Jericho-Underhill Water District
WSID #5096
Underhill, Vermont

D R A F T
Small Water System Facility Improvement Plan

October 2006

Prepared by:

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SECTION I

INTRODUCTION

Green Mountain Engineering, Inc. was contracted by the Department of Environmental Conservation (DEC) Water Supply Division (WSD) to conduct an evaluation of the Jericho-Underhill Water District located in Underhill, Vermont. The purpose of this evaluation is to assist the water system owner and operator in identifying and understanding necessary or recommended water system improvements. This report will provide information necessary for the water system to proceed with planning, financing and constructing the improvements.

Each evaluation report shall include the following information, as appropriate:

1. A brief description of the water system including distribution system, storage, pumping, source and treatment facilities.
2. A system sketch (not to scale) and color photographs of system components.
3. A list of the water system components including size, manufacturer, type of material, conditions, estimated remaining life, etc., as available.
4. The estimated number of years of useful life remaining and the replacement costs of each component.
5. Yearly sinking fund required to meet estimated replacement costs of each component.
6. Cost estimates and recommendations to address any WSD identified deficiencies through the Sanitary Survey or other inspection of the water system.
7. Cost estimates and recommendations to address other water system or consultant identified deficiencies, along with the potential for consolidation with nearby water systems.

8. Information, in table format, that can be used to assist the water system with development of a Long Range Plan and Operations & Maintenance Manual for the water system.
9. A review of potential funding sources for recommended improvements with calculations of estimated debt service for the identified project.

The system is classified as a Community Water System, and its' service area is located primarily along Route 15 in Jericho and Underhill, Vermont (Appendix A). It is currently being operated by Mr. Marc Maheux. The existing system information provided in this report is based on an October 25, 2006 site visit with Mr. Maheux and a review of information provided by WSD.

SECTION II

EXISTING WATER SYSTEM

SECTION II

EXISTING WATER SYSTEM

A. Overall System Description

The water system serves its' customers through approximately 300 service connections. Major non-residential users include a store, a sawmill, and a school. The average daily demand of the system is 47,000 gallons per day (gpd), with a maximum day demand of approximately 59,500 gpd, based on meter readings.

Water system components consist of two (2) gravel wells, submersible well pumps which deliver water to the distribution system, two (2) booster pumps, a hydropneumatic pressure tank, three (3) storage facilities, and treatment system. (See Appendix B photos).

B. Source

The water system utilizes two (2) gravel wells, both drilled in 1990. Both Well #1 (gravel-developed) and Well #2 (gravel-packed) have WSD-approved yields of 150 gallons per minute (gpm). Well #1 is equipped with a 15 Hp Goulds® (Model No. 150H15-6) submersible pump, while Well #2 has a 20 Hp Goulds® (Model No. 150H15-6) pump. The wells, which are set up to alternate, pump into the well control building.

C. Storage

One storage Tank (ST-001), constructed in 1971, is capable of storing 250,000 gallons of finished water. A cistern (ST-002), which stores 6,000 gallons of water, is located at a higher elevation than ST-001. In 2003, the Poker Hill Storage Tank (ST-003) was constructed. The steel tank stores 150,000 gallons of water. The two tanks float on the system, receiving any excess flow produced by the wells and not being used in the system.

D. Treatment

Currently, this system is being continuously chlorinated using sodium hypochlorite. It is equipped with an LMI® (Model No. P121-1552) chemical feed pump that is located in the well control building.

The water system also injects fluoride via an LMI® (Model No. B121-91FS) feed pump, as a dental benefit to all users. Finally, orthophosphate is injected to sequester iron and manganese. The water pumped from the two gravel wells needs to be disinfected when the sequestering chemical is added. It should be verified that 4.0 log inactivation of virus' is achieved prior to the first service connection.

