STATE OF WASHINGTON
DEPARTMENT OF HEALTH
SOUTHWEST DRINKING WATER REGIONAL OPERATIONS
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September 4, 2009

Steven Beahm
Treasure Island Country Club Inc.
Post Office Box 44
Grapeview, Washington 98546

Subject: Treasure Island Country Club Inc. Water System, ID #891508, Mason County; Sanitary Survey Report

Dear Steven Beahm:

Thank you for the assistance that you, Daryl Axelson, Rod Wilkinson, Dave Dickinson, and Margaret Clarey provided to Denise Lawton and me during the sanitary survey of the above system on August 24, 2009. Your time and attention during this survey was important and needed. We appreciate the valuable and insightful input provided by you all throughout this survey. Sanitary surveys are the Office of Drinking Water's (ODW) way to inspect public water systems through a field visit. ODW is also able to offer technical assistance to help utilities improve their system operations and ensure that public health is protected. This letter is intended to document the findings of this survey.

In general, this system appears satisfactory. The pump houses and pumps appear to be in good physical condition. The reservoir standpipe provides for reliability of supply during any power outages. Water quality is good and all samples required by ODW have been consistently collected and submitted. Number 24-mesh screen was installed at the wellhead of S01 immediately following this survey, eliminating a Significant Deficiency. However, several system improvements and actions are still needed.

Other Findings that warrant attention are provided in **bold** type in the enclosed *Water System Sanitary Survey Report*. All of these items must be addressed. However, as a brief summary, it is important that the following items be addressed:

1. **This system must provide ODW with a description of the process to be used to ensure all backflow prevention devices on residential irrigation systems are tested on an annual basis by October 31, 2009.**

2. **This system must send a letter at least every two years to each resident within a sanitary control area describing the need to not store contaminants within 100 feet of the well heads, and to ensure that their onsite systems are properly maintained.**
3. **This system must install isolation valves on its distribution system.**
4. **A vacuum relief valve and sample tap should be installed at the reservoir.**

Regulations establishing a schedule of fees for sanitary surveys were adopted August 3, 2007, per WAC 246-290-990(3)(c). A fee worksheet and an itemized invoice for $408 are enclosed.

If you have any questions, please contact me at (360) 236-3036 or by e-mail at frank.meriwether@doh.wa.gov.

Sincerely,

Frank Meriwether, P.E.
Office of Drinking Water, Regional Engineer

Enclosures

cc: Arlene Hyatt, Mason County Public Health
Denise Lawton, ODW

Washington State Department of Health

WATER SYSTEM SANITARY SURVEY REPORT
STATE OF WASHINGTON DEPARTMENT OF HEALTH, OFFICE OF DRINKING WATER (ODW)
-- SOUTHWEST DRINKING WATER OPERATIONS --

WATER SYSTEM:	**TREASURE ISLAND COUNTRY CLUB INC.**
COUNTY:	Mason
PWS ID #:	**891508**
INSPECTED BY:	Frank Meriwether, Denise Lawton
INSPECTION DATE:	August 24, 2009
REPORT DATE:	September 4, 2009
SYSTEM OWNER:	Treasure Island Country Club
SYSTEM MANAGER / OPERATOR:	Daryl Axelson, Water Commissioner / Steven (Skip) Beahm

APPROVAL STATUS:	This Group A water system is approved for 255 connections. This capacity approval was apparently issued upon completion of the Water Main Improvements and Standpipe #1 project in 1967. According to the most recent water facilities inventory (WFI) form, this system has 226 existing residential connections. There are 257 building lots on the island.
OPERATING PERMIT STATUS:	The color of the operating permit is GREEN: adequate for existing uses and adding new service connections up to the number of approved service connections.

	YES/NO	OBSERVATIONS / RECOMMENDATIONS (IN BOLD)
CONFIRMED HIGH PUBLIC HEALTH RISK (HPHR)	No	No high public health risks were identified during this survey.
SENSITIVE POPULATIONS	No	This system does not serve a significant number of customers that would be considered "vulnerable", as there are no retirement homes, schools, hospitals, or daycare facilities on this system.

