

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 92-7171

Exam Date: 7/23/2007

1. Current Owner: FERNWOOD WATER DIST
C/O HENRY LEWIS
PO BOX 215
FERNWOOD ID 83830
(208) 245.3554
2. Accompanied by: Gidget McQueen, Darril Hindman
Phone No: (208) 245.3554
Address: PO Box 215, Fernwood, ID 83830
Relationship to Permit Holder: Gidget McQueen (2007) Manager/ Darril Hindman (2008) Operator
3. SOURCE TRIBUTARY
ADAMS CREEK ST MARIES RIVER

B. OVERLAP REVIEW

1. Other water rights with the same Place Of Use: 92-2027, 92-7231 2. Other water rights with the same Point Of Diversion: 92-2027 *92-2005 (Partial Overlap), 92-7032 (Daugherty) (Partial Overlap)*

C. DIVERSION AND DELIVERY SYSTEM**1. LOCATION OF POINT(S) OF DIVERSION:**

ADAMS CREEK, SW1/4SE1/4, Sec. 28, Twp 44N, Rge 01E, B.M. BENEWAH County

Method of Determination: Garmin Global Positioning System (GPS) Receiver, USGS 7.5' 'Clarkia' Quadrangle (H58), USFS 7.5' Quadrangles ('Fernwood' (H57), 'Santa' (H7), 'Crystal Peak' (H8))

PLACE OF USE: MUNICIPAL (Within Service Area Boundary of Fernwood Water & Sewer District In Accordance with Idaho Code)

Method of Determination:

3. ☒ Delivery System Diagram Attached (required). Indicate all major components and distances between components. Indicate weir size/pipe as applicable.
- ☒ Map Attached Showing Location(s) of point(s) of diversion and place(s) of use (required). Scale must be 1:24,000 or greater.
- ☒ Aerial Photo Attached (required for irrigation of 10+ acres).
- ☒ Photo of Diversion and System Attached

4.

Well or Diversion**ID No.*****Motor Make****Hp****Motor Serial No.****Pump Make****Pump Serial No. or Discharge****Size**702284NANANANAGravity Flow System

*Code to correspond with No. on map and aerial photo

92-7171

D. FLOW MEASUREMENTS1. Measurement

<u>Equipment</u>	<u>Type</u>	<u>Make</u>	<u>Model No.</u>	<u>Serial No.</u>	<u>Size</u>	<u>Calib. Date</u>
Bucket	Plastic	NA	NA	NA	5 GAL	NA
Watch	Wrist	Remington	NA	NA	NA	NA

2. Measurements: Bucket Filled from sand filter overflow: 5 Gallons in 2 sec.

$$\frac{5 \text{ GAL}}{2 \text{ SEC}} \times \frac{30}{30} = \frac{150 \text{ GAL}}{60 \text{ SEC}} = 150 \text{ GPM} = .33 \text{ CFS}$$

Portable Flowmeter used at sand filter overflow not accurate due to pipe obstruction, absence of level pipe, air in system, etc.

$$\frac{\text{Bucket at RV Station: Potable \& Non-Potable}}{30 \text{ SEC}} \times \frac{2}{2} = \frac{30 \text{ GAL}}{1 \text{ MIN}} = 30 \text{ GPM} = .07 \text{ CFS}$$

E. FLOW CALCULATIONS

Additional Computation Sheets Attached

Measured Method:

Orifice Equation (4")

Where Q = Cubic Feet per Second

V = Velocity

A = Area of Orifice in Sq. Ft

K = Orifice Value

$$Q = (A) \times (V) \times (K)$$

$$Q = (0.872222) \times (12.688577) \times (.61)$$

$$Q = .675$$

$$Q = .70$$

V = Velocity

$$V = \sqrt{2gh}$$

g = gravity

h = head in feet

$$V = \sqrt{2(32.2 \text{ Ft/sec}^2) \times (2.5)}$$

$$V = \sqrt{161}$$

$$V = \sqrt{12.688577}$$

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation: (On Permit)

$$V_{IR} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = (455) \times (3.0) = 1365 \text{ AF}$$

$$V_{DR} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = (1.1) \times (245) \times (1.9835) = 534.55 \text{ AF}$$

$$V = \text{Smaller of } V_{IR} \text{ and } V_{DR} = (534.55 \text{ AF}) = 534.6 \text{ AF}$$

2. Volume Calculations for Other Uses:

Domestic (On Permit)

110 homes per Permit Application/Permit

$$(110) \times (.6) = 66 \text{ AF} \quad 110 \times .02 \text{ cfs} = 2.2 \text{ cfs}$$

Commercial = .07 cfs

$$\text{School} = 31 \text{ GPM} \times 60 = 1860 \text{ GPH} \times 10 \text{ HRS/day} = 1860 \text{ GPD}$$

$$\frac{3,534,000 \text{ GAL}}{325,850 \text{ GAL (1 AF)}} = 10.845 \text{ AF}$$

$$\frac{3,534,000 \text{ GAL}}{325,850 \text{ GAL (1 AF)}} = 10.845 \text{ AF}$$

$$\frac{1860 \text{ GPD} \times 190 \text{ days}}{3,534,000 \text{ Gallons}}$$

$$(2) \text{ Cafe} = \text{Small Domestic} = 2(.02 \text{ cfs}) / .6 \text{ AF} (2)$$

$$= .04 \text{ cfs} / 1.2 \text{ AF}$$

$$\text{FWS Office} = \text{Small Domestic} = .02 \text{ cfs} = .6 \text{ AF}$$

$$\text{RV Dump Station (see above)} = .07 \text{ cfs}$$

$$= .07 \text{ cfs (1.28045 AF)} \times 180 \text{ days}$$

$$\text{EST use } 100 \text{ GPD Average} = 1.2 \text{ AFA}$$

$$\text{RECAP (Domestic} = 2.2 \text{ cfs/66 AF) (Commercial} = 20 \text{ cfs 13.85 AF)}$$

92-7171

G. NARRATIVE/REMARKS/COMMENTS

Water Rights 92- 2027, 92-7231, and 92-7032 were reviewed for overlap with this right (Fernwood Water & Sewer District (FWS) Permit 92-7171). FWS also owns 92-2027 and 92-7231. The FWS Point of Diversion (POD) for Water Right License 92-2027 (1.0 CFS) shares the same POD as 92-7171. 92-7231 diverts water from a different POD (groundwater) and has the same Point of Use (POU). 92-7032 (Daugherty .04 CFS) gets water from a POD on Finn Creek below FWS facilities. Natural flows in Finn Creek are augmented by overflow water from FWS facilities. This report includes information from an October 2007 Drinking Water Supply Report by the Department of Environmental Quality (DEQ).

FWS overflows to Finn Creek should not be considered as wasting water. FWS ability to use all water is limited by system design and maintenance issues, logging activity in the Adams Creek watershed, difficult access to the POD during winter months, and municipal water safety regulations (turbidity, etc.) that inhibit the District's ability to use all water carried by the system from the 92-7171 POD on Adams Creek.

92-7171 (Fernwood Water & Sewer District) uses a small diversion dam on Adams Creek to direct water into a six-inch underground pipe that necks down after 2990 feet to four-inch diameter before reaching a sand filter adjacent to Finn Creek. The diversion dam does not meet dam safety threshold criteria for regulation by the Department of Water Resources. 1967 engineering drawings indicate that the distance between the dam and filter is 6513 feet. The pipeline begins immediately upstream from the dam at a rectangular concrete collection box and gets water through a submerged orifice.

The sand filter is an open air structure with the top located at ground level. The amount of water that passes down the pipeline to enter the filter is restricted by a gate valve located about 20 feet above the filter. This valve is located at the junction of two 90 degree turns in the pipeline. Water can enter the sand filter from the bottom, underneath the sand, or from a perforated pipe that discharges at multiple points near the top of the filter.

Water that has reached the filter either drains through the sand and into a line which enters a Treatment Building (TB) for processing to drinking water standards or bypasses the building via overflow outlets that drain into a line which dumps into Finn Creek. The overflow line is joined by a branch line which takes water from inside the Building, and that is not needed for reservoir storage, into the Finn Creek overflow.

There is no water measurement meter or capability at the Adams Creek Diversion Dam or on the pipeline leading to the Sand Filter. The TB houses a chart type recorder and a digital water meter. This equipment measures only the amount of water passing into the Finn Creek reservoir, located approximately 75 feet from the TB, and does not measure the amount of water that bypasses the sand filter or the amount of water that is diverted from the TB into the Finn Creek overflow.