E. Distribution

The distribution system is comprised of the following types, and approximate lengths, of waterline:

Diameter	Material	Approx. Length
6-inch	Asbestos Cement	730'
6-inch	Ductile Iron	305'
8-inch	Asbestos Cement	12,245'
8-inch	Ductile Iron	3,000'
8-inch	Galvanized	2,100'
8-inch	C900-PVC	370'
12-inch	Ductile Iron	380'

F. Booster / Pump Station

The pump station delivers water from the Poker Hill storage tank (ST-003) to two (2) houses on the water system. The pump station consists of two (2) 1½ Hp, Goulds® booster pumps (Model No. 3642). The booster pumps alternate and run between five and ten minutes. The pump station has variable speed drives and one (1) Well-X-Trol™ (Model No. WX-102) hydropneumatic pressure tank.

G. Meters

The water system has a master meter located in the well control building. This meter measures the total water being pumped from the well. It should be noted that all users also have individual meters.

H. System Deficiencies Analysis

Currently, the Jericho-Underhill Water District has no major reportable deficiencies.

SECTION III

CONDITION OF EXISTING FACILITIES
AND
ESTIMATED REPLACEMENT COSTS

SECTION III

CONDITION OF EXISTING FACILITIES AND ESTIMATED REPLACEMENT COSTS

A. Existing Facilities' Evaluation

Overall, the components of the Jericho-Underhill Water District are in exceptionally good condition.

B. System Components and Condition (Table 1)

Table 1 on the following page is presented to summarize the condition of the major existing components of this water system and to provide an estimate of the components' remaining useful life. Table 1 also details the estimated future replacement costs associated with some of the existing water system components discussed previously.

Jericho-Underhill Water District
WSID #5096
Water System Evaluation
Oct-06

TABLE 1
SYSTEM COMPONENTS, COST, CONDITION AND SINKING FUND

Item	Component	Apparent Condition	Estimated Remaining Life	Comments	*Est.* Future Replacement Cost *	Replacement Year	Recommended Annual Contribution to Sinking Fund**
1	Well Pumps (2)	Good	± 10 years	Typical submersible pump life, ± 10 years	$15,000.00	2016	$1,232.86
2	Chemical Feed Pump	Good	± 10 years	Three (3) LMI, or equal	$2,220.30	2016	$184.92
3	Booster Pumps	Good	± 10 years	(2) Goulds Model 1BF21534, or equal	$1,036.14	2016	$86.30
4	Hydropneumatic Tank	Excellent	± 20 years	Well-X-Trol Model WX-102, or equal	$328.67	2026	$11.04
5	Master Meter	Good	± 10 years		$740.10	2016	$61.64
6							
7							
8							
						TOTAL	**$1,576.76**

* 4% inflation and 4% interest assumed

** Sinking Fund calculation based on the formula: $(A/F)=[(i)/((1+i)^n-1)]$, where the (A/F) factor is the uniform sinking fund factor, F is the future replacement cost, ^{n} is the number of annual payments, i is the effective interest rate of return on investment, and A is the annual contribution.

SECTION IV

RECOMMENDED IMPROVEMENTS

SECTION IV

RECOMMENDED IMPROVEMENTS

A. General Discussion

1. WSD Identified Deficiencies

According to the Sanitary Survey Letter, dated March 8, 2006, the Water Supply Division identified the following minor deficiencies, which should be corrected:

(a). The access for the cistern (Upper Storage Tank ST-002) was not watertight and did not overlap the framed opening and down around the frame at least two inches. Since the Sanitary Survey, a new access hatch has been installed.

(b). The Upper Storage Tank did not include a vent. A 2-inch, flanged mushroom cap was installed as part of the access hatch upgrade.

(c). The cistern does not have a low water level alarm or water level controls. The alarm and level controls are required to be installed, and in addition it is being recommended that this storage tank be equipped with a high water level alarm.

(d). The overflow for the Poker Hill Storage Tank (ST-003) is screened; however, the screen size was too large. Since the Sanitary Survey, the water system has installed a swing check valve at the overflow, thereby eliminating this deficiency.

(e). The Poker Hill Pump Station does not have stand-by power.

2. Inspection Identified Deficiencies

There were no additional deficiencies noted during the system inspection.

