

APPENDIX A

Memorandum – Impervious Area Memo

Tables

A-1 – River Cross Section Summary

INTEROFFICE MEMORANDUM

TO: SARA MARXEN, CHRIS PITRE
FROM: STAN MILLER
SUBJECT: IMPERVIOUS AREA INFILTRATION; IRRIGATED EVAPOTRANSPIRATION AND WATER USE
DATE: FEBRUARY 12, 2004
CC:

I have done some general calculations on precipitation and runoff characteristics for Spokane to get an idea of how to deal with urban area recharge from impervious areas. The results are broken into three categories: runoff from impervious areas served by drywells, impervious areas served by infiltration swales with overflow drywells and natural recharge from precipitation minus evapotranspiration. There are two sets of numbers. The lower number represents an annual average precipitation of 16 inches; the higher number represents an annual average of 22 inches per year.

Case 1. Runoff from impervious area direct to drywell

Assumptions: Initial abstraction of precipitation is 0.03 inch. (The storm water quality study we are conducting is confirming this generally accepted number for Spokane.)

Runoff reaching drywells is injected below the root zone. ET is zero.

Increased precipitation in the region occurs as a result of orographic lifting of air masses. The number of events does not change over the region; the total precipitation in each event is proportionally increased.

The effect of snow accumulation from several storms on the amount of abstraction is insignificant.

Average annual precipitation	16.0 inch	22.0 inch
Precipitation occurring in events 0.03 inch or less.	0.55 inch	0.55 inch
Precipitation abstracted from events larger than 0.03 in.	2.45 inches	2.45 inches
Annual Recharge	13.0 inches	19.0 inches

Case 2. Infiltration swale with overflow to drywell

Assumptions: The Thornthwaite-Mather method is appropriate for use in the Spokane area.

Soil moisture in the root zone does not completely "dry out" between runoff events.

No supplemental irrigation is provided to swale vegetation.

Initial abstraction of precipitation on impervious surfaces is 0.03 inch. (The storm water quality study we are conducting is confirming this generally accepted number for Spokane.)

Increased precipitation in the region occurs as a result of orographic lifting of air masses. The number of events does not change over the region; the total precipitation in each event is proportionally increased.

The effect of snow accumulation from several storms on the amount of abstraction is insignificant.

Average annual precipitation	16.0 inches	22.0 inches
Annual Runoff to swale	144 inches	198 inches
PET / AET	24.9 inches	24.9 inches
Average annual recharge through swale	119 inches	172 inches
Average annual recharge normalized for site	13.2 inches	19.1 inches

Case 3. Natural recharge from precipitation on vegetated areas

Assumptions: The Thornthwaite-Mather method is appropriate for use in the Spokane area.

Average Annual Precipitation	16.0 inches	22.0 inches
Potential ET	24.9 inches	24.9 inches
Actual ET	12.8 inches	14.2 inches
Annual Recharge	4.6 inches	7.6 inches

A note on precipitation distribution: In the statistical data base used to generate the runoff values, the percentage of runoff associated with small events, events < 0.03 inches does not appear to vary with season. Therefore, the amount of recharge for any given time period, say month, can be scaled directly from the annual recharge value by relating to the percentage of precipitation occurring during the desired period. The recharge occurring during a period receiving 10% of the annual precipitation is 10% of the annual recharge.

Land Use, Impervious Area and Drywell number conversions.

Use the following assumptions to estimate the amount of impervious area associated with the drywell distribution in areas where there is an inventory. Where only the land use associated with a parcel is known use these relationships to derive impervious area. Combine the impervious area calculated from drywell numbers and land use relationships to arrive at a total impervious area value. Use this total to estimate recharge.

For example: In a given grid element (1 kilometer square – about 247 acres) in the model the Spokane County drywell inventory shows 65 regular drywells 10 drywells with pretreatment (located in infiltration swales) and is composed of 65 % residential and 35% commercial / business / office uses. The area receives 16 inches precip. per year.

Drywells both with and with out pretreatment recharge at the rate of about 13 inches per year. Each of the drywells drains 15,000 square feet for a total of 25.82 acres impervious. At 13 inches of runoff this yields 27.97 acre-feet of runoff per year.

As the area is in the drywell inventory area, it is assumed that all of the drywells associated with the residential use are in the streets and are accounted for by the inventory.

With 35% of the site dedicated to land uses assumed to have 85% impervious area, there is an additional 64.84 acres of impervious area. This will produce an additional 70.02 acre-feet of runoff per year.

Note the significance of the impervious area in generating aquifer recharge. If this parcel were Open Space covered with vegetation and not irrigated the recharge rate would be about 4.6 inches per year. This yields about 94.7 acre-feet of recharge per year. The impervious area, from the site, accounting for about 55% of the land, generates 92.8 acre-feet of recharge per year.

Drywell vs. Impervious Area

Spokane County type A drywells are approved to receive 0.6 cfs maximum runoff flow; type B drywells are approved for 1.0 cfs. As the installation cost of a type B drywell is effectively the same as a type A drywell and the cost of the type B unit is only slightly more than a type A drywell, most installations have type B units. Based on typical site conditions and precipitation in the Spokane area, it requires between 10 and 15 thousand square feet of impervious area to generate 1.0 cfs for the runoff management design storm.

For purposes of watershed planning it will be assumed that each drywell represents a drainage area of 15,000 square feet. Conversely, when estimating drywell numbers it will be assumed that there is one drywell for each 15,000 square feet of impervious area.

Land Use vs. Impervious Area

Residential use: A traditional rectangular street grid generally serves the urbanized Spokane area. A typical city block encompasses a 330 by 660 foot rectangle to create a 5 acre parcel. Residential streets range from 24 to 40 feet wide; the typical street is about 30 feet. About half the streets are accompanied by a 4 to 6 foot wide sidewalk. If we associate a 20foot impervious section with the street frontage around each block (one-half the street width) the 5-acre parcel is 18% impervious.

While runoff from the average 3000 square foot building and driveway coverage is to be maintained on site, typically at least some of the driveway runoff enters the street. The average effective impervious area of residential land is thus about 20%. Given the large ratio of pervious to impervious area in the off street portion of residential areas there are rarely any drywells found off the street.

Commercial / Business / Office uses: The value of land in these classifications tends to see the parcels developed to the extent allowed in the zoning code. For the last several decades, stormwater and landscaping requirements have limited total coverage to 85% to 90%. A portion of the impervious area in most parcels does not drain to drywells or infiltration swales with drywells. It runs off to "open space." Older parcels may have all or most of the parking area developed as semi-permeable gravel parking. Air quality considerations have led to the paving of most parking spaces. Blocks containing these uses are generally large than those dedicated to residential development; the impervious area associated with streets is thus a bit smaller on a percentage basis. Assuming a nominal 10% of runoff is not connected with drywells a conservative estimate for the impervious area of a commercial / business / office uses is 75%.

Industrial uses: The diverse nature of the facilities found associated with this land use makes establishing a norm difficult. Often large areas of building are associated with moderate areas of impervious parking and roadways. However, set back requirements, noise buffers landscaping and storm water management facilities and other “open space” uses reduce the percentage of impervious area. Given the relatively small amount of industrial land in Spokane the error associated with uncertainty in this estimate should not be too great. A 50% impervious area is suitable for this land use. However, the typically large amount of vacant area in industrial parcels allows for the general dispersal of some runoff and lowers the effective impervious area to about 40%.

River Cross Section Summary

River	Cross Section Name	Distance From Mouth (river mile)	Chainage (m)	Original Source	Cross Section Measure Date
Spokane River		Modeled Length: 107488 meters, 55.36 miles. Total Length: 111.6 miles			
	SR West Boundary	44.8	107488		No Cross Section
	SR - LSR Confluence	56.4	88770		No Cross Section
	SR blw Nine Mile Dam	57.8	86653	USGS/Historical	5/30/51
	Nine Mile Dam	58.1	86035	WADOE	4/17/01
	Bobs Nine Mile Reservoir - I	58.3	85853	USGS/Historical	5/30/51
	Bobs Nine Mile Reservoir- H	58.5	85451	WADOE	4/17/01
	Bobs Nine Mile Reservoir - G	58.7	85097	WADOE	4/17/01
	Bobs Nine Mile Reservoir - F	59.2	84289	WADOE	4/17/01
	Bob's Nine Mile Reservoir - E	59.8	83412	WADOE	4/17/01
	Bobs Nine Mile Reservoir - D	60.8	81711	WADOE	4/17/01
	Bobs Nine Mile Reservoir - C	61.4	80826	WADOE	4/17/01
	SR abv Seven Mile Bridge	62.0	79890	USGS/Historical	5/31/52
	Bobs Nine Mile Reservoir- B	62.6	78933	WADOE	4/17/01
	Bobs Nine Mile Reservoir -A	63.2	77922	WADOE	4/17/01
	Downstream of Bowl and Pitcher Park Walk Br - FEMA	66.0	73436	FEMA	
	SR at Riverside State Park	66.0	73346	FEMA	
	SR FEMA15	66.1	73261	FEMA	
	SR FEMA 16	66.5	72646	FEMA	
	SR FEMA 17	66.8	72093	FEMA	
	SR downstream of Spokane WWTP	67.1	71540	FEMA	
	SR upstream of Spokane WWTP	67.6	70766	FEMA	
	SR FEMA 20	67.7	70651	FEMA	
	SR FEMA 21	68.0	70189	FEMA	
	SR at Fort Wright Br (TJ Meenach BR)	69.9	67085	FEMA	
	Hangman Creek Intersection	72.4	63160	USGS/Historical	4/5/73
	SR at Spokane, WA	72.9	62236	USGS/Historical	4/5/73
	Monroe St. Dam	74.1	60316	USGS/Historical	4/18/00
	Bobs Upper Falls Reservoi - S	74.4	59850	FEMA	
	Bobs Upper Falls Reservoir - R (Convention Center Foot Br)	74.6	59615	FEMA	
	Junction with North Channel and Upper Falls Dam	74.6	59517	FEMA	
	SR FEMA 24	74.7	59362	USGS/Historical	9/12/72
	Bobs Upper Falls Reservoir - Q (Division St. Bridge W. Side)	74.8	59193	WADOE	4/16/01
	SR downstream of Division St. Br	74.8	59186	FEMA	
	SR downstream of RR Br	75.4	58320	FEMA	
	SR downstream of Trent Rd. Br	75.5	58097	FEMA	
	SR upstream of Trent Rd. Br	75.5	58070	FEMA	
	SR downstream side of old "curved" Br (bridge repl	75.9	57431	FEMA	
	SR downstream side of 2nd Trent Rd. Bridge	76.0	57358	FEMA	
	SR downstream of 2nd RR Br	76.2	57038	FEMA	
	SR FEMA 32	76.4	56628	FEMA	
	SR downstream side of Mission St. Bridge	76.7	56168	FEMA	
	SR at Mission St.	76.7	56139	USGS/Historical	9/12/72
	SR FEMA 35	77.5	54801	FEMA	
	SR FEMA 36	77.7	54513	FEMA	
	SR at Green St. Bridge	78.1	53989	FEMA	
	SR FEMA 38	78.4	53444	FEMA	
	SR FEMA 39	79.1	52341	FEMA	
	SR FEMA 40	79.5	51660	FEMA	
	SR downstream of Upriver Dam Spillway (side channel)	80.0	50856	FEMA	
	Bobs Upriver Reservoir - P	80.1	50707	FEMA	
	Bobs Upriver Reservoir - O	80.5	50105	WADOE	4/18/01
	Bobs Upriver Reservoir - N	81.1	49056	WADOE	4/18/01

River Cross Section Summary

River	Cross Section Name	Distance From Mouth (river mile)	Chainage (m)	Original Source	Cross Section Measure Date
Bobs Upriver Reservoir	Bobs Upriver Reservoir - M	81.7	48090	USGS/Historical	9/11/90
	Bobs Upriver Reservoir - L	82.4	46936	WADOE	4/18/01
	SR upstream of Argonne Rd Br and IEPC discharge	82.6	46619	USGS/Historical	9/11/90
	Bobs Upriver Reservoir - K	83.2	45776	USGS/Historical	9/11/90
	Bobs Upriver Reservoir - J (Centennial Trail Bridge)	84.0	44488	WADOE	4/18/01
	SR Island Br (Denny Ashlock Br on the Centennial T	84.3	43999	WADOE	4/18/01
	SR Trent Br	85.1	42693	USGS/Historical	2/8/73
	SR Sullivan Rd nr Trentwood (1972)	87.4	38947	USGS/Historical	2/8/73
	SR at Greenacres Waste	89.1	36245	USGS/Historical	8/16/73
	SR at Greenacres, WA Barker Rd.	90.1	34666	USGS/Historical	8/16/73
	SR abv Liberty Br nr Otis Orchard (Harvard Rd.)	93.5	29136	USGS/Historical	4/21/00
	SR at State Line Br	96.0	25070	USGS/Historical	6/2/78
	SR at Post Falls, ID*	100.1	18428	USGS/Historical	6/2/78
	Total Length: 79663 meters, 49.6 miles				
Little Spokane River	LSR nr Dartford at Painted Rocks (USGS 12431500)	3.9	73571	Spokane County	1/10/2002
	LSR btwn nr and at Dartford	7.5	67679		
	LSR at Dartford (USGS 12431000)	11.0	62138		1/10/2002
	LSR Spokane .2 miles blw Deadman (USGS 12430600)	12.3	59989	Spokane County	9/7/1977
	LSR at Buckeye (USGS 12430200)	16.6	53058	Spokane County	9/7/1977
	LSR 500ft blw Dragoon Creek (USGS12430150)	19.4	48534	Spokane County	9/6/1977
	LSR at Chattaroy	20.9	46154	Spokane County	7/24/1984
	LSR at Milan	21.1	45789		
	LSR at Deer Park Milan Rd (LS4)	27.9	34890	SCCD	9/2/1999
	LSR at Elk (USGS 12427000)	33.2	26365	Spokane County	10/17/1984
	LSR Chain Lake D.S.	36.4	17540	Lakes of Washington	
	LSR Chain Lake U.S.	38.1	15239	Lakes of Washington	
	LSR at Scotia (LS1)	42.7	11052	SCCD	1999
	Total Length: 8044 meters, 5 miles				
Dartford Creek	Total Length: 34022 meters, 21.2 miles				
	Deadman Creek 30 yds below Little Deep Creek (LS6)	19.0	34094	SCCD	
Dragoon Creek	Deadman Creek (at Mead)	21.1	23461	Spokane County	2/25/1977
	Total Length: 44570 meters, 27.7 miles				
	Dragoon Creek at Crescent Road Bridge (LS5)	2.3	44214	SCCD	2001
Little Deep Creek	Total Length: 26,501 meters, 16.5 miles				

Note: River Mile is set to 0 at the mouth of the river. Chainage is set to 0 at the source of the river.

APPENDIX B

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TABLE B-1

Compilation of Aquifer / Aquitard Hydraulic Properties

Hydrogeologic Unit	Aquifer Area	Locality	Well	Saturated Thickness (feet)	Pump Rate/ Well Yield (gpm)	Specific Capacity (gpm/ft)	Transmissivity (ft/day)	Hydraulic Conductivity (ft/day)	Hydraulic Conductivity Maximum (m/s)	Hydraulic Conductivity Minimum (m/s)	Storage	Porosity (%)	Linear Velocity (ft/day)	Source	
Flood Sand & Gravel	Deer Park	Hillyard	TW-1	45	90		722	16	5.66E-05					EMCON, 1992.	
Flood Sand & Gravel	SVRP	Valley, Sullivan & Broadway	Vera #2-1	400	2,500		380,000	950	3.35E-03					Bolle & Vacaro, 1981	
Flood Sand & Gravel	SVRP	Hillyard	Central Hillyard Trough	160			400,000	2,500	8.32E-03					CH2MHILL, 2000	
Flood Sand & Gravel	SVRP	Downtown Spokane	Central Well No. 2	250 - 300	3,225	1,443	630,000 - 750,000	2,500	8.32E-03					CH2MHILL, 1978.	
Flood Sand & Gravel	SVRP	South Hilliard Trough	Nevada Well	400	18,200	2,563	1,300,000	3,000	1.06E-02					Bolle & Vacaro, 1981	
Flood Sand & Gravel	SVRP	Central Spokane Valley						4,320	1.52E-02					CH2MHILL, 1988.	
Flood Sand & Gravel	SVRP	State Line to Pines Knoll						6,048	2.13E-02					Bolle & Vacaro, 1981	
Flood Sand & Gravel	SVRP	Deer Park	Olsen (west)	44	620		267,400	6,077	2.44E-02					EMCON, 1992.	
Flood Sand & Gravel	SVRP	State Line		280			3,400,000	15,000	4.23E-02					Drost & Seitz, 1978.	
Grande Ronde Basalt	Columbia Plateau	Columbia Plateau						0.008 - 2.322	1.76E-08					Boese & Buchanan, 1986.	
Wanapum Basalt	SVRP	West Plains						0.007 - 5.244	2.47E-08	1.85E-02				Boese & Buchanan, 1986.	
Flood Sand & Gravel	SVRP	Little Spokane River	Colbert Landfill					0.1 - 10,000	3.53E-08	3.53E-02	0.1 - 0.02			Spokane County, 2001 Draft	
Basalt	Basalt & Basement	Five Mile Prairie	N. Five Mile Prairie					0.1E - 12.1	4.27E-07	4.27E-05				Boese & Buchanan, 1986.	
Flood Sand & Gravel	SVRP	North Hilliard Trough	Well No. 6					25	0.7 - 1.0	2.47E-06	3.53E-06	0.01	10	Landau, 1991. Boese & Buchanan, 1986.	
Flood Sand & Gravel	SVRP	Hillyard - North	7G2					1.86	3.53E-06	3.03E-04	< 0.05			Olson, 1979.	
Flood Sand & Gravel	SVRP	Below Spokane Falls	Northside Landfill					1,000 - 2,500	3.48E-03	8.82E-03				Hart Crowser, 1980 cited in CH2MHILL, 1988.	
Flood Sand & Gravel	SVRP	Five Mile Prairie	Colter Landfill	80	0.5 - 1	134 - 267	1.7 - 3.3	6,000	1.16E-05	0.0005				Hart Crowser, 1980 cited in CH2MHILL, 1988.	
Lower Hillyard Sand & Gravel	CP-El	Little Spokane River	Colter Landfill	200			10,000 - 14,000	100 - 140	4.34E-04	0.16				CH2MHILL, 1998.	
Flood Sand & Gravel	SVRP	Deer Park	TW-2	50	106		6,685 - 20,055	134 - 401	4.73E-04	1.41E-03				EMCON, 1992.	
Lower Hillyard Sand & Gravel	CP-WI	Little Spokane River	Colter Landfill	220			30,000 - 40,000	170 - 230	6,000	8.11E-04	0.0004			Landau, 1991. Boese & Buchanan, 1986.	
Flood Sand & Gravel	SVRP	Idaho Road & Wellesley Valley, nr Barker & Mission	CID #11A	400	3,000	1,889	800,000 - 1,700,000	2,000 - 4,200	7.86E-03	1.48E-02				CH2MHILL, 2000.	
Flood Sand & Gravel	SVRP	N. Spokane Francis & Market	ID #3	450	1,975	2,821	1,900,000 - 2,500,000	4,200 - 6,200	1.48E-02	2.19E-02				CH2MHILL, 2000.	
Flood Sand & Gravel	SVRP	Little Spokane River	Colter Landfill		200	800	198	100,000 - 700,000	500 - 3,500	1.76E-03	1.23E-02				CH2MHILL, 2000.
Flood Sand & Gravel	SVRP	Kaiser-Trentwood-City of Deen Park	OH-EW-1	175	1,065			160,000 - 350,000	650 - 1,400	2.29E-03	4.94E-03				EMCON, 1992.
Clear Lake Deposits	Dee Park		DP-5	350	0 - 300	5,600								Cline, 1989.	
Wanapum Basalt	Five Mile Prairie	West WRIA 55						530 - 640	1.87E-03	2.26E-03	0.2			Boese & Buchanan, 1986.	
Flood Sand & Gravel	SVRP	North Hilliard Trough	Hillyard											Boese & Buchanan, 1986.	
Flood Sand & Gravel	SVRP	State Line												Drost & Seitz, 1978.	
Basalt		West Plains												Boese & Buchanan, 1986.	
Basement														Cline, 1969.	
Flood Sand & Gravel														Cline, 1969.	
Lith														Cline, 1969.	
Alluvium															
Basalt															
Basement															
Flood Sand & Gravel															
Lith															

Note:

Where an upper flood sand and gravel unit occurs over a lower sand and gravel unit with an aquitard separating the (e.g. in the Hillyard area), the upper unit is referred to as "Flood Sand and Gravel" and the lower unit as "Lower Flood Sand and Gravel".

TABLE B-2
Spokane Valley Aquifer Specific Capacity Data

Well ID	Owner	Well Name	Reported Yield (gpm)	Specific Capacity (gpm/ft)	Aquifer Saturated Thickness (ft)	Transmissivity (millions ft ² /day)	Hydraulic Conductivity (ft/day)	Hydraulic Conductivity (m/s)
5213B01	Inland Empire Cold Storage		400	667	200	0.60	3,000	1.06E-02
5214J01	Fairmont Cemetery Assoc.	Riverside Cemetery	2280	507	150	0.15	1,000	3.53E-03
5223B01	City of Spokane	Indian Canyon Golf Course	450	450	100	0.40	4,000	1.41E-02
5401R01	Spokane Industrial Park	Well #4	2500	141	300	0.13	400	1.41E-03
5402B01	Trentwood Irr. Dist.	Progress #6	1500	341	150	0.09	600	2.12E-03
5402P01	Kaiser Trentwood	Extraction Well (OH-EW1)	1065	619	200	0.57	2,900	1.02E-02
5406J03	Pasadena Park Irr. Dist.	#5 (New well)	1500	34	250	0.02	100	3.53E-04
5408B01	Millwood WD	Old Park Well	500	500	350	0.52	1,500	5.29E-03
5411N02	Consolidated Irr. Dist. (CID)	Carder, 1B	1600	1,600	250	1.23	4,900	1.73E-02
5414J01	Vera Irr. Distir #15	New #2 well	5000	1,852	400	1.11	2,800	9.88E-03
5415E01	Modern Electric	#5	4000	833	400	1.10	2,800	9.88E-03
5416E01	Modern Electric	#2	4500	900	400	1.20	3,000	1.06E-02
5418J01	Hutchinson Irr. Dist.	Broadway and Sergeant	550	73	400	0.10	300	1.06E-03
5426D01	Vera Irr. Dist #15	#5	1400	1,400	300	1.85	6,200	2.19E-02
5428M02	Model Irr. Dist.	#5	1150	575	250	0.50	2,000	7.06E-03
5502G02	Consolidated Irr. Dist. (CID)	Otis Orchards, 9A	3400	1,700	400	1.13	2,800	9.88E-03
5503N01	Coen		750	375	400	0.50	1,300	4.59E-03
5504D01	Consolidated Irr. Dist. (CID)	Otis Orchards, 9A	4500	2,647	250	1.09	4,400	1.55E-02
5505H01	C & L Farms		600	150	250	0.13	500	1.76E-03
5510F01	Delp Place		125	63	400	0.10	300	1.06E-03
5517D04	Consolidated Irr. Dist. (CID)	Greenacres, 4D	1800	4,500	450	2.67	5,900	2.08E-02
6234N03	Fairmont Cemetery	Fairmont Cemetery Well	1500	115	100	0.04	400	1.41E-03
6317J01	NW Pipeline Co.		55	11	150	0.00	0	0.00E+00
6318B01	Whitworth College	New Well #2	1000	100	120	0.03	300	1.06E-03
6319A02	Whitworth Water Dist. #2	2A	2250	250	175	0.12	700	2.47E-03
6320D01	Whitworth Water Dist. #2	2B	1800	200	175	0.05	300	1.06E-03
6321J01	Acme Materials	Acme Crestline well (B 041)	200	67	150	0.06	400	1.41E-03
6330H02	Holy Cross Cemetery	New Well	1000	500	250	0.33	1,300	4.59E-03
6432Q02	Pleasant Prairie WD		100	19	250	0.03	100	3.53E-04
6535F02	Consolidated Irr. Dist. (CID)	East Farms, 10B	3190	1,063	400	0.80	2,000	7.06E-03
6631M06	Consolidated Irr. Dist. (CID)	East Farms, 11C	3008	1,003	400	0.77	1,900	6.70E-03

Note: Data compiled from CH2MHill, 1998.

