE ANALYTICAL LABORATORIES

Burlington WA | 1620 S Walnut St - 98233
Corporate Office | 800.755.9295 • 360.757.1400 • 360.757.1402fax
Bellingham WA | 805 Orchard Dr Suite 4 - 98225
Microbiology | 360.671.0688 • 360.671.1577fax

SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Method Blank

Reference Number: 08-17751
Report Date: 01/28/09

Batch	Analyte	Result	True Value	Units	Method	% Recovery	Limits	QC Qualifier	Type*	Comment
tds_081219	TOTAL DISSOLVED SOLIDS	ND		mg/L	SM2540 C		2.50000		MB	
tds_081219	TOTAL DISSOLVED SOLIDS	ND		mg/L	SM2540 C		2.50000		MB	

*Notation:

% Recovery = (Result of Analysis)/(True Value) * 100

NA = Indicates % Recovery could not be calculated.

QCS: Quality Control Sample, a solution containing known concentrations of method analytes which is used to fortify an aliquot of reagent matrix. The QCS is obtained from an external source and is used to check lab performance.

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SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Quality Control Sample

Reference Number: 08-17751
Report Date: 01/28/09

Batch	Analyte	Result	True Value	Units	Method	% Recovery	Limits	QC Qualifier	Type*	Comment
200.7-081223A	HARDNESS	131	132.3	mg/L	200.7	99	80-120		QCS	
531_081217	3-HYDROXYCARBOFURAN	41.2	40	ug/L	531.2	103	70-130		QCS	
	ALDICARB	37.5	37.3	ug/L	531.2	101	70-130			
	ALDICARB SULFONE	41.2	44.9	ug/L	531.2	92	70-130			
	ALDICARB SULFOXIDE	43.2	40.2	ug/L	531.2	107	70-130			
	BDMC (SURR)	96		%	531.2		70-130			
	CARBARYL	47	46	ug/L	531.2	102	70-130			
	CARBOFURAN	60.6	60.9	ug/L	531.2	100	70-130			
	METHIOCARB	119.1	121	ug/L	531.2	98	70-130			
	METHOMYL	61.3	61.4	ug/L	531.2	100	70-130			
	OXYMAL	52.7	59.9	ug/L	531.2	88	70-130			
	PROPOXUR (BAYGON)	100	96.7	ug/L	531.2	103	70-130			
COD_081229	CHEMICAL OXYGEN DEMAND	89	92	mg/L	SM5220 D	97	80-120		QCS	
D081230A	BROMATE	0.0187	0.0182	mg/L	300.1	103	75-125		QCS	
ec_081223	ELECTRICAL CONDUCTIVITY	158	150.5	uS/cm	SM2510 B	105	80-120		QCS	
ec_081223	ELECTRICAL CONDUCTIVITY	157	150.5	uS/cm	SM2510 B	104	80-120		QCS	
ec_081223	ELECTRICAL CONDUCTIVITY	159	150.5	uS/cm	SM2510 B	106	80-120		QCS	
ec_081223	ELECTRICAL CONDUCTIVITY	157	150.5	uS/cm	SM2510 B	104	80-120		QCS	
I081217A	CHLORIDE	28.6	30.0	mg/L	300.0	95	80-120		QCS	
	NITRATE-N	2.53	2.50	mg/L	300.0	101	80-120			
OPHOS-081217	ORTHO-PHOSPHATE	0.47	0.49	mg/L	SM4500-P F	96	70-130		QCS	

*Notation:

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NA = Indicates % Recovery could not be calculated.

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SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Quality Control Sample

Reference Number: 08-17751
Report Date: 01/28/09

Batch	Analyte	Result	True Value	Units	Method	% Recovery	Limits	QC Qualifier	Type*	Comment
TURB_081217	TURBIDITY	0.98	1.00	NTU	180.1	98	70-130		QCS	

*Notation:

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QUALITY CONTROL REPORT

Duplicate and Matrix Spike/Matrix Spike Duplicate Report

Reference Number: 08-17751

Report Date: 1/28/2009

Duplicate

Batch	Sample	Analyte	Result	Duplicate Result	Units	%RPD	Limits	QC Qualifier	Comments
200.7-081223A									
	37079	HARDNESS	119	117	mg CaCO3/L	1.7	0-45	DUP	
	37234	HARDNESS	74.0	73.5	mg CaCO3/L	0.7	0-45	DUP	
515_081222									
	37091	DCPA (ACID METABOLITES)	1.2	0.8ML	ug/L	40.0	0-50	DUP	
	37091	2,4 - DCAA (SURR)	95	72	%	27.5	0-45	DUP	
525_081222									
	36873	1,3-DIMETHYL-2-NITROBENZENE (Surr	100	102	%	2.0	0-45	DUP	
	36873	PYRENE-D10 (Surr)	93	93	%	0.0	0-45	DUP	
	36873	PERYLENE-D12 (Surr)	103	110	%	6.6	0-45	DUP	
	36873	TRIPHENYLPHOSPHATE (Surr)	107	105	%	1.9	0-45	DUP	
	37230	BROMACIL	0.09	0.09	ug/L	0.0	0-45	DUP	
COD_081229									
D081230A									
EC_081223									
	37233	ELECTRICAL CONDUCTIVITY	171	167	uS/cm	2.4	0-45	DUP	
	37395	ELECTRICAL CONDUCTIVITY	181	181	uS/cm	0.0	0-45	DUP	
	37476	ELECTRICAL CONDUCTIVITY	16.6	16.7	uS/cm	0.6	0-45	DUP	
I081217A									
	37252	CHLORIDE	30	30	mg/L	0.0	0-45	DUP	
	37278	NITRATE-N	0.77	0.8	mg/L	3.8	0-45	DUP	
OPHOS-081217									
	37235	ORTHO-PHOSPHATE	0.16	0.16	mg/L	0.0	0-50	DUP	
PH_081217									
	37235	HYDROGEN ION (pH)	6.58	6.54	pH Units	0.6	0-45	DUP	
TDS_081219									
	37058	TOTAL DISSOLVED SOLIDS	305	311	mg/L	1.9	0-45	DUP	

%RPD = Relative Percent Difference

NA = Indicates %RPD could not be calculated

Matrix Spike (MS)/Matrix Spike Duplicate (MSD) analyses are used to determine the accuracy (MS) and precision (MSD) of a analytical method in a given sample matrix. Therefore, the usefulness of this report is limited to samples of similar matrices analyzed in the same analytical batch.

Only Duplicate sample with detections are listed in this report

Duplicate

Batch	Sample	Analyte	Result	Duplicate Result	Units	%RPD	Limits	QC Qualifier	Comments
	37177	TOTAL DISSOLVED SOLIDS	274	267	mg/L	2.6	0-45	DUP	
	37331	TOTAL DISSOLVED SOLIDS	166	156	mg/L	6.2	0-45	DUP	
TURB_081217									
	37215	TURBIDITY	5.78	5.84	NTU	1.0	0-50	DUP	

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Matrix Spike

Batch	Sample	Analyte	Result	Spike Result	Duplicate Spike Result	Spike Conc	Units	Percent Recovery MS	Percent Recovery MSD	Limits	%RPD	Limits	QC Qualifier	Comments
200.7-081223A														
	37079	HARDNESS	119	186	185	69.5	mg CaCO3/L	96	95	80-120	1.5	0-60		LFM
	37234	HARDNESS	74.0	142	141	69.5	mg CaCO3/L	98	96	80-120	1.5	0-60		LFM
515_081222														
	37077	2,4 - D	ND	1.88		2	mg/L	94	NA	65-135	NA	0-60		LFM
	37077	2,4,5 - TP (SILVEX)	ND	1.03		1	mg/L	103	NA	65-135	NA	0-60		LFM
	37077	PENTACHLOROPHENOL	ND	1.01		1	ug/L	101	NA	65-135	NA	0-60		LFM
	37077	DALAPON	ND	13		13	mg/L	100	NA	65-135	NA	0-60		LFM
	37077	DINOSEB	ND	2.09		2	mg/L	105	NA	65-135	NA	0-60		LFM
	37077	PICLORAM	ND	0.88		1	mg/L	88	NA	65-135	NA	0-60		LFM
	37077	DICAMBA	ND	0.97		1	ug/L	97	NA	65-135	NA	0-60		LFM
	37077	TOTAL (DCPA & Metabolites)	ND	1.13		1	ug/L	113	NA	65-135	NA	0-60		LFM
	37077	2,4 DB	ND	8		8	ug/L	100	NA	65-135	NA	0-60		LFM
	37077	2,4,5 T	ND	0.95		1	ug/L	95	NA	65-135	NA	0-60		LFM
	37077	BENTAZON	ND	2.18		2	ug/L	109	NA	65-135	NA	0-60		LFM
	37077	DICHLORPROP	ND	3.03		3	ug/L	101	NA	65-135	NA	0-60		LFM
	37077	ACIFLUORFEN	ND	1.01		1	ug/L	101	NA	65-135	NA	0-60		LFM
	37077	CHLORAMBEN	ND	1.34		1	ug/L	134	NA	65-135	NA	0-50		LFM
	37077	2,4 - DCAA (SURR)	92	95			%		NA	70-130	NA	0-60		LFM
	37079	2,4 - D	ND	1.65		2	mg/L	83	NA	65-135	NA	0-60		LFM
	37079	2,4,5 - TP (SILVEX)	ND	0.93		1	mg/L	93	NA	65-135	NA	0-60		LFM
	37079	PENTACHLOROPHENOL	ND	0.94		1	ug/L	94	NA	65-135	NA	0-60		LFM
	37079	DALAPON	ND	11.6		13	mg/L	89	NA	65-135	NA	0-60		LFM
	37079	DINOSEB	ND	1.74		2	mg/L	87	NA	65-135	NA	0-60		LFM
	37079	PICLORAM	ND	0.65		1	mg/L	65	NA	65-135	NA	0-60		LFM
	37079	DICAMBA	ND	0.85		1	ug/L	85	NA	65-135	NA	0-60		LFM
	37079	TOTAL (DCPA & Metabolites)	ND	1.44		1	ug/L	144	NA	65-135	NA	0-60	HQ	LFM
	37079	2,4 DB	ND	7.39		8	ug/L	92	NA	65-135	NA	0-60		LFM
	37079	2,4,5 T	ND	0.81		1	ug/L	81	NA	65-135	NA	0-60		LFM
	37079	BENTAZON	ND	1.7		2	ug/L	85	NA	65-135	NA	0-60		LFM
	37079	DICHLORPROP	ND	2.7		3	ug/L	90	NA	65-135	NA	0-60		LFM
	37079	ACIFLUORFEN	ND	0.71		1	ug/L	71	NA	65-135	NA	0-60		LFM
	37079	CHLORAMBEN	ND	0.91		1	ug/L	91	NA	65-135	NA	0-50		LFM
	37079	2,4 - DCAA (SURR)	94	98			%		NA	70-130	NA	0-60		LFM
525_081222														
	37231	ENDRIN	ND	1		1	ug/L	100	NA	70-130	NA	0-60		LFM