3. Potential for connection to, or consolidation with, adjacent water systems.

The following public community water systems exist within the two-mile Capacity Development Investigation Area:

- Jericho East Home Owners Association (WSID #5652)
- Jericho East Complex (WSID #2765)
- Jericho Fire District #1 (WSID #5476)

Consolidation with the Champlain Water District has been discussed previously. In order to connect the two systems, approximately 6,660 feet of new waterline would need to be installed along Vermont Route 15. Also, this project would include a major river crossing. At this time, the consolidation project would need to be discussed with both parties.

B. Proposed Improvements

The following water system improvements are recommended for the Jericho-Underhill Water District:

1. Construct a new pump station and pressure line (±1,000 feet)to service those users who receive water from the cistern, and disconnect the cistern from the water system; and
2. Purchase a generator to ensure that all users would have access to water during power outages.

Jericho-Underhill Water District
WSID #5096
Water System Evaluation
Oct-06

TABLE 2 PROPOSED IMPROVEMENT COST ESTIMATES				
Item	**Proposed Improvement**	**Quantity**	**Unit Cost**	**Cost**
1	New Pump Station and Pressure Line to Replace Cistern	1	$50,000.00	$50,000.00
2	Back-up Generator	1	$7,500.00	$7,500.00
3				
4				
5				
6				
			Subtotal Estimated Construction Cost	**$57,500.00**
7	Contingency (15%)			$8,625.00
8	Other (Land Purchase, Easements, Etc.)			$0.00
9	Preliminary, Design & Construction Phase Engineering (23% x Construction Cost)			$13,225.00
10	Legal and Administrative			$0.00
			Subtotal Contingency, Engineering, Legal, and Administrative	**$21,850.00**
			Total Project Cost Estimate	**$79,350.00**

SECTION V

FINANCING

SECTION V

FINANCING

A. Review of Potential Funding Sources for Recommended Improvements

Funding for municipally owned water system projects in Vermont is generally available from the Vermont Agency of Natural Resources, Water Supply Division, through the Drinking Water State Revolving Fund (DWSRF) loan program. Additionally, funding is available through the U.S. Department of Agriculture, Rural Development Office in Montpelier.

1. DWSRF Funding

a. Funding Priority List

If a project is eligible for funding through the DWSRF loan program, the water system must apply for the annual DWSRF Project Priority List. Projects to correct the most serious risks to public health receive first consideration in awarding available funds. Completed applications for placement on the construction project priority list must be filed by April of each year to be eligible for the next October 1st to September 30th funding cycle. Projects are funded based on their priority points and their readiness to proceed. If a project is not ready to proceed, it will be bypassed on the current list, and must re-apply for the next year's priority list. Through this bypass procedure, additional projects that were not initially identified for funding and are ready to proceed may be funded.

b. Planning Assistance

This preliminary study has been provided through the Vermont Water Supply Division (WSD) at no cost to the water system. In general, additional planning may require the investment of engineering design and/or hydrogeological services before actual construction of any improvements. To help reduce the burden on small water systems, the State of Vermont can provide a 0%, 5-year DWSRF planning loan if the system is a municipality (a town, fire district or a school) or a private, non-profit community water system. Planning loans are generally rolled into a construction loan.

Additionally, up to $50,000 of a planning loan may be forgiven for a municipality under certain circumstances.

Planning loans are typically available for preliminary engineering studies, hydrogeological services including the drilling of new sources, surveys, and the development of final design plans.

c. SRF Funding for Construction

Projects requesting construction funding must apply for the annual DWSRF project priority list. Construction funding is available for municipal and private community water systems, and for non-profit non-community water systems. Interest rates and terms are determined using the community median household income (MHI), current annual operation and maintenance costs, and existing water system debt. Municipal school projects are set at 3% for a term of 20 years. Additionally, up to $25,000 of a school water system construction project is eligible for loan forgiveness.