February 13, 2004

TABLE B-3

013-1372.2300

Abstraction Well Withdrawal Summary

	Number of Wells	Total Annual Withdrawal (gal/yr)
Wells in Model	191	52,663,906,463
Wells Outside Extent of Modeled Layers	49	201,506,780
% of Withdrawal Not Modeled		0.38%

Summary of Abstraction Wells Used in Model

Well Name	Well ID	X Coordinate (m, NAD83)	Y Coordinate (m, NAD83)	Model Layer	Annual Withdrawal (gal/yr)
100 acres irrigation Hazard		748797.000	* 103175.000	2	38,019,000
25 acres irrigation Yingst		748775.000	* 103580.000	2	9,504,750
30 cattle		744808.000	* 114256.000	1	162,000
50 cattle		743125.000	* 110965.000	2	270,000
60 cattle		745220.000	* 109815.000	2	324,000
Acme on Park		764808.000	79352.700	1	3,780,000
Avista Mech Room		758686.000	* 81083.500	1	111,600,000
Bates 220 acres irrigation		751147.000	* 116097.000	1	83,641,800
Burger Royal		763920.000	* 81287.000	1	450,000
Carnhope Irrigation Dist	5323C01	762439.000	78744.000	1	76,406,080
Central Pre Mix Sullivan Road		773069.000	81510.400	1	7,560,000
Chattaroy Springs West WD 11		761865.000	110435.000	1	5,409,280
Chattaroy Valley Mobile Estates		759225.000	* 104531.000	2	3,601,600
Christ's Church		747928.000	* 111548.000	2	141,080
CID#1	5411N01	771475.000	81084.300	1	120,120,436
CID#10	6535F01	781309.000	85786.300	1	272,100,169
CID#11	6631M04	784025.000	85574.100	1	388,714,527
CID#2	5518R01	775996.000	79777.600	1	560,562,037
CID#3	5517P01	777055.000	79750.800	1	640,741,639
CID#4	5517D01	776563.000	81239.700	1	505,328,885
CID#5	5507A01	776037.000	82856.000	1	394,302,547
CID#6	5504C01	778306.000	84419.900	1	272,100,169
CID#7	6534L01	779819.000	85204.500	1	542,166,003
CID#8	5503F01	779989.000	84044.700	1	272,100,169
CID#9	5502G01	781825.000	83985.500	1	272,100,169
City-Baxter	5203H01	751959.000	82881.200	1	203,964,562
City-Central	6331A01	756477.000	84824.300	1	4,158,509,612
City-Grace	5308A01	758139.000	81735.200	1	842,085,143
City-Hoffman	5304B01	759256.000	83636.600	1	267,002,606
City-Nevada	5308A02	758084.000	81733.100	1	3,369,193,911
City-Parkwater	5311J01	762958.000	81336.300	1	2,633,751,557
City-Ray	5322F01	760670.000	78205.300	1	2,995,480,377
City-Well Electric	5311G05	762795.000	81719.100	1	9,010,598,232
Colbert LF East & West Systems		760152.000	* 102147.000	1	326,280,000
Colbert LF South System		761484.000	* 98920.400	1	35,160,000
Deer Park Animal Medical Center		750071.000	* 109714.000	2	432,000
Diamond Lake Sewer District		770171.000	131014.000	1	39,162,367
DJ's Mini Mart		754945.000	* 101889.000	2	288,000
DP-1 West		751193.000	* 111690.000	2	14,110,995
DP-2 South		751209.000	* 111329.000	2	25,631,390
DP-3 SWINYARD		751627.000	* 110982.000	2	181,883,040
DP-4 North		750921.000	* 112838.000	1	19,239,064
DP-5 N Dalton		750815.000	* 114868.000	2	68,497,217
DP-6 S. Dalton		751674.000	* 110203.000	2	11,622,207
Eastside Liberty Lake Imp Club	5514N01	781457.000	79894.200	1	128,535,000
Elk Park Cemetery District		764062.000	* 118591.000	1	6,316,000
Eloika Pines Estates MHP		759784.000	119685.000	1	7,569,920
Empire Cold Storage and Frosty Ice	5213B01	754668.000	80032.100	1	994,205
ESWD #1/2	5324G01	764629.000	78347.300	1	20,758,781
ESWD #3/4	5324L01	764201.000	78237.300	1	6,769,608
ESWD #5/6	5324J01	764999.000	78265.000	1	108,690,615
ESWD #7	5419A01	765751.000	79078.900	1	3,831,258
ESWD #8/9	5324B01	764276.000	78917.000	1	232,373,039
Faith Christian School		761646.000	* 95697.500	1	745,400
Foothills Community Church		771547.000	90779.400	2	370,000
Freightliner		762807.000	* 78837.000	1	432,000
Greiff 150 acres potatoes		748452.000	* 101963.000	2	138,000,000
Holiday Trailer Court		763521.000	* 81273.300	1	777,800
Holy Cross Cemetery		755666.000	* 85785.600	1	63,160,000
Honeywell-Johnson Matthey Electronics	5402R01	772860.000	82773.400	1	168,480,000
Hutchinson Dairy 40 cows		748192.000	* 119610.000	2	288,000
Hutchinson Irrigation	5418J01	766262.000	79885.100	1	120,356,480
Hutton Settlement	6432R01	767726.000	84324.800	2	17,591,460
Industrial Park	5401J01	774089.000	83570.300	1	116,389,086
Industrial Park	5401MO1	773225.000	83454.700	1	121,144,126
Industrial Park	5401R01	774110.000	82783.900	1	148,794,667
Industrial Park	5412D01	773107.000	82571.200	1	443,305,195
Inland Empire Paper	Golder Associates	766707.000	Table B-4	5	Abstraction Well 146,033

Summary of Abstraction Wells Used in Model

Well Name	Well ID	X Coordinate (m, NAD83)	Y Coordinate (m, NAD83)	Model Layer	Annual Withdrawal (gal/yr)	
Inland Farmers Peone Plant (Cenex)		768498.000	*	94822.800	2	338,800
Inland Power & Light Water System		767344.000	*	112315.000	1	144,000
IWD #1	5409C01	768877.000	82492.300	1	109,730,756	
IWD #3	5404R03	769596.000	82838.400	1	98,986,744	
IWD #4	5409E01	768238.000	81870.500	1	164,396,969	
Jerry's Landing		757820.000	120251.000	1	710,400	
JR's Restaurant		759293.000	*	116383.000	1	450,000
Kaiser Mead North Plant	6316D01	758385.000	90070.700	1	916,716,300	
Kaiser Mead South Plant	6321F01	758991.000	88414.400	1	184,086,000	
Kaiser Trentwood Well pumping	5402K01	772105.000	83149.700	1	1,335,600,000	
Kaiser Trentwood Well pumping		771270.000	82595.800	1	3,434,400,000	
Kaiser Trentwood Well pumping		772252.000	83034.700	1	129,600,000	
Kummer 240 acres irrigation		759236.000	*	111663.000	1	91,245,600
Levernier Construction Water System		765999.000	*	79364.600	1	144,000
Little Diamond/Thousand Trails		768093.000	133112.000	1	200,000	
LLSD Kenney	5515D01	779678.000	81278.800	1	176,101,635	
LLSD Mission	5515C01	780107.000	81135.400	1	176,101,635	
LLSD Schultz	5514F01	781658.000	81103.000	1	176,101,635	
LLSD Sprague	5515R01	780731.000	79867.400	1	21,695,096	
Mel's Grub & Suds Saloon		764336.000	*	80900.800	1	702,000
Mercer Trucking Co Inc		763952.000	*	80487.400	1	432,000
Middco Tool & Equipment		763904.000	*	81685.700	1	144,000
Miller's One Stop		759741.000	118987.000	1	432,000	
Millwood-Butler	5405R01	767897.000	82571.700	1	91,668,303	
Millwood-NP	5408D02	766600.000	82372.400	1	17,572,795	
Millwood-OP	5408D01	766860.000	82419.100	1	192,358,903	
Moab Irrigation	6525C01	783022.000	87996.600	1	395,122,842	
Model #1/#6	5421N01	768647.000	77733.900	1	163,785,800	
Model #3	5428P01	768775.000	76239.400	1	75,829,300	
Model #4	5421L01	768891.000	78269.700	1	226,392,700	
Model #7	5433A01	769717.000	75952.500	1	125,138,000	
Model#5	5428M02	768723.000	76687.900	1	142,343,000	
Modern#11	5415E01	769820.000	80303.000	1	204,979,058	
Modern#2	5416E01	768471.000	80115.500	1	143,485,341	
Modern#3	5421J01	769850.000	78459.600	1	624,936,154	
Modern#4	5417M01	766807.000	79629.700	1	624,936,154	
Modern#6	5408N01	766858.000	81028.200	1	163,983,247	
Modern#7	5422N01	770126.000	77932.500	1	204,979,058	
Modern#8	5417A01	768144.000	80640.100	1	163,983,247	
Mount St Michaels		760485.000	*	85963.600	1	5,732,500
Mt. Spokane Golf		770058.000	*	96122.400	2	10,301,800
Norcan Parts & Equipment		760782.000	*	87977.100	2	720,000
North Glen Water Association		759814.000	*	100905.000	1	5,409,280
North Mountain View Water Co Inc.		755547.000	*	97443.700	2	5,747,360
North Spokane Irrigation	6327E01	759909.000	86343.200	1	235,952,500	
Northwest Pipeline Corp		757104.000	*	89047.400	1	144,000
Ogle 120 acres irrigation		758036.000	*	104072.000	2	45,622,800
Opportunity Cemetery		771029.000	*	75554.100	1	12,632,000
Orchard #1	5312H01	764872.000	81847.600	1	247,897,790	
Orchard #2	5407C01	765509.000	81978.700	1	259,102,210	
Orchard Prairie Elem School 123		764108.000	*	86120.200	2	721,500
Pattison's North		757031.000	*	91056.200	1	10,391,900
Peone Cemetery about 10 acres		764196.000	*	92599.200	2	6,316,000
Pinecroft Mobile Home Park indoor		769538.000	*	81568.700	1	7,758,000
Pineriver Park	7332L01	757179.000	93663.200	1	46,890,000	
Pleasant Prairie Water Users	6432P01	767183.000	84060.700	1	5,305,600	
PPID #3	5405D01	766565.000	83866.900	1	121,659,303	
PPID #4	5406A02	766210.000	83672.000	1	30,962,759	
PPID #5	5406J03	765580.000	83445.400	1	130,767,938	
Puerta Vallarta		764818.000	*	78900.900	1	1,260,000
Reflection Water Association		765360.000	*	117028.000	1	7,268,720
Reiter 240 acres irrigation		749237.000	*	114393.000	1	91,245,600
Reiter Dairy 100 cows		749212.000	*	114797.000	1	720,000
Riverside SD Central Site Schools		759026.000	*	113548.000	1	26,380,300
Riverside SD Chattaroy Elem		759994.000	*	104967.000	2	2,607,580
SCWD#3 20th & Balfour	5429H01	767836.000	77173.300	1	457,144,599	
SCWD#3 Boone & Lily	5313A01	764613.000	80371.500	1	17,883,133	
SCWD#3 Chattaroy	6327E01 Associates	761041.000	Table 107397-0083. 4	5	Abstraction 92,900,000	

Summary of Abstraction Wells Used in Model

Well Name	Well ID	X Coordinate (m, NAD83)	Y Coordinate (m, NAD83)	Model Layer	Annual Withdrawal (gal/yr)
SCWD#3 Cherry	6303N01	759672.000	91812.100	1	253,157,406
SCWD#3 Colbert	7322M01	759577.000	* 97235.100	1	25,356,000
SCWD#3 Freeway & Vista	5407Q01	765735.000	80865.700	1	504,575,414
SCWD#3 Freya & Farwell	6303P01	760393.000	91974.900	1	36,064,874
SCWD#3 Helena	6309D01	758162.000	91568.600	1	29,777,720
SCWD#3 Knox	5407J02	766142.000	81364.600	1	76,831,236
SCWD#3 Koren	5323A01	762999.000	78835.100	1	100,710,217
SCWD#3 Lyons & Normandie	6330R02	756499.000	85550.000	1	78,591,074
SCWD#3 Steer Inn	6320N01	756749.000	86972.300	1	257,908,926
SCWD#3 Vercler	5427L01	770405.000	76636.700	1	642,855,401
Shelley Lake Development		773713.000	* 78919.600	1	120,960,000
Simonson Dairy		750016.000	* 103238.000	2	720,000
Sly's Saloon		759199.000	118401.000	1	156,600
Sound Tire		762777.000	* 79644.500	1	432,000
Spo Co Bear Lake Park		759837.000	108060.000	2	1,586,400
Spo Co Liberty Lake Golf Course		781677.000	* 80487.200	1	35,250,000
Spo Co Meadowwood Golf Course		781929.000	80595.400	1	55,975,000
Spo Co Mirabeau Park		770965.000	82069.100	1	60,000
Spo Co Sullivan Park		772842.000	81435.300	1	1,596,000
Spokane Country Club		753861.000	* 90519.900	1	56,844,000
Spokane Home Center		762375.000	* 79631.900	1	288,000
Spokane River Rest Area (DOT)		783869.000	* 84227.600	1	195,500
St. George's School	6211F01	752101.000	90724.100	1	2,526,400
Stevens Co PUD Halfmoon Ranchos	7212J02	754335.000	99549.200	2	21,255,910
Stevens Co PUD Panorama Acres		757271.000	100157.000	2	8,019,435
Stevens Co PUD Riverside		760301.000	112708.000	1	14,943,500
Syringa Heights Mobile Home Park		759951.000	* 105767.000	2	1,296,000
Trentwood #3	6435R01	772453.000	84352.100	1	180,116,757
Trentwood #4	5403B01	770452.000	83970.200	1	184,668,588
Trentwood #5	5401D01	772876.000	83979.600	1	97,563,243
Trentwood #6	5402B01	772422.000	83974.000	1	249,651,412
VID #1	5415J01	771370.000	80046.700	1	116,412,929
VID #3	5422R01	771520.000	77817.700	1	367,657,073
VID #4	5426L01	772367.000	77014.600	1	87,594,519
VID #5	5426D01	771734.000	77801.700	1	178,753,297
VID #6	5422H02	771371.000	78787.100	1	17,507,480
VID #8&9	5423J01	772946.000	78631.700	1	960,798,971
VID#20/21	5414J01	772704.000	80108.500	1	731,475,731
Wandermere Golf Course		756993.000	* 92254.200	1	82,113,000
Whitworth College	6318B01	755875.000	89623.100	1	20,999,946
Wildrose Village		750478.000	* 102066.000	2	810,000
Wiltse 50 acres irrigation		749609.000	* 114817.000	1	19,009,500
Wolfe 400 acres irrigation		751126.000	* 116500.000	1	152,076,000
WSP - Spokane Port of Entry		783065.000	* 84194.600	1	28,800
WW D #1	6330F01	755744.000	86158.800	1	109,341,839
WWD #1A	6319P01	755748.000	87163.900	1	29,192,731
WWD #2A	6320D01	756556.000	88379.700	1	346,249,156
WWD #2B	6319A01	756131.000	88351.200	1	403,132,559
WWD #3	6307P01	755629.000	90001.400	1	387,846,284
WWD #3B	6307G01	755997.000	91157.700	1	273,160,555
WWD #4	6212L01	754104.000	90511.400	1	208,520
WWD #8A1	7332H01	757617.000	94077.400	1	107,743,021
WWD #8A2	7332H02	757617.000	94075.000	1	469,168,892
WWD #8B	7333E01	758087.000	94096.000	1	200,178,727
WWD #RIV	6306G01	755865.000	92722.100	1	20,607,087

*Coordinates estimated: only TRSQQ locations available

TABLE B-5

Summary of Wells Not Included in Model

Well Name	Well ID	Data Source ¹	Reason for Deletion	Annual Withdrawal (gal/yr)
10 cattle		trswateruse091701.xls	Outside Extent of Modeled Layers	54,000
100 acres irrigation Hazard		trswateruse091701.xls	Outside Extent of Modeled Layers	38,019,000
12 horses (or bison)		trswateruse091701.xls	Outside Extent of Modeled Layers	51,840
20 cattle		trswateruse091701.xls	Outside Extent of Modeled Layers	108,000
20 horses (or bison)		trswateruse091701.xls	Outside Extent of Modeled Layers	86,400
30 cattle		trswateruse091701.xls	Outside Extent of Modeled Layers	162,000
40 cattle		trswateruse091701.xls	Outside Extent of Modeled Layers	216,000
40 cattle		trswateruse091701.xls	Outside Extent of Modeled Layers	216,000
50 cattle		trswateruse091701.xls	Outside Extent of Modeled Layers	270,000
50 cattle		trswateruse091701.xls	Outside Extent of Modeled Layers	270,000
50 horses (or bison)		trswateruse091701.xls	Outside Extent of Modeled Layers	216,000
Airway Heights, City of	00650	gpcov_sp.e00	Outside Model Domain	
Aloha Pines Estates Water System	06319	gpcov_sp.e00	No Abstraction Data Available	
Arden Hills Water System	02885	gpcov_sp.e00	Outside Model Domain	
Ardenbrook Water & Sewer Assn	00616	gpcov_sp.e00	Outside Model Domain	
Arlington School Well	6328Q01	p_wells.e00	No Abstraction Data Available	
bannister 40 acres irrigation		trswateruse091701.xls	Outside Extent of Modeled Layers	15,207,600
Bear Paw Camp	05912	gpcov_sp.e00	Outside Model Domain	
Beaver Lodge	05232	gpcov_sp.e00	Outside Model Domain	
Blue Sky Country Farms	07516	gpcov_sp.e00	No Abstraction Data Available	
Blueslide Resort	07503	gpcov_sp.e00	Outside Model Domain	
Borges Dairy 90 cows		trswateruse091701.xls	Outside Extent of Modeled Layers	648,000
Bradbury Beach Campground	NP050	gpcov_sp.e00	Outside Model Domain	
Bunkers Resort 1	09277	gpcov_sp.e00	Outside Model Domain	
C & L Farms	5505H01	p_wells.e00	No Abstraction Data Available	
C&T Truck Parts		trswateruse091701.xls	Outside Extent of Modeled Layers	432,000
Camp Nabor Lee	NP070	gpcov_sp.e00	Outside Model Domain	
Camp Sekani	10947	trswateruse091701.xls	Outside Extent of Modeled Layers	165,800
Camp Spalding	38561	gpcov_sp.e00	Outside Model Domain	
Chewelah Golf Course, City of	09156	gpcov_sp.e00	Outside Model Domain	
Chewelah Golf Course, City of	09156	gpcov_sp.e00	Outside Model Domain	
Chewelah LDS Chapel	23381	gpcov_sp.e00	Outside Model Domain	
Chewelah Water Department, City of	12750	gpcov_sp.e00	Outside Model Domain	
Christensen Water System	12910	gpcov_sp.e00	Outside Model Domain	
Clear Lake Resort	10647	gpcov_sp.e00	Outside Model Domain	
Clear Lake Water Users Assn	13525	gpcov_sp.e00	Outside Model Domain	
Cloverleaf Campground	NP110	gpcov_sp.e00	Outside Model Domain	
Columbia School District 206	07664	gpcov_sp.e00	Outside Model Domain	
Colville Water Department	14200	gpcov_sp.e00	Outside Model Domain	
Commellini Restaurant		trswateruse091701.xls	Outside Extent of Modeled Layers	432,000
Corbett Creek Water System	29790	gpcov_sp.e00	Outside Model Domain	
Country Villa Mobile Park	15518	gpcov_sp.e00	Outside Model Domain	
Crawford State Park	SP190	gpcov_sp.e00	Outside Model Domain	
Crossroads Bar and Grill	00683	gpcov_sp.e00	Outside Model Domain	
Dalkena Community Church	24351	gpcov_sp.e00	Outside Model Domain	
Deep Creek Ranchettes	39003	gpcov_sp.e00	Outside Model Domain	
Dennison Estates		trswateruse091701.xls	Outside Extent of Modeled Layers	7,891,720
Echo Estates Homeowners Assn	02590	gpcov_sp.e00	Outside Model Domain	
Edgewater Campground	FS410	gpcov_sp.e00	Outside Model Domain	
Eickmeyer 60 acres irrigation		trswateruse091701.xls	Outside Extent of Modeled Layers	22,811,400
Elm Tree Water & Sewer Assn	23128	gpcov_sp.e00	Outside Model Domain	
Elston dairy 200 cows		trswateruse091701.xls	Outside Extent of Modeled Layers	1,440,000
Evans Campground	NP240	gpcov_sp.e00	Outside Model Domain	
Evans Water System	23960	gpcov_sp.e00	Outside Model Domain	
Evergreen School District 205	24162	gpcov_sp.e00	Outside Model Domain	
Fairchild AFB # 5	5211E01	p_wells.e00	No Abstraction Data Available	
Fairchild AFB # 6	5211E02	p_wells.e00	No Abstraction Data Available	
Fairchild AFB # 7	5211E01	p_wells.e00	No Abstraction Data Available	
Fairchild Air Force Base	24350	gpcov_sp.e00	Outside Model Domain	
Fairchild Air Force Base	24350	gpcov_sp.e00	Outside Model Domain	
Fairfield, Town of	24450	gpcov_sp.e00	Outside Model Domain	
Fish Hatchery	6211K01	trswateruse091701.xls	Outside Extent of Modeled Layers	1,177,000
Five Mile Community Church		trswateruse091701.xls	Outside Extent of Modeled Layers	12,000
Flowery Trail Community Assn	07469	gpcov_sp.e00	Outside Model Domain	
Ford Hud Cluster	IH1190	gpcov_sp.e00	Outside Model Domain	
Forshees Last Resort - Tum Tum	89675	gpcov_sp.e00	Outside Model Domain	
Fruitland Bible Camp	26790	gpcov_sp.e00	Outside Model Domain	
Gifford Campground	NP300	gpcov_sp.e00	Outside Model Domain	
Gillette Campground	FS024	gpcov_sp.e00	Outside Model Domain	
Goosehaven Water System	27496	gpcov_sp.e00	Outside Model Domain	
Granite Point Park	29060	gpcov_sp.e00	Outside Model Domain	
Green Ridge Estates	5513P01, 5513P02	trswateruse091701.xls	Outside Extent of Modeled Layers	12,904,320
Greenridge Estates Water System	29738	gpcov_sp.e00	Outside Model Domain	