Water from the TB enters the 100,000 Gallon Finn Creek concrete reservoir before passing down a 8-inch asbestos cement pipeline to Fernwood. A 10 inch pipeline connects this reservoir to the 230,000 gallon Crystal Creek reservoir located parallel and to the North of Finn Creek. Both reservoirs are at the same elevation. FWS personnel indicated that the water level in both reservoirs is controlled by a float system on the Crystal Peak reservoir. A 6-inch diameter pipeline from FWS Well # 3 connects to the 10 inch pipeline and brings water to both reservoirs using FWS Permit 92-7231 water.

The distribution system in Fernwood uses the 8 inch asbestos cement line, a 10 inch steel main line, and 2 to 10 inch PVC pipe. Six inch lines are also used. There are 228 connected services on the system including a public elementary school, a cafe, an Idaho Department of Parks and Recreation Recreation (RV) station, and the FWS office and wastewater plant. A four lot subdivision (Tungsten Holdings) is connected by 2 inch and 3 inch PVC lines. Only one of the four lots is currently getting water.

Unreliable flowmeter readings were obtained during the Field Exam. District personnel attached a

92-7171

portable flowmeter at the Finn Creek end of the overflow pipe during the Exam. Measured flows on the flowmeter varied considerably and are not reliable. An operator for the District indicated in March 2008 that there is a blockage or obstruction located at some point in the overflow pipe system. The DEQ report indicates that readings on a turbidity meter were not accurate. The combined Cubic feet Per Second (CFS) readings obtained from both the portable flowmeter and a meter indicating flow into the reservoir was .38 CFS. Therefore, an orifice equation was used to calculate the diversion rate at the POD. The orifice equation reveals that .70 CFS is the maximum diversion rate.

The .70 CFS maximum diversion rate also limits the Annual Acre feet to ~~570~~ ⁵⁰⁷ Acre Feet.

The Permit should be amended to Municipal. The District reviewed a new POU boundary map prepared by IDWR in 2008 and indicated that it is correct.

Have conditions of permit approval been met? ☒ Yes ☐ No *with amendment.*

H. RECOMMENDATIONS

1. Recommended Amounts

BENEFICIAL USE	PERIOD OF USE	DIVERSION RATE	ANNUAL VOLUME
~~DOMESTIC~~	~~1/01 to 12/31~~	~~0.450 CFS~~	
~~COMMERCIAL~~	~~1/01 to 12/31~~	~~0.200 CFS~~	
~~IRRIGATION~~	~~3/15 to 11/15~~	~~1.100 CFS~~	
<i>Municipal</i>	<i>01/01 to 12/31</i>	<i>0.70 CFS</i>	<i>507.0 AF</i>
Totals:		~~1.750 CFS~~	

2. Recommended Amendments

☐ Change P.D. as reflected above ☐ Add P.D. as reflected above ☐ None

☐ Change P.U. as reflected above ☐ Add P.U. as reflected above ☒ Other *Change to Municipal*

I. AUTHENTICATION

Field Examiner's Name

William M. Mafey

Date

6/23/08

Reviewer

[Signature]

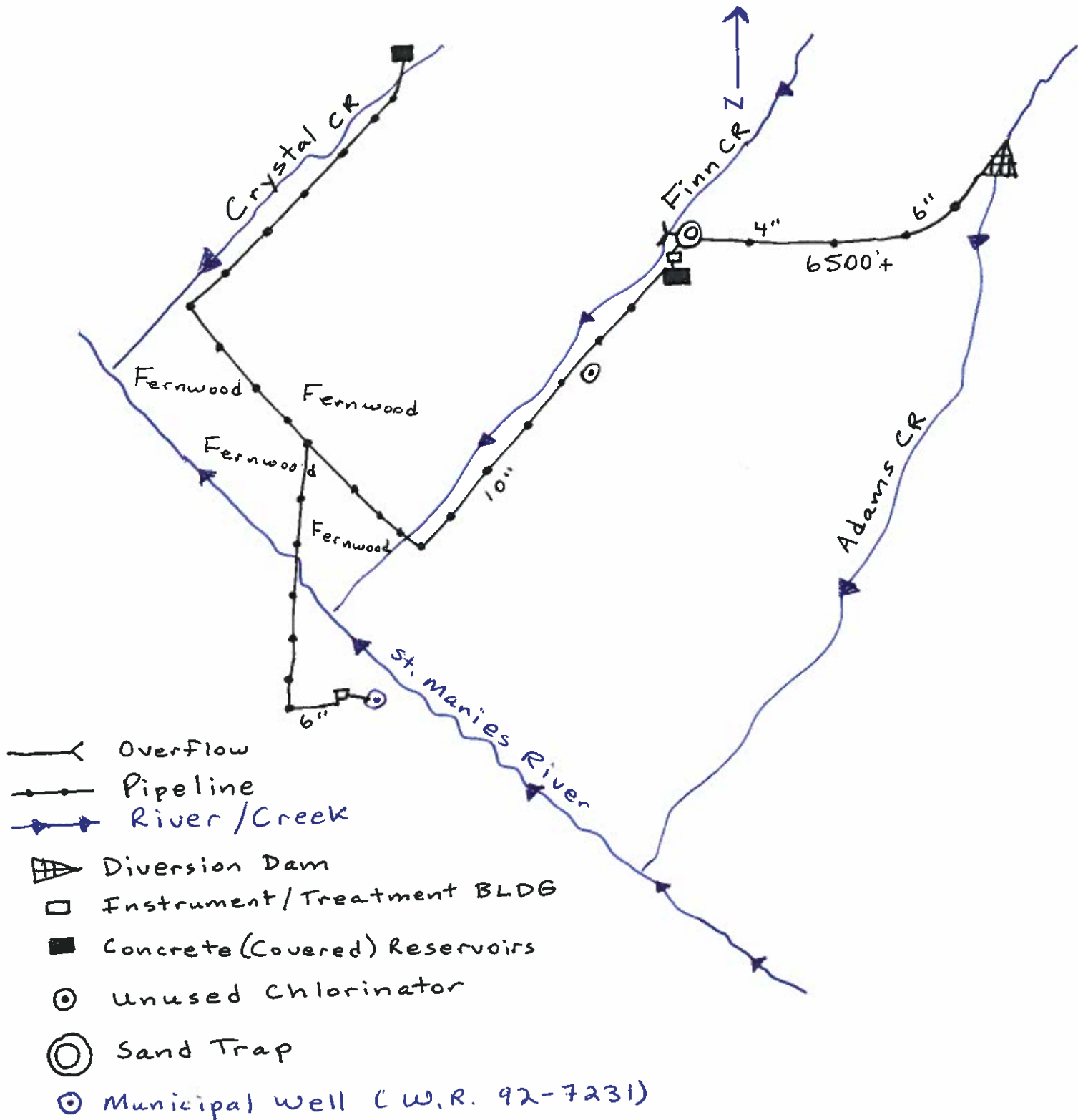
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7/7/08

