



State of Idaho

DEPARTMENT OF WATER RESOURCES

Western Region • 2735 Airport Way • Boise, Idaho 83705-5082

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C.L. "BUTCH" OTTER
Governor

GARY SPACKMAN
Director

September 6, 2012

CARY SINGLETON
1054 ASHWOOD CT
KUNA ID 83634

Re Permit No. 63-12377

Dear Mr. Singleton:

Thank you for accompanying me on the field exam of this permit on July 23, 2012. You should receive the license in the next few months.

During the field exam, we discussed the rate of flow. I mentioned that I suspected the flow diverted though the system exceeded the 0.04 cfs authorized, though no measurements were taken during the exam. I have calculated the diversion rate a few different ways, and it appears that the diversion rate does exceed 0.04 cfs. The results I obtained range from 0.07 cfs to 0.64 cfs. You can estimate the flow yourself using a five-gallon bucket and a stopwatch. I enclosed a sheet entitled, *DETERMINING FLOW USING A 5 GALLON BUCKET*, to assist you.

The source of this permit is Muddy Creek, a tributary of Grimes Creek, in the upper Boise River basin. Water is considered to be fully appropriated in the upper basin and there is a long history of water disputes. Therefore, it is very important that this system does not divert more than 0.04 cfs. Rex Barrie is the Water District 63, Boise River, Watermaster. He has the authority to regulate diversions in Water District 63, which includes Muddy Creek, and so I am copying him on this letter.

Please call me if you have questions at 208.334.2190. Thank you.

Sincerely,

Vicky Music
Sr. Water Resource Agent

Enclosure: *DETERMINING FLOW USING A 5 GALLON BUCKET* reference sheet
cc: Rex Barrie, WD 63 Watermaster (without enclosure)

DETERMINING FLOW USING A 5 GALLON BUCKET

Seconds for 5 gal	gpm	cfs	Measurement error of 0.5 sec gpm
1.0	300	0.67	100.0
1.5	200	0.45	50.0
2.0	150	0.33	30.0
2.5	120	0.27	20.0
3.0	100	0.22	14.3
3.5	86	0.19	10.7
4.0	75	0.17	8.3
4.5	67	0.15	6.7
5.0	60	0.13	5.5
5.5	55	0.12	4.5
6.0	50	0.11	3.8
6.5	46	0.10	3.3
7.0	43	0.10	2.9
7.5	40	0.09	2.5
8.0	38	0.08	2.2
8.5	35	0.08	2.0
9.0	33	0.07	1.8
9.5	32	0.07	1.6
10	30	0.07	1.4
11	27	0.06	1.2
12	25	0.06	1.0
13	23	0.05	0.9
14	21	0.05	0.7
15	20	0.04	0.6
16	19	0.04	0.6
17	18	0.04	0.5
18	17	0.04	0.5
19	16	0.04	0.4
20	15	0.03	0.4
21	14	0.03	0.3
22	14	0.03	0.3
23	13	0.03	0.3
24	13	0.03	0.3
25	12	0.03	0.2
26	12	0.03	0.2
27	11	0.02	0.2
28	11	0.02	0.2
29	10	0.02	0.2
30	10	0.02	0.2

Formula:

$$\text{gpm} = 5 \times 60/\text{seconds}$$

Never use the bucket when flows would fill the bucket in less than 5 seconds.

As a rule, avoid using the bucket for flows that fill the bucket in less than 10 seconds.