Appendix A
2015 ROWD

VESTRA

5300 Aviation Drive | Redding, CA 96002
Phone 530.223.2585 | Fax 530.223.1145
info@vestra.com | www.vestra.com

GIS, Environmental, & Engineering Services

April 29, 2015

71318

Jeremy Pagan, P.E.
California Regional Water Quality Control Board
Central Valley Region
364 Knollcrest Drive, Suite 205
Redding, CA 96002

RE: Response to Letter dated 10 February 2015 Requesting Revised ROWD
Grizzly Ranch Development
Plumas County, California

Dear Mr. Pagan:

The Grizzly Ranch Community Services District and Grizzly Ranch Golf Club LLC have prepared this document in response to the request by the Regional Water Quality Control Board dated 10 February 2015 for a revised Report of Waste Discharge for facilities associated with the Grizzly Ranch Development.

This package includes:

- Form 200
- Report of Waste Discharge

The application fee will be provided when the facility is classified by the RWQCB

By way of this document, the Grizzly Ranch Community Services District and Grizzly Ranch Golf Club also request that the current setback between golf course water features of 150 feet specified in Waste Discharge Requirements Order R5-2011-0081 be reduced to the state standard of 100 feet. The proposed reduced setback is in compliance with the standards specified in Department of Water Resources Bulletin 74-90 and provides adequate separation between domestic supply wells and the golf course irrigation system sprinkler heads. Approval of the proposed reduction in required setback will allow the Grizzly Ranch Community Services District to continue to meet its current and projected future potable water demand.

Please call me at 530-223-2585 if you have questions or need additional information or clarification.

Sincerely,

VESTRA Resources, Inc.

Wendy Johnston
Project Manager

CC: Mr. Robert Perreault/Grizzly Ranch Community Services District
Mr. Timothy Pennington/Grizzly Ranch Golf Club LLC
Department of Public Health, Environmental Management Branch/Sacramento
State Water Resources Control Board, Division of Drinking Water/Redding
Plumas County Division of Environmental Health/Quincy
Department of Fish and Wildlife, Region 2/Rancho Cordova
Mr. Richard Rhoads, PERC Water Corp./Costa Mesa

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

State of California
Regional Water Quality Control Board

APPLICATION/REPORT OF WASTE DISCHARGE
GENERAL INFORMATION FORM FOR
WASTE DISCHARGE REQUIREMENTS OR NPDES PERMIT

I. FACILITY INFORMATION

A. Facility:

Name: Grizzly Ranch Golf Club LLC			
Address: 250 Clubhouse Drive			
City: Portola	County: Plumas	State: California	Zip Code: 96122
Contact Person: Timothy Pennington		Telephone Number: (530) 832-4200	

B. Facility Owner:

Name: Grizzly Ranch Community Services District			Owner Type (Check One) 1. ☐ Individual 2. ☐ Corporation
Address: 555 Main Street			3. ☑ Governmental Agency 4. ☐ Partnership
City: Quincy	State: California	Zip Code: 95971	5. ☐ Other:
Contact Person: Robert Perreault		Telephone Number: (530) 283-6268	Federal Tax ID:

C. Facility Operator (The agency or business, not the person):

Name: Grizzly Ranch Community Services District			Operator Type (Check One) 1. ☐ Individual 2. ☐ Corporation
Address: 555 Main Street			3. ☑ Governmental Agency 4. ☐ Partnership
City: Quincy	State: California	Zip Code: 95971	5. ☐ Other:
Contact Person: Robert Perreault		Telephone Number: (530) 283-6268	

D. Owner of the Land:

Name: Grizzly Ranch Golf Club LLC			Owner Type (Check One) 1. ☐ Individual 2. ☑ Corporation
Address: 250 Clubhouse Drive			3. ☐ Governmental Agency 4. ☐ Partnership
City: Portola	State: California	Zip Code: 96122	5. ☐ Other:
Contact Person: Timothy Pennington		Telephone Number: (530) 832-4200	

E. Address Where Legal Notice May Be Served:

Address: Grizzly Ranch Community Services District		
City: 555 Main Street, Quincy	State: CA	Zip Code: 95971
Contact Person: Robert Perreault		Telephone Number: (530) 283-6268

F. Billing Address:

Address: 555 Main Street		
City: Quincy	State: CA	Zip Code: 95971
Contact Person: Robert Perreault		Telephone Number: (530) 832-6268

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

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APPLICATION/REPORT OF WASTE DISCHARGE
GENERAL INFORMATION FORM FOR
WASTE DISCHARGE REQUIREMENTS OR NPDES PERMIT

II. TYPE OF DISCHARGE

Check Type of Discharge(s) Described in this Application (A or B):

☑ **A. WASTE DISCHARGE TO LAND** ☐ **B. WASTE DISCHARGE TO SURFACE WATER**

Check all that apply:

- ☑ Domestic/Municipal Wastewater Treatment and Disposal
- ☐ Cooling Water
- ☐ Mining
- ☐ Waste Pile
- ☑ Wastewater Reclamation
- ☐ Other, please describe: _____
- ☐ Animal Waste Solids
- ☐ Land Treatment Unit
- ☐ Dredge Material Disposal
- ☐ Surface Impoundment
- ☐ Industrial Process Wastewater
- ☐ Animal or Aquacultural Wastewater
- ☐ Biosolids/Residual
- ☐ Hazardous Waste (see instructions)
- ☐ Landfill (see instructions)
- ☐ Storm Water

III. LOCATION OF THE FACILITY

Describe the physical location of the facility.

1. Assessor's Parcel Number(s)	2. Latitude	3. Longitude
Facility: 028-030-009	**Facility:** 39.846	**Facility:** -120.421
Discharge Point: 028-010-049	**Discharge Point:** 39.845	**Discharge Point:** -120.421

IV. REASON FOR FILING

- ☐ New Discharge or Facility
- ☐ Changes in Ownership/Operator (see instructions)
- ☐ Change in Design or Operation
- ☐ Waste Discharge Requirements Update or NPDES Permit Reissuance
- ☑ Change in Quantity/Type of Discharge
- ☑ Other: At request of RWQCB

V. CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

Name of Lead Agency: Regional Water Quality Control Board, Region 5 - Redding

Has a public agency determined that the proposed project is exempt from CEQA? ☐ **Yes** ☑ **No**

If Yes, state the basis for the exemption and the name of the agency supplying the exemption on the line below.

Basis for Exemption/Agency: _____

Has a "Notice of Determination" been filed under CEQA? ☑ **Yes** ☐ **No**

If Yes, enclose a copy of the CEQA document, Environmental Impact Report, or Negative Declaration. If no, identify the expected type of CEQA document and expected date of completion.

Expected CEQA Documents:

☑ **EIR** ☐ **Negative Declaration**

Expected CEQA Completion Date: See attached

On 28 June 2000, Plumas County certified the Environmental Impact Report for the Wastewater Treatment Facilities Improvement and Reclamation Project in accordance with the California Environmental Quality Act (CEQA) (Public Resource Code §21100, et seq.). The County determined that use of recycled water for this project would not have a significant impact on the environment (State Clearinghouse #97072003 and #89051521). The Regional Board has considered the Environmental Impact Report and concurs that the water-recycling project will not result in significant impacts to water quality.

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

State of California
Regional Water Quality Control Board

APPLICATION/REPORT OF WASTE DISCHARGE
GENERAL INFORMATION FORM FOR
WASTE DISCHARGE REQUIREMENTS OR NPDES PERMIT

VI. OTHER REQUIRED INFORMATION

Please provide a COMPLETE characterization of your discharge. A complete characterization includes, but is not limited to, design and actual flows, a list of constituents and the discharge concentration of each constituent, a list of other appropriate waste discharge characteristics, a description and schematic drawing of all treatment processes, a description of any Best Management Practices (BMPs) used, and a description of disposal methods.

Also include a site map showing the location of the facility and, if you are submitting this application for an NPDES permit, identify the surface water to which you propose to discharge. Please try to limit your maps to a scale of 1:24,000 (7.5' USGS Quadrangle) or a street map, if more appropriate.

VII. OTHER

Attach additional sheets to explain any responses which need clarification. List attachments with titles and dates below:

Report of Waste Discharge, Grizzly Creek Ranch, Plumas County - April 2015

You will be notified by a representative of the RWQCB within 30 days of receipt of your application. The notice will state if your application is complete or if there is additional information you must submit to complete your Application/Report of Waste Discharge, pursuant to Division 7, Section 13260 of the California Water Code.

VIII. CERTIFICATION

"I certify under penalty of law that this document, including all attachments and supplemental information, were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Print Name: Robert Perreault Title: General Manager

Signature: Robert A Perreault Date: APRIL 29, 2015

Print Name: Timothy Pennington Title: Managing Member

Signature: Timothy M Pennington Date: 4-27-15

FOR OFFICE USE ONLY

Date Form 200 Received:	Letter to Discharger:	Fee Amount Received:	Check #:

REPORT OF WASTE DISCHARGE
GRIZZLY RANCH DEVELOPMENT
WATER RECYCLING AND DISCHARGE PERMIT
PLUMAS COUNTY, CALIFORNIA

Prepared for

Grizzly Ranch Community Services District
Grizzly Ranch Golf Club LLC

Prepared by

VESTRA Resources Inc.
5300 Aviation Drive
Redding, California 96002

71318

APRIL 2015

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FIGURES

APPENDIX

1.0 BACKGROUND

The Grizzly Ranch Development is located in Plumas County, on Grizzly Road, approximately two miles north of Highway 70. The intersection of Grizzly Road and Highway 70 is approximately two miles east of the town of Portola. The Grizzly Ranch Development consists of 380 single-family homes (at full build-out), an 18-hole golf course, a golf clubhouse, and limited commercial facilities (stores, shops, and offices). Currently, the development supports approximately 65 homes, golf course, clubhouse, and commercial facilities. Most homes serve as vacation homes and rentals and are occupied sporadically, mostly during the summer season. The Wastewater Treatment/Water Reclamation Facility (WRF) associated with the development cannot operate efficiently until the equivalent of 30 full-time homes (approximately 6,000 gallons per day) is reached. Until such time, the Grizzly Ranch Community Services District (GRCSD) hauls wastewater from the facility to a permitted receiving facility. This is not anticipated to occur for some time.

The GRCSD was formed in November 2003 to oversee the operation, maintenance, and monitoring of the wastewater collection, treatment, disposal, recycled water production system, and domestic water supply for the Grizzly Ranch Development. The GRCSD provides sewer and potable water supply services to domestic and commercial users within the GRCSD's jurisdiction. The domestic water treatment facility is supplied by Wells 9M, 3P2, and 1P. GRCSD treats the water with an adsorbent media prior to distribution. The media must be backwashed periodically to minimize water treatment system pressure loss. Backwash water is discharged to the irrigation pond. The GRCSD is a public entity in accordance with Section 53090 et seq. of the California Government Code.

The Grizzly Ranch golf course is owned by the Grizzly Ranch Golf Club (GRGC) and is responsible for the application of irrigation water to the golf course, including future recycled water. Irrigation water for the golf course is currently supplied by wells onsite owned by the GRGC and surface water from Big Grizzly Creek. Once operating, recycled water from the WRF will provide about 10 percent of the total supply of irrigation water for the golf course. Backwash water from the potable water supply treatment is also recycled and used for irrigation.

1.1 Regulatory History

GRCSD submitted a Report of Waste Discharge (ROWD) in June 2003 to cover wastewater collection, treatment, treated wastewater discharged to Big Grizzly Creek, and the recycling of treated wastewater at the GRGC.

The original site permit (WDR Order R5-2005-0170/NPDES CA0085162) addressed the application of recycled wastewater and filter backwash to the golf course, as well as the NPDES permit for the planned discharge of effluent during the winter season to Big Grizzly Creek. The original site permit also required the discharger to monitor backwash water for arsenic.