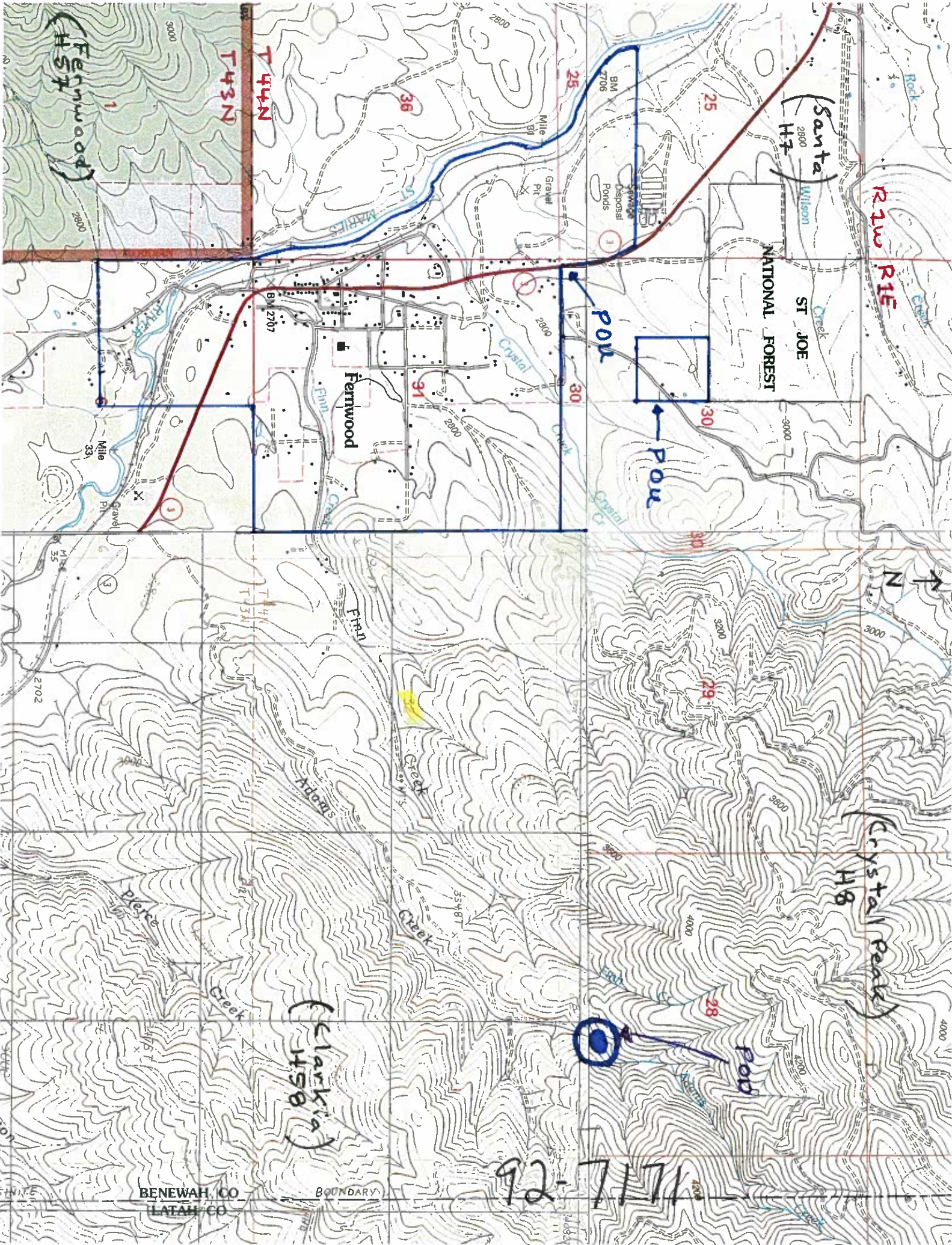
92-7171

Fernwood Water & Sewer District Delivery System Diagram

NOT TO SCALE



92-7171



(Santa Wilson)
H-7

NATIONAL FOREST
ST JOE

Fermwood

(Crystal Peak)
H-8

(Clarkia)
H-9

(Fermwood)
H-5

T43N

T44N

R2W R1E

POU

POU

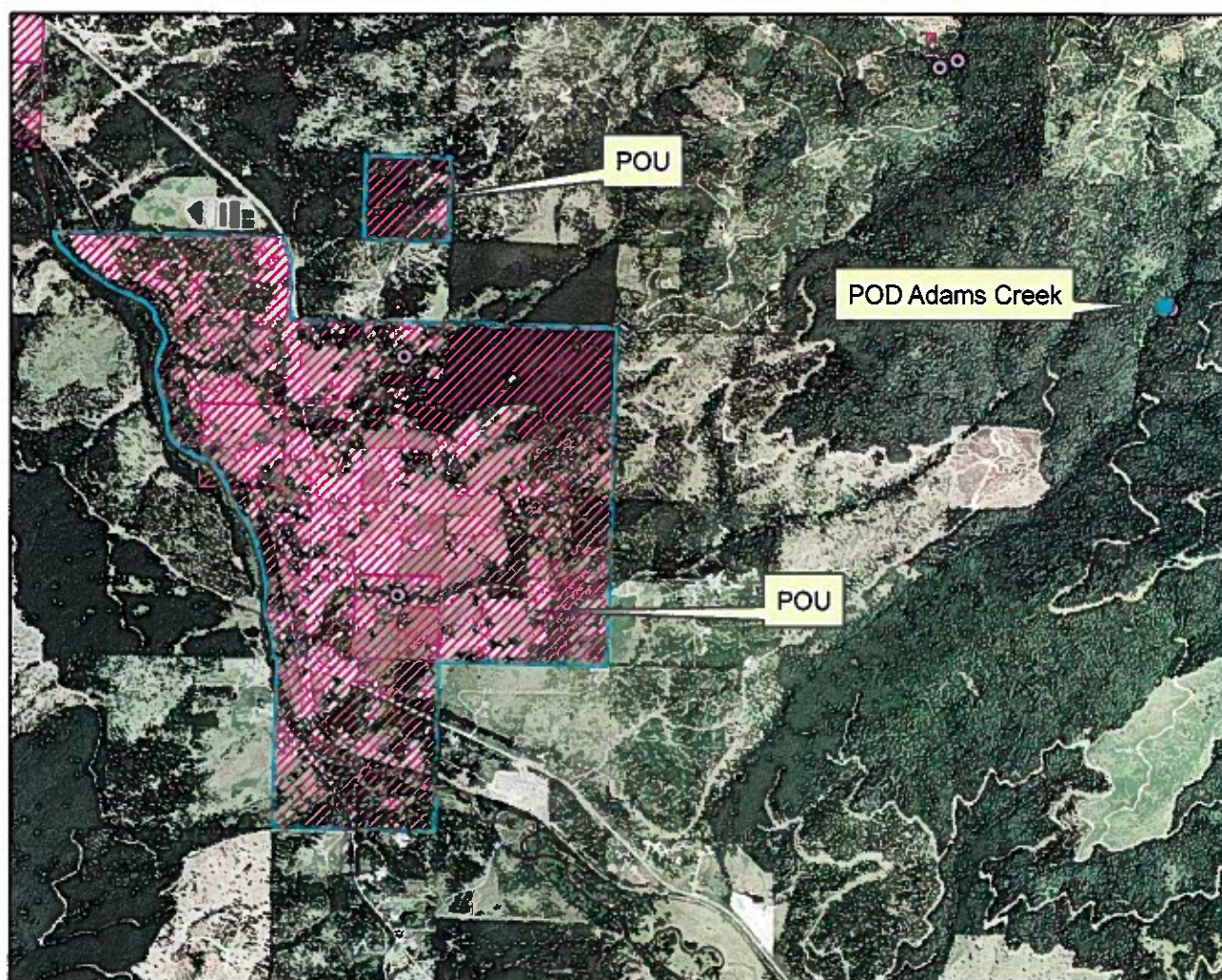
POB

92-7174

BENEWAH CO
LATAH CO

BOUNDARY

92-7171



92-7171



92-7171 Adams CR
Collection Box.JPG



92-7171 Adams CR
Dam.JPG



92-7171 Adams CR Pipe
Inlet.JPG



92-7171 Adams CR Pipeline
Inlet Top.JPG



92-7171 Chart Recorder at
Finn CR.JPG



92-7171 Finn CR
Chlorinator Current.JPG



92-7171 Finn CR chlorinator
unused.JPG



92-7171 Finn CR Res
Meter.JPG



92-7171 Overflow to Finn
CR before flowmeter test.jpg



92-7171 Overflow to Finn
CR Flowmeter test JPG



92-7171 Pipeline bottom
valve.JPG



92-7171 Reservoir Finn
CR.jpg



92-7171 Reservoir meter
house.JPG



92-7171 Reservoir Top
Crystal CR.jpg



92-7171 Sand Filter Center
Overflow Pipe.jpg



92-7171 Sand Filter
Overflow Inlet pipe.jpg



92-7171 Sand Filter to
Reservoir valve.JPG



92-7171 Sand Filter.JPG



Copy of 92-7171 Drinking
water at RV site.JPG



92-7171 Water Exiting Sand
Filter Curved Inlet Pipe.JPG



92-7171 Water Exiting Sand
Filter Inlet Pipe.JPG



92- 7171 Pipeline Breather
on Dale DR.JPG



92-7171 Drinking Water &
Non-Potable at RV site.JPG



92-7171 Reservoir Fill
Control Box at 92-7231 W...