		ADEQUATE (YES/NO)	OBSERVATIONS / RECOMMENDATIONS (IN BOLD)
CAPACITY	**Source Capacity**	Yes	**S01 (Well #1, No Tag), permanent source.** This well was installed in late 1953 by the Bedell Drilling Company. It is 168 feet deep, with 6-inch casing and ten feet of #10-slot screen in the bottom of the well. A 7.5-HP submersible pump was installed about ten years ago, with a pumping rate of 90 gallons per minute (gpm) from this well. The 1953 pumping test at 100 gpm (unknown length of time) resulted in a drawdown from the static level of -8 feet to -84 feet. This well is located near the shoreline near the middle of the island. **S02 (Well #2, No Tag), permanent source.** This well was installed in 1958 by the Bedell Drilling Company. It is 227 feet deep, with ten feet of #30 well screen at the bottom of the well. A 7.5-HP submersible pump was installed in 1998. Its pumping rate of 80 gpm is reduced to 70 gpm with a throttled globe valve. This valve was set by Robinson & Noble's hydrologist and is currently marked as such in the pump house. The pump test in 1958 was at 80 gpm (unknown length of time), with a reported 50-foot drawdown. This well is located at the north end of the island. **S03 (Well #3, No Tag), permanent source.** This well was installed in 1977 by the Arcadia Drilling Company. It is 191 feet deep, with 8-inch casing and ten feet of Johnson screen at the bottom of the well. A 3-HP submersible pump was installed in 1994, with a flow rate of 45 gpm for this well. The pump test conducted in 1977 was at 100 gpm, with 85 feet of drawdown after four hours. It has a bentonite surface seal to 21 feet. This well is located on the south end of the island. Well #3 has the most descriptive well log of the three wells. It appears that there is a thick confining layer from 2 to 66 feet that may help prevent or retard saltwater intrusion at this location. The other two well logs also describe a thick impervious hardpan layer near the surface. Core log information from the nearby bridge project would also provide information on the soil profile in the area. **Well tags are needed at each well. Please contact Mary Lynum, Ecology, at (360) 407-6859 for these tags.**
	Storage Capacity	See Comment	The standpipe reservoir is a 150,000-gallon steel reservoir built in November 1967. It is 20 feet in diameter and 65 feet high, with a base elevation of about 55 feet. Water from S01 is pumped directly into this reservoir, and the 6-inch inlet pipe rises 25 feet inside the reservoir and ends with a 45° elbow. Water from S01 also directly enters the distribution system via a different pipe. Water from Wells 2 and 3 (combined) goes into the distribution system, with any "excess" production helping fill the reservoir as called. There is no indication of stagnation in the reservoir. The reservoir's overflow pipe is a 6-inch pipe. The separate drainpipe is routed to a bulkhead on the marine shoreline. Ladders are located inside and outside of the reservoir (safety caged outside the reservoir). The reservoir was built with a 20-inch screened vent on top. The floor is sloped down to the entrance/discharge opening. **This system should install a vacuum relief valve downstream of the reservoir isolation valve on discharge to help protect the distribution pipe from possible damage due to a siphon vacuum.** The old 525-gallon storage tank in Pump House #1 was disconnected from the distribution system in October 2004 following the 2004 sanitary survey and has been removed.
	Booster Pump Capacity	N/A	There are no booster pumps on this system.

		ADEQUATE (YES/NO)	OBSERVATIONS / RECOMMENDATIONS (IN BOLD)
	Distribution	See Comment	The main pipeline for the distribution system is a 2,800-foot, six-inch AC pipe that runs down the middle of the island through most of its length. Another 2,800 feet of four-inch AC pipe provide laterals from the main pipeline to three looped systems, and connects S01 to the standpipe reservoir. AC pipe accounts for 27 percent of the pipe (linear feet) in this system; the rest is galvanized iron pipe. There is one pressure zone on this system. There are no isolation valves on this system. **This system must install isolation valves.** This system has some slightly low pressures on the north side of the island near S02. The customers did not support a state revolving fund (SRF) loan for $1.5 million to replace the distribution system pipe and increase distribution pressures. Houses on the lowest elevations near the beach receive about 50 psi. There are no pressure reducing valves or air relief valves in this system. The water level in the standpipe is maintained at about 59-63 feet. Three floats in the standpipe control the pumps as follows: • High float: All pumps off. • Middle float: Calls S01 or S02/S03 (S02 and S03 are activated together). • Low float: Calls all pumps. There is no low level alarm. The pump controllers automatically alternate the called pumps (middle float activation). Any or all of the pumps can be manually activated. Relay wires run on the telephone poles connect the floats to the sources. There are seven four-inch fire hydrants and eleven two-inch fire standpipes on this system. The volunteer fire department tends to use the four-inch hydrants when needed. This system's blowoffs are painted blue, to help distinguish them from fire standpipes.
WATER QUALITY	**Coliform**	Yes	Coliform results have been satisfactory for the last 24 months. This system maintains a current Coliform Monitoring Plan (CMP) and map, consistent with the CMP included in the 2004 small water system management program (SWSMP). This system provided ODW with a copy of the updated CMP immediately after this survey. In 2003, two new sampling stations were installed, giving this system a total of five. The three existing sampling stations are serviced (rebuilt) every two years (last done in April 2009). All are Eclipse #88 locked sampling stations. This system inquired about changes in coliform sampling procedures and requirements after the Ground Water Rule comes into effect in December 2009. The Environmental Protection Agency (EPA) is promulgating this new rule, and ODW is working with EPA on its implementation. Further specific information on this rule is found on the EPA site at http://www.epa.gov/safewater/disinfection/gwr/. Additional information can also be obtained by calling Sandy Brentlinger, ODW, at (360) 236-3044.
	Inorganics	Yes	Inorganic chemical (IOC) and nitrate samples will be due in accordance with the Water Quality Monitoring Report (WQMR). A nitrate sample from each source is due each year. An asbestos sample is due this year. IOC samples were collected from each source in 2008.
	VOCs – D/DBPs	Yes	Volatile organic chemical (VOC) samples are normally due in accordance with the WQMR. A VOC sample was due this year from S03 but this system received permission from ODW to collect all three VOC samples in 2010 to help spread out sampling costs.