If the entire project outlined in Table 2 were undertaken and funded through the DWSRF loan program, an $80,000 project at 3% for 20 years results in a loan payment of about $5,377, or about $18.00 per connection per year.

d. DWSRF Guidance Document – Planning Loan Forgiveness
(Municipalities Only)

Vermont State Statutes Title 24 V.S.A §4753(a)(5) provides in part "*the Secretary may forgive up to $50,000 of the unpaid balance of a loan made from the Vermont Drinking Water Planning Loan Fund to municipalities after project construction is substantially complete. The Secretary shall establish amounts, eligibility, policies, and procedures for loan forgiveness in the annual State Intended Use Plan (IUP) with public review and comment prior to finalization and submission to the United States Environmental Protection Agency.*"

(The federal fiscal year 2001 IUP dated August 2001 provides forgiveness criteria on Pages 26 & 27 and on pages 62 & 63. This guidance document consolidates that information and provides additional interpretation on the determination of eligible costs).

1). Preliminary Engineering and Design Costs

(a). Preliminary engineering and design costs are based on invoices for engineering services submitted by the water system. Allowed amounts for each invoice are determined by Facilities Engineering Division (FED) staff using eligibility criteria and DEC approved engineering agreements.

(b). The maximum amount of forgiveness cannot exceed any of the following:

i. The unpaid balance of actual costs.

ii. $50,000 maximum by Statute.

iii. Amount determined using latest DEC, FED Engineering Fee Allowance Guidance and actual completed documented construction cost eligible for DWSRF loan funds. Special Tasks/Studies are allowed engineering costs under the FED Guidance Document – Engineering Fees. A maximum of 25% of the Standard Engineering Fee Allowance determined using actual construction costs may be included in this determination for approved special Tasks/Studies. The DWSRF program manager must approve special Tasks/Studies. Construction costs must be incurred following approval of the planning loan and may include well construction and land purchase costs of WSD-approved water sources.

iv. The amount determined by the specific eligibility criteria.

(c). One of the following specific criteria must be met to qualify for forgiveness. The criterion that gives the maximum benefit to the system will be used for systems that meet more than one of the criteria.

i. Construction of the project was completed using non-DWSRF monies and the project did not receive other State appropriated funds for project costs.

ii. The water system receiving the loan serves a population of less than 500.

(1). Maximum forgiveness for systems serving populations of 300 or less shall be $25,000.00.

(2). Maximum forgiveness for systems serving populations of 301 to 500 shall be the lesser of:

- $25,000.00 or

- The amount determined under 1.b.iii reduced by 0.5% for each increase of one above the water system service population above 300 following project completion.

iii. User rates following project completion exceed 2% of MHI using final loan amounts, terms and conditions for the project without planning loan forgiveness. The amount of forgiveness will be determined by increasing the forgiveness amount from $0 dollars until the 2% target is reached or the maximum forgiveness amount determined under 1.b.iii is reached.

b. General Eligibility Criteria

The water system must satisfy the following criteria in addition to one or more of the Specific Criteria to receive forgiveness:

1). The water system must meet the minimum requirements for technical, financial, and managerial capacity at the time of the loan forgiveness. Determination will be based on completed, reviewed and WSD approval of Capacity Evaluation form. All Capacity Improvement Plan conditions must have been completed including O & M manuals, long range plans, and source protection plans.

2). Must be in compliance with Water Supply Rule including any Temporary Operating Permit or other compliance schedule.

3). Must be current on Water Supply Division fees.

4). Improvements for which the planning loan was provided must be completed in accordance with a WSD Construction Permit. NTNCs and TNCs must submit plans and/or specifications for loan approval to the WSD.

5). All Construction Permit requirements, including those issued by the Regional Office, must be satisfied. If there is no Construction Permit, an inspection of the facilities by WSD or FED staff will be required.

6). Loan Agreements must have been executed following effective date of the authorizing legislation.

c. Loan Forgiveness Procedures

1). The municipality-authorized representative for the loan must submit a request for loan forgiveness to the WSD, Project Development Specialist, on a standard form with appropriate attached documentation. Requests for forgiveness for a planning loan from a water system that also has a DWSRF construction loan must be received prior to closeout of the construction loan. Planning loans are consolidated with construction loans at that time and there can be no loan forgiveness after consolidation.

2). The request will be reviewed by the WSD and, if approved, submitted to the FED on a standard approval form.

