Small Water System Evaluation Inspection Report

Marin County Environmental Health Services

Water System:	MUIR BEACH COMMUNITY SERVICES DIST	Water System No.: 2100508
Person Contacted:	Harvey Pearlman	Type of System: Community WS
Position/Title:	Part-time operator	Telephone No.: (707) 643-7015
Inspection Date:	12/20/04 Type of Inspection: Routine 461	Inspector: Scott Callow

Mailing addresses: Muir Beach CSD, 19 Seacape Dr., Muir Beach, CA 94965
Harvey Pearlman, 160 Pacific Way, Muir Beach, CA 94965 (415) 388-0380
Sharon Mullin, 21 Cove Lane, Muir Beach, CA 94965

System Operation: Harvey Pearlman is the primary operator of the system. He holds both a D1 distribution certificate (#19617) and a T1 (#19720) certificate. Donovan Macfarlane acts as the General Manager and Supervising Operator for the system. The Muir Beach Community Services District is the owner of the system and is run by an elected board of directors.

Service Area: The system serves 148 service connections in the Muir Beach community. The wells and pump house are located at the base of a valley and adjacent to Redwood Creek, apparently a designated steelhead creek.

System Sources: Two shallow wells are located on a flat near and northwest of the creek. An unused well and monitoring wells are close to the well sites. (The MBCSD and the NPS are monitoring the water demand from the wells to determine if the wells influence the nearby stream.) An old agricultural well was destroyed under permit from EHS. The unused well next to the active well poses a contamination threat. The top of the casing has been capped to prevent contamination. Well 01 is the active well (PS-code - 2100508-001); Well 02 is the new well (PS-code - 2100508-003). Both above wells appear to be located on property owned by the District, and surrounded by the Mt. Tamalpais State Park and the Golden Gate Recreation Area. The plant was issued the PS-code# 2100508-002.

Treatment: The current system includes a shallow well and a chlorinator (located in the pump house) that injects disinfectant into the well. The chlorinator precipitates iron and disinfects. A high rate rapid sand filter is installed after the lower storage tank. (Tagelus #TA 60-60/600, max. flow rate - 60 gpm, max. PSI – 50 psi.) The operator regularly runs the backwash cycle for the filter once every 3 weeks. The District is actively pursuing a modification of the treatment and distribution system and applied for a permit revision between the time of the inspection and the writing of the report. Prepare a Technical, Managerial, Financial Capacity Report and an Engineer's Report as part of the requirements for the modifications. Refer to the DHS website: http://www.dhs.ca.gov/ps/ddwem/technical/dwp/tmf/TMFCapCritChngOwnerCommWaterSys.pdf

Storage: Both storage tanks are redwood tanks. The upper tank is lined with plastic and the bands have been replaced with new. The upper tank is 150,000 gallons, located near the Muir Beach Overlook; the lower tank is 100,000 gallons.

Distribution System: Water is pumped uphill to two large storage tanks that are off-site. The supply line to the upper storage tank also serves as a main, gravity-fed distribution line. The larger, upper tank is a plastic-lined, redwood tank, 150,000 gallons in volume. The smaller, lower tank is an unlined redwood tank, 100,000 gallons in volume.

SUMMARY OF TREATMENT PROCESS AND EQUIPMENT:

Water Treatment Equipment (??? GPM = plant's flow rate through filters)

Process	Equipment	Brand/ Model	Size	Max Flow or Output	Misc. Comments
Filtration	Pump		HP	**GPM**	
Chlorination	Chlorine tank	--	125 gallons	**--**	12.5% chlorine; Mix = 1 gal chl / 65 gal water
Chlorination	Chlorine feeder	LMI, Model # B121-398 SI	--	2.5 GPH	100 PSI max.
Chlorination	Storage tank / contact tank	Plastic-lined Redwood Tank	150,000 gallons	**--**	
Chlorination	Storage tank / contact tank	Redwood Tank	100,000 gallons	**--**	
Filtration (lower tank)	High Rate Rapid Sand Filter	Purex Triton - Tagelus, Model #TA 60-60/600	Sand – 325 lbs. 50 psi	60 GPM	Backwashed once every 3 weeks

Records: Most records are stored in the off-site office and were not available for review. The logs that are kept on site are recent records in the form of a well log, a chlorine log and a daily log. The well log tracks the following parameters: date, time, weather, meter readings, gallons pumped, chlorine tank level, volume of chlorine used, chlorine mix used, water levels in tank. Make records available for review during the next inspection.

