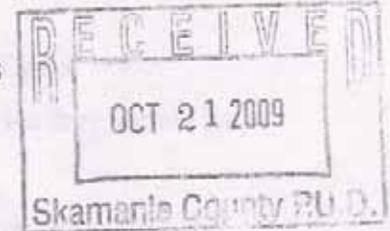




STATE OF WASHINGTON
DEPARTMENT OF HEALTH
SOUTHWEST DRINKING WATER REGIONAL OPERATIONS
PO Box 47823, Olympia, Washington 98504-7823
TDD Relay 1-800-833-6388



October 14, 2009

Tom Vance
Underwood Water System
Post Office Box 500
Carson, Washington 98610

Subject: Underwood Water System, ID #90200J, Skamania County; Sanitary Survey Results

Dear Tom Vance:

Thank you for meeting with me on August 7, 2009, to conduct a sanitary survey of the above system. 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.

Congratulations on the excellent performance. You do a fine job of running and maintaining this system. Enclosed please find a *Water System Sanitary Survey Report* that details the findings of this survey. This report contains observations and recommendations regarding system facilities, water quality history, and more. I did not find any significant deficiencies during this survey. **Please address the comments in bold.**

As you complete these items below, please send photo verification of completion to me via e-mail.

REQUIRED (to be completed before the next survey)

1. **Please install a screened gooseneck vent on the Galligan Well.**
2. **Please install a finer screen on the clearwell building to keep insects out.**
3. **Please ensure the School House Reservoir drains to daylight.**
4. **Please install a shrouded vent on the School House Reservoir.**

RECOMMENDATIONS

1. The lid on the Galligan Spring appears to need maintenance.

2. The Ternahan Roof appears to need repair.
3. Consider evaluating the useful lives of the Sheperd and Ternahan Tanks.
4. If the Little Buck Creek and Creighton Tanks are to remain in service they should be equipped with new vents.

When facilities are abandoned, they should be physically disconnected from the system and, eventually, removed.

Regulations establishing a schedule of fees for sanitary surveys were adopted August 3, 2007 (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) 236-3033 or by e-mail at andy.anderson@doh.wa.gov.

Sincerely,

Bonnie Waybight for

ANDY ANDERSON, P.E.
Office of Drinking Water, Regional Engineer

Enclosures

cc: George Waun, Skamania County Community Development Department
Denise Grant, ODW



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

WATER SYSTEM:	Underwood Water System
COUNTY:	Skamania
PWS ID #:	90200J
INSPECTED BY:	Andy Anderson
INSPECTION DATE:	August 7, 2009
REPORT DATE:	October 14, 2009
SYSTEM OWNER:	Skamania Public Utility District
SYSTEM MANAGER / OPERATOR:	Tom Vance, Operator

APPROVAL STATUS:	The last Water System Plan (WSP) was approved in December 2004. The next is due in 2011. This system is approved to serve 395 connections. There are currently 338 residential connections serving an estimated 876 full-time residents. This system also serves the community center, fire department, county shop, and post office.
OPERATING PERMIT STATUS:	Green

	YES/NO	OBSERVATIONS / RECOMMENDATIONS
CONFIRMED HIGH PUBLIC HEALTH RISK (HPHR)	No	No high public health risks were identified during this survey.
SENSITIVE POPULATIONS	No	No sensitive populations were identified during this survey.