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NA = Indicates %RPD could not be calculated

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ANALYTICAL LABORATORIES

Matrix Spike

Batch	Sample	Analyte	Result	Spike Result	Duplicate Spike Result	Spike Conc	Units	Percent Recovery MS	Percent Recovery MSD	Limits	%RPD	Limits	QC Qualifier	Comments
	37231	LINDANE (BHC - GAMMA)	ND	1.08		1	ug/L	108	NA	70-130	NA	0-60	LFM	
	37231	METHOXYCHLOR	ND	1.15		1	ug/L	115	NA	70-130	NA	0-60	LFM	
	37231	ALACHLOR	ND	2.13		2	ug/L	107	NA	70-130	NA	0-60	LFM	
	37231	ATRAZINE	ND	2.35		2	ug/L	118	NA	70-130	NA	0-60	LFM	
	37231	BENZO(A)PYRENE	ND	0.87		1	ug/L	87	NA	70-130	NA	0-60	LFM	
	37231	CHLORDANE, TECHNICAL	ND	1.06		1	ug/L	106	NA	70-130	NA	0-60	LFM	
	37231	DI(ETHYLHEXYL)-ADIPATE	ND	0.82		1	ug/L	82	NA	70-130	NA	0-60	LFM	
	37231	DI(ETHYLHEXYL)-PHTHALATE	ND	0.85		1	ug/L	85	NA	70-130	NA	0-60	LFM	
	37231	HEPTACHLOR	ND	1.03		1	ug/L	103	NA	70-130	NA	0-60	LFM	
	37231	HEPTACHLOR EPOXIDE	ND	1.09		1	ug/L	109	NA	70-130	NA	0-50	LFM	
	37231	HEXACHLOROBENZENE	ND	1.04		1	ug/L	104	NA	70-130	NA	0-60	LFM	
	37231	HEXACHLOROCYCLO-PENTADIENE	ND	0.99		1	ug/L	99	NA	70-130	NA	0-60	LFM	
	37231	SIMAZINE	ND	1.18		1	ug/L	118	NA	70-130	NA	0-60	LFM	
	37231	PENTACHLOROPHENOL	ND	3.67		4	ug/L	92	NA	70-130	NA	0-50	LFM	
	37231	ALDRIN	ND	1.04		1	ug/L	104	NA	70-130	NA	0-60	LFM	
	37231	BUTACHLOR	ND	1.09		1	ug/L	109	NA	70-130	NA	0-60	LFM	
	37231	DIELDRIN	ND	1.07		1	ug/L	107	NA	70-130	NA	0-60	LFM	
	37231	METOLACHLOR	ND	1.11		1	ug/L	111	NA	70-130	NA	0-60	LFM	
	37231	METRIBUZIN	ND	0.81		1	ug/L	81	NA	70-130	NA	0-60	LFM	
	37231	PROPACHLOR	ND	1.28		1	ug/L	128	NA	70-130	NA	0-60	LFM	
	37231	BISPHENOL-A	ND	5.2		5	ug/L	104	NA	70-130	NA	0-50	LFM	
	37231	BROMACIL	ND	1.06		1	ug/L	106	NA	70-130	NA	0-60	LFM	
	37231	TERBACIL	ND	1.02		1	ug/L	102	NA	70-130	NA	0-60	LFM	
	37231	DIAZINON	ND	3.42		3	ug/L	114	NA	70-130	NA	0-60	LFM	
	37231	SIMAZINE	ND	1.18		1	ug/L	118	NA	70-130	NA	0-60	LFM	
	37231	EPTC	ND	1.14		1	ug/L	114	NA	70-130	NA	0-60	LFM	
	37231	DIAZINON	ND	3.42		3	ug/L	114	NA	70-130	NA	0-60	LFM	
	37231	4,4-DDD	ND	1		1	ug/L	100	NA	70-130	NA	0-60	LFM	
	37231	4,4-DDE	ND	0.92		1	ug/L	92	NA	70-130	NA	0-60	LFM	
	37231	LINDANE (BHC - GAMMA)	ND	1.08		1	ug/L	108	NA	70-130	NA	0-60	LFM	
	37231	4,4-DDT	ND	1		1	ug/L	100	NA	70-130	NA	0-60	LFM	
	37231	CYANAZINE	ND	2.4		2	ug/L	120	NA	70-130	NA	0-60	LFM	
	37231	MALATHION	ND	2.06		2	ug/L	103	NA	70-130	NA	0-60	LFM	
	37231	PARATHION	ND	2.24		2	ug/L	112	NA	70-130	NA	0-60	LFM	
	37231	TRIFLURALIN	ND	1.04		1	ug/L	104	NA	70-130	NA	0-60	LFM	
	37231	4,4-DDD	ND	1		1	ug/L	100	NA	70-130	NA	0-60	LFM	

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Matrix Spike

Batch	Sample	Analyte	Result	Spike Result	Duplicate Spike Result	Spike Conc	Units	Percent Recovery MS	Percent Recovery MSD	Limits	%RPD	Limits	QC Qualifier	Comments
	37231	4,4-DDE	ND	0.92		1	ug/L	92	NA	70-130	NA	0-60		LFM
	37231	4,4-DDT	ND	1		1	ug/L	100	NA	70-130	NA	0-60		LFM
	37231	MALATHION	ND	2.06		2	ug/L	103	NA	70-130	NA	0-60		LFM
	37231	PARATHION-ETHYL	ND	2.24		2	ug/L	112	NA	70-130	NA	0-60		LFM
	37231	FLUORENE	ND	1.09		1	ug/L	109	NA	70-130	NA	0-60		LFM
	37231	ACENAPHTHYLENE	ND	1.07		1	ug/L	107	NA	70-130	NA	0-60		LFM
	37231	ANTHRACENE	ND	1.05		1	ug/L	105	NA	70-130	NA	0-60		LFM
	37231	BENZ(A)ANTHRACENE	ND	1.04		1	ug/L	104	NA	70-130	NA	0-60		LFM
	37231	BENZO(B)FLUORANTHENE	ND	0.89		1	ug/L	89	NA	70-130	NA	0-60		LFM
	37231	BENZO(G,H,I)PERYLENE	ND	0.54		1	ug/L	54	NA	70-130	NA	0-60	ME	LFM
	37231	BENZO(K)FLUORANTHENE	ND	0.89		1	ug/L	89	NA	70-130	NA	0-60		LFM
	37231	CHRYSENE	ND	1.05		1	ug/L	105	NA	70-130	NA	0-60		LFM
	37231	DIBENZO(A,H)ANTHRACENE	ND	0.63		1	ug/L	63	NA	70-130	NA	0-60	ME	LFM
	37231	INDENO(1,2,3-CD)PYRENE	ND	0.54		1	ug/L	54	NA	70-130	NA	0-60	ME	LFM
	37231	PHENANTHRENE	ND	1.09		1	ug/L	109	NA	70-130	NA	0-60		LFM
	37231	PYRENE	ND	1.06		1	ug/L	106	NA	70-130	NA	0-60		LFM
	37231	BENZYL BUTYL PHTHALATE	ND	1.05		1	ug/L	105	NA	70-130	NA	0-60		LFM
	37231	DI-N-BUTYL PHTHALATE	ND	1.15		1	ug/L	115	NA	70-130	NA	0-60		LFM
	37231	DIETHYL PHTHALATE	ND	1.45		1	ug/L	145	NA	70-130	NA	0-60	B5	LFM
	37231	DIMETHYL PHTHALATE	ND	1.08		1	ug/L	108	NA	70-130	NA	0-60		LFM
	37231	1,3-DIMETHYL-2-NITROBENZENE (Surr	109	104			%		NA	70-130	NA	0-60		LFM
	37231	PYRENE-D10 (Surr)	93	92			%		NA	70-130	NA	0-60		LFM
	37231	PERYLENE-D12 (Surr)	102	98			%		NA	70-130	NA	0-60		LFM
	37231	TRIPHENYLPHOSPHATE (Surr)	107	108			%		NA	70-130	NA	0-60		LFM
525X_081222														
	37231	HEXAZINONE	ND	1.2		1	ug/L	120	NA	70-130	NA	0-50		LFM
	37231	HEXAZINONE (Velpar)	ND	1.2		1	ug/L	120	NA	70-130	NA	0-60		LFM
531_081217														
	36873	OXYMAL	ND	10.5	11	10	ug/L	105	110	70-130	4.7	0-50		LFM
	36873	CARBOFURAN	ND	10.4	10.5	10	ug/L	104	105	70-130	1.0	0-50		LFM
	36873	ALDICARB SULFOXIDE	ND	10.6	11.6	10	ug/L	106	116	70-130	9.0	0-50		LFM
	36873	ALDICARB SULFONE	ND	10.8	11.7	10	ug/L	108	117	70-130	8.0	0-50		LFM
	36873	METHOMYL	ND	10.6	11.4	10	ug/L	106	114	70-130	7.3	0-50		LFM
	36873	3-HYDROXYCARBOFURAN	ND	10.9	11	10	ug/L	109	110	70-130	0.9	0-50		LFM
	36873	ALDICARB	ND	11.1	10.9	10	ug/L	111	109	70-130	1.8	0-50		LFM
	36873	CARBARYL	ND	11	11.2	10	ug/L	110	112	70-130	1.8	0-50		LFM

%RPD = Relative Percent Difference

NA = Indicates %RPD could not be calculated

Matrix Spike (MS)/Matrix Spike Duplicate (MSD) analyses are used to determine the accuracy (MS) and precision (MSD) of a analytical method in a given sample matrix. Therefore, the usefulness of this report is limited to samples of similar matrices analyzed in the same analytical batch.

Only Duplicate sample with detections are listed in this report

Matrix Spike

Batch	Sample	Analyte	Result	Spike Result	Duplicate Spike Result	Spike Conc	Units	Percent Recovery MS	Percent Recovery MSD	Limits	%RPD	Limits	QC Qualifier		Comments
	36873	PROPOXUR (BAYGON)	ND	11.1	11.1	10	ug/L	111	111	70-130	0.0	0-50		LFM	
	36873	METHIOCARB	ND	11.1	11.1	10	ug/L	111	111	70-130	0.0	0-50		LFM	
	36873	BDMC (SURR)	101	103	100		%		NA	70-130	NA	0-50		LFM	
	37232	OXYMAL	ND	11.5	11.1	10	ug/L	115	111	70-130	3.5	0-50		LFM	
	37232	CARBOFURAN	ND	10.4	11.5	10	ug/L	104	115	70-130	10.0	0-50		LFM	
	37232	ALDICARB SULFOXIDE	ND	12.1	11.9	10	ug/L	121	119	70-130	1.7	0-50		LFM	
	37232	ALDICARB SULFONE	ND	12.2	11.9	10	ug/L	122	119	70-130	2.5	0-50		LFM	
	37232	METHOMYL	ND	12.2	11.7	10	ug/L	122	117	70-130	4.2	0-50		LFM	
	37232	3-HYDROXYCARBOFURAN	ND	11.8	11.7	10	ug/L	118	117	70-130	0.9	0-50		LFM	
	37232	ALDICARB	ND	12	11.7	10	ug/L	120	117	70-130	2.5	0-50		LFM	
	37232	CARBARYL	ND	12.1	12.4	10	ug/L	121	124	70-130	2.4	0-50		LFM	
	37232	PROPOXUR (BAYGON)	ND	11.7	12.2	10	ug/L	117	122	70-130	4.2	0-50		LFM	
	37232	METHIOCARB	ND	11.5	11	10	ug/L	115	110	70-130	4.4	0-50		LFM	
	37232	BDMC (SURR)	110	105	109		%		NA	70-130	NA	0-50		LFM	
531_090113															
	37742	OXYMAL	ND	11.5	11.8	10	ug/L	115	118	70-130	2.6	0-50		LFM	
	37742	CARBOFURAN	ND	11.1	11	10	ug/L	111	110	70-130	0.9	0-50		LFM	
	37742	ALDICARB SULFOXIDE	ND	11.7	12.1	10	ug/L	117	121	70-130	3.4	0-50		LFM	
	37742	ALDICARB SULFONE	ND	12.1	11.7	10	ug/L	121	117	70-130	3.4	0-50		LFM	
	37742	METHOMYL	ND	12.1	11.9	10	ug/L	121	119	70-130	1.7	0-50		LFM	
	37742	3-HYDROXYCARBOFURAN	ND	11.8	11.1	10	ug/L	118	111	70-130	6.1	0-50		LFM	
	37742	ALDICARB	ND	11.7	11.7	10	ug/L	117	117	70-130	0.0	0-50		LFM	
	37742	CARBARYL	ND	11.7	11.7	10	ug/L	117	117	70-130	0.0	0-50		LFM	
	37742	PROPOXUR (BAYGON)	ND	11.8	11.6	10	ug/L	118	116	70-130	1.7	0-50		LFM	
	37742	METHIOCARB	ND	10.9	11.5	10	ug/L	109	115	70-130	5.4	0-50		LFM	
	37742	BDMC (SURR)	103	102	110		%		NA	70-130	NA	0-50		LFM	
COD_081229															
	37235	CHEMICAL OXYGEN DEMAND	ND	55	55	50	mg/L	110	110	80-120	0.0	0-60		LFM	
D081230A															
	37233	BROMATE	ND	0.0096		0.010	mg/L	96	NA	75-125	NA	0-60		LFM	
	37255	BROMATE	ND	0.0106		0.010	mg/L	106	NA	75-125	NA	0-60		LFM	
I081217A															
	37252	NITRATE-N	ND	1.04		1.00	mg/L	104	NA	80-120	NA	0-60		LFM	
	37252	CHLORIDE	30	31		1.00	mg/L	100	NA	80-120	NA	0-60		LFM	
	37278	NITRATE-N	0.77	2.84		1.00	mg/L	207	NA	80-120	NA	0-60	M	LFM	Chlorinated

%RPD = Relative Percent Difference

NA = Indicates %RPD could not be calculated

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Only Duplicate sample with detections are listed in this report

Matrix Spike

Batch	Sample	Analyte	Result	Spike Result	Duplicate Spike Result	Spike Conc	Units	Percent Recovery MS	Percent Recovery MSD	Limits	%RPD	Limits	QC Qualifier	Comments
OPHOS-081217														
	37235	ORTHO-PHOSPHATE	0.16	1.20	1.20	1.00	mg/L	**104**	**104**	70-130	**0.0**	0-50	LFM	

%RPD = Relative Percent Difference

NA = Indicates %RPD could not be calculated

Matrix Spike (MS)/Matrix Spike Duplicate (MSD) analyses are used to determine the accuracy (MS) and precision (MSD) of a analytical method in a given sample matrix. Therefore, the usefulness of this report is limited to samples of similar matrices analyzed in the same analytical batch.

Only Duplicate sample with detections are listed in this report

Qualifier Definitions

Reference Number: 08-17751
Report Date: 01/28/09

Qualifier	Definition
AC	Ambient contamination during fortification of samples.
B5	The compound was detected in the sample below the State Reporting Limit, result is biased high.
HQ	High QCS recovery due to increased detector response of the sample extract. The continuing calibration checks are within acceptance limits.
J	Indicates an estimated concentration. This occurs when an analyte concentration is below the calibration curve but is above the method detection limit.
M	Matrix induced bias assumed.
ME	Matrix spike shows a possible matrix induced bias. The LFB was within acceptance limits, results for this compound are suspect.
ML	Indicates mechanical loss during extraction.
N1	Acceptance limits have not been established, the limits listed are for guidance only.
S	Spiking amount was lower than the 5:1 spike to background (sample amount) basis for performance criteria. The reported criteria does not apply due to increased errors in measurement of both sample and spike concentration.

Note: Some qualifier definitions found on this page may pertain to results or QC data which are not printed with this report.

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Data Report

Client Name: Walla Walla Basin Watershed Council
810 S Main Street
Milton-Freewater, OR 97862

Reference Number: **09-02154**
Project: Hall-Wentland Recharge Sites
Report Date: 3/10/09
Date Received: 2/13/09
Peer Review:

Sample Description: HW1 - Hall-Wentland 1
Lab Number: 4480
Sample Date: 2/12/09
Collected By: Unknown

CAS ID#	Parameter	Result	PQL	MDL	Units	DF	Method	Analyzed	Analyst	Batch	Comment
14797-55-8	**NITRATE-N**	1.71	0.100	0.015	mg/L	1	300.0	2/14/09	BJ	I090213A	
E-10173	**TOTAL DISSOLVED SOLIDS**	105	10	6	mg/L	1	SM2540 C	2/18/09	CCN	TDS_090218	
16887-00-6	**CHLORIDE**	3	0.1	0.012	mg/L	1	300.0	2/13/09	BJ	I090213A	
14265-44-2	**ORTHO-PHOSPHATE**	0.23	0.01	0.002	mg/L	1	SM4500-P F	2/13/09	SO	OPHOS-090213	
E-10139	**HYDROGEN ION (pH)**	6.45			pH Units	1	SM4500-H+ B	2/13/09	CCN	PH_090213	
E-10617	**TURBIDITY**	0.98	0.05	0.03	NTU	1	180.1	2/13/09	CCN	TURB_090213	
E-10184	**ELECTRICAL CONDUCTIVITY**	158	10		uS/cm	1	SM2510 B	2/16/09	CCN	EC_090216	
E-11778	**HARDNESS**	57.6	3.30	0.055	mg CaCO3/L	1	200.7	2/16/09	BJ	200.7-090216A	
E-10117	**CHEMICAL OXYGEN DEMAND**	ND	8.0	2.47	mg/L	1	SM5220 D	2/16/09	MAK	COD_090216	
15541-45-4	**BROMATE**	ND	0.005	0.0016	mg/L	1	300.1	3/4/09	MVP	D090304A	

Sample Description: HW2 - Hall-Wentland 2
Lab Number: 4481
Sample Date: 2/12/09
Collected By: Unknown

CAS ID#	Parameter	Result	PQL	MDL	Units	DF	Method	Analyzed	Analyst	Batch	Comment
14797-55-8	**NITRATE-N**	1.94	0.100	0.015	mg/L	1	300.0	2/14/09	BJ	I090213A	
E-10173	**TOTAL DISSOLVED SOLIDS**	105	10	6	mg/L	1	SM2540 C	2/18/09	CCN	TDS_090218	
16887-00-6	**CHLORIDE**	3.8	0.1	0.012	mg/L	1	300.0	2/13/09	BJ	I090213A	
14265-44-2	**ORTHO-PHOSPHATE**	0.20	0.01	0.002	mg/L	1	SM4500-P F	2/13/09	SO	OPHOS-090213	
E-10139	**HYDROGEN ION (pH)**	6.49			pH Units	1	SM4500-H+ B	2/13/09	CCN	PH_090213	
E-10617	**TURBIDITY**	20.3	0.05	0.03	NTU	1	180.1	2/13/09	CCN	TURB_090213	
E-10184	**ELECTRICAL CONDUCTIVITY**	160	10		uS/cm	1	SM2510 B	2/16/09	CCN	EC_090216	
E-11778	**HARDNESS**	54.7	3.30	0.055	mg CaCO3/L	1	200.7	2/16/09	BJ	200.7-090216A	
E-10117	**CHEMICAL OXYGEN DEMAND**	ND	8.0	2.47	mg/L	1	SM5220 D	2/16/09	MAK	COD_090216	
15541-45-4	**BROMATE**	ND	0.005	0.0016	mg/L	1	300.1	3/4/09	MVP	D090304A	

Sample Description: HW3 - Hall-Wentland 3
Lab Number: 4482
Sample Date: 2/12/09
Collected By: Unknown

CAS ID#	Parameter	Result	PQL	MDL	Units	DF	Method	Analyzed	Analyst	Batch	Comment

Notes:

ND = Not detected above the listed practical quantitation limit (PQL) or not above the Method Detection Limit (MDL), if requested.
PQL = Practical Quantitation Limit is the lowest level that can be acheived within specified limits of precision and accuracy during routine laboratory operating conditions.
D.F. - Dilution Factor

If you have any questions concerning this report contact us at the above phone number.

Form: cRslt_2.rpt

Reference Number: **09-02154**

Report Date: 3/10/09

Data Report

14797-55-8	**NITRATE-N**	2.97	0.100	0.015	mg/L	1	300.0	2/14/09	BJ	I090213A
E-10173	**TOTAL DISSOLVED SOLIDS**	125	10	6	mg/L	1	SM2540 C	2/18/09	CCN	TDS_090218
16887-00-6	**CHLORIDE**	2.8	0.1	0.012	mg/L	1	300.0	2/13/09	BJ	I090213A
14265-44-2	**ORTHO-PHOSPHATE**	0.20	0.01	0.002	mg/L	1	SM4500-P F	2/13/09	SO	OPHOS-090213
E-10139	**HYDROGEN ION (pH)**	6.50			pH Units	1	SM4500-H+ B	2/13/09	CCN	PH_090213
E-10617	**TURBIDITY**	4.53	0.05	0.03	NTU	1	180.1	2/13/09	CCN	TURB_090213
E-10184	**ELECTRICAL CONDUCTIVITY**	194	10		uS/cm	1	SM2510 B	2/16/09	CCN	EC_090216
E-11778	**HARDNESS**	71.8	3.30	0.055	mg CaCO3/L	1	200.7	2/16/09	BJ	200.7-090216A
E-10117	**CHEMICAL OXYGEN DEMAND**	ND	8.0	2.47	mg/L	1	SM5220 D	2/16/09	MAK	COD_090216
15541-45-4	**BROMATE**	ND	0.005	0.0016	mg/L	1	300.1	3/4/09	MVP	D090304A

Sample Description: HWS1 - Hall-Wentland Surface 1 — Sample Date: 2/12/09

Lab Number: 4483 — Collected By: Unknown

CAS ID#	Parameter	**Result**	PQL	MDL	Units	DF	Method	Analyzed	Analyst	Batch	Comment
14797-55-8	**NITRATE-N**	0.9	0.100	0.015	mg/L	1	300.0	2/14/09	BJ	I090213A	
E-10173	**TOTAL DISSOLVED SOLIDS**	97	10	6	mg/L	1	SM2540 C	2/18/09	CCN	TDS_090218	
16887-00-6	**CHLORIDE**	2.3	0.1	0.012	mg/L	1	300.0	2/13/09	BJ	I090213A	
14265-44-2	**ORTHO-PHOSPHATE**	0.24	0.01	0.002	mg/L	1	SM4500-P F	2/13/09	SO	OPHOS-090213	
E-10139	**HYDROGEN ION (pH)**	7.27			pH Units	1	SM4500-H+ B	2/13/09	CCN	PH_090213	
E-10617	**TURBIDITY**	38.2	0.05	0.03	NTU	1	180.1	2/13/09	CCN	TURB_090213	
E-10184	**ELECTRICAL CONDUCTIVITY**	148	10		uS/cm	1	SM2510 B	2/16/09	CCN	EC_090216	
E-11778	**HARDNESS**	56.1	3.30	0.055	mg CaCO3/L	1	200.7	2/16/09	BJ	200.7-090216A	
E-10117	**CHEMICAL OXYGEN DEMAND**	14	8.0	2.47	mg/L	1	SM5220 D	2/16/09	MAK	COD_090216	
15541-45-4	**BROMATE**	0.005	0.005	0.0016	mg/L	1	300.1	3/5/09	MVP	D090305A	

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D.F. - Dilution Factor

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March 18, 2009

Mr. Troy Baker
Walla Walla Basin Watershed Council
810 S Main Street
Milton-Freewater, OR 97862

RE: 09-03592 - Hall-Wentland Recharge Sites

Dear Mr. Troy Baker,

Your project: Hall-Wentland Recharge Sites, was received on Friday March 13, 2009.
All samples were analyzed within the accepted holding times, were appropriately preserved and were analyzed according to approved analytical protocols. The quality control data was within laboratory acceptance limits, unless specified in the QA reports.

If you have questions phone me at 800 755-9295.

Respectfully Submitted,

Lawrence J Henderson, PhD
Director of Laboratories

Enclosures Data Report

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Data Report

Client Name: Walla Walla Basin Watershed Council
810 S Main Street
Milton-Freewater, OR 97862

Reference Number: **09-03592**
Project: Hall-Wentland Recharge Sites
Report Date: 3/18/09
Date Received: 3/13/09
Peer Review:

Sample Description: HW3 - Hall Wentland
Lab Number: 7341
Sample Date: 3/12/09
Collected By: Unknown

CAS ID#	Parameter	Result	PQL	MDL	Units	DF	Method	Analyzed	Analyst	Batch	Comment
14797-55-8	**NITRATE-N**	1.95	0.100	0.015	mg/L	1	300.0	3/14/09	BJ	I090313A	
E-10173	**TOTAL DISSOLVED SOLIDS**	118	10	6	mg/L	1	SM2540 C	3/16/09	CCN	TDS_090316	
16887-00-6	**CHLORIDE**	2.9	20	0.012	mg/L	1	300.0	3/13/09	BJ	I090313A	
14265-44-2	**ORTHO-PHOSPHATE**	ND	0.10	0.01	mg/L	1	300.0	3/14/09	BJ	I090313A	
E-10139	**HYDROGEN ION (pH)**	6.51			pH Units	1	SM4500-H+ B	3/13/09	CCN	ph_090313	
E-10617	**TURBIDITY**	4.70	0.05	0.03	NTU	1	180.1	3/13/09	CCN	TURB_090313	
E-10184	**ELECTRICAL CONDUCTIVITY**	167	10		uS/cm	1	SM2510 B	3/16/09	CCN	EC_090316	
E-11778	**HARDNESS**	68.4	3.30	0.055	mg CaCO3/L	1	200.7	3/16/09	BJ	200.7-090316A	
E-10117	**CHEMICAL OXYGEN DEMAND**	ND	8	2.47	mg/L	1	SM5220 D	3/16/09	MAK	COD_090316	
15541-45-4	**BROMATE**	ND	0.005	0.00118	mg/L	1	300.1	3/17/09	MVP	D090317A	

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D.F. - Dilution Factor

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Form: cRslt_2.rpt

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SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Laboratory Fortified Blank

Reference Number: 09-03592
Report Date: 03/18/09

Batch	Analyte	Result	True Value	Units	Method	% Recovery	Limits	QC Qualifier	Type*	Comment
200.7-090316A	HARDNESS	72.4	69.5	mg/L	200.7	104	80-120		LFB	
COD_090316	CHEMICAL OXYGEN DEMAND	53	50	mg/L	SM5220 D	106	80-120		LFB	
tds_090316	TOTAL DISSOLVED SOLIDS	476	500	mg/L	SM2540 C	95	80-120		LFB	
tds_090316	TOTAL DISSOLVED SOLIDS	474	500	mg/L	SM2540 C	95	80-120		LFB	

*Notation:

% Recovery = (Result of Analysis)/(True Value) * 100

NA = Indicates % Recovery could not be calculated.

QCS: Quality Control Sample, a solution containing known concentrations of method analytes which is used to fortify an aliquot of reagent matrix. The QCS is obtained from an external source and is used to check lab performance.

LFB: Laboratory Fortified Blank, an aliquot of reagent matrix to which known quantities of method analytes are added in the lab. The LFB is analyzed exactly like a sample, and its purpose is to determine whether method performance is within accepted control limits.

MB or LRB: Method Blank or Laboratory Reagent Blank, an aliquot of reagent matrix is analyzed exactly like a sample, and its purpose is to determine if there is background contamination.

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SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Laboratory Reagent Blank

Reference Number: 09-03592
Report Date: 03/18/09

Batch	Analyte	Result	True Value	Units	Method	% Recovery	QC Limits	Qualifier	Type*	Comment
200.7-090316A	HARDNESS	ND		mg/L	200.7		10.0000(		LRB	
COD_090316	CHEMICAL OXYGEN DEMAND	ND		mg/L	SM5220 D		4.00000		LRB	
D090317A	BROMATE	ND		mg/L	300.1		0.00500		LRB	
I090313A	CHLORIDE	ND		mg/L	300.0		0.10000		LRB	
	NITRATE-N	ND		mg/L	300.0		0.10000			
	ORTHO-PHOSPHATE	ND		mg/L	300.0		0.10000			

*Notation:

% Recovery = (Result of Analysis)/(True Value) * 100

NA = Indicates % Recovery could not be calculated.

QCS: Quality Control Sample, a solution containing known concentrations of method analytes which is used to fortify an aliquot of reagent matrix. The QCS is obtained from an external source and is used to check lab performance.

LFB: Laboratory Fortified Blank, an aliquot of reagent matrix to which known quantities of method analytes are added in the lab. The LFB is analyzed exactly like a sample, and its purpose is to determine whether method performance is within accepted control limits.

MB or LRB: Method Blank or Laboratory Reagent Blank, an aliquot of reagent matrix is analyzed exactly like a sample, and its purpose is to determine if there is background contamination.

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SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Method Blank

Reference Number: 09-03592
Report Date: 03/18/09

Batch	Analyte	Result	True Value	Units	Method	% Recovery	Limits	QC Qualifier	Type*	Comment
200.7-090316A	HARDNESS	ND		mg/L	200.7		0.82000		MB	
ec_090316	ELECTRICAL CONDUCTIVITY	ND		uS/cm	SM2510 B		2.50000		MB	
ec_090316	ELECTRICAL CONDUCTIVITY	ND		uS/cm	SM2510 B		2.50000		MB	
ec_090316	ELECTRICAL CONDUCTIVITY	ND		uS/cm	SM2510 B		2.50000		MB	
tds_090316	TOTAL DISSOLVED SOLIDS	ND		mg/L	SM2540 C		2.50000		MB	
tds_090316	TOTAL DISSOLVED SOLIDS	ND		mg/L	SM2540 C		2.50000		MB	
tds_090316	TOTAL DISSOLVED SOLIDS	ND		mg/L	SM2540 C		2.50000		MB	
turb_090313	TURBIDITY	ND		NTU	180.1		0.02000		MB	

*Notation:

% Recovery = (Result of Analysis)/(True Value) * 100

NA = Indicates % Recovery could not be calculated.

QCS: Quality Control Sample, a solution containing known concentrations of method analytes which is used to fortify an aliquot of reagent matrix. The QCS is obtained from an external source and is used to check lab performance.

LFB: Laboratory Fortified Blank, an aliquot of reagent matrix to which known quantities of method analytes are added in the lab. The LFB is analyzed exactly like a sample, and its purpose is to determine whether method performance is within accepted control limits.

MB or LRB: Method Blank or Laboratory Reagent Blank, an aliquot of reagent matrix is analyzed exactly like a sample, and its purpose is to determine if there is background contamination.

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SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Quality Control Sample

Reference Number: 09-03592
Report Date: 03/18/09

Batch	Analyte	Result	True Value	Units	Method	% Recovery	Limits	QC Qualifier	Type*	Comment
200.7-090316A	HARDNESS	133	132.3	mg/L	200.7	101	80-120		QCS	
COD_090316	CHEMICAL OXYGEN DEMAND	97	92	mg/L	SM5220 D	105	80-120		QCS	
D090317A	BROMATE	0.0163	0.0157	mg/L	300.1	104	75-125		QCS	
ec_090316	ELECTRICAL CONDUCTIVITY	154	150.1	uS/cm	SM2510 B	103	80-120		QCS	
ec_090316	ELECTRICAL CONDUCTIVITY	149	150.1	uS/cm	SM2510 B	99	80-120		QCS	
ec_090316	ELECTRICAL CONDUCTIVITY	155	150.1	uS/cm	SM2510 B	103	80-120		QCS	
I090313A	CHLORIDE	30.4	30.0	mg/L	300.0	101	80-120		QCS	
	NITRATE-N	2.41	2.50	mg/L	300.0	96	80-120			
	ORTHO-PHOSPHATE	2.47	2.50	mg/L	300.0	99	80-120			
turb_090313	TURBIDITY	0.94	1.00	NTU	180.1	94	70-130		QCS	

*Notation:

% Recovery = (Result of Analysis)/(True Value) * 100

NA = Indicates % Recovery could not be calculated.

QCS: Quality Control Sample, a solution containing known concentrations of method analytes which is used to fortify an aliquot of reagent matrix. The QCS is obtained from an external source and is used to check lab performance.

LFB: Laboratory Fortified Blank, an aliquot of reagent matrix to which known quantities of method analytes are added in the lab. The LFB is analyzed exactly like a sample, and its purpose is to determine whether method performance is within accepted control limits.

MB or LRB: Method Blank or Laboratory Reagent Blank, an aliquot of reagent matrix is analyzed exactly like a sample, and its purpose is to determine if there is background contamination.

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QUALITY CONTROL REPORT

Duplicate and Matrix Spike/Matrix Spike Duplicate Report

Reference Number: 09-03592

Report Date: 3/18/2009

Duplicate

Batch	Sample	Analyte	Result	Duplicate Result	Units	%RPD	Limits	QC Qualifier	Comments
200.7-090316A									
	7293	HARDNESS	41.3	41.6	mg CaCO3/L	**0.7**	0-45	DUP	
	7345	HARDNESS	95.8	96.9	mg CaCO3/L	**1.1**	0-45	DUP	
COD_090316									
	7366	CHEMICAL OXYGEN DEMAND	590	572	mg/L	**3.1**	0-45	DUP	
D090317A									
EC_090316									
	7345	ELECTRICAL CONDUCTIVITY	209	216	uS/cm	**3.3**	0-45	DUP	
	7414	ELECTRICAL CONDUCTIVITY	209	210	uS/cm	**0.5**	0-45	DUP	
I090313A									
	7310	CHLORIDE	59	59	mg/L	**0.0**	0-45	DUP	
	7345	NITRATE-N	0.25	0.25	mg/L	**0.0**	0-45	DUP	
	7345	CHLORIDE	5.3	5.3	mg/L	**0.0**	0-45	DUP	
	7405	NITRATE-N	0.2	0.2	mg/L	**0.0**	0-45	DUP	
	7405	CHLORIDE	6.5	6.5	mg/L	**0.0**	0-45	DUP	
ph_090313									
	7405	HYDROGEN ION (pH)	8.26	8.24	pH Units	**0.2**	0-45	DUP	
PH_090313									
	7293	HYDROGEN ION (pH)	9.31	9.36	pH Units	**0.5**	0-45	DUP	
	7341	HYDROGEN ION (pH)	6.51	6.56	pH Units	**0.8**	0-45	DUP	
TDS_090316									
	7411	TOTAL DISSOLVED SOLIDS	84	80	mg/L	**4.9**	0-45	DUP	
	7414	TOTAL DISSOLVED SOLIDS	110	107	mg/L	**2.8**	0-45	DUP	
turb_090313									
	7405	TURBIDITY	0.54	0.49	NTU	**9.7**	0-50	DUP	
TURB_090313									
	7345	TURBIDITY	0.08	0.07	NTU	**13.3**	0-50	DUP	

%RPD = Relative Percent Difference

NA = Indicates %RPD could not be calculated

Matrix Spike (MS)/Matrix Spike Duplicate (MSD) analyses are used to determine the accuracy (MS) and precision (MSD) of a analytical method in a given sample matrix. Therefore, the usefulness of this report is limited to samples of similar matrices analyzed in the same analytical batch.

Only Duplicate sample with detections are listed in this report

Duplicate

Batch	Sample	Analyte	Result	Duplicate Result	Units	%RPD	Limits	QC Qualifier	Comments

%RPD = Relative Percent Difference

NA = Indicates %RPD could not be calculated

Matrix Spike (MS)/Matrix Spike Duplicate (MSD) analyses are used to determine the accuracy (MS) and precision (MSD) of a analytical method in a given sample matrix. Therefore, the usefulness of this report is limited to samples of similar matrices analyzed in the same analytical batch.

Only Duplicate sample with detections are listed in this report

Reference Number: 09-03592
Report Date: 3/18/2009

Matrix Spike

Batch	Sample	Analyte	Result	Spike Result	Duplicate Spike Result	Spike Conc	Units	Percent Recovery MS	Percent Recovery MSD	Limits	%RPD	Limits	QC Qualifier	Comments
200.7-090316A														
	7293	HARDNESS	41.3	112	112	69.5	mg CaCO3/L	**102**	**102**	80-120	**0.0**	0-60	LFM	
	7345	HARDNESS	95.8	166	166	69.5	mg CaCO3/L	**101**	**101**	80-120	**0.0**	0-60	LFM	
COD_090316														
	7341	CHEMICAL OXYGEN DEMAND	ND	52	54	50	mg/L	**104**	**108**	80-120	**3.8**	0-60	LFM	
	7366	CHEMICAL OXYGEN DEMAND	590	636	635	50	mg/L	**92**	**90**	80-120	**2.2**	0-60	LFM	
D090317A														
	7335	BROMATE	ND	0.0104		0.010	mg/L	**104**	**NA**	75-125	**NA**	0-60	LFM	
	7500	BROMATE	ND	0.0103		0.010	mg/L	**103**	**NA**	75-125	**NA**	0-60	LFM	
I090313A														
	7310	NITRATE-N	ND	1.05		1.00	mg/L	**105**	**NA**	80-120	**NA**	0-60	LFM	
	7345	NITRATE-N	0.25	1.25		1.00	mg/L	**100**	**NA**	80-120	**NA**	0-60	LFM	
	7345	CHLORIDE	5.3	6.3		1.00	mg/L	**100**	**NA**	80-120	**NA**	0-60	LFM	
	7405	NITRATE-N	0.2	19.7		20.00	mg/L	**98**	**NA**	80-120	**NA**	0-60	LFM	
	7405	CHLORIDE	6.5	27		20.00	mg/L	**103**	**NA**	80-120	**NA**	0-60	LFM	

%RPD = Relative Percent Difference

NA = Indicates %RPD could not be calculated

Matrix Spike (MS)/Matrix Spike Duplicate (MSD) analyses are used to determine the accuracy (MS) and precision (MSD) of a analytical method in a given sample matrix. Therefore, the usefulness of this report is limited to samples of similar matrices analyzed in the same analytical batch.

Only Duplicate sample with detections are listed in this report

Chain of Custody / Analysis Request (Please complete all applicable shaded sections)

7279

Report to:	Walla Walla Basin Watershed Cour	Bill to:	Walla Walla Basin Watershed Counc	**For Lab Use Only**	
Ship Address:	810 S Main Street	Address:	810 South Main Street	Ref #	
City:	Milton-Freewa St: OR Zip: 97862	City:	Milton-Freewa St: OR Zip: 97862	**Check Regulatory Program**	
Attn:	Troy Baker	Phone:	FAX:	☐ Safe Drinking Water Act	
Phone:	541.938-2170 FAX:	P.O.#:	Attn:	☐ Clean Water Act	
Email:	T.Baker@wwbwc.net	☐ Visa ☐ M/C ☐ A/E	Expires /	☐ RCRA / CERCLA	
Project	Hall-Wentland Recharge Sites	Card#:		☐ Other	

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Bellingham, WA 98225

Instructions
1. Use one line per sample Location.
2. Be specific in analysis requests.
3. *(NEW)* **List each metal individually** *(NEW)*
4. Check off analyses to be performed for each sample Loaction.
5. Enter number of containers.

Turn Around Time Required
- ☐ Standard
- ☐ Half-time (50% surcharge)
- ☐ Quickest (100% surcharge) Phone Call Req.
- ☐ Emergency (Phone Call Req.)

Analyses Requested

	Field ID	Location	Grab/ Comp.	Sample Matrix*	Date	Time	Bromate	Hardness	NO3, COD	TDS, Cl, O-Phos,pH,Turb,Ec					Number of Containers	Special Instructions Conditions on Receipt
1	HW3	Hall-Wentland			3/12	10.25	X	X	X	X					4	
2																
3																
4																
5																
6																
7																
8																
9																
10																

CO007279

09-03592
7341

Sampled by: Phone: FAX: Email: Total Containers

Sample Receipt Request (Must include FAX or Email) ☐

* **W** - water **SW** - surface water **WW** - waste water **OL** - oil
DW - drinking water **GW** - Ground water **S** - soil Other_____

Relinquished by	Date	Time	Received by	Date	Time
				3.13.09	8:50

	Yes	No	N/A
Custody seals intact			☒
Sample temp 5 C satisfactory	☒		
Samples received intact	☒		
Chain of custody & labels agree	☒		

FORM: COC 01-06-2009

09-03592

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May 8, 2009

Mr. Troy Baker
Walla Walla Basin Watershed Council
810 S Main Street
Milton-Freewater, OR 97862

RE: 09-05772 - Locher Road and Hall-Wentland Recharge Sites

Dear Mr. Troy Baker,

Your project: Locher Road and Hall-Wentland Recharge Sites, was received on Friday April 24, 2009.
All samples were analyzed within the accepted holding times, were appropriately preserved and were analyzed according to approved analytical protocols. The quality control data was within laboratory acceptance limits, unless specified in the QA reports.

If you have questions phone me at 800 755-9295.

Respectfully Submitted,

Lawrence J Henderson, PhD
Director of Laboratories

Enclosures Data Report

Reference Number: **09-05772**
Report Date: 5/8/09

Data Report

Sample Description: HW3 - Hall Wentland 3
Lab Number: 11907
Sample Date: 4/23/09
Collected By: Unknown

CAS ID#	Parameter	Result	PQL	MDL	Units	DF	Method	Analyzed	Analyst	Batch	Comment
E-10139	**HYDROGEN ION (pH)**	6.31			pH Units	1	SM4500-H+ B	4/24/09	CCN	PH_090424	
E-10617	**TURBIDITY**	2.44	0.05	0.02	NTU	1	180.1	4/24/09	MAK	TURB_090424	
14797-55-8	**NITRATE-N**	1.96	0.100	0.015	mg/L	1	300.0	4/25/09	BJ	I090424A	
16887-00-6	**CHLORIDE**	2.8	20	0.012	mg/L	1	300.0	4/24/09	BJ	I090424A	
E-10173	**TOTAL DISSOLVED SOLIDS**	122	10	6	mg/L	1	SM2540 C	4/28/09	CCN	TDS_090428	
14265-44-2	**ORTHO-PHOSPHATE**	0.17	0.01	0.002	mg/L	1	SM4500-P F	4/24/09	SO	OPHOS-090424	
E-10184	**ELECTRICAL CONDUCTIVITY**	164	10		uS/cm	1	SM2510 B	4/24/09	CCN	EC_090424	
15541-45-4	**BROMATE**	ND	0.005	0.00046	mg/L	1	300.1	4/29/09	MVP	D090429A	
E-11778	**HARDNESS**	63.0	3.30	0.055	mg CaCO3/L	1	200.7	4/27/09	BJ	200.7-090427A	
E-10117	**CHEMICAL OXYGEN DEMAND**	ND	8.0	2.47	mg/L	1	SM5220 D	5/7/09	MAK	COD_090507	

Sample Description: HW1 - Hall Wentland 1
Lab Number: 11908
Sample Date: 4/23/09
Collected By: Unknown

CAS ID#	Parameter	Result	PQL	MDL	Units	DF	Method	Analyzed	Analyst	Batch	Comment
E-10139	**HYDROGEN ION (pH)**	6.34			pH Units	1	SM4500-H+ B	4/24/09	CCN	PH_090424	
E-10617	**TURBIDITY**	2.02	0.05	0.02	NTU	1	180.1	4/24/09	MAK	TURB_090424	
14797-55-8	**NITRATE-N**	1.15	0.100	0.015	mg/L	1	300.0	4/25/09	BJ	I090424A	
16887-00-6	**CHLORIDE**	2.7	20	0.012	mg/L	1	300.0	4/24/09	BJ	I090424A	
E-10173	**TOTAL DISSOLVED SOLIDS**	96	10	6	mg/L	1	SM2540 C	4/28/09	CCN	TDS_090428	
14265-44-2	**ORTHO-PHOSPHATE**	0.21	0.01	0.002	mg/L	1	SM4500-P F	4/24/09	SO	OPHOS-090424	
E-10184	**ELECTRICAL CONDUCTIVITY**	142	10		uS/cm	1	SM2510 B	4/24/09	CCN	EC_090424	
15541-45-4	**BROMATE**	ND	0.005	0.00046	mg/L	1	300.1	4/29/09	MVP	D090429A	
E-11778	**HARDNESS**	56.8	3.30	0.055	mg CaCO3/L	1	200.7	4/27/09	BJ	200.7-090427A	
E-10117	**CHEMICAL OXYGEN DEMAND**	ND	8.0	2.47	mg/L	1	SM5220 D	5/7/09	MAK	COD_090507	

Sample Description: HW2 - Hall Wentland 2
Lab Number: 11909
Sample Date: 4/23/09
Collected By: Unknown

CAS ID#	Parameter	Result	PQL	MDL	Units	DF	Method	Analyzed	Analyst	Batch	Comment
E-10139	**HYDROGEN ION (pH)**	6.30			pH Units	1	SM4500-H+ B	4/24/09	CCN	PH_090424	
E-10617	**TURBIDITY**	1.75	0.05	0.02	NTU	1	180.1	4/24/09	MAK	TURB_090424	
14797-55-8	**NITRATE-N**	1.92	0.100	0.015	mg/L	1	300.0	4/25/09	BJ	I090424A	
16887-00-6	**CHLORIDE**	3.7	20	0.012	mg/L	1	300.0	4/24/09	BJ	I090424A	
E-10173	**TOTAL DISSOLVED SOLIDS**	110	10	6	mg/L	1	SM2540 C	4/28/09	CCN	TDS_090428	
14265-44-2	**ORTHO-PHOSPHATE**	0.17	0.01	0.002	mg/L	1	SM4500-P F	4/24/09	SO	OPHOS-090424	
E-10184	**ELECTRICAL CONDUCTIVITY**	162	10		uS/cm	1	SM2510 B	4/24/09	CCN	EC_090424	

Notes:

ND = Not detected above the listed practical quantitation limit (PQL) or not above the Method Detection Limit (MDL), if requested.
PQL = Practical Quantitation Limit is the lowest level that can be acheived within specified limits of precision and accuracy during routine laboratory operating conditions.
D.F. - Dilution Factor

Reference Number: **09-05772**
Report Date: 5/8/09

Data Report

15541-45-4	**BROMATE**	ND	0.005	0.00046	mg/L	1	300.1	4/29/09	MVP	D090429A
E-11778	**HARDNESS**	61.7	3.30	0.055	mg CaCO3/L	1	200.7	4/27/09	BJ	200.7-090427A
E-10117	**CHEMICAL OXYGEN DEMAND**	ND	8.0	2.47	mg/L	1	SM5220 D	5/7/09	MAK	COD_090507

Sample Description: HWSW1 - Hall Wentland Source Water
Lab Number: 11910
Sample Date: 4/23/09
Collected By: Unknown

CAS ID#	Parameter	**Result**	PQL	MDL	Units	DF	Method	Analyzed	Analyst	Batch	Comment
E-10139	**HYDROGEN ION (pH)**	7.59			pH Units	1	SM4500-H+ B	4/24/09	CCN	PH_090424	
E-10617	**TURBIDITY**	17.0	0.05	0.02	NTU	1	180.1	4/24/09	MAK	TURB_090424	
14797-55-8	**NITRATE-N**	0.6	0.100	0.015	mg/L	1	300.0	4/25/09	BJ	I090424A	
16887-00-6	**CHLORIDE**	1.8	20	0.012	mg/L	1	300.0	4/24/09	BJ	I090424A	
E-10173	**TOTAL DISSOLVED SOLIDS**	83	10	6	mg/L	1	SM2540 C	4/28/09	CCN	TDS_090428	
14265-44-2	**ORTHO-PHOSPHATE**	0.16	0.01	0.002	mg/L	1	SM4500-P F	4/24/09	SO	OPHOS-090424	
E-10184	**ELECTRICAL CONDUCTIVITY**	118	10		uS/cm	1	SM2510 B	4/24/09	CCN	EC_090424	
15541-45-4	**BROMATE**	ND	0.005	0.00046	mg/L	1	300.1	4/29/09	MVP	D090429A	
E-11778	**HARDNESS**	44.8	3.30	0.055	mg CaCO3/L	1	200.7	4/27/09	BJ	200.7-090427A	
E-10117	**CHEMICAL OXYGEN DEMAND**	ND	8.0	2.47	mg/L	1	SM5220 D	5/7/09	MAK	COD_090507	

Notes:

ND = Not detected above the listed practical quantitation limit (PQL) or not above the Method Detection Limit (MDL), if requested.
PQL = Practical Quantitation Limit is the lowest level that can be acheived within specified limits of precision and accuracy during routine laboratory operating conditions.
D.F. - Dilution Factor

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SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Laboratory Fortified Blank

Reference Number: 09-05772
Report Date: 05/08/09

Batch	Analyte	Result	True Value	Units	Method	% Recovery	Limits	QC Qualifier	Type*	Comment
200.7-090427A	HARDNESS	73.3	69.5	mg/L	200.7	105	80-120		LFB	
COD_090507	CHEMICAL OXYGEN DEMAND	55	50	mg/L	SM5220 D	110	80-120		LFB	
OPHOS-090424	ORTHO-PHOSPHATE	1.01	1.00	mg/L	SM4500-P F	101	70-130		LFB	
tds_090428	TOTAL DISSOLVED SOLIDS	504	500	mg/L	SM2540 C	101	80-120		LFB	
tds_090428	TOTAL DISSOLVED SOLIDS	512	500	mg/L	SM2540 C	102	80-120		LFB	

*Notation:

% Recovery = (Result of Analysis)/(True Value) * 100

NA = Indicates % Recovery could not be calculated.

QCS: Quality Control Sample, a solution containing known concentrations of method analytes which is used to fortify an aliquot of reagent matrix. The QCS is obtained from an external source and is used to check lab performance.

LFB: Laboratory Fortified Blank, an aliquot of reagent matrix to which known quantities of method analytes are added in the lab. The LFB is analyzed exactly like a sample, and its purpose is to determine whether method performance is within accepted control limits.

MB or LRB: Method Blank or Laboratory Reagent Blank, an aliquot of reagent matrix is analyzed exactly like a sample, and its purpose is to determine if there is background contamination.

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SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Laboratory Reagent Blank

Reference Number: 09-05772
Report Date: 05/08/09

Batch	Analyte	Result	True Value	Units	Method	% Recovery	QC Limits	Qualifier	Type*	Comment
200.7-090427A	HARDNESS	ND		mg/L	200.7		10.0000(		LRB	
COD_090507	CHEMICAL OXYGEN DEMAND	ND		mg/L	SM5220 D		4.00000		LRB	
D090429A	BROMATE	ND		mg/L	300.1		0.00500		LRB	
I090424A	CHLORIDE	ND		mg/L	300.0		0.10000		LRB	
	NITRATE-N	ND		mg/L	300.0		0.10000			
OPHOS-090424	ORTHO-PHOSPHATE	ND		mg/L	SM4500-P F		0.10000		LRB	
TURB_090424	TURBIDITY	ND		NTU	180.1		0.02000		LRB	

*Notation:

% Recovery = (Result of Analysis)/(True Value) * 100

NA = Indicates % Recovery could not be calculated.

QCS: Quality Control Sample, a solution containing known concentrations of method analytes which is used to fortify an aliquot of reagent matrix. The QCS is obtained from an external source and is used to check lab performance.

LFB: Laboratory Fortified Blank, an aliquot of reagent matrix to which known quantities of method analytes are added in the lab. The LFB is analyzed exactly like a sample, and its purpose is to determine whether method performance is within accepted control limits.

MB or LRB: Method Blank or Laboratory Reagent Blank, an aliquot of reagent matrix is analyzed exactly like a sample, and its purpose is to determine if there is background contamination.

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SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Method Blank

Reference Number: 09-05772
Report Date: 05/08/09

Batch	Analyte	Result	True Value	Units	Method	% Recovery	Limits	QC Qualifier	Type*	Comment
200.7-090427A	HARDNESS	ND		mg/L	200.7		0.82000		MB	
ec_090424	ELECTRICAL CONDUCTIVITY	ND		uS/cm	SM2510 B		2.50000		MB	
ec_090424	ELECTRICAL CONDUCTIVITY	ND		uS/cm	SM2510 B		2.50000		MB	
ec_090424	ELECTRICAL CONDUCTIVITY	ND		uS/cm	SM2510 B		2.50000		MB	
ec_090424	ELECTRICAL CONDUCTIVITY	ND		uS/cm	SM2510 B		2.50000		MB	
ec_090424	ELECTRICAL CONDUCTIVITY	ND		uS/cm	SM2510 B		2.50000		MB	
ec_090424	ELECTRICAL CONDUCTIVITY	ND		uS/cm	SM2510 B		2.50000		MB	
OPHOS-090424	ORTHO-PHOSPHATE	ND		mg/L	SM4500-P F		0.10000		MB	
tds_090428	TOTAL DISSOLVED SOLIDS	ND		mg/L	SM2540 C		2.50000		MB	
tds_090428	TOTAL DISSOLVED SOLIDS	ND		mg/L	SM2540 C		2.50000		MB	

*Notation:

% Recovery = (Result of Analysis)/(True Value) * 100

NA = Indicates % Recovery could not be calculated.

QCS: Quality Control Sample, a solution containing known concentrations of method analytes which is used to fortify an aliquot of reagent matrix. The QCS is obtained from an external source and is used to check lab performance.

LFB: Laboratory Fortified Blank, an aliquot of reagent matrix to which known quantities of method analytes are added in the lab. The LFB is analyzed exactly like a sample, and its purpose is to determine whether method performance is within accepted control limits.

MB or LRB: Method Blank or Laboratory Reagent Blank, an aliquot of reagent matrix is analyzed exactly like a sample, and its purpose is to determine if there is background contamination.

Burlington WA
Corporate Office
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Microbiology
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SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Quality Control Sample

Reference Number: 09-05772
Report Date: 05/08/09

Batch	Analyte	Result	True Value	Units	Method	% Recovery	Limits	QC Qualifier	Type*	Comment
200.7-090427A	HARDNESS	135	132.3	mg/L	200.7	102	80-120		QCS	
COD_090507	CHEMICAL OXYGEN DEMAND	94	92	mg/L	SM5220 D	102	80-120		QCS	
D090429A	BROMATE	0.0155	0.0157	mg/L	300.1	99	75-125		QCS	
ec_090424	ELECTRICAL CONDUCTIVITY	155	150.1	uS/cm	SM2510 B	103	80-120		QCS	
ec_090424	ELECTRICAL CONDUCTIVITY	154	150.1	uS/cm	SM2510 B	103	80-120		QCS	
ec_090424	ELECTRICAL CONDUCTIVITY	154	150.1	uS/cm	SM2510 B	103	80-120		QCS	
ec_090424	ELECTRICAL CONDUCTIVITY	150	150.1	uS/cm	SM2510 B	100	80-120		QCS	
ec_090424	ELECTRICAL CONDUCTIVITY	152	150.1	uS/cm	SM2510 B	101	80-120		QCS	
ec_090424	ELECTRICAL CONDUCTIVITY	154	150.1	uS/cm	SM2510 B	103	80-120		QCS	
I090424A	CHLORIDE	29	30.0	mg/L	300.0	97	80-120		QCS	
	NITRATE-N	2.42	2.50	mg/L	300.0	97	80-120			
OPHOS-090424	ORTHO-PHOSPHATE	0.45	0.49	mg/L	SM4500-P F	92	70-130		QCS	
TURB_090424	TURBIDITY	0.95	1.00	NTU	180.1	95	70-130		QCS	

*Notation:

% Recovery = (Result of Analysis)/(True Value) * 100

NA = Indicates % Recovery could not be calculated.

QCS: Quality Control Sample, a solution containing known concentrations of method analytes which is used to fortify an aliquot of reagent matrix. The QCS is obtained from an external source and is used to check lab performance.

LFB: Laboratory Fortified Blank, an aliquot of reagent matrix to which known quantities of method analytes are added in the lab. The LFB is analyzed exactly like a sample, and its purpose is to determine whether method performance is within accepted control limits.

MB or LRB: Method Blank or Laboratory Reagent Blank, an aliquot of reagent matrix is analyzed exactly like a sample, and its purpose is to determine if there is background contamination.

EDGE ANALYTICAL LABORATORIES

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Bellingham WA — Microbiology | 805 Orchard Dr Suite 4 - 98225 | 360.671.0688 • 360.671.1577fax

QUALITY CONTROL REPORT

Duplicate and Matrix Spike/Matrix Spike Duplicate Report

Reference Number: 09-05772

Report Date: 5/8/2009

Duplicate

Batch	Sample	Analyte	Result	Duplicate Result	Units	%RPD	Limits	QC Qualifier	Comments
200.7-090427A									
	11461	HARDNESS	142	143	mg CaCO3/L	**0.7**	0-45	DUP	
	11780	HARDNESS	155	155	mg CaCO3/L	**0.0**	0-45	DUP	
COD_090507									
	12748	CHEMICAL OXYGEN DEMAND	3600	3500	mg/L	**2.8**	0-45	DUP	
D090429A									
EC_090424									
	11460	ELECTRICAL CONDUCTIVITY	363	362	uS/cm	**0.3**	0-45	DUP	
	11561	ELECTRICAL CONDUCTIVITY	779	780	uS/cm	**0.1**	0-45	DUP	
	11627	ELECTRICAL CONDUCTIVITY	386	401	uS/cm	**3.8**	0-45	DUP	
	11903	ELECTRICAL CONDUCTIVITY	275	272	uS/cm	**1.1**	0-45	DUP	
	11942	ELECTRICAL CONDUCTIVITY	367	362	uS/cm	**1.4**	0-45	DUP	
I090424A									
	11797	CHLORIDE	0.6	0.6	mg/L	**0.0**	0-45	DUP	
	11864	CHLORIDE	18	18	mg/L	**0.0**	0-45	DUP	
	11934	CHLORIDE	15	15	mg/L	**0.0**	0-45	DUP	
	11942	CHLORIDE	7.4	7.4	mg/L	**0.0**	0-45	DUP	
OPHOS-090424									
	11910	ORTHO-PHOSPHATE	0.16	0.16	mg/L	**0.0**	0-50	DUP	
PH_090424									
	11911	HYDROGEN ION (pH)	6.05	6.03	pH Units	**0.3**	0-45	DUP	
TDS_090428									
TURB_090424									
	11911	TURBIDITY	284	280	NTU	**1.4**	0-50	DUP	
	11934	TURBIDITY	0.68	0.71	NTU	**4.3**	0-50	DUP	

%RPD = Relative Percent Difference

NA = Indicates %RPD could not be calculated

Matrix Spike (MS)/Matrix Spike Duplicate (MSD) analyses are used to determine the accuracy (MS) and precision (MSD) of a analytical method in a given sample matrix. Therefore, the usefulness of this report is limited to samples of similar matrices analyzed in the same analytical batch.

Only Duplicate sample with detections are listed in this report

Reference Number: 09-05772
Report Date: 5/8/2009

Matrix Spike

Batch	Sample	Analyte	Result	Spike Result	Duplicate Spike Result	Spike Conc	Units	Percent Recovery MS	Percent Recovery MSD	Limits	%RPD	Limits	QC Qualifier	Comments
200.7-090427A														
	11461	HARDNESS	142	210	211	69.5	mg CaCO3/L	**98**	**99**	80-120	**1.5**	0-60	LFM	
	11780	HARDNESS	155	225	223	69.5	mg CaCO3/L	**101**	**98**	80-120	**2.9**	0-60	LFM	
COD_090507														
	11907	CHEMICAL OXYGEN DEMAND	ND	45	48	50	mg/L	**90**	**96**	80-120	**6.5**	0-60	LFM	
	12313	CHEMICAL OXYGEN DEMAND	ND	49	49	50	mg/L	**98**	**98**	80-120	**0.0**	0-60	LFM	
	12748	CHEMICAL OXYGEN DEMAND	3600	5900	5900	2500	mg/L	**92**	**92**	80-120	**0.0**	0-60	LFM	
D090429A														
	11629	BROMATE	ND	0.0087		0.010	mg/L	**87**	**NA**	75-125	**NA**	0-60	LFM	
	11909	BROMATE	ND	0.0107		0.010	mg/L	**107**	**NA**	75-125	**NA**	0-60	LFM	
I090424A														
	11797	CHLORIDE	0.6	20.1		20.00	mg/L	**98**	**NA**	80-120	**NA**	0-60	LFM	
	11864	NITRATE-N	ND	1.08		1.00	mg/L	**108**	**NA**	80-120	**NA**	0-60	LFM	
	11934	NITRATE-N	ND	1.05		1.00	mg/L	**105**	**NA**	80-120	**NA**	0-60	LFM	
	11942	NITRATE-N	ND	18.8		20.00	mg/L	**94**	**NA**	80-120	**NA**	0-60	LFM	
	11942	CHLORIDE	7.4	26.3		20.00	mg/L	**95**	**NA**	80-120	**NA**	0-60	LFM	
OPHOS-090424														
	11910	ORTHO-PHOSPHATE	0.16	1.17	1.19	1.00	mg/L	**101**	**103**	70-130	**2.0**	0-50	LFM	

%RPD = Relative Percent Difference

NA = Indicates %RPD could not be calculated

Matrix Spike (MS)/Matrix Spike Duplicate (MSD) analyses are used to determine the accuracy (MS) and precision (MSD) of a analytical method in a given sample matrix. Therefore, the usefulness of this report is limited to samples of similar matrices analyzed in the same analytical batch.

Only Duplicate sample with detections are listed in this report

Chain of Custody / Analysis Request (Please complete all applicable shaded sections)

7616

Report to:	Walla Walla Basin Watershed Cour		Bill to:	Walla Walla Basin Watershed Counc			
Ship Address:	810 S Main Street		Address:	810 South Main Street			
City:	Milton-Freewa St: OR Zip: 97862		City:	Milton-Freewa St: OR Zip: 97862			
Attn:	Troy Baker		Phone:	FAX:			
Phone:	541.938-2170 FAX:		P.O.#:	Attn:			
Email:	Troy.Baker@WWBWC.org		☐ Visa ☐ M/C ☐ A/E	Expires /			
Project	Locher Road and Hall-Wentland Recharge Sites		Card#:				

For Lab Use Only
Ref #

Check Regulatory Program
- ☐ Safe Drinking Water Act
- ☐ Clean Water Act
- ☐ RCRA / CERCLA
- ☐ Other

EDGE ANALYTICAL LABORATORIES
1620 S. Walnut St.
Burlington, WA 98233
1.800.755.9295

805 W. Orchard Dr. Suite 4
Bellingham, WA 98225

Instructions
1. Use one line per sample Location.
2. Be specific in analysis requests.
3. *(NEW)* **List each metal individually** *(NEW)*
4. Check off analyses to be performed for each sample Loaction.
5. Enter number of containers.

Turn Around Time Required
- ☐ Standard
- ☐ Half-time (50% surcharge)
- ☐ Quickest (100% surcharge) Phone Call Req.
- ☐ Emergency (Phone Call Req.)

Analyses Requested

CO007616

	Field ID	Location	Grab/ Comp.	Sample Matrix*	Date	Time	Bromate	Hardness	NO3, COD	TDS, Cl, O-Phos,pH,Turb,Ec					Number of Containers	Special Instructions Conditions on Receipt
1	MC1	Mud Creek 1			4/23	8:25	☒	☒	☒	☒	☐	☐	☐	☐	4	
2	MC2	Mud Creek 2			4/23	8:40	☒	☒	☒	☒	☐	☐	☐	☐	4	
3	SW1	Source Water 1			4/23	8:50	☒	☒	☒	☒	☐	☐	☐	☐	4	
4	L2	Locher Road 2			4/23	8:55	☒	☒	☒	☒	☐	☐	☐	☐	4	
5	L1	Locher Road 1			4/23	9:26	☒	☒	☒	☒	☐	☐	☐	☐	4	
6	HW3	Hall Wentland 3			4/23	9:55	☒	☒	☒	☒	☐	☐	☐	☐	4	
7	HW1	Hall Wentland 1			4/23	10:05	☒	☒	☒	☒	☐	☐	☐	☐	4	Bromate lid of A in cooler
8	HW2	Hall Wentland 2			4/23	10:25	☒	☒	☒	☒	☐	☐	☐	☐	4	
9	HWSW1	Hall Wentland Source water			4/23	10:30	☒	☒	☒	☒	☐	☐	☐	☐	4	
10							☐									
Sampled by:		Phone:		FAX:											Total Containers	

09-05772

Sample Receipt Request (Must include FAX or Email) ☐

* **W** - water **DW** - drinking water **SW** - surface water **GW** - Ground water **WW** - waste water **S** - soil **OL** - oil Other_____

UPS

Relinquished by	Date	Time	Received by	Date	Time
Troy Baker	4/23/09	11:45	[illegible]	4/24/09	0835

	Yes	No	N/A
Custody seals intact	☐	☐	☒
Sample temp 2 C satisfactory	☐	☐	☐
Samples received intact	☒	☐	
Chain of custody & labels agree	☒	☐	

09-05772

FORM: COC 01-06-2009