

STATE OF IDAHO  
DEPARTMENT OF WATER RESOURCES

RECEIVED

PROOF OF BENEFICIAL USE

APR 09 2008  
DEPARTMENT OF  
WATER RESOURCES

The Idaho Department of Water Resources considers this form a statement that the permit holder(s) has/have completed all development that will occur under this permit and that water has been applied according to the provisions of the permit for the beneficial use(s) described below. This form must be accompanied by a license examination fee, when necessary, or be accompanied by a completed field examination report prepared by a certified water right examiner.

1. Permit No. 22-13178 Telephone No. 208-787-8008 Ext 14
2. Name of Permit Holder(s): Teton Springs LLC
3. Mailing Address: One Teton Springs Parkway  
City Victor State Id Zip 83455 Feb 2000 (No. 1)
4. Source of Water: Groundwater If **GROUNDWATER** (well), Date Drilled: mo. Nov / yr. 2001 (No. 2)  
Well Driller: Andrew Well Drilling Drilling Permit Number: D0021651 (771065)  
D0011791 (763306)
5. Use(s) (as authorized by the water right permit):  
Domestic (No. of households): 710 (cat buildout) Stockwater (No. and type of stock): N/A  
Irrigation (No. of acres): N/A Other: N/A
6. Total rate of diversion and/or volume for which proof is submitted: 0.89 cfs OR \_\_\_\_\_ acre-feet
7. Measuring Device Requirement: (refer to the approval conditions on your permit and respond accordingly)  
(This question is not optional. Please check either yes or no. Proofs returned not checked accordingly, will be considered incomplete)  
**Measuring Device:** Is a measuring device required? Yes X or No \_\_\_\_\_  
Has the measuring device been installed? Yes X or No \_\_\_\_\_
8. Fee Enclosed: \$ 100.00 (See Fee Schedule on back of the instructions for filing proof of beneficial use)
9. Person to contact to accompany the Department representative during field examination of the water system.  
Name: Robert Ablondi Telephone Number: 307-413-3052 (cell)  
Address: Rendezvous Engineering, P.O. Box 4858, Jackson, WY 83001
10. The information given on this form is my true statement of the extent to which the above numbered permit has been developed and water has been diverted. I agree to relinquish any undeveloped portion of the permit to the State of Idaho.

Signature of permit holder: [Signature] (AGENT) Date: 4/4/08  
(include your title, if on behalf of company or organization)



# **RENDEZVOUS ENGINEERING, P.C.**

Civil Engineers and Planners in Wyoming and Idaho

May 19, 2003

Mr. William Teuscher, P.E.  
Idaho Department of Environmental Quality  
900 North Skyline / Suite B  
Idaho Falls, Idaho 83402-1718

VIA REGULAR MAIL

RE: Teton Springs Development  
DEQ#: 00-1-41

Dear Willie:

We are enclosing the following additional information (in duplicate) in response to your April 7, 2003 comment letter regarding the "preliminary" as-constructed water and sewer plans for Teton Springs submitted to your department on February 21, 2003. As mentioned during our February 21, 2003 meeting with Ryan Urbanec, the submitted plans represent the record drawing plan set for the work completed to date and were submitted to show the progress of the water and sewer facilities for this project which has been under construction since the summer of 2001. As mentioned in this meeting, work is expected to continue through this summer and with the final record drawings for the remaining facilities available in late summer or fall.

## **Item 1. Water Appurtenances**

- Sheet ASBW36 showing standard water details and water system appurtenances.
- Sheets W42, W43, WS1, WS2 and WS3 showing the water tank transmission line and tank grading.
- Sheets from Pittsburg Tank and Tower for the construction of a 500,000 gallon storage tank.

## **Item 2. Sewer Appurtenances and Wastewater Lift Stations**

- Sheet ASBS45 showing standard sewer details and sewer system appurtenances.
- Sheets ASBS46-48 showing wet well and valve vault details for three wastewater lift stations.
- Submersible pump detail sheets for three wastewater lift stations.
- Pump Curve Information for the three lift stations.
- Design Flow Table for the three lift stations.

- Plan sheet showing lift station locations and service areas.

### **Item 3. Teton Springs Irrigation System**

- Sheet WR1, Surface Water Map, showing areas being sprinkled and surface water features within the project. As you may be aware, there is a large non-potable irrigation system, which is not connected to the potable water system. Supply for this system comes out of two ponds (9a and 4a) which, are supplied from surface water sources. Teton Springs currently has valid water rights on about 709 acres from three sources: Trail Creek via the String Canal, Trail Creek via the Trail Creek Sprinkler Irrigation Company and the Sherman Springs located at the south end of the project.

Efforts are underway to consolidate and formalize the specific changes in water uses on the property (i.e. change from agricultural irrigation to ponds and golf / landscape irrigation) with the Idaho Department of Water Resources (IDWR) through the filing of a "Transfer Application". This application does not change the priority dates or the amount of water available to Teton Springs, rather is being filed at the request of the IDWR to provide greater flexibility in the use of water on the property beyond the historic agricultural irrigation. This application is being completed in cooperation with the Trail Creek Sprinkler Irrigation Company who is a co-applicant in this process. Copies of transfer documents will be made available once finalized.

The independent irrigation pumping and distribution system will ultimately serve about 581 acres shown on the Surface Water Map, including most of the residential units associated with the project. This system involves an extensive piping and supply plan with several thousand sprinkler heads. Copies of these plans can be made available from the irrigation system designer. However, Sheet WR1 shows most of the key information.

### **Item 4. Stormwater System**

- Sheets ST1-ST4 showing stormwater subsurface drain details. Although there is no overall stormwater collection system for this project, we have identified about 10 specific locations where there are low areas where runoff ponds. These are areas along roadways where, due to the undulating surface common to this property, there is no outlet for surface drainage. There are also several culverts and pipe crossings that direct surface water to golf course water features and surface ditches. However, given the relatively low impervious surface coverage for most of this project, runoff is very limited. We also anticipate the construction of a limited stormwater collection system for the commercial lot, which is still in the planning process. Also best management practices including silt fences and straw hay bales are being used to control runoff during construction. In addition, a construction setback is being maintained along Warm Creek.

### **Items 5 – 9. Revised Drawings**

- Sheets ASBS 9,10, 12-18, 21,25, 27-29, 41 with revisions responding to your comments, showing corrected inverts and labels.



#### Item 10. Recommended Minimum Slopes

- Table 1. As-Built Wastewater Main Revisions, showing the pipe slopes in the areas of concern. The slopes were calculated based upon the actual pipe length (minus the manhole diameter). **Also several elevations were corrected from the plan set submitted based upon recent actual field measurements.** All original designs were based upon minimum grades of 0.40% but were in some cases adjusted to avoid conflicts with existing utilities or pipelines. This included the main Trail Creek Irrigation line, which was active during the construction and crosses the sewer lines in several places. There were also some adjustments made by the contractor due to conflicts with golf course facilities and power utilities.

Also shown on this table are the minimum flows required to achieve a 2 fps velocity based upon the actual slope. These flows are based upon the values presented in Figure 1 where minimum flow in gallons per minute (gpm) is plotted versus slope for 8 inch PVC sewer pipe.

In sections where the 2 fps criteria are not met, the sewer mains will be monitored for depositions and jetted on a more regular basis. Some sewer jetting will be required regardless given the fact that much of the sewer is laid at a relatively flat grade and will not achieve the 2 fps even if at the minimum grade of 0.4%.

