

## **Wineville Basin Proof of Concept Project**

### **Revised Percolation Testing Protocol**

Percolation will be measured by stopping all inflow to a given test cell and measuring the rate of fall of the water level over a given period of time. These measurements will be achieved by reading the relative elevation change (over some period of time) on the staff gauges positioned in the bottom of each test cell. Time intervals between measurements will vary depending on the percolation rates in each test cell. Once the change in elevation and time interval has been recorded the elevation will be corrected for evaporation/precipitation and the measurements will be normalized to achieve feet per day units.

Once the contractor has completed the construction and successfully tested the pipeline system, percolation (perc) testing may begin. Perc test cell fill times will vary. Initially, two test cells will be filled simultaneously for a period of approximately 12 to 36 hours until there is 1.5' of water in each of the cells. Initial filling should begin early on day 1, so the fill rate can be monitored throughout day 1 and flow adjustments made accordingly. If initial perc rates are high it may take several days to fill the cells, or it may be preferable to fill 1 cell at a time with the maximum flow rate. If perc rates are low, then more than 2 cells may be filled at one time.

Once a cell has reached approximately 1.5' of depth the inflow to that cell should be shut off and the water elevation, date and time recorded. Ideally this should be done at the beginning of the day so the perc rate can be monitored during the day to see if the perc rate exceeds the perc cell volumetric capacity. If perc rates are sufficiently low then the cell should be allowed to sit overnight with no inflow, and the level elevation date and time recorded the following day. The cell should then be re-filled and the measurements repeated and the sequence repeated. If perc rates are high, then the measuring and refilling sequence may occur during a single day. The process should be repeated until a perc decay curve has been developed or the perc rate stabilizes at a given value for more than 15 days.

Daily percolation rates will be corrected for evaporation based on evaporation pan readings. 70% of the daily evaporation pan readings will be used in the percolation rate correction.

It is anticipated that testing will take 30 calendar days.

**Table I: Estimated Percolation Rates Used in Design**

	Cell 1	Cell 2	Cell 3	Cell 4	Cell 5	Cell 6		Total Perc (acre-foot)	Total Perc (cfs)	Flow Required (gpm)  (designed w/ pipe)	Duration (hours)
Area (acres)	0.5	0.5	0.5	0.5	0.5	0.5					
	Assumed Perc Rate (ft/day)										
Day 1	0	0	0	0	0	0		0	0.00	0	24
Day 2	3	3	0	0	0	0		3	1.52	700	24
Day 3	1	1	3	3	0	0		4	2.02	900	24
Day 4	1	1	1	1	3	3		5	2.53	1,200	24
Day 5	1	1	1	1	1	1		3	1.52	1,400	12
Day 6	0.9	0.9	1	1	1	1		2.9	1.46	1,400	12
Day 7	0.9	0.9	0.9	0.9	1	1		2.8	1.41	1,300	12
Day 8	0.8	0.8	0.9	0.9	0.9	0.9		2.6	1.31	1,200	12
Day 9	0.8	0.8	0.8	0.8	0.9	0.9		2.5	1.26	1,700	8
Day 10	0.7	0.7	0.8	0.8	0.8	0.8		2.3	1.16	1,600	8
Day 11	0.7	0.7	0.7	0.7	0.8	0.8		2.2	1.11	1,500	8
Day 12	0.6	0.6	0.7	0.7	0.7	0.7		2	1.01	1,400	8
Day 13	0.6	0.6	0.6	0.6	0.7	0.7		1.9	0.96	1,300	8
Day 14	0.6	0.6	0.6	0.6	0.6	0.6		1.8	0.91	1,200	8
Day 15	0.5	0.5	0.6	0.6	0.6	0.6		1.7	0.86	1,200	8
Day 16	0.5	0.5	0.5	0.5	0.6	0.6		1.6	0.81	1,100	8
Day 17	0.5	0.5	0.5	0.5	0.5	0.5		1.5	0.76	1,000	8
Day 18	0.5	0.5	0.5	0.5	0.5	0.5		1.5	0.76	1,000	8
Day 19	0.4	0.4	0.5	0.5	0.5	0.5		1.4	0.71	1,000	8
Day 20	0.4	0.4	0.4	0.4	0.5	0.5		1.3	0.66	900	8
Day 21	0.4	0.4	0.4	0.4	0.4	0.4		1.2	0.61	800	8
Day 22	0.4	0.4	0.4	0.4	0.4	0.4		1.2	0.61	800	8
Day 23	0.4	0.4	0.4	0.4	0.4	0.4		1.2	0.61	800	8
Day 24	0.3	0.3	0.4	0.4	0.4	0.4		1.1	0.56	800	8
Day 25	0.3	0.3	0.3	0.3	0.4	0.4		1	0.51	700	8
Day 26	0.3	0.3	0.3	0.3	0.3	0.3		0.9	0.45	600	8
Day 27	0.3	0.3	0.3	0.3	0.3	0.3		0.9	0.45	600	8
Day 28	0.3	0.3	0.3	0.3	0.3	0.3		0.9	0.45	600	8
Day 29	0.2	0.2	0.3	0.3	0.3	0.3		0.8	0.40	600	8
Day 30	0.2	0.2	0.2	0.2	0.3	0.3		0.7	0.35	500	8
Day 31			0.2	0.2	0.2	0.2		0.4	0.20	300	8
Day 32					0.2	0.2		0.2	0.10	200	8

Table II: Field Data Form

Date	Cell #	Time	Time	Time	Level (feet)	Level (feet)	Level	Evap Pan	Perc Rate (ft/day)	Notes
		Start	Stop	$\Delta$	Start	Stop	$\Delta$	$\Delta \times 0.7$		
	1									
	2									
	3									
	4									
	5									
	6									
	1									
	2									
	3									
	4									
	5									
	6									
	1									
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