Appendix A

References

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Appendix B

AlamoSim Model Configuration

The Bill Williams River system modeled includes pumping from Planet Ranch, simplified stream and aquifer interactions, and channel flows. The following tables present details extracted from the HEC-5 model and used in the AlamoSim model.

Table B1: Evaporation Rates for Alamo Reservoir (Inches / Month) over Area

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
(in/mo)	1.70	2.08	3.68	5.55	7.42	9.69	9.43	8.52	6.35	4.35	2.42	1.5

Table B2: Alamo Reservoir Physical Characteristics

Storage Capacity (ac-ft)	Outlet Capacity (cfs)	Surface Elevation (feet)	Surface Area (acres)
0	0	990	0
1,282	3,515	1,030	170
8,168	4,314	1,050	542
24,372	4,974	1,070	1,151
38,058	5,274	1,080	1,596
56,619	5,571	1,090	2,139
80,411	5,834	1,100	2,600
108,699	6,095	1,110	3,086
142,224	6,351	1,120	3,606
179,730	6,594	1,130	4,075
221,453	6,732	1,140	4,574
260,399	7,000	1,148	5,063
321,716	7,000	1,160	5,881
386,931	7,000	1,171	6,743
445,866	7,000	1,180	7,519
521,170	7,000	1,190	8,488

Storage Capacity (ac-ft)	Outlet Capacity (cfs)	Surface Elevation (feet)	Surface Area (acres)
605,774	7,000	1,200	9,436
700,080	7,000	1,210	10,390
809,220	7,000	1,220	11,520
930,210	7,000	1,230	12,740
995,300	7,000	1,235	13,300
1,063,500	11,295	1,240	14,000
1,209,100	24,603	1,250	15,200
1,367,400	51,934	1,260	16,500
1,451,300	65,197	1,265	17,100

Table B3: Muskingum Routing Parameters for Stream Reaches

Upstream End	Downstream End	Subreaches	Routing Coef. (X)	Travel Time (K)
ALMO	PRCH	2	0.15	14.5 hrs
BWRNWR	LKHAVASU	2	0.1	13.5 hrs

Table B4: Monthly Diversions Along Stream (cfs)

Month	ET from PRCH	ET from LKHAVASU	Pumping from PLANET RANCH GROUNDWATER
Jan	2.90	5.27	0.217
Feb	3.55	6.45	0.217
Mar	6.27	11.41	13.429
Apr	9.46	17.21	28.21
May	12.65	23.01	42.25
Jun	16.52	30.05	42.25
Jul	16.08	29.24	42.25
Aug	14.53	26.42	42.25
Sep	10.83	19.69	21.19
Oct	7.42	13.49	14.08
Nov	4.13	7.50	0.217
Dec	2.65	4.65	0.217

Table B5: Dry Bed Infiltration to Planet Ranch Aquifer

Flow in Stream (cfs) at PLANET RANCH IN	Flow to Aquifer (cfs) PLANET RANCH GROUNDWATER
0	0
296	236
466	425
1360	638
3200	1010

Table B6: Planet Ranch Groundwater Physical Characteristics

Storage Capacity (ac-ft)	Release Capacity (cfs)	Ground Water Elevation (feet)
1	20	463
365,800	20	563
368,458	103	564
371,116	333	565
373,774	669	566
376,432	1,106	567
379,090	1,643	568
381,748	2,279	569
384,406	3,018	570
387,064	3,862	571
501,146	87,750	600

Table B7: Elevation Discharge Relation for Aquifer

Groundwater Table Elevation (ft)	Channel Capacity (cfs)	Interpolate
463	0.01	Yes
550	9	Yes
555	12	Yes
560	15	Yes
563	19	Yes
600	87,750	No