TABLE B-5*Summary of Wells Not Included in Model*

Well Name	Well ID	Data Source ¹	Reason for Deletion	Annual Withdrawal (gal/yr)
Holiday Shores Water System	33680	gpscov_sp.e00	Outside Model Domain	
Hunters Campground	NP380	gpscov_sp.e00	Outside Model Domain	
Hunters Water District	34889	gpscov_sp.e00	Outside Model Domain	
Indian Prairie Mobile Home Park	10614	gpscov_sp.e00	Outside Model Domain	
Ione Water Dept	35900	gpscov_sp.e00	Outside Model Domain	
Jacklin Gladice	5509B01	p_wells.e00	No Abstraction Data Available	
Jump Off Joe Lake Resort	37170	gpscov_sp.e00	Outside Model Domain	
Kaiser North 2	6316D02	p_wells.e00	No Abstraction Data Available	
Kaiser/domestic	5411B01	p_wells.e00	No Abstraction Data Available	
Kamloops Island Campground	NP460	gpscov_sp.e00	Outside Model Domain	
Kaniksu Ranch Water System	06520	gpscov_sp.e00	Outside Model Domain	
Kettle Falls Water Dept	38400	gpscov_sp.e00	Outside Model Domain	
Lake Thomas Estate Water Svcs Inc	44960	gpscov_sp.e00	Outside Model Domain	
Latah, Town of	46150	gpscov_sp.e00	Outside Model Domain	
Lazy Acres Water System	46443	gpscov_sp.e00	Outside Model Domain	
Lewis Brothers Inc	46985	gpscov_sp.e00	Outside Model Domain	
Liberty Lake Valleyway	5514M01	p_wells.e00	No Abstraction Data Available	
Liberty School District 362	47163	gpscov_sp.e00	Outside Model Domain	
Loon Lake Acres	38651	gpscov_sp.e00	Outside Model Domain	
MacKenzie Bay		trswateruse091701.xls	Outside Extent of Modeled Layers	224,400
Marcus Island Campground	NP610	gpscov_sp.e00	Outside Model Domain	
Marcus Water Dept	51550	gpscov_sp.e00	Outside Model Domain	
Marshall Lake Resort	51847	gpscov_sp.e00	Outside Model Domain	
McCoy Lake	IH498	gpscov_sp.e00	Outside Model Domain	
Mission Ridge Water System	30434	gpscov_sp.e00	Outside Model Domain	
Modern Electric Water #9	5427E01	p_wells.e00	No Abstraction Data Available	
Modern Electric Water Co.	5417R	p_wells.e00	No Abstraction Data Available	
Mt. Spokane Mobile Home Park		trswateruse091701.xls	Outside Extent of Modeled Layers	2,127,800
Murray Water System	00698	gpscov_sp.e00	No Abstraction Data Available	
Newport Southern Baptist Church	06083	gpscov_sp.e00	No Abstraction Data Available	
Newport, City of	59350	gpscov_sp.e00	Outside Model Domain	
Noisy Creek Campground	FS682	gpscov_sp.e00	Outside Model Domain	
North Gorge Campground	NP660	gpscov_sp.e00	Outside Model Domain	
Northport Water System	61850	gpscov_sp.e00	Outside Model Domain	
Northwest Alloys Inc	31746	gpscov_sp.e00	Outside Model Domain	
Northwood/Farwell School irrigation		trswateruse091701.xls	Outside Extent of Modeled Layers	18,948,000
Onion Creek School District	05582	gpscov_sp.e00	Outside Model Domain	
Outpost Resort	64960	gpscov_sp.e00	Outside Model Domain	
Panorama Mobile Home Park	02328	gpscov_sp.e00	Outside Model Domain	
Peaceful Pines Trailer Court	66633	gpscov_sp.e00	Outside Model Domain	
Pend Oreille Bible Camp	07459	gpscov_sp.e00	Outside Model Domain	
Pend Oreille County Park	23366	gpscov_sp.e00	No Abstraction Data Available	
Pinecroft lawn		trswateruse091701.xls	Outside Extent of Modeled Layers	93,800
Pinelow Park	67645	gpscov_sp.e00	Outside Model Domain	
Pioneer Water Company		trswateruse091701.xls	Outside Extent of Modeled Layers	12,847,040
Ponderay Newsprint Co - Potable	06970	gpscov_sp.e00	Outside Model Domain	
PPID #17 Well #2	5405K01	p_wells.e00	No Abstraction Data Available	
Reservation Road Water System	IH016	gpscov_sp.e00	Outside Model Domain	
River View Shores Water System	72807	gpscov_sp.e00	Outside Model Domain	
Riverside Village Mobile Home Park		trswateruse091701.xls	Outside Extent of Modeled Layers	7,426,050
Rivervale	72965	trswateruse091701.xls	Outside Extent of Modeled Layers	2,704,640
Rockford, Town of	73550	gpscov_sp.e00	Outside Model Domain	
Rogers Water System	00124	gpscov_sp.e00	No Abstraction Data Available	
Row Corporation	63950	gpscov_sp.e00	Outside Model Domain	
Sandy Shore & Sunnyside Meadows	76145	gpscov_sp.e00	Outside Model Domain	
SCWD #3	6310K01	p_wells.e00	No Abstraction Data Available	
SCWD #3	6310K02	p_wells.e00	No Abstraction Data Available	
SCWD #3 Brown's Park Well #2-13	5427N01	p_wells.e00	No Abstraction Data Available	
SCWD #3 Dakota Well #5	6308B04	p_wells.e00	No Abstraction Data Available	
SCWD #3 Sinto	5418D02	p_wells.e00	No Abstraction Data Available	
SCWD #3 Vista & Broadway	5418F01	p_wells.e00	No Abstraction Data Available	
Seattle City Light - Boundary Dam	12521	gpscov_sp.e00	Outside Model Domain	
Selkirk School District 70	77448	gpscov_sp.e00	Outside Model Domain	
Snag Cove Campground	NP780	gpscov_sp.e00	Outside Model Domain	
Spo Co Liberty Lake Park		trswateruse091701.xls	Outside Extent of Modeled Layers	2,691,000
Spo Co Liberty Lake Park	47147	gpscov_sp.e00	Outside Model Domain	
Spokane Bible Church		trswateruse091701.xls	Outside Extent of Modeled Layers	110,600
Spokane Christian Center		trswateruse091701.xls	Outside Extent of Modeled Layers	60,000
Spokane Co Fire Dist 4 Sta 42		trswateruse091701.xls	Outside Extent of Modeled Layers	12,000
Spokane Co Fire Dist 4 Sta 43		trswateruse091701.xls	Outside Extent of Modeled Layers	24,000
Spokane Co Fire Dist 4 Sta 45		trswateruse091701.xls	Outside Extent of Modeled Layers	12,000
Spokane Co Fire Dist 4 Sta 48		trswateruse091701.xls	Outside Extent of Modeled Layers	12,000
Spokane Co Fire Dist 4 Sta 49		trswateruse091701.xls	Outside Extent of Modeled Layers	12,000
Spokane Co Fire Dist 8 Sta 85		trswateruse091701.xls	Outside Extent of Modeled Layers	120,800
Spokane Co Fire Dist 9 Sta 4		trswateruse091701.xls	Outside Extent of Modeled Layers	54,000

Summary of Wells Not Included in Model

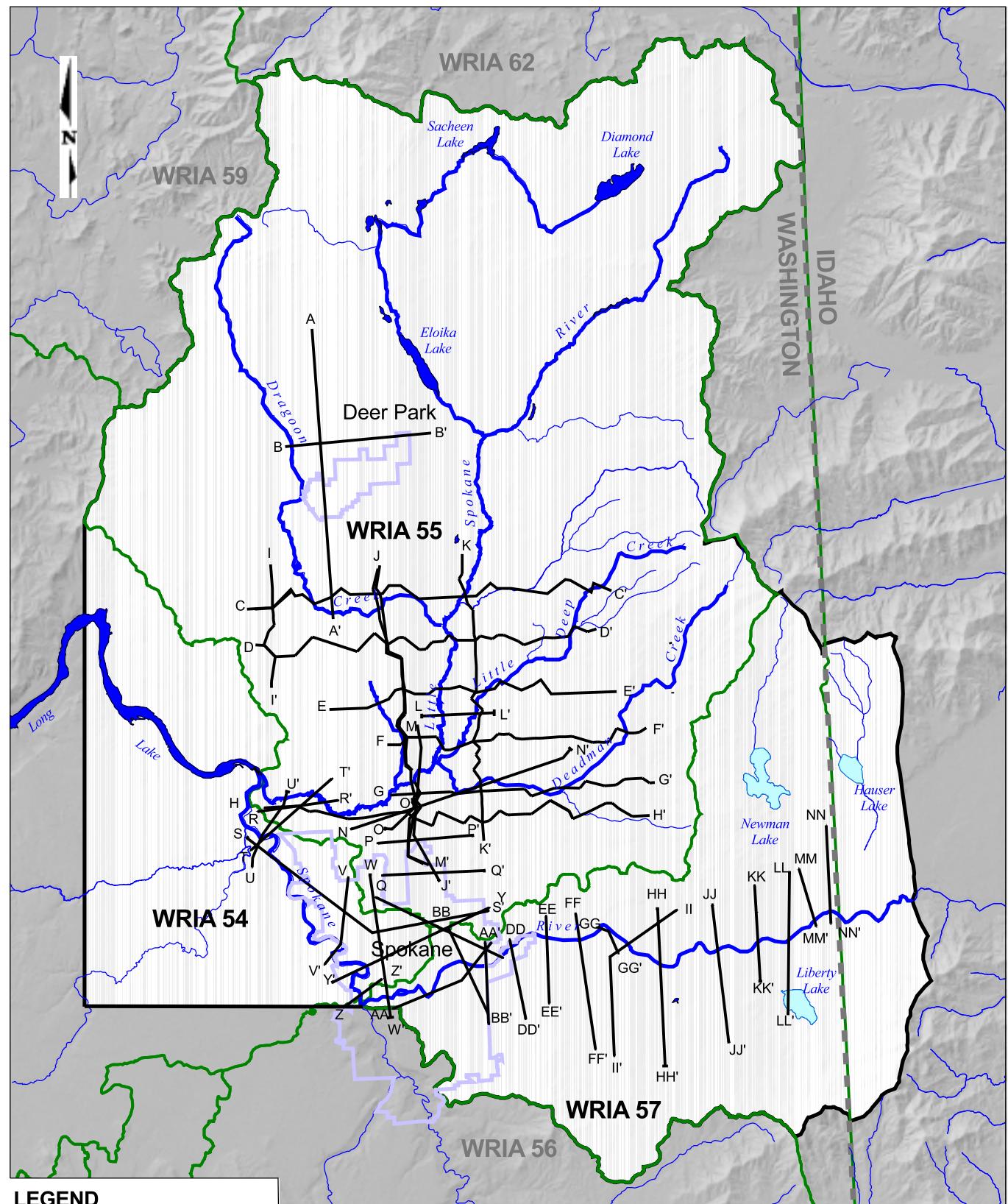
Well Name	Well ID	Data Source ¹	Reason for Deletion	Annual Withdrawal (gal/yr)
Spokane Indian Agency	IH745	gpcov_sp.e00	Outside Model Domain	
Spokane Indian/Martha Boardman	IH460	gpcov_sp.e00	Outside Model Domain	
Springdale, Town of	83400	gpcov_sp.e00	Outside Model Domain	
Sterling Meadows Water		trswateruse091701.xls	Outside Extent of Modeled Layers	663,200
Stevens Co PUD - Addy	00367	gpcov_sp.e00	Outside Model Domain	
Stevens Co PUD - Clayton	13450	gpcov_sp.e00	Outside Model Domain	
Stevens Co PUD - Deer Lake	93380	gpcov_sp.e00	Outside Model Domain	
Stevens Co PUD - Jump Off Joe	37165	gpcov_sp.e00	Outside Model Domain	
Stevens Co PUD - Long Lake	84545	gpcov_sp.e00	No Abstraction Data Available	
Stevens Co PUD - Loon Lake	48250	gpcov_sp.e00	Outside Model Domain	
Stevens Co PUD - Loon Lake SW	03724	gpcov_sp.e00	Outside Model Domain	
Stevens Co PUD - Spokane Lake Park	83034	gpcov_sp.e00	No Abstraction Data Available	
Stevens Co PUD - Suncrest	85202	gpcov_sp.e00	No Abstraction Data Available	
Stevens Co PUD - Valley	05520	gpcov_sp.e00	Outside Model Domain	
Stevens Co PUD - Waitts Lake	91130	gpcov_sp.e00	Outside Model Domain	
Stevens Co PUD - West Shore	95450	gpcov_sp.e00	No Abstraction Data Available	
Stevens Co PUD Clayton		trswateruse091701.xls	Outside Extent of Modeled Layers	22,482,320
Stimson Lumber Company	06837	gpcov_sp.e00	Outside Model Domain	
Sullivan Lake Complex	FS890	gpcov_sp.e00	Outside Model Domain	
Survale Acres 4th Add Water System	86294	gpcov_sp.e00	Outside Model Domain	
Suspected Dairy 50 cows?		trswateruse091701.xls	Outside Extent of Modeled Layers	360,000
Sutton Bay Resort		trswateruse091701.xls	Outside Extent of Modeled Layers	156,750
Tiger Tracts Water System	29801	gpcov_sp.e00	Outside Model Domain	
Timberline Mobile Home Park		trswateruse091701.xls	Outside Extent of Modeled Layers	6,849,800
Timothy Park Subdivision	88410	gpcov_sp.e00	Outside Model Domain	
Turnbull Wildlife Refuge System 1	89725	gpcov_sp.e00	Outside Model Domain	
Turnbull Wildlife Refuge System 2	89727	gpcov_sp.e00	Outside Model Domain	
Vel View	91445	trswateruse091701.xls	Outside Extent of Modeled Layers	18,279,900
Waverly, Town of	93820	gpcov_sp.e00	Outside Model Domain	
Waverly, Town of	93820	gpcov_sp.e00	Outside Model Domain	
Wellpinit Community System	IH880	gpcov_sp.e00	Outside Model Domain	
Westco Apparel Services	5312L03	p_wells.e00	No Abstraction Data Available	
White Bluff - JSSA	10634	gpcov_sp.e00	No Abstraction Data Available	
Williams Lake Beach Club	09280	gpcov_sp.e00	Outside Model Domain	
Williams Lake Resort	45622	gpcov_sp.e00	Outside Model Domain	
Williams Lake Road Subdivision	97123	gpcov_sp.e00	Outside Model Domain	
Willow Bay Resort Inc	97225	gpcov_sp.e00	No Abstraction Data Available	
Woodland Park Trailer Court		trswateruse091701.xls	Outside Extent of Modeled Layers	1,899,800
WSDH - Pines Road Maintenance		trswateruse091701.xls	Outside Extent of Modeled Layers	200,000
WSDNR - Dragoon Creek Park		trswateruse091701.xls	Outside Extent of Modeled Layers	21,000
WWD #2 Well #8 Shady Slope Rd	7333G01	p_wells.e00	No Abstraction Data Available	
YMCA Camp Reed	12988	gpcov_sp.e00	Outside Model Domain	
Zephyr Lodge		trswateruse091701.xls	Outside Extent of Modeled Layers	322,800
	6227M01	p_wells.e00	No Abstraction Data Available	
	6227M02	p_wells.e00	No Abstraction Data Available	
	6316C02	p_wells.e00	No Abstraction Data Available	
	6316C03	p_wells.e00	No Abstraction Data Available	
	7332J	p_wells.e00	No Abstraction Data Available	

¹: Descriptions of Data Sources:

gpcov_sp.e00: Obtained from Spokane County GIS department. Contains GIS coverage, well coordinates, and associated attribute table of DOH wells

p_wells.e00: Obtained from Spokane County GIS department. Contains GIS coverage, well coordinates, and associated attribute table of purveyor wells

trswateruse091701.xls: Obtained from Spokane County. Contains well names, TRSQQ locations, and water-use data.



LEGEND

- ▲ Cross Sections
- Model Domain
- Lakes
- City Limits
- WRIA Boundaries
- ▲ Mike11 Rivers

0 30,000
Scale: 1" = 30,000 Feet

Map Projection:
Washington State Plane, NAD83,
North Zone, Feet

Source: USGS, WSDOE,
Golder Associates Inc.

This figure was originally produced in color.
Reproduction in black and white may result
in loss of information.

Locations of Geologic Cross-Sections Used to Develop Model Layers

WRIA 55&57/WATERSHED PLANNING/WA

Drawn: SAC

Revision: GKL

Date: May 13, 2003

Figure: B1

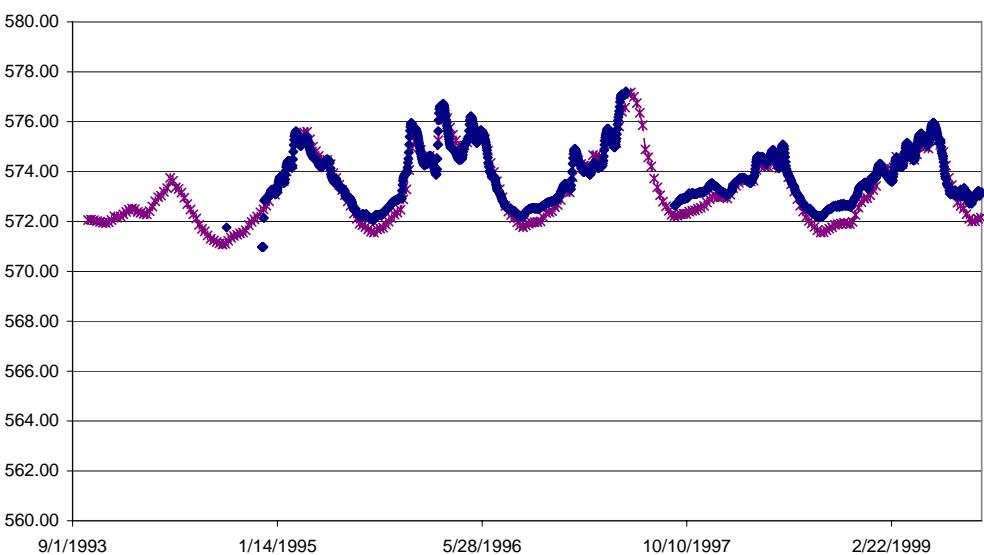
APPENDIX C

Groundwater Calibration

Figure C1 – City-Central Premix
Figure C2 – Sullivan Park North
Figure C3 – Vera #1
Figure C4 – Vera #6
Figure C5 – Vera #4
Figure C6 – Dakota
Figure C7 – City – WWTP
Figure C8 – City – NE CommCntr
Figure C-9 – Whitworth #8A1

Surface Water Calibration

Figure C10 – Deadman Creek
Figure C11 – Dragoon Creek
Figure C12 – West Branch Little Spokane River Eloika Lake Road
Figure C13 – Little Spokane River at Elk and Scotia


Legend

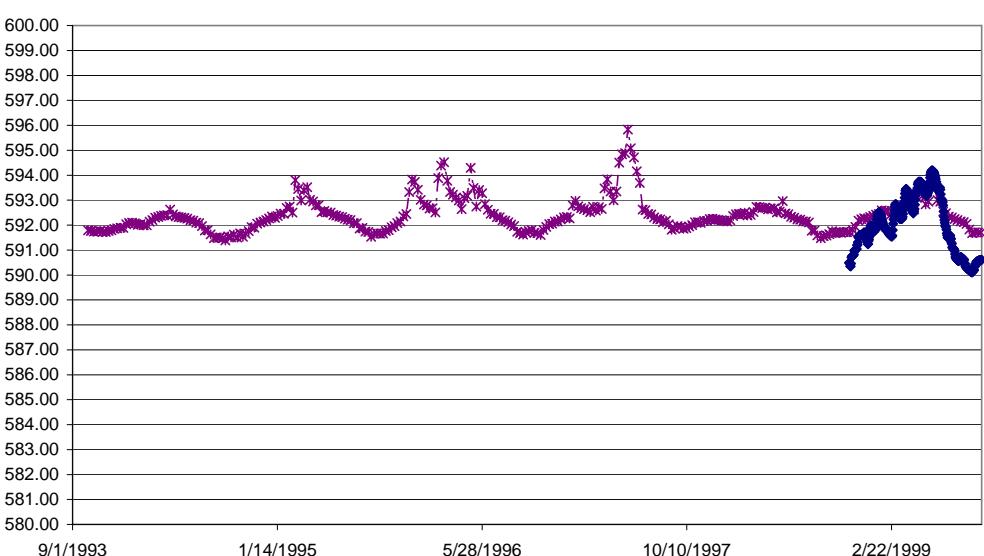
- * — Modeled - Run #1227a-c
- ◆ Measured - City-Central PreMix, 5314E01

FIGURE C-1
Saturated Zone Calibration

Spokane County
Watershed Assessment
013-1372, Calibration93-99_1227a-c.xls, 07/25/2001



calibration93-99_1227a-c,C-1


Legend

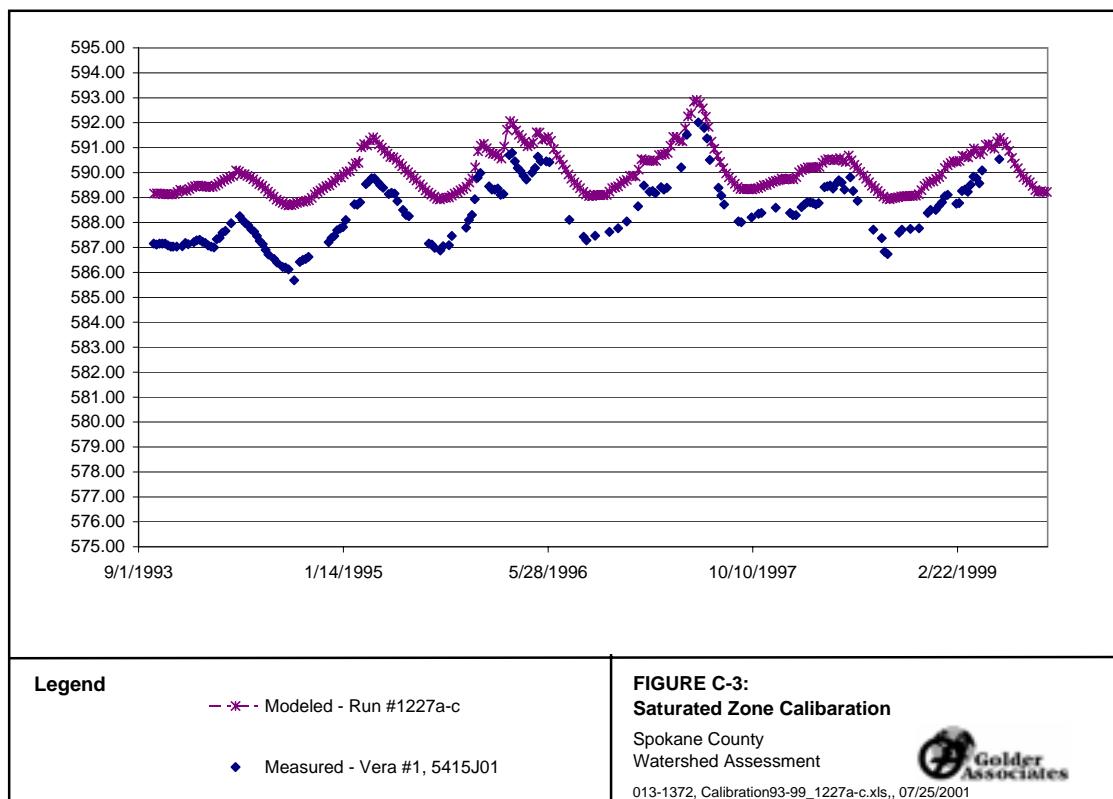
- * — Modeled - Run #1227a-c
- ◆ Measured - Sullivan Park North, 5411R02

