
MEMORANDUM

TO: T77075 & T77024
FROM: JEFF COOPER
SUBJECT: DITCH LOSS CALCULATIONS
DATE: 5/25/2012

Applications T77075 & T77024 proposes to add points of diversion (POD) to a location downstream of the original headgate located in the NENENE of Sec. 14, TWP 13S, RNG 26E, which diverts to a ditch that serves other Cassia Creek Rights. In order to address concerns of injury to the rights left in this ditch, an analysis was performed to determine the ditch loss that has historically been mitigated by turning in the rights involved in the aforementioned transfers. This analysis was based on the Brockway & Allen model. This model utilizes the width of the channel; a seepage rate based on the channel material; and the length of channel (reach) to determine a delivery loss (see attached spreadsheet). Once delivery loss is determined, a proportionate share is divided between the users based on their water rights (see attached spreadsheet). These proportions were based on senior, deliverable rights. The amount required to be left in the ditch when water is taken at the proposed downstream POD is then addressed within a condition on the right.

Water Right	Owner	Priority	CFS	Reach	Reach Length (ft & mi)	Distance from POD (ft & mi)	Width (ft)	Reach Flow (cfs)	Seepage rate (feet/day)	Seepage Loss (cfs/mile)	Delivery Loss (cfs)
43-12969	Jennifer Spencer	4/25/1883	0.08	1	3702	3702	3	9.83	2.25	0.45	0.32
43-12971	Jennifer Spencer	5/31/1885	0.19	1	0.70	0.70					
43-12973	Jennifer Spencer	4/1/1894	0.17	1							
43-2002	Ronda Kim Thornton	3/2/1914	0.36	2	1077 0.20	4779 0.91	3	9.39	2.25	0.45	0.09
43-12992	Cordell Sheridan	4/15/1974	1.12	3	10813	15592	3.5	9.03	2.25	0.53	1.08
43-294	Cordell Sheridan	4/30/1880	0.4	3	2.05	2.95					
43-295	Cordell Sheridan	4/30/1885	2	3							
43-296B	Cordell Sheridan	4/1/1894	0.88	3							
43-293A	Nolan Branch	4/30/1880	1.4	4	2767	18359	3	4.63	2.25	0.45	0.24
43-12994	Nolan Branch	11/15/1973	0.96	4	0.52	3.48					
43-296A	Nolan Branch	4/1/1894	1.07	4							
43-302	Nolan Branch	4/30/1885	1.2	4							

Right	Sheridan (CFS)	Branch (CFS)	Spencer (CFS)
43-294	0.4		
43-295	2		
43-296B	0.88		
43-293A		1.4	
43-296A		1.07	
43-302		1.2	
43-12969			0.08
43-12971			0.19
43-12973			0.17
Total (Individual)	3.28	3.67	0.44
Total (All)	7.39		
Share	44%	50%	6%

Loss to Spencer
(CFS)

0.32

	Assigned Loss (CFS left in ditch)
Sheridan	0.14
Branch	0.16
Spencer	0.02
Total	0.32