The California Regional Water Quality Control Board (RWQCB) adopted Water Recycling Requirements (WDR Order R5-2007-0001) in early 2007. The RWQCB then rescinded WDR Order R5-2005-0170/NPDES CA0085162 and adopted WDR Order R5-2011-0081/NPDES

CA0085162 on December 1, 2011. The permit addressed the planned discharge to Big Grizzly Creek and contained a brief discussion of the discharge to the irrigation pond.

The GRCSD proposed amendments and provided clarification to the two permits in July 2013; however, a Notice of Violation was received from the RWQCB on January 7, 2014. The NOV stated that GRCSD was in violation of the arsenic effluent concentration limit of 10 ug/L specified within Waste Discharge Requirements (WDR) Order R5-2011-0081 for the discharge of arsenic in filter backwash water to the golf course irrigation pond. The GRCSD responded to the concerns outlined in the NOV, including clarifying the current ownership of the Grizzly Ranch water infrastructure, on January 27, 2014.

The RWQCB responded with a request for additional information in a letter dated March 7, 2014. To address this request, the GRCSD submitted a work plan for the characterization of the filter backwash water on March 27, 2014. The work plan was approved by the RWQCB via email in April 2014. The results of the filter backwash characterization and additional information were included in a letter to the RWQCB dated September 8, 2014.

Upon review of the backwash characterization letter, the RWQCB issued *Review of Filter Backwash Characterization Study, Waste Discharge Requirements Order R5-2011-0081 (NPDES No. CA0085162), Grizzly Ranch Community Services District – Grizzly Ranch Wastewater Reclamation Facility, and Water Recycling Requirements Order R5-2007-0001, Grizzly Creek Golf Course LLC, Grizzly Ranch, Plumas County,* dated February 10, 2015. This letter concurred with the facts submitted by the GRCSD in the September 8, 2014, letter and requested GRCSD to submit a revised ROWD by March 20, 2015, to address sources of waste discharge to land within the GRCSD and GRGC service area. This ROWD responds to that request.

1.2 Facility Description

The water infrastructure at the Grizzly Ranch Development consists of a water treatment plant, wastewater treatment and reclamation facility, golf course irrigation and water feature system, domestic and irrigation supply wells, and surface water pumping plant.

1.2.1 Ownership and Responsibility

Responsibility for these components is split between the GRCSD and GRGC. A schematic of the various components showing areas of responsibility is included as Figure 1.

The following components of the domestic water supply system and wastewater infrastructure are the responsibility of the GRCSD:

- Domestic Wells 1P, 3P2, and 9M
- Domestic water treatment plant
- Water storage tank
- Wastewater Treatment/Water Reclamation Facility (WRF)
- Piping between Wells 3P2, 9M, 1P and the treatment system, water treatment plant, water storage tank, WRF, and drinking water distribution system
- Joint responsibility with GRGC for Big Grizzly Creek influent/effluent pipe and booster pump

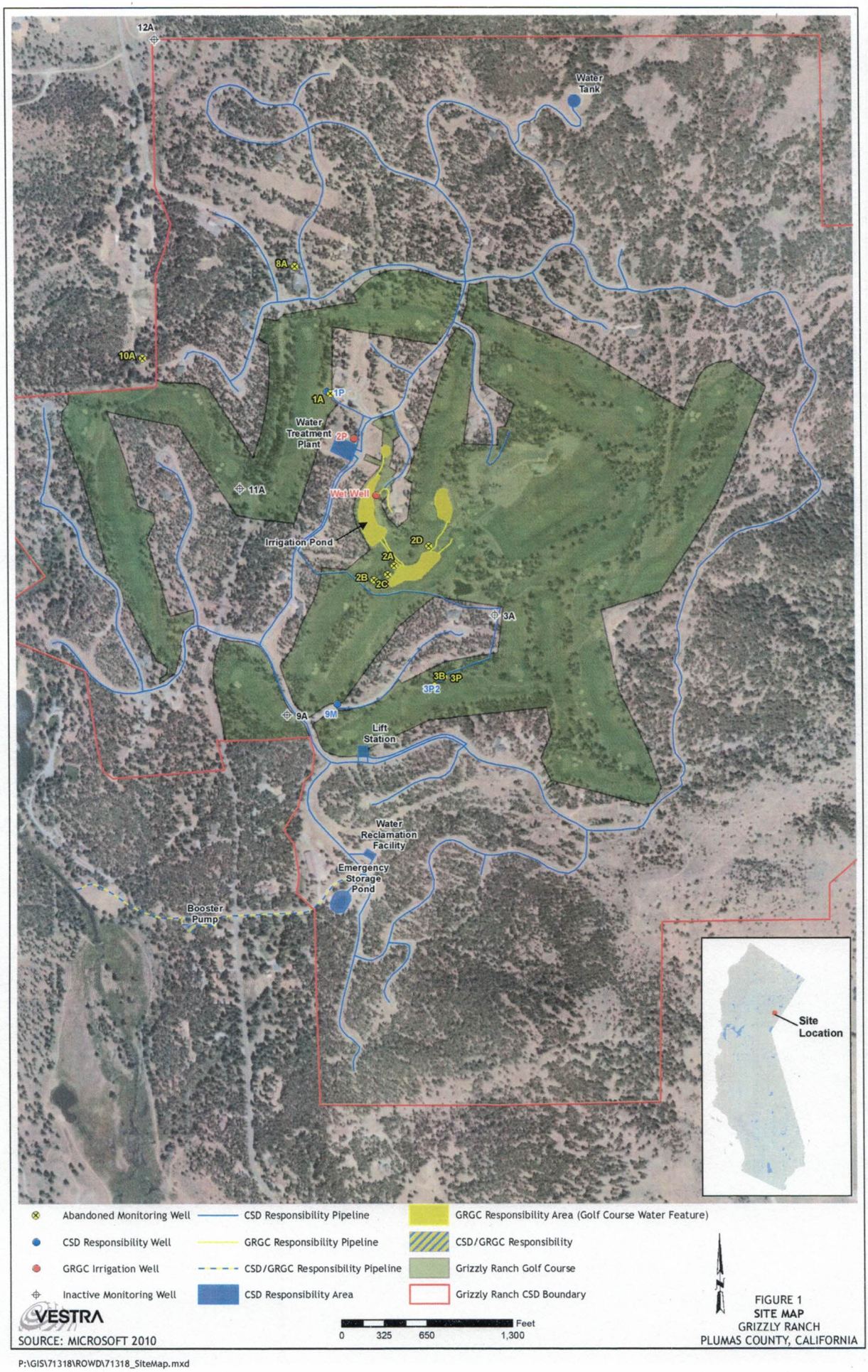

FIGURE 1
SITE MAP
GRIZZLY RANCH
PLUMAS COUNTY, CALIFORNIA

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The following components of the water and recycled wastewater infrastructure are the responsibility of the GRGC:

- Wet well
- Irrigation reservoir
- Irrigation skid and pumps
- Well 2P
- Inactive Monitoring Wells 3A, 9A, 11A, and 12A installed as part of a long-term groundwater monitoring program performed from 2006 until 2010
- Abandoned Monitoring Wells 1A, 2A, 2B, 2C, 2D, 3B, 8A, and 10A installed as part of the long-term groundwater usage sustainability study. These wells were not actually utilized during the monitoring program and were abandoned according to DWR and Plumas County Requirements in 1998. Well abandonment was supervised by personnel from the Plumas County Department of Environmental Health.
- Golf course irrigation piping
- Golf course water features and connecting drainages (all are lined)
- Joint responsibility with GRCSD for Big Grizzly Creek influent/effluent pipe and booster pump

1.2.2 Water Treatment Plant (WTP)

Domestic water supply for the Grizzly Ranch Development is provided by the GRCSD from three wells onsite: Well 9M and 3P2 provide the primary source water and Well 1P provides backup emergency supply. However, when the initial domestic water supply permit (01-02-05P007) was issued in 2005, Wells 1P and 3P2 were used to supply water to the subdivision. Because the combined water from these two wells was characterized by elevated levels of arsenic, iron, and manganese, the permitted treatment system included hypochlorination, manganese dioxide media for iron and manganese removal, and granular ferrous oxide media for arsenic removal. The initial permitted plant capacity was 250 gallons per minute (gpm).

Subsequent analytical testing indicated that Well 1P was the primary source of the arsenic entering the treatment system. As a result, Well 1P was taken out of service in July 2008, and Well 9M, which was installed in 2005, was approved for drinking water supply in 2014. Currently, Wells 3P2 and 9M are used for domestic water supply, and the arsenic concentration in both of these wells is below the Maximum Contaminant Level (MCL) of 10 ug/L. Well 1P has been disconnected from the domestic water supply system but remains permitted for emergency supply.

The current treatment system includes automated pre-chlorination and a two-stage media filtration system. The first stage of treatment consists of three parallel, 3-foot-diameter oxidation filters containing Pentair-Penox manganese dioxide media. This stage is designed to remove iron and manganese from the raw groundwater. In addition, the Penox media has shown in both pilot and full-scale testing at other sites to have the ability, in the presence of free iron, to remove approximately 50 percent of both Arsenic 3+ and Arsenic 5+.

The second stage of the treatment process consists of three parallel, 4-foot-diameter adsorption medial filters. These units contain Severn Trent Services-Bayoxide 33 granular ferrous oxide

media for the final removal of arsenic to ensure permit compliance with a total arsenic concentration of less than 10 parts per billion (ppb). The second-stage treatment process can be bypassed.

Following treatment, the water is pumped to a 675,000-gallon storage tank. A schematic of the GRCSD water treatment train is included as Figure 2.

1.2.3 Wastewater Treatment and Reclamation Facility (WRF)

Once operational, the WRF effluent can discharge to three locations: the irrigation reservoir wet well, a separate emergency storage pond, and Big Grizzly Creek during peak winter flows.

Individual WRF components, in order from upstream to downstream, consist of the following:

- Headworks equipped with flow meter and rotary drum for grit and coarse solids removal
- A sequencing batch reactor for waste strength reduction and nitrogen removal
- A surge basin to maintain stable system flow
- Multimedia filters incorporating anthracite silica sand for additional reduction of biological oxygen demand, total suspended solids, and turbidity
- Contact disinfection system using sodium hypochlorite solution
- Dechlorination system using sodium bisulfite injection

After treatment, the WRF effluent will be piped to a distribution box and routed to the irrigation wet well, a lined (double 40-mil HDPE) emergency storage pond, or to Big Grizzly Creek. The WRF will only discharge to Big Grizzly Creek during the months of December through March.

The WRF layout is shown on Figure 3, while the WRF effluent distribution infrastructure is shown on Figure 4.

