

COMPUTER MODELING

Automated Augmentation/SWSP Operation Models

Eldorado Artesian Springs, Inc. - Accounting Spreadsheet

Week Beginning:	1-Nov-03	8-Nov-03	15-Nov-03	22-Nov-03	29-Nov-03	NOVEMBER 2003	
Week Ending:	7-Nov-03	14-Nov-03	21-Nov-03	28-Nov-03	30-Nov-03	TOTALS	
Weekly Values to Enter							
(a) Bottling	gal	103,820	113,179	105,228	64,940	0	387,167
(b) Total Volume Replaced	AF	0.368	0.268	0.237	0.363	0.128	1.43
WATER OWED TO SOUTH BOULDER CREEK							
(c) Bottling	AF	0.319	0.347	0.323	0.199	0.000	1.198
(d) Residential In-house	AF	0.07	0.040	0.040	0.040	0.011	0.170
(e) Irrigation	AF	0.00	0.000	0.000	0.000	0.000	0.000
(f) Swimming Pool	AF	0.00	0.000	0.000	0.000	0.000	0.000
(g) Total Volume of Depletion	AF	0.395	0.387	0.363	0.239	0.011	1.395
(h) Total Volume of Depletion	gal	116,745	126,104	116,553	77,955	3,653	442,952
(i) Number of Days in the "week"	days	7	7	7	7	2	30
(j) Avg GPM owed (this week only)	gpm	1158	1251	1172	772	128	10,244
(k) Avg GPM owed (whinning balance)	gpm	11.26	12.19	15.25	13.37	6.26	9.63
WATER REPLACED TO SOUTH BOULDER CREEK							
(l) Total Volume Replaced	gal	119,970	87,212	98,358	120,238	41,779	468,315
(m) Total Volume Replaced	AF	0.368	0.268	0.237	0.363	0.128	1.43
(n) Running Balance	AF	0.000	-0.109	-0.175	-0.044	0.073	0.091
PAPER FILL LIMITS on MARSHALL LAKE							
(o) 80% of Volume Replaced	AF	0.33	0.24	0.27	0.33	0.12	1.23
(p) Seasonal Cumulative Paper Fill	AF	0.33	0.57	0.84	1.17	1.29	1.29
<small>*Assuming 10% ditch loss between S. Boulder Creek and Marshall Lake, according to Manual Montoya of FFRCD</small>							
DECEMBER 2003							
Week Beginning:	1-Dec-03	6-Dec-03	13-Dec-03	20-Dec-03	27-Dec-03	TOTALS	
Week Ending:	5-Dec-03	12-Dec-03	19-Dec-03	26-Dec-03	31-Dec-03	TOTALS	
Weekly Values to Enter							
(a) Bottling	gal	104,955	110,847	100,292	0	0	316,094
(b) Total Volume Replaced	AF	0.31	0.40	0.33	0.00	0.00	1.10
WATER OWED TO SOUTH BOULDER CREEK							
(c) Bottling	AF	0.222	0.340	0.308	0.000	0.000	0.970
(d) Residential In-house	AF	0.18	0.029	0.041	0.041	0.029	0.180
(e) Irrigation	AF	0.00	0.000	0.000	0.000	0.000	0.000
(f) Swimming Pool	AF	0.00	0.000	0.000	0.000	0.000	0.000
(g) Total Volume of Depletion	AF	0.351	0.381	0.348	0.041	0.029	1.150
(h) Total Volume of Depletion	gal	114,415	124,091	113,526	13,244	3,460	374,737
(i) Number of Days in the "week"	days	5	7	7	7	5	31
(j) Avg GPM owed (this week only)	gpm	15.89	12.31	11.26	1.31	1.31	5,395
(k) Avg GPM owed (whinning balance)	gpm	11.78	10.77	9.18	0.00	0.00	0.003
WATER REPLACED TO SOUTH BOULDER CREEK							
(l) Total Volume Replaced	gal	100,349	123,648	128,006	0	0	352,003
(m) Total Volume Replaced	AF	0.31	0.40	0.33	0.00	0.00	1.10
(n) Running Balance	AF	0.000	-0.089	-0.156	-0.044	0.073	0.091

The State Engineer requires accounting for approved substitute water supply plans and augmentation plans. Recording of all water uses and calculation of corresponding depletions are often more feasibly and economically done by the client than by Martin and Wood employees. To facilitate monthly client accounting and reporting, Martin and Wood creates customized programmed spreadsheets that keep track of diversions, consumptive use, depletions, out-of-priority depletions, replacements, requirements, and actual replacements. The client may then automatically enter data into monthly spreadsheet reports to be submitted to the State Engineer in accordance with its reporting policies.

Gravel Pit Substitute Water Supply Plans

Since 1989, the State Engineer requires substitute water supply plans ("SWSP's") for gravel pits that expose ground water to the atmosphere to ensure replacement of all out-of-priority depletions of ground water.

These gravel pit substitute water supply plans offer their own unique challenges in reporting to the State, calculating monthly values for water losses due to water removed with the mined product, concrete production, dust suppression, evaporation

from recharge ponds and other exposed water, and reclamation irrigation.

Monthly accounting reports are required by the State Engineer. For ease of reporting, Martin and Wood personnel create spreadsheets to automate calculation and tabulation of monthly consumptive use and corresponding stream depletions based on monthly production data that can be entered by the gravel pit operator. The reports generated comply with the substitute water supply plan approval conditions.