		ADEQUATE (YES/NO)	OBSERVATIONS / RECOMMENDATIONS (IN BOLD)
	SOCs/Waivers	Yes	Synthetic organic chemical (SOC) samples are normally due in accordance with the WQMR. A set of Herbicides and Pesticides were due this year from each source, but this system received permission from ODW to collect all three VOC samples in 2010 to help spread out sampling costs.
	Lead/Copper	Yes	A set of lead and copper samples are due this year between June and September, and were collected in early August 2009.
	Radionuclide	Yes	Radionuclide samples will be due in accordance with the WQMR. A set of Gross Alpha and Radium 228 is due from each source this year.
	SWTR/GWI	N/A	The source(s) currently does not meet current criteria for further groundwater under the influence of surface water (GWI) evaluation.
OPERATIONS & MANAGEMENT	**Routine O&M**	Yes	A spreadsheet of operations and maintenance (O&M) procedures is included in the system's SWSMP, which was submitted in 2004 to ODW following the 2004 sanitary survey. O&M procedures practiced by this system include: • Check static level in wells every six months. This system plans to collect both static water levels and pumping water levels to document drawdowns during low demand and peak flow conditions. • Test source DCVAs every year (one on each source). • Read source meters at least monthly. • Shutdown and startup of connections at dock, beach every season for freeze protection. • Flush dead ends yearly. • Flush, lube, and inspect FHs yearly. • Inspect outside of reservoir, clean pump houses as needed/continuously. This system repairs its own line breaks if feasible, and disinfects repaired pipe sections with liquid bleach. An outside service is called for major repairs. Emergency numbers are posted at each of the well houses. Two community bulletin boards and a newsletter are used to keep the consumers informed of system repairs. Customers call the Country Club Secretary in case of any problems with low pressures or water concerns.
	Complaints	Yes	ODW does not receive complaints from customers of this system. This system receives occasional calls from its customers on such concerns as reportedly low pressure or water flow.
	Operator Certification	Yes	The ODW database lists the following certified operator for this system: • Steven Beahm, Operator #003976, WDS Please contact ODW Operator Certification at (800) 525-2536 if this information is inaccurate.
	Safety	See Comment	The outside ladder of the standpipe reservoir may not meet all current safety standards. The Department of Labor and Industries (L&I) has regulatory authority to regulate work place hazards. If you have any questions regarding workplace safety, please contact L&I at (360) 902-5472 for technical assistance.

		ADEQUATE (YES/NO)	OBSERVATIONS / RECOMMENDATIONS (IN BOLD)
	Consumption/ Production Data	Yes	Source meters are read on a monthly basis (at a minimum). There are no service meters on this system. There is no designated leak detection program, but hardpan underlays the soil at about a two-foot depth, so that pipeline leaks can be visually detected by residents. Many of the residents walk the roads frequently for exercise. In addition, this system recently installed a Hobo system, which registers times that the source pumps are activated, and this system can use this information to determine if pumps are activated during low/no-use periods. In addition, Evergreen Rural Water of Washington (ERWOW) staff visited this system a couple years ago to help detect any possible leaks. These measures should help reduce water system leakage until the time that service meters can be installed. Water conservation information is provided in the newsletter and in summer, the bulletin boards are enlisted to remind consumers of water conservation practices. This system is a privately owned water system, and is not currently considered a Municipal Water Supplier. Therefore, this system is not currently required to comply with all Water Use Efficiency (WUE) Rule requirements. However, ODW provided guidance during this survey on WUE measures needed by non-Municipal water systems when they are completing a SWSMP.
	Water Rights	N/A	The Department of Ecology (Ecology) has jurisdiction with respect to the water rights associated with this system. Questions concerning water rights or any uncertainties or discrepancies concerning water rights issues should be directed to Ecology.
	Cross-Connection Control	No	This system included Cross Connection Control (CCC), Element 6, in its 2004 SWSMP document. Immediately after this survey, this system sent ODW a copy of the CCC Program showing official community approval dated June 11, 2005. A CCC survey was sent to all system customers in 2004-2005. Each source has a DCVA installed, and Skip Beahm, Backflow Assembly Tester (BAT), conducts annual tests of these devices. In addition, there are about a dozen backflow devices installed on residential irrigation systems, but these devices are not being tested. **This system must ensure these devices are tested each year, and notify ODW by October 31, 2009, with a description of the process that will be used to test these devices.**
FACILITIES	**Source**	Yes	All three sources are located in their own well house that is secured, rodent proof, clean, dry, and with floor drain and heating. All wellheads are sealed and each one has a sample tap. **S01 (Well #1, No Tag)** The old pressure tank has been removed from this well house. System staff installed #24-mesh screen on the well vent immediately after this survey. **S02 (Well #2, No Tag)** The pressure gage showed 30 psi when this well was activated during this survey. Pressure from a nearby customer's spigot was measured as 25 psi (with no flow at spigot). **S03 (Well #3, No Tag)** The pressure gage showed 40 psi when this well was activated during this survey. Pressure from a nearby customer's spigot was measured as 33 psi.

		ADEQUATE (YES/NO)	OBSERVATIONS / RECOMMENDATIONS (IN BOLD)
	Sanitary Control Area (Source)	No	**S01 (Well #1, No Tag)** Five residences and associated septic systems are located within the sanitary control are (SCA). There is no restrictive covenant. **This system must send the October 1997 letter or equivalent about every two years to residents within the SCAs, reminding them not to store contaminants within 100 feet of the wellhead**. Stormwater collection and runoff is tightlined around the wellhouse, and exits to the beach via a bulkhead. **S02 (Well #2, No Tag)** There are nine residences and associated septic systems within the SCA. There is no restrictive covenant. **This system must send the October 1997 letter or equivalent about every two years to residents within the SCAs, reminding them not to store contaminants within 100 feet of the wellhead and to properly maintain their onsite septic systems**. **S03 (Well #3, No Tag)** This is the only source with restrictive covenants.
	Storage	See Comments	Liquivision inspected the reservoir in December 2006. Some internal corrosion was noted. This system plans to sandblast and re-paint the inside of the reservoir in October 2009. **It is recommended that a sample tap be installed at the reservoir, which can be used for collection of VOC and coliform samples post-painting, as well as help address provisions of the Ground Water Rule. A vacuum release valve could be installed at the same time as the sample tap**. The outside ladder of the standpipe reservoir may not meet all current safety standards. **In addition, the bottom of the ladder should be caged to prevent access by non-authorized personnel**. The water level in the tank during this survey, as indicated on the target, was 58.5 feet. This system (Rod Wilkinson) sent ODW photos of the vent, vent screen, hatch with lock, and hatch seal on the reservoir roof from his inspection of these items the day after this survey, and these items appear satisfactory. The reservoir is in an enclosed, secured chain link fence compounds that is well maintained. No leakage from the reservoir was observed. The overflow pipe is adequately screened. The drain for the reservoir is piped to the bulkhead near S01; the end of this drainpipe was screened immediately after this survey.
	Distribution	Yes	A portion of the distribution system on the north end of the island has pressures slightly less than 30 psi. Whitely Engineering performed a system inspection and recommended long-range goals regarding system upgrades for increasing pressure in the distribution system. This system sent a copy to ODW immediately after this survey. Future upgrades described in the plan were included in this system's State Revolving Fund (SRF) application (#2007-079: "TICC Water System Replacement"). Implementation of these upgrades would have improved distribution system pressures. However, the customers of this system voted against the SRF loan due to its cost.
	Pumping	Yes	The oldest submersible pump on this system was installed in 1994, and does not appear to be in need of replacement in the near future.
	Treatment	N/A	There is no treatment on this system.