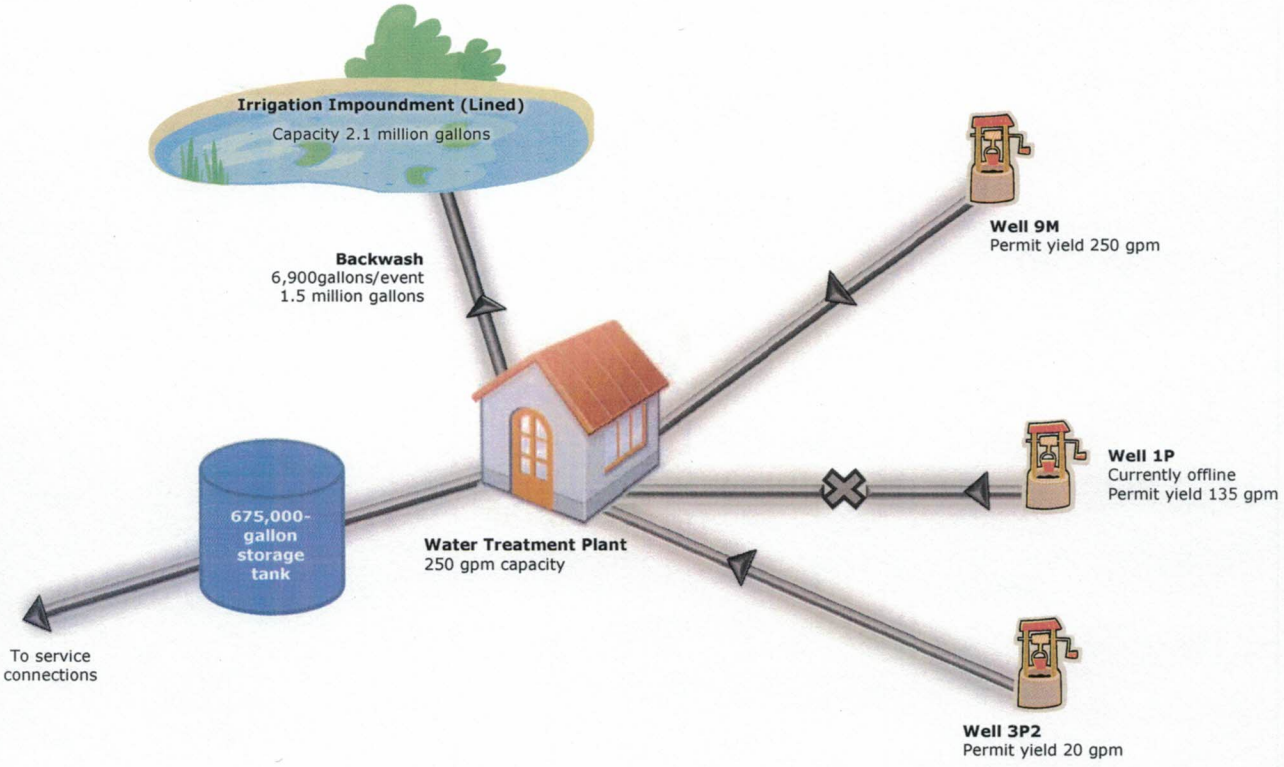
1.2.4 Golf Course Irrigation and Water Features

This portion of the facility is owned and operated by the GRGC. The recycled water supply will comprise only a small percentage of the total irrigation demand of the golf course. The major supply of irrigation water is raw surface water from Big Grizzly Creek and supplemented from onsite wells owned by the golf course (not GRCSD). Irrigation water intake from the creek is located almost one mile downhill from the golf course, and water must be pumped to the golf course irrigation pump station.

Currently, the irrigation reservoir receives water from the following sources:

- Well 2P: 175 gpm May through October, approximately 45 million gallons/season
- Big Grizzly Creek: 315 gpm May through October, approximately 81 million gallons/season
- Filter Train Backwash: 7,800 gallons/month, approximately 94,000 gallons/year

During the irrigation season, water from Big Grizzly Creek is pumped for irrigation on the golf course. In the future, this will be mixed with recycled water to supply the golf course irrigation



Key

Physical Disconnection

Flow Direction

Figure 2
Grizzly Ranch
CSD Water Treatment Flow Summary

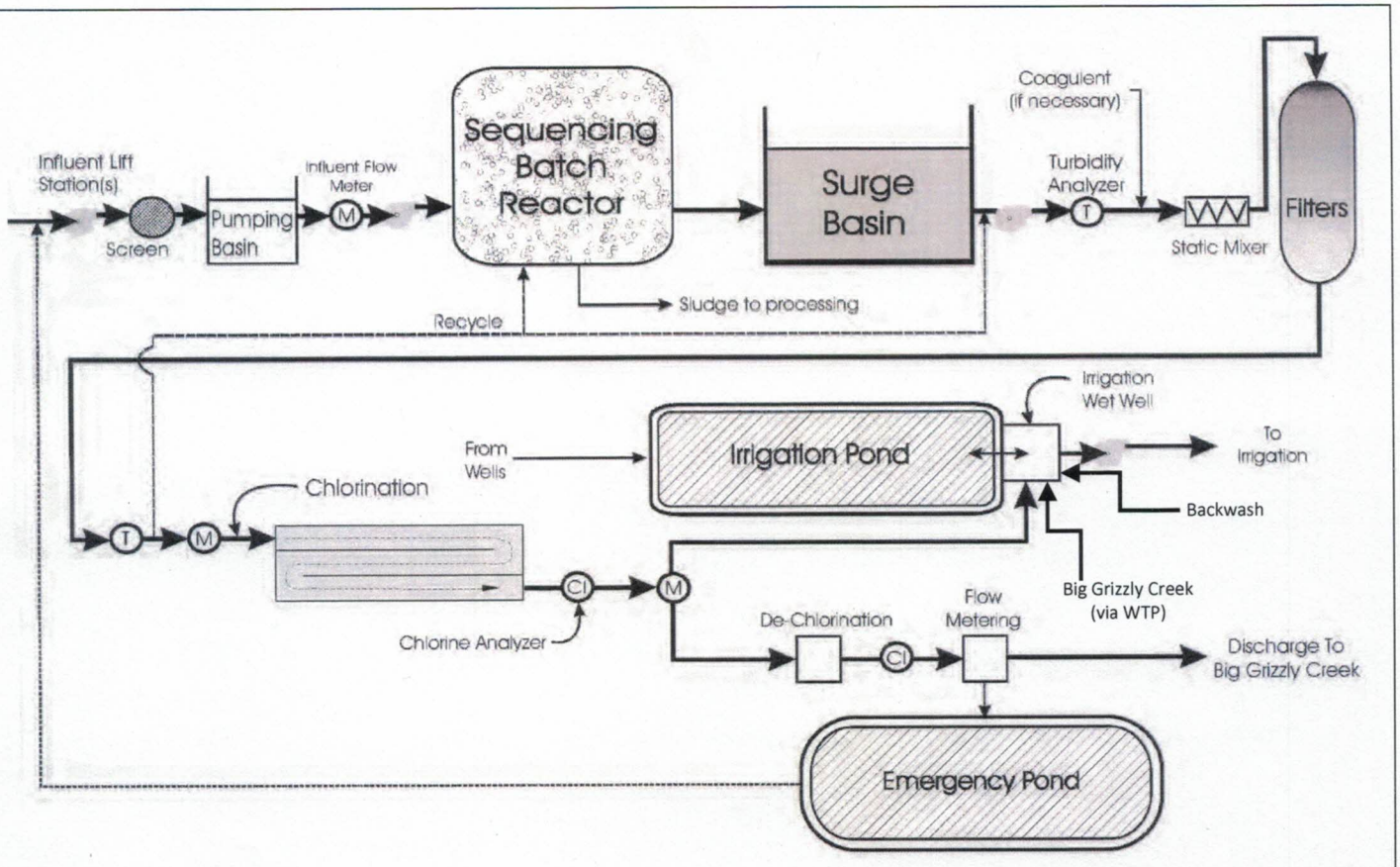


FIGURE 3
WASTEWATER TREATMENT AND RECOVERY FACILITY
GRIZZLY RANCH
PLUMAS COUNTY, CALIFORNIA

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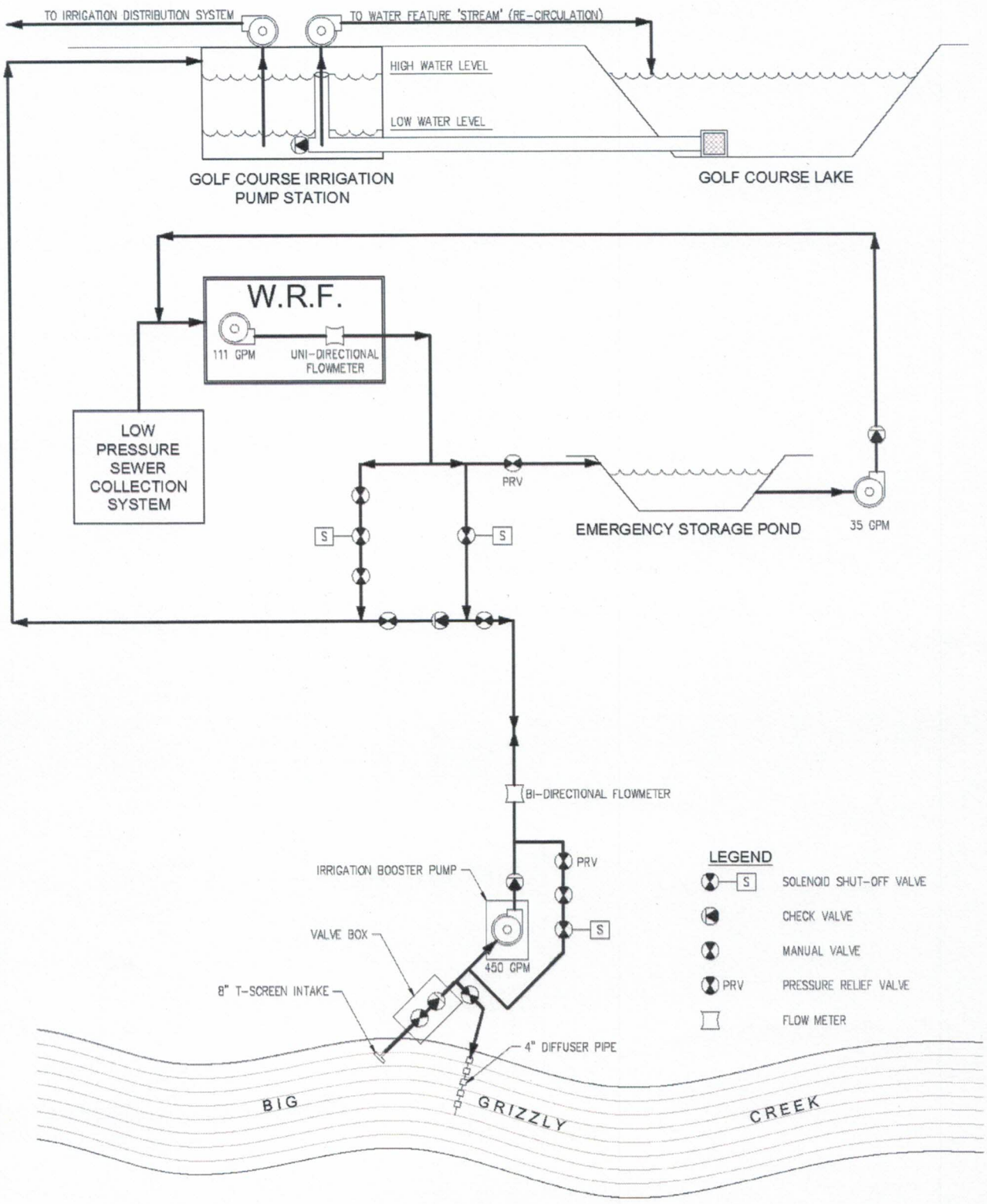

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SOURCE: PACE 2010

FIGURE 4
WRF EFFLUENT INFRASTRUCTURE
GRIZZLY RANCH
PLUMAS COUNTY, CALIFORNIA

P:\Projects\2013\71318 Grizzly Ranch CSD Support\ROWD\71318_Figure 4_WRF Effluent Infrastructure.doc

pump station. During non-irrigation seasons, effluent from the WRF will be discharged into Big Grizzly Creek. WRF discharge into the wet well is anticipated to be a maximum of 111 gpm (PACE, 2010). The WRF effluent will be pumped to the wet well only from May through October.