92-7171 Drinking water at
RV site.JPG

92-7171



92-7171 Adams CR Collection Box.jpg



92-7171 Adams CR Dam.jpg

92-7171



92-7171 Adams CR Pipe Inlet.jpg



92-7171 Adams CR Pipeline Inlet Top.jpg

92-7171



92-7171 Chart Recorder at Finn CR.jpg

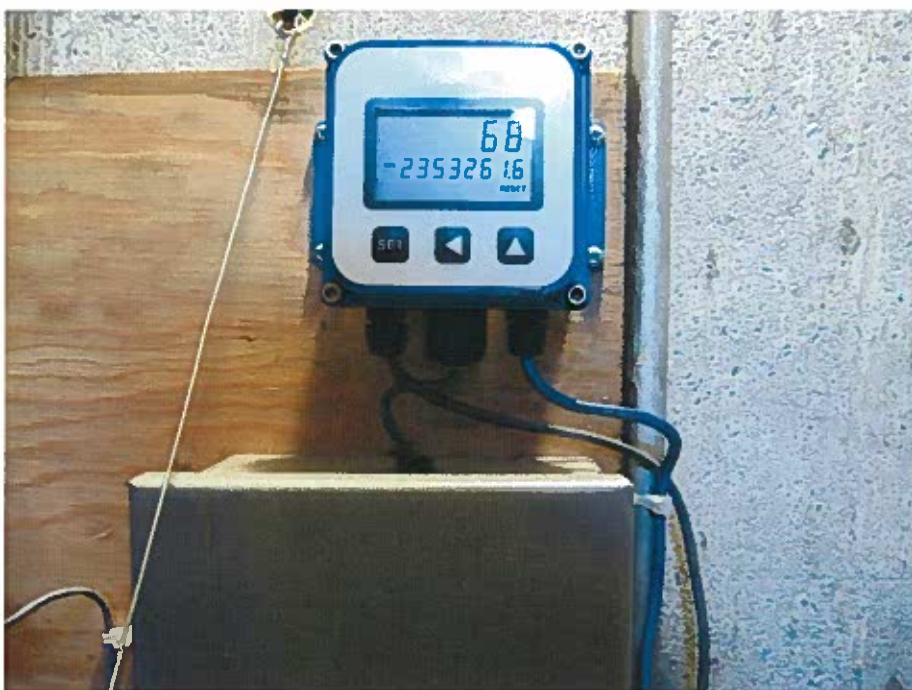


92-7171 Finn CR Chlorinator Current. jpg

92-7171



92-7171 Finn CR Chlorinator Unused.jpg



92-7171 Finn CR Res Meter.jpg

92-7171



92-7171 Overflow to Finn CR before flowmeter test.jpg



92-7171 Overflow to Finn CR Flowmeter Test.jpg

92-7171



92-7171 Pipeline Bottom valve.jpg

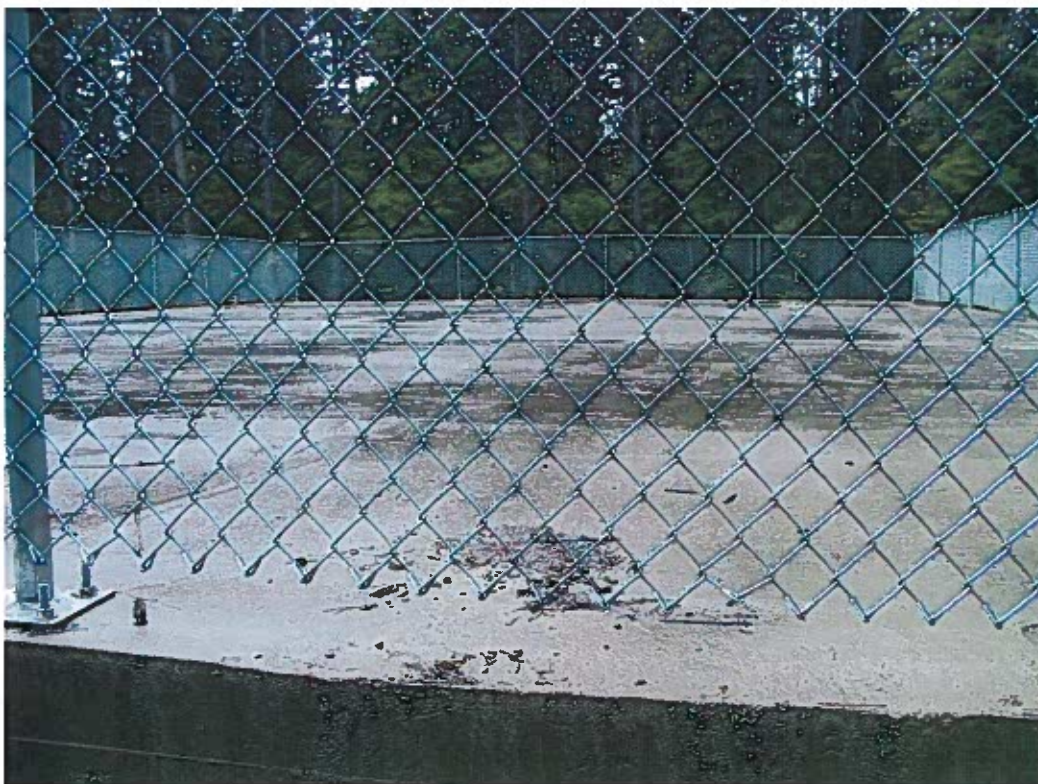


92-7171 Reservoir Finn CR.jpg

92-7171



92-7171 Finn CR Reservoir Meter House.jpg



92-7171 Reservoir Top Crystal CR.jpg

92-7171



92-7171 Sand Filter Center Overflow Pipe.jpg



92-7171 Sand Filter Center Overflow Inlet Pipe.jpg

92-7171



92-7171 Sand Filter to Reservoir Valve.jpg



92-7171 Sand Filter.jpg

92-7171



92-7171 Drinking Water at RV site.jpg



92-7171 Water Exiting Sand Filter Curved Inlet Pipe.jpg

92-7171



92-7171 Water Exiting Sand Filter Inlet Pipe.jpg



92-7171 Pipeline Breather on Dale DR.jpg

92-7171



92-7171 Drinking Water & Non-Potable at RV site.jpg



92-7171 Reservoir Fill Control Box at 92-7231.jpg

92-7171

Fernwood Water & Sewer District
P.O. Box 215 – Fernwood, ID 83830
Phone (208) 245-3554
santafernwood@smgazette.com

Board of Directors

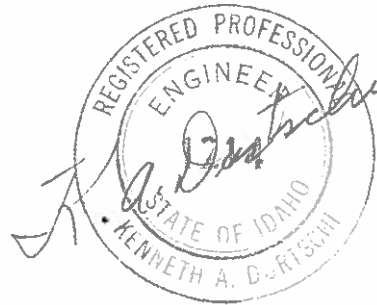
June 3, 2008

Henry Lewis – Chairman	208-245-4502
Judi Schaum	208-245-1146
Wayne Hatton	208-245-4516

92-7171.

Howard Seaman

U.S.