FIGURE C-2:
Saturated Zone Calibration

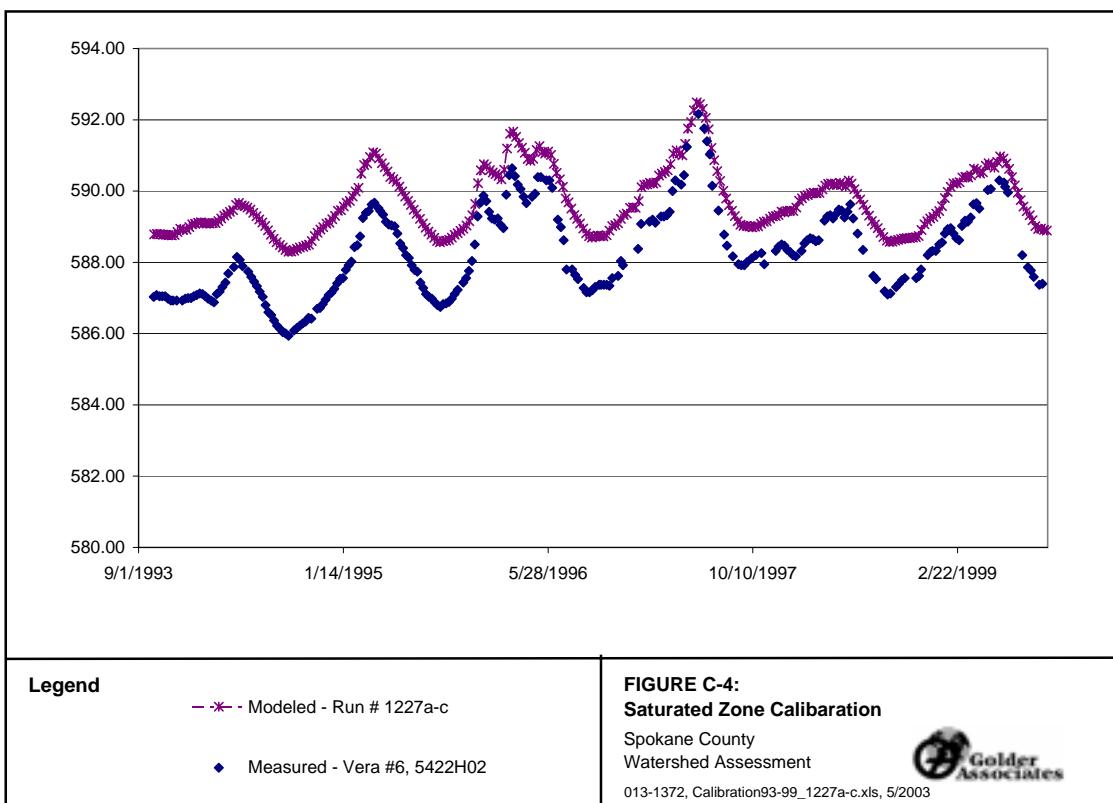
Spokane County
Watershed Assessment
013-1372, Calibration93-99_1227a-c.xls, 07/25/2001



calibration93-99_1227a-c,C-2



calibration93-99_1227a-c,C-3



calibration93-99_1227a-c,C-4

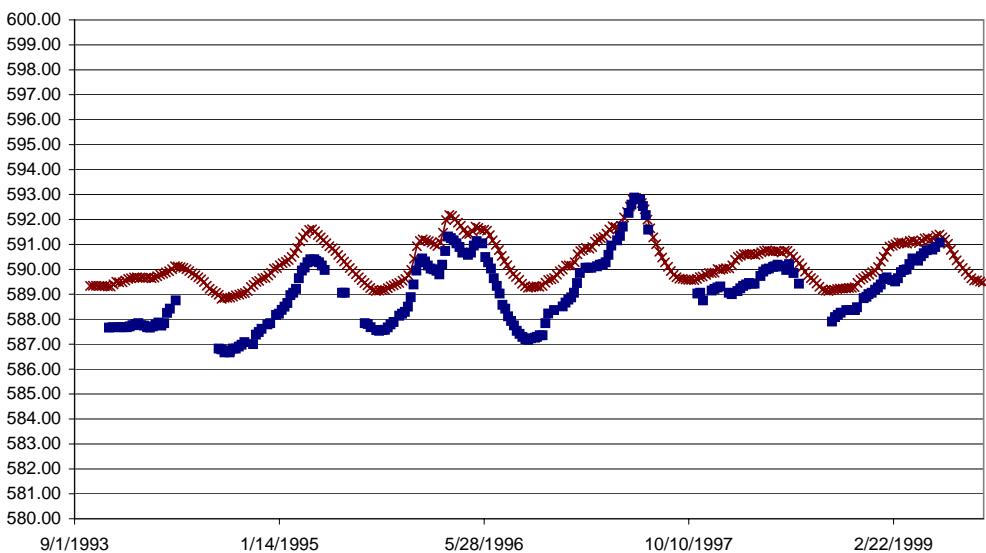


FIGURE C-5:
Saturated Zone Calibration

Spokane County
Watershed Assessment
013-1372, Calibration93-99_1227a-c.xls., 05/2003



calibration93-99_1227a-c,C-5

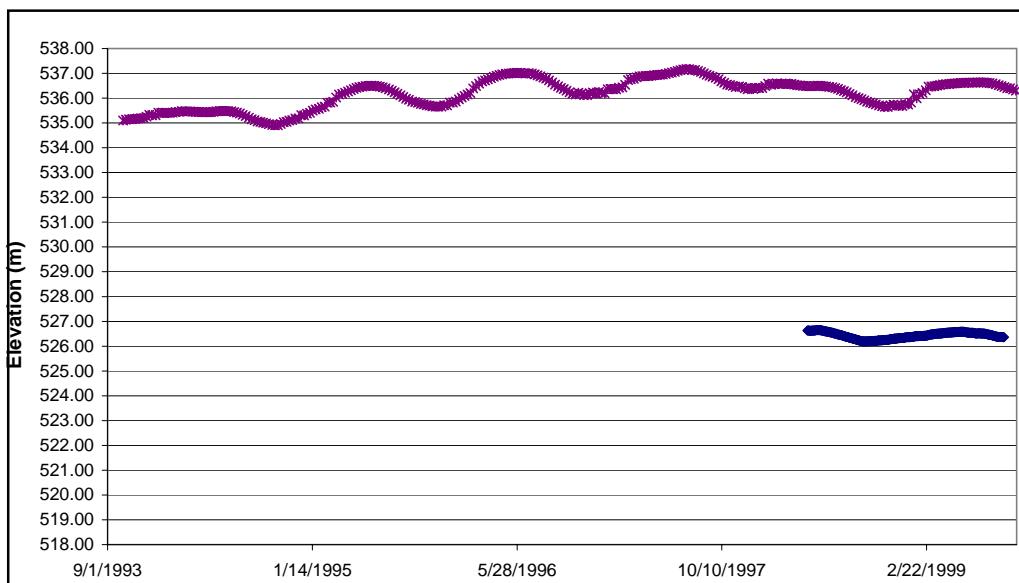
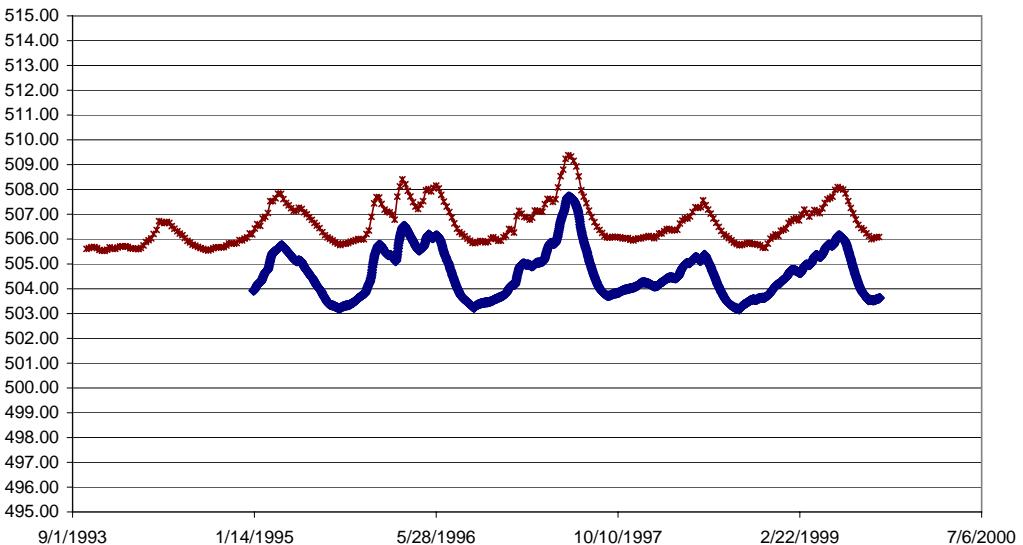


FIGURE C-6:
Saturated Zone Calibration

Spokane County
Watershed Assessment
013-1372, Calibration93-99_1227a-c.xls, 5/2003



calibration93-99_1227a-c,C-6


Legend

- *— Modeled - Run # 1227A-C
- ◆ Measured - City-WWTP, 5202E01

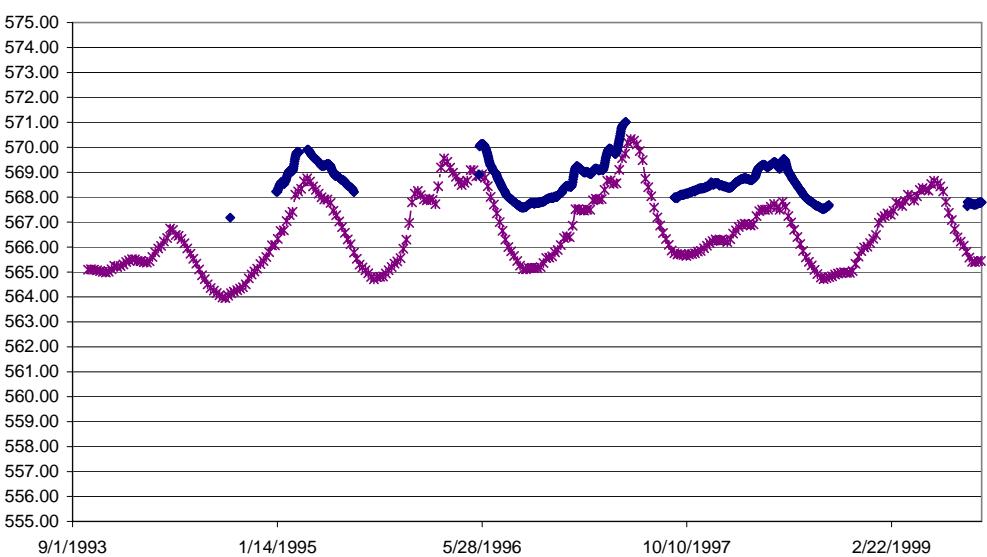
FIGURE C-7:
Saturated Zone Calibration

Spokane County
Watershed Assessment

013-1372, Calibration93-99_1227a-c.xls, 5/2003



calibration93-99_1227a-c,C-7


Legend

- *— Modeled - Run # 1227a-c
- ◆ Measured - City-NECommCntr, 5304G01

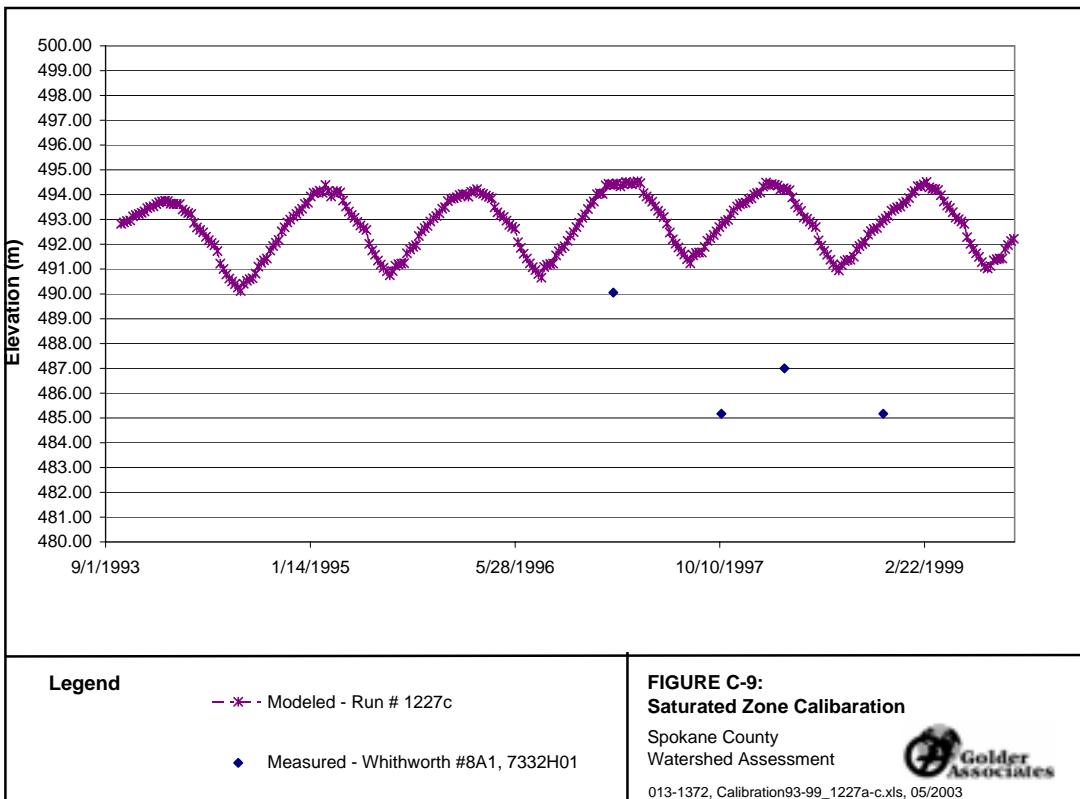
FIGURE C-8:
Saturated Zone Calibration

Spokane County
Watershed Assessment

013-1372, Calibration93-99_1227a-c.xls., 07/25/2001



calibration93-99_1227a-c,C-8



calibration93-99_1227a-c,C-9

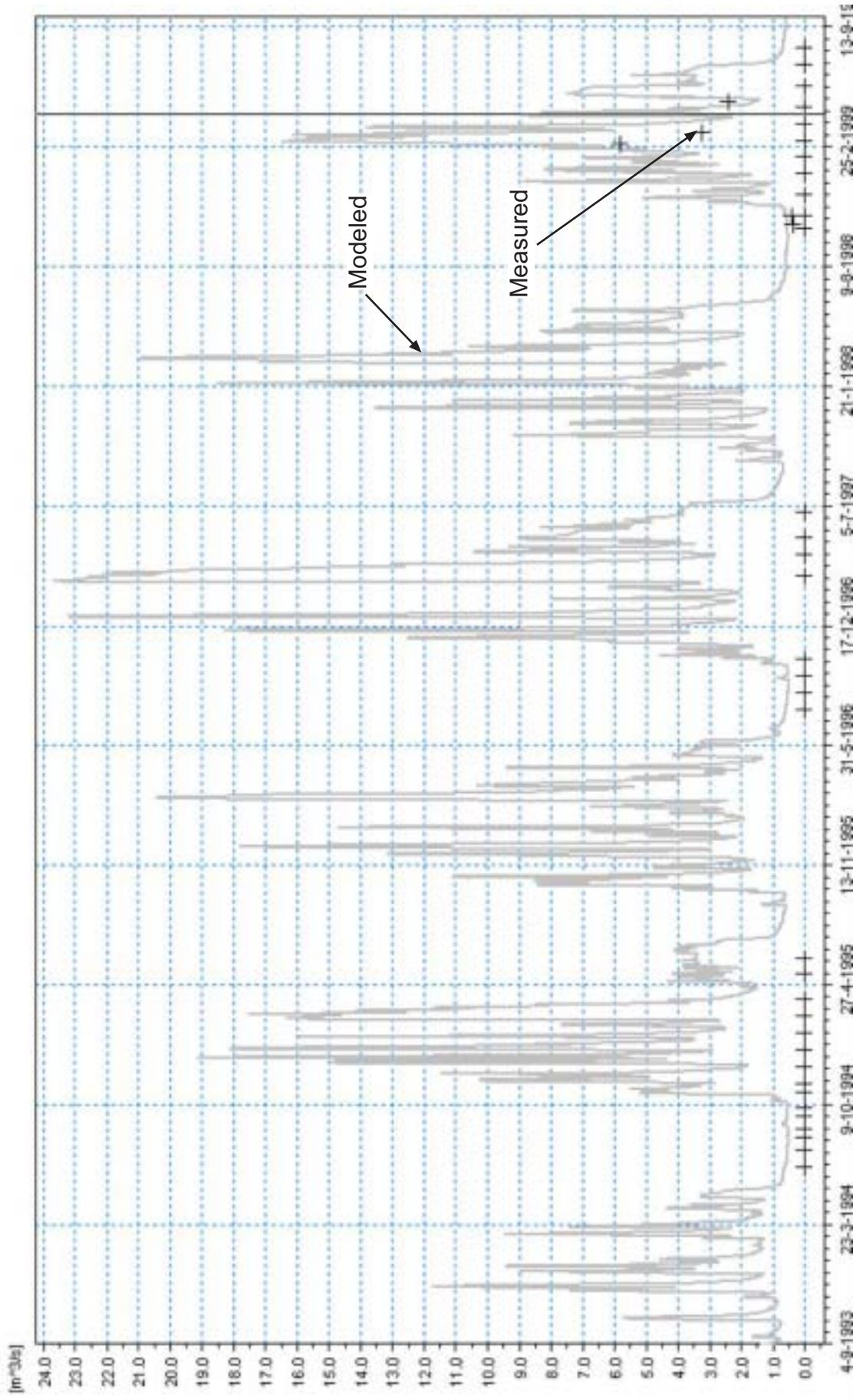


FIGURE C10
DEADMAN CREEK SNAPSHOT
CALIBRATION (CHAINAGE 34,026)
 WRIA 55 & 57/WATERSHED PLANNING/WA

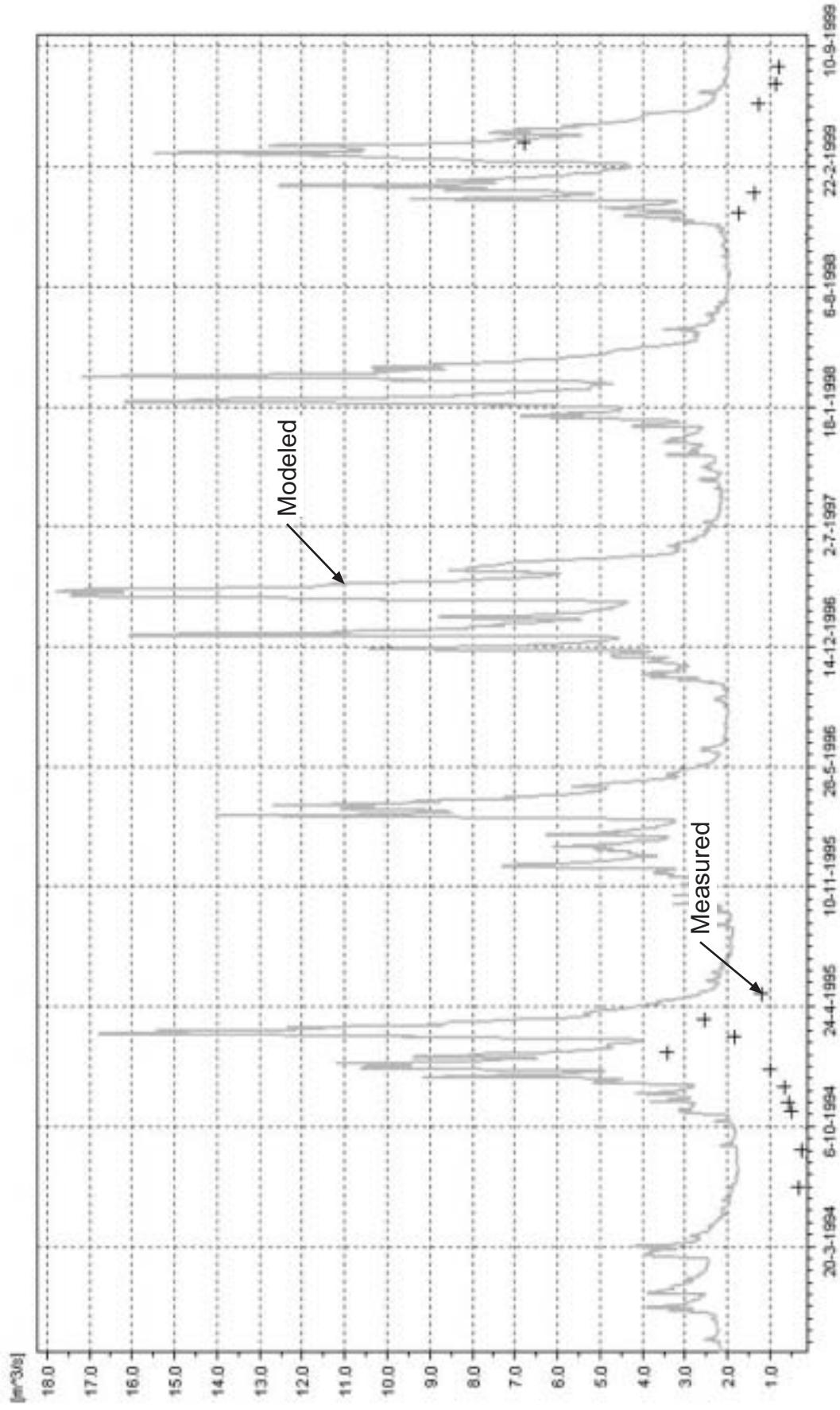
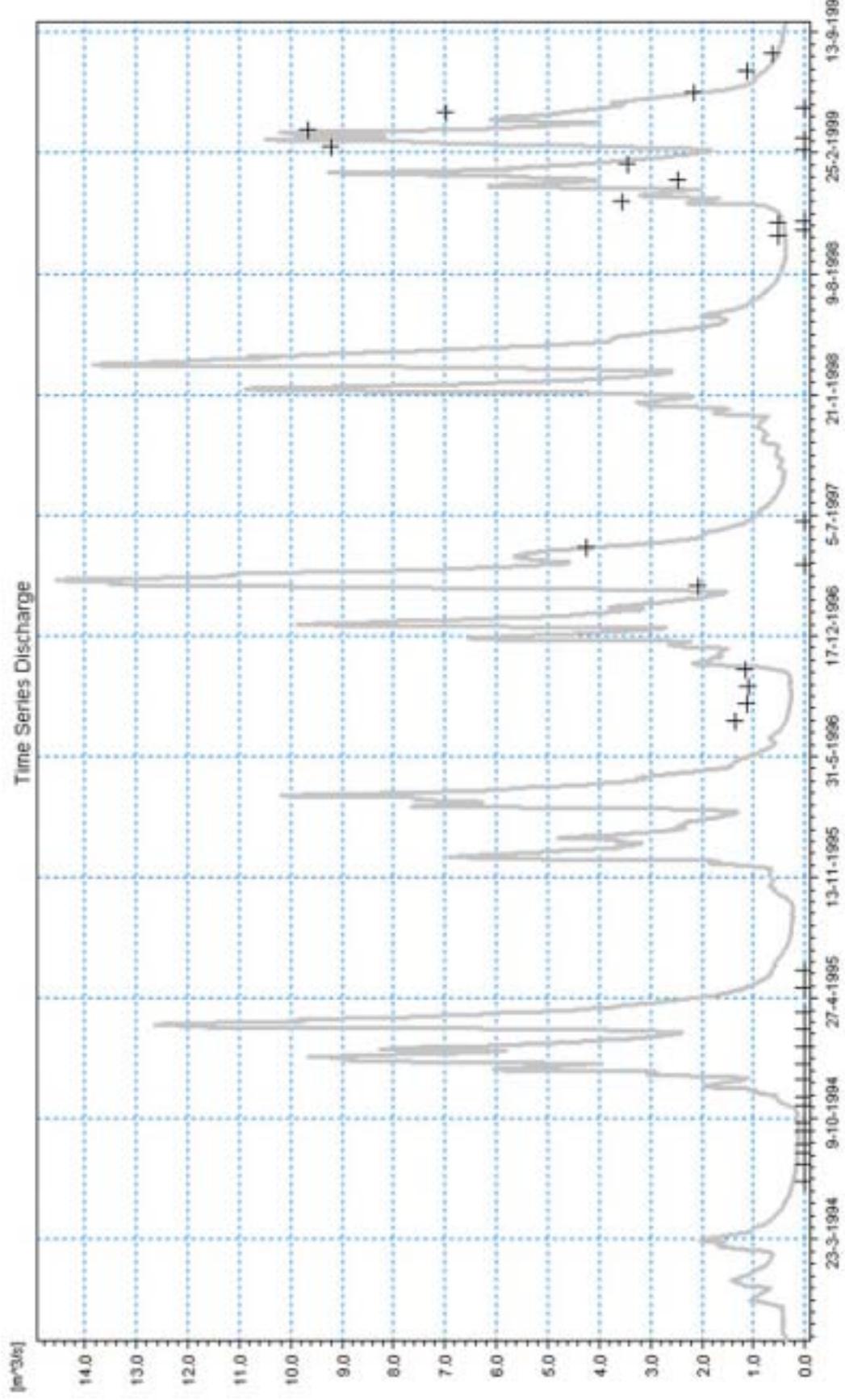


FIGURE C11
DRAGOON GREEK AT CRESCENT ROAD
(CHAINAGE 44,214) SNAPSHOT CALIBRATION
WRIA 55 & 57/WATERSHED PLANNING/MWA



Note: Measured values along "0.0" y-axis
indicate dates where no measurements exist.