Currently, water from Big Grizzly Creek (and eventually recycled water from the WRF) is pumped into a 6-inch distribution line to the irrigation pump station at the golf course. Recycled water enters through the top of the wet well of the pump station. The wet well doubles as a recycled water storage tank and has the capacity to store 10,000 gallons of recycled water.

There are two pump systems in the wet well. These are owned and operated by the GRGC. One pump system is for water feature circulation and the other is for irrigation of the golf course. The recirculation pump draws water from the lake and pumps it up to the top of the water features (it then flows downhill back into the lake). The recirculation pump was installed in a standpipe connected to the lake suction line to separate it from the recycled water in the wet well. Under normal operation, the recirculation pump does not use recycled water unless the recycled water level rises and overtops the standpipe (the water in the recirculating water features is potable and does not normally contain recycled wastewater). If the recycled water storage level exceeds the height of the standpipe, it can flow over the standpipe, bypassing the flap gate on the lake feed, and flow into the lake suction line. This situation would only occur in emergency situations during upset or pump failure.

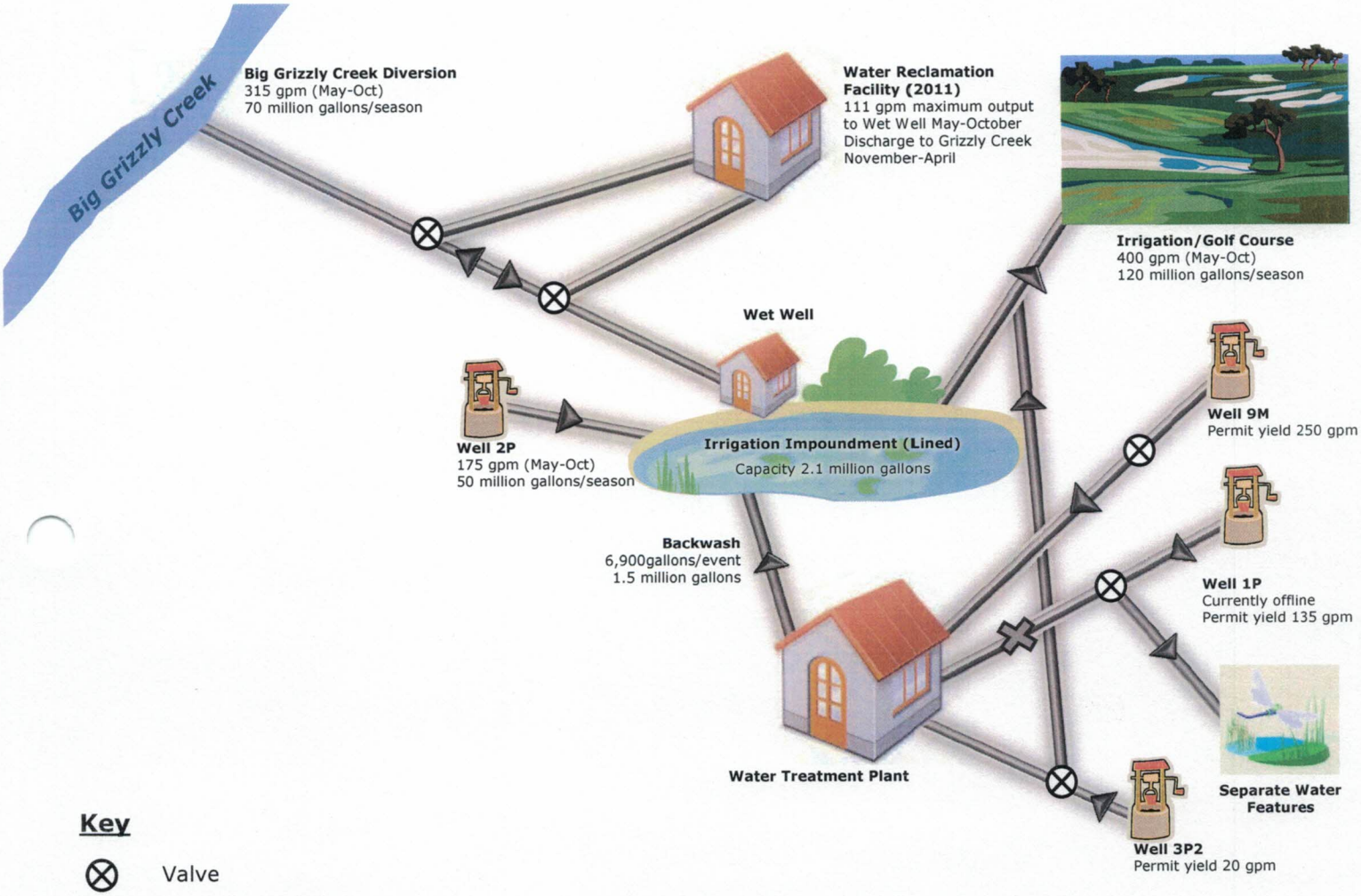
It should be noted that while the irrigation reservoir is lined (40-mil HDPE), it does not directly receive wastewater. The irrigation pump draws water directly from the wet well so that stored recycled water is used for irrigation before any water from the reservoir is withdrawn. Once the recycled water is drawn out by the irrigation pump and the water level drops in the wet well, a mechanical flap gate opens to allow irrigation reservoir water to be withdrawn. In this way, the irrigation system always uses recycled water before the reservoir fresh water. Water from the WRF is treated to Title 22 standards prior to pumping to the wet well. All water applied to land is pumped from the wet well, drawing from the irrigation reservoir only when the water level in the wet well has dropped sufficiently to trigger the opening of the gate valve.

The irrigation reservoir can also receive water from Wells 3P2 and 1P owned by GRCSD, which are plumbed to allow discharge into the golf course irrigation system during emergency situations. These wells do not generally supply the irrigation reservoir.

Well 1P also supplies water to a single water feature that is lined but is currently disconnected from the potable water system due to proximity to the golf course, which in the future will receive recycled effluent. The only GRCSD well connected to the pond is Well 3P2 via two valves in the main to divert water to the lower pond, not the main irrigation reservoir. These two valves are located to the east of the connection of Well 9M to Well 3P2.

Well 2P, and the filter train backwash, discharge directly into the irrigation reservoir, while the water from Big Grizzly Creek is discharged directly into the wet well pump structure. Effluent from the WRF, when operational, will be piped to the irrigation wet well.

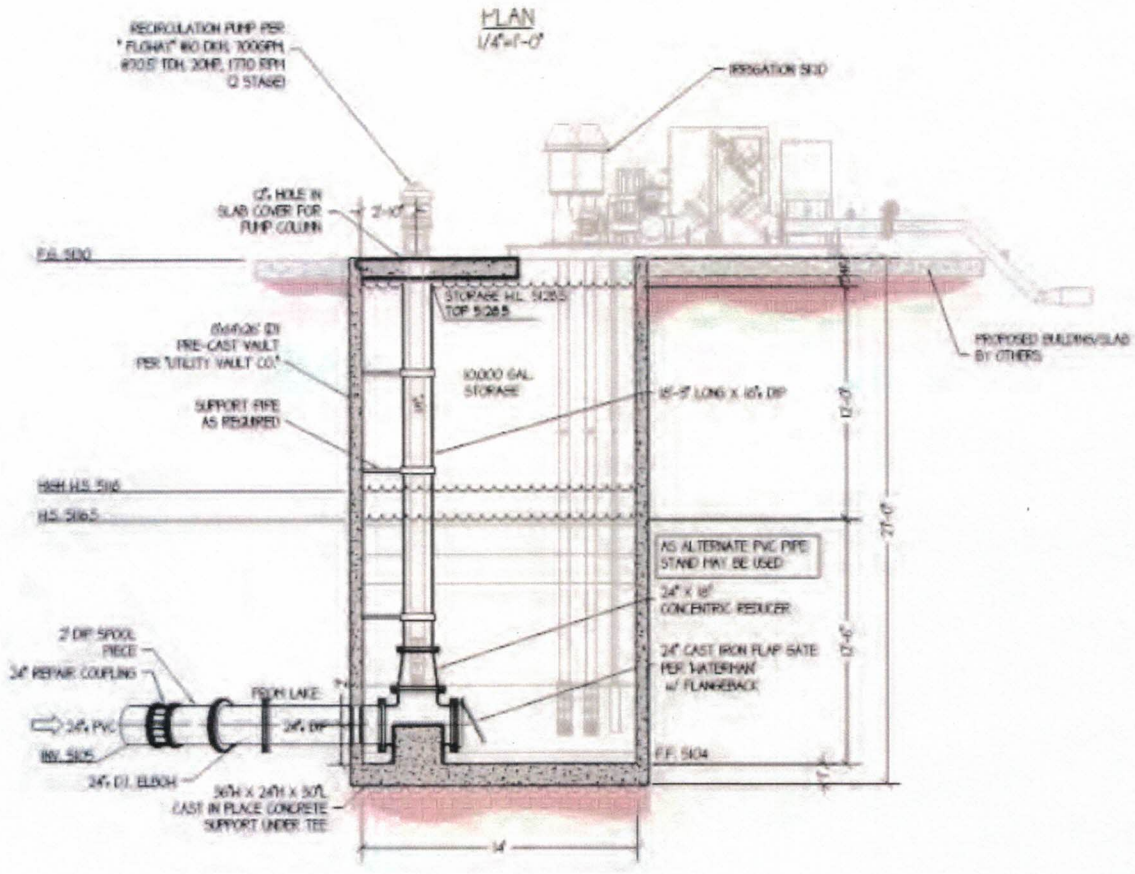
An irrigation process flow schematic is included on Figure 5. A schematic of the wet well is included as Figure 6.



Key

- Valve
- Physical Disconnection
- Flow Direction

Figure 5
Grizzly Ranch Golf Club
Irrigation Water Summary



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SOURCE: PACE 2010

FIGURE 6
WET WELL SCHEMATIC
GRIZZLY RANCH
PLUMAS COUNTY, CALIFORNIA

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1.3 Vicinity Map

A scaled site vicinity map based on the USGS Portola 7-½ minute quadrangle map is included as Figure 7. The location and acreage of the application area, groundwater flow direction, prevailing wind direction, all domestic and irrigation wells within 500 feet of the site, and all residences within ½ mile of the site are shown on Figure 7.

1.4 Site Map

A site map showing the locations and dimensions of major buildings, roadways, parking areas, wastewater treatment structures, drainage control structures, onsite wells, ponds, and application areas was included as Figure 1.

1.5 Treatment and Holding Ponds

The irrigation pond does not directly receive recycled wastewater; however, WTP filter backwash is currently conveyed to the irrigation pond. The irrigation pond and golf course water features are lined.

1.6 Soils

Surficial soils consist primarily of sandy loams with variable amounts of cobbles. These soils grade downward into silty clays that overlie fractured andesitic bedrock (USDA, 2015). This in turn overlies sparsely fractured granitic rocks of the Diamond Mountain Batholith (Plumas County, 2012). Based upon limited data available from onsite well construction logs, the depth to weathered andesite varies from 6 to 10 feet, with the first well-developed fracture zones 30 to 60 feet below ground surface (Geoconsultants, 2005). Mapped surficial soil units consist of the following:

- Delleker cobbly sandy loam, 2 to 30 percent slopes (537 acres)
- Delleker-Fugawee families Rubble land complex, 10 to 70 percent slopes (64 acres)

Mapped surficial soils are shown on Figure 8.

1.7 Groundwater

Depth to first water is variable across the site. Groundwater flow beneath the site is primarily within fracture zones in the andesitic bedrock. Within the irrigated portions of the golf course, depth to water varies from 40 to 60 feet below ground surface based on logs of water levels in onsite Wells 9M, 3P2, 1P, 11A, and 12A. These groundwater depths may not be representative of the actual depth to first water at the site as these wells are screened across both shallow and deep water-bearing zones (Geoconsultants, 2005).