2. U.S. Department of Agriculture, Rural Development Office

Funding is also available for municipal projects through the United States Department of Agriculture Rural Development office (USDA RD) in Montpelier, VT. Loans can be provided as strictly loan, or grant/loan combinations. To be eligible for a grant/loan through USDA RD, the project must be located in a community with a population less than 10,000. Additionally, to receive a grant, the median household income (MHI) of the service area must be less than the statewide MHI and the project must result in a user rate greater than a target rate set by USDA RD. A municipality may use the current MHI for the Town or conduct an income survey of the user area to determine eligibility. The current lending rate from USDA RD for strictly loan projects is 4.5% for 40 years; however they should be contacted directly for current funding packages.

3. Vermont Municipal Bond Bank

Municipal water systems can go directly to the Vermont Municipal Bond Bank for funding. Current rates rate at the bond bank for a 30-year loan are 4.9%. A project of $80,000 at these terms results in annual payment of about $5,145 per year, or about $17.00 per year per connection.

APPENDIX A

SYSTEM LOCATION PLAN

APPENDIX B

SYSTEM PHOTOGRAPHS

APPENDIX C

FIELD NOTES

APPENDIX D

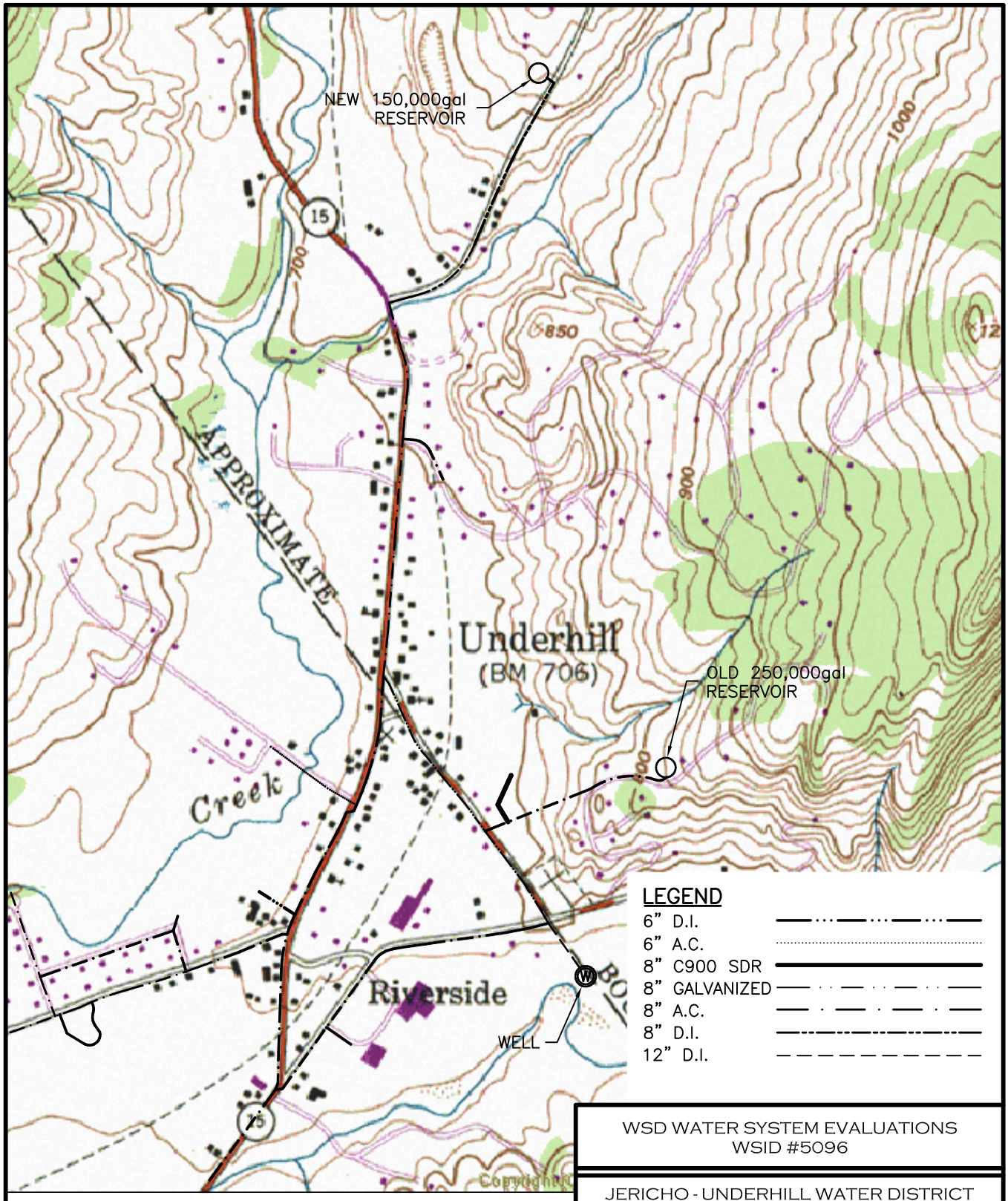
SANITARY SURVEY

APPENDIX E

PERMIT TO OPERATE

APPENDIX F

ELECTRONIC MEDIA
(WSD Only)



NOTE:
REFER TO PAGE 6 OF 6 OF APPENDIX C
FOR INVENTORY OF HYDRANTS AND VALVES

WSD WATER SYSTEM EVALUATIONS
WSID #5096

JERICHO - UNDERHILL WATER DISTRICT
DISTRIBUTION PLAN

GREEN MOUNTAIN ENGINEERING
CIVIL
WATER
WASTEWATER
1438 SOUTH BROWNELL ROAD
WILLISTON, VERMONT 05495
PHONE:(802)862-5590
FAX:(802)862-7598

SCALE:	DATE:	PROJECT NO.:	FIGURE #
1" = 1000'	JAN. 2007	14-019	2

Jericho-Underhill Water District
WSID #5096

Photo #1 – Storage Tank (ST-001)

Photo #2 – Hatch located at ST-001

Photo #3 – Cistern (ST-002)

Photo #4 – Cistern Hatch & Vent

Photo #5 – Cistern Overflow / Drain Outlet

Photo #6 – Poker Hill Storage Tank (ST-003)

Photo #7 – Storage Tank ST-003 Overflow Outlet

Photo #8 – Poker Hill Booster Station

Photo #9 – Booster Pumps

Photo #10 – Variable Speed Drives at Poker Hill Booster Station

Photo #11 – Well Control Building

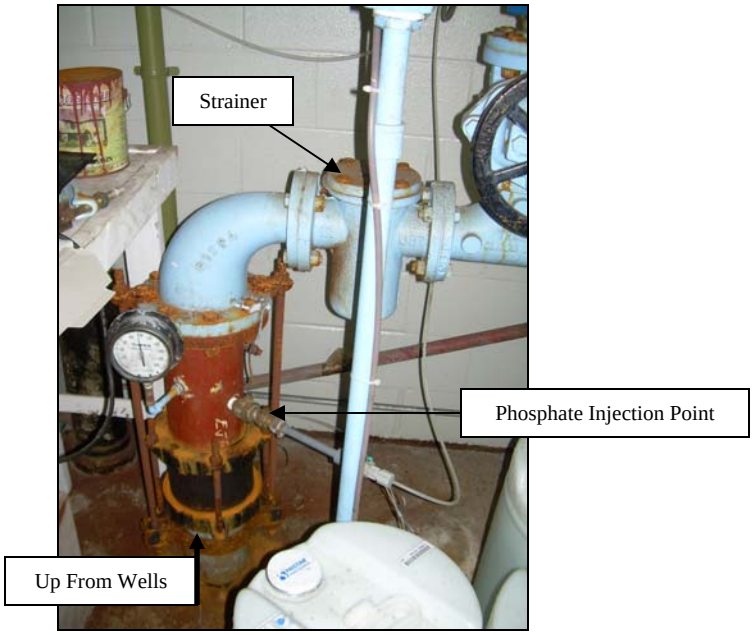


Photo #12 – Control Building Interior Piping

Photo #13 – Anti-Surge Valve (*new*)