- Figure 1, Minimum Flow Chart, showing the minimum flow required for 8 inch PVC pipe,  $n = 0.010$ , based upon the Manning Equation. This chart shows the flow needed in gallons per minute to achieve a 2 fps velocity for pipe slopes in the range of 0.30% to 0.40%. The minimum flow for the required grade of 0.4% is 62 gpm as shown.
- Flat Sewer Case Study. This study was completed for a small town in Nebraska and shows that sewers laid at grades less than the minimum 0.4% have performed well over time. It has also been our experience with similar developments (i.e. the Teton Pines Golf Resort) where the flatter lines have performed equally as well as the lines at 0.4%.
- We have also enclosed a Wyoming DEQ Policy Memo, where the State of Wyoming has accepted flatter slopes to avoid lift stations and extremely deep sewers. This based upon the Nebraska study and experience within the State of Wyoming.

#### Item 11. Demonstration of Technical, Financial and Managerial Capacity of a Public Water System.

- Enclosed is a preliminary report demonstrating the Technical, Financial and Managerial Capacity for a public water system. This report is based upon the guidance document format provided by your department. It should be noted that much of the information required is yet to be determined given that much of this system is yet to be designed and constructed.



Please call if you have any questions concerning the additional information submitted.

Sincerely,

Robert T. Ablondi,  
Idaho P.E. 5994

Cc: Mike Potter, Teton Springs (without attachments)  
Ryan Urbanec, DEQ (with attachments)





# **RENDEZVOUS ENGINEERING, P.C.**

Civil Engineers and Planners in Wyoming and Idaho

December 16, 2003

Mr. William Teuscher, P.E.  
Idaho Department of Environmental Quality  
900 North Skyline / Suite B  
Idaho Falls, Idaho 83402-1718

VIA REGULAR MAIL

RE: Teton Springs Development  
DEQ#: 00-1-41 / PWS # 7410033

Dear Willie:

We are pleased to submit with this letter the final record drawings for the water and sewer infrastructure for the Teton Springs project. This represents the culmination of the infrastructure facilities associated with this first major phase of the development.

Three copies of the following drawings and details are enclosed. With these, you will now have a complete set of the water and sewer infrastructure drawings.

Well # 1 Connection Details  
Well # 2 Connection Details  
The "Enclave" Sewer and Water Plans  
Wastewater Flow meter Detail  
Water Tank Transducer Detail

This letter also provides the opportunity to respond to the comment and conditions presented in your **June 18, 2003** letter authorizing a one (1) year construction extension.

1. A complete Safe Drinking Water test for Well # 2 along with an additional test for Radium 228 for Well # 1 is forthcoming. We expect to have well No. 2 in operation in early January. The well will be completely flushed and tested before being brought on-line, after which the final testing will be completed. We will at the same time test for Radium 228 on Well # 1. We are confident with the preliminary tests completed during the initial drilling that the two wells satisfy all drinking water standards. I am also enclosing a recent bacteriological test result from 9-15-03 which shows the absence of coliform.
2. The 500,000 gallon tank was constructed in accordance with the plans submitted. No substantial changes were made. It is our understanding that the contractor used chlorination method 2 in accordance with AWWA C652-02.
3. a. Item1. **Water Appurtenances**

- i. The plans for remaining water appurtenance details are enclosed with this letter.
- ii. The Audubon Society consideration is something that Teton Springs will be working on over the next several years as the existing landscaping matures and as they add additional landscaping. This is very involved process and will take several years to complete.
- b. **Item 2. Sewer Appurtenances.** The additional plans for sewer appurtenances are enclosed.
- c. **Item 3. Teton Springs Irrigation System**
  - i. The surface water rights for this property for irrigation and pond supply are tied to shares held with the Trail Creek Sprinkler Irrigation Company. Copies of the Trail Creek Rights which includes Teton Springs are enclosed.
  - ii. A copy of the agreement with Trail Creek is also enclosed.
- d. **Item 4. Stormwater System**
  - i. It does not appear that the stormwater catch basins satisfy all criteria in the definition of "injection well" as the actual constructed trenches are wider than they are deep. Also they are located several thousand feet from the nearest potable wells, which are on the Teton Springs property. In addition, with water levels in excess of 80 feet in the area, they do not present a threat to groundwater quality. The catch basins are only used in isolated areas where due to the undulating ground surface, surface drainage is not possible.
  - ii. Details on the stormwater system for the commercial area will be submitted once a more complete development plan for this area is developed. The plans presently available are conceptual and subject to change.
- e. **Item 5 - 9. Revised Drawings.** No response required.
- f. **Item 10. Recommended Minimum Slopes.** No response required.
- g. **Item 11. Demonstration of Technical, Financial and Managerial Capacity of a Public Water System.** Enclosed are updated financial data and information associated with Element # 11, System Budget. This is based upon our best estimates for this new system.



More accurate budget information will be available as the project develops over the next several years. These pages can be added to the Capacity Analysis notebook previously submitted. Please note that the Operation and Maintenance Manual, Element # 7, is still in progress and will be submitted with the completion of the two supply wells and related instrumentation.

4. We expect to have the final two (2) outstanding items: 1) the well test results and 2) operation and maintenance manual; completed in January. We would like at that time to invite representatives from the DEQ to visit the project and verify its completion and operation of the various infrastructure systems. I would suggest that we schedule a time when weather conditions are favorable for looking at all the major facilities associated with the project. All major components (including the tank via snowmobile) will be accessible.

Future phases of the project will involve the extension of both water distribution and sewage collection systems to serve the balance of the development as presented on the overall master plan. The precise timing and extent of the future phases are still yet to be determined. We also anticipate the drilling of an additional supply well(s) when maximum day demands exceed 200,000 gpd or there are about 175 occupied units.

In summary, we would like to thank you and the members of the DEQ staff that we have worked with over the past several years for their assistance and cooperation. We also wish to acknowledge the Teton Springs owners, who have consistently chosen to construct facilities that exceed the minimum standards and Evans Construction, who crews have worked hard to meet ambitious schedules yet provide a quality final product. We sincerely believe that the Teton Springs infrastructure will set a superior standard for private developments in the Teton Valley.

Please call if you have any questions concerning the additional information submitted.