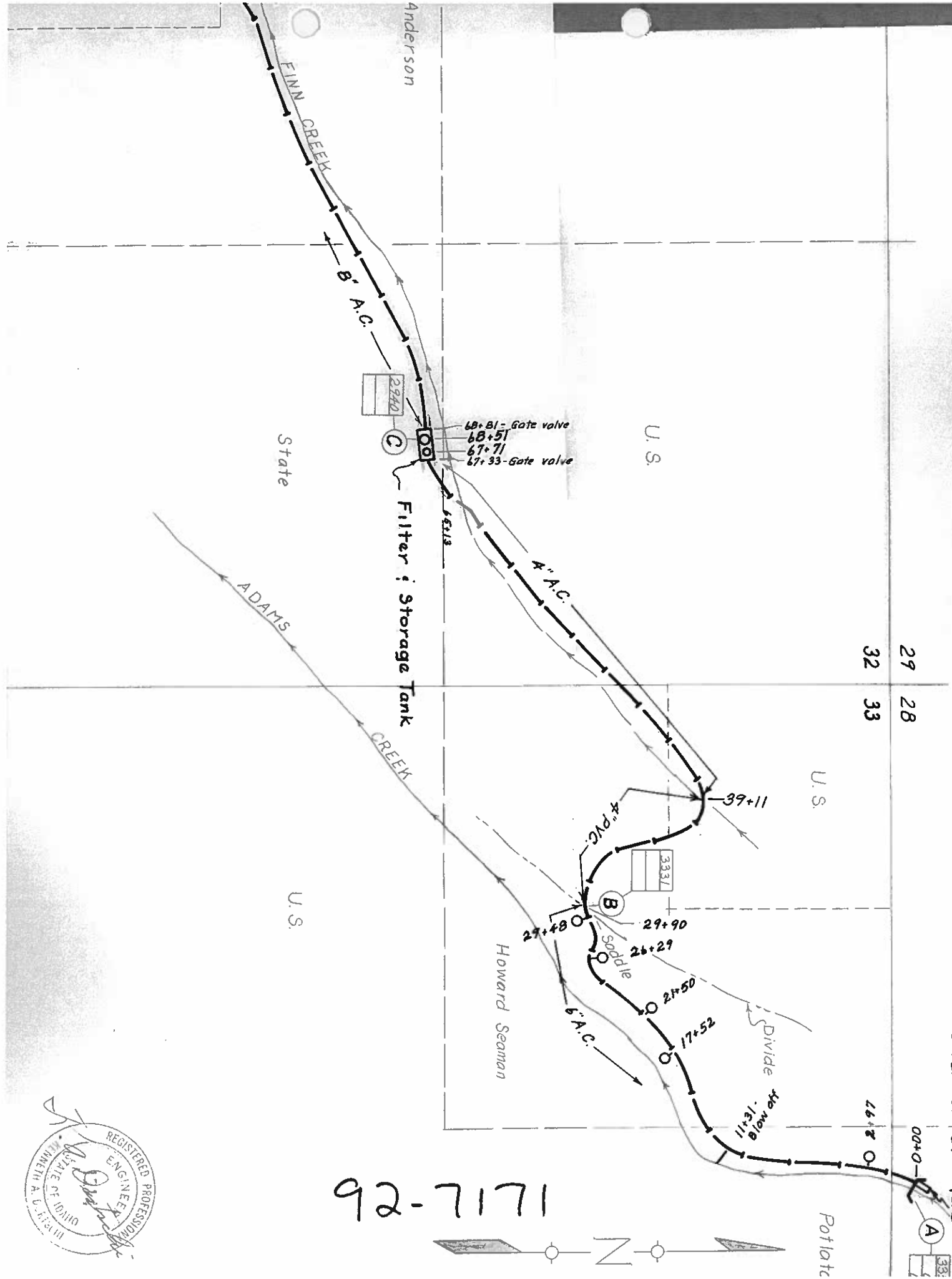


**SUPPLY SYSTEM
DOMESTIC WATER SYSTEM
FERNWOOD, IDAHO**

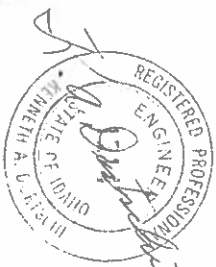
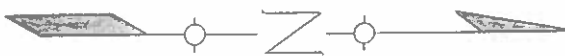
DRAWN BY W. J. A.	FOR FERNWOOD WATER DIST.	DATE JUL. 22-66
CHECKED BY KAD	K. A. DURTSCHI & ASSOCIATES	SCALE 1" = 500'
REVISIONS 2-14-67	ENGINEERING—SURVEYING 1025 COEUR D' ALENE AVE. COEUR D ALENE, IDAHO	JOB NO. 37-65
		SH. 2 OF 7

92-7171

B-8



92-7171



Johnson

Z

Earl Anderson

92-7171

Stat

68+81 - Gate valve
68+51
67+71
67+33 - Gate valve

2940

(C)

8" A.C.

FINN CREEK

CHLORINATOR
HOUSE

103+99

108+17

110+40

121+42

County Road

Floyd Sorenson

Ed. Sexton

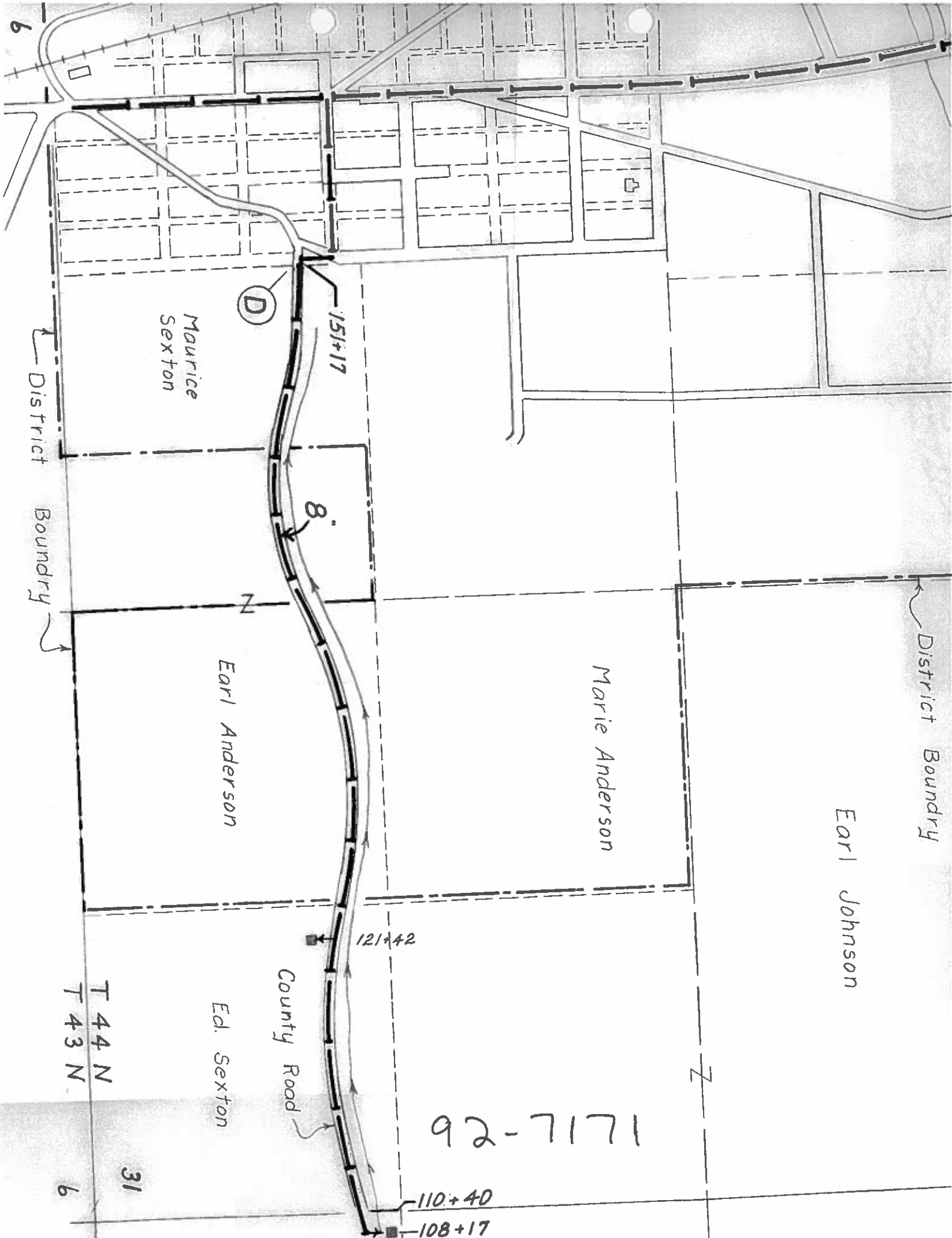
31

32

T 44 N
T 43 N

6

5



Maurice
Sexton

Earl Anderson

Ed. Sexton

Marie Anderson

Earl Johnson

151+17

8'