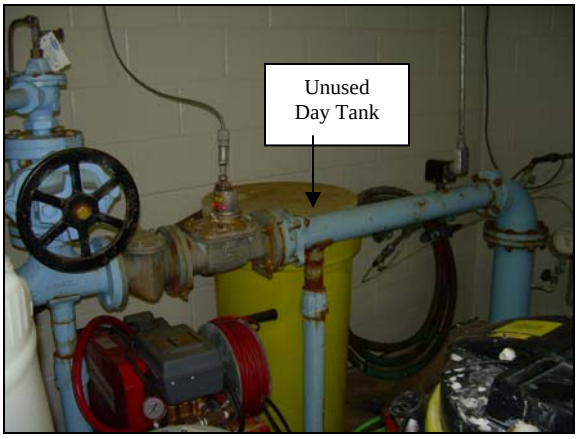


Photo #14 – Relief Valve & Meter

Photo #15 – Chemical Feed

Photo #16 – Well Pump #1 Controls

Photo #17 – Electrical & Well Pump #2 Controls

Photo #18 – 2-pen Chart Recorder (Tank Levels)

FIELD DATA ENTRY FORM
VERMONT SMALL WATER SYSTEMS FACILITY IMPROVEMENTS PLANS
GREEN MOUNTAIN ENGINEERING, INC.

WATER SYSTEM NAME Jericho-Underhill Water District WSID: 5096
DATE OF FIELD VISIT October 25, 2006
INSPECTOR Alan Huizenga, P.E. w/ Marc Maheux

GENERAL INFORMATION:

Type of System	CWS or ~~NTNC~~	Land Owned	Yes
Number of Users	±300 conn.	Certified Operator Name	Marc Maheux
Average Day Demand	±55,000	Automation Systems	Yes
Maximum Day Demand		Original System Installation Date	1971
Fire Flow Provided	Yes	Dates of Major System Upgrades	*
Source Protection Area	Yes	Current Water Rate	Base:$36/qtr + $3.75/1k gal.
Lead & Copper	Yes	As-Built Record Dwgs.	Some
Sampling Plan	Yes	O & M Manual	Yes
Consumer Conf. Reports	Yes	Major Non Residential Users:	
Total Water Demand Meter	Yes	School	
Individual User Meters	Yes	Sawmill	
Long Range Plan	Yes	Store (1,200gpd)	
Annual O & M (approx.)	±$93,000		
Current Annual Debt Retirement	±$37k		
Any Users w/ Booster Pumps	Yes (3) (physically separated)		

REMARKS:

* Upgrades: new wells in 1991, storage tank in 2003

Meters read quarterly

Jericho-Underhill website has information
Google-Earth has new orthophotos

SOURCE(S) OF SUPPLY

WSID: 5096

~~Spring or Dug Well:~~

Year Constructed
Depth
Casing: conc tiles CIP conc metal Other
Accessible w/ Lock
Screened Openings
Surface Water Diversion Berm (distance up-slope)
Drains away in all directions
Watertight Cover
Provisions for Water Level Monitoring
MPA Completed
Reported Reliability

Drilled Well:

Year Constructed	1990
Well Driller	Hydro Group
Well I.D. Tag	Unknown
Log Available	Yes
Depth	Unknown
Grouted into Rock	No
Casing	Unknown
Pump Setting	±170’
Pump Model No. / Hp	*See Below*
Age	1990
Condition	Good
Artesian	No
Height above Grade	Unknown
Watertight Vented Cap	Yes

Isolation Distances: Feet

Buildings	>200’
Paved Driveway	>200’
Property Line	?
Paved Road/Parking Lot	>200’
Surface Water	
Sewer Piping	>200’
Septic Tank	>200’
Utility R.O.W.	?
Concentrated Livestock	>200’
Upslope Leach Field	>200’
Downslope Leach Field	>200’
Solid Waste Disposal Area	>200’

Pittless Adaptor 3” galvanized (Jeff Williams @ Spafford – est. for replacement)
Possible Susceptibility to 100-year Flooding None
Wiring Appearance
Monitoring Wells Nearby Yes w/ welded caps