FIGURE C12
WEST BRANCH LITTLE SPOKANE RIVER ELOKA LAKE ROAD
BRIDGE (CHAINAGE 41,278) SNAPSHOT CALIBRATION
WRIA 55 & 57/WATERSHED PLANNING/WA

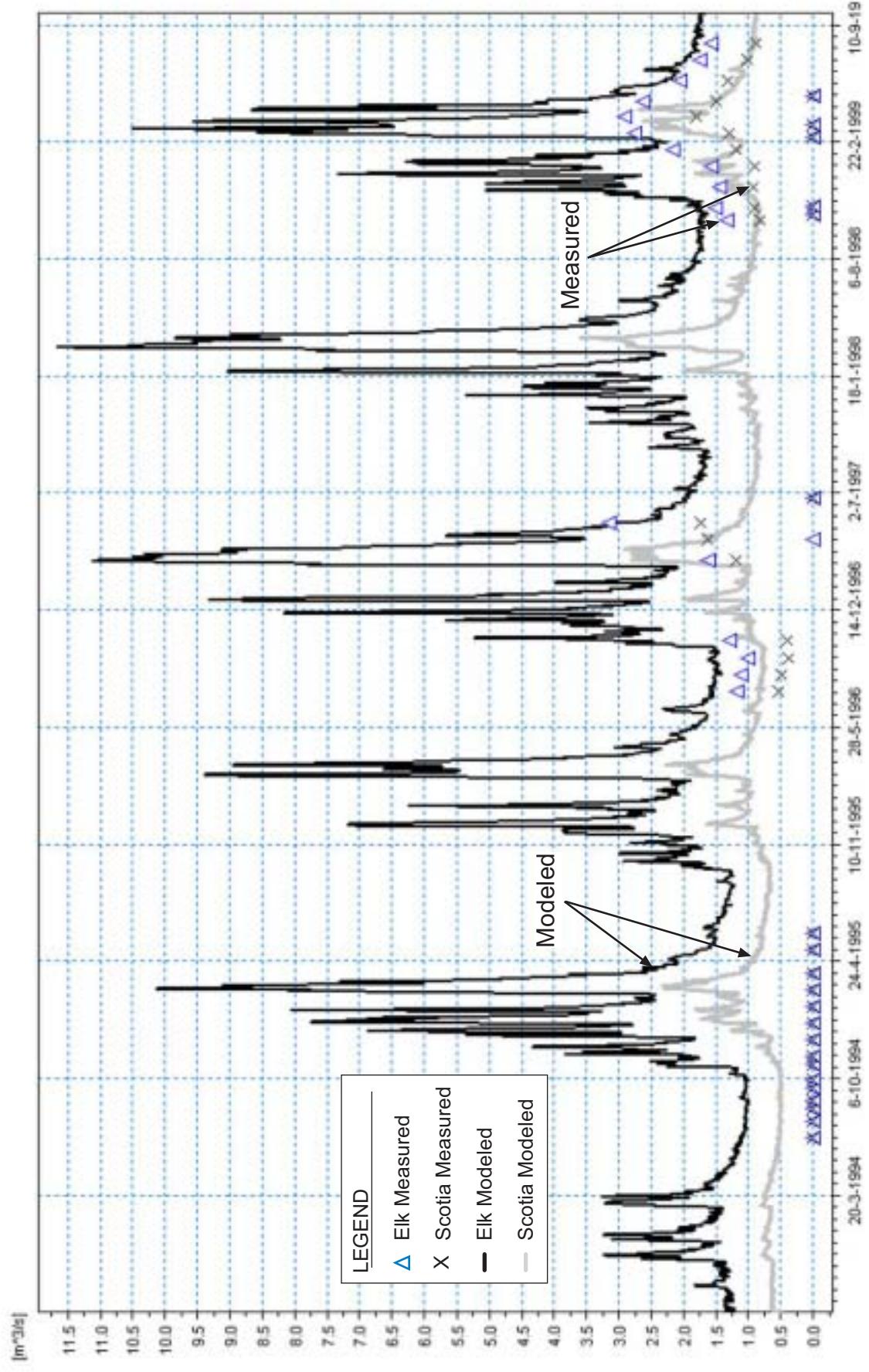


FIGURE C13
LITTLE SPOKANE RIVER AT ELK (CHAINAGE 26,365) AND
SCOTIA (CHAINAGE 11,051) SNAPSHOT CALIBRATION
 WRIA 55 & 57/WATERSHED PLANNING/WA

APPENDIX D

Total Water Balance Description

Tables

Table D1 – WRIA 57 Total Water Balance

Table D2 – WRIA 55 Total Water Balance

Figures

Figure D1 - Mean Annual Depth of Overland Water

Figure D2 – Peak Snow Storage

Figure D3 – Mean Annual Evapotranspiration

Figure D4 – Mean Annual Saturated Zone Recharge and Bypass

Figure D5 – Total Annual Irrigation

Total Water Balance Description

A total water balance of each sub-basin is provided in the following tables. The total water balance presents all major components of the MIKE SHE water balance. The convention of the water balance is that inputs (such as precipitation) and decreases in storage are negative (-) and outputs and increases in storage are positive (+). The water balance is presented as incremental values accumulated over the time step. Water Balance components consist of the following.

- Precipitation: Total precipitation (rain and snow) input to the system (always -).
- Canopy Storage Change: Change in storage in the vegetation canopy
- Evapotranspiration: Combined effect of evapotranspiration from water stored in the canopy, ponded water, water stored in the soil and vegetation transpiration from the unsaturated and saturated zone and evaporation from snow.
- Snow Storage Change: Change of water stored as snow (same as snow water equivalent).
- Overland Storage Change: Change of water stored on the surface of the ground (not in Mike 11 rivers).
- Overland Inflow and Outflow: Inflow or outflow from or to another sub-basin.
- OL -> River: Run-off to rivers.
- Irrigation: Irrigation water extracted from shallow wells or the river inside the sub-basin, in this model this is equivalent to irrigation and lawn watering from exempt wells
- Irr.Import: Irrigation water from sources outside the basin, in this model this is equivalent to irrigation from municipal wells.
- Irr.Rivin: Not used.
- Subsurface Storage Change: Change in water stored in the saturated (aquifer) and unsaturated zones.
- Subsurface Inflow and Outflow: Inflow or outflow from or to another sub-basin.
- Abstraction: Abstraction from wells.
- Drain -> River: Drainage to rivers from specified drain areas.
- Baseflow to River: Flow traveling from the aquifer to the river.
- Baseflow from River: Flow leaking from the river to the aquifer.
- Error: Total error calculated for all components.

Time Step	Precip	Canopy Stor. Change	Snow Stor. Change	Evapotrans.	OL Boulniflow	OL Outflow	Irrigation	Irr. Import	In-Rivin	SubSurf Stor. Change	SubSurf Boulniflow	Boulniflow	Abstraction	Drain- >River	Drain- >Ext.River	Drain- >River	Drainflow	Baseflow to river	Error			
1983 10 2 12 0	-2.22	-0.05	8.76	0.00	-1.63	0.00	2.38	0.04	-0.68	0.00	-3.78	19.59	4.00	0.00	0.00	0.00	16.15	-12.38	-0.58			
1983 10 9 15 0	-0.10	0.00	3.36	0.00	-1.00	0.00	2.45	0.02	-0.30	0.00	-2.08	19.54	3.62	0.00	0.00	0.00	16.10	-12.35	-1.18			
1983 10 16 18 0	-34.96	2.64	6.34	0.00	6.24	-0.01	2.54	0.02	-0.30	0.00	1.62	19.55	3.62	0.00	0.00	0.00	16.04	-12.16	-2.38			
1983 10 23 21 0	-10.59	-1.37	7.26	0.00	0.91	-0.01	2.28	0.02	-0.30	0.00	1.62	19.35	3.62	0.00	0.00	0.00	16.94	-11.05	-1.56			
1983 10 31 0	-0.28	-1.27	5.35	0.00	-1.77	0.00	2.16	0.02	-0.40	0.00	-4.55	19.22	3.62	0.00	0.00	0.00	17.19	-10.74	-1.18			
1983 11 7 3 0	-0.93	0.16	1.13	0.07	-0.76	0.00	1.87	0.00	0.00	0.00	-2.16	19.08	3.65	0.00	0.00	0.00	17.88	-10.08	-0.75			
1983 11 14 6 0	-0.02	-0.08	0.46	0.00	-0.63	0.00	1.77	0.00	0.00	0.00	-2.19	18.95	3.65	0.00	0.00	0.00	17.91	-9.72	-0.56			
1983 11 21 9 0	-0.37	1.93	0.51	2.21	0.59	0.00	1.76	0.00	0.00	0.00	2.64	18.98	3.65	0.00	0.00	0.00	17.86	-9.74	-0.80			
1983 11 28 12 0	-6.31	0.31	0.53	-0.72	0.72	0.00	2.02	0.00	0.00	0.00	2.07	19.19	3.65	0.00	0.00	0.00	16.57	-11.43	-1.04			
1983 12 5 15 0	-37.34	0.02	0.19	4.38	6.86	-0.04	2.34	0.00	0.00	0.00	23.94	19.57	3.35	0.00	0.00	0.00	17.07	-11.13	-1.33			
1983 12 12 18 0	-34.16	0.24	0.00	3.26	7.04	-0.06	2.04	0.00	0.00	0.00	21.68	20.05	3.18	0.00	0.00	0.00	16.46	-12.36	-1.84			
1983 12 19 21 0	-2.07	0.00	0.00	1.93	-1.08	0.00	2.27	0.00	0.00	0.00	-2.13	29.54	20.10	3.18	0.00	0.00	0.00	16.57	-13.71	-0.68		
1983 12 27 0	-1.95	0.00	0.00	1.95	-0.97	0.00	2.80	0.00	0.00	0.00	1.21	29.06	20.10	3.18	0.00	0.00	0.00	16.66	-12.48	-2.36		
1984 1 3 0	-27.54	-2.22	0.00	3.48	5.70	-0.04	2.83	0.00	0.00	0.00	17.29	29.20	19.98	3.16	0.00	0.00	0.00	16.64	-13.16	0.03		
1984 1 10 0	-12.26	0.35	0.00	2.27	1.90	-0.04	3.09	0.00	0.00	0.00	9.60	20.24	3.09	0.00	0.00	0.00	15.34	-15.70	0.60			
1984 1 17 9 0	-5.47	0.09	0.00	-1.21	1.14	-0.02	0.02	4.38	0.00	0.00	0.00	7.79	20.52	3.09	0.00	0.00	0.00	15.41	-15.89	0.04		
1984 1 24 12 0	-3.60	0.65	0.00	-1.06	0.76	-0.01	0.01	4.75	0.00	0.00	0.00	4.72	20.37	3.09	0.00	0.00	0.00	16.54	-14.09	0.56		
1984 1 31 15 0	-0.55	0.03	0.00	0.06	-0.81	0.00	4.52	0.00	0.00	0.00	0.57	20.19	3.09	0.00	0.00	0.00	18.61	-11.03	0.19			
1984 2 7 18 0	-0.50	-0.18	1.01	0.16	-0.99	0.00	3.54	0.00	0.00	0.00	-3.59	29.91	19.91	3.18	0.00	0.00	0.00	18.41	-10.98	-0.33		
1984 2 14 21 0	-0.09	1.64	1.11	2.65	0.97	0.00	0.00	3.21	0.00	0.00	0.00	2.18	30.77	19.76	3.18	0.00	0.00	0.00	18.99	-10.23	0.34	
1984 2 22 0	0.0	-9.13	0.21	1.14	2.02	0.73	-0.02	0.01	2.91	0.00	0.00	0.00	2.12	20.24	3.09	0.00	0.00	0.00	19.93	-10.06	-0.75	
1984 3 1 3 0	-14.76	0.44	1.24	1.61	2.84	-0.03	0.03	2.72	0.00	0.00	0.00	4.98	31.48	19.50	3.19	0.00	0.00	0.00	15.34	-15.70	0.60	
1984 3 8 0	-4.17	-1.02	6.40	-5.76	3.20	-0.04	0.05	3.86	0.00	0.00	0.00	4.70	28.57	20.37	3.09	0.00	0.00	0.00	15.85	-14.76	0.02	
1984 3 15 9 0	-2.74	-0.86	6.18	-2.02	0.11	-0.01	0.18	6.14	0.00	0.00	0.00	8.39	30.34	20.88	3.70	0.00	0.00	0.00	12.24	-21.67	0.19	
1984 3 22 12 0	-13.04	0.95	6.32	-2.86	4.43	-0.05	0.25	7.69	0.00	0.00	0.00	14.16	29.48	21.50	3.70	0.00	0.00	0.00	11.04	-24.63	-0.02	
1984 3 29 15 0	-1.09	-1.20	5.95	-1.64	-2.32	-0.03	0.36	8.82	0.00	0.00	0.00	8.14	27.70	22.08	3.70	0.00	0.00	0.00	10.57	-26.93	-1.29	
1984 4 5 18 0	-11.08	0.28	1.28	1.54	-0.03	-2.07	0.00	0.08	5.97	0.00	-0.22	0.00	5.97	25.48	20.90	7.37	0.00	0.00	0.00	26.33	-25.12	0.03
1984 4 12 21 0	-15.39	0.33	19.70	0.16	-2.75	0.01	0.02	11.62	0.04	0.00	0.00	8.66	25.70	22.36	5.99	0.00	0.00	0.00	14.05	-20.05	0.00	
1984 4 20 0	-8.70	0.33	17.83	-3.07	-2.23	-0.01	0.07	13.13	0.03	-0.30	0.00	5.57	24.36	22.56	5.89	0.00	0.00	0.00	7.71	-34.38	0.03	
1984 4 27 3 0	-10.80	-0.17	17.93	-3.10	0.00	0.05	12.06	0.04	-0.39	0.00	22.91	23.79	5.89	0.00	0.00	0.00	3.28	-51.35	-1.34			
1984 5 4 6 0	-3.32	0.33	19.21	-0.64	-7.73	0.00	0.04	17.16	0.06	-0.59	0.00	6.23	19.49	23.38	6.62	0.00	0.00	0.00	8.99	-36.41	0.66	
1984 5 11 9 0	-0.61	-0.17	19.95	-3.44	-3.48	0.00	0.05	14.61	0.07	-0.59	0.00	-22.18	23.86	21.15	7.49	0.00	0.00	0.00	13.62	-21.51	1.04	
1984 5 18 12 0	-14.82	0.01	22.58	-0.49	-2.43	0.00	0.02	13.95	0.08	-0.70	0.00	-7.37	25.48	20.90	7.49	0.00	0.00	0.00	11.50	-25.12	0.03	
1984 5 25 15 0	-17.40	-0.08	4.05	-1.43	0.00	0.05	1.43	0.00	-0.67	0.00	11.07	27.47	20.42	7.37	0.00	0.00	0.00	14.05	-20.05	0.00		
1984 6 1 18 0	-3.41	0.00	17.15	0.00	-3.55	0.00	0.00	10.41	0.09	-0.89	0.00	-16.69	29.43	19.84	7.88	0.00	0.00	0.00	15.93	-16.50	0.73	
1984 6 8 21 0	-21.34	0.85	21.75	0.00	-0.47	0.00	0.00	9.30	0.16	-1.89	0.00	-10.49	30.45	20.23	8.89	0.00	0.00	0.00	16.73	-14.09	0.08	
1984 6 16 0	-11.10	-0.50	19.50	0.42	-2.06	0.00	0.00	7.84	0.10	-1.30	0.00	-16.13	30.56	18.73	11.24	0.00	0.00	0.00	17.33	-12.69	0.48	
1984 6 23 3 0	-0.38	16.36	-0.42	-2.35	0.00	0.00	6.52	0.13	-1.83	0.00	-18.68	31.01	18.49	11.24	0.00	0.00	0.00	18.13	-11.14	0.50		
1984 6 30 6 0	-8.64	0.00	16.68	0.00	-2.13	0.00	0.00	5.13	0.14	-2.32	0.00	-14.40	31.44	18.22	11.24	0.00	0.00	0.00	18.31	-10.50	0.17	
1984 7 7 9 0	-1.49	0.00	15.73	0.00	-3.35	0.00	0.00	1.59	0.09	-1.59	0.00	-21.45	31.94	18.05	11.37	0.00	0.00	0.00	19.50	-8.24	1.19	
1984 7 14 12 0	0.00	12.82	0.00	-3.05	0.00	0.00	2.03	0.08	-1.66	0.00	-21.45	32.50	17.53	11.38	0.00	0.00	0.00	21.14	-6.26	-0.01		
1984 7 21 15 0	0.00	10.84	0.00	-2.88	0.00	0.00	1.82	0.07	-1.58	0.00	-16.15	32.71	17.67	11.38	0.00	0.00	0.00	18.72	-8.31	0.84		
1984 7 28 18 0	0.00	9.36	0.00	-2.71	0.00	0.00	1.42	0.04	-0.96	0.00	-16.17	32.96	17.72	11.38	0.00	0.00	0.00	19.54	-8.29	0.29		
1984 8 4 21 0	-0.27	0.00	8.14	0.00	-2.50	0.00	0.00	0.90	0.06	-1.67	0.00	-13.37	33.24	17.73	9.17	0.00	0.00	0.00	20.00	-5.74	-0.83	
1984 8 12 0 0	-0.50	0.00	7.08	0.00	-2.20	0.00	0.00	0.71	0.04	-0.97	0.00	-10.69	33.15	17.95	7.31	0.00	0.00	0.00	19.76	-5.67	-0.37	
1984 8 19 3 0	-0.12	0.00	5.86	0.00	-2.10	0.00	0.00	0.56	0.01	-0.25	0.00	-10.31	33.07	17.97	7.31	0.00	0.00	0.00	19.50	-5.67	-0.33	
1984 8 26 6 0	0.00	5.18	0.00	-2.12	0.00	0.00	0.44	0.01	-0.23	0.00	-9.47	33.00	18.04	7.31	0.00	0.00	0.00	19.10	-5.77	-0.51		
1984 9 2 9 0	-3.02	0.14	6.26	0.00	-1.76	0.00	0.00	0.37	0.01	-0.31	0.00	-6.98	32.85	18.13	6.69	0.00	0.00	0.00	18.89	-5.78	-0.22	
1984 9 9 12 0	-35.39	-0.01	5.28	0.00	-2.35	0.00	0.00	0.37	0.07	-0.67	0.00	-13.22	33.18	18.26	4.10	0.00	0.00	0.00	18.91	-5.91	-0.64	
1984 9 16 15 0	-3.64	-0.12	12.27	0.00	-1.89	0.00	0.00	0.70	0.08	-2.28	0.00	-2.78	32.22	18.71	4.10	0.00	0.00	0.00	16.50	-9.05	-0.70	
1984 9 23 18 0	0.00	8.32	0.00	-1.97	0.00	0.00	1.21	0.06	-1.73	0.00	-2.57	32.83	19.48	4.10	0.00	0.00	0.00	15.64				

TABLE D-1

WRIA 57 Total Water Balance

Time Step	Precip	Canopy Stor. Change	Evapotrans	Snow Stor. Change	OL Stor. Change	OL Boultow	OL Boultow Outflow	OL->River	Irrigation	Irr. Import	SubSurf. Stor. Change	SubSurf. Irr. Rivin	Boultow Outflow	Drain. > River Abstraction	Drain. > River	Drain. > Ext. River	Baseflow to river	Baseflow from river	Error		
1995 1 112 0	-22.82	0.00	-3.41	7.88	-0.08	0.15	9.67	0.00	0.00	0.00	21.62	-23.16	22.27	3.18	0.01	0.00	0.00	10.76	-26.41	-0.34	
1995 1 8 0	-4.06	-1.65	0.00	-0.40	0.99	0.00	0.02	8.78	0.00	0.00	0.00	13.94	-21.19	13.94	0.00	0.00	0.00	0.00	-21.19	0.17	
1995 1 15 18 0	-29.01	-0.12	0.00	1.27	9.09	-0.10	0.34	9.92	0.00	0.00	0.00	18.61	-23.91	21.51	3.09	0.01	0.00	0.00	12.59	-23.67	-0.39
1995 1 22 21 0	-14.83	0.17	0.00	6.11	1.11	-0.17	0.14	13.01	0.00	0.00	0.00	19.52	-20.11	22.91	3.09	0.00	0.00	0.00	7.35	-37.94	0.77
1995 1 30 0	-4.80	0.78	0.00	-1.50	1.02	-0.09	0.06	11.92	0.00	0.00	0.00	3.63	-20.06	22.51	3.09	0.00	0.00	0.00	11.94	-27.95	0.57
1995 2 6 3 0	-17.20	0.12	0.77	2.36	4.16	-0.18	0.29	11.41	0.00	0.00	0.00	23.73	-19.00	23.39	3.16	0.00	0.00	0.00	7.23	-39.82	0.42
1995 2 13 6 0	-6.70	0.06	1.08	5.38	-1.50	-0.03	0.04	13.97	0.00	0.00	0.00	16.88	-13.64	25.04	3.18	0.00	0.00	0.00	6.20	-45.55	1.23
1995 2 20 9 0	-33.74	0.41	1.15	4.47	8.20	-0.25	0.31	18.03	0.00	0.00	0.00	16.94	-13.98	23.37	3.18	0.00	0.00	0.00	9.23	-37.99	-0.68
1995 2 27 12 0	-0.94	-0.15	1.12	0.06	-1.02	-0.06	0.02	4.02	0.00	0.00	0.00	47.38	-7.66	26.50	3.18	0.00	0.00	0.00	1.36	-75.57	-1.76
1995 3 6 15 0	-5.24	-0.49	5.34	-13.03	8.22	-0.52	1.22	14.32	0.00	0.00	0.00	17.94	-3.69	27.36	3.59	0.00	0.01	0.00	6.88	-64.32	-2.48
1995 3 13 18 0	-34.65	0.87	6.57	-0.87	7.76	-0.55	1.58	21.27	0.00	0.00	0.00	11.27	-4.96	24.94	3.70	0.00	0.00	0.00	9.74	-49.41	-2.73
1995 3 20 24 0	-28.89	-0.01	6.59	0.31	5.32	-0.47	0.76	15.93	0.00	0.00	0.00	20.28	-4.86	24.84	3.70	0.00	0.01	0.00	8.84	-54.33	-1.75
1995 3 28 0	-1.87	-1.74	6.35	-1.62	-2.92	-0.14	0.30	17.67	0.00	0.00	0.00	6.87	-3.84	25.25	3.70	0.00	0.00	0.00	9.27	-51.20	0.09
1995 4 4 3 0	-1.28	-0.58	10.57	-0.56	-7.69	-0.01	0.12	21.83	0.02	-0.19	0.00	-13.72	-4.75	23.39	4.66	0.00	0.00	0.00	12.87	-45.52	-0.84
1995 4 11 6 0	-9.84	0.03	18.22	0.04	-8.10	0.00	-0.01	22.34	0.04	-0.41	0.00	-17.91	-8.08	21.44	5.89	0.00	0.00	0.00	13.61	-36.72	0.52
1995 4 18 9 0	-12.80	-0.03	18.82	0.61	-6.12	0.00	0.01	21.33	0.04	-0.42	0.00	-14.71	-11.20	20.77	5.89	0.00	0.00	0.00	12.55	-35.42	-0.67
1995 4 25 12 0	-2.23	0.02	16.36	-0.84	-10.66	0.00	0.00	19.99	0.03	-0.33	0.00	-14.07	-14.07	20.58	5.89	0.00	0.00	0.00	12.96	-33.11	0.86
1995 5 2 15 0	-13.82	0.78	6.78	-1.07	-5.43	-0.01	0.02	20.16	0.05	-0.45	0.00	-11.47	-16.65	20.17	6.25	0.00	0.00	0.00	13.34	-30.40	0.04
1995 5 9 18 0	-4.33	-0.75	24.43	-2.65	-7.24	-0.03	0.07	19.82	0.05	-0.48	0.00	-13.37	-17.17	20.13	7.49	0.00	0.00	0.00	9.98	-33.07	0.83
1995 5 16 21 0	-8.52	-0.02	22.86	-2.06	-2.98	-0.03	0.09	20.00	0.08	-0.75	0.00	-5.51	-16.31	20.84	7.49	0.00	0.00	0.00	7.63	-41.72	1.09
1995 5 24 0	0.00	-0.02	18.58	-3.21	-2.98	-0.03	0.07	20.47	0.03	-0.24	0.00	-18.08	-16.97	20.90	7.49	0.00	0.00	0.00	10.06	-35.56	0.48
1995 5 31 3 0	-0.20	-0.02	15.94	-4.94	-0.44	-0.02	0.08	17.35	0.10	-0.81	0.00	-27.89	-22.02	19.40	7.49	0.00	0.00	0.00	15.98	-19.83	0.07
1995 6 7 6 0	-29.32	1.81	21.96	-3.63	3.20	-0.01	0.07	16.24	0.12	-1.00	0.00	-29.35	-23.95	18.86	10.78	0.00	0.00	0.00	13.68	-21.99	-1.76
1995 6 14 9 0	-10.34	-1.78	23.02	-2.31	-2.59	0.00	0.02	14.39	0.06	-0.55	0.00	-23.77	-24.55	18.80	11.25	0.00	0.00	0.00	15.15	-18.71	-1.70
1995 6 21 12 0	-23.75	0.88	22.64	-2.55	2.24	-0.02	0.16	12.42	0.13	-1.09	0.00	-13.98	-25.72	18.36	11.25	0.00	0.00	0.00	15.35	-17.35	-1.16
1995 6 28 15 0	-0.80	-1.13	17.33	-1.43	-4.27	-0.01	0.20	11.56	0.12	-1.01	0.00	-23.60	-26.26	18.41	11.25	0.00	0.00	0.00	15.74	-23.30	-0.23
1995 7 5 18 0	-17.60	0.06	23.41	-1.15	-1.12	-0.02	0.05	8.64	0.12	-1.02	0.00	-18.41	-27.75	17.83	11.34	0.00	0.00	0.00	19.38	-11.93	0.35
1995 7 12 21 0	-8.27	-0.12	21.45	-0.04	-4.16	0.00	0.00	8.13	0.21	-1.94	0.00	-19.33	-28.35	17.98	11.39	0.00	0.00	0.00	16.78	-13.20	0.33
1995 7 20 0	0.00	0.00	16.42	0.00	-5.05	0.00	0.00	5.16	0.09	-0.91	0.00	-27.18	-29.39	17.50	11.38	0.00	0.00	0.00	20.79	-7.82	0.90
1995 7 27 3 0	-1.56	0.00	15.19	0.00	-3.58	0.00	0.00	3.48	0.17	-1.68	0.00	-22.69	-30.28	17.06	11.38	0.00	0.00	0.00	21.26	-6.07	0.53
1995 8 3 6 0	0.00	0.00	12.12	0.00	-3.06	0.00	0.00	1.88	0.15	-1.67	0.00	-21.02	-31.15	17.01	10.10	0.00	0.00	0.00	19.71	-7.27	-1.20
1995 8 10 9 0	-5.23	0.00	12.65	0.00	-1.95	0.00	0.00	1.76	0.09	-1.07	0.00	-13.21	-31.40	17.49	11.25	0.00	0.00	0.00	19.85	-7.74	-1.74
1995 8 17 12 0	-6.38	0.01	12.85	0.00	-1.90	0.00	0.00	1.77	0.07	-0.97	0.00	-11.48	-31.22	17.88	11.34	0.00	0.00	0.00	19.38	-7.15	-0.74
1995 8 24 15 0	-0.82	-0.01	8.24	0.00	-2.23	0.00	0.00	1.50	0.02	-0.25	0.00	-13.37	-31.21	17.91	7.31	0.00	0.00	0.00	16.86	-10.00	-1.44
1995 8 31 18 0	-1.22	0.00	7.41	0.00	-2.22	0.00	0.00	1.04	0.01	-0.20	0.00	-12.80	-31.37	17.73	7.31	0.00	0.00	0.00	16.01	-11.64	-1.23
1995 9 7 18 0	-33.15	2.68	6.63	0.00	-3.49	0.00	0.00	1.80	0.09	-1.49	0.00	-13.60	-31.77	17.74	4.22	0.00	0.00	0.00	20.01	-5.69	0.95
1995 9 15 0	-8.43	-2.51	16.86	0.00	-1.36	0.00	0.00	1.76	0.09	-2.25	0.00	-21.18	-31.86	18.38	4.10	0.00	0.00	0.00	16.67	-9.99	-1.07
1995 9 22 3 0	-0.42	-0.17	10.86	0.00	-2.33	0.00	0.00	1.61	0.09	-2.11	0.00	-6.20	-31.79	18.77	4.10	0.00	0.00	0.00	16.85	-9.97	-0.80
1995 9 29 6 0	-20.38	0.00	1.97	0.00	0.77	0.00	0.01	1.73	0.06	-1.59	0.00	-5.01	-31.70	18.91	4.10	0.00	0.00	0.00	16.96	-10.00	-1.44
1995 10 6 9 0	-35.39	0.47	10.47	2.53	4.37	0.00	0.03	2.06	0.04	-0.67	0.00	-19.14	-31.37	19.02	3.74	0.00	0.00	0.00	16.01	-11.64	-1.23
1995 10 13 12 0	-32.88	-0.06	7.51	-0.62	7.37	0.00	0.05	2.58	0.02	-0.31	0.00	-19.59	-30.70	19.43	3.62	0.00	0.00	0.00	15.35	-13.09	-2.16
1995 10 20 15 0	-13.87	0.21	7.61	-0.04	3.89	0.04	-0.01	3.10	0.02	-0.39	0.00	-8.29	-29.90	19.63	3.62	0.00	0.00	0.00	13.83	-15.73	-2.03
1995 10 27 18 0	-15.14	-0.22	7.48	0.81	-0.01	0.02	3.75	0.02	-0.31	0.00	0.00	9.44	-28.86	20.32	3.63	0.00	0.00	0.00	13.06	-17.84	-2.24
1995 11 3 21 0	0.00	-1.24	4.41	-0.20	-1.38	0.00	0.00	3.97	0.01	-0.20	0.00	-23.1	-28.12	20.47	3.65	0.00	0.00	0.00	13.88	-17.45	-0.27
1995 11 11 0	-17.74	1.94	0.52	1.04	2.89	0.00	0.01	5.13	0.00	0.00	0.00	-14.41	-27.55	20.47	3.65	0.00	0.00	0.00	13.37	-18.62	-0.49
1995 11 18 3 0	-8.34	-0.01	5.53	0.98	1.26	0.00	0.01	7.04	0.00	0.00	0.00	-21.90	-25.11	21.36	3.65	0.00	0.00	0.00	8.16	-31.49	-0.05
1995 11 25 6 0	-8.77	0.00	0.53	0.90	1.10	0.00	0.00	10.85	0.00	0.00	0.00	-24.85	-29.76	23.43	3.65	0.00	0.00	0.00	5.19	-42.08	-0.11
1995 12 2 9 0	-29.32	0.01	4.93	1.02	-1.22	-0.01	0.08	6.27	0.00	0.00	0.00	-5.51	-14.59	24.58	3.56	0.00	0.00	0.00	1.30	-61.62	-1.56
1995 12 9 12 0	-11.81	0.12	10.62	0.00	7.66	-0.09	0.00	5.33	0.00	0.00	0.00	-6.27	-30.67	34.31	3.09	0.00	0.00	0.00	1		