		OBSERVATIONS / RECOMMENDATIONS	
CAPACITY		ADEQUATE (YES/NO)	
Source Capacity	Yes		This system is served by three permanent sources: Galligan Springs, Shaddox Springs, and Galligan Well #1. All three sources are either pumped or flow by gravity to a 9,200-gallon wet well in the Galligan Pump Station. The reliable capacity of the well and spring sources exceeds 430 gallons per minute (gpm); however, the Galligan Pump Station proves the limiting facility with a capacity of only 230 gpm. The pump station satisfies maximum day demand (MDD) requirements for approximately 355 connections. Galligan Springs is an unreliable source that sometimes dries up.
Storage Capacity	Yes		This system has a total of seven storage tanks with a gross volume of 284,000 gallons. <ul style="list-style-type: none"> • Shepherd Tank: concrete, 10,000 gallons. • Ternahan Tank: redwood, 50,000 gallons. • Creighton Tank: concrete, 14,000 gallons. • Schoolhouse Tank: steel, 75,000 gallons. • Little Buck Creek Tank: concrete, 10,000 gallons. • Huber Tank: bolted steel, 125,000 gallons. The 10,000-gallon, concrete Ausplund Tank has been removed from this system. A new, 250,000-gallon steel tank (Connie Reservoir) has been approved for construction, which will bring the total storage to 534,000 gallons in 2010. That total may be reduced to 510,000 gallons if the Creighton and Little Buck Creek tanks are decommissioned as indicated in the WSP.
Booster Pump Capacity	Yes		During the last survey, this system had six pressure zones and five booster pump stations. Since then, distribution improvements have been made to this system reducing the number of pressure zones and the necessity for some of the pump stations. The Ausplund Pump Station was abandoned when Zone 6 and Zone 5 were combined. The Little Buck Creek Tank and Pump Station will probably not be needed once the Connie Reservoir is constructed. <ul style="list-style-type: none"> • Galligan Springs Pump Station (230 gpm) – Distribution. • Shepherd Pump Station (260 gpm) – All Pressure Zones (1-6). • Little Buck Creek Pump Station (75 gpm) – Zone 4. • Ausplund Tank Pump Station (33 gpm) – Zone 5. • Ternahan Pump Station (66 gpm) – Zone 6. When facilities are abandoned, they should be physically disconnected from the system and, eventually, removed.
Distribution	No		The distribution system consists of approximately 40 percent = 4-inch, 35 percent = 6-inch, 25 percent ≤ 2-inch diameter pipe. The fireflow and pressure deficiencies observed in the last survey have been largely mitigated and will be completely mitigated once the Connie Reservoir is constructed.
Coliform	Yes		The coliform results have been satisfactory for the last 24 months with no recent problems. The current Coliform Monitoring Plan (CMP) is accurate and being followed.

WATER QUALITY

		ADEQUATE (YES/NO)	OBSERVATIONS / RECOMMENDATIONS
OPERATIONS & MANAGEMENT (O&M)	Inorganics	Yes	The last samples were taken in 2007 and were satisfactory. Inorganic Chemical (IOC) and Nitrate samples will be due in accordance with the Water Quality Monitoring Report (WQMR).
	VOCs – D/DBPs	Yes	The last samples were taken in 2007 and 2009 and were satisfactory. Volatile organic chemical (VOC) samples will be due in accordance with the WQMR. The Disinfectant Byproducts (D/DBP) Rule came into effect for this system in January 2004. This system is required to have a D/DBP monitoring plan that includes a map showing Total Trihalomethane (TTHM) and Haloacetic Acids (HAA) sample locations, schedule for sample collection, and procedures for calculating compliance with maximum residual disinfectant levels (MRDL) and maximum contaminant levels (MCL). This system is also required to collect chlorine residuals when it collects coliform samples, collect residuals in the distribution system, and report to ODW on a monthly basis. ODW will assist this system in meeting all D/DBP monitoring requirements
	SOCs/Waiver ^s	Yes	The last samples were taken in 2008 and 2009 and were satisfactory. Synthetic organic chemical (SOC) samples will be due in accordance with the WQMR.
	Lead/Copper	Yes	The last sample set was taken between 2006 and 2008. The next set of 10 samples is due in 2011.
	Radionuclide	Yes	The last samples taken in 2005, 2006, and 2007 were satisfactory. Radionuclide samples will be due in accordance with the WQMR.
	SWTR/GWI	Yes	Analyses for microscopic particulates determined both sources to be groundwater hydraulically connected to surface water.
Routine O&M	Yes	Hydrants and mains are flushed annually. Valves are exercised two times a year and reservoirs are cleaned as needed. The Operations and Maintenance (O&M) Manual is located in Section 7 of the WSP. It outlines routine operating procedures as well as emergency procedures. In addition, an Emergency Response Plan can be found in Appendix B.	
Complaints	Yes	No complaints are on record over the last three years. Complaints are kept on record and reviewed periodically by the Commissioners.	
Operator Certification	Yes	Tom Vance (2465) – WDM2, CCS, and WTPPO2; John Shields (9970) – WDM2, WTPPO2	
Safety	Yes	No obvious safety hazards were observed during this survey. 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.	
Consumption/ Production Data	Yes	All system connections are metered. Individual meters are read at two-month intervals. There is a master meter located on the Galligan Springs Pump Station transmission main to the Shepherd Tank. Meters are replaced at a rate of 10 percent per year. A leak location report was completed in 2000. The Public Utility District has purchased leak detection equipment to pursue leak reduction on an annual basis.	
Water Rights	Yes	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.	