Water Quality Monitoring:

Test monitoring – Well 01 (active)

1. Primary Inorganic Chemicals Standards testing (complete list) is due in **2005**. (Once every three years.)
2. Testing for asbestos is overdue. Provide test results in **2005**. (32)
3. Nitrite testing is due in **2005**. (Once every three years.)
4. **Yearly** nitrate testing is due in **2005**.
5. Yearly hardness, total alkalinity, pH testing and corrosiveness values are due **yearly** now due to corrosive nature of the water and Lead/Copper Rule violations. Test in **2005.**

6. Secondary Drinking Water Standards testing (complete list) is due in **2005**. (Once every three years.)
7. Radiological Standards testing is overdue in **2005**. (Once every four years.) **Quarterly** tests are required in the year that testing is required. The first tests in 2005 shall be sampled between **Jan-March of 2005.**
8. Unregulated Organic Chemicals (Tables A, B, C) are due in **2005**. (Once every five years.)
9. Primary Synthetic Organic Chemicals were due in 2004. (Once every three years.) Test for 2,4-D, Lindane and Glyphosate by **March 2005**.
10. Primary Volatile Organic Chemicals are due in 2006. (Once every six years.)

Sampling forms - Sent to LABS:

Be sure that ALL source water quality tests are reported with the PS-codes included in the lab results. The lab needs the source code to process the data electronically and the PS-code is needed to clarify which source is being tested for. Ensure that lab test results are also sent directly to Marin County EHS. Record the specific SAMPLE SITE and the PS-code on each sampling form.

Test monitoring – System-wide

1. Lead and Copper testing at the tap: Perform cold water testing ASAP (January - February in 2005) from ten or more sampling sites for lead and copper. Be sure to take all samples where copper or lead pipes and solder may be installed. Please follow sampling guidelines for the Lead and Copper Rule. Also, perform warm water sampling in August-September of 2005. (REPEAT VIOLATION – 32)
2. Bacteriological testing at the tap: Review current Bacteriological Sampling Plan and continue monthly testing.
3. DDBP testing: Annual tests for Disinfectant and Disinfectant By-Products Testing to be done in August- Sept. 2005. Free chlorine field tests should be performed and recorded whenever bacteriological testing is done, per the DDBP Rule.

Permit Status: The 1984 permit is out-of-date and inaccurate based on current treatment. A new permit will be issued during the remodeling process.

Bacteriological Sample Siting Plan: Update the Bacteriological Sampling Plan when applying for the new treatment and distribution modifications in the water system. The current plan was updated on May 9, 2000.

Emergency Notification Plan: Update and expand on the current plan. See the DHS website for templates. http://www.dhs.ca.gov/ps/ddwem/technical/dwp/tmf/EmergencyResponsePlan_revised.doc Refer to previously sent list of emergency contacts.

System Deficiencies:

Water Source addition:

1. The second unapproved well was plumbed to the system and operating without EHS approval. The operator immediately cooperated and shut off the well at the valve until further notice. Obtain approval after demonstrating the electrical safety of the hook-up before operating the new well. The new well is located next to an old flower farm that was active in 1980. Apparently, the agricultural activities were curtailed in 1994, and the former farm is now in the Golden Gate National Recreational Area (National Park Service).

Treatment design:

2. The system is actively pursuing improvements. In the meantime, calculate the contact time of disinfectant and verify the set-up of the chlorinator with field tests for free chlorine residual.

Monitoring improvements:

3. Create an operation plan. See http://www.dhs.ca.gov/ps/ddwem/technical/dwp/tmf/TMFOpPlan.htm
4. Perform cold water testing ASAP (January - February in 2005) from ten or more sampling sites for lead and copper. Also, perform warm water sampling in August-September of 2005.

Maintenance:

5. Source Protection: Destroy the unused well once it is abandoned as a monitoring well or if it is suspected to be a source of contamination of the active Well 01.
6. Cross-connection survey: Submit a cross-connection survey by a licensed professional by November 2005, or provide documentation that a survey has been performed.
7. Active well (Well 01): Divert floodwater away from both active and inactive wells with the construction of berms and/or French drains (5). Replace rusted well cap during improvements.
8. Install a well pad for each well, according to California Well Bulletin Standards (9).

Public Notification

9. Annual Consumer Confidence Reports need to be modified. It is strongly recommended to use the state's template to prepare the reports.
   a) Test results should be accompanied with a last tested date. (22)
   b) Lead/Copper Rule information is inaccurate. Be advised that source water testing for lead is different than the Lead/Copper Rule testing. The violations were not reported. The failure to complete routine monitoring was not reported. Review and comply with notification requirements for the Lead/Copper Rule.
   c) Submit certification of sending the CCR to customers to EHS.
   d) The CCR should clearly report which calendar year that the report covers.

Water System Schematic

WELLS >>> Well head CHLORINATOR >>> PUMP

>>> SUPPLY LINE IS PRESSURIZED TO TANK LOCATION, AS A DISTRIBUTION LINE IT FLOWS DOWN GRADIENT BY GRAVITY WHEN ACTING AS A DISTRIBUTION LINE >>>>>

STORAGE TANK (150,000 GALLONS) >>> DISTRIBUTION SYSTEM TO SOME HOMES AND MAIN DISTRIBUTION LINE TO SECOND STORAGE TANK >>>

STORAGE TANK (100,000 GALLONS) >>> RAPID SAND FILTER

>>> DISTRIBUTION SYSTEM TO REMAINDER HOMES

See photos.

Directions to the system: Wells and pump house are located 0.25 miles north of junction with Shoreline Highway on Muir Woods Road. See map.