Sincerely,

Robert T. Ablondi,  
Idaho P.E. 5994

Cc: Mike Potter, Teton Springs (with attachments)  
David Owen, Evans Construction (without attachments)  
Ryan Urbanec, P.E., DEQ (with attachments)





STATE OF IDAHO  
DEPARTMENT OF  
ENVIRONMENTAL QUALITY

900 North Skyline, Suite B • Idaho Falls, Idaho 83402-1718 • (208) 528-2650

Dirk Kempthorne, Governor  
C. Stephen Allred, Director

April 7, 2003

Rendezvous Engineering, INC.  
Attn: Robert Ablondi, P.E.  
PO Box 4858  
Jackson, WY 83001

**RE: Teton Springs Drinking Water, Wastewater, and Irrigation Systems as-constructed plans and specifications review. DEQ #: 00-01-41**

Dear Bob,

On March 14, 2003, this office received and reviewed the as-constructed plans for the Teton Springs Wastewater Collection and Drinking Water Distribution Systems. We, at the Department of Environmental Quality, have the following comments and items that need to be corrected, prior to a conditional approval:

1. This office must receive drawings and specifications, for all the Teton Springs Drinking Water Distribution System appurtenances, (i.e. gate valves, 8" dresser(s), fire hydrants, etc.).
2. This office must receive all wastewater system appurtenances (i.e. manholes, valve vaults, lift stations, etc.) for our records, and for the Operation and Maintenance Manual for the Teton Springs Wastewater Collection System.
3. Please submit the Teton Springs Irrigation System as-constructed plans, as well as, a will serve letter from the Trail Creek Irrigation Company stating they can service the Teton Springs Resort Community, to this office for our records.
4. Please submit the Teton Springs Storm Water Collection System as-constructed plans, including profile views, to this office for our review and approval.
5. Please resubmit Drawing Number ASBS-17, the station numbering system on the Profile Layout, does not match the station numbering for the Plan Layout.
6. Drawing Number ASBS - 14, the wastewater main line servicing Flint Ridge Circle, does not show any INVERT IN elevations, however there is a wastewater main line entering all manholes in Flint Ridge Circle. Please resubmit this drawing with corrected elevations to this office for our review and approval.

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7. Drawing Number ASBS – 25, manhole DL 1-6, does not show an INVERT IN elevation, however there appears to be a wastewater main line entering Manhole DL 1-6. Please resubmit this drawing with an INVERT IN elevation, to this office for our review and approval.
8. Drawing Number ASBS – 25, Manhole DL 1-4, does not show an INVERT IN elevation, however there is a wastewater main line entering Manhole DL 1-4.
9. Drawing Number ASBS – 27, please submit INVERT elevations for Manhole UM 2-6, as they are illegible. Please resubmit this drawing with corrected elevations to this office for our review and approval.
10. Under **33.41 Recommended Minimum Slopes** of the *"Great Lakes-Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers, Recommended Standards for Wastewater Facilities, 1997,"* suggested minimum slope for an eight (8) inch sewer main, is 0.40%. Throughout the Teton Springs Wastewater Collection System as-constructed plans there are sections that do not meet the 0.40% slope requirement.
  - a. Drawing Number ASBS – 9, from UM 1-4 to UM 1-5, **0.393%** slope.
  - b. Drawing Number ASBS – 10, from UM 1-5 to UM 1-6, **0.387%** slope.
  - c. Drawing Number ASBS – 12, from FM 2-1 to FM 3-1, **0.384%** slope.
  - d. Drawing Number ASBS – 12 to ASBS – 13, from FM 3-3 to FM 3-4, **0.223%** slope.
  - e. Drawing Number ASBS – 15, from OTR 1-1 to OTR 1-2, **0.346%** slope.
  - f. Drawing Number ASBS – 15, from OTR 1-2 to OTR 1-3, **0.358%** slope.
  - g. Drawing Number ASBS – 16, from OTR 1-7 to OTR 1-8, **0.361%** slope.
  - h. Drawing Number ASBS – 18, from PE 3-5 to PE 3-6, **0.358%** slope.
  - i. Drawing Number ASBS – 21, from FM 3-6 to H 23-1, shows a slope of 0.40%, however the calculated value is **0.374%** slope.
  - j. Drawing Number ASBS – 21, from H23-1 to H23-2, shows a slope of 0.40%, however the calculated value is **0.362%** slope.
  - k. Drawing Number ASBS – 27, from UM 2-3 to UM 2-4, **0.380%** slope.
  - l. Drawing Number ASBS – 28, from UM 2-8 to UM 2-9, **0.367%** slope.
  - m. Drawing Number ASBS – 29, from UML 2-10 to BRT 2-1, **0.273%** slope.
  - n. Drawing Number ASBS – 41, from COM 2-1 to COM 2-2, **0.365%** slope.

Please submit your calculations for items 9.(a.)–(n.), showing that minimum velocities, two (2) feet per second, for the wastewater collection mainlines will be meet. If minimum velocities cannot be meet, the above listed wastewater mainline sections will have to be reinstalled with adequate slopes.

**IDAPA 58.01.08.549 DEMONSTRATION OF TECHNICAL, FINANCIAL, AND MANGIERIAL CAPACITY OF PUBLIC DRINKING WATER SYSTEMS. No person**

*shall proceed, or cause to proceed, with construction of a new community or non-transient non-community drinking water system until it has been demonstrated to the DEQ that the water system will have adequate technical, financial, and managerial capacity.* As of April 3, 2003, this office has not received any documentation for the Teton Springs Public Drinking Water System Capacity Development. This office will not approve Teton Springs Public Drinking Water System until a thorough Demonstration of Technical, Managerial, and Financial Capacity Guidance has been submitted to this office for our review and approval.

The March 14, 2003 submission for Teton Springs Resort Drinking Water Distribution System and Wastewater Collection System plans will be kept on file at this office. Please reference DEQ No. 00-01-41 when submitting any future correspondence related to this project. If you have any questions in regards to this letter or if we can be of further service, please do not hesitate to contact Ryan Urbanec at (208) 528 - 2650.

Sincerely,



William B. Teuscher, P.E.,  
DEQ - IFRO

CC: Rendezvous Engineering, P.C., Attn: Eric Davis, Box 4858, Jackson, WY 83001;  
Michael E. Potter, 25 West 950 South, Victor, ID 83455;  
City of Victor, Attn: Craig Sherman, P.O. Box 122, Victor, ID 83455;  
City of Driggs, Attn: Allen Wilder, PO Box 57, Driggs, ID 83422;  
Trail Creek Irrigation Company, Attn: Board of Directors, PO Box 131, Victor, ID 83455;  
Idaho Plumbing Division, Attn: Craig Hammond, PO Box 506, Ashton, ID 83420;  
Greg Eager, P.E., Regional Engineering Manager, DEQ - IFRO;  
Ryan Urbanec, DEQ - IFRO;  
Richard Horne, D7HD - IFRO;  
DEQ#: 00-01-41;  
Reading File;



STATE OF IDAHO  
DEPARTMENT OF  
ENVIRONMENTAL QUALITY

900 NORTH SKYLINE DRIVE, SUITE B • IDAHO FALLS, IDAHO 83402 • (208) 528-2650

JAMES E. RISCH, GOVERNOR  
TONI HARDESTY, DIRECTOR

October 27, 2006

Teton Springs  
Jon Pinardi, Director of Operations  
75 W. 950 S. Suite 3  
Victor, ID 83455

**Re: Sanitary Survey Results for the Teton Springs  
PWS # 7410033**

Dear Mr. Pinardi:

On September 19, 2006, Bob Ablondi, Carlin Feisthamel (DEQ), Charlie Mazzone (DEQ) and I conducted a sanitary survey of the Teton Springs public water system. I appreciated Mr. Ablondi's help, cooperation, and support in scheduling and performing this survey. According to our records, this is the initial sanitary survey performed for the Teton Springs.

A sanitary survey is a security and safety measure that should be performed every 5 years for groundwater sources. The purpose of the survey was to identify any areas where the system does not meet the requirements of the State of Idaho Drinking Water Rules and Regulations and identify potential sources of contamination.

During this inspection, eight (8) **deficiencies** were observed that need to be addressed in order to comply with the State of Idaho Drinking Water Rules and Regulations (IDAPA). A Sanitary Deficiency is defined in IDAPA 58.01.08.003.71, that states: As identified during a sanitary survey, any defect in a system's design, operation, maintenance, or administration, as well as any failure or malfunction of any system component, that the Department determines to cause, or have the potential to cause, risk to health and safety, or that could affect the reliable delivery of safe drinking water.

Ten (10) **recommendations** were also made as items to consider in order to improve the overall operations of the water system. Recommendations are not deemed as an eminent health threat, but are helpful suggests that should be considered to enhance the operations of the water system. Some recommendations maybe in violation of the Rule or may not, but do not present a potential health or safety concern. Some recommendations are made because the Rule was promulgated after the system was approved, such as the case as the "Check Valve" installation.

Overall, the Teton Springs public water system is in good order. The specific deficiencies and corrective actions are addressed in the enclosed copy of the Sanitary Survey. Deficiencies are summarized on the next page:

36225

### Well Source Deficiencies:

- 1) Without the well # 1 cap properly bolted upon the well casing, surface water, dust, or possibly insects can enter the well and pose a potential health concern (see Fig. 2). IDAPA 58.01.08.550.03.l.ii. states: *Wells shall be cased and sealed in such a manner that surface water cannot enter the well.*
- 2) In order to maintain the pressure difference between the outside and inside of the well, a well vent is required to be installed (see Fig. 3). IDAPA 58.01.08.550.03.k. states: *All wells...shall be vented with the open end of the vent screened and terminated downward at least (18) inches above the final ground surface.*
- 3) The broken electrical conduit of both wells presents an opening where potential contaminants can be introduced into the well (see Fig. 3). IDAPA 58.01.08.550.03.i.ii.

### Distribution Deficiencies

- 1) A threaded sample tap is an area where bacteria can grow as well as a potential cross connection (see Fig. 6). IDAPA 58.01.08.550.03.g. states: *A smoothed-nosed sample tap shall be installed on the discharge line from every well... Any threaded taps installed in the well house must be equipped with an appropriate backflow device.*
- 2) To properly protect against the entrance of potential contamination such as dust or small insects, the end of the exhaust piping needs to be covered with a 24-mesh corrosion resistant screen (see Fig. 7).
- 3) An open ended over flow pipe is an invitation for insects (bees), rodents, and dust that could pose a potential health concern (see Fig. 9). IDAPA 58.01.08.550.08.e. states: *Overflows shall be downward turned, discharge to daylight, and be provided with: (i) An expandable metal screen within the pipe plus a weighted flapper valve.*

### Water Storage Deficiency

- 1) To avoid unauthorized entry and possible contamination, the hatch lid should be locked at all times (see Fig. 15) IDAPA 58.01.08.550.08.d. states: *Manholes shall be fitted with an overlapping watertight locked cover.*

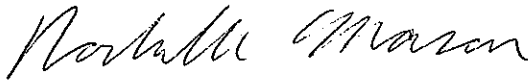
### Operator Certification Deficiency

- 1) An Idaho certified operator is required to oversee the water system. IDAPA 58.01.08.554 states: *Owners of all community...public water systems must place the direct supervision of their drinking water system...under the responsible charge of properly licensed operator.*

Pursuant to IDAPA 58.01.08.302.03, the water system must respond in writing no later than forty-five (45) days after receipt of the sanitary survey report describing how and on what schedule the system will address the deficiency identified in the survey.

DEQ appreciates your commitment to providing adequate and responsive service, as well as supplying a safe and reliable supply of drinking water to your users. If you have any questions or need any further assistance, please feel free to call me at (208) 528-2650.

Sincerely,

A handwritten signature in cursive script that reads "Rochelle Mason".

Rochelle Mason  
Drinking Water Quality Analyst

Encl: (1)

c: Greg Eager, P.E. Regional Engineering Manager (w/o enclosure)  
Bob Ablondi, Rendezvous Engineering (w/enclosure)

**Idaho Department of Environmental Quality  
Idaho Falls Regional Office  
Sanitary Survey Report  
Teton Springs PWS# 7410033  
October 27, 2006**

## **INTRODUCTION**

### **A. Purpose of Report**

The purpose of this report is to present a sanitary survey review of the Teton Springs water system conducted on September 27, 2006 and to identify any deficient areas that represent an imminent health risk and require immediate correction.

### **B. Summary Description of System**

The Teton Springs water system consists of two (2) groundwater sources and a storage reservoir. At the time of the sanitary survey the chlorination systems that will be installed on each source had not installed.

This new system is in the developmental stage and is being manually control until such time that the system will be controlled by a telemetry system. The Teton Springs development consists of seasonal cabin rentals, full time residences, an executive golf course and club house, and year round lodge accommodations. It is estimated that this system will be fully developed within the next three years (2009).

The sewer system at Teton Springs consists of several lift stations that are connected to the City of Victor. Irrigation water supplied by Sherman Springs and the String Canal that is served by Trail Creek is separate from the drinking water system, and therefore poses no cross connection concern.

### **C. Consumption and Production**

It is estimated that this facility currently serves an average of 85 people during the summer months and around 30 during the winter with 105 un-metered connections. These numbers will increase as development continues. To date, there have been no water shortages, reports of waterborne diseases or complaints about the water quality.

## **INVESTIGATION AND ANALYSIS**

### **A. Sources of Information**

- Robert Ablondi, P.E. System Contact, Rendezvous Engineering, Inc.
- Carlin Feisthamel, P.E. Water Quality Engineer, DEQ
- Rochelle Mason, Drinking Water Quality Analyst, DEQ
- Charlie Mazzone, P.E. Water Quality Engineer, DEQ
- Well Drillers Report
- Field Investigation

## 1) SOURCES

Water for the Teton Springs public water system is derived from two groundwater wells. Both Well # 1 and # 2 are considered primary sources and will be used more than 60 days of the year. Currently Well # 2 serves as primary well, while Well # 1 is only used during periods of high demand. Both sources are defined for domestic use with limited irrigation and have shown to be reliable with adequate capacity to meet the demands associated with the Teton Springs public water system at this time.

Both **well lots** are within the boundaries of the Teton Spring Golf and Casting development. Both well sources are located behind the well houses with no evidence of potential sources of contamination within the minimum fifty (50) feet of either well site. No pesticides, fertilizers or other potential hazardous materials are stored or applied to the well lots. Both sources are satisfactorily located away from any exiting sanitary hazards including sewer lines, sewage disposal or other potential hazardous materials and are adequately protected from potential flooding.

### Well # 1

According to the Driller's Well Log, **Well # 1** (E0011791) (**Fig. 1**) was drilled in May of 2001 to a depth of 792 feet and is cased with a non-perforated (10) inch steel casing. The casing adequately extends above the ground surface to protect the well from flooding and potential surface contaminates. The surrounding ground should be graded to slop away from the well to assure no surface water pooling around the well casing. This well is considered a geothermal well. The well was sealed with benitonite to a depth of 57 feet. The static water level of this source was measured at 2 feet. The well cap is properly vented and screened. The sanitary seal is in good condition, though because of the large gap between the cap and the seal it does not provided a water tight seal to prevent contaminated water or other material entering the well. The overall integrity of the well appears to be in reliable operation meeting state requirements.



**Fig. 1 - well # 1**

### Well # 2

**Well # 2** (E0021651) (**Fig. 2**) was drilled in November 2001 and completed in October 2003 to a depth of 1140 feet. Because this well produced only 45 GPM when originally drilled, in December of 2005 the well was re-cased and lined between 477 and 737 feet with a welded steel liner. A perforated casing was then was placed between 737 and 797 feet. This well provides the majority of the water at this time. The extended casing adequately protects this source from flooding or potential surface contaminates, though the surrounding surface gradient could also be improved upon. According to the Driller's Log Report, this source was sealed to a depth of 58 feet with cement grout. The static water level is at 12 feet. The sanitary seal is in satisfactory condition. The well cap is not vented and the electrical conduit was broken which may allow the introduction of contaminants. The overall integrity of the well appears to be in reliable operation meeting state requirements.



**Fig. 2 – well # 2**

## WELL SOURCE DEFICIENCIES

- 1) The well cap for Well # 1 was missing (2) bolts (Fig 3). The bolts must be installed in order to provide an adequate water tight seal to prevent contaminated water or other materials from entering the well in accordance with IDAPA 58.01.08.550.03.1.ii. which states: wells shall be cased and sealed in such a manner that surface water cannot enter the well
- 2) A well vent is required to be installed on well # 2 in accordance with IDAPA 58.01.08.550.03.k. which states: all wells...shall be vented with the open end of the vent screened and terminated downward at least (18) inches above the final ground surface.

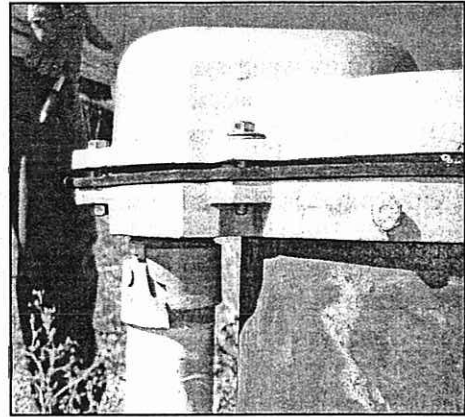


Fig. 3 – Well # 1 sanitary seal and conduit

- 3) The conduits that hold the electrical cables that attaches to the well # 1 (Fig. 3 and 11) and # 2 pump has come apart and must be repaired to prevent introduction of potential contaminants in accordance with IDAPA 58.01.08.550.03.1.ii.

## WELL SOURCE RECOMMENDATIONS

- 1) Although both Well casings meet the minimum (18) inches above the finished ground surface, it is recommended to grade the ground to slop away from the well head to prevent melting snow and any other surrounding surface water from pooling around the well and seeping down along the outside of the well column. The finished ground should slope away from the well head in order to avoid any possible surface water contamination entering the well.
- 2) Because the well lots are not fenced to keep out unauthorized personnel or motorized vehicles, there is a potential for the well heads being damaged or hit. It is recommended to place some type of barricade around the wells with reflecting stake markers to eliminate any potential accident of damaging the well heads, especially Well # 1 which is located out in an open field.
- 3) It is recommended that Teton Springs consider a third well in the event that Well # 2 is down because Well # 1 (back up source) does not have the capability to produce eight hundred (800) gallons per day per service connection. IDAPA 58.01.08.550.p. states: New community water systems served by ground water and constructed after July 1, 1085, shall have a minimum of two (2) sources if they are intended to serve more than twenty-five (25) homes or equivalent. The second source shall be capable of producing at least eight hundred (800) gallons per day pre service connection.

## 2) TREATMENT

Each well house (Fig. 4) is equipped with a treatment room where a future automatic sodium hypochlorite chlorination system will be installed. Each treatment facility is secured with a locked door, properly vented at ground level, and heated.

These voluntary treatment systems will be considered “stand-by” and will be applied under sixty days out of the year, and therefore will not fall under the requirements of the Disinfection By-Product Rule at this time.

All community water systems that apply disinfection for greater than sixty days are subject to the Disinfection By-Product Rule (DBP). The DBP Rule requires that chlorine residual concentrations are measured at the same time in the distribution system as total coliforms are sampled. Water systems must also monitor for Total trihalomethans (TTHM) and haloacetic acids (HAA5) annually during the month of the warmest water temperature and at the location representing the maximum distribution system residence time.

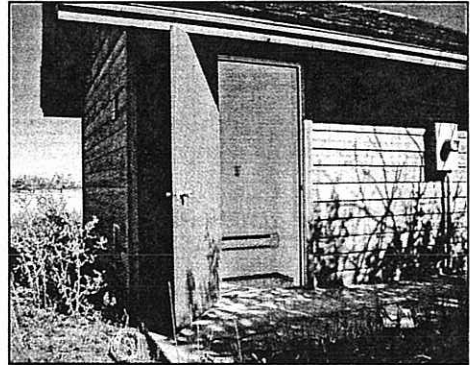


Fig. 4 – well house treatment room

### TREATMENT RECOMMENDATION

- 1) Before purchasing a disinfectant verify that the container bears the NSF label to assure it is approved for drinking water use. In accordance with IDAPA 58.01.08.552.02. All chemicals shall conform to applicable American Water Works Subsection 002.02.k and be listed as approved under ANSI/NSF standard 60 or 61 in subsections 002.02.m. and 002.02.l. Non-approved NSF products may contain contaminants that may affect the quality of the water and may not be safe to apply to drinking water. A list of National Sanitation Foundation approved chemicals for drinking water can be found at: <http://www.nsf.org/Certified/PwsChemicals/>

### 3) DISTRIBUTION SYSTEM

The **general distribution system** consists of 4 and 6 inch ductile iron main lines and 2 and 4 inch Polyvinyl Chloride (PVC) service lines. System pressure is maintained at around 60 psi for normal operation. There have been no major leaks experienced or interruptions (including pressure loss) in service.

**Distribution Flow:** Both discharge piping (**Fig. 5**) are similar for both sources unless otherwise noted. Water from the Well flows through 6-inch ductile iron piping past a source sample tap, an air release equipped with an isolation valve, flow meter, and an isolation valve that allows the well to be isolated from the distribution system. A double check valve is installed on the separate line off the main discharge line that serves an outside hose bib. The pump to waste piping is also off the main discharge line which discharges to the outside of the well house. Appurtenances are listed below in order of installation on the discharge line:

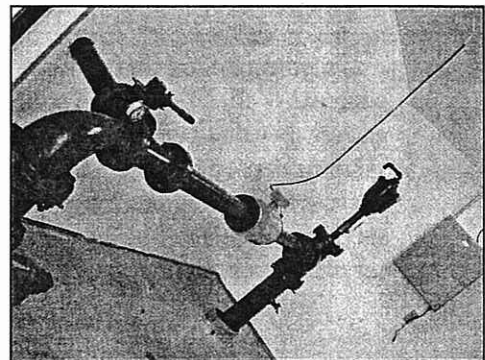


Fig. 5 – distribution line

- A “threaded” **sample tap (Fig. 6)** representing each source is installed on the distribution line from the well.
- An **air relief valve (Fig. 12)** is installed to allow air to be released from the distribution lines. The discharge piping is terminated downward. At the time of the inspection the isolation valve for the air relief valve of Well # 1 was in the closed position. Corrective actions were taken during the inspection to open the isolation valve to its proper position.
- A McCrometer “Ultra Mag” brand (MX03-0228) **flow meter (Fig. 13)** is installed horizontally on the discharge piping before serving the distribution system. As the water passes through the pipe, a voltage directly proportional to the flow rate is generated. This voltage is measured by electrodes inserted through the flow meter lining. The reading is then converted to give rate of flow and total flow measurements. This meter appeared to be functioning properly at the time of the inspection.
- The necessary valves and appurtenances are available to allow the each well to be **pumped to waste (Fig. 7)** prior to the first connection. The pump to waste line discharges to the outside of the well house approximately 12 inches above a cement splash pad.
- An **Isolation Valve (Fig. 14)** is on the discharge piping to provide the ability for the well to be isolated from the distribution system for routine maintenance or in the event of contamination.
- At the time of the inspection the **pressure gauge** installed upon the discharge line of Well # 1 showed 120 psi. A standard water heater can’t withstand pressures over 100 psi. It was verified during the inspection that the gauge was not working properly and will be replaced. Mr. Albondi confirmed that the system pressure is maintained at 75 psi. of both sources.
- A **double check valve assembly (DCVA) (Fig. 15)** is installed on the distribution line that serves an outside hose bib that is mounted on the outside of the well house. This DCVA consists of two check valves that only allow flow in one direction.

### DISTRIBUTION DEFICIENCIES

- 1) Both wells have “threaded” sample taps (**Fig. 6**) that need to either be equipped with an appropriate (approved) backflow device or the threads must be removed to create a smoothed-nosed connection. In accordance with IDAPA 58.01.08 550.03.g. which states: a smoothed-nosed sample tap shall be installed on the discharge line from every well... Any threaded taps installed in the well house must be equipped with an appropriate backflow device.

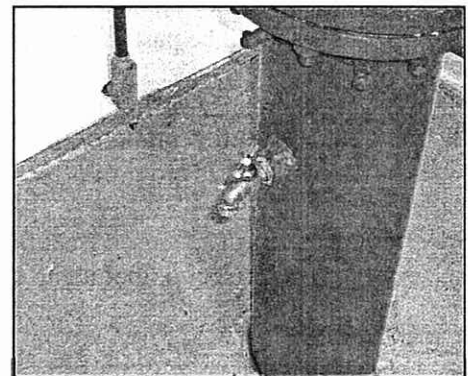


**Fig. 6** – source sample tap

- 2) To properly protect against the entrance of potential contamination such as dust or small insects, the end of the discharge piping of the pressure relief must be covered with a 24-mesh corrosion resistant screen.

- 3) All discharge piping to daylight such as the pump to waste (**Fig. 7**) piping is required to be provided with an expandable metal screen within the pipe plus a weighted flapper valve to properly protect against the entrance of potential contamination in accordance with IDAPA 58.01.08.550.08.e.

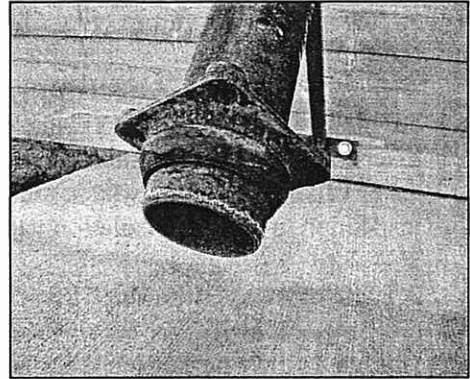


**Fig. 7 – pump to waste piping**

### **DISTRIBUTION RECOMMENDATIONS**

- 1) The purpose of a **check valve** is to prevent the reverse flow of water. It is designed to protect the source from any possible contamination within the distribution system flowing back into the well. Installing a check valve within the well column does not allow for reasonable accesses to verify that the valve is installed properly or is in working condition. It is recommended upon future upgrades of the system to install a check valve on the discharge line where it can be reasonably accessible to inspect. In accordance with the IDAPA 58.01.08.550.03.j. which states: An accessible check valve shall be installed above ground on the discharge line of each well.

While the installation of a check valve is required by IDAPA Rule stated above, this “recommendation” is based on the following information:

- Submitted “As Builts” were approved by DEQ without the initial installation of a check valve on the discharge line of each well because the Rule was promulgated after the system was approved.
  - System supporting statement: a check valve was not installed because of the chance of causing water hammer.
- 2) All valves should be exercised on routine basis to assure that they are in good working condition. This should be part of the scheduled maintenance of the water system.
- 3) In accordance with IDAPA 58.01.08.550.07.a.iii. Annual inspections and testing of all installed backflow prevention assemblies by a tester licensed by a licensing authority recognized by the Department is required.
- A list of Licensed Backflow Assembly inspectors in your area can be found at: <https://secure.ibol.idaho.gov/eIBOLPublic/LPRBrowser.aspx>

### **4) PUMPS/PUMP FACILITIES & CONTROLS**

Each wooden well house (**Fig. 8**) contains electrical controls, discharge piping and a treatment system. The overall structural condition of each facility is in excellent condition with satisfactory lighting and secured locked door. The walls are adequately insulated to prevent freezing of pipes. The sloped concrete floor shows no evidence of surface water or of past flooding. The floor drain drains to a sump pump 30 feet from the well house and is not connected to the sewer. There is no evidence of potential hazardous

materials stored within the well house or surrounding area. Overall, the well house is kept clean and is in good repair.

According to Plans and Specifications that were submitted in 2000, **Well # 1** is equipped with a 15 (HP) 6 –inch submersible pump. And is capable of producing 150 (gpm) at 50 psi. The pumping test that was performed at the time the well was drilled in 2001 showed that this well is capable of delivering 500 (gpm).

The 2000 Plans and Specifications also specify **Well # 2** is equipped with a 25 (HP) 6-inch submersible pump. The pumping test performed at the time the well was drilled in 2003 indicates this well is capable of delivering only 45 (gpm) pumping at 212 feet. This well production information may not be accurate. According to Mr. Abloni, the pump test conducted over several weeks showed that this well has the capability of producing up to 150 (gpm). The pumping test after the well was re-cased and lined in 2005 was either not performed or left off the Driller's Well Log to confirm this information. In addition, the 2000 Plans and Specs show that the well pump has the capacity of producing 250 (gpm) at 50 psi., which would confirm that this well probably has the capability of producing more than 45 (gpm) otherwise this type of well pump would have not been placed.

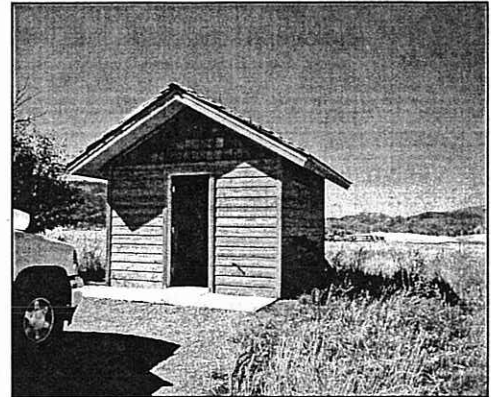


Fig. 8 – well house

Operator verified that both pumps run smoothly with no excessive cycling that would indicate a problem or need for maintenance. System pressure is maintained between 40 – 65 psi.

The **general pumping equipment and appurtenances** components that include; pumps, valves, piping, gauges, and electrical controls all are in good operable condition.

### **CONTROLS RECOMMENDATION**

- 1) DEQ recommends that on-site auxiliary power be considered in the event of power loss.

**Pending 2007 Rule IDAPA 58.01.08.501.07.** states: New community water systems constructed after April 15, 2007 are required to have sufficient dedicated on-site standby power, with automatic switch-over capability, and or *storage so that water may be treated and supplied to pressurize the entire distribution system during power outages.* Standby power provided in a public water system shall be coordinated with the standby power that is provided in the wastewater collection and treatment system.

### **5) WATER STORAGE FACILITY**

A **500,000 gallon** welded steel storage tank (**Fig. 9**) that is gravity fed into the system provides adequate storage capacity to support future growth. The tank is securely located from unauthorized access and can only be accessed through two locked gates that run through private property. The tank itself can be accessed by a secured metal fabricated ladder. No potential sources of contamination, such as pesticides, fertilizers or other potential hazardous materials are stored or applied in the area of the tank. The tank is adequately protected against any potential flooding. The external surface of this tank

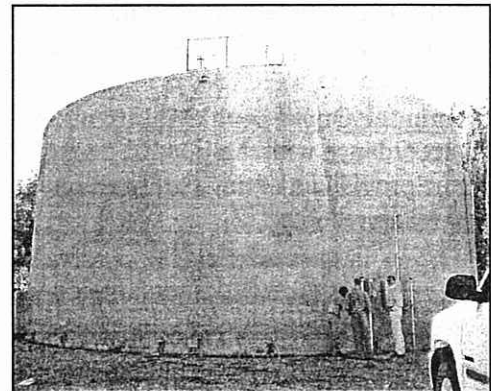


Fig. 9 – 500,000 storage tank

is sprayed with a material to provide additional insulation and tank surface protection.

A water heater has also been installed inside the tank to provide additional protection against potential freezing. The overall structural integrity of this steel tank is sound with no evidence of leaking.

Tanks features are listed below:

- The overlapping **hatch lid (Fig. 10)** extends adequately above the tank roof, protecting the tank against potential surface water contamination, but is not secured with a lock.
- The **tank vent (Fig. 16)** provides a way for this gravity fed tank to “breathe” as the tank is filled and empties. It is properly screened to prevent the entrance of birds, insects and dust.
- A manhole located in front of the tank contains the valve that provides a means by which the tank can be **isolated (Fig. 17)** from the distribution system in order for the tank to be maintained.
- The tank **overflow drain (Fig. 18)** is properly screened with a metal screen installed within the pipe with an adequate air gap established. The overflow discharges over a drainage inlet structure that exits down the hill from the tank and is not connected to the sewer.
- The **tank drain (Fig. 19)** discharges to daylight though because it is valve off from the tank it does not present any possibility of backflow to the reservoir and is not required to be screened.

#### WATER STORAGE DEFICIENCIES

- 1) To avoid unauthorized entry and possible contamination, the hatch lid should be locked at all times in accordance to IDAPA 58.01.08.550.08.d. Manholes shall be fitted with an overlapping watertight locked cover (**Fig. 10**).

#### WATER STORAGE RECOMMENDATIONS

- 1) The current manhole cover is defined for “Sewer”. It is recommended to use a manhole cover that is appropriately marked so that there is no confusion.
- 2) When practical it is recommended to provide any drains discharging to daylight with an expanded metal screen within the pipe to exclude rodents.

#### 6) MONITORING REPORTS/DATA VERIFICATION

Sampling, maintenance and monitoring reports are kept by Mr. Ablonde of Rendezvous Engineering until such time that the water system is turned over to the Teton Springs management.

#### Reminder Operational Maintenance Records

In accordance with the IDAPA 58.01.08.150.03 Any owner or operator of a public water system subject to the provisions of this part shall retain on its premises or at a convenient location near its premises the following records:

- Bacteriological Analysis – **5 years retention**
- Chemical Analysis – **10 years retention**
- Record of action taken to correct violations – **3 years retention**
- Copies of reports, and communication related to sanitary surveys – **10 years retention**

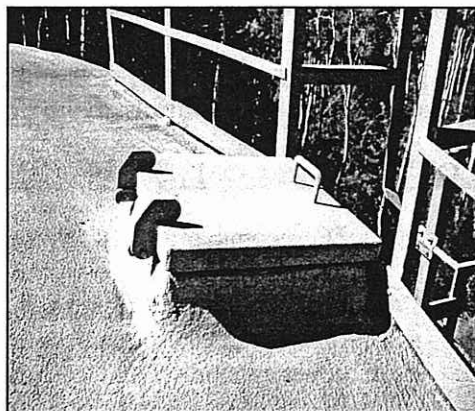


**Fig. 10 – tank hatch**

- Copies of public notices issued – 3 years retention

Currently all initial “Chemical” and “Bacteriology” monitoring for the Teton Springs water system are in accordance with the Idaho Rules for Public Drinking Water Systems. Mr. Rendezvous is adequately knowledgeable of the monitoring requirements for this system. Energy Laboratory (Wyoming) is utilized for water analysis.

## **7) WATER SYSTEM MANAGEMENT/OPERATIONS**

This system is under the direct supervision of Mr. Ablonde, who has adequate knowledge regarding the water system and demonstrates a sufficient level of understanding of the technical and operational characteristics of the system.

### **OPERATIONS REQUIREMENTS**

The following are recommendations that should be considered in the overall management operations of the water system:

- 1) **Cross Control Program** Pursuant to IDAPA 85.01.08.550.07.a. all suppliers of water for community water systems shall implement a cross connection control program to prevent the entrance of toxic or hazardous substances to the system.
- 2) **Annual Flushing Program** Pursuant to IDAPA 58.01.08. 550.06.i. all dead end water mains shall be equipped with a means of flushing and shall be flushed at least semiannually...
- 3) **Consumer Confident Report (CCR)** This water quality report is required of community water systems to complete and deliver to their customers by **July 1, annually**. The report must contain information on the quality of the water delivered by the system and characterize the risks (if any) from exposure to contaminants detected in the drinking water. The CCR is an opportunity to inform your customers of the efforts made to maintain safe and potable water.

### **OPERATIONS RECOMMENDATIONS**

- 1) **Develop and Implement a Drinking Water Protection Plan** A drinking water protection plan outlines the management tools that a committee plans to use to protect drinking water sources. Management tools can apply to existing or future potential contaminant sources and can be either regulatory or non-regulatory. Regulatory tools include items such as zoning ordinances or site plan review requirements. Non-regulatory tools include items such as educational or pollution prevention activities. Every plan should include a public education and information component. You can contact Jack Rainey in the Idaho Falls DEQ Regional Office for more information on developing a “Protection Plan” for the Teton Springs.
- 2) **Security and Emergency Response Plan** DEQ encourages that all public water systems (PWS) take it upon themselves to assess their vulnerabilities and to take the necessary steps towards security in order to secure drinking water facilities from external and intentional contamination. An example of a PWS Emergency Plan Guide can be found at DEQ’s web site:  
[http://www.deq.idaho.gov/water/prog\\_issues/drinking\\_water/information\\_pws.cfm](http://www.deq.idaho.gov/water/prog_issues/drinking_water/information_pws.cfm)

## **8) OPERATOR COMPLIANCE WITH STATE REQUIREMENTS**

Mr. Ablondi is committed to providing adequate and responsive service, as well as supplying a safe and reliable supply of drinking water to the area served by the Teton Springs. Currently the population served by the Teton Springs water system serves less than 500 people and has no treatment other than disinfection classifying this system as a Very Small Water System (VSWS). It is recommended because of the potential for the Teton Spring water system to serve over 500 people in the next year as this system develops, operator certification should be at least a **Distribution 1** level.

#### **OPERATOR CERTIFICATION DEFICIENCY**

- 1) In accordance with IDAPA 58.01.08.554 Owners of all community...public water systems must be placed in the direct supervision of their drinking water system...under the responsible charge of properly licensed operator. Available training courses and operator certification requirements information can be found at the following web sites:
- <http://www.idahocertificationtraining.com/index.htm>
  - <http://www.idahooperatortraining.com/>

#### **IMPORTANT OPERATOR CERTIFICATION INFORMATION**

| <b>EXAM DATES</b> | <b>APPLICATION DEADLINE</b> |
|-------------------|-----------------------------|
| March 7, 2007     | January 10, 2007            |

#### **APPRIASAL OF SANITARY HAZARDS AND SAFEGUARDS**

Under the federal Surface Water Treatment regulations (SWTR) all groundwater sources serving community public drinking water systems must be evaluated to determine if they are directly influenced by surface water or at risk with respect to giardia, cyptosporidium or other microbial contamination.

Criteria used to determine the vulnerability of microbial contamination includes a well's distance to a surface water source (<500 feet), fractured basalt aquifers, and well construction features such as an annular grout seal and depth of casing. There are no surface water sources less than 500 feet from the wells. These wells do not appear to be under the direct influence of surface water, and therefore are not subject to the requirements of the SWTR. The final source classification for the Teton Springs wells is ground water.

Additional pictures taken during the 9/27/06 Sanitary Survey:



Fig. 11 – well # 2 broken conduit



Fig. 12 – air relief valve

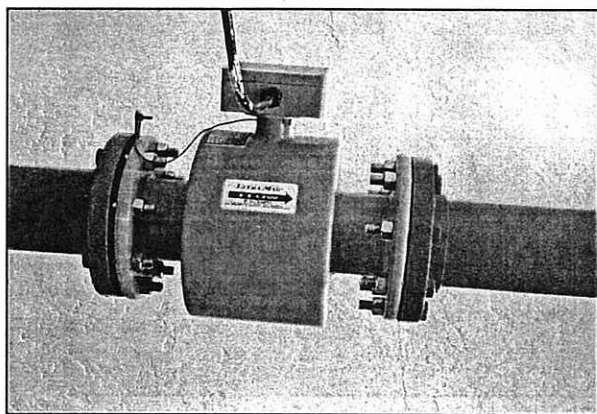


Fig. 13 – flow meter

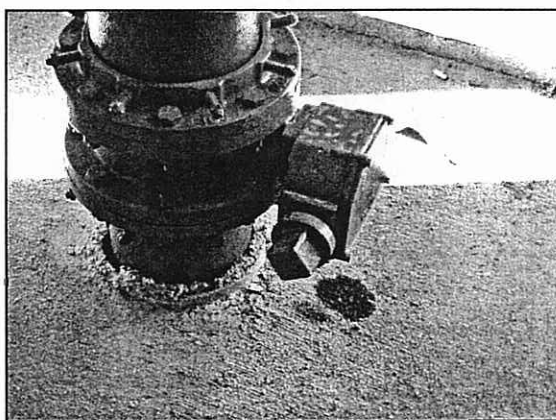
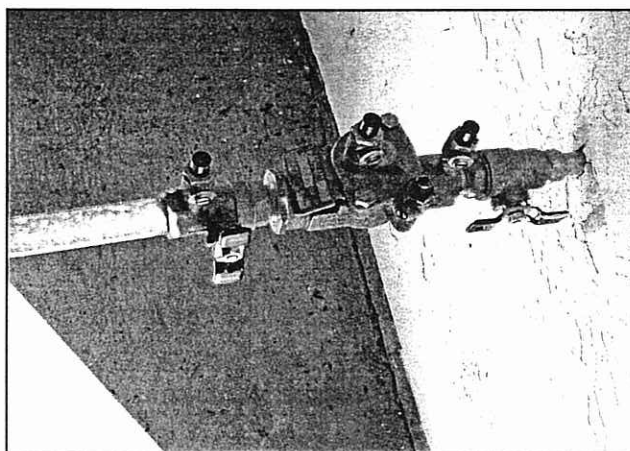


Fig. 14 – isolation valve



Additional pictures continue:

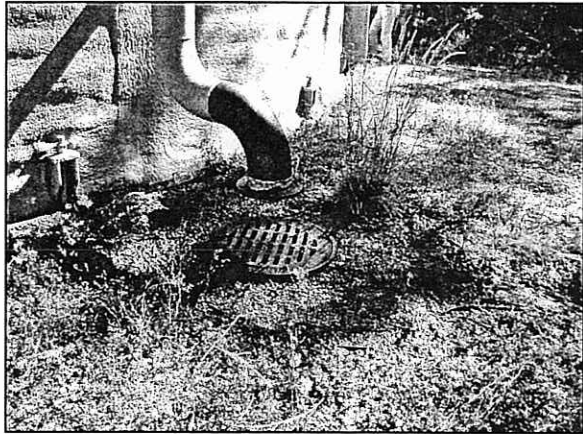


Fig. 18 – over flow drain

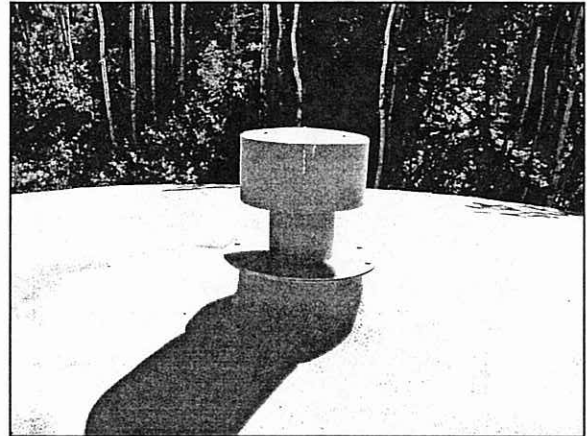


Fig. 16 – storage tank vent

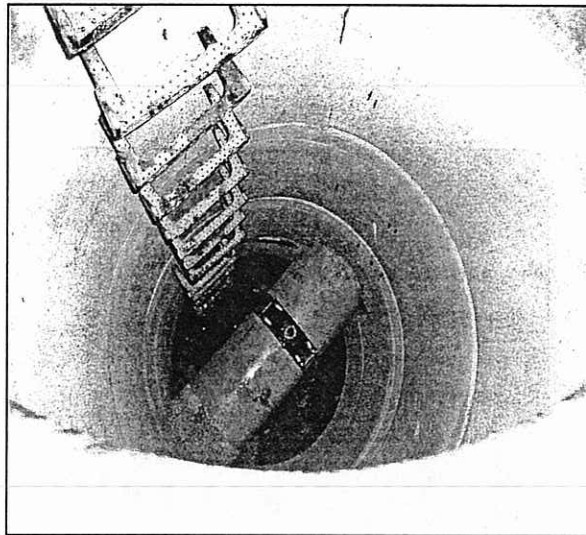


Fig. 17 – storage tank isolation valve



Fig. 19 – storage tank drain