Construction details are not available for all onsite wells. Site-specific groundwater gradient and flow data are not available; however, based on topography, the locations of surface water bodies, and data from the Portola Landfill 4 miles west of the site, groundwater flow is believed to be

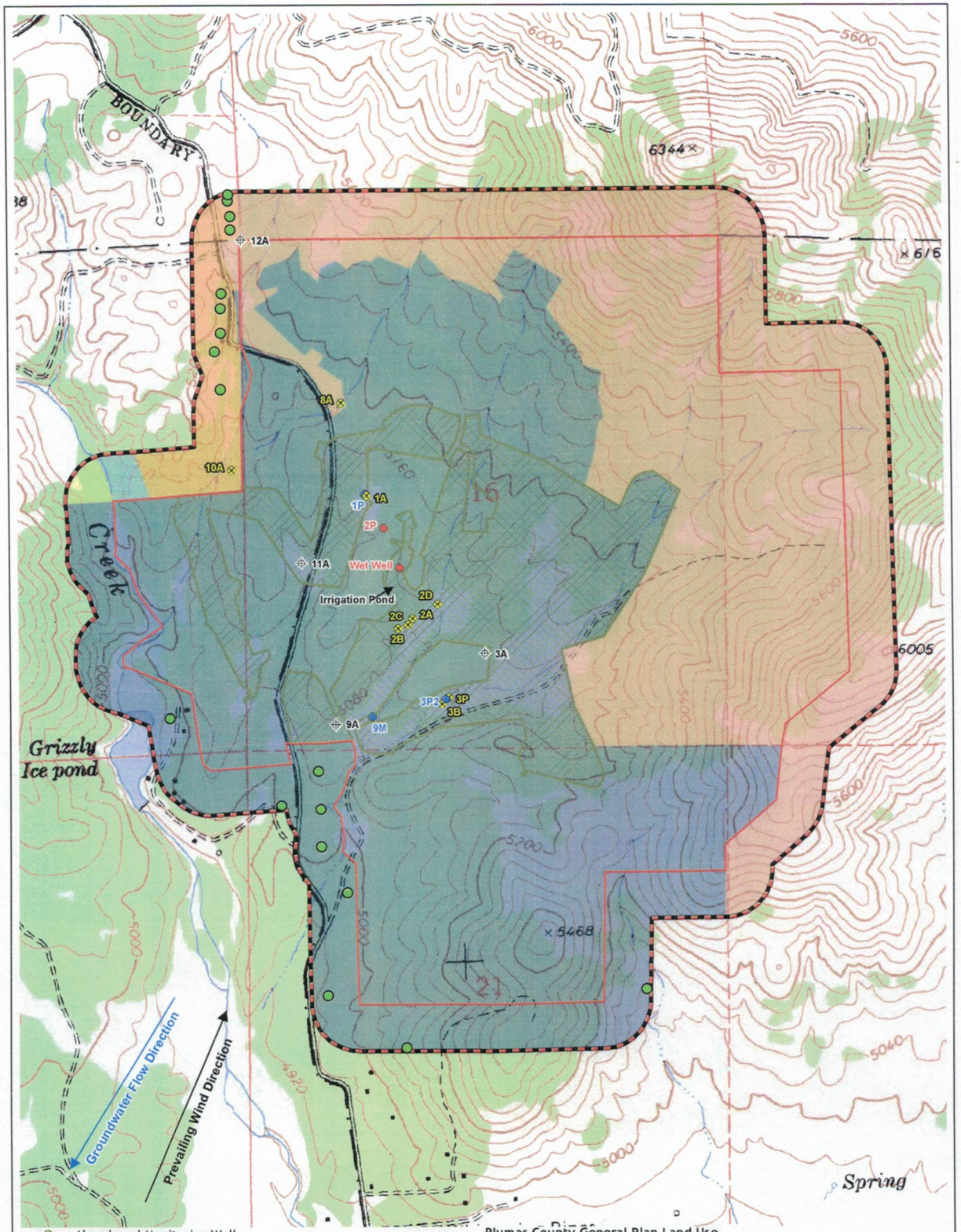

FIGURE 7
VICINITY MAP
GRIZZLY RANCH
PLUMAS COUNTY, CALIFORNIA

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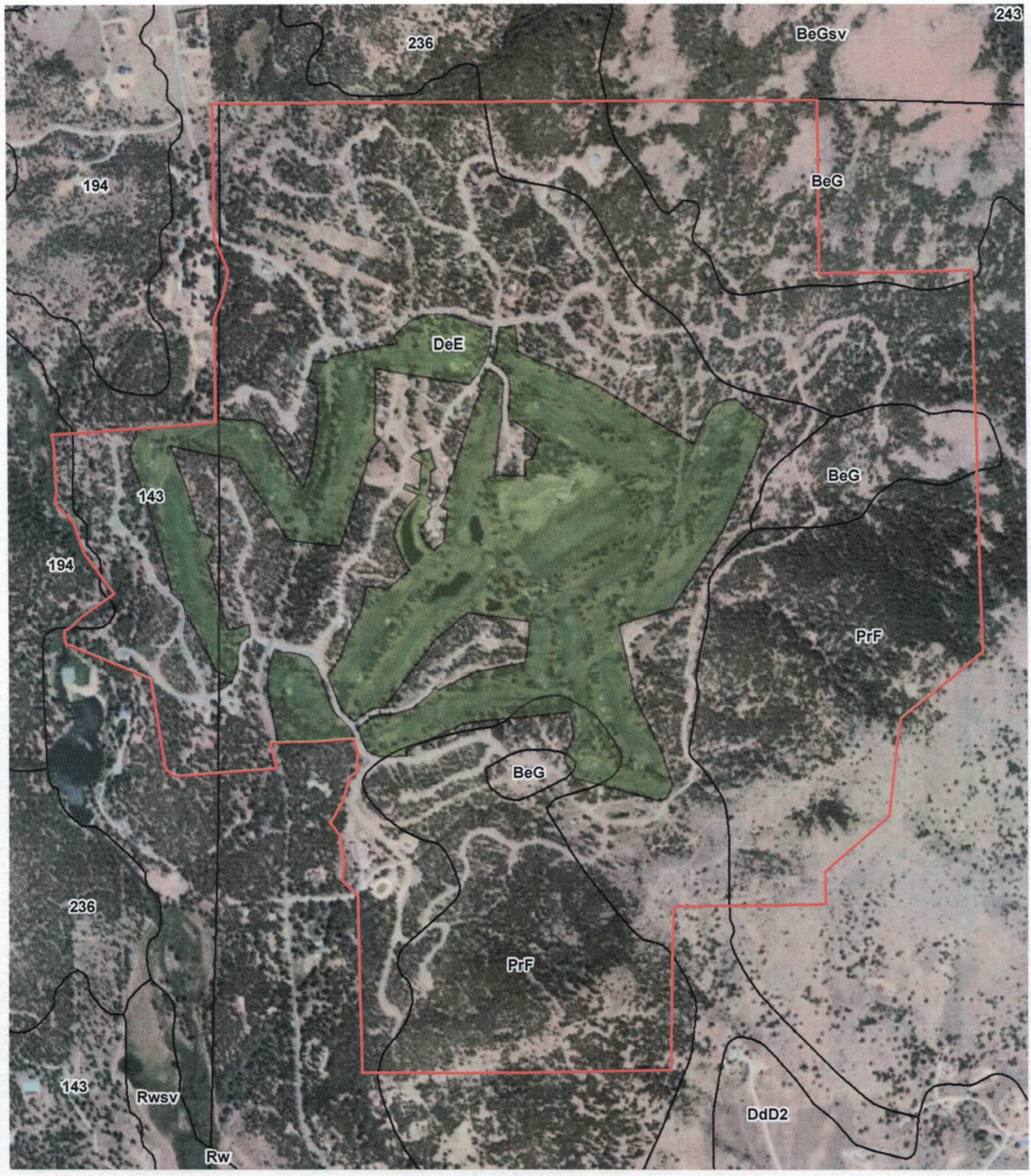

VESTRA

SOURCE: MICROSOFT 2010

FIGURE 8
SOILS
GRIZZLY RANCH
PLUMAS COUNTY, CALIFORNIA

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generally to the southwest towards Big Grizzly Creek (North State Environmental, 2011; Fletcher Driscoll et al., 2010).

1.8 Surface Water

The site lies within the Sloat Hydrologic SubArea (No. 518.33) of the Middle Fork Feather River Hydrologic Area. The site does not lie within a 100-year flood plain area (FEMA, 2005). Natural surface waters in the vicinity of the site are Big Grizzly Creek (shown on Figure 7) located ¼ mile to the west of the golf course and the Middle Fork of the Feather River located 1-½ miles to the south. Several unnamed ephemeral drainages pass adjacent to the golf course greens. These ultimately drain into Big Grizzly Creek and are shown on Figure 1. Big Grizzly Creek, in turn, is a tributary of the Middle Fork of the Feather River.

The remainder of the surface water bodies within the golf course are man-made water features. These include the irrigation pond and flowing decorative features. As previously discussed, all the golf course water features are lined. Golf course water features are shown on Figure 1. Surface water flow within the golf course is collected by lined ditches along the axis of each green. These direct the collected surface water into the two ornamental ponds east of the irrigation pond. Water from these two ponds is recycled back into the irrigation system through a closed loop and supplemented with water from the wet well as needed depending on evaporation and irrigation water demand.

1.9 Climate

Mean annual precipitation as recorded at the National Oceanic and Atmospheric Administration (NOAA) co-op station in Portola from 1915 to 2015 is 20.48 inches. The station also records a mean annual snowfall of 60.7 inches over the same period (WRCC, 2015). Average annual evapotranspiration in Portola is 35.3 inches (Woodling, 1998; DWR, 1979). Average annual precipitation recorded at the privately operated Grizzly Ranch weather station from 1945 to 2005 is 24.80 inches. The difference between the quantity of precipitation observed at the NOAA co-op station and at the site itself is likely due to Grizzly Ranch being located six miles east of Portola. Also, the average elevation at Grizzly Ranch is approximately 500 feet higher than Portola.

2.0 IRRIGATION WATER BALANCE

Application of irrigation water to the golf course is performed at agronomic rates. Calculated irrigation demand for the months of May through October is included in Table 1. Irrigation demand was calculated using monthly evapotranspiration and precipitation data for Portola. The golf course covers approximately 222 acres. Of this, approximately 60 percent (133 acres) is irrigated during the dry season. This value is used in the calculations summarized in Table 1. During times of high irrigation demand, the GRGC generally limits irrigation to fairways and greens.

Table 1
IRRIGATION WATER BALANCE

Month	ET[1] (inches)	Precipitation (inches)	Effective ET[2] (inches)	Irrigation Demand (gpm)
May	4.88	0.30	4.58	371
June	5.91	0	5.91	494
July	7.32	0.04	7.28	589
August	5.86	1.05	4.81	389
September	4.25	1.03	3.22	269
October	2.69	0.53	2.16	175
Average	5.15	0.49	4.66	382

Notes:
[1] ET = Evapotranspiration
[2] Effective ET = ET-Precipitation

The calculated monthly irrigation demand ranges between 175 gpm in October and 589 gpm in July, averaging 382 gpm. For comparison, the capacity of the golf course irrigation system is 400 gpm.

3.0 WASTE CHARACTERISTICS

3.1 Arsenic Backwash

The GRCSD submitted a work plan for the characterization of the WTP filter backwash water to the RWQCB on March 27, 2014, which was approved via email. Volatile organic compounds, semi-volatile organic compounds, pesticides and herbicides, dioxins, furans, polychlorinated biphenyls, and other compounds of anthropogenic origin were excluded from the list of analytes due to the low likelihood of these substances being present in the source wells or treatment train.