REMARKS:

8’ high fence w/ barbed wire. Wells in Oxbow along river

1 gravel-packed well & 1 gravel-developed well alternate

Goulds 150H16-6, 20 Hp
15 Hp

FINISHED STORAGE FACILITIES

WSID: 5096

General Items:

- Volume
- Underground
- Material
- Cathode Protection (if steel)
- Low Level Alarm: Not in Cistern
- Level Controls and Type: Transducer
- Bottom above Max. Flood Level
- Bottom above Groundwater
- Perimeter Drain Used
- Watertight Roof
- Tank Floatation an Issue
- Access Protected against Vandalism
- Separate Inlet & Outlet
- Drain
- Can be taken offline & still service
- Susceptible to Freezing
- Last Time Cleaned
- Removal Silt Stop
- Surface Water w/in 50ft. of Tank
- Used as Distribution Storage
  - Approx. Elev. (above source)
  - Approx. Elev. (above highest user)

Overflow:

- Size of Overflow Pipe
- Distance of Overflow to splash plate
- Visible Discharge
- Metallic Pipe
- Open Downward
- 24-mesh Noncorrodable Screen
- Apparent Hydraulic Capacity

Access:

- Type
- Size
- Distance above Grade
- Watertight Cover
- Cover has 2-in. Overlap
- Locking Device
- Interior Ladder
- Exterior Ladder
- Ladder Guards
- Hand Holds
- Confined Space Notice
- Wench Support

Vents:

- Number
- Material
- Prot. from surface/rainwater
- Inverted "J" Construction
- Opening above Grade
- 24-mesh Screen Present
- Apparent Adequacy
- Roof and Sidewalls
  - Obvious irregularity
  - Non-sleeved Openings
  - Curbs as required
  - Drains Away

REMARKS:

ST-002 – Cistern – ±6,000 gallons

ST-001 – 250,000 gallons - steel

ST-003 (new in 2003) – 150,000 gallons - steel

BOOSTER SYSTEM

WSID: 5096

No. of Pumps 2

Make, Model & Hp Goulds w/ variable speed drive. Series 3642, Model 1BF21534

Age 2003

Condition Good

Operating Range _____ psi

Pump Run Time 5-10 minutes

Hydropneumatic Tanks 1 (small)

Make & Model Well-X-Trol WX-102

Age ±3 years

Condition Good

REMARKS:

Goulds 1½ Hp w/ Aqua-Var

Two (2) houses on system served by pump station

DISINFECTION SYSTEM

WSID: 5096

Type:		Standby Equip. Available	Yes
Sodium Hypochlorite	√	Capacity Adeq. For 2 mg/l free	
Calcium Hypochlorite		History of Coliform	
Chlorine Gas		Sample Plan Adequate	Yes
Disinfection Practice:		Free Residual Monitored Daily	
Continuous	√	Chlorine Volume Feed Monitored	
Standby Only			
Intermittent Use			

Day Tank Volume

Dilution Required

Feed Pump

Model No. LMI (P121-155S) for chlorine

Age

Condition Good

4.0 Log Inactivation Sufficient (to be verified by water system)

CT Provided by Piping

REMARKS:

Aquadene Pristine Water Solution w/ Prominent Gamma/4
(orthophosphate to sequester manganese)

Chlorine: LMI P121-155S

Fluoride: LMI B121-91FS

TRANSMISSION AND DISTRIBUTION SYSTEM

WSID: 5096

General System Size / Diameter/ Material Distribution:

	Length	Age	Material	Valves	Blowoffs	Hydrants
0-1½””	250		Copper			
2”	2,200		PE, SDR 26			
4”						
6”	1,035		AC / DI			2
8”	17,700		AC & PVC, DI	17		31
10”						
12”	3,821			4		1
16”						
Above 16”						

Air Release Valves _____
Pressure Reducing Valves _____
Meter Vaults _____
Stream Crossings _____
Bridge Crossings _____
Railroad Crossings _____

REMARKS: