



STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY



RECEIVED

MAY 02 2012

DEPARTMENT OF
WATER RESOURCES

444 Hospital Way, #300 • Pocatello, Idaho 83201 • (208) 236-6160

C.L. "Butch" Otter, Governor
Curt Fransen, Director

April 25, 2012

Cherie Palmer [cherie.palmer@idwr.idaho.gov]
PO Box 83720
Boise, ID 83720

Re: Public Records Request

Dear Ms. Palmer,

On April 24, 2012 the Idaho Department of Environmental Quality (DEQ) received a request from you regarding files maintained by DEQ pertaining to information regarding the distribution system for PWS #ID6210003 Cub River Acres, which is located outside of Preston in Franklin County. Enclosed you will find the records that fall within the scope of your request.

Any charges associated with your request, will be sent in a separate mailing containing an invoice. Please contact me at 208-236-6160 if you have any questions related to your request.

Sincerely,

A handwritten signature in cursive script that reads "Wendy Prather".

Wendy Prather
Public Records Coordinator
Pocatello Regional Office

PRR/WP



STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

444 Hospital Way #300 • Pocatello, Idaho • 83201

C.L. "Butch" Otter, Governor
Toni Hardesty, Director

**Certified Mail
Return Receipt Requested**

October 27, 2010

Wayne Phillips
Cub River Estates
PO Box 415
Preston, ID 83263

RE: Cub River Estates Water System Sanitary Survey: PWS # 6210003

Dear Mr. Phillips:

On October 13, 2010 the Idaho Department of Environmental Quality (DEQ) conducted an Enhanced Sanitary Survey of the Cub River Estates water system. We appreciate your cooperation and support in also having Darrel Drury accompany us during the survey. The purpose of the survey was to identify any areas where the system does not meet the requirements of Idaho Department of Environmental Quality Rules, IDAPA 58.01.08, "Idaho Rules for Public Drinking Water Systems" and to identify potential sources of contamination. The following summary describes the physical features of the system, and identifies any significant deficiencies, deficiencies, or recommendations noted during the survey.

General Description

The Cub River Estates water system is located in Franklin County, south of the City of Preston, just off of Cub River Road. The water system serves at most 160 residents during the year through 80 metered connections. There are 12 homes with approximately 25 people that are considered full time residents. The majority of the connections are primarily summer time use. The water system consists of one active well, one inactive well, one spring, and two storage reservoirs. The active well is used in the summertime during peak water usage. The spring is located approximately ¼ to ½ mile upstream from the storage reservoirs to the east. The old chlorination system was still in operation at the time of the survey. The system has no standby power. In addition to the backup well, the association has four additional wells which are owned by the Cub River Estates subdivision. Wells 1 and 2 have no pumps and no well information is available. Well 3 is an artesian well which is currently in use and has a well log. Well 4 is located just south of well 3, it has a pump installed, it

has been updated, it is reported to be operational, but has not been approved for service. There is no testing information on well 4, but there is a well log. According to past survey information, there is an additional well drilled as part of the association used by the Travis Thain residence, which still may be able to be turned into the water system.

Sources

Litz Creek Spring

The spring was constructed in 1973 and serves as the primary source of water for the system. Water overflowing from the spring forms a creek that flows to the Cub River. The spring discharge supply is collected by a 22-inch steel pipe that is buried 15 feet into a hillside. The pipe is tightly connected to a cavern of artesian water, and the connection is encased in poured concrete. None of the concrete or the artesian well is visible, only the overflow pipe. The overflow is properly screened. The spring does not discharge through the overflow consistently year-round, discharge generally lessens during the late fall and winter. Water flows from the spring directly to the storage tanks before entering the distribution system.

Well #3

Well 3 is located along a sloping hillside west of Cub River Road in a small field, and is covered by a removable insulated shell. It serves as the system's secondary source. The artesian well is cleaned out through a discharge pipe annually before being turned in to the system. It is unknown when the well was originally drilled. A well log from 1978 indicates that the well was deepened to 150 feet below ground surface (bgs). The well has a 10-inch column with a 12-inch casing that extends to 75 feet bgs. The well has a 3 hp submersible pump. The discharge line is equipped with an isolation valve, flow meter, pressure gauge, threaded sample tap and the ability to be pumped to waste. The well is vented and has a check valve between the well and distribution.

Well #4

The description of well 4 is essentially the same as well 3, but it is not yet approved for use as a system water supply.

Storage

Two 30,000 gallon reservoirs are located down gradient from the spring. They are partially buried, rectangular concrete reservoirs. One was constructed in 1973, at the time of the spring development, and the other was constructed in the early 1980's. A valve box above the reservoirs can separate water flow into either of the reservoirs or allow both to fill simultaneously. The older concrete reservoir is identified as tank #1 and is leaking on one side of the exposed reservoir wall. The other storage tank has been repaired and re-sealed during the recent construction, however, this tank was also leaking during the inspection meaning that it may not have been properly sealed. The storage tank drain lines and overflow lines discharge to the creek.

Treatment

A gravity flow tablet chlorination system is mounted on the top of the west reservoir, inside a wood building. It is designed to drop calcium hypochloride tablets into a tray where the water flow stream slowly dissolves the tablet, thus adding chlorine to the storage tank inlet stream. Since the tablets did not always dissolve properly and often not enough chlorine was entering the system, a new chlorinator is being installed in the new chlorination building. Chlorinated water was directed to the interior of the tank so un-chlorinated water was directed to the overflow directly from the inflow. A new calcium hypochlorite tablet chlorinator has been installed in a new concrete block building next to the reservoirs to take the place of the old chlorinator. The chlorinated water will be injected prior to entering the distribution system. There is one home connected to the system that has its own UV disinfection system since it receives untreated water.

Distribution System

The distribution piping ranges from 2 to 6 inches in diameter and is constructed of PVC. The service lines to the homes are ¾" PVC. All of the 80 water system connections are metered, which helps to serve as a water conservation program. The distribution line splits after leaving the storage tank and serves two pressure zones.

Monitoring/Reporting/Data Verification

Currently, Cub River Estates is in compliance with all chemical and bacteriological monitoring and reporting requirements.

Pumps/Pumping Facilities and Controls

No booster pumps are used to transport water through the distribution system. A booster pump is located in the Lonny Pickens' residence across the canyon from the spring and storage tanks. Due to the elevation of the home, water pressure in the house is boosted by a 1-HP AO Smith booster pump which then results in a zero or negative pressure in the distribution line outside the house. Well #3 is equipped with a 3 hp submersible pump.

Management/Operator Compliance

Cub River Estates is under the direction of a water board consisting of five members. Year round residents are charged \$240.00 per year plus \$3.00 per thousand gallons over 40,000. Part time residents pay \$90.00 per year for water. At the time of the inspection, Darrel Drury was serving as the operator and was responsible for collecting and monitoring routine bacteria and chemical samples and reporting lab analyses to DEQ. Darrell is not yet properly licensed, but Lynn Bingham serves as the Substitute Responsible in Charge (Sub.RIC) Operator, and is properly licensed. Wayne Phillips is the President of the board and presides over the water system.

Ground Water Under the Direct Influence of Surface Water (GWUDI)

The Cub River Estates water system completed all required GWUDI testing on the spring. Two Microscopic Particulate Analysis (MPA's) were collected during a period of vulnerability. Based on the results of these tests, at this time, the spring has been determined to be **groundwater** that is not under the direct influence of surface water. However, it is important to remember that future changes in climate, land use, or physical integrity of the water system may require reevaluation of risks from surface water influence. Well #3 is also considered to be groundwater.

You will find a list of the significant deficiencies, deficiencies and recommended improvements for your system summarized below.

A **Significant Deficiency** is defined in IDAPA 58.01.08.003.88, 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.

A **Deficiency** states: As identified during a sanitary survey, the systems design, operation, maintenance, or administration, as well as any failure or malfunction of any system component, that the Department determines are not in compliance with the drinking water rules and do not cause or do not have the potential to cause, risk to health or safety, or that could not affect the reliable delivery of safe drinking water.

Recommendations are made as an item to consider in order to improve the overall operation of the water system.

Significant Deficiencies:

The following improvements must be made to comply with DEQ regulations (IDAPA 58.01.08):

1. The Responsible Charge Operator (DO) is not properly licensed, having equal to or greater licensure than the classification of the public water system, as required by IDAPA 58.01.08.554.02.

Deficiencies:

1. There is no cross connection control program for the PWS, as required by IDAPA 58.01.08.552.06.
2. All threaded non-sample taps installed in the pump house are not equipped with an appropriate backflow prevention device, as required by IDAPA 58.01.08. 541.01.n.

(The sample spigot outside the new pump house/chlorinator building does not have a backflow prevention device or a smooth nosed sample tap, and does not appear to have the proper signage for non-potable water as indicated in the plans.)

3. Both storage structures were observed to be leaking at the time of inspection, which is not in accordance with IDAPA 58.01.08.544.09.
4. The storage structures may not be entirely structurally sound, as required by IDAPA 58.01.08.544.

(Since both storage structures are leaking, they should be evaluated for structural integrity. As part of that evaluation the system may wish to weigh the costs associated with rehabilitation of the aging structures vs. installation of a new storage structure.)

5. The interior coating or liner of the storage structures may be peeling and/or cracked, which is not in accordance IDAPA 58.01.08.544.

(Since leaks are visible, any interior coating upgrades do not appear sufficient to stop the leaks.)

6. An operation and maintenance manual is not provided for the PWS or the operation and maintenance manual is incomplete, not having daily operating instructions and/or operator safety procedures, as required by IDAPA 58.01.08.501.12.
7. There is no auxiliary power on-site for the well pumps, as required by IDAPA 58.01.08.501.07. According to the operator, any power outages experienced by the system are of minimal frequency and duration that auxiliary power will not be required. The need for auxiliary power on-site will be reevaluated every time an ESS is conducted. **(No action required at this time)**

Recommendations:

1. There is no well log on file for Well #3. The grout depth, screen and/or perforation depth are unknown for this well. DEQ recommends the operators identify and record this information the next time maintenance is conducted on this well.
2. DEQ recommends that a leak detection program be put in place and utilized.
3. DEQ recommends the water system operator obtain training in cross connection control.
4. DEQ recommends that all storage tanks be inspected for integrity and silt build up annually.
5. DEQ recommends that all storage tanks be cleaned every five (5) years. The cleaning of any storage tank should be coordinated with the DEQ regional office. Be advised that AWWA standards do not allow a tank to be cleaned while in service unless a Boil Water Advisory is administered.
6. A possible confined space entry violation exists in your public water system. DEQ administrative

rules require that all confined space entry requirements be considered, in accordance with IDAPA 58.01.08.501.14. DEQ does not, however, specifically enforce Occupational Safety & Health Administration (OSHA) regulations and therefore you should refer to the OSHA web site at www.osha.gov/SLTC/confinedspaces/index.html or their Boise, Idaho Office in order to develop and implement a comprehensive confined space entry program in order to protect personnel from dangerous conditions.

OSHA - Boise Area Office
1150 North Curtis Road, Suite 201
Boise, Idaho 83706
(208) 321-2960
(208) 321-2966 Fax

For all modifications to existing water systems, an engineering report shall be submitted to the Department of Environmental Quality's (DEQ) review and approval prior to or concurrent with the submittal of plans and specifications as required in Subsection 504.03, pursuant to IDAPA 58.01.08.503.

Prior to modifications of existing public water supply systems, plans and specifications must be submitted to the DEQ for review, and approved, pursuant to IDAPA 58.01.08.504.03. Please contact this office at 236-6160 prior to making any system modifications.

DEQ recommends the significant deficiencies be addressed as soon as possible, however, pursuant to IDAPA 58.01.08.302.03, the water system must respond in writing not later than forty-five (45) days after receipt of the sanitary survey report, describing how and on what schedule the system will address significant deficiencies identified in the survey.

If you have questions regarding this letter please contact Barbara Jones or me at (208) 236-6160.

Thank you for your cooperation in this matter.

Sincerely,



Scott MacDonald, EIT, MBA
Associate Engineer

Enclosures: Photo log, and photos

cc: Tom Hepworth, Engineering Manager, DEQ-PRO

State of Idaho
Department of Environmental Quality

Photo Log

Name of Facility: Cub River Acres		Inspection Date 10/13/2010 (mm/dd/yyyy)		PWS# 6210003
Camera Type: ☒ Digital ☐ 35mm ☐ Other:		Camera Brand: Olympus	Camera Model: Stylus 770 SW	Camera ID#: 303490

Photo:	Date:	By: (initials)	Direction: (N,S,E,W, etc.)	File Name:	Description:
1	10/13/2010	BJ			Tank #1 older tank with the chlorinator building on top
2	10/13/2010	BJ			Tank #1 Leaking at the North West corner
3	10/13/2010	BJ			Tank 2 leaking at the North West corner
4	10/13/2010	BJ			Tank #1 leaking near the connected pipe building
5	10/13/2010	BJ			Tank #2 30,000 gallon, new hatch and vent
6	10/13/2010	BJ			Level Indicator Tank #2
7	10/13/2010	BJ			Tank #2 screened vent
8	10/13/2010	BJ			Fabricated hatch & vent for new tank, not yet installed
9	10/13/2010	BJ			New pump house/chlorinator building piping & vent
10	10/13/2010	BJ			Pressure reducing & Solenoid shut-off valve (Blue)
11	10/13/2010	BJ			This pipe directs raw spring water to the overflow drain
12	10/13/2010	BJ			Piping prior to the split for the two tanks, black pipe is chlorine IN
13	10/13/2010	BJ			New Chlorine Building facing south, also tank level sensor
14	10/13/2010	BJ			Chlorine building heater
15	10/13/2010	BJ			Piping top each of the two tanks, sample tap on the right
16	10/13/2010	BJ			Tank level transducer controller
17	10/13/2010	BJ			New chlorine and valve building exterior
18	10/13/2010	BJ			Chlorine contact chamber
19	10/13/2010	BJ			Hammonds Chlorine Injection unit
20	10/13/2010	BJ			Chlorine system label
21	10/13/2010	BJ			Distribution system pressure gauge
22	10/13/2010	BJ			Chlorine tablets for the new chlorinator
23	10/13/2010	BJ			Flow meter digital readout
24	10/13/2010	BJ			Inlet from Tank 2 (R), tank 1 back (L), overflows & drains below
25	10/13/2010	BJ			Tank outlet manifold to two pressure zone distribution pipe outlets
26	10/13/2010	BJ			New hatch for Tank 2
27	10/13/2010	BJ			Isolation valves for each tank
28	10/13/2010	BJ			Tank 1 access hatch and chlorine mixing system
29	10/13/2010	BJ			Current chlorine supply for chlorinator
30	10/13/2010	BJ			Chlorine pellet erosion contact chamber
31	10/13/2010	BJ			Outlet from chlorine system back to Tank 1
32	10/13/2010	BJ			Combined tank overflow over the splash plate
33	10/13/2010	BJ			Private residence pre-filter prior to the tanks and chlorinator
34	10/13/2010	BJ			Close up of water overflow, un-chlorinated
35	10/13/2010	BJ			UV disinfection unit - private residence
36	10/13/2010	BJ			UV disinfection unit piping connections
37	10/13/2010	BJ			UV controller
38	10/13/2010	BJ			Spring collection area, no visible signs of concrete or pipes
39	10/13/2010	BJ			Fencing around spring collection area
40	10/13/2010	BJ			Spring overflow, minimal current overflow
41	10/13/2010	BJ			View of overflow up the pipe
42	10/13/2010	BJ			Well 3 piping, vent, flow meter, sample tap, & isolation valve
43	10/13/2010	BJ			Well 3 base and insulated cover (tombstone)
44	10/13/2010	BJ			Well 3 heater & well casing inside the concrete enclosure
45	10/13/2010	BJ			Valves for wells
46	10/13/2010	BJ			Power pedestal for the wells
47	10/13/2010	BJ			Well 4. inactive but updated
48&49	10/13/2010	BJ			well 4 flow meter, pressure gauge, sample tap, & vent - Well 3 enclosure drain

The photographers signature below signifies that the images identified on this photo log have not been tampered with and are representative of what was seen in the field.

Photographer(s) Signature(s): _____ Date: _____



Photo #1. Tank #1 older tank with the chlorinator building on top



Photo #2. Tank #1 Leaking at the North West corner



Photo #3. Tank 2 leaking at the North West corner



Photo #4 Tank #1 leaking near the connected pipe building



Photo #5. Tank #2 30,000 gallon, new hatch and vent



Photo #6 Level Indicator Tank #2



Photo #7. Tank #2 screened vent



Photo #8 Fabricated hatch & vent for new tank, not yet installed



Photo #9. New pump house/chlorinator building piping & vent

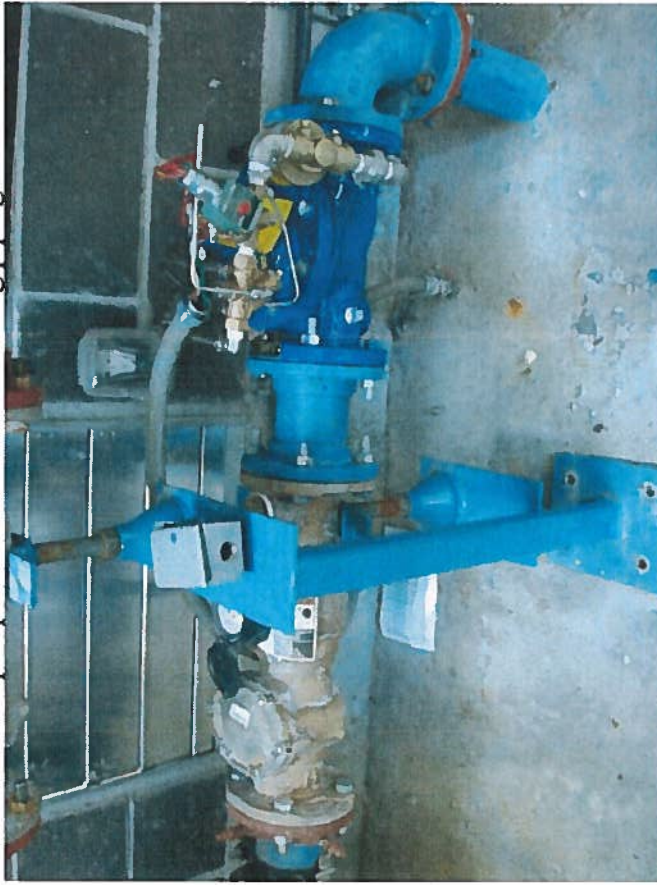


Photo #11. This pipe directs raw spring water to the overflow drain



Photo #10. Pressure reducing & Solenoid shut-off valve (Blue)



12. Piping prior to the split for the two tanks, black pipe is chlorine IN



Photo #13. New Chlorine Building facing south, also tank level sensor



Photo #14. Chlorine building heater

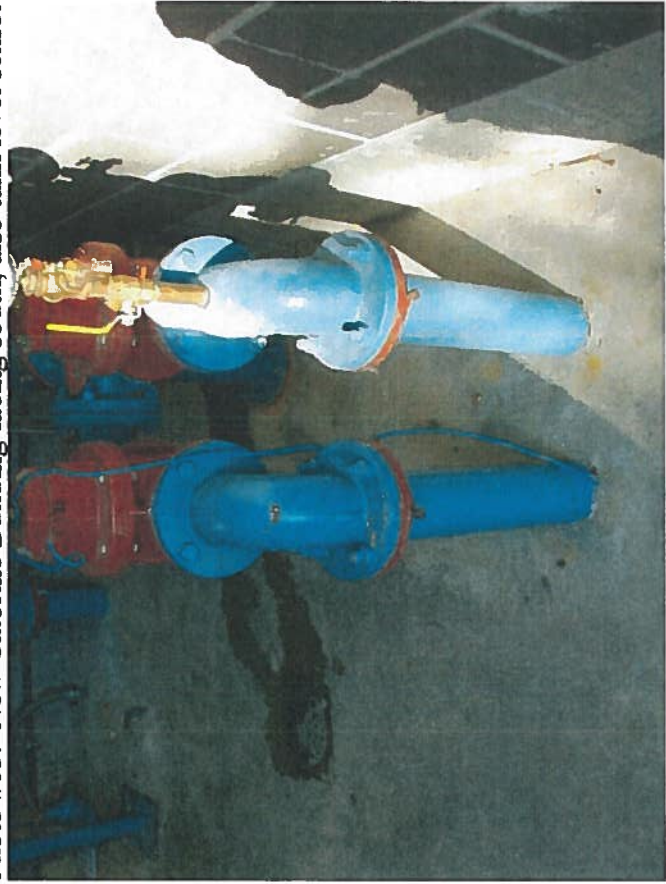


Photo #15. Piping top each of the two tanks, sample tap on the right

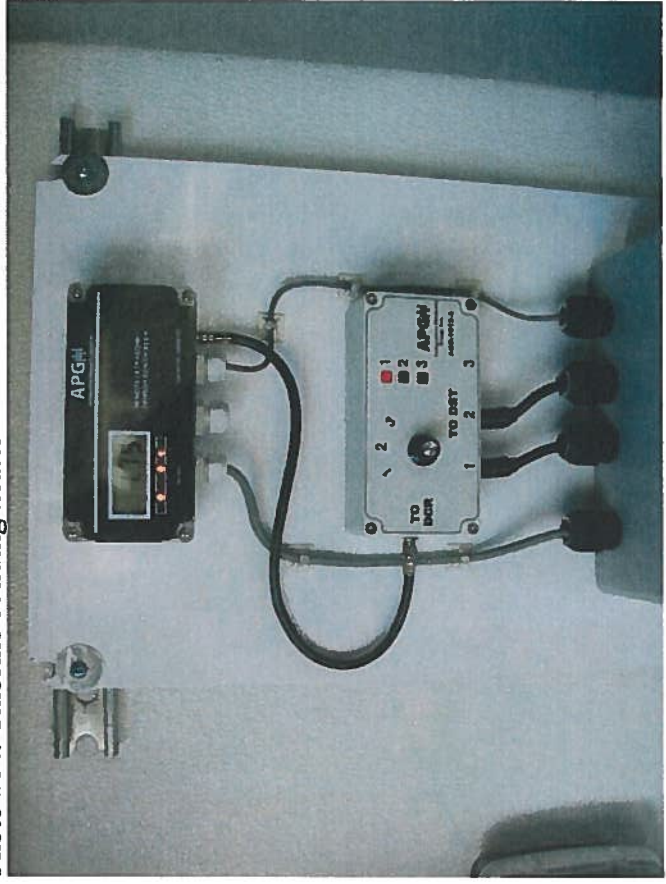


Photo #16. Tank level transducer controller

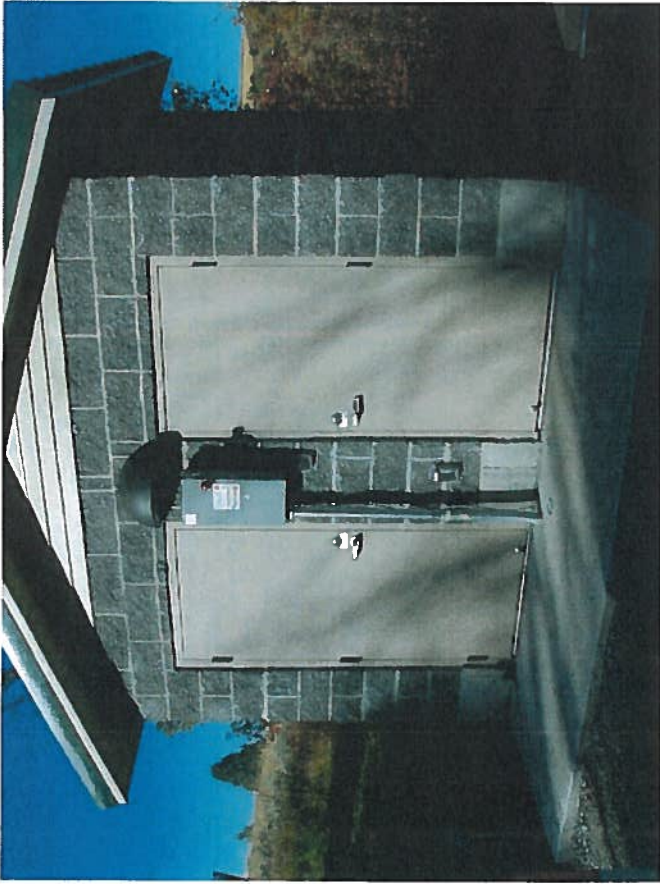


Photo #17. New chlorine and valve building exterior

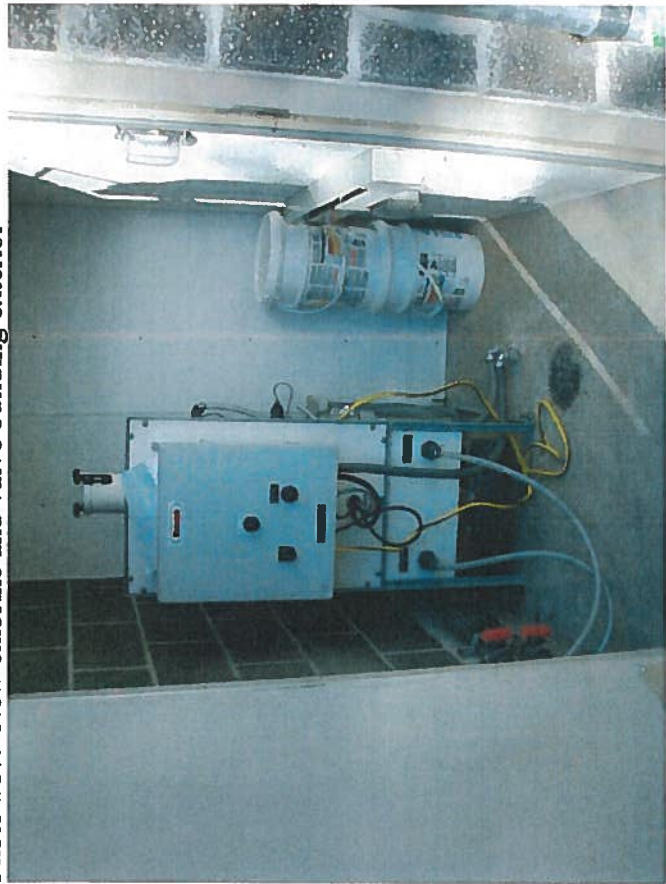


Photo #19. Hammond's Chlorine injection unit

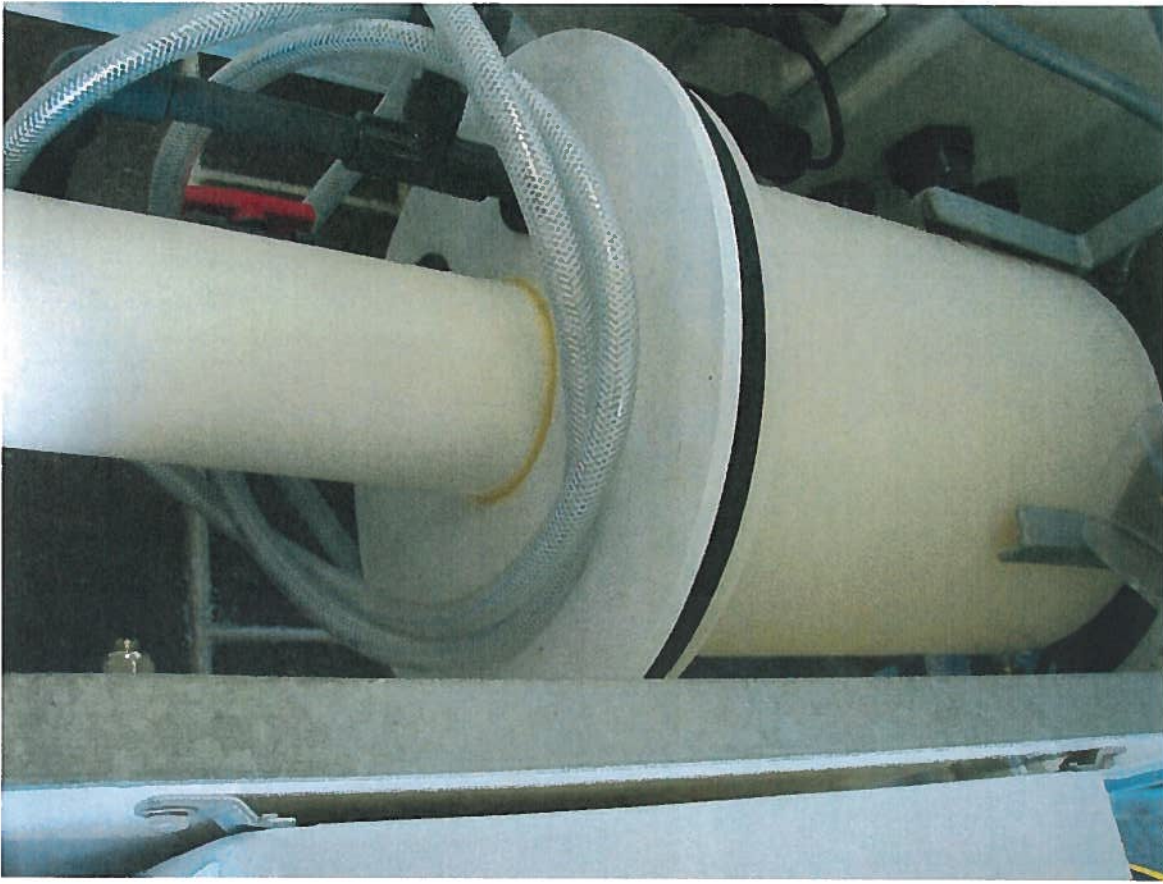


Photo #18. Chlorine contact chamber



Photo #20. Chlorine system label

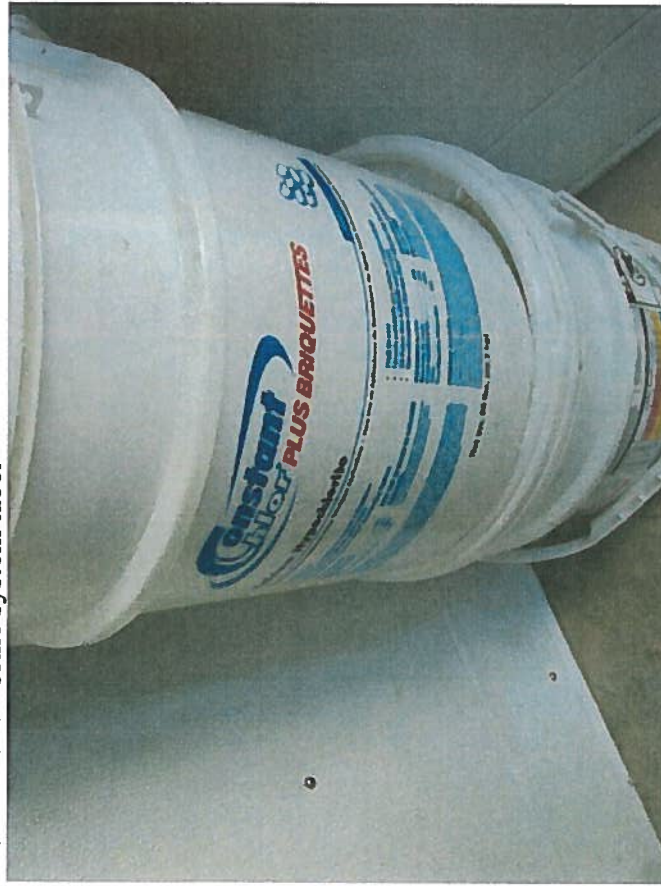


Photo #22. Chlorine tablets for the new chlorinator

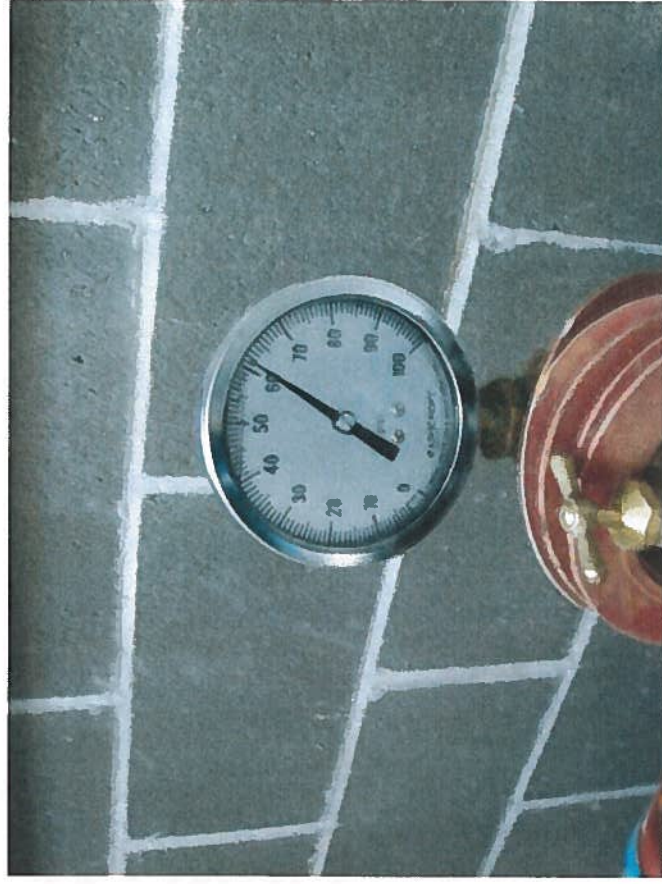


Photo #21. Distribution system pressure gauge



Photo #23. Flow meter digital readout



24. Inlet from Tank 2 (R), tank 1 back (L), overflows & drains below



25 Tank outlet manifold to two pressure zone distribution pipe outlets



Photo #26. New hatch for Tank 2



Photo #27. Isolation valves for each tank

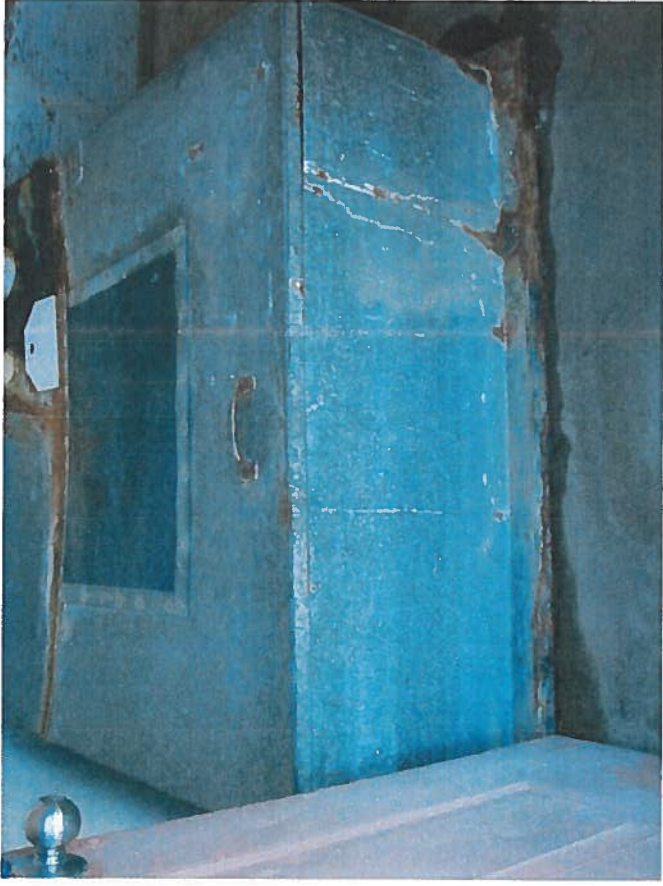


Photo #28. Tank 1 access hatch and chlorine mixing system



Photo #29. Current chlorine supply for chlorinator



Photo #30. Chlorine pellet erosion contact chamber

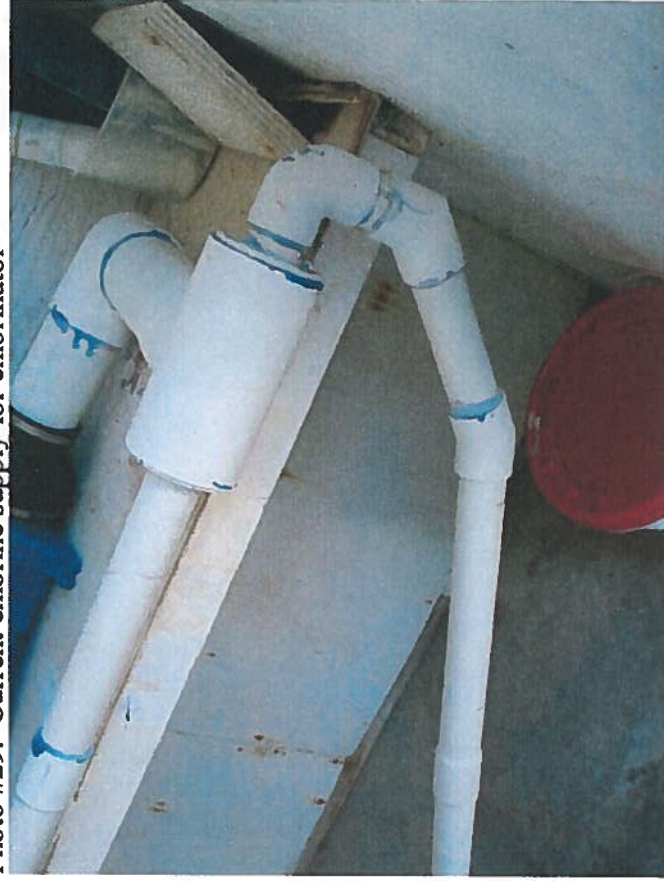


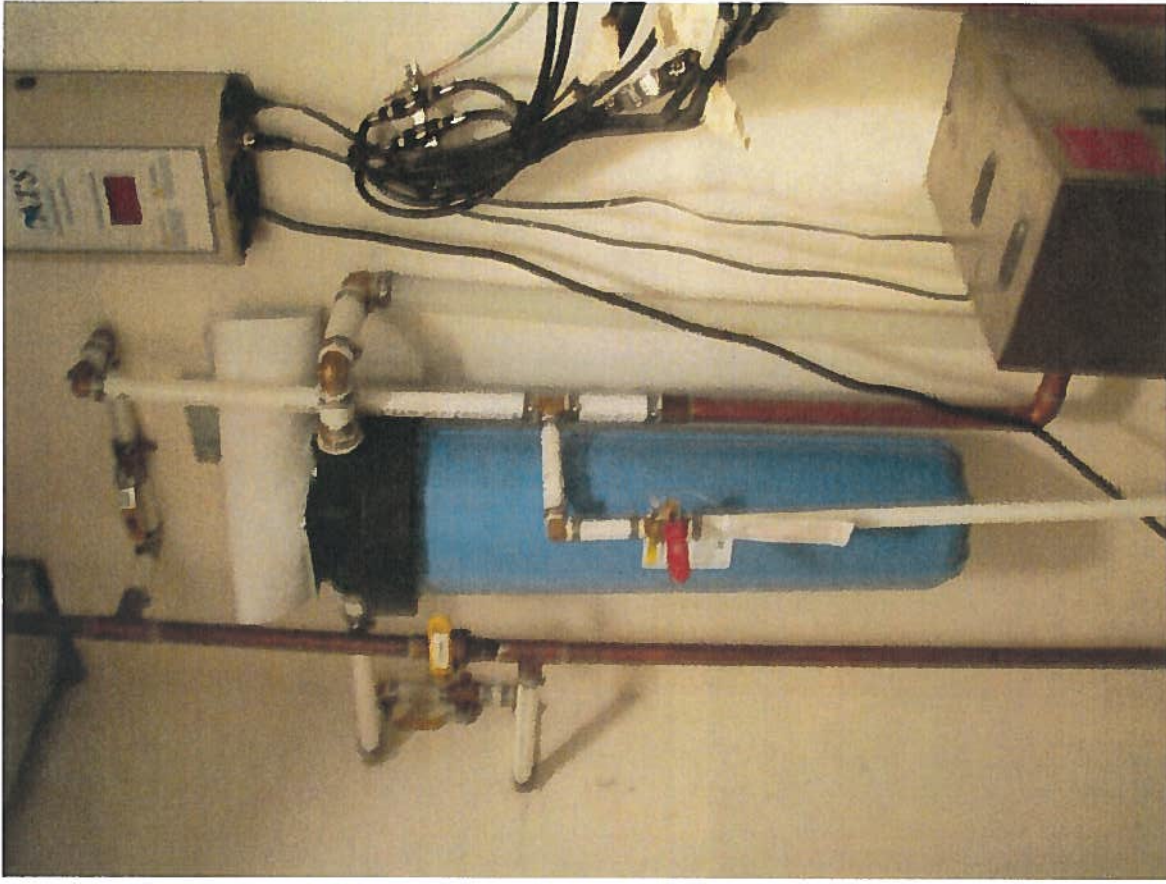
Photo #31. Outlet from chlorine system back to Tank 1



Photo #32. Combined tank overflow over the splash plate



Photo #34. Close up of water overflow, un-chlorinated



33. Private residence pre-filter prior to the tanks and chlorinator



Photo #35. UV disinfection unit – private residence

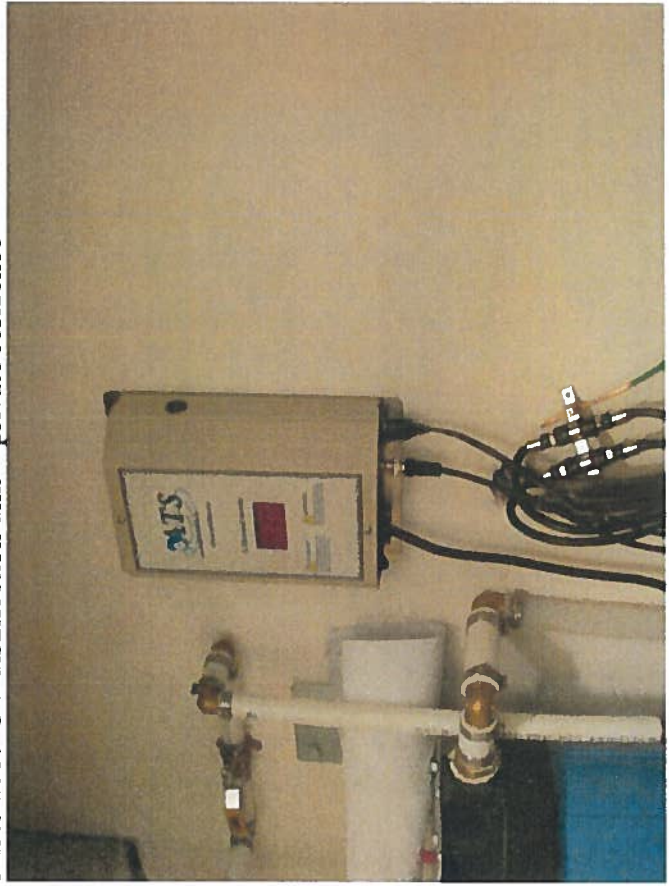


Photo #37 UV controller

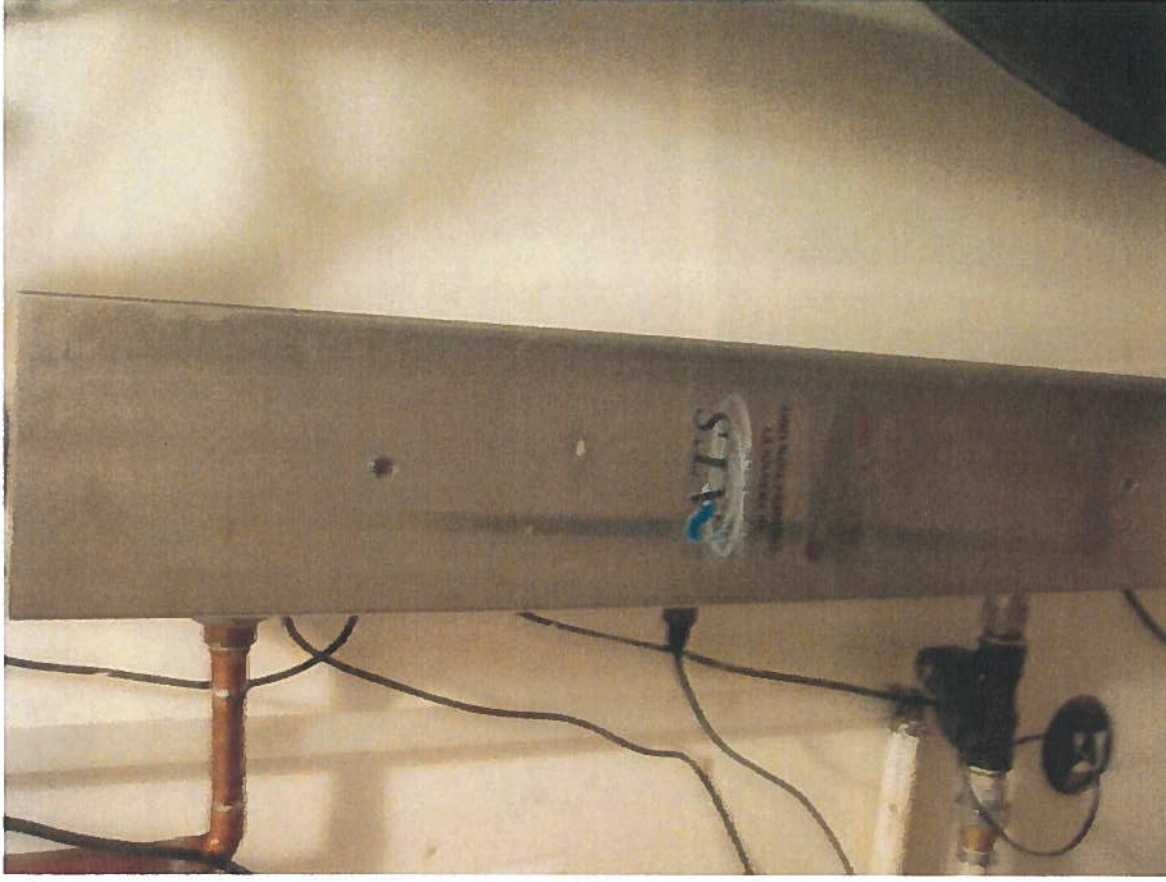


Photo #36 UV disinfection unit piping connections

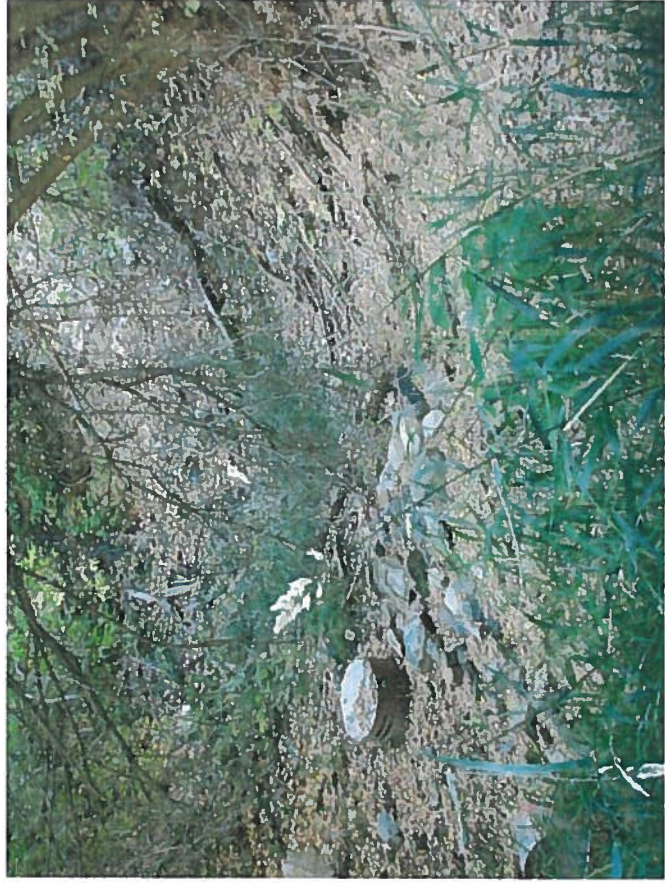


Photo #38. Spring collection area, no visible signs of concrete or pipes



Photo #39. Fencing around spring collection area



Photo #40. Spring overflow, minimal current overflow



Photo #41. View of overflow up the pipe



#42. Well 3 piping, vent, flow meter, sample tap, & isolation valve



Photo #44. Well 3 heater & well casing inside the concrete enclosure



Photo #43. Well 3 base and insulated cover (tombstone)



Photo #45. Valves for wells

APPENDIX C

Water Rights

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

[illegible]

State of Idaho
Department of Water Resources

WATER RIGHT LICENSE

WATER RIGHT NO. 13-07028

Priority: March 27, 1972

Maximum Diversion Rate: 0.20 CFS

Maximum Diversion Volume: 10.8 AF

This is to certify, that CUB RIVER ACRES INC

PO BOX 208

PRESTON ID 83263

has complied with the terms and conditions of the permit, issued pursuant to Application for Permit dated March 23, 1972; and has submitted Proof of Beneficial Use on January 1, 1900. An examination indicates that the works have a diversion capacity of .200 cfs of water from:

SPRING

tributary to LITZ CREEK

source, and a water right has been established as follows:

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>RATE OF DIVERSION</u>	<u>ANNUAL VOLUME</u>
DOMESTIC	01/01 to 12/31	0.20 CFS	10.8 AF

LOCATION OF POINT(S) OF DIVERSION: SENESE , Sec. 18, Township 15S, Range 41E
FRANKLIN County

PLACE OF USE: DOMESTIC

TWN RGE SEC

15S 41E 18

NESW

NWSW

SWSW

SESW

19

NENW

NWNW

SWNW

CONDITIONS/REMARKS:

1. The maximum diversion volume is defined as the maximum allowable volume of water that may be diverted annually from the source under this right. The use of water confirmed by this right is limited to the amount which can actually be beneficially used. The maximum diversion volume may be adjusted to more accurately describe the beneficial use or to implement accepted standards of diversion and use efficiency.
2. This water right is appurtenant to the described place of use.
3. This right is subject to all prior water rights and may be forfeited by five years of non-use.
4. Modifications to or variance from this license must be made within the limits of Section 42-222, Idaho Code, or the applicable Idaho law.

State of Idaho
Department of Water Resources
Permit To Appropriate Water
NO. 13-07514

Proposed Priority: December 22, 1993 Maximum Diversion Rate: 0.20 CFS

This is to certify, that **CUB RIVER ACRES INC**
C/O WALTER ROSS
PO BOX 208
PRESTON ID 83263-0208

has applied for a permit to appropriate water from:
SPRING tributary of LITZ CREEK

and a permit is APPROVED for development of water as follows:

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>RATE OF DIVERSION</u>
DOMESTIC	01/01 to 12/31	0.20 CFS

LOCATION OF POINT(S) OF DIVERSION: SENESE , Sec. 18, Township 15S, Range 41E
FRANKLIN County

PLACE OF USE: DOMESTIC

TWN RGE SEC

15S 41E 18	NESW	Lot 3(NWSW)	Lot 4(SWSW)
	SESW		
19	NENW	Lot 1(NWNW)	Lot 2(SWNW)

CONDITIONS OF APPROVAL AND REMARKS

1. Proof of construction of works and application of water to beneficial use shall be submitted on or before May 1, 1997.
2. Subject to all prior water rights.
3. Use of water under this right may be affected by an agreement between the protestant and the right holder.
4. Use of water under this right is subject to control by the watermaster of State Water District No. 13A.
5. A measuring device and lockable controlling works of a type acceptable to the Department shall be permanently installed and maintained as part of the diverting works prior to diversion of water under this right.
6. The issuance of this right does not grant any right-of-way or easement across the land of another.
7. This right is diverted from the same spring as Right 13-07028 and when combined with Right 13-07028 shall not exceed a diversion rate of 0.20 cfs.
8. Whenever the flow in the Cub River Drainage is not sufficient to fill all rights prior in time to this right, groundwater must be pumped and diverted into Cub River under Right No. 13-07021 to allow the continued diversion from the spring.
9. Place of use is located within Lots 1-4, 6, 8, 11-13, 21, 29-33, 40-42, 46, 52, 55, 65, 73, 75, 79-82, 101, 105, 107-108, 110-111, Cub River Subdivision #1; and Lots 22-23, 25-27, 45, 47-50, 86, 88-91, 104, 112-118, 120-126, Cub River Subdivision #2.

[Close](#)IDAHO DEPARTMENT OF WATER RESOURCES
Water Right Report

03/23/2005

WATER RIGHT NO. 13-7021

<u>Owner Type</u>	<u>Name and Address</u>
Current Owner	THOMAS A ROBINSON RT 3 BOX 607C PRESTON, ID 83263 (208)852-2962

Priority Date: 01/26/1971

Basis: License

Status: Active

<u>Source</u>	<u>Tributary</u>
GROUND WATER	

<u>Beneficial Use</u>	<u>From</u>	<u>To</u>	<u>Diversion Rate</u>	<u>Volume</u>
DOMESTIC	1/01	12/31	0.2 CFS	10.8 AFA
Total Diversion			0.2 CFS	

Location of Point(s) of Diversion:

GROUND WATER	SWSW	Sec. 18	Township 15S	Range 41E	FRANKLIN County
GROUND WATER	NWNW	Sec. 19	Township 15S	Range 41E	FRANKLIN County

Licensed Diversion Capacity: 0.2

Place(s) of use:

Place of Use Legal Description: DOMESTIC FRANKLIN County

Township	Range	Section	Lot	Tract	Acres	Lot	Tract	Acres	Lot	Tract	Acres	Lot	Tract	Acres
15S	41E	18		NESW			NWSW			SWSW			SESW	
		19		NENW			NWNW			SWNW				

Remarks:

1.	General	Domestic use is for 6 homes & 12 campsites.
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Dates:

Licensed Date: 02/23/1990

Decreed Date:

Permit Proof Due Date: 4/1/1979

Permit Proof Made Date: 3/21/1979

Permit Approved Date: 3/23/1971

Permit Moratorium Expiration Date:

Enlargement Use Priority Date:

Enlargement Statute Priority Date:

Water Supply Bank Enrollment Date Accepted:

Water Supply Bank Enrollment Date Removed:

Application Received Date: 01/26/1971

Protest Deadline Date:

Number of Protests: 0

Other Information:

State or Federal:

Owner Name Connector:

Water District Number:

Generic Max Rate per Acre:

Generic Max Volume per Acre:

Civil Case Number:

Old Case Number:

Decree Plaintiff:

Decree Defendant:

Swan Falls Trust or Nontrust:

Swan Falls Dismissed:

DLE Act Number:

Cary Act Number:

Mitigation Plan: False

Close

APPENDIX D

Source Assessment Report

FILE COPY

**CUB RIVER ACRES (PWS 6210003)
SOURCE WATER ASSESSMENT FINAL REPORT**

September 3, 2002



**State of Idaho
Department of Environmental Quality**

Disclaimer: This publication has been developed as part of an informational service for the source water assessments of public water systems in Idaho and is based on data available at the time and the professional judgement of the staff. Although reasonable efforts have been made to present accurate information, no guarantees, including expressed or implied warranties of any kind, are made with respect to this publication by the State of Idaho or any of its agencies, employees, or agents, who also assume no legal responsibility for the accuracy of presentations, comments, or other information in this publication. The assessment is subject to modification if new data is produced.

For the assessment, a review of laboratory tests was conducted using the Idaho Drinking Water Information Management System (DWIMS) and the State Drinking Water Information System (SDWIS). The IOCs barium, calcium, fluoride, and nitrate have been detected in the drinking water, but below the maximum contaminant level (MCL) for each chemical as established by the EPA. In 2000, total coliform bacteria were detected in the distribution system. No VOCs or SOCs have ever been detected in the drinking water.

In terms of total susceptibility, Well # 3 rated moderate for IOCs, VOCs, SOCs, and microbials. The system construction score was moderate and the hydrologic sensitivity score was high. Potential contaminant inventory and land use scores were moderate for IOCs, VOCs, SOCs, and low for microbial contaminants.

In terms of total susceptibility, Litz Creek Spring rated low for IOCs, VOCs, SOCs, and microbials. The system construction score was low and the potential contaminant inventory and land use scores were low for IOCs, VOCs, SOCs, and microbial contaminants.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources. If the system should need to expand in the future, new well sites should be located in areas with as few potential sources of contamination as possible, and the site should be reserved and protected for this specific use.

An effective drinking water protection program is tailored to the particular local drinking water protection area. A community with a fully developed drinking water protection program will incorporate many strategies. For the Cub River Acres, drinking water protection activities should continue efforts aimed at keeping the distribution system free of microbial contaminants that may affect the drinking water quality. The system should also focus on correcting any deficiencies outlined in the sanitary survey (an inspection conducted every five years with the purpose of determining the physical condition of a water system's components and its capacity). As land uses within most of the source water assessment area are outside the direct jurisdiction of Cub River Acres, partnerships with state and local agencies, industrial, and commercial groups should be established to ensure future land uses are protective of ground water quality.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Franklin County Soil and Water Conservation District, and the Natural Resources Conservation Service.

A system must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (i.e. zoning, permitting) or non-regulatory in nature (i. e. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Pocatello Regional Office of the Idaho Department of Environmental Quality or the Idaho Rural Water Association.

SOURCE WATER ASSESSMENT FOR CUB RIVER ACRES, PRESTON, IDAHO

Section 1. Introduction - Basis for Assessment

The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the ranking of this assessment means.** Maps showing the delineated source water assessment area and the inventory of significant potential sources of contamination identified within that area are included. The list of significant potential contaminant source categories and their rankings used to develop the assessment also is included.

Level of Accuracy and Purpose of the Assessment

The Idaho Department of Environmental Quality (DEQ) is required by the U. S. Environmental Protection Agency (EPA) to assess over 2,900 public drinking water sources in Idaho for their relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area, sensitivity factors associated with the well and spring and aquifer characteristics. All assessments must be completed by May of 2003. The resources and time available to accomplish assessments are limited. Therefore, an in-depth, site-specific investigation to identify each significant potential source of contamination for every public water system is not possible. **This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

The ultimate goal of the assessment is to provide data to local communities so they can develop a protection strategy for their drinking water supply system. DEQ recognizes that pollution prevention activities generally require less time and money to implement than treatment of a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The decision as to the amount and types of information necessary to develop a drinking water protection program should be determined by the local community based on its own needs and limitations. Wellhead or drinking water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

Section 2. Conducting the Assessment

General Description of the Source Water Quality

The Cub River Acres Public Water System (PWS #6210003) consists of one well, one spring, and two storage reservoirs in the Cub River Valley near Preston. There are three additional wells (for future use if needed) but none are connected to the water system at this time. The system currently serves approximately 160 persons through 76 connections.

No volatile organic chemicals (VOCs) or synthetic organic chemicals (SOCs) have been detected in either the well or spring's water. The inorganic chemicals (IOCs) barium, calcium, fluoride, and nitrate have been detected in the spring water, but below the maximum contaminant level (MCL) for each

chemical as established by the EPA. In 2000, total coliform bacteria were detected in the distribution system.

Defining the Zones of Contribution – Delineation

The delineation process establishes the physical area around a well or spring that will become the focal point of the assessment. The process includes mapping the boundaries of the zone of contribution into time-of-travel (TOT) zones (zones indicating the number of years necessary for a particle of water to reach a pumping well) for water in the aquifer. Washington Group International (WGI) was contracted by DEQ to define the public water system's zones of contribution. WGI used a conceptual computer model approved by the EPA in determining the 3-year (Zone 1B), 6-year (Zone 2), and 10-year (Zone 3) TOT for water associated with the Cache Valley hydrologic province in the vicinity of the Cub River Acres. The computer model used site specific data, assimilated by WGI from a variety of sources including operator records, well logs (when available) and hydrogeologic reports. A summary of the hydrogeologic information from the WGI is provided below.

Hydrogeologic Conceptual Model

Cache Valley is a complex graben covering about 310 square miles in southeastern Idaho and 350 square miles in northeastern Utah. It was once a bay of ancient Lake Bonneville resulting in lake terraces along the margins of the valley (Dion, 1969, p. 7). The related topographic features and deposits of ancient lakes affect the occurrence and movement of ground water (Bjorklund and McGreevy, 1971, p. 14).

The valley floor consists of unconsolidated valley-fill sediments of Quaternary age from the former Lake Bonneville and older lakes and streams, as well as younger alluvium. The sediments consist of silts and gravel of the Alpine and Bonneville formations, overlain by interfingering beds of gravel, sand, silt, and clay. Alluvial fan and landslide deposits are exposed along the margins of the valley. There is a general coarsening of sediments from lower elevations in the center of the valley to the higher elevations at the valley margins (Johnson et al. , 1996). The surrounding mountain ranges consist of highly faulted Tertiary Salt Lake and "Wasatch (?)" [sic] formation rocks and Permian through Precambrian rocks (Bjorklund and McGreevy, 1971, Plate 1).

The major aquifers are composed of sand and gravel in fans and deltas; interbedded layers of lake-bottom clays and silts confine the aquifers and cause artesian conditions throughout the valley (Bjorklund and McGreevy, 1971, p. 14). Deltas and fans from streams entering the valley generally contain a high percentage of gravel and are considered good aquifers (Bjorklund and McGreevy, 1971, p. 15). The exception is the Bear River delta, which is composed mostly of fine sand and silt and contains poor aquifers.

Aquifer recharge occurs mainly by infiltration of water from precipitation, streams, canals, ditches, and irrigated lands and by subsurface inflow. A large volume of recharge originates in the Bear River Range where 30 to 50 inches of precipitation fall in most years. Average annual precipitation on the valley floor is approximately 15.5 inches (Bjorklund and McGreevy, 1971, pp. 5 and 18). The principal recharge area is along the margins of the valley that are underlain by permeable unconsolidated materials (Bjorklund and McGreevy, 1971, p. 18). In the lower parts of the valley, some water is recharged to shallow unconfined aquifers, but infiltrated water does not reach the confined aquifers in Idaho because of the upward artesian gradient.

Ground water is discharged by springs, seeps, drains, evapotranspiration, and wells. Many streams in Cache Valley originate at springs and seeps within the valley, and other streams gain in flow as they traverse the valley floor. Potentiometric levels range in elevation from about 4,850 feet above mean sea level (msl) near Oxford to about 4,500 feet near the Idaho-Utah border. Generally, the ground water flow direction is locally toward the Bear River and regionally south toward Utah. The Bear River in the Idaho part of Cache Valley is gaining (Bjorklund and McGreevy, 1971, p. 19).

Artesian conditions exist in a large part of the lower valley. Heads of most flowing wells are less than 40 feet above land surface, but heads as high as 62 feet above land surface have been measured (Bjorklund and McGreevy, 1971, p. 22). Water table conditions exist near the edge of the valley beneath alluvial slopes and benchlands. The depth to water is as much as 300 feet below ground surface (bgs) along the margin of the upper valley.

Most wells in the valley produce water from the unconsolidated basin deposits. Driller's logs indicate that the alluvium may contain several aquifers separated by silt and clay (Dion, 1969, p. 19). The most productive aquifer systems in the Idaho part of Cache Valley are in the area of Weston Creek and in fan deposits along the north and west sides of the valley. Aquifer tests near Weston indicate an average transmissivity of about 30,000 ft²/day (Bjorklund and McGreevy, 1971, p. 2). Transmissivity values of 5,000 and 40,000 ft²/day were reported from two tests conducted north of Clifton, Idaho (Johnson et al., 1996, p. 21). For a computer-aided analysis of the resulting test data, the contact at the valley margin was conceptualized as a low-permeability boundary and simulated as a no-flow boundary (Johnson et al., 1996, p. 11).

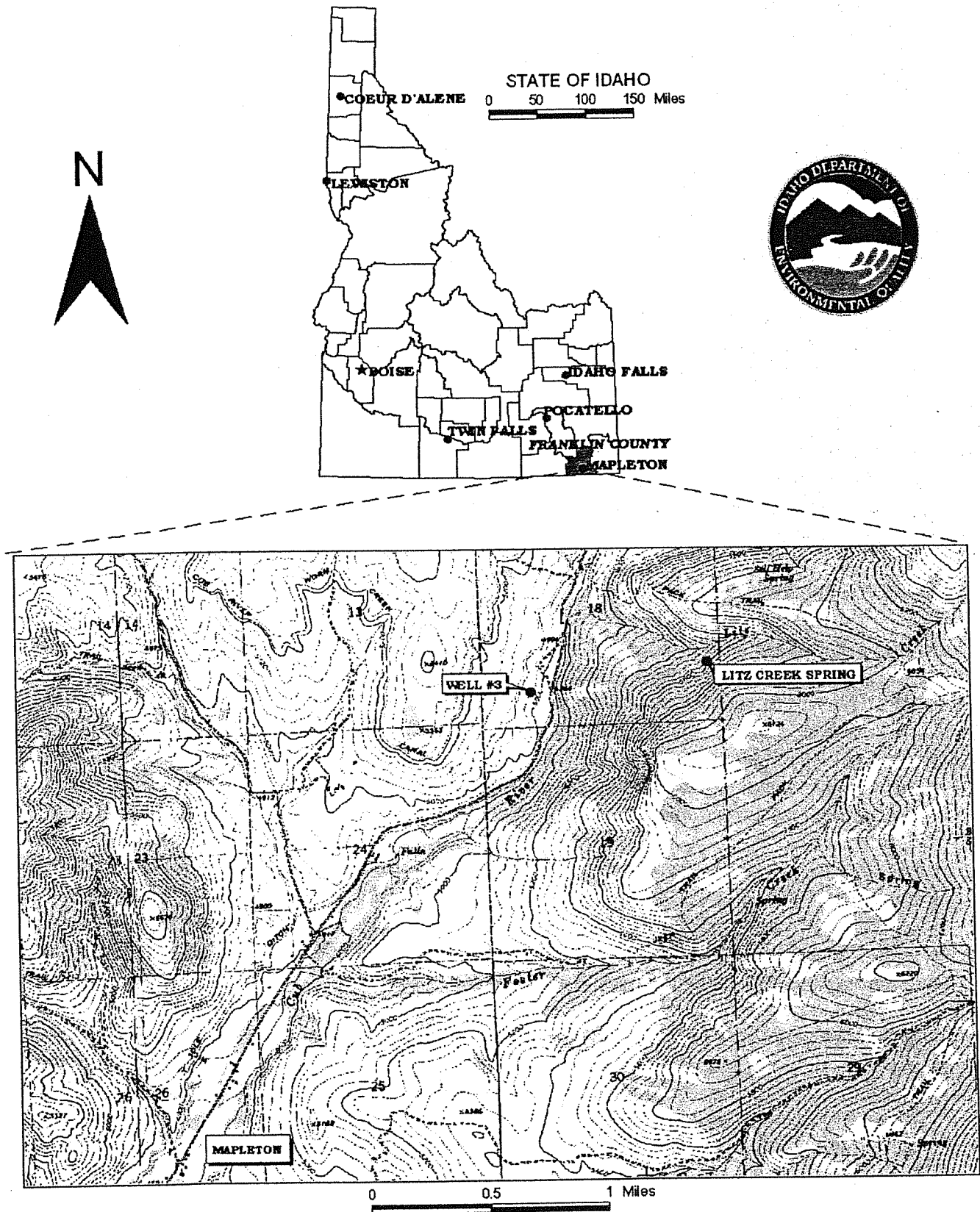
Capture Zone Modeling Method

Cache Valley hydrologic province delineations were performed using both the refined and the calculated fixed-radius methods. Selecting the method of delineation was based on well completion data, proximity of the well to the bedrock/valley-fill contact and/or faults, and knowledge of ground-water flow direction based on water table contour maps (Bjorklund and McGreevy, 1971, Plates 1 and 4, and Kariya et al., 1994, Plate 2). For the Cub River Acres well, a uniform flow model was used. The Cub River Acres well is drilled into a confined shale aquifer where the direction and gradient of ground water flow can be reasonably assumed.

A uniform ground water flow gradient was established by specifying the flow direction and gradient using the uniform flow option in WhAEM (Kraemer et al., 2000). A flow direction of 255 was specified in WhAEM to approximate the south-southwest flow direction of the Cub River in the vicinity of the well. The hydraulic gradient was assumed to be equivalent to the average land surface gradient of 0.023, estimated from a 1:24,000 USGS topographic map.

The base case hydraulic conductivity is 2.7 feet/day, which is the geometric mean of (1) the geometric mean of estimates for unfractured shale and (2) a single estimate for fractured shale based on pumping and slug tests conducted in the Soda Springs area (Ralston et al., 1979, p. 31). The aquifer thickness is 75 feet, which is the thickness of the shale unit noted in the well driller's log. Effective porosity is 0.1. This is the maximum porosity noted by Todd (1980) and Cross et al. (1985) for shale. No areal recharge was used based on the fact that the well is flowing indicating an upward hydraulic gradient.

FIGURE 1. Geographic Location of Cub River Acres



The pumping rate for the well was estimated by multiplying the average per capita water consumption of Cache Valley (279 gal/day) by one-half of the population served by the PWS. Well #3 is assumed to produce a maximum of one-half of the PWS water because it is a secondary water source.

Delineation of the wellhead protection area for a spring involves special consideration. Hydrogeologic setting is foremost among the factors that control the shape and extent of the capture zone. A spring resulting from the presence of a high permeability fracture extending to great depth will have a much different capture zone than a depression spring formed where the ground surface intersects the water table in a unconsolidated aquifer. The latter can be reasonably modeled as either a well or an internal constant head boundary. In many cases, however, the methods commonly used to delineate protection areas for water-supply wells are not applicable (Jensen et al. , 1997). Application of the refined method using WhAEM (Kraemer et al. , 2000), for instance, may not be appropriate for a fracture or tubular spring producing from an aquifer that displays a high degree of heterogeneity and anisotropy. Techniques that are most applicable to the springs within the scope of this report are the topographic, refined, and calculated fixed-radius methods. Hydrogeologic mapping techniques have been useful in characterizing the hydrogeologic setting and the zone of contribution to springs (Jensen et al. , 1997, pp. 6-7). Other techniques such as tracer and isotope studies, potentiometric surface mapping, geochemical characterization, and geophysical survey interpretation require data that are not available without additional fieldwork.

The topographic method was used to delineate capture zones for the Cub River Acres spring. The topographic method was chosen for springs that 1) are located within relatively small drainage basins with easily definable divides, 2) have an average annual discharge that can be reasonably supplied by an average annual precipitation in the drainage, and 3) have characteristics of a shallow system such as seasonal variations in discharge and temperature.

The assumption was made that ground water divides, which represent hydrologic boundaries to shallow ground water flow, are coincident with the topographic divides. Perennial streams or other surface water bodies that may infer the presence of hydrologic boundaries were identified. Surface geologic maps were also used to identify low permeability lithologic units that may form ground water flow boundaries and to infer the extent of lithologic units that provide water to springs. Calculating the amount of recharge needed to produce the average reported spring discharge checked the reasonableness of a topographic delineation. The required recharge was then compared to the average yearly precipitation in the area surrounding the spring.

Identifying Potential Sources of Contamination

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act. Furthermore, these sources have a sufficient likelihood of releasing such contaminants into the environment at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of ground water contamination. Field surveys conducted by DEQ, and review of databases, identified potential contaminant sources within the delineation areas. These sources include the Cub River and the Cub River Highway (Table 1) and Litz Creek (Table 2).

It is important to understand that a release may never occur from a potential source of contamination provided they are using best management practices. Many potential sources of contamination are regulated at the federal level, state level, or both to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination, including educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply well.

Contaminant Source Inventory Process

A two-phased contaminant inventory of the study area was conducted in April and May of 2002. The first phase involved identifying and documented potential contaminant sources within the Cub River Acres source water assessment area through the use of computer databases and Geographic Information System (GIS) maps developed by DEQ. The second, or enhanced, phase of the contaminant inventory involved contacting the operator to validate the sources identified in phase one and to add any additional potential sources in the area. Maps with the well and spring locations, delineated areas, and potential contaminant sources are provided with this report (Figure 2 and Figure 3). The potential contaminant sources are listed in Table 1 and Table 2.

Table 1. Cub River Acres, Well #3, Potential Contaminant Inventory

Site #	Source Description	TOT Zone ¹ (years)	Source of Information	Potential Contaminants ²
	Cub River	0-3	GIS Map	IOC, VOC, SOC, Microbial
	Cub River	3-6; 6-10	GIS Map	IOC, VOC, SOC
	Cub River Road	0-3	GIS Map	IOC, VOC, SOC, Microbial
	Cub River Road	3-6; 6-10	GIS Map	IOC, VOC, SOC

¹ TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead

² IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Table 2. Cub River Acres, Litz Creek Spring, Potential Contaminant Inventory

Site #	Source Description	TOT Zone ¹ (years)	Source of Information	Potential Contaminants ²
	Litz Creek	0-3	GIS Map	IOC, VOC, SOC, Microbial

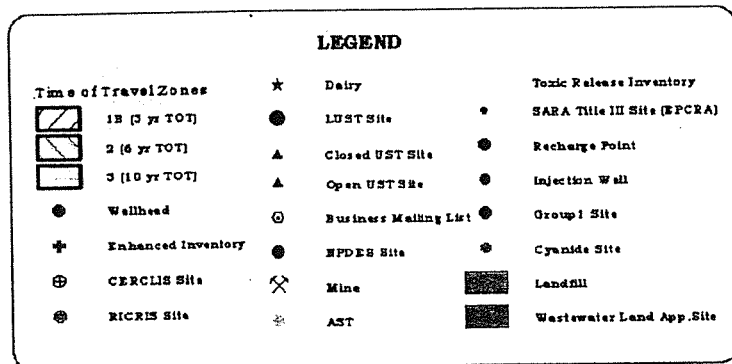
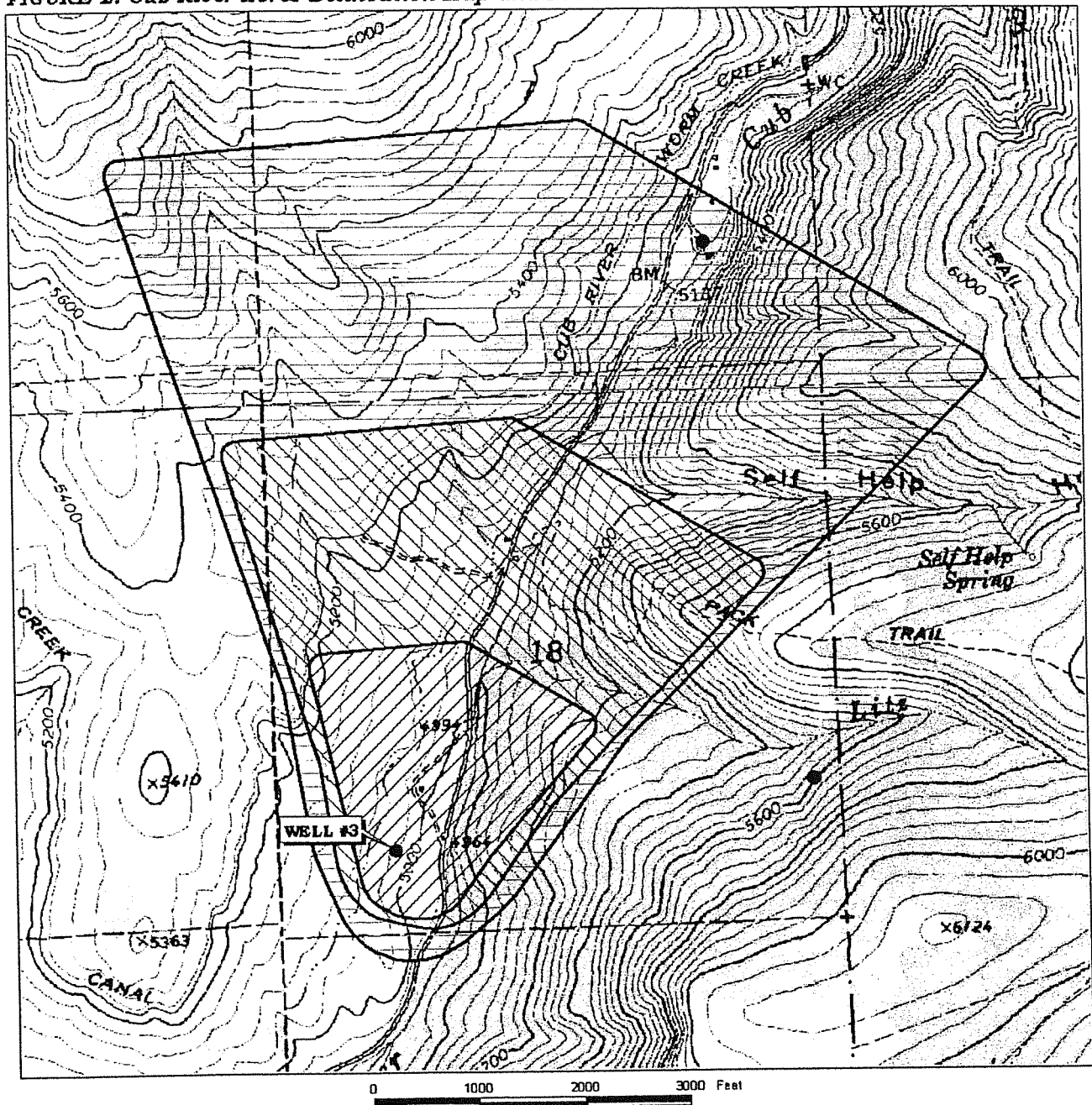
¹ TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead

² IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Section 3. Susceptibility Analyses

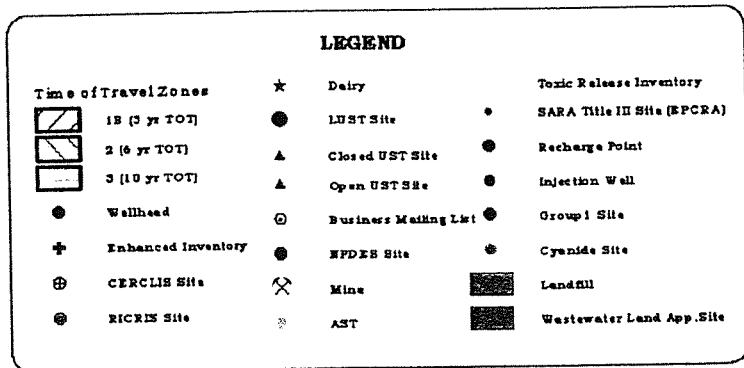
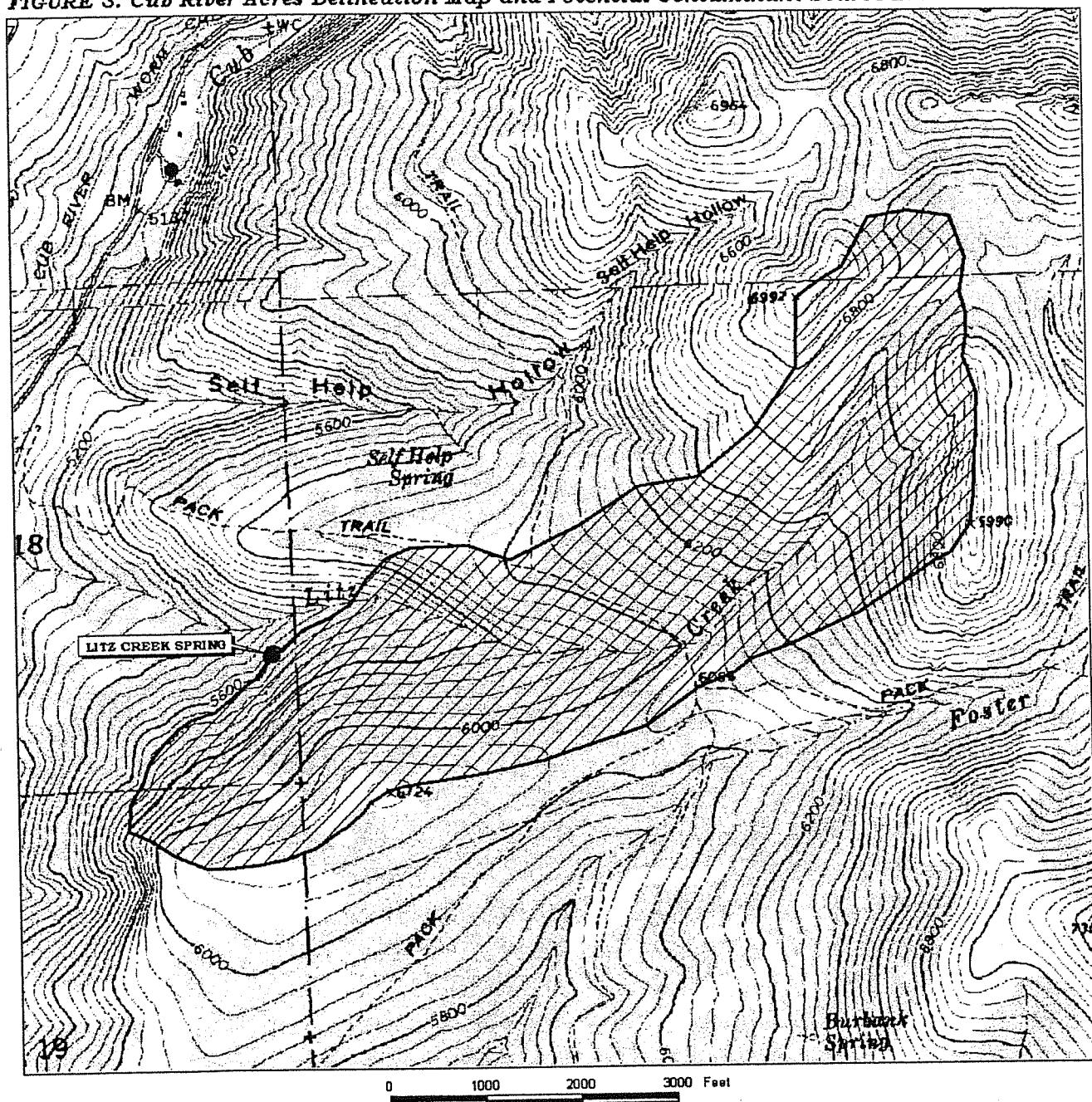
The susceptibility of the well and spring to contamination was ranked as high, moderate, or low risk according to the following considerations: hydrologic characteristics, physical integrity of the source, land use characteristics, and potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking derived for each source is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement.

FIGURE 2. Cub River Acres Delineation Map and Potential Contaminant Source Locations



PWS# 6210003
WELL #3

FIGURE 3. Cub River Acres Delineation Map and Potential Contaminant Source Locations



PWS# 6210003
LITZ CREEK SPRING

Attachment A contains the susceptibility analysis worksheets. The following summaries describe the rationale for the susceptibility ranking.

Hydrologic Sensitivity

The hydrologic sensitivity of a well is dependent upon four factors: These factors are surface soil composition, the material in the vadose zone (between the land surface and the water table), the depth to first ground water, and the presence of a 50-foot thick fine-grained zone (aquicard) above the producing zone of the well. Slowly draining soils such as silt and clay typically are more protective of ground water than coarse-grained soils such as sand and gravel. Similarly, fine-grained sediments in the subsurface and a water depth of more than 300 feet protect the ground water from contamination. This is based upon moderate to well drained soil classes as defined by the National Resource Conservation Service (NRCS). For this assessment, hydrologic sensitivity is not applicable to the spring's rating.

Well #3 rated high for hydrologic sensitivity (Table 3). Soils are classified as moderate to well-drained surrounding the well and it's delineation. The well log only describes drilling within the pre-existing 75 foot deep casing to a depth of 150 feet through gray shale, and placing a 10-inch casing to the bottom of the borehole. The vadose zone composition is unknown and it is unknown if an aquitard is present. As the well is artesian, depth to first water is ground level.

Well Construction

Well construction directly affects the ability of the source to protect the aquifer from contaminants. System construction scores are reduced when information shows that potential contaminants will have a more difficult time reaching the intake of the source. Lower scores imply a system is less vulnerable to contamination. For example, if the well casing and annular seal both extend into a low permeability unit, then the possibility of contamination is reduced and the system construction score goes down. If the highest production interval is more than 100 feet below the water table, then the system is considered to have better buffering capacity. If the wellhead and surface seal are maintained to standards, as outlined in sanitary surveys, then contamination down the well bore is less likely. If the well is protected from surface flooding and is outside the 100-year floodplain, then contamination from surface events is reduced.

Well #3 rated moderate for system construction (Table 3). The 2000 sanitary survey, conducted by DEQ, indicates that Well #3 has an adequate wellhead and surface seal and is protected from surface flooding. The score was increased because insufficient information on the well log prevented determining if the casing and annular seal extend to low permeability units. In addition, because the well is artesian, the highest production is not more than 100 feet below static water levels.

The Idaho Department of Water Resources (IDWR) *Well Construction Standards Rules (1993)* require all public water systems to follow DEQ standards. IDAPA 58. 01. 08. 550 requires that PWSs follow the *Recommended Standards for Water Works (1997)* during construction. Under current standards, all PWS wells are required to have a 50-foot buffer around the wellhead and if the well is designed to yield greater than 50 gallons per minute (gpm), a minimum of a 6-hour pump test is required. These standards are used to rate the system construction for the well by evaluating items such as condition of wellhead and surface seal, whether the casing and annular space is within consolidated material or 18 feet below the surface, the thickness of the casing, etc. In this case, there was insufficient information available to determine if the well meets all the criteria outlined in the IDWR Well Construction Standards.

Spring Construction

System construction directly affects the ability of the intake to protect the aquifer from contaminants. System construction scores are reduced when information shows that potential contaminants will have a more difficult time reaching the water in the spring. Lower scores imply a system is less vulnerable to contamination. For example, if the intake structure of the surface water system is properly located and constructed to minimize impacts from potential contaminant sources, then the possibility of contamination is reduced and the system construction score goes down. If the system was constructed in a way that the infiltration gallery is separated from any surface water so as to provide some kind of natural filtration, the water quality is more protected and the system score is reduced.

Litz Creek Spring rated low for system construction. The spring is fenced and water is taken directly from the source by a 22-inch pipe that is installed 15 feet into the hillside. The connections are encased in concrete. The spring water is chlorinated before it is conveyed to a storage reservoir. The low score reflects the fact that the spring construction was created in such a way as to prevent exposure to surface-derived contaminants.

Potential Contaminant Source and Land Use

The potential contaminant sources and land use within the delineated zones of water contribution are assessed to determine the well and spring's susceptibility. When agriculture is the predominant land use in the area, this may increase the likelihood of agricultural wastewater infiltrating the ground water system. Agricultural land is counted as a source of leachable contaminants and points are assigned to this rating based on the percentage of agricultural land. The predominant land use within the delineated area of the well is agricultural land and mountainous terrain for the spring.

In terms of potential contaminant sources and land use scores are as follows. Well #3 rated moderate for IOCs, VOCs, SOC, and microbials while Litz Creek Spring rated low for all four types of contaminants (Table 3). The potential contaminant sources found within the delineated areas include the Cub River, Cub River Road, and Litz Creek. The locations of potential contaminant sources and delineated TOT zones for the well and spring are shown in Figure 2 and Figure 3 and listed in Table 1 and Table 2.

Final Susceptibility Ranking

A detection above a drinking water standard MCL, any detection of a VOC or SOC, or having potential contaminant sources within 50 feet of a wellhead or 100 feet of a spring intake will automatically lead to a high susceptibility rating to the final ranking. This ranking occurs despite the land use of the area because a pathway for contamination is shown to already exist. For the well, hydrologic sensitivity and system construction scores are heavily weighted in the final scores. Having multiple potential contaminant sources in the 0-3 year time of travel zone (Zone 1B) and a large percentage of agricultural land contribute greatly to the overall ranking.

Table 3. Summary of Cub River Acres Susceptibility Evaluation

Drinking Water Source	Susceptibility Scores ¹									
	Hydrologic Sensitivity	Potential Contaminant Inventory and Land Use				System Construction	Final Susceptibility Ranking			
		IOC	VOC	SOC	Microbials		IOC	VOC	SOC	Microbials
Well #3	H	M	M	M	L	M	M	M	M	M
Litz Creek Spring	NA	L	L	L	L	L	L	L	L	L

¹H = High Susceptibility, M = Moderate Susceptibility, L = Low Susceptibility,

IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

NA = not applicable

Susceptibility Summary

In terms of total susceptibility, Well # 3 rated moderate for IOCs, VOCs, SOCs, and microbials. The system construction score was moderate and the hydrologic sensitivity score was high. Potential contaminant inventory and land use scores were moderate for IOCs, VOCs, SOCs, and low for microbial contaminants.

In terms of total susceptibility, Litz Creek Spring rated low for IOCs, VOCs, SOCs, and microbials. The system construction score was low and the potential contaminant inventory and land use scores were low for IOCs, VOCs, SOCs, and microbial contaminants.

The IOCs barium, calcium, fluoride, and nitrate have been detected in the drinking water, but below the maximum contaminant level (MCL) for each chemical as established by the EPA. In 2000, total coliform bacteria were detected in the distribution system. No VOCs or SOCs have been detected in the drinking water.

Section 4. Options for Drinking Water Protection

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources. If the system should need to expand in the future, new well sites should be located in areas with as few potential sources of contamination as possible, and the site should be reserved and protected for this specific use.

An effective drinking water protection program is tailored to the particular local drinking water protection area. A community with a fully developed source water protection program will incorporate many strategies. For the Cub River Acres, drinking water protection activities should first focus on correcting any deficiencies outlined in the sanitary survey. No potential contaminants (pesticides, paint, fuel, cleaning supplies, etc.) should be stored or applied within 50 feet of the well or 100 feet of the spring intake. Land uses within most of the source water assessment area are outside the direct jurisdiction of Cub River Acres, therefore collaboration and partnerships with state and local agencies, and industrial and commercial groups should be established to ensure future land uses are protective of ground water quality.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Franklin Soil and Water Conservation District, and the Natural Resources Conservation Service.

A community must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (i.e. zoning, permitting) or non-regulatory in nature (i.e. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Pocatello Regional Office of the DEQ or the Idaho Rural Water Association.

Assistance

Public water supplies and others may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

Pocatello Regional DEQ Office (208) 236-6160

State DEQ Office (208) 373-0502

Website: <http://www2.state.id.us/deq>

Water suppliers serving fewer than 10,000 persons may contact Ms. Melinda Harper (208) 343-7001 or email her at mharper@idahoruralwater.com. Idaho Rural Water Association, for assistance with drinking water protection (formerly wellhead protection) strategies.

POTENTIAL CONTAMINANT INVENTORY LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as "Superfund" is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RCRA – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

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Attachment A

Cub River Acres
Susceptibility Analysis
Worksheets

The final scores for the susceptibility analysis of the well was determined using the following formulas:

- 1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.2)
- 2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.375)

Final Susceptibility Scoring:

- 0 - 5 Low Susceptibility
- 6 - 12 Moderate Susceptibility
- ≥ 13 High Susceptibility

The final scores for the susceptibility analysis of the spring was determined using the following formulas:

- 1) VOC/SOC/IOC Final Score = System Construction + (Potential Contaminant/Land Use x 0.818)
- 2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 1.125)

Final Susceptibility Scoring:

- 0 - 5 Low Susceptibility
- 6 - 12 Moderate Susceptibility
- ≥ 13 High Susceptibility

			SCORE			
1. System Construction						
	Drill Date	05/16/1978				
	Driller Log Available	YES				
Sanitary Survey (if yes, indicate date of last survey)		YES	2000			
Well meets IDWR construction standards		NO	1			
Wellhead and surface seal maintained		YES	0			
Casing and annular seal extend to low permeability unit		NO	2			
Highest production 100 feet below static water level		NO	1			
Well located outside the 100 year flood plain		YES	0			
Total System Construction Score			4			
2. Hydrologic Sensitivity						
	Soils are poorly to moderately drained	NO	2			
Vadose zone composed of gravel, fractured rock or unknown		YES	1			
Depth to first water > 300 feet		NO	1			
Aquitard present with > 50 feet cumulative thickness		NO	2			
Total Hydrologic Score			6			
3. Potential Contaminant / Land Use - ZONE 1A			IOC Score	VOC Score	SOC Score	Microbial Score
	Land Use Zone 1A	RANGELAND, WOODLAND, BASALT	0	0	0	0
	Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A		NO	NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A			0	0	0	0
Potential Contaminant / Land Use - ZONE 1B						
	Contaminant sources present (Number of Sources)	YES	2	2	2	2
(Score = # Sources X 2) 8 Points Maximum			4	4	4	4
Sources of Class II or III leacheable contaminants or		YES	2	2	2	
4 Points Maximum			2	2	2	
Zone 1B contains or intercepts a Group 1 Area		NO	0	0	0	0
Land use Zone 1B		Less Than 25% Agricultural Land	0	0	0	0
Total Potential Contaminant Source / Land Use Score - Zone 1B			6	6	6	4
Potential Contaminant / Land Use - ZONE II						
	Contaminant Sources Present	YES	2	2	2	
Sources of Class II or III leacheable contaminants or		YES	1	1	1	
Land Use Zone II		Less than 25% Agricultural Land	0	0	0	
Potential Contaminant Source / Land Use Score - Zone II			3	3	3	0
Potential Contaminant / Land Use - ZONE III						
	Contaminant Source Present	YES	1	1	1	
Sources of Class II or III leacheable contaminants or		YES	1	1	1	
Is there irrigated agricultural lands that occupy > 50% of		NO	0	0	0	
Total Potential Contaminant Source / Land Use Score - Zone III			2	2	2	0
Cumulative Potential Contaminant / Land Use Score			11	11	11	4
			12	12	12	12
4. Final Susceptibility Source Score						
5. Final Well Ranking			Moderate	Moderate	Moderate	Moderate

		SCORE				
1. System Construction						
Intake structure properly constructed	YES	0				
Infiltration gallery or spring under the direct influence of Surface Water	NO	0				
Total System Construction Score		0				
			IOC Score	VOC Score	SOC Score	Microbial Score
2. Potential Contaminant / Land Use - ZONE 1A						
Land Use Zone 1A	RANGELAND, WOODLAND, BASALT	0	0	0	0	0
Farm chemical use high	NO	0	0	0	0	0
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A		0	0	0	0	0
Potential Contaminant / Land Use - ZONE 1B						
Contaminant sources present (Number of Sources)	YES	1	1	1	1	1
(Score = # Sources X 2) 8 Points Maximum		2	2	2	2	2
Sources of Class II or III leacheable contaminants or 4 Points Maximum	YES	1	1	1	1	1
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0	0
Land use Zone 1B		0	0	0	0	0
Total Potential Contaminant Source / Land Use Score - Zone 1B		3	3	3	3	2
Cumulative Potential Contaminant / Land Use Score		3	3	3	3	2
4. Final Susceptibility Source Score		2	2	2	2	2
5. Final Spring Ranking		Low	Low	Low	Low	Low

APPENDIX I

Planning Data

ENCLOSURE 5

CALCULATION SHEET

1. The Cub River Acres Recreational Subdivision consists of three generally different types of land tracts: Small farm and pasture acreages running from $1\frac{1}{2}$ to 30 acres in size, wooded forest tracts averaging about 2 acres, and stream frontage tracts with 100 to 800 feet of frontage and from $1/4$ acre to 4 acres in size. There are 11 mini ranches involved including those of the developer and his son. There are 46 stream frontage tracts sold or planned for sale. 16 Wooded tracts are sold or platted. One mini ranch has two additional water outlets authorized and 2 more outlets are planned from the spring above the reservoir for one homesite and one campsite making the total number of $5/8$ " culinary water outlets 77.

2. Some mini ranches have irrigation water rights, but there is no way culinary water can be allocated to property owners on the basis of the area of their property. The water from the Cub River Acres water system will be metered to each user through a $5/8$ inch meter. All existing connections have meter boxes and some have meters. All users will have meters installed within one year and all hook-ups from now on will include meters. Older water users from Preston, Idaho, where water has been short primarily due to water stealing for 50 years on an unmetered system, want no part of that situation on this fine new subdivision.

3. Water from the main spring tapers off gradually from an irrigation ditch stream in early spring to about 100 gallon per minute during the summer. As noted otherwise, reservoir water has not even been used to date although some careless owners have left sprinklers running constantly for up to 2 weeks on one spot. The new additional 30,000 gallon reservoir shown on the plans to be built in 1980 should, with the spring water alone, handle the requirements of this project for from 10 to 20 years, once the metered system of water allocation is implemented during the irrigation season.

4. Water flow from wells drilled to date are as follows:

Well #	Flow	Well #	Flow
1	6 gpm	5	Not drilled
2	30 gpm	6	25 gpm
3	60 gpm	7	Not drilled
4	50 gpm		Additional Ranch Springs-15 gpm.

Due to the handy availability of well water in the aquifer located between 100 and 120 feet below the surface there appears to be no

Depending on requirements, #5 will be used with #3 for the next or 5 years, then #2 will be rigged and water pumped into the river. When #2 and #5 are insufficient to replace spring water #4 will be used as needed for this purpose. When demands exceed spring capacity, #3 will be rigged with a suitable size pump with culinary water system qualifications to handle needed additional water. This well was used for culinary water in 1973 and 1974. If and when more water is needed, wells #5 and/or #7 will be drilled and put on the river lines and #4 put on the culinary system.

5. Assuming 40 gpm from #5 and #7 for future planning and neglecting #1 and additional spring water available, the total well water available adds up to about 250 gpm. Utilizing 60,000 gallons in storage and the following maximum foreseen construction requirements, there appears to be sufficient water available indefinitely, particularly in comparison with recent energy and water savings trends:

Use	Estimated Construction	Each user		Total
		gpm	EP day	EPm
Permanent Homes	30	2.5	3500	75
Summer Homes	30	2.0	2880	60
Recreation Vehicles	17	1.5	2160	25.5
				Total 160.5 gpm

6. With 6" lines on the main trunks and the natural fall of the canyon property below the reservoir excess water pressure is a more serious problem than low pressure, hence a pressure relief valve in the division number two lower systems.

7. The one 3/4 horsepower and two 1 1/2 horsepower multiple stage submersible pumps (Tait model 7 EC35) now on hand will meet requirements for many years. Electrical and piping installations will permit up to 5 horsepower if required in the future. Pumps and pumping activities will not be required in winter.

APPENDIX O

Project Maps