Both filter trains were sampled separately. The results of the Fe-Mn filter backwash characterization are included in Table 2 and the results of the arsenic filter backwash characterization sampling are included in Table 3. In both cases, backwash samples were collected directly from the common backwash port.

Beneficial use of the filter backwash water is limited to irrigation. Accordingly, the average concentrations of the backwash total metal concentrations were compared to the criteria for agricultural use published by the United Nations Food and Agriculture Office (Ayers and Westcot, 1994). The results of this comparison are included in Table 4.

Available monitoring data for Wells 1P, 3P2, 2P, and 9M as well as Big Grizzly Creek and the irrigation pond are summarized in Table 5. The complete database and analytical reports were included in the backwash characterization letter dated September 8, 2014. An updated version of the backwash water sampling database is included as Appendix A.

As previously discussed, all water discharged to the golf course is pumped from the wet well, which draws water from the sources listed earlier. The filter-train backwash water is discharged to the 2.1 million-gallon irrigation reservoir prior to application. A representative sample of the irrigation pond water was collected in July 2013. The results of this sampling event are included in Table 5. Because of dilution, the water meets the criteria for agricultural use. It should also be noted that the irrigation reservoir is lined, as are all of the water features on the golf course. At no point does the land application infrastructure (irrigation system) directly receive wastewater.

Filter backwash water is pumped into the lined irrigation pond. Historical backwash water-volume data are included in Table 6. The anticipated quantity of filter backwash water generated upon full build-out of the development is included in Table 7. Current flows and anticipated flows at full build-out for each component of the irrigation system are included in Table 8.

Table 2
BACKWASH WATER CHARACTERIZATION
Fe-Mn FILTER BACKWASH WATER

Constituent	Test Method	Units	Quantitation Limit	Results			Average	Std. Dev.
				4/25/14	6/16/14	6/23/14		
Inorganics (Total)								
Aluminum	EPA 6020A	ug/L	5	13.7	15.6	69.4	32.9	31.6
Antimony	EPA 6020A	ug/L	0.1	0.224	0.154	0.618	0.332	0.250
Arsenic	EPA 6020A	ug/L	0.2	2.73	1.50	4.74	2.99	1.64
Barium	EPA 6020A	ug/L	10	71.5	62.8	79.8	71.4	8.5
Beryllium	EPA 6020A	ug/L	0.2	<0.2	<0.2	<0.2	<0.2	N/A
Cadmium	EPA 6020A	ug/L	0.01	0.326	0.106	0.384	0.272	0.147
Chromium (Total)	EPA 200.8	ug/L	0.1	0.59	0.43	2.44	1.15	1.12
Chromium (VI)	EPA 218.6	ug/L	0.02	<0.02	<0.02	<0.02	<0.02	N/A
Copper	EPA 6020A	ug/L	0.5	187	9.45	27.3	74.6	97.8
Cyanide	EPA 335.4	ug/L	5	<5	<5	<5	<5	N/A
Fluoride	EPA 300	mg/L	0.1	0.2	<0.10	0.11	0.16	0.06
Iron	EPA 6010B	ug/L	10	8,340	4,510	20,800	11,217	8,517
Lead	EPA 6020A	ug/L	0.1	19.9	4.20	29.5	17.9	12.8
Mercury	EPA 245.7	ug/L	0.01	<0.01	<0.01	0.013	0.013	N/A
Manganese	EPA 6010B	ug/L	20	592	872	1,450	971	438
Nickel	EPA 6020A	ug/L	0.2	1.01	0.86	6.21	2.69	3.05
Selenium	EPA 6020A	ug/L	0.1	<0.1	<0.1	<0.1	<0.1	N/A
Silver	EPA 6020A	ug/L	0.1	<0.1	<0.1	0.012	0.012	N/A
Thallium	EPA 6020A	ug/L	0.05	<0.05	<0.05	0.157	0.054	N/A
Zinc	EPA 6020A	ug/L	1	256	63.8	275	198.3	116.8
Other Constituents								
pH	SM 4500	units	0.01	7.19	7.15	7.21	7.18	0.03
Specific Conductance (EC)	SM 2510B	uS	1	490	480	430	467	32
Total Dissolved Solids	SM 2540C	mg/L	10	280	250	250	260	17

Table 3
BACKWASH WATER CHARACTERIZATION
ARSENIC FILTER BACKWASH WATER

Constituent	Test Method	Units	Quantitation Limit	Results			Average	Std. Dev.
				4/25/14	6/16/14	6/23/14		
Inorganics (Total)								
Aluminum	EPA 6020A	ug/L	5	13.9	9.6	19.0	14.2	3.8
Antimony	EPA 6020A	ug/L	0.1	0.151	0.087	0.097	0.112	0.028
Arsenic	EPA 6020A	ug/L	0.2	14.6	12.1	24.0	16.9	5.1
Barium	EPA 6020A	ug/L	10	50.5	56.6	63.8	57.0	5.4
Beryllium	EPA 6020A	ug/L	0.2	<0.2	<0.2	<0.2	<0.2	N/A
Cadmium	EPA 6020A	ug/L	0.01	0.077	0.124	0.051	0.084	0.030
Chromium (Total)	EPA 200.8	ug/L	0.1	1.26	1.07	0.96	1.10	0.12
Chromium (VI)	EPA 218.6	ug/L	0.02	<0.02	<0.02	<0.02	<0.02	N/A
Copper	EPA 6020A	ug/L	0.5	4.08	4.02	2.59	3.56	0.69
Cyanide	EPA 335.4	ug/L	5	<5	<5	<5	<5	N/A
Fluoride	EPA 300	ug/L	0.1	0.10	<0.10	0.10	0.1	0
Iron	EPA 6010B	ug/L	10	5,350	5,290	17,300	9,313	5647
Lead	EPA 6020A	ug/L	0.1	0.298	0.260	0.715	0.424	0.206
Mercury	EPA 245.7	ug/L	0.01	<0.01	<0.01	<0.01	<0.001	N/A
Manganese	EPA 6010B	ug/L	20	225	944	1,150	773	397
Nickel	EPA 6020A	ug/L	0.2	1.43	1.68	0.930	1.35	0.31
Selenium	EPA 6020A	ug/L	0.1	<0.1	<0.1	<0.1	<0.1	N/A
Silver	EPA 6020A	ug/L	0.1	<0.1	<0.1	<0.1	<0.1	N/A
Thallium	EPA 6020A	ug/L	0.05	<0.05	<0.05	<0.05	<0.05	N/A
Zinc	EPA 6020A	ug/L	1	50	34.3	42.0	42.1	6.4
Other Constituents								
pH	SM 4500	units	0.1	7.35	7.28	7.30	7.31	0.03
Specific Conductance (EC)	SM 2510B	uS	1	480	470	440	463	17
Total Dissolved Solids	SM 2540C	mg/L	10	270	270	250	263	9

Table 4
BACKWASH WATER CHARACTERIZATION
AVERAGE CONCENTRATIONS [1]

Constituent	Units	Fe-Mn Filter	As Filter	Criteria [2]
Inorganics (Total)				
Aluminum	ug/L	32.9	14.2	5,000
Antimony	ug/L	0.332	0.112	--
Arsenic	ug/L	2.99	16.9	100
Barium	ug/L	71.4	57.0	--
Beryllium	ug/L	<0.2	<0.2	100
Cadmium	ug/L	0.272	0.084	10
Chromium (Total)	ug/L	1.15	1.10	100
Chromium (VI)	ug/L	<0.02	<0.02	--
Copper	ug/L	74.6	3.56	200
Cyanide	ug/L	<5	<5	--
Fluoride	ug/L	0.16	0.1	--
Iron	ug/L	11,217	9,313	5,000
Lead	ug/L	17.9	0.424	5,000
Mercury	ug/L	0.013	<0.001	--
Manganese	ug/L	971	773	200
Nickel	ug/L	2.69	1.35	200
Selenium	ug/L	<0.1	<0.1	20
Silver	ug/L	0.012	<0.1	--
Thallium	ug/L	0.054	<0.05	--
Zinc	ug/L	198.3	42.1	2,000

Notes:
[1] Average concentrations from three sampling events in April and June, 2014
[2] Maximum recommended concentrations of trace elements in irrigation water from Ayers and Westcot, 1994.

Table 5
AVAILABLE ANALYTICAL DATA SUMMARY

	Average Arsenic [1]		Average Iron [1]		Average Manganese [1]	
Location	ug/L	No. of Analyses	ug/L	No. of Analyses	ug/L	No. of Analyses
Well 1P	41	27	1,729	27	320	27
Well 3P2	<2	27	4,197	27	534	27
Well 2P	19	1	--	--	--	--
Well 9M	<2.0	5	6,897	6	774	5
Irrigation Pond	4.7	9	130	1	77.3	1
Grizzly Creek	<2.0	1	--	--	--	--

Notes:
-- = Not analyzed
[1] Average concentrations given where available

Table 6 FILTER BACKWASH VOLUME SUMMARY			
Date		Backwash Volume Generated (gallons)	Notes
2008	March	6,900	--
	May	13,800	--
	June	27,600	Backwash frequency increased due to As issue
	July	41,400	Backwash frequency increased due to As issue
	August	6,900	--
	September	20,700	--
	October	6,900	--
	November	6,900	--
	December	6,900	--
2009	February	6,900	--
	April	6,900	--
	May	6,900	--
	June	6,900	--
	July	13,800	--
	August	6,900	--
	September	13,800	--
	October	6,900	--
2010	March	6,900	--
	May	6,900	--
	June	13,800	--
	July	20,700	Backwash frequency increased due to As issue
	August	20,700	--
	September	6,900	--
	October	6,900	--
2011	May	6,900	--
	June	6,900	--
	July	13,800	--
	August	6,900	--
	September	6,900	--
	October	6,900	--
2012	February	6,900	--
	May	6,900	--
	July	6,900	--
	September	6,900	--
2013	March	13,800	--
	April	6,900	--
	May	6,900	--
	July	13,800	--
	August	34,500	Backwash frequency increased due to As issue
2013	September	13,800	--
	October	13,800	--
	November	6,900	--
2014	January	20,700	--
	February	6,900	--
	March	13,800	--
	April	13,800	--
	May	55,200	Backwash frequency increased due to As issue
	June	20,700	--

Table 6 FILTER BACKWASH VOLUME SUMMARY		
Date	**Backwash Volume Generated (gallons)**	**Notes**
Summary		
Total Backwash Volume between Jan 2008 and June 2014	**607,200 gallons**	
No. of months between Jan 2008 and June 2014	**78**	
Average Monthly Backwash	**7,800 gallons**	

Table 7 FULL BUILD-OUT ESTIMATED BACKWASH VOLUME			
Monthly Average Vol.	**Current Connections**	**Backwash Volume per Connection per Month**	**Final Number of Connections**
7,800 gallons	60	130	403
Average Monthly Backwash at Final Build-Out		**52,000 gallons (1.2 gpm)**	

Table 8 GRIZZLY CREEK RANCH IRRIGATION WATER FLOW VOLUMES		
	Current	**At Full Build-Out**
Source	**Flow (mgd)**	
Grizzly Creek	0.454	0.454
WRF	0.160[1]	0.160[1]
WTP	0.360[1]	0.360[1]
Filter Backwash	0.0004[2]	0.002[5]
Well 2P	0.252[3]	0.252[3]
Well 9M	0.360[3]	0.360[3]
Well 3P2	0.029[3]	0.029[3]
Well 1P	0[4]	0[4]
Total Flow	**1.615**	**1.617**

Notes:
1 Maximum design flow
2 6,900 gallons per backwash event; based on flow data in Table 5
3 Maximum permit yield
4 Well currently offline; maximum permit yield 135 gpm
5 Based on calculated flow at full build-out from Table 6

Backwash frequency increases during the summer months due to elevated demand on the WTP. Conversely, demand during winter months is generally lower, reducing the frequency of backwash events. The value in Table 7 represents a monthly average.

When the system is operating, input flows from Big Grizzly Creek and the listed wells are adjusted depending on available storage capacity and current demand. Numbers given assume maximum operating capacity for all system components and do not include wells operated solely by the GRGC. The inflow from Big Grizzly Creek is limited by pump and pipe sizes and is lower than the water right.

3.2 Source Water

The sources of water for the water treatment plant, the wet well, and the irrigation pond were discussed in Section 2.0. Water volumes were given in Table 4. Water sources and distribution were presented on Figure 2. Available data for the source water wells are summarized in Table 9.

Table 9
AVAILABLE SOURCE WATER ANALYTICAL DATA SUMMARY

Constituent	Units	Well 1P	Well 3P2	Well 9M
Metals (Total)				
Aluminum	ug/L	---	50	<10
Antimony	ug/L	---	<1	<1
Arsenic	ug/L	**41**	**<2**	**<2**
Barium	ug/L	---	63.2	63.7
Beryllium	ug/L	---	<0.2	<1
Cadmium	ug/L	---	<0.2	<0.2
Chromium (Total)	ug/L	---	5	1
Chromium (VI)	ug/L	<0.5	<0.5	<0.5
Copper	ug/L	---	23	<10
Iron	ug/L	**1,729**	**4,197**	**6,897**
Lead	ug/L	---	6.5	<0.5
Mercury	ug/L	---	0.06	0.076
Manganese	ug/L	**320**	**534**	**774**
Nickel	ug/L	---	3	<1
Selenium	ug/L	---	<1	<1
Silver	ug/L	---	<1	<1
Thallium	ug/L	---	<0.2	<0.2
Vanadium	ug/L	---	<2	---
Zinc	ug/L	---	400	20
Other Constituents				
Specific Conductance	uS	---	358	467
Turbidity	NTU	---	52.7	37.6
Chloride	mg/L	---	1	3
Fluoride	mg/L	---	<0.1	<0.1
Sulfate	mg/L	---	56.7	96
Nitrate	mg/L	<0.4	<0.4	<0.4
Nitrite	ug/L	<100	<100	---
Perchlorate	mg/L	---	<2	<2
MBAS[1]	mg/L	---	<0.1	<0.1
Fecal Coliform	MPN/100ml	**<1.0**	**<1.0**	**<1.0**
E. Coli	MPN/100ml	**<1.0**	**<1.0**	**<1.0**
VOCs[2]	ug/L	<0.5	<0.5	<0.5

Notes:
--- = Not sampled or analyzed
Bold results represent average values
1 Methylene blue active substances
2 VOCs have not been detected in onsite wells

4.0 ANTI-DEGRADATION ANALYSIS

The designated beneficial use for the irrigation pond is irrigation. Backwash water is discharged to the irrigation pond. Table 4 compares the average backwash water constituent concentrations to the criteria for agricultural use published by the United Nations Food and Agriculture Office (Ayers and Westcot, 1994). Based on the comparison, only the average concentrations of iron and manganese are greater than the maximum recommended concentrations for irrigation water. However, the backwash water is discharged to the 2.1 million-gallon irrigation reservoir prior to application.

The iron and manganese concentrations from an irrigation reservoir sample collected on July 2, 2013, are 130 ug/L and 77.3 ug/L, respectively. These concentrations are well below the recommended maximum of 5,000 ug/L. During the same period, the concentration of arsenic in the irrigation reservoir sample was 6 ug/L, which reflects the contribution to the irrigation pond from Well 2P. Well 2P supplies approximately one-third of the irrigation water, and the arsenic concentration in Well 2P is 19 ug/L. The irrigation water meets the criteria for agricultural use. These values are also less than the background groundwater concentrations as shown in Table 9. As stated previously, the irrigation reservoir is lined, as are all of the water features on the golf course. Water, when applied to the golf course for irrigation, is done so at agronomic rates.

5.0 MONITORING AND REPORTING

Monitoring and reporting are performed in accordance with the monitoring and reporting program included in NPDES Permit No. CA0085162/R5-2007-0001 issued by the RWQCB. The permit covers discharge of tertiary-treated wastewater to land and Big Grizzly Creek.

6.0 REFERENCES

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Appendix A

Arsenic Monitoring Database

[GR CSD]	[CA]	[Detection]	[QM]	n/a	n/a	n/a	n/a	n/a
				Total Arsenic (ug/L)	Diss. Arsenic (ug/L)	Total Iron (ug/L)	Total Mn (ug/L)	Notes
				n/a	n/a	n/a	n/a	n/a
Sales Office	d							
	6/2/2009	n/a	n/a	<2.0	n/a	n/a	n/a	
	12/8/2009	n/a	n/a	<2.0	n/a	<50	5.6	
	3/16/2010	n/a	n/a	<2.0	n/a	60	9.3	
	6/15/2010	n/a	n/a	<2.0	n/a	60	1.5	
	6/14/2011	n/a	n/a	<2.0	n/a	70	30.4	
	3/13/2012	n/a	n/a	<2.0	n/a	<50	43.4	
	6/12/2012	n/a	n/a	<2.0	n/a	<50	4.5	
	9/11/2012	n/a	n/a	<2.0	n/a	110	1280	
	12/18/2012	n/a	n/a	<2.0	n/a	150	1.2	
	6/11/2013	n/a	n/a	<2.0	n/a	70	17.2	
	9/10/2013	n/a	n/a	<2.0	n/a	180	95.2	
1P	u							
	1/8/2008	n/a	n/a	42	n/a	570	260	
	3/25/2008	n/a	n/a	28	n/a	2200	680	
	7/1/2008	n/a	n/a	37	n/a	420	322	
	9/2/2008	n/a	n/a	61	n/a	1510	272	
	12/9/2008	n/a	n/a	41	n/a	620	246	
	3/24/2009	n/a	n/a	45	n/a	1390	247	
	6/2/2009	n/a	n/a	37	n/a	n/a	n/a	
	7/7/2009	n/a	n/a	n/a	n/a	1340	210	
	9/15/2009	n/a	n/a	31	n/a	n/a	n/a	
	10/13/2009	n/a	n/a	n/a	n/a	4910	570	
	3/16/2010	n/a	n/a	40	n/a	1870	247	
	6/15/2010	n/a	n/a	38	n/a	1160	285	
	8/30/2010	n/a	n/a	16	n/a	n/a	n/a	
	3/15/2011	n/a	n/a	39	n/a	12800	880	
	6/14/2011	n/a	n/a	28	n/a	1850	217	
	9/13/2011	n/a	n/a	41	n/a	1320	272	
	12/6/2011	n/a	n/a	40	n/a	870	257	
	3/13/2012	n/a	n/a	47	n/a	1390	259	
	6/12/2012	n/a	n/a	37	n/a	890	258	
	9/11/2012	n/a	n/a	37	n/a	670	269	
	12/18/2012	n/a	n/a	41	n/a	1200	257	
	3/12/2013	n/a	n/a	62	n/a	990	400	
	6/11/2013	n/a	n/a	41	n/a	900	279	
	9/10/2013	n/a	n/a	40	n/a	700	272	
	12/17/2013	n/a	n/a	51	n/a	900	280	
	3/11/2014	n/a	n/a	39	n/a	1620	300	
	6/10/2014	n/a	n/a	59	n/a	1240	393	
	7/8/2014	n/a	n/a	75	n/a	600	170	
	11/11/2014	n/a	n/a	25	n/a	1030	209	
3P2	u							
	1/8/2008	n/a	n/a	<2.0	n/a	1550	620	
	3/25/2008	n/a	n/a	<2.0	n/a	3860	520	
	7/1/2008	n/a	n/a	<2.0	n/a	2150	532	
	9/2/2008	n/a	n/a	<2.0	n/a	4640	700	
	12/9/2008	n/a	n/a	<2.0	n/a	6280	590	
	3/24/2009	n/a	n/a	<2.0	n/a	4820	475	
	6/2/2009	n/a	n/a	<2.0	n/a	n/a	n/a	
	7/7/2009	n/a	n/a	n/a	n/a	9390	600	
	9/15/2009	n/a	n/a	<2.0	n/a	n/a	n/a	
	10/13/2009	n/a	n/a	n/a	n/a	1190	260	
	3/16/2010	n/a	n/a	<2.0	n/a	2410	437	

[GR CSD]	[CA]	[Detection]	[QM]	n/a	n/a	n/a	n/a	n/a
				Total Arsenic (ug/L)	Diss. Arsenic (ug/L)	Total Iron (ug/L)	Total Mn (ug/L)	Notes
				n/a	n/a	n/a	n/a	n/a
	6/15/2010	n/a	n/a	<2.0	n/a	6840	525	
	3/15/2011	n/a	n/a	3	n/a	9490	442	
	6/14/2011	n/a	n/a	<2.0	n/a	2200	640	
	7/26/2011	n/a	n/a	<2.0	n/a	960	600	
	9/13/2011	n/a	n/a	<2.0	n/a	1630	590	
	12/6/2011	n/a	n/a	<2.0	n/a	3590	530	
	3/13/2012	n/a	n/a	<2.0	n/a	2380	500	
	6/12/2012	n/a	n/a	<2.0	n/a	2940	600	
	9/11/2012	n/a	n/a	<2.0	n/a	1530	570	
	12/18/2012	n/a	n/a	<2.0	n/a	5120	590	
	3/12/2013	n/a	n/a	<2.0	n/a	650	580	
	6/11/2013	n/a	n/a	<2.0	n/a	1570	540	
	9/10/2013	n/a	n/a	<2.0	n/a	9850	590	
	12/10/2013	n/a	n/a	<2.0	n/a	2410	540	
	3/11/2014	n/a	n/a	<2.0	n/a	6500	390	
	6/10/2014	n/a	n/a	<2.0	n/a	6120	470	
	7/8/2014	n/a	n/a	<2.0	n/a	7860	580	
	11/11/2014	n/a	n/a	<2.0	n/a	2750	395	
2P	u							
	7/15/2013	n/a	n/a	19	n/a	n/a	n/a	
9M	u							
	7/2/2013	n/a	n/a	<2.0	n/a	4560	760	
	3/11/2014	n/a	n/a	<2.0	n/a	10900	690	
	6/10/2014	n/a	n/a	2	n/a	18100	730	
	7/8/2014	n/a	n/a	<2.0	n/a	5510	810	
	11/11/2014	n/a	n/a	<2.0	n/a	7100	880	
WTP Backwash	d							
	3/25/2008	n/a	n/a	89	n/a	n/a	n/a	
	5/13/2008	n/a	n/a	2.33	n/a	n/a	n/a	
	5/27/2008	n/a	n/a	0.4	n/a	n/a	n/a	
	6/3/2008	n/a	n/a	66	n/a	n/a	n/a	
	6/10/2008	n/a	n/a	57	n/a	n/a	n/a	
	6/17/2008	n/a	n/a	4	n/a	n/a	n/a	
	6/24/2008	n/a	n/a	33	n/a	n/a	n/a	
	7/1/2008	n/a	n/a	740	n/a	n/a	n/a	
	7/8/2008	n/a	n/a	1050	n/a	n/a	n/a	
	7/15/2008	n/a	n/a	125	n/a	n/a	n/a	
	7/22/2008	n/a	n/a	53	n/a	n/a	n/a	
	7/26/2008	n/a	n/a	37	n/a	n/a	n/a	
	7/31/2008	n/a	n/a	412	n/a	n/a	n/a	
	8/19/2008	n/a	n/a	35	n/a	n/a	n/a	
	9/2/2008	n/a	n/a	10	n/a	n/a	n/a	
	9/9/2008	n/a	n/a	16	n/a	n/a	n/a	
	9/23/2008	n/a	n/a	17	n/a	n/a	n/a	
	10/14/2008	n/a	n/a	15	n/a	n/a	n/a	
	11/4/2008	n/a	n/a	28	n/a	n/a	n/a	
	12/9/2008	n/a	n/a	90	n/a	n/a	n/a	
	2/3/2009	n/a	n/a	98	n/a	n/a	n/a	
	4/7/2009	n/a	n/a	302	n/a	n/a	n/a	
	5/12/2009	n/a	n/a	16	n/a	n/a	n/a	
	6/2/2009	n/a	n/a	100	n/a	n/a	n/a	
	7/7/2009	n/a	n/a	27	n/a	n/a	n/a	
	7/21/2009	n/a	n/a	9	n/a	n/a	n/a	
	8/4/2009	n/a	n/a	11	n/a	n/a	n/a	