		ADEQUATE (YES/NO)	OBSERVATIONS / RECOMMENDATIONS
FACILITIES	Cross-Connection Control	Yes	The Cross Connection Control Manual is included in the WSP Appendix C. This system tracks approximately 10 backflow assemblies and 2 air-gaps. No cross connection issues were observed during this survey. Cross connection control devices are tested annually.
	Source	No	The sources were mostly in good condition with appropriately sealed and vented spring boxes and well caps. The pumphouse is heated, vented, insulated, rodent proof, and protected from unauthorized access. Please install a screened goose-neck vent on the Galligan Well Please install a finer screen on the clearwell building to keep insects out.
	Sanitary Control Area (Source)	Yes	The lid on Galligan Springs appears to need maintenance. No obvious sources of contamination were observed in the sanitary control area (SCA). The highway and railroad are within the SCA but below the sources.
FACILITIES	Storage	No	The tanks were generally in good condition and appropriately sealed, vented and screened. The area around the tanks was fenced and clear of vegetation. Please ensure the School House Reservoir drains to daylight Please install a shrouded vent on the School House Reservoir. The Ternahan Roof appears to need repair. Please evaluate the useful life of the Shepherd and Ternahan Tanks.
	Distribution	Yes	If the Little Buck Creek and Creighton Tanks are to remain in service they should be equipped with new vents. Gate valves and hydrants/blowoffs were noted at regular intervals. The operator estimates that approximately 40 percent of this system's capacity is lost to distribution system leakage and other unmeasured uses.
	Pumping	Yes	The condition of the pumping equipment is generally good, with adequate controls, maintenance, and little excess vibration. There is some redundancy for system reliability.
	Treatment	Yes	Sodium hypochlorite is injected into the combined source water at the Galligan Springs Pump Station. The chlorinator has two settings: one that corresponds to a pump rate of 160 gpm, and one that corresponds to a flow of 230 gpm. The 2,750-foot transmission line and the Shepherd Reservoir provide contact time. Chlorine disinfection is required because the spring sources were found to be hydraulically connected to surface water. A residual concentration of 0.35 ppm should be maintained to assure adequate contact time. The chlorine feed needs an adjustment. Concentrations are variable in the winter time. Consider flow-paced chlorine injection.
	Reliability	Yes	Although some residences may receive water by gravity flow for a short time after a power outage, this system relies heavily on pumping (electricity). Auxiliary power should be provided to maintain minimum domestic pressure in the distribution system during a power outage.

DOH SANITARY SURVEY FEE WORKSHEET

System Name	Underwood	County:	Skamania
System ID:	90200	Inspector:	Andy Anderson
Date of Inspection:			

< 10,000 Population

BASIC SYSTEM FEE*

Includes one ground water source

			\$306.00
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ADDITIONAL GROUND WATER SOURCES			
Estimated # of permanent and seasonal sources	2	x	\$51.00
Actual # of permanent and seasonal sources	2	x	\$51.00

SURFACE WATER / DETERMINED GWI SOURCES (Treated)			
Estimated		x	\$306.00
Actual		x	\$306.00

* Base rate calculated on a 3 hour maximum hourly rate with additional sources charged at 1/2 the hourly rate per source.

	TOTAL	\$408.00
		\$408.00

- Source permanent or seasonal sources only (emergency sources not subject to fees).
- Additional purchased sources not subject to fees.
- Wellfield is considered one source.
- Only charge a fee for those permanent or seasonal sources actually inspected, even though the pre-survey research and water quality discussions may have included additional sources.

PLEASE NOTE: THIS IS NOT A BILL.

The water system will receive an invoice for the actual fee amount after the survey has been completed.
(Updated 6/2)