121+42

110+40

108+17

County Road

92-7171

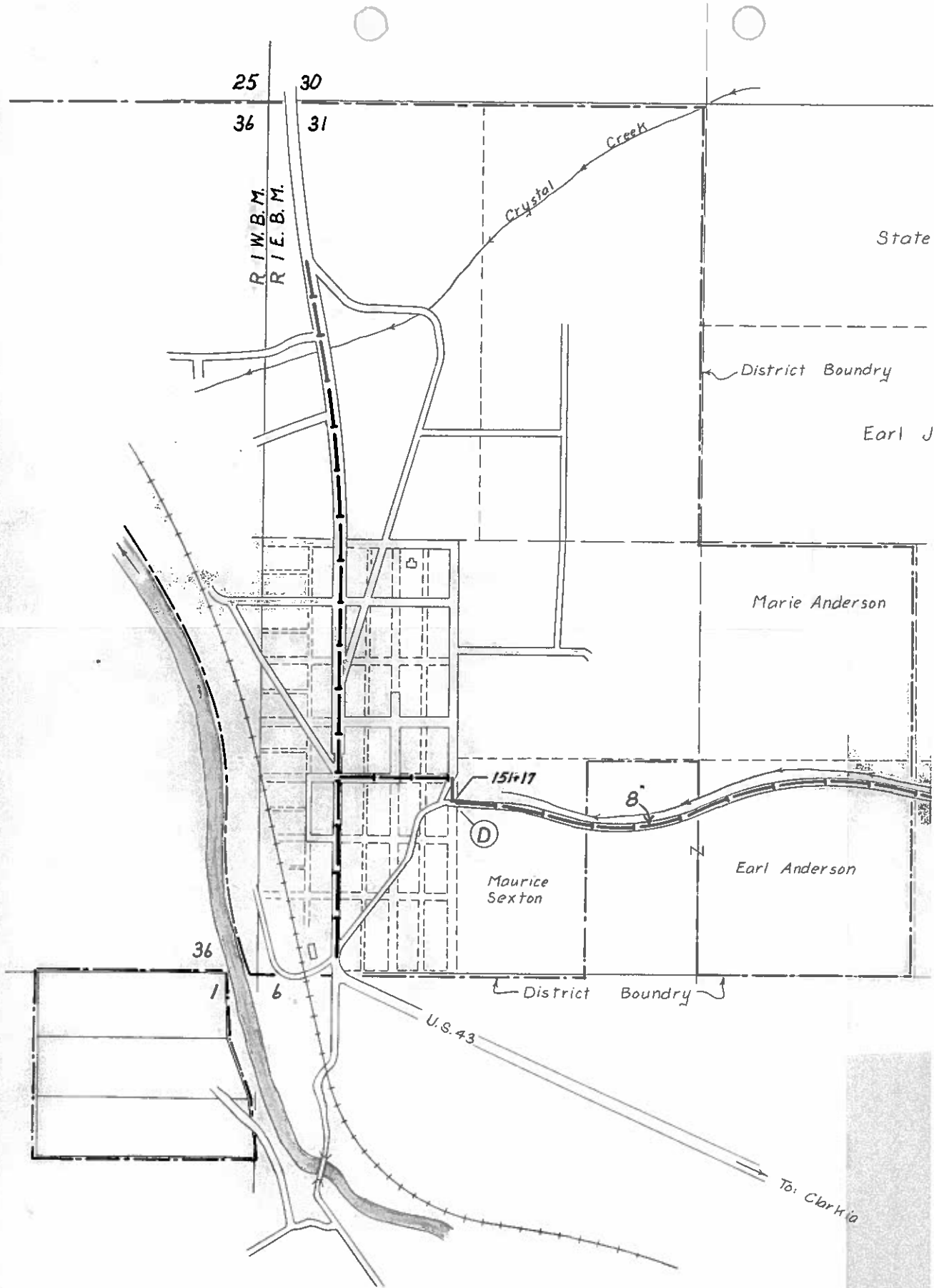
31

District Boundry

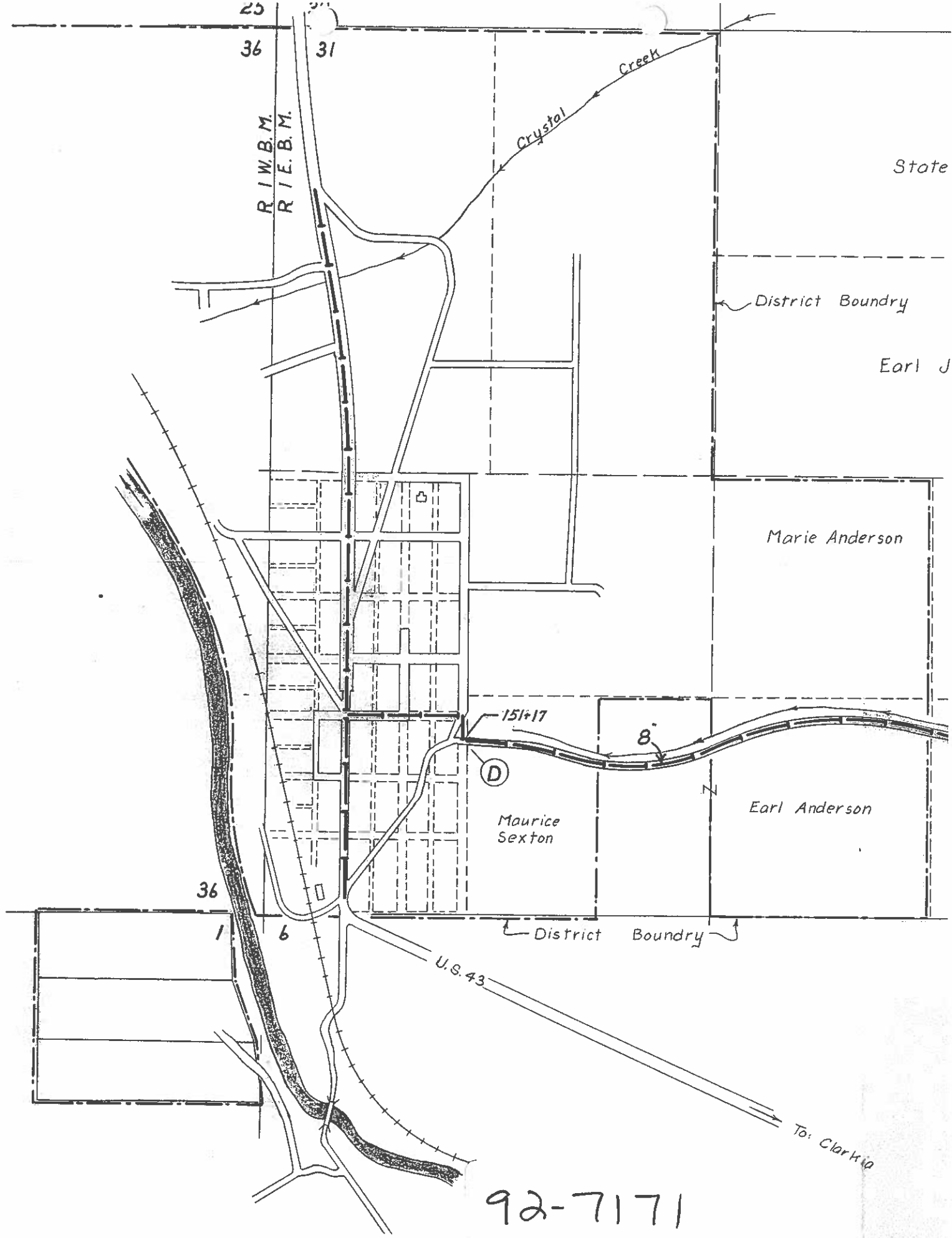
District Boundry

D

T 44 N
T 43 N



92-7171



92-7171

DEC 2005 SANDFILTER

TIME	DATE	TURBIDITY		Gallon Reading	peak Flow	Water Temp	Tank Level	CL2	GALLONS USED	SAND FILTER PH	CHURCH CL2	OUTSIDE TEMP
		RAW	FILTER									
9:04	1	1.05	0.072	1577429	37	-0.3	14.2	0.42	43,901	7.3	0.45	16
8:33	2	1.25	0.074	1636529	45	0	13.9	0.39	59,100	7.3	0.34	22
8:39	3	1.85	0.075	1702103	45	1	13.5	0.59	65,574	7.4	0.59	18
8:33	4	3.56	0.072	1772778	50	-0.5	13.2	0.65	70,675	7.1	0.6	10
8:04	5	0.75	0.067	1838971	56	-0.4	12.7	0.66	66,193	7.3	0.67	18
9:12	6	1.79	0.067	1925051	58	-0.5	12.7	0.39	86,080	7.4	0.46	-4
8:57	7	1.22	0.075	2005092	60	-0.9	12.4	0.47	80,041	7.3	0.45	-11
9:12	8	1.39	0.067	2085493	56	-0.7	11.8	0.47	80,401	7.3	0.42	-16
8:46	9	1.14	0.066	2135485	55	-0.5	14.1	0.7	49,992	7.3	0.36	10
9:00	10	1.23	0.073	2195535	47	-0.6	13.2	0.41	60,050	7.3	0.39	8
8:30	11	1.14	0.073	2266890	50	-0.7	12.3	0.4	71,355	7.2	0.44	6
9:00	12	1.1	0.072	2326702	54	-0.06	14.6	0.54	59,812	7.3	0.26	10
8:34	13	0.89	0.079	2376845	45	0	13.4	0.48	50,143	7.3	0.41	14
8:45	14	0.98	0.079	2444045	48	0.1	12.7	0.53	67,200	7.3	0.47	14
8:49	15	0.92	0.073	2511095	48	-0.5	12	0.44	67,050	7.3	0.44	6
8:55	16	1.11	0.069	2565817	50	-0.6	14.5	0.45	54,722	7.3	0.17	0
8:38	17	0.98	0.075	2608637	39	-0.7	13.4	0.4	42,820	7.3	0.36	-10
8:39	18	1.02	0.074	2670249	48	-0.9	12.5	0.43	61,612	7.2	0.37	-16
8:26	19	1.1	0.071	2724549	45	-0.7	14.4	0.45	54,300	7.2	0.22	6
8:37	20	0.96	0.076	2759919	32	-0.5	13.7	0.45	35,370	7.1	0.32	26
8:48	21	1.03	0.076	2815549	42	-0.4	12.2	0.39	55,630	7.3	0.25	30
8:46	22	6.52	0.083	2849999	38	-0.2	13.8	0.37	34,450	7.3	0.28	35
8:36	23	4.16	0.226	2887769	29	1.1	13.5	0.36	37,770	7.1	0.17	32
8:40	24	3.5	0.261	2905885	20	1.5	13.6	0.33	18,116	7.3	0.12	34
8:55	25	2.31	0.23	2939380	16	1.7	13.8	0.33	33,495	7.3	0.08	28
8:11	26	2.34	0.233	2954561	20	1.9	13.5	0.36	15,181	7.2	0.07	30
8:37	27	2.21	0.301	3004961	47	2.1	12.9	0.37	50,400	7.3	0.08	26
8:45	28	2.18	0.289	3027613	29	1.9	13.9	0.39	22,652	7.3	0.11	33
8:41	29	5.29	0.439	3061213	40	2.4	12	0.39	33,600	7.2	0.14	35
8:43	30	2.39	0.426	3074147	19	2.2	14.5	0.27	12,934	7.3	0.12	29
8:55	31	2.4	0.376	3095442	17	8.7	12.9	0.57	21,295	7.3	0.04	29
TOTAL									1,518,013			

Gallons Used - this total in a 24 hr. period through Sandfilter - does not include overflow to Finn Creek.