[GR CSD]	[CA]	[Detection]	[QM]	n/a	n/a	n/a	n/a	n/a
				Total Arsenic (ug/L)	Diss. Arsenic (ug/L)	Total Iron (ug/L)	Total Mn (ug/L)	Notes
				n/a	n/a	n/a	n/a	n/a
9/15/2009	n/a		n/a	6	2	n/a	n/a	
9/25/2009	n/a		n/a	8	n/a	n/a	n/a	
10/13/2009	n/a		n/a	5	<2.0	n/a	n/a	
3/16/2010	n/a		n/a	164	n/a	n/a	n/a	
5/11/2010	n/a		n/a	19	n/a	n/a	n/a	
6/8/2010	n/a		n/a	12	n/a	n/a	n/a	
6/29/2010	n/a		n/a	20	n/a	n/a	n/a	
7/16/2010	n/a		n/a	19	n/a	n/a	n/a	
7/28/2010	n/a		n/a	6	n/a	n/a	n/a	
7/31/2010	n/a		n/a	6	n/a	n/a	n/a	
8/10/2010	n/a		n/a	6	n/a	n/a	n/a	
8/25/2010	n/a		n/a	25	n/a	n/a	n/a	
8/31/2010	n/a		n/a	6	n/a	n/a	n/a	
9/28/2010	n/a		n/a	39	n/a	n/a	n/a	
10/5/2010	n/a		n/a	9	n/a	n/a	n/a	
5/3/2011	n/a		n/a	22	n/a	n/a	n/a	
6/14/2011	n/a		n/a	11	n/a	n/a	n/a	
7/12/2011	n/a		n/a	8	n/a	n/a	n/a	
7/26/2011	n/a		n/a	9	n/a	n/a	n/a	
8/23/2011	n/a		n/a	14	n/a	n/a	n/a	
9/13/2011	n/a		n/a	8	n/a	n/a	n/a	
10/18/2011	n/a		n/a	26	n/a	n/a	n/a	
2/7/2012	n/a		n/a	17	n/a	n/a	n/a	
5/15/2012	n/a		n/a	19	n/a	n/a	n/a	
7/31/2012	n/a		n/a	8	n/a	n/a	n/a	
9/11/2012	n/a		n/a	11	n/a	n/a	n/a	
3/25/2013	n/a		n/a	19	n/a	n/a	n/a	
3/26/2013	n/a		n/a	17	n/a	n/a	n/a	
4/23/2013	n/a		n/a	19	n/a	n/a	n/a	
5/7/2013	n/a		n/a	27	n/a	n/a	n/a	
7/9/2013	n/a		n/a	77	n/a	n/a	n/a	
7/23/2013	n/a		n/a	39	n/a	n/a	n/a	
8/6/2013	n/a		n/a	35	n/a	n/a	n/a	
8/20/2013	n/a		n/a	2	n/a	n/a	n/a	
8/26/2013	n/a		n/a	<2	n/a	n/a	n/a	
8/27/2013	n/a		n/a	4	n/a	n/a	n/a	
8/28/2013	n/a		n/a	3	n/a	n/a	n/a	
9/4/2013	n/a		n/a	2	n/a	n/a	n/a	
9/17/2013	n/a		n/a	9	n/a	n/a	n/a	
10/3/2013	n/a		n/a	4	n/a	n/a	n/a	
10/28/2013	n/a		n/a	17	n/a	n/a	n/a	
11/19/2013	n/a		n/a	4	n/a	n/a	n/a	
1/7/2014	n/a		n/a	25	n/a	n/a	n/a	
1/16/2014	n/a		n/a	26	n/a	n/a	n/a	
1/16/2014	n/a		n/a	21	n/a	n/a	n/a	**Duplicate Sample**
1/29/2014	n/a		n/a	21	n/a	n/a	n/a	
2/14/2014	n/a		n/a	4	n/a	n/a	n/a	**0.105 Mgal**
3/5/2014	n/a		n/a	13	n/a	n/a	n/a	
3/25/2014	n/a		n/a	29	n/a	n/a	n/a	
4/14/2014	n/a		n/a	23	n/a	n/a	n/a	**0.126 Mgal**
4/30/2014	n/a		n/a	15	n/a	n/a	n/a	**0.251 Mgal**
5/5/2014	n/a		n/a	12	n/a	n/a	n/a	**0.128 Mgal**
5/9/2014	n/a		n/a	21	n/a	n/a	n/a	**0.21 Mgal**
5/13/2014	n/a		n/a	17	n/a	n/a	n/a	**0.050 Mgal**

[GR CSD]	[CA]	[Detection]	[QM]	n/a	n/a	n/a	n/a	n/a
				Total Arsenic (ug/L)	Diss. Arsenic (ug/L)	Total Iron (ug/L)	Total Mn (ug/L)	Notes
				n/a	n/a	n/a	n/a	n/a
	5/18/2014	n/a	n/a	<2	n/a	n/a	n/a	**0.195 Mgal**
	5/18/2014	n/a	n/a	3.2	n/a	n/a	n/a	**DUPLICATE SAMPLE**
	5/21/2014	n/a	n/a	36	n/a	n/a	n/a	**Gallonage not given**
	5/21/2014	n/a	n/a	64	n/a	n/a	n/a	**FGL Duplicate Sample**
	5/23/2014	n/a	n/a	10	n/a	n/a	n/a	**0.306 Mgal**
	5/23/2014	n/a	n/a	7	n/a	n/a	n/a	**FGL Duplicate Sample**
	5/27/2014	n/a	n/a	18	n/a	n/a	n/a	**0.512 Mgal**
	5/27/2014	n/a	n/a	13	n/a	n/a	n/a	**FGL Duplicate Sample**
	5/31/2014	n/a	n/a	25	n/a	n/a	n/a	**0.247 Mgal**
	5/31/2014	n/a	n/a	43	n/a	n/a	n/a	**FGL Duplicate Sample**
	6/5/2014	n/a	n/a	6	n/a	n/a	n/a	**0.26 Mgal**
	6/5/2014	n/a	n/a	10	n/a	n/a	n/a	**FGL Duplicate Sample**
	6/10/2014	n/a	n/a	8.5	n/a	n/a	n/a	**0.26 Mgal**
	6/10/2014	n/a	n/a	14	n/a	n/a	n/a	**FGL Duplicate Sample**
	6/29/2014	n/a	n/a	11	n/a	n/a	n/a	**0.21 Mgal**
	7/8/2014	n/a	n/a	27	n/a	n/a	n/a	**0.424 Mgal**
	7/18/2014	n/a	n/a	65	n/a	n/a	n/a	**0.507 Mgal**
	7/25/2014	n/a	n/a	6	n/a	n/a	n/a	**0.21Mgal**
	7/30/2014	n/a	n/a	9	n/a	n/a	n/a	**0.569 Mgal**
	8/5/2014	n/a	n/a	13	n/a	n/a	n/a	**0.226 Mgal**
	8/11/2014	n/a	n/a	10	n/a	n/a	n/a	**0.178 Mgal**
	8/17/2014	n/a	n/a	7	n/a	n/a	n/a	**0.38 Mgal**
	8/25/2014	n/a	n/a	10	n/a	n/a	n/a	**0.377 Mgal**
	9/5/2014	n/a	n/a	8	n/a	n/a	n/a	**Gallonage not given**
	9/9/2014	n/a	n/a	11	n/a	n/a	n/a	**0.19 Mgal**
	9/15/2014	n/a	n/a	3	n/a	n/a		**0.23 Mgal**
	9/24/2014	n/a	n/a	10	n/a	n/a	n/a	**0.377 Mgal**
	10/1/2014	n/a	n/a	5	n/a	n/a	n/a	**0.347 Mgal**
	10/7/2014	n/a	n/a	10	n/a	300	50	**Gallonage not given**
	10/14/2014	n/a	n/a	4	n/a	n/a	n/a	**0.519 Mgal**
	10/28/2014	n/a	n/a	9	n/a	n/a	n/a	**0.186 Mgal**
	11/13/2014	n/a	n/a	3	n/a	n/a	n/a	**Gallonage not given**
	12/10/2014	n/a	n/a	n/a	n/a	280	10	**0.23 Mgal**
	2/17/2015	n/a	n/a	11	n/a	60	3.2	**0.5 Mgal**
WTP 2nd Backwash	d							
	6/29/2010	n/a	n/a	11	n/a	n/a	n/a	
	7/28/2010	n/a	n/a	8	n/a	n/a	n/a	
After Fe Mn Filter	u							
	7/7/2009	n/a	n/a	<2.0	n/a	n/a	n/a	
	1/16/2014	n/a	n/a	7	n/a	n/a	n/a	
After As Filter	u							
	7/7/2009	n/a	n/a	3	n/a	n/a	n/a	
Fe Mn Filter Backwash	u							
	7/7/2009	n/a	n/a	<2.0	n/a	n/a	n/a	
As Filter Backwash	u							
	7/7/2009	n/a	n/a	5	n/a	n/a	n/a	
Booster	d							
	3/15/2011		n/a	n/a	<2.0	n/a	60	<0.5
	9/13/2011		n/a	n/a	<2.0	n/a	140	45.5
	12/6/2011		n/a	n/a	<2.0	n/a	120	27.8
	3/12/2013		n/a	n/a	<2.0	n/a	140	295
	12/10/2013		n/a	n/a	<2.0	n/a	<50	7.2
	3/11/2014		n/a	n/a	<2.0	n/a	100	30
Pond	d							

[GR CSD]	[CA]	[Detection]	[QM]	n/a	n/a	n/a	n/a	n/a
				Total Arsenic (ug/L)	Diss. Arsenic (ug/L)	Total Iron (ug/L)	Total Mn (ug/L)	Notes
				n/a	n/a	n/a	n/a	n/a
	7/2/2013	n/a	n/a	6	n/a	130	77.3	
	7/15/2013	n/a	n/a	6	n/a	n/a	n/a	
	7/23/2013	n/a	n/a	3	n/a	n/a	n/a	
	7/30/2013	n/a	n/a	5	n/a	n/a	n/a	
	8/20/2013	n/a	n/a	5	n/a	n/a	n/a	
	8/27/2013	n/a	n/a	5	n/a	n/a	n/a	
	9/3/2013	n/a	n/a	4	n/a	n/a	n/a	
	9/17/2013	n/a	n/a	5	n/a	n/a	n/a	
	2/14/2014	n/a	n/a	3	n/a	n/a	n/a	
Grizzly Creek	d							
	7/15/2013	n/a	n/a	<2.0	n/a	n/a	n/a	