Peak Flow - peak gpm within the last 24 hr period. Does not include overflow.

92-7171

Jan 2007 SANDFILTER

Time	DATE	TURBIDITY		Gallon Reading	peak Flow	Water Temp	Tank Level	CL2	GALLONS USED	SAND FILTER PH	CHURCH CL2	OUTSIDE Temp
		Raw	Filtered									
9:21	1	1.52	0.732	3792136	43	-0.1	13.7	0.45	58,160	7.5	0.22	13
9:07	2	1.39	0.699	3852006	43	0.6	13.1	0.55	59,870	7.5	0.29	31
8:30	3	2.08	0.56	3912446	46	0.8	12.8	0.55	60,440	7.5	0.29	27
8:19	4	1.47	0.63	3973766	46	0.6	12.4	0.55	61,320	7.6	0.42	25
8:23	5	1.4	0.635	4027657	39	0.4	11.9	0.57	53,891	7.5	0.44	16
8:45	6	3.87	0.594	4063475	35	-0.3	14.5	0.65	35,818	7.6	0.25	20
8:55	7	1.52	0.573	4109500	36	-0.1	13.6	0.53	46,025	7.4	0.55	20
9:03	8	1.84	0.56	4167220	43	0.3	13	0.56	57,720	7.5	0.56	22
9:20	9	1.36	0.542	4221130	37	1.1	12.1	0.51	53,910	7.5	0.41	33
9:17	10	2.33	0.548	4267160	43	0.5	14.5	0.41	46,030	7.4	0.39	14
8:57	11	1.79	0.527	4306080	32	0.2	13.4	0.47	38,920	7.5	0.25	10
9:06	12	3.13	0.397	4348700	40	-0.9	12	0.41	42,620	7.4	0.31	-17
9:21	13	2.21	0.337	4379950	39	-1	14.2	0.35	31,250	7.4	0.08	-16
8:21	14	2.37	0.329	4412320	34	-1.1	12.4	0.47	32,370	7.5	0.22	-3
8:59	15	2.69	0.321	4450440	34	-1.1	14	0.44	38,120	7.5	0.05	-12
8:31	16	2.32	0.331	4491710	40	-0.9	12.8	0.49	41,270	7.5	0.22	-2
8:53	17	2.72	0.371	4548080	43	-0.8	11.9	0.57	56,370	7.4	0.27	16
8:07	18	2.32	0.159	4570390	22	-0.6	13.9	0.42	22,310	7.5	0.03	18
9:01	19	1.79	0.403	4580380	27	-0.2	13.8	0.43	9,990	7.5	0.07	25
8:50	20	1.63	0.439	4630280	36	-0.6	12.8	0.35	49,900	7.4	0.16	26
9:00	21	1.76	0.44	4681520	36	-0.3	12.3	0.33	51,240	7.4	0.25	14
9:03	22	1.16	0.411	4713900	36	0.5	14.2	0.59	32,380	7.4	0.14	26
8:57	23	1.23	0.426	4757540	35	0.6	12.9	0.43	43,640	7.5	0.35	30
8:49	24	1.35	0.367	4807720	36	0.6	11.9	0.48	50,180	7.4	0.47	18
9:08	25	1.44	0.349	4843600	35	0.6	14.2	0.43	35,880	7.4	0.25	10
8:53	26	1.33	0.337	4883850	33	0.4	12.9	0.53	40,250	7.5	0.39	7
9:30	27	1.61	0.332	4933712	33	0.3	11.9	0.47	49,862	7.2	0.35	10
9:34	28	1.96	0.314	4964444	32	2.6	14.2	0.61	30,732	5.9	0.49	7
8:33	29	shut down							0		0.47	9
8:47	30	shut down							0		0.05	20
8:47	31	1.09	0.315	5010160	35	0.3	13.1	0.63	45,716	7.5	0.03	17

1,276,184

92-7171

feb 2007 SANDFILTER

Time	DATE	TURBIDITY		Gallon Reading	peak Flow	Water Temp	Tank Level	CL2	GALLONS	PH	CHURCH CL2	OUTSIDE Temp
		Raw	Filtered						USED			
8:32	1	1.01	0.311	5060950	37	0.2	12.1	0.47	50,790	7.4	0.44	20
8:37	2	1.23	0.304	5100350	35	0.2	14.5	0.51	39,400	7.6	0.03	18
8:25	3	1.25	0.283	5137340	33	-0.2	13	0.42	36,990	7.4	0.15	0
8:25	4	1.18	0.288	5185085	33	0.2	12	0.45	47,745	7.4	0.27	22
8:47	5	1.41	0.296	5218456	34	0.7	14.2	0.59	33,371	7.4	0.18	29
9:07	6	1.69	0.327	5258137	32	0.9	12.8	0.51	39,681	7.6	0.32	27
8:59	7	1.51	0.269	5302400	33	0.7	11.9	0.42	44,263	7.5	0.43	23
8:59	8	1.86	0.219	5329590	30	1.3	14.2	0.41	27,190	7.5	0.41	30
9:03	9	1.74	0.227	5366190	28	1.2	12.8	0.37	36,600	7.4	0.37	28
9:07	10	2.35	0.259	5406210	38	1.1	12.8	0.37	40,020	7.5	0.03	25
7:47	11	2.21	0.289	5428540	28	1.6	14.2	0.45	22,330	7.5	0.12	30
8:37	12	2.63	0.307	5465060	27	1.6	11.9	0.38	36,520	7.5	0.21	30
9:03	13	2.81	0.334	5489650	26	1.6	14.3	0.52	24,590	7.6	0.07	27
9:03	14	2.31	0.349	5520630	25	1.9	12.7	0.57	30,980	7.5	0.32	30
8:57	15	2.05	0.364	5553360	24	1.6	14.2	0.53	32,730	7.4	0.18	30
8:47	16	3.74	0.281	5566180	15	1.7	13.4	0.47	12,820	7.5	0.15	27
10:20	17	3.63	0.327	5593445	20	1.7	13.3	0.25	27,265	7.4	0.08	32
8:50	18	3.7	0.37	5606500	13	2.1	14	0.47	13,055	7.5	0.02	34
8:46	19	3.08	0.391	5634850	23	1.9	12.3	0.46	28,350	7.5	0.25	27
9:02	20	2.91	0.427	5661050	22	1.3	13.3	0.44	26,200	7.5	0.08	30
9:09	21	2.77	0.446	5689060	21	1.1	12.1	0.37	28,010	7.5	0.19	27
8:40	22	2.96	0.451	5704870	8	1.4	14.3	0.47	15,810	7.5	0.08	28
9:40	23	2.93	0.445	5729071	18	1.4	12.3	0.43	24,201	7.5	0.05	21
6:55	24	2.3	0.438	5746117	19	3.2	14.7	0.63	17,046	6.7	0.12	20
7:47	25	1.79	0.419	5766550	18	1.1	12.8	0.45	20,433	7.5	0.12	27
8:49	26	2.34	0.409	5787670	19	1.8	14.7	0.36	21,120	7.4	0.2	28
8:56	27	2.09	0.391	5805200	18	1.6	12.9	0.46	17,530	7.3	0.17	18
9:27	28	1.88	0.387	5826170	18	1.3	14.8	0.43	20,970	7.5	0.15	28
	29											
	30											
	31											

816,010

92-7171

mar 2007 SANDFILTER

Time	DATE	TURBIDITY		Gallon Reading	peak Flow	Water Temp	Tank Level	CL2	GALLONS	SAND FILTER PH	CHURCH CL2	OUTSIDE Temp
		Raw	Filtered						USED			
9:09	1	1.93	0.369	5839880	18	1.3	12.9	0.36	13,710	7.4	0.24	22
9:03	2	2.21	0.359	5859090	18	0.9	13.8	0.35	19,210	7.5	0.08	2
8:42	3	2.01	0.339	5866200	14	1.3	13.5	0.34	7,110	7.5	0.1	28
7:42	4	1.72	0.342	5888630	17	1.1	12.8	0.43	22,430	7.5	0.09	27
9:03	5	2.06	0.335	5898080	16	1.8	13.7	0.35	9,450	7.5	0.09	30
9:07	6	2.11	0.319	5919970	17	1.5	11.9	0.49	21,890	7.5	0.18	31
8:47	7	1.98	0.317	5930770	17	1.6	14.1	0.4	10,800	7.5	0.12	21
8:59	8	3.79	0.342	5948170	16	2.1	12	0.52	17,400	7.4	0.31	33
8:49	9	4.23	0.363	5951395	10	1.9	14.1	0.36	3,225	7.5	0.14	26
9:15	10	4.68	0.42	5961480	13	2.3	12	0.4	10,085	7.5	0.01	34
8:45	11	6.54	0.479	5970886	0	2.8	14.3	0.22	9,406	7.4	0.12	38
8:30	12	9.99	0.551	5987020	13	2.6	12.2	0.44	16,134	6.9	0.04	50
9:09	13	shut down									0.08	30
9:19	14	shut down									0.08	20
9:07	15	shut down			(back flush usage)-----				234,200		0.08	20
8:37	16	3.79	0.91	6269260	47	2.5	14.4	0.43	48,040	7.5	0.13	33
9:15	17	2.68	0.449	6339060	48	3.3	13.8	0.49	69,800	7.1	0.24	40
9:25	18	4.96	1.78	6405420	49	4.9	12.9	0.49	66,360	7.4	0.26	37
8:48	19	shut down									0.06	25
8:49	20	shut down									0.08	34
9:19	21	3.48	1.62	6491000	73	2.3	12.3	0.27	85,580	7.4	0.19	20
9:07	22	3.29	1.59	6538220	43	2.5	14.7	0.41	47,220	7.4	0.06	28
9:12	23	3.42	1.49	6574370	33	3.1	13.3	0.41	36,150	7.5	0.33	34
9:21	24	3.24	1.29	6623780	35	3.3	12.3	0.38	49,410	7.3	0.31	40
10:42	25	3.49	1.19	6660030	33	3.9	14.3	0.44	36,250	7.4	0.19	40
8:33	26	4.21	1.17	6687650	24	3.1	12.8	0.4	27,620	7.3	0.17	21
8:57	27	3.67	1.09	6718570	25	3.5	14.6	0.33	30,920	7.4	0.09	31
8:42	28	3.48	1.09	6737660	22	3.6	13.2	0.4	19,090	7.4	0.08	30
9:03	29	2.79	0.97	6770420	23	2.9	12	0.41	32,760	7.4	0.23	28
9:33	30	3.42	0.97	6802330	68	3.4	14.2	0.44	31,910	7.4	0.11	24
9:05	31	2.88	0.105	6845080	32	3.4	13.1	0.45	42,750	7.3	0.19	34
									1,018,910			

92-7171

april 2007 SANDFILTER

Time	DATE	TURBIDITY		Gallon Reading	peak Flow	Water Temp	Tank Level	CL2	GALLONS	SAND FILTER PH	CHURCH CL2	OUTSIDE Temp
		Raw	Filtered						USED			
8:25	1	3.21	0.96	6886205	28	3.3	11.9	0.38	41,125	7.3	0.23	24
8:59	2	2.69	0.889	6911980	28	3.4	14.2	0.37	25,775	7.4	0.12	22
8:47	3	2.6	0.811	6944060	26	2.1	12.7	0.29	32,080	7.5	0.22	13
8:52	4	2.19	0.773	6976270	26	2.7	14.4	0.34	32,210	7.4	0.11	29
9:17	5	2.19	0.719	6994530	20	3.1	13.4	0.42	18,260	7.4	0.17	36
9:26	6	2.78	0.683	7026990	23	3.5	11.9	0.43	32,460	7.4	0.29	33
7:25	7	3.36	0.662	7045202	21	10.6	14.4	0.58	18,212	7.4	0.1	35
7:31	8	3.42	0.637	7070780	20	4.4	12.5	0.46	25,578	7.4	0.19	40
9:17	9	9.21	0.594	7092360	20	4.4	14.5	0.43	21,580	7.5	0.14	39
9:11	10	shut down-----							0		0.13	32
9:37	11	shut down-----							0		0.11	22
8:59	12	2.59	0.591	7139890	50	3.1	13.4	0.53	47,530	7.4	0.31	19
9:00	13	2.51	0.54	7186588	35	4.4	12.4	0.67	46,698	6.8	0.67	25
9:30	14	2.26	0.51	7220586	9.73	5.4	14.6	0.68	33,998	7.4	0.68	50
9:35	15	3.5	0.498	7247008	23.6	5.9	13.2	0.42	26,422	7.3	0.42	32
8:39	16	2.03	0.453	7278640	24	5.7	11.9	0.39	31,632	7.4	0.22	30
9:27	17	2.7	0.431	7297840	23	4.6	14.3	0.27	19,200	7.4	0.11	40
8:59	18	shut down----- 7554527 (back flush usage)							256,687		0.11	30
9:29	19	shut down-----							0		0.15	35
9:21	20	shut down-----							0		0.11	22
8:30	21	shut down-----							0		0.05	25
8:45	22	shut down-----							0		0.14	36
9:02	23	shut down-----							0		0.1	40
9:39	24	shut down-----							0		0.09	40
7:31	25	shut down-----							0		0.08	38
9:41	26	shut down-----							0		0.09	38
8:57	27	shut down-----							0		0.08	43
9:10	28	shut down-----							0		0.09	55
9:20	29	shut down	0.088				14.2		0		0.1	0.58
9:03	30	shut down-----							0		0.09	38
	31								709,447			
									709,447			

92-7171

may 2007 SANDFILTER

may 2007		SANDFILTER										
Time	DATE	TURBIDITY		Gallon Reading	peak Flow	Water Temp	Tank Level	CL2	GALLONS USED	SAND FILTER PH	CHURCH CL2	OUTSIDE Temp
		Raw	Filtered									
9:31	1	2.21	0.331	7611210	68	5.6	14.8	0.43	56,683	7.6	0.09	39
8:58	2	2.88	0.321	7693460	62	5.6	14.8	0.49	82,250	7.4	0.37	40
9:09	3	3.21	0.327	7768220	55	4.8	14.7	0.57	74,760	7.4	0.36	35
9:17	4	2.14	0.287	7844420	56	4.1	14.4	0.52	76,200	7.4	0.36	33
9:15	5	1.82	0.255	7918716	52	4	14.3	0.37	74,296	6.9	0.28	42
9:00	6	1.93	0.237	7992548	54	5.4	14.1	0.48	73,832	7.3	0.27	40
8:20	7	2.05	0.221	8067960	57	5.3	13.9	0.55	75,412	7.4	0.42	40
8:51	8	2.13	0.217	8149230	57	5.7	13.6	0.59	81,270	6.9	0.39	40
9:16	9	2.2	0.197	8231930	60	6.2	13.3	0.45	82,700	7.4	0.32	47
9:21	10	1.63	0.163	8314560	59	6.1	13	0.43	82,630	7.3	0.27	45
9:07	11	2.37	0.151	8394040	58	6.4	12.8	0.49	79,480	7.5	0.31	42
9:20	12	2.47	0.146	8470920	50	6.7	12.2	0.34	76,880	7.4	0.24	38
8:40	13	2.21	0.153	8524735	48	7.2	14.5	0.58	53,815	7.4	0.18	40
9:17	14	2.19	0.151	8573760	39	6.2	13.4	0.45	49,025	7.3	0.43	39
9:13	15	2.11	0.141	8635030	44	6.4	12.5	0.39	61,270	7.4	0.39	39
9:17	16	1.75	0.137	8694340	43	6.8	11.9	0.41	59,310	7.4	0.27	41
7:39	17	1.76	0.147	8730990	40	7.7	14.3	0.37	36,650	7.3	0.1	39
9:11	18	1.83	0.142	8781360	37	7.2	12.8	0.36	50,370	7.4	0.19	40
10:01	19	2.07	0.134	8833670	37	7.4	14	0.46	52,310	7.4	0.19	41
9:49	20	1.56	0.137	8861140	26	6.8	13.8	0.41	27,470	7.4	0.11	42
9:13	21	1.79	0.127	8904590	33	6.2	12.6	0.42	43,450	7.4	0.23	37
9:39	22	1.74	0.123	8945080	30	5.7	14	0.58	40,490	7.4	0.12	40
9:27	23	1.71	0.131	8967560	23	6.2	13.6	0.44	22,480	7.4	0.11	41
9:03	24	1.75	0.142	9034020	68	6.1	13.3	0.37	66,460	7.4	0.31	39
8:37	25	1.63	0.121	9121520	68	5.8	13.6	0.5	87,500	7.4	0.26	37
8:25	26	1.53	0.117	9214850	65	6.3	13.6	0.36	93,330	7.4	0.37	38
8:30	27	1.98	0.11	9307350	65	6.9	13.3	0.48	92,500	7.4	0.56	40
8:49	28	2.6	0.105	9392490	63	6.3	13.1	0.58	85,140	7.4	0.52	35
9:07	29	2	0.101	9469370	55	5.6	12.5	0.55	76,880	6.9	0.41	40
9:12	30	2.05	0.094	9543370	53	6.4	12	0.45	74,000	7.2	0.27	40
7:38	31	2.1	0.102	9596100	51	7.4	14.3	0.41	52,730	7.3	0.31	38
									2,041,573			

92-7171