WRIA 57 Total Water Balance

Time Step	Precip	Canopy Stor. Change	Evapotrans	Snow Stor. Change	OL Stor. Change	OL Boultflow	OL Boultflow Outflow	OL->River	Irrigation	Irr Import	In-Rivin	SubSurf Stor. Change	SubSurf Stor. Change	SubSurf Boultflow	SubSurf Boultflow Outflow	Drain River > Ext. River Abstraction	Drain River > Ext. River	Drain Inflow	Drain Outflow	Baseflow to river	Baseflow from river	Error
1996 4 15 18 0	-8.23	0.07	17.45	-0.91	-6.68	0.00	0.03	15.52	0.03	-0.32	0.00	6.60	-10.04	21.04	5.89	0.00	0.00	0.00	0.00	-49.30	-2.27	
1996 4 22 21 0	-26.18	1.50	19.64	-0.08	1.03	-0.01	0.05	15.48	0.04	-0.41	0.00	13.82	-8.33	22.37	5.89	0.00	0.00	0.00	0.00	-54.95	-2.78	
1996 4 30 0	-23.30	-1.30	20.59	-0.10	2.80	-0.16	0.26	6.35	0.04	-0.34	0.00	33.68	-5.34	24.80	5.89	0.00	0.00	0.00	0.00	-73.37	-6.75	
1996 5 7 3 0	-4.64	-0.44	24.67	-0.19	-13.18	-0.02	0.04	16.01	0.11	-1.01	0.00	3.01	-2.77	26.57	7.26	0.00	0.00	0.00	0.00	-66.71	-5.04	
1996 5 14 6 0	-16.08	1.08	25.04	-1.73	-6.02	0.00	0.01	16.51	0.10	-0.87	0.00	-19.77	-4.21	22.91	7.49	0.00	0.00	0.00	0.00	-47.35	-3.04	
1996 5 21 9 0	-33.66	-0.57	30.77	-1.84	3.30	0.00	0.06	16.51	0.06	-0.55	0.00	1.78	-5.96	22.00	7.49	0.00	0.00	0.00	0.00	-52.66	-3.69	
1996 5 28 12 0	-11.02	-0.61	25.89	-1.14	-4.74	0.00	0.10	15.30	0.07	-0.65	0.00	-1.53	-4.86	23.43	7.49	0.00	0.00	0.00	0.00	-60.10	-5.81	
1996 6 4 15 0	-0.29	0.00	20.42	-0.67	-8.66	0.00	0.02	21.54	0.11	-0.95	0.00	-18.67	-5.14	22.60	9.40	0.00	0.00	0.00	0.00	-52.06	-3.71	
1996 6 11 18 0	0.00	-0.07	18.42	-0.80	-6.52	0.00	0.03	27.74	0.11	-0.90	0.00	-37.90	-7.78	20.58	11.25	0.00	0.00	0.00	0.00	-35.78	0.68	
1996 6 18 21 0	-0.05	0.00	16.75	0.00	-4.91	0.00	0.00	21.20	0.27	-2.32	0.00	-44.64	-14.46	18.46	11.25	0.00	0.00	0.00	0.00	-19.13	0.08	
1996 6 26 0	-36.93	1.66	24.94	0.00	1.86	0.00	0.00	18.01	0.15	-1.32	0.00	-18.10	-18.25	18.00	11.25	0.00	0.00	0.00	0.00	-18.22	-0.13	
1996 7 3 3 0	-17.22	-1.64	26.57	0.00	-1.68	0.00	0.00	15.37	0.18	-1.69	0.00	-31.65	-21.02	17.62	11.29	0.00	0.00	0.00	0.00	-14.46	0.13	
1996 7 10 6 0	-1.77	-0.02	21.75	0.00	-5.03	0.00	0.00	11.22	0.18	-1.68	0.00	-37.47	-24.18	16.88	11.39	0.00	0.00	0.00	0.00	-20.16	-10.71	
1996 7 17 9 0	-2.62	0.00	18.49	0.00	-3.87	0.00	0.00	8.71	0.16	-1.58	0.00	-31.37	-26.48	16.73	11.38	0.00	0.00	0.00	0.00	-9.03	-1.21	
1996 7 24 12 0	-2.52	0.00	16.86	0.00	-2.85	0.00	0.00	5.72	0.16	-1.68	0.00	-31.13	-28.25	16.40	11.38	0.00	0.00	0.00	0.00	-22.72	-6.23	
1996 7 31 15 0	-4.62	0.00	16.18	0.00	-2.48	0.00	0.00	4.24	0.13	-1.58	0.00	-24.05	-29.38	16.28	11.38	0.00	0.00	0.00	0.00	-6.94	0.35	
1996 8 7 18 0	-12.18	0.00	17.44	0.00	-1.46	0.00	0.00	3.34	0.07	-1.01	0.00	-14.42	-30.09	16.95	7.53	0.00	0.00	0.00	0.00	-21.24	-6.89	
1996 8 14 21 0	-1.05	0.00	10.50	0.00	-2.50	0.00	0.00	2.14	0.02	-0.24	0.00	-18.15	-30.50	16.96	7.31	0.00	0.00	0.00	0.00	-21.24	-6.39	
1996 8 22 0 0	-1.29	0.00	8.92	0.00	-2.31	0.00	0.00	1.72	0.01	-0.20	0.00	-17.27	-30.64	17.17	7.31	0.00	0.00	0.00	0.00	-21.38	-6.89	
1996 8 29 3 0	-0.86	0.43	8.14	0.00	-1.39	0.00	0.00	1.01	0.06	-1.23	0.00	-15.25	-30.96	17.01	7.31	0.00	0.00	0.00	0.00	-20.96	-5.35	
1996 9 5 6 0	-4.58	0.43	8.14	0.00	-1.39	0.00	0.00	1.01	0.06	-1.23	0.00	-15.25	-30.94	16.88	7.31	0.00	0.00	0.00	0.00	-20.54	-5.46	
1996 9 12 9 0	-1.82	-0.40	7.16	0.00	-1.18	0.00	0.00	1.36	0.08	-2.10	0.00	-3.42	-31.60	17.62	4.10	0.00	0.00	0.00	0.00	-8.67	-1.15	
1996 9 19 12 0	-32.91	1.85	16.88	0.00	2.36	0.00	0.00	2.07	0.07	-1.58	0.00	-13.07	-31.36	18.48	4.10	0.00	0.00	0.00	0.00	-16.43	-1.49	
1996 9 26 15 0	-7.99	-1.87	13.92	0.00	-0.84	0.00	0.00	2.14	0.09	-2.17	0.00	-1.70	-31.15	18.66	4.10	0.00	0.00	0.00	0.00	-16.78	-10.71	
1996 10 3 18 0	-2.26	0.12	7.59	0.00	-1.51	0.00	0.00	1.26	0.06	-1.24	0.00	-3.83	-31.02	18.75	3.92	0.00	0.00	0.00	0.00	-16.85	-10.58	
1996 10 10 21 0	-3.08	-0.12	4.50	0.00	-0.63	0.00	0.00	1.91	0.02	-0.40	0.00	-1.53	-30.94	18.68	3.62	0.00	0.00	0.00	0.00	-10.36	-1.34	
1996 10 18 0 0	-47.23	2.63	7.25	3.03	6.05	0.01	0.01	2.08	0.01	-0.27	0.00	-25.74	-30.87	18.73	3.62	0.00	0.00	0.00	0.00	-28.01	-0.46	
1996 10 25 3 0	-69.07	0.00	7.77	17.62	9.85	-0.05	0.02	2.54	0.03	-0.40	0.00	-31.68	-30.59	18.87	3.62	0.00	0.00	0.00	0.00	-16.65	-11.25	
1996 11 1 6 0	-28.92	-0.32	7.44	-0.35	5.36	0.00	0.03	3.05	0.02	-0.25	0.00	-15.73	-29.71	19.09	3.62	0.00	0.00	0.00	0.00	-16.20	-12.75	
1996 11 8 0 0	-6.90	0.00	3.53	-0.32	4.44	0.00	0.01	2.24	0.01	-0.09	0.00	-3.56	-30.94	19.37	3.66	0.00	0.00	0.00	0.00	-16.15	-13.66	
1996 11 15 12 0	-10.98	0.01	5.53	0.49	1.69	-0.01	0.01	3.93	0.00	0.00	0.00	-3.73	-30.94	19.39	3.65	0.00	0.00	0.00	0.00	-16.43	-13.46	
1996 11 22 15 0	-43.64	0.00	5.53	6.62	9.13	-0.07	0.09	4.84	0.00	0.00	0.00	-25.30	-27.39	19.54	3.65	0.00	0.00	0.00	0.00	-16.36	-10.36	
1996 11 29 18 0	-34.09	-0.01	5.53	0.40	9.24	-0.08	0.04	5.98	0.00	0.00	0.00	-19.20	-27.39	19.54	3.65	0.00	0.00	0.00	0.00	-16.52	-14.29	
1996 12 6 21 0	-27.14	0.00	0.09	22.07	0.09	-0.02	0.05	6.88	0.00	0.00	0.00	-19.01	-27.39	19.76	3.65	0.00	0.00	0.00	0.00	-18.38	0.66	
1996 12 14 0 0	-49.72	0.00	0.00	12.74	11.02	-0.32	0.02	9.40	0.00	0.00	0.00	-23.00	-28.30	21.51	3.18	0.00	0.00	0.00	0.00	-11.85	-23.88	
1996 12 21 0 0	-8.81	0.00	0.00	8.91	0.00	-0.09	0.02	9.27	0.00	0.00	0.00	-23.33	-22.75	21.71	3.18	0.00	0.00	0.00	0.00	-12.53	-0.63	
1996 12 28 6 0	-26.93	0.00	26.93	-1.44	0.00	-0.02	0.02	8.41	0.00	0.00	0.00	-3.39	-22.98	20.97	3.18	0.00	0.00	0.00	0.00	-14.86	-19.28	
1997 1 4 9 0	-37.08	-2.52	0.00	-10.81	18.32	-2.20	0.90	7.16	0.00	0.00	0.00	-44.32	-22.82	22.49	3.14	0.00	0.00	0.00	0.00	-8.96	-35.51	
1997 1 11 12 0	-6.38	0.35	0.00	-7.05	1.21	-0.98	0.32	9.97	0.00	0.00	0.00	-45.41	-13.22	26.56	3.09	0.00	0.00	0.00	0.00	-3.52	-61.79	
1997 1 18 15 0	-12.70	0.27	0.00	10.00	-2.17	-0.20	0.05	17.31	0.00	0.00	0.00	-24.66	-10.73	24.24	3.09	0.00	0.00	0.00	0.00	-10.47	-0.70	
1997 1 25 18 0	-10.79	0.27	0.00	7.32	-0.78	-0.67	0.06	16.84	0.00	0.00	0.00	-13.33	-22.80	22.80	3.09	0.00	0.00	0.00	0.00	-13.09	-31.02	
1997 2 1 21 0	-14.52	0.74	0.00	3.81	-0.67	-0.25	0.02	15.16	0.00	0.00	0.00	-1.31	-16.12	21.74	3.10	0.00	0.00	0.00	0.00	-15.12	-23.85	
1997 2 9 0 0	-6.50	0.00	1.09	5.41	-2.09	-0.21	0.02	15.51	0.00	0.00	0.00	-3.81	-16.97	21.91	3.18	0.00	0.00	0.00	0.00	-13.36	-28.56	
1997 2 16 3 0	-18.02	0.45	1.12	-6.15	4.36	-0.18	0.32	14.76	0.00	0.00	0.00	-6.28	-18.37	21.20	3.18	0.00	0.00	0.00	0.00	-24.07	-0.10	
1997 2 23 6 0	-19.12	-0.01	1.15	-8.76	3.76	-0.27	0.44	15.81	0.00	0.00	0.00	-21.92	-17.60	21.95	3.18	0.00	0.00	0.00	0.00	-33.29	-0.43	
1997 3 2 9 0	-24.30	0.40	2.20	-14.37	15.86	-1.13	0.63	18.01	0.00	0.00	0.00	-15.64	-14.91	22.21	3.28	0.00	0.00	0.00	0.00	-34.96	0.31	
1997 3 9 12 0	-22.83	0.00	6.61	-23.16	20.30	-3.82	2.34	17.42	0.00	0.00	0.00	-7.42	-18.86	24.46	3.70	0.00	0.00	0.00	0.00	-29.21	-1.59	
1997 3 16 15 0	-25.81	0.04	9.04	-9.68	3.81	-0.26	0.13	18.30	0.00	0.00	0.00	-8.12	-16.85	23.43	3.70	0.00	0.00	0.00	0.00	-31.39	-1.46	
1997 3 23 18 0	-21.50	-0.87	6.52	-0.15	9.11	-2.88	0.25	12.31	0.00	0.00	0.00	-27.59	-14.88									

TABLE D-1

WRIA 57 Total Water Balance

Time Step	Precip	Canopy Stor. Change	Evapotrans	Snow Stor. Change	OL Boultow	OL Boultow Outflow	OL->River	Irrigation	Irc Import	Irc Rivin	SubSurf Stor. Change	SubSurf Stor. Change	Boultow Outflow	SubSurf. Boultow Outflow	Drainage River > Ext. River	Drainage River > River	Baseflow from river	
1997 7 30 0	-1.31	0.00	17.43	0.00	-4.09	0.00	10.63	0.17	-1.59	0.00	-36.27	-23.31	16.34	11.36	0.00	0.00	21.38	
1997 8 6 0	-1.03	0.00	13.85	0.00	-2.73	0.00	7.28	0.23	-2.24	0.00	-25.73	-20.85	8.45	0.00	0.00	0.00	23.33	
1997 8 13 6 0	-0.45	0.00	11.21	0.00	-2.69	0.00	5.49	0.03	-0.25	0.00	-26.88	-27.20	16.44	7.31	0.00	0.00	23.45	
1997 8 20 9 0	-1.06	0.00	10.45	0.00	-2.22	0.00	4.16	0.10	-1.05	0.00	-21.04	-28.23	16.45	7.31	0.00	0.00	22.07	
1997 8 27 12 0	-7.47	0.00	13.69	0.00	-1.81	0.00	3.29	0.09	-0.99	0.00	-17.32	-28.72	16.75	7.31	0.00	0.00	21.88	
1997 9 3 15 0	-7.68	1.10	10.39	0.00	-1.52	0.00	1.95	0.12	-1.49	0.00	-13.71	-29.34	16.64	6.13	0.00	0.00	22.11	
1997 9 10 18 0	-3.28	-1.10	9.33	0.00	-1.38	0.00	1.91	0.13	-2.01	0.00	-10.17	-30.05	16.95	4.10	0.00	0.00	20.53	
1997 9 17 21 0	-44.43	2.67	14.57	0.00	5.46	0.00	2.11	0.08	-1.58	0.00	-17.79	-30.47	17.31	4.10	0.00	0.00	19.24	
1997 9 25 0 0	-8.55	-2.67	17.38	0.00	-1.65	0.00	2.01	0.10	-2.21	0.00	-4.08	-30.31	17.92	4.10	0.00	0.00	10.94	
1997 10 2 3 0	-3.46	0.14	11.44	0.00	-2.22	0.00	2.81	0.07	-1.78	0.00	-5.96	-30.01	18.31	4.03	0.00	0.00	11.09	
1997 10 9 6 0	-31.27	2.51	7.37	0.26	-0.01	2.76	0.02	0.30	14.30	0.00	0.00	18.48	3.62	0.00	0.00	0.00	16.78	
1997 10 16 9 0	-13.09	-0.88	7.54	-0.26	1.43	-0.01	0.01	3.18	0.02	-0.33	0.00	6.38	-29.92	18.78	3.62	0.00	0.00	13.95
1997 10 23 12 0	-2.28	-1.54	6.79	0.17	-1.48	0.00	3.37	0.02	-0.30	0.00	-0.97	-28.70	19.05	4.10	0.00	0.00	8.21	
1997 11 0 15 0	-46.11	2.43	7.11	-0.17	11.87	-0.04	0.07	5.59	0.02	-0.40	0.00	22.89	-28.57	19.10	3.62	0.00	0.00	13.40
1997 11 6 18 0	-10.99	-0.08	1.90	0.38	0.33	-0.02	0.03	4.39	0.00	0.00	0.00	5.51	-28.19	19.03	3.65	0.00	0.00	13.65
1997 11 13 21 0	-5.18	-0.06	0.53	0.04	-0.03	-0.01	0.00	4.68	0.00	0.00	0.00	3.39	-27.94	19.21	3.65	0.00	0.00	14.40
1997 11 21 0 0	-30.45	0.12	0.53	2.51	7.03	-0.05	0.03	5.07	0.00	0.00	0.00	17.97	-27.97	19.31	3.65	0.00	0.00	14.36
1997 12 8 3 0	-14.90	-0.01	0.53	2.95	-0.03	0.02	5.95	0.00	0.00	0.00	10.32	-27.04	19.66	3.65	0.00	0.00	15.09	
1997 12 15 6 0	-1.08	-0.03	0.21	0.69	-1.03	0.00	0.00	6.54	0.00	0.00	0.00	3.84	-25.74	19.99	3.37	0.00	0.00	15.25
1997 12 22 9 0	-10.36	0.00	0.00	10.36	-1.08	0.00	0.00	5.59	0.00	0.00	0.00	4.18	-28.57	19.10	3.18	0.00	0.00	13.40
1997 12 29 0 0	-32.13	0.02	0.00	-0.67	9.05	-0.10	0.11	7.83	0.00	0.00	0.00	18.38	-24.68	20.56	3.18	0.00	0.00	14.40
1997 12 26 15 0	-40.36	0.00	0.00	40.36	-1.22	0.00	0.03	7.72	0.00	0.00	0.00	4.46	-24.72	20.06	3.18	0.00	0.00	16.21
1998 1 2 18 0	-24.30	-1.83	0.00	-0.27	7.34	-0.07	0.24	6.54	0.00	0.00	0.00	10.64	-25.74	19.78	3.16	0.00	0.00	15.09
1998 1 9 21 0 0	-32.62	0.18	0.00	22.56	1.10	-0.02	0.12	6.26	0.00	0.00	0.00	1.18	-26.57	19.31	3.65	0.00	0.00	16.48
1998 1 17 0 0	-16.73	0.45	0.00	9.01	0.77	-0.01	0.06	5.44	0.00	0.00	0.00	1.37	-25.74	19.99	3.37	0.00	0.00	19.86
1998 1 24 3 0	-22.25	0.15	0.00	10.51	8.54	-0.74	0.30	5.74	0.00	0.00	0.00	4.48	-24.52	20.82	3.18	0.00	0.00	12.26
1998 1 31 6 0	-15.92	0.26	0.00	-20.39	9.65	-2.77	0.62	7.84	0.00	0.00	0.00	19.27	-28.83	19.64	3.09	0.00	0.00	11.33
1998 2 7 9 0	-4.25	0.24	0.97	-11.50	0.58	-0.46	0.19	10.14	0.00	0.00	0.00	14.33	-30.09	22.40	3.09	0.00	0.00	17.99
1998 2 14 12 0	-22.04	0.20	1.11	2.15	2.54	-0.21	0.21	11.80	0.00	0.00	0.00	13.40	-23.10	22.98	3.17	0.00	0.00	15.94
1998 2 21 15 0	-14.01	0.03	1.14	0.33	1.41	-0.22	0.16	12.16	0.00	0.00	0.00	10.14	-23.44	22.99	3.18	0.00	0.00	13.26
1998 2 28 18 0	-8.07	0.32	1.15	-1.73	1.43	-0.14	0.10	11.66	0.00	0.00	0.00	2.22	-21.97	22.02	3.18	0.00	0.00	19.02
1998 3 7 21 0	-16.94	-0.01	6.37	0.00	13.32	-2.71	1.47	11.79	0.00	0.00	0.00	3.67	-24.56	23.45	3.68	0.00	0.00	11.59
1998 3 15 0 0	-15.13	-0.93	6.46	-4.51	1.15	-2.62	1.66	11.50	0.00	0.00	0.00	3.80	-24.96	22.35	3.70	0.00	0.00	12.33
1998 3 22 3 0	-11.08	0.15	6.46	-3.52	2.55	-1.95	0.73	11.31	0.00	0.00	0.00	3.72	-24.56	21.50	3.70	0.00	0.00	13.92
1998 3 29 6 0	-15.26	0.47	6.57	-1.28	2.53	-1.24	0.66	12.47	0.00	0.00	0.00	2.29	-21.21	22.98	3.70	0.00	0.00	12.24
1998 4 5 9 0	-2.40	-1.96	1.32	0.69	8.42	-0.65	0.35	15.71	0.02	-0.22	0.00	11.67	-16.16	19.31	5.04	0.00	0.00	12.07
1998 4 12 12 0	-6.59	-0.01	18.22	-0.28	-11.41	-0.10	0.03	17.19	0.05	-0.44	0.00	3.67	-14.71	22.89	5.89	0.00	0.00	12.59
1998 4 19 15 0	0.00	-0.06	16.21	-0.84	-13.32	-0.01	0.00	17.99	0.03	-0.33	0.00	3.80	-14.90	22.32	5.89	0.00	0.00	13.90
1998 4 26 18 0	-10.40	0.05	17.24	-2.07	-4.81	-0.03	0.09	17.73	0.05	-0.43	0.00	1.56	-16.60	21.67	5.89	0.00	0.00	13.62
1998 5 3 21 0	0.00	0.01	18.15	-5.77	-7.47	-0.04	0.17	18.72	0.05	-0.41	0.00	2.15	-14.93	22.24	6.53	0.00	0.00	13.92
1998 5 11 0 0	-0.53	-0.06	20.96	-4.82	6.63	0.00	0.14	16.30	0.08	-0.73	0.00	0.97	-12.90	22.71	7.49	0.00	0.00	14.31
1998 5 18 15 0	-2.33	0.00	15.02	0.00	-2.27	0.00	0.00	22.53	0.06	-0.55	0.00	5.58	-14.27	19.04	5.04	0.00	0.00	13.89
1998 5 25 6 0	-29.71	-0.70	29.85	-0.56	0.02	0.00	0.08	19.07	0.06	-0.54	0.00	8.61	-18.27	20.68	7.49	0.00	0.00	11.00
1998 6 1 9 0	-38.36	-1.63	30.64	-0.12	4.18	-0.02	0.31	12.69	0.06	-0.54	0.00	24.26	-14.87	22.14	7.68	0.00	0.00	14.42
1998 6 8 12 0	-6.30	-0.16	24.65	-0.02	-8.04	0.00	0.03	22.60	0.18	-1.61	0.00	20.65	-13.41	22.04	7.68	0.00	0.00	14.43
1998 6 15 15 0	-7.59	0.20	21.86	0.00	-5.04	0.00	0.00	17.48	0.16	-1.42	0.00	35.07	-27.55	29.03	11.38	0.00	0.00	13.07
1998 6 22 18 0	-16.62	-0.14	23.54	0.00	-2.26	0.00	0.00	15.47	0.19	-1.65	0.00	25.14	-21.59	21.25	0.00	0.00	0.00	10.57
1998 7 1 15 0	-2.82	-0.06	19.35	0.00	-4.39	0.00	0.00	12.16	0.19	-1.74	0.00	30.40	-23.92	18.24	11.25	0.00	0.00	17.89
1998 7 8 12 0	-9.36	0.00	23.54	0.00	-3.52	0.00	0.01	9.66	0.28	-2.59	0.00	28.91	-26.14	20.68	7.49	0.00	0.00	13.86
1998 7 14 3 0	-9.63	0.00	22.08	0.00	-2.88	0.00	0.00	7.48	0.11	-1.11	0.00	26.20	-27.73	11.36	11.38	0.00	0.00	10.21
1998 7 21 6 0	0.00	0.00	16.31	0.00	-3.17	0.00	0.00	17.04	0.16	-1.64	0.00	4.04	-31.87	17.44	6.86	0.00	0.00	13.07
1998 7 28 9 0	-0.63	0.00	13.96	0.00	-3.00	0.00	0.00	3.93	0.12	-1.42	0.00	24.42	-29.84	17.11	11.38	0.00	0.00	20.67
1998 8 4 12 0	-5.35	0.00	15.02	0.00	-2.27	0.00	0.00	2.71	0.11	-1.67	0.00	17.38	-30.56	17.32	9.38	0.00	0.00	17.99
1998 8 11 15 0	0.00	0.00	9.34	0.00	-2.68	0.00	0.00	2.12	0.05	-1.00	0.00	31.72	-17.74	7.31	0.00	0.00	0.00	13.33
1998 8 18 18 0	-0.89	0.00	8.97	0.00	-2.42	0.00	0.00	1.44	0.04	-1.04	0.00	30.00	-16.01	21.11	4.10	0.00	0.00	14.44
1998 8 25 21 0	-2.55	0.00	9.16	0.00	-2.36	0.00	0.00	1.00	0.01	-0.23	0.00	30.20	-15.16	21.10	4.10	0.00	0.00	14.43
1998 9 2 0	0.00	0.00	6.53	0.00	-2.18	0.00	0.00	0.86	0.01	-0.20	0.00	30.00	-12.79	21.07				

WRIA 57 Total Water Balance

Time Step	Precip	Canopy Stor. Change	Evapotrans	Snow Stor. Change	OL Boultflow	OL Boultflow	OL->River	Irrigation	Irr. Import	SubSurf. Stor.Change	SubSurf. Irr.Rivin	SubSurf. Drainflow	Drain. > River	Drain. > Ext.River	Baseflow to river	Baseflow from river	Error				
1998-11-12 6:0	-5.37	0.51	0.53	0.47	-0.02	0.00	1.72	0.00	0.00	-2.20	-30.72	18.97	3.65	0.00	0.00	17.47	-10.01	-0.59			
1998-11-19 9:0	-17.19	0.01	0.53	1.17	2.17	0.00	2.04	0.00	0.00	0.00	-30.53	19.14	3.65	0.00	0.00	16.11	-12.00	-1.15			
1998-11-26 12:0	-49.36	-0.02	0.53	2.95	8.89	-0.01	3.35	0.00	0.00	0.00	-30.03	20.10	3.65	0.00	0.00	13.67	-16.29	-3.00			
1998-12 3 15:0	-49.33	0.03	0.34	16.63	8.51	-0.03	5.25	0.00	0.00	0.00	-29.83	20.73	3.48	0.00	0.00	12.32	-20.26	-0.52			
1998-12 10 18:0	-13.67	0.00	0.00	13.41	-1.16	0.00	7.36	0.00	0.00	0.00	-20.29	21.86	3.18	0.00	0.00	10.15	-25.74	0.54			
1998-12-17 21:0	-21.85	0.19	0.00	5.27	3.86	-0.05	0.04	8.09	0.00	0.00	0.00	17.20	-24.25	22.06	3.18	0.00	10.86	-24.75	-0.14		
1998-12-25 0:0	-15.42	0.00	0.00	15.42	-1.08	0.00	8.29	0.00	0.00	0.00	1.02	-23.39	21.73	3.18	0.00	0.00	12.82	-21.89	0.69		
1999-1 1 3:0	-48.16	-0.01	0.00	15.25	9.14	-0.11	0.09	8.25	0.00	0.00	0.00	22.04	-21.34	3.18	0.00	0.00	13.07	-20.96	-1.02		
1999-1 8 6:0	-2.27	-0.18	0.00	2.15	-0.98	0.00	0.00	9.87	0.00	0.00	0.00	9.17	-21.59	22.02	3.09	0.00	0.00	9.66	-30.22	0.72	
1999-15 9:0	-16.06	-1.36	0.00	-12.79	7.82	-0.07	0.09	9.96	0.00	0.00	0.00	23.57	-22.49	22.19	3.09	0.00	0.01	11.90	-25.90	-0.04	
1999-12 12 0:0	-35.18	0.34	0.00	1.43	8.38	-0.25	0.18	13.46	0.00	0.00	0.00	38.09	-19.95	23.42	3.09	0.00	7.46	-39.03	1.46		
1999-1 29 15:0	-12.36	0.45	0.00	-1.43	2.25	-0.32	0.08	14.98	0.00	0.00	0.00	14.12	-16.19	23.34	3.09	0.00	9.48	-36.89	1.46		
1999-2 5 18:0	-20.96	0.24	0.72	-9.14	5.08	-0.44	0.32	15.06	0.00	0.00	0.00	13.69	-18.27	22.62	3.15	0.00	0.01	0.00	-14.31	-25.56	
1999-2 12 21:0	-21.14	0.20	1.09	3.35	0.66	-0.18	0.22	14.44	0.00	0.00	0.00	3.13	-19.14	21.73	3.18	0.00	0.00	15.95	-21.79	1.71	
1999-2 20 0:0	-24.16	0.08	1.15	2.98	3.89	-0.21	0.24	13.63	0.00	0.00	0.00	0.11	-20.48	20.99	3.18	0.00	0.00	17.80	-18.69	0.33	
1999-2 27 3:0	-44.27	0.02	1.15	7.22	8.01	-0.51	0.47	14.05	0.00	0.00	0.00	17.44	-21.89	21.41	3.18	0.00	0.00	15.30	-22.17	-0.53	
1999-3 6 6:0	-9.99	-0.32	5.04	9.40	-0.61	0.25	0.25	14.29	0.00	0.00	0.00	22.18	-22.89	22.89	3.57	0.00	0.01	0.00	-44.79	-1.40	
1999-3 13 9:0	-1.14	-0.86	6.18	-11.69	4.67	-1.40	0.49	17.16	0.00	0.00	0.00	0.68	-15.20	22.79	3.70	0.00	0.02	0.00	11.82	-36.37	
1999-3 20 12:0	0	-1.172	0.23	6.27	-4.47	4.27	-2.21	0.97	16.65	0.00	0.00	0.00	-1.28	-17.86	22.13	3.70	0.00	0.02	0.00	0.00	-14.31
1999-3 27 15:0	-6.38	-0.24	6.16	-2.98	0.33	-0.97	0.35	13.04	0.00	0.00	0.00	0.00	15.95	22.60	3.70	0.00	0.01	0.00	0.00	-15.95	
1999-4 3 18:0	-14.97	-0.27	10.84	1.31	-1.05	-1.05	1.05	15.59	0.01	-0.11	0.00	0.00	23.36	-10.95	24.30	4.54	0.00	0.01	0.00	6.21	
1999-4 10 21:0	-11.14	-0.26	19.25	-0.37	-8.07	-0.08	0.08	20.86	0.04	-0.43	0.00	-6.54	-10.37	22.76	5.89	0.00	0.00	0.00	10.41	-42.23	
1999-4 18 0:0	-1.36	-0.29	17.33	-2.31	-10.88	-0.02	0.03	20.07	0.03	-0.33	0.00	-14.51	-13.48	21.41	5.89	0.00	0.00	0.00	12.34	-33.32	
1999-4 25 3:0	-7.40	-0.04	17.26	-1.52	-6.11	-0.08	0.07	14.25	0.05	-0.42	0.00	9.57	-12.60	21.91	5.89	0.00	0.00	0.00	6.63	-48.78	
1999-5 2 6:0	-5.11	0.06	17.27	-0.82	-8.66	-0.01	0.03	11.89	0.07	-0.63	0.00	20.29	-8.70	24.01	6.17	0.00	0.00	0.00	4.65	-63.34	
1999-5 9 9:0	-21.68	-0.14	27.69	0.70	-4.14	0.00	0.00	14.58	0.08	-0.75	0.00	8.24	-6.58	24.25	7.49	0.00	0.00	0.00	5.96	-57.42	
1999-5 16 12:0	0	-3.49	-0.24	22.71	-0.13	-8.46	0.00	0.00	20.16	0.13	-1.19	0.00	-11.25	-7.00	23.08	7.49	0.00	0.00	0.00	8.15	-51.19
1999-5 23 15:0	0	-2.75	0.31	20.56	-3.33	-3.36	-0.03	0.08	19.71	0.05	-0.46	0.00	-13.17	-8.67	22.20	7.49	0.00	0.00	0.00	7.82	-45.51
1999-5 30 18:0	0	-0.89	-0.02	17.66	-5.84	1.69	-0.05	0.17	9.69	0.08	-0.66	0.00	10.48	-6.95	23.94	7.49	0.00	0.00	0.00	3.59	-66.04
1999-6 6:0	-12.50	0	-0.03	22.52	2.24	-1.58	0.00	14.70	0.16	-1.30	0.00	6.79	-3.73	25.74	10.59	0.00	0.00	0.00	4.43	-68.87	
1999-6 14 0:0	-4.55	0.00	18.45	-3.12	-2.28	0.00	0.03	19.79	0.15	-1.29	0.00	-16.83	-3.23	24.93	11.25	0.00	0.00	0.00	7.43	-65.51	
1999-6 21 3:0	-4.24	0.03	16.74	-6.04	0.10	0.00	0.06	21.33	0.16	-1.39	0.00	-19.74	-4.16	23.18	11.25	0.00	0.00	0.00	7.53	-50.44	
1999-6 28 0:0	-33.57	-0.24	24.14	-2.09	1.66	-0.01	0.02	22.62	0.14	-1.26	0.00	-15.54	-5.64	21.64	11.24	0.00	0.00	0.00	9.77	-59.83	
1999-7 5 9:0	-3.85	-0.02	21.68	-0.69	-6.17	0.00	0.12	22.32	0.07	-0.65	0.00	-45.90	-11.64	19.55	11.33	0.00	0.00	0.00	16.64	-21.58	
1999-7 12 12:0	0	-0.38	-0.06	17.66	-5.49	0.00	0.02	16.87	0.17	-1.55	0.00	-44.03	-17.45	18.07	11.38	0.00	0.00	0.00	19.57	-13.78	
1999-7 19 15:0	0	-5.78	-0.01	18.43	0.00	3.70	0.00	13.09	0.16	-1.59	0.00	-20.83	-31.18	17.76	11.38	0.00	0.00	0.00	22.01	-5.32	
1999-7 26 18:0	0	-0.31	0.00	13.56	0.00	-3.69	0.00	10.04	0.15	-1.67	0.00	-32.44	-23.99	17.20	11.38	0.00	0.00	0.00	20.29	-10.06	
1999-8 2 21:0	0	-0.07	0.00	11.43	0.00	-3.08	0.00	6.39	0.13	-1.67	0.00	-28.95	-26.35	16.86	10.31	0.00	0.00	0.00	22.39	-6.91	
1999-8 9 10:0	-12.75	0.00	15.91	0.00	-1.17	0.00	0.00	5.52	0.08	-1.30	0.00	-44.51	-27.61	17.20	7.31	0.00	0.00	0.00	20.38	-8.63	
1999-8 17 3:0	0	-6.72	0.00	14.62	0.00	-1.96	0.00	5.32	0.05	-1.06	0.00	-15.92	-28.08	17.69	7.31	0.00	0.00	0.00	19.15	-9.85	
1999-8 24 6:0	0	-1.16	0.00	9.48	0.00	-2.29	0.00	3.30	0.02	-0.28	0.00	-20.00	-28.69	17.45	7.31	0.00	0.00	0.00	21.62	-6.65	
1999-8 31 9:0	-6.05	0.18	7.96	0.00	-1.79	0.00	0.00	4.80	0.04	-0.97	0.00	-16.30	-29.46	17.06	7.31	0.00	0.00	0.00	22.01	-1.13	
1999-9 7 12:0	0	-2.84	-0.18	5.71	0.00	-1.50	0.00	1.35	0.07	-1.73	0.00	-30.34	-11.93	17.12	4.39	0.00	0.00	0.00	21.89	-5.00	
1999-9 14 15:0	0	0.00	5.32	0.00	-1.21	0.00	0.00	1.52	0.26	-6.31	0.00	-3.60	-30.95	17.30	4.10	0.00	0.00	0.00	19.51	-7.32	
1999-9 21 18:0	0	0.00	8.03	0.00	-0.98	0.00	0.00	2.46	0.11	-2.50	0.00	-1.11	-30.54	18.61	4.10	0.00	0.00	0.00	16.56	-11.09	
1999-9 28 21:0	-4.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-30.54	18.61	4.10	0.00	0.00	0.00	16.29	-11.61	
1999-9 30 0:0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-3.15	

Flow Result File : Spokane_1227b.mff
Title : 1227b Text : 1995-1997

Time Step	Precip	Canyon Stor. Change	Snow	Storage Change	O/L Bas Outflow	O/L Bas Outflow	O/L River	In Import	In Import	In Rain	Sus/Surf/Str./Chnage	Sus/Surf/Bas/Outflow	Sus/Surf/Bas/Outflow	Abstraction	Drain->Reservoir	Drain Inflow	Drain Outflow	Basewflow from river	Error		
1993 10 2 12 0	-2.03	-0.06	7.73	0.00	-0.46	0.00	0.13	2.33	0.08	-0.07	0.00	-6.64	0.63	0.28	0.85	0.00	0.00	2.18	-0.04	0.73	
1993 10 3 15 0	-0.66	0.00	3.03	0.00	-0.22	0.00	0.12	2.37	0.03	-0.03	0.00	-3.91	0.61	0.13	0.80	0.00	0.00	2.18	-0.04	0.33	
1993 10 16 18 0	-34.48	5.43	7.06	0.00	2.54	0.00	0.13	2.54	0.04	-0.04	0.00	16.22	0.61	0.13	1.26	0.00	0.00	2.19	-0.04	0.52	
1993 10 23 21 0	-11.94	-2.07	8.29	0.00	-0.09	0.00	0.12	2.51	0.04	-0.03	0.00	2.37	-3.81	0.61	0.13	2.32	0.00	0.00	2.13	-0.06	0.25
1993 10 31 0	-1.03	-3.14	7.67	0.00	-1.07	0.00	0.13	2.45	0.05	-0.04	0.00	-4.80	0.60	0.13	1.14	0.00	0.00	2.19	-0.04	0.18	
1993 11 7 3 0	-0.79	0.11	1.17	0.08	-0.51	0.00	0.12	2.44	0.00	-0.00	0.00	-2.32	0.60	0.13	0.94	0.00	0.00	2.16	-0.04	0.11	
1993 11 14 6 0	-0.16	0.01	0.25	0.02	-0.33	0.00	0.12	2.45	0.00	-0.00	0.00	-2.03	-3.73	0.59	0.13	0.88	0.00	0.00	2.16	-0.04	0.10
1993 11 21 9 0	-13.36	3.62	0.26	4.64	0.21	0.00	0.13	2.52	0.00	-0.00	0.00	1.97	-3.72	0.59	0.13	0.92	0.00	0.00	2.16	-0.04	0.17
1993 11 28 12 0	-0.57	0.57	0.27	-0.63	0.20	0.00	0.12	2.49	0.00	-0.00	0.00	2.45	-3.75	0.60	0.13	1.13	0.00	0.00	2.16	-0.04	0.06
1993 12 5 15 0	-5.54	0.96	0.09	-1.11	6.88	0.00	0.14	2.79	0.00	-0.00	0.00	29.30	-3.84	0.62	0.23	2.95	0.00	0.00	2.13	-0.06	0.81
1993 12 12 18 0	-38.40	0.00	0.00	5.67	-0.01	0.14	2.88	0.00	0.00	0.00	26.03	-3.94	0.64	0.29	4.83	0.00	0.00	2.09	-0.10	0.18	
1993 12 19 21 0	-2.11	0.00	0.00	1.84	-1.16	0.00	0.14	2.63	0.00	0.00	0.00	-2.30	-3.92	0.64	0.29	2.56	0.00	0.00	2.17	-0.06	0.49
1993 12 27 0	-2.64	0.00	0.00	2.64	-0.94	0.00	0.13	2.54	0.00	0.00	0.00	-1.89	-4.01	0.64	0.29	1.50	0.00	0.00	2.22	-0.04	0.22
1994 1 3 3 0	-26.22	-5.21	0.00	2.68	3.98	-0.01	0.16	2.73	0.00	0.00	0.00	19.99	-3.99	0.64	0.28	1.90	0.00	0.00	2.16	-0.04	1.12
1994 1 10 6 0	-13.60	0.89	0.00	-3.42	1.32	-0.01	0.15	2.84	0.00	0.00	0.00	9.47	-3.94	0.64	0.24	3.85	0.00	0.00	2.13	-0.07	0.25
1994 1 17 9 0	-6.32	0.50	0.00	-1.76	-0.31	-0.01	0.15	2.75	0.00	0.00	0.00	2.66	-4.01	0.64	0.24	3.87	0.00	0.00	2.12	-0.07	0.24
1994 1 24 12 0	-4.83	1.39	0.00	-0.72	-0.28	0.00	0.14	2.59	0.00	0.00	0.00	0.54	-4.06	0.65	0.24	2.41	0.00	0.00	2.22	-0.05	0.01
1994 1 31 15 0	-0.60	0.12	0.00	0.01	-0.86	0.00	0.14	2.57	0.00	0.00	0.00	-1.85	-4.03	0.65	0.24	0.65	0.00	0.00	2.23	-0.04	0.38
1994 2 7 18 0	-0.35	-0.21	0.64	0.12	-0.93	0.00	0.14	2.53	0.00	0.00	0.00	-2.01	-4.00	0.64	0.29	1.44	0.00	0.00	2.24	-0.03	0.26
1994 2 14 21 0	-15.13	0.41	0.71	12.37	-0.69	0.00	0.14	2.54	0.00	0.00	0.00	-0.61	-3.95	0.64	0.29	1.28	0.00	0.00	2.25	-0.03	0.02
1994 2 22 0	-8.44	0.30	0.75	5.17	-0.61	0.00	0.13	2.52	0.00	0.00	0.00	-0.06	-3.91	0.64	0.29	1.30	0.00	0.00	2.24	-0.03	0.06
1994 3 1 3 0	-16.10	1.69	0.87	3.69	0.78	0.00	0.14	2.57	0.00	0.00	0.00	4.71	-3.87	0.63	0.29	1.35	0.00	0.00	2.23	-0.03	1.27
1994 3 8 6 0	-8.16	-1.23	7.33	-17.37	2.85	-0.01	0.16	2.79	0.00	0.00	0.00	10.94	-3.88	0.64	0.34	3.75	0.00	0.00	2.18	-0.06	0.03
1994 3 15 9 0	-3.03	-2.43	7.22	-2.06	-1.00	0.00	0.14	2.61	0.00	0.00	0.00	-3.09	-4.15	0.66	0.34	3.69	0.00	0.00	2.11	-0.08	0.71
1994 3 22 12 0	-17.50	2.31	7.29	-1.28	-0.48	-0.02	0.16	2.68	0.00	0.00	0.00	3.31	-4.26	0.66	0.34	3.85	0.00	0.00	2.14	-0.07	0.14
1994 3 29 15 0	-3.96	-3.38	7.18	-0.44	-1.39	-0.01	0.14	2.55	0.00	0.00	0.00	-4.25	-4.43	0.69	0.34	2.61	0.00	0.00	2.16	-0.06	0.51
1994 4 5 18 0	-14.04	2.14	15.46	0.17	-1.74	0.00	0.14	2.53	0.04	-0.02	0.00	-4.50	-4.42	0.70	0.44	1.63	0.00	0.00	2.25	-0.05	0.43
1994 4 12 21 0	-16.05	-2.11	20.69	-0.16	-1.30	0.00	0.14	2.49	0.07	-0.04	0.00	-3.61	-4.53	0.71	0.50	1.55	0.00	0.00	2.25	-0.05	0.22
1994 4 27 3 0	-9.00	0.35	19.34	-3.01	-3.07	0.13	2.42	0.05	-0.03	0.00	-3.74	-4.59	0.72	0.50	1.76	0.00	0.00	2.24	-0.05	0.42	
1994 5 4 6 0	-3.24	-1.42	18.88	-0.45	-2.48	-0.01	0.12	2.44	0.06	0.00	-6.65	-4.83	0.74	0.50	1.89	0.00	0.00	2.21	-0.07	0.45	
1994 5 11 9 0	-5.56	-0.03	18.66	-0.30	-3.90	0.00	0.12	2.34	0.09	-0.06	0.00	-13.90	-4.84	0.74	0.56	1.21	0.00	0.00	2.24	-0.06	0.63
1994 5 18 12 0	-13.49	-0.09	21.33	-0.27	-1.54	-0.02	0.11	2.28	0.08	-0.06	0.00	-16.58	-4.39	0.70	0.63	1.60	0.00	0.00	2.26	-0.04	0.16
1994 5 25 15 0	-14.65	-0.01	23.25	0.00	-0.48	0.00	0.11	2.32	0.09	-0.07	0.00	-9.00	-4.29	0.69	0.63	1.55	0.00	0.00	2.25	-0.04	0.64
1994 6 1 18 0	-4.38	0.00	16.69	0.00	-0.56	0.00	0.10	2.23	0.11	-0.09	0.00	-13.17	-4.07	0.67	0.66	0.80	0.00	0.00	2.21	-0.04	0.86
1994 6 8 21 0	-22.81	0.92	25.00	0.03	-0.61	0.00	0.11	2.28	0.23	-0.20	0.00	-5.16	-3.86	0.66	0.88	0.74	0.00	0.00	2.17	-0.03	0.69
1994 6 16 0 0	-12.37	-0.47	21.33	0.01	-0.48	0.00	0.11	2.22	0.14	-0.14	0.00	-9.86	-3.86	0.66	0.88	0.71	0.00	0.00	2.17	-0.03	1.00
1994 6 23 15 0	-3.89	-0.45	15.79	-0.01	-0.72	0.00	0.11	2.19	0.20	-0.19	0.00	-12.18	-3.81	0.65	0.88	0.69	0.00	0.00	2.16	-0.03	0.79
1994 6 30 6 0	-7.95	0.00	16.77	0.00	-0.51	0.00	0.10	2.16	0.24	-0.24	0.00	-9.89	-3.75	0.64	0.88	0.66	0.00	0.00	2.13	-0.03	0.79
1994 7 7 9 0	-1.96	0.00	14.51	0.00	-0.72	0.00	0.11	2.13	0.17	-0.17	0.00	-12.79	-3.72	0.64	0.89	0.63	0.00	0.00	2.12	-0.03	1.46
1994 7 14 12 0	0.00	0.00	10.69	0.00	-0.72	0.00	0.10	2.08	0.17	-0.17	0.00	-10.80	-3.60	0.62	0.89	0.61	0.00	0.00	2.10	-0.03	1.58
1994 7 21 15 0	0.00	0.00	8.46	0.00	-0.68	0.00	0.10	2.05	0.03	-0.03	0.00	-8.65	-3.60	0.62	0.89	0.60	0.00	0.00	2.08	-0.03	1.50
1994 7 28 18 0	0.00	0.00	7.20	0.00	-0.64	0.00	0.10	2.07	0.10	-0.10	0.00	-7.32	-3.62	0.63	0.88	0.59	0.00	0.00	2.06	-0.04	1.64
1994 8 4 21 0	-0.43	0.00	6.43	0.00	-0.56	0.00	0.11	2.07	0.16	-0.17	0.00	-6.22	-3.59	0.61	0.74	0.58	0.00	0.00	2.05	-0.04	1.40
1994 8 11 12 0	-0.56	0.00	5.63	0.00	-0.49	0.00	0.10	2.06	0.10	-0.10	0.00	-5.32	-3.62	0.61	0.62	0.57	0.00	0.00	2.04	-0.04	1.33
1994 8 18 19 0	-0.14	0.00	4.80	0.00	-0.47	0.00	0.10	2.07	0.03	-0.03	0.00	-4.99	-3.63	0.61	0.62	0.56	0.00	0.00	2.03	-0.04	1.34
1994 8 26 26 0	0.00	0.00	4.39	0.00	-0.47	0.00	0.10	2.05	0.03	-0.02	0.00	-4.64	-3.65	0.61	0.62	0.56	0.00	0.00	2.02	-0.04	1.25
1994 9 2 9 0	-4.04	1.15	5.70	0.00	-0.23	0.00	0.10	2.05	0.03	-0.03	0.00	-3.38	-3.66	0.61	0.56	0.55	0.00	0.00	2.01	-0.04	1.20
1994 9 9 12 0	-36.91	-0.37	14.71	0.00	1.37	0.00	0.11	2.14	0.22	-0.24	0.00	-34.20	-3.83	0.60	0.32	0.61	0.00	0.00	2.02	-0.06	0.83
1994 9 16 15 0	-5.00	-0.78	14.14	0.00	-1.06	0.00	0.11	2.12	0.17	-0.24	0.00	-8.32	-3.72	0.60	0.32	0.58	0.00	0.00	2.01	-0.04	0.58
1994 9 23 18 0	0.00	0.00	7.11	0.00	-0.56	0.00	0.10	2.12	0.17	-0.18	0.00	-7.14	-3.89	0.62	0.32	0.56	0.00	0.00	2.00	-0.04	0.87
1994 9 30 21 0	0.00	0.00	5.0																		

TABLE D.2

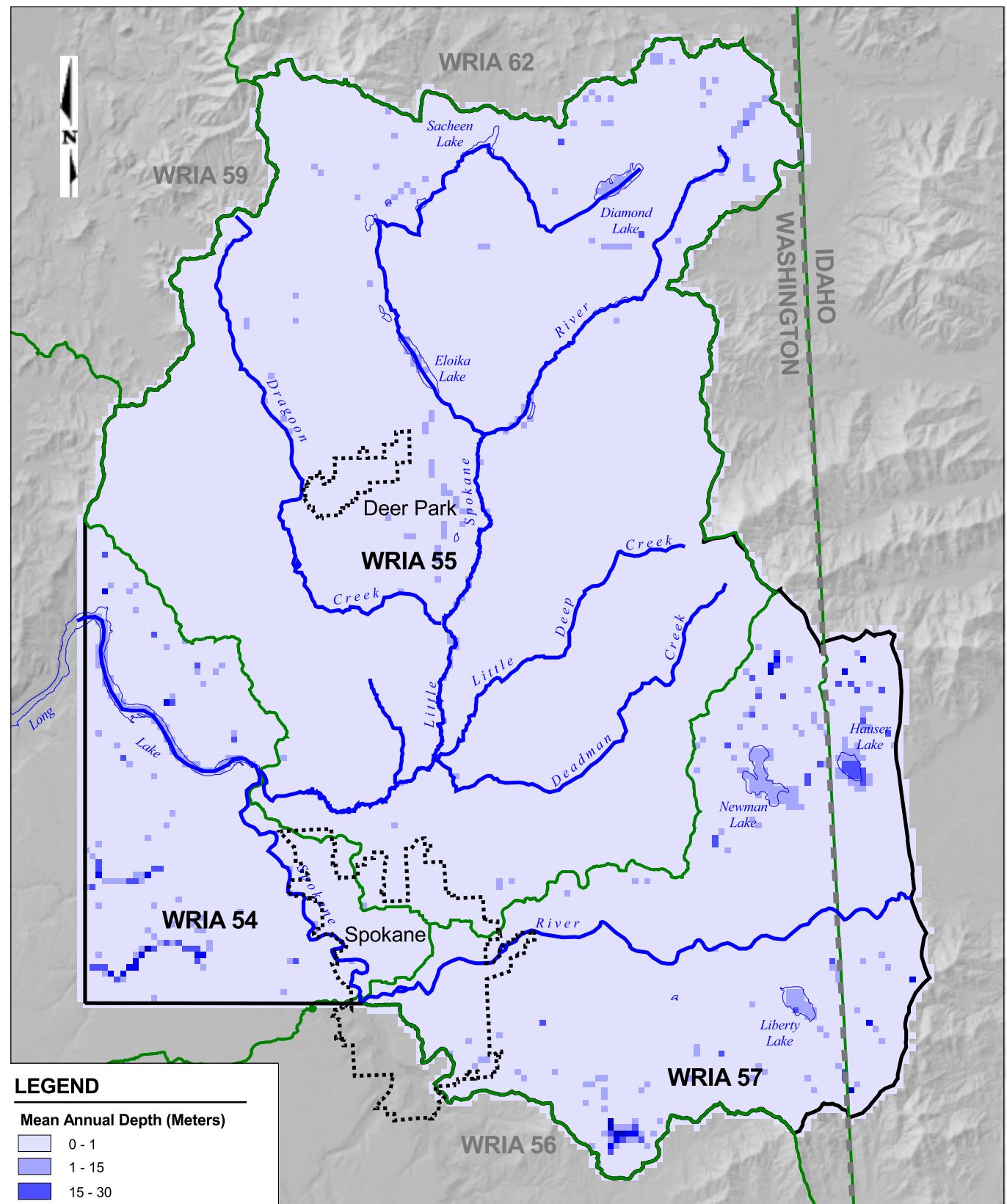
Time Step	Precp	Canyon Stor. Change	Evapotrans	Snow Stor/Change	Oil Stor/Change	Oil Bou/Outflow	Oil-River	Irrigation	Ir. Import	Stn/Rain	Stn/Surf Chg	Stn/Surf Bound/Outflow	SubSurf/Bou/Outflow	Absraction	Drain->River	Drain Inflow	Drain Outflow	Basewflow from river	Error		
1994-12-25 9 0	8.66	0.00	4.62	0.05	-0.02	0.15	2.88	0.00	0.00	5.72	-4.33	0.69	0.29	7.29	0.00	0.00	2.03	-0.16	-1.10		
1995 1 1 12 0	-32.01	0.00	-5.65	-3.63	-0.07	0.23	3.43	0.00	0.00	21.15	-4.44	0.71	0.29	10.16	0.00	0.00	2.06	-0.20	-0.92		
1995 1 8 15 0	-5.43	0.00	0.84	-3.45	-0.01	0.13	2.77	0.00	0.00	2.27	-4.38	0.69	0.24	4.97	0.00	0.00	2.15	-0.09	0.21		
1995 1 15 18 0	-0.15	0.00	-3.30	6.91	-0.09	0.22	3.57	0.00	0.00	22.48	-4.27	0.70	0.24	13.14	0.00	0.00	2.09	-0.22	-1.27		
1995 1 22 21 0	-22.86	0.45	0.00	7.03	-0.30	0.03	3.19	0.00	0.00	4.51	-4.56	0.73	0.24	10.13	0.00	0.00	2.17	-0.19	0.51		
1995 1 30 0 0	-8.02	1.43	0.00	4.51	-0.01	0.19	3.05	0.00	0.00	2.39	-4.53	0.72	0.24	6.51	0.00	0.00	2.24	-0.09	-0.33		
1995 2 6 3 0	-23.96	0.22	0.49	8.12	-0.32	-0.04	3.13	0.00	0.00	3.97	-4.53	0.74	0.28	9.94	0.00	0.00	2.21	-0.15	0.83		
1995 2 13 6 0	-7.41	0.31	0.70	5.91	-1.83	0.00	2.97	0.00	0.00	2.73	-4.89	0.78	0.29	4.78	0.00	0.00	2.31	-0.09	1.06		
1995 2 20 9 0	-50.07	0.38	0.75	34.31	0.64	-0.05	3.33	3.22	0.00	0.00	7.24	-4.72	0.77	0.27	4.20	0.00	0.00	2.39	-0.08	-0.63	
1995 2 27 12 0	-1.05	-0.07	0.75	7.75	-1.21	0.00	0.26	2.96	0.00	0.00	-2.52	-5.11	0.81	0.29	3.86	0.00	0.00	2.42	-0.07	0.82	
1995 3 6 15 0	-8.45	0.25	0.96	34.73	5.95	-0.05	0.30	3.34	0.00	0.00	17.07	-5.29	0.82	0.33	10.09	0.00	0.00	2.27	-0.13	-2.53	
1995 3 13 18 0	-46.57	0.59	7.37	-10.43	9.03	-0.16	0.56	4.05	0.00	0.00	20.52	-4.90	0.79	0.34	16.37	0.00	0.00	2.21	-0.26	-0.68	
1995 3 20 21 0	-30.87	-1.25	0.93	-0.12	0.46	3.58	0.00	0.00	0.00	8.50	-4.76	0.80	0.34	13.93	0.00	0.00	2.35	-0.20	0.85		
1995 3 28 0 0	-3.20	-2.94	7.28	-2.50	-3.81	-0.01	0.34	3.36	0.00	0.00	5.50	-4.82	0.80	0.34	2.43	0.00	0.00	2.31	-0.13	1.39	
1995 4 4 3 0	-2.36	-2.05	12.51	-1.56	-4.44	0.00	0.31	3.06	0.03	-0.02	0.00	-9.68	-4.65	0.77	0.41	6.24	0.00	0.00	2.54	-0.10	0.74
1995 5 11 6 0	0.00	0.06	20.00	-0.26	-4.80	0.00	0.26	3.02	0.06	-0.04	0.00	-8.99	-4.39	0.50	0.38	3.98	0.00	0.00	2.57	-0.08	-0.63
1995 5 18 9 0	-19.42	0.03	20.45	0.44	-2.11	0.00	0.27	2.96	0.00	0.00	0.00	-4.73	-4.25	0.73	0.50	3.34	0.00	0.00	2.56	-0.07	0.38
1995 4 25 12 0	-3.04	-0.20	18.34	-0.99	-5.74	0.00	0.23	2.80	0.05	-0.04	0.00	-12.38	-4.19	0.72	0.50	2.72	0.00	0.00	2.53	-0.06	0.93
1995 5 2 15 0	-14.40	2.51	19.74	-0.99	-3.49	0.00	0.23	2.74	0.07	-0.05	0.00	-7.52	-4.10	0.71	0.53	2.41	0.00	0.00	2.55	-0.06	0.54
1995 5 9 18 0	-4.35	-2.62	25.14	-1.52	-3.67	-0.01	0.20	2.61	0.07	-0.05	0.00	-16.84	-4.09	0.71	0.63	2.54	0.00	0.00	2.49	-0.06	0.84
1995 5 16 21 0	-9.36	-0.05	22.51	-1.46	-1.42	-0.01	0.19	2.59	0.10	-0.08	0.00	-13.27	-4.22	0.72	0.63	2.31	0.00	0.00	2.48	-0.06	0.63
1995 5 24 0 0	0.00	-0.01	17.03	-1.34	-1.19	-0.01	0.16	2.47	0.03	0.00	0.00	-17.43	-4.27	0.72	0.63	1.97	0.00	0.00	2.50	-0.06	0.89
1995 5 31 3 0	-0.13	-0.02	14.35	-1.99	-0.56	-0.01	0.15	2.44	0.10	-0.09	0.00	-15.10	-3.95	0.68	0.63	1.95	0.00	0.00	2.48	-0.04	0.54
1995 6 7 0	-37.10	4.66	23.30	-1.37	2.82	-0.02	0.16	2.54	0.12	-0.10	0.00	-3.70	-3.85	0.68	0.86	1.95	0.00	0.00	2.44	-0.04	0.37
1995 6 14 9 0	-14.57	-4.65	31.24	-1.02	-2.15	-0.01	0.16	2.49	0.06	-0.06	0.00	-12.91	-3.86	0.68	0.89	1.93	0.00	0.00	2.42	-0.04	0.28
1995 6 21 12 0	-28.10	2.40	28.18	-1.07	-0.34	-0.01	0.16	2.50	0.13	-0.11	0.00	-6.00	-3.74	0.67	0.89	1.92	0.00	0.00	2.41	-0.04	0.13
1995 6 28 15 0	-0.39	-2.47	19.39	-1.34	-1.46	-0.01	0.16	2.48	0.12	-0.11	0.00	-16.66	-3.76	0.66	0.89	1.96	0.00	0.00	2.36	-0.04	0.80
1995 7 5 18 0	-14.34	-0.06	23.82	-0.90	-0.96	-0.01	0.16	2.44	0.12	-0.11	0.00	-10.99	-3.63	0.65	0.89	1.94	0.00	0.00	2.37	-0.03	0.74
1995 7 12 21 0	-8.24	-0.03	20.48	0.00	-1.88	0.00	0.15	2.30	0.20	-0.20	0.00	-13.65	-3.64	0.65	0.90	1.53	0.00	0.00	2.35	-0.03	0.98
1995 7 20 0 0	0.00	0.00	12.80	0.00	-1.34	0.00	0.14	2.19	0.09	-0.10	0.00	-13.41	-3.57	0.64	0.90	0.98	0.00	0.00	2.32	-0.03	1.29
1995 7 27 3 0	-3.36	0.00	12.97	0.00	-0.96	0.00	0.14	2.22	0.18	-0.18	0.00	-10.34	-3.47	0.63	0.90	0.85	0.00	0.00	2.28	-0.03	1.43
1995 8 3 6 0	0.00	0.00	8.64	0.00	-0.93	0.00	0.13	2.20	0.17	-0.18	0.00	-9.30	-3.43	0.61	0.81	0.80	0.00	0.00	2.26	-0.03	1.37
1995 8 10 9 0	-5.38	0.00	11.30	0.00	-0.60	0.00	0.13	2.24	0.11	-0.11	0.00	-6.41	-3.48	0.61	0.62	0.76	0.00	0.00	2.23	-0.03	1.17
1995 8 17 12 0	-7.33	0.01	12.15	-0.52	0.00	0.12	2.22	0.03	-0.03	0.00	-5.83	-3.57	0.61	0.62	0.73	0.00	0.00	2.21	-0.03	1.08	
1995 8 24 15 0	-0.92	-0.01	6.70	0.00	-0.66	0.00	0.12	2.22	0.03	-0.03	0.00	-6.46	-3.58	0.61	0.62	0.70	0.00	0.00	2.19	-0.03	1.29
1995 8 31 18 0	-2.18	0.00	7.23	0.00	-0.55	0.00	0.12	2.17	0.02	-0.02	0.00	-5.85	-3.55	0.61	0.62	0.67	0.00	0.00	2.17	-0.03	1.22
1995 9 7 21 0	-34.33	5.05	10.49	0.00	2.21	0.00	0.12	2.36	0.23	-0.24	0.00	-14.66	-3.50	0.59	0.61	0.67	0.00	0.00	2.16	-0.03	1.43
1995 9 15 0	-8.90	-4.88	19.38	0.00	-1.57	0.00	0.12	2.36	0.23	-0.24	0.00	-6.01	-3.62	0.60	0.62	0.83	0.00	0.00	2.16	-0.03	1.30
1995 9 22 3 0	-0.30	-0.16	10.70	0.00	-0.88	0.00	0.12	2.25	0.22	-0.22	0.00	-10.48	-3.72	0.61	0.62	0.67	0.00	0.00	2.15	-0.03	0.82
1995 9 29 6 0	-27.16	4.88	15.33	0.00	1.06	0.00	0.12	2.35	0.16	-0.17	0.00	-3.96	-3.76	0.61	0.62	0.69	0.00	0.00	2.14	-0.03	1.44
1995 10 6 9 0	-36.61	0.02	11.96	0.22	2.38	0.00	0.12	2.52	0.07	0.07	0.00	-18.53	-3.73	0.60	0.62	1.64	0.00	0.00	2.15	-0.03	1.46
1995 10 13 12 0	-41.61	0.21	8.38	-0.15	5.45	-0.01	0.13	2.66	0.04	-0.03	0.00	-22.89	-3.80	0.61	0.62	2.74	0.00	0.00	2.11	-0.03	1.29
1995 11 2 9 0	-37.40	8.44	-0.02	0.16	2.60	0.04	-0.03	2.60	0.04	-0.04	0.00	-6.00	-3.67	0.62	0.62	0.77	0.00	0.00	2.06	-0.02	1.43
1995 12 7 18 0	-22.22	-0.63	8.40	0.55	1.01	0.00	0.13	2.49	0.03	-0.02	0.00	-3.93	-3.67	0.63	0.62	0.73	0.00	0.00	2.09	-0.02	1.42
1995 12 15 15 0	0.00	-2.84	5.05	-0.07	-1.20	0.00	0.13	2.47	0.03	0.00	0.00	-8.91	-4.03	0.63	0.62	0.73	0.00	0.00	2.07	-0.02	1.41
1995 12 22 1 0	-20.01	3.70	-1.50	0.00	-1.50	0.00	0.14	2.64	0.00	0.00	0.00	-7.87	-4.16	0.65	0.62	0.78	0.00	0.00	2.15	-0.02	1.42
1995 12 29 1 0	-15.45	0.01	2.19	1.57	0.00	0.00	0.14	2.64	0.00	0.00	0.00	-1.96	-5.57	0.64	0.62	0.77	0.00	0.00	2.15	-0.02	1.42
1995 12 30 1 0	-5.53	0.00	5.53	0.00	0.27	1.34	0.04	0.14	2.54	0.00	0.00	-2.47	-4.87	0.77	0.77	0.83	0.00	0.00	2.15	-0.02	1.42
1996 1 7 0 0	-9.73	-4.37	0.00	4.50	0.62	-0.01	0.21	2.84	0.00	0.00	0.00	-3.49	-4.41	0.72	0.75	0.83	0.00	0.00	2.14	-0.02	1.42
1996 1 14 3 0	-8.60	0.58	0.00	-9.70	1.61	-0.03	0.23	2.93	0.00	0.00	0.00	-8.11	-4.20	0.71	0.74	0.85	0.00	0.00	2.19	-0.02	1.42
1996 1 21 6 0	-25.14	0.25	0.00	14.74	0.00	-0.02	0.26	2.97	0.00	0.00	0.00	-1.91	-4.26	0.71	0.74	0.83	0.00	0.00	2.23		

Time Step	Precp	Canyon Stor. Change	Snow Stor/Change	OIL Stor/Change	OIL Bou/Outflow	OIL Stor/River	Irrigation	Irr./Import	Stn/Surf Chan age	Stn/Surf Bound/Outflow	SubSurf/Bou/Outflow	Absraction	Drain->River	Drain Inflow	Drain Outflow	Basewflow from river	Error		
1996 4 1 12 0	-11.03	0.17	8.18	-7.17	-0.03	0.36	3.30	0.00	0.00	-1.72	-4.00	0.70	0.35	10.64	0.00	2.36	-0.153398 0.967936		
1996 4 8 15 0	-2.25	-3.37	-5.57	-0.01	0.29	3.10	0.06	-0.04	0.00	-13.41	-3.98	0.71	0.50	6.73	0.00	2.46	-9.75E-02 0.5959209		
1996 4 15 18 0	-11.13	19.34	-4.19	0.00	0.25	2.98	0.05	-0.03	0.00	-9.03	-4.17	0.72	0.50	4.58	0.00	2.47	-9.72E-02 0.9296337		
1996 4 22 21 0	-26.80	4.24	-0.08	-1.74	-0.01	0.24	3.02	0.06	-0.04	0.00	-1.03	0.43	0.75	0.50	3.38	0.00	2.48	-8.84E-02 0.250145	
1996 4 30 0 0	-23.24	4.19	21.00	-0.04	-0.32	-0.01	0.23	2.94	0.05	-0.04	0.00	0.32	-4.71	0.77	0.50	4.90	0.00	2.39	-0.103967 0.148281
1996 5 7 3 0	-6.19	-0.38	27.17	-0.38	-5.84	0.00	0.22	2.79	0.15	-0.11	0.00	-17.26	-4.93	0.71	0.61	2.62	0.00	2.47	-9.02E-02 1.228878
1996 5 14 6 0	-21.83	3.93	26.36	-2.40	0.00	0.20	2.67	0.12	-0.09	0.00	-8.49	-4.53	0.76	0.63	1.95	0.00	2.56	-7.30E-02 0.481886	
1996 5 21 9 0	-35.51	2.82	32.37	-0.82	0.36	-0.01	0.22	2.83	0.07	-0.06	0.00	1.37	-4.36	0.74	0.63	2.67	0.00	2.46	-7.73E-02 0.227833
1996 5 28 12 0	-11.82	-1.09	28.04	-1.04	-2.58	-0.01	0.19	2.65	0.09	-0.07	0.00	-14.98	-4.57	0.76	0.63	2.37	0.00	2.46	-8.12E-02 0.591975
1996 6 4 15 0	-0.71	0.00	22.22	-1.27	-2.30	-0.01	0.17	2.48	0.13	-0.10	0.00	-20.72	-5.51	0.76	1.90	0.00	0.00	2.51	-7.42E-02 0.854387
1996 6 11 18 0	0.00	-0.13	18.44	-0.61	-1.48	-0.01	0.16	2.40	0.11	-0.09	0.00	-19.03	-4.28	0.74	0.89	1.73	0.00	2.52	-6.00E-02 0.931207
1996 6 18 21 0	-0.03	0.00	15.59	0.00	-0.97	0.00	0.15	2.38	0.27	-0.24	0.00	-17.16	-3.83	0.70	0.89	1.03	0.00	2.52	-4.22E-02 0.73892
1996 6 26 0	-56.33	3.38	28.78	0.00	5.63	0.00	0.20	2.63	0.15	-0.14	0.00	14.68	-3.67	0.68	0.89	0.97	0.00	2.47	-4.09E-02 0.481886
1996 7 3 3 0	-19.06	-3.38	34.75	0.00	2.63	0.00	0.20	2.52	0.19	-0.18	0.00	-13.26	-3.57	0.66	0.89	1.23	0.00	2.46	-4.05E-02 0.351514
1996 7 10 6 0	-1.36	0.00	25.91	0.00	-3.15	0.00	0.16	2.27	0.18	-0.18	0.00	-23.80	-3.43	0.64	0.90	0.92	0.00	2.41	-3.30E-02 1.045588
1996 7 17 9 0	-2.62	0.01	18.35	0.00	-1.19	0.00	0.16	2.29	0.16	-0.17	0.00	-16.73	-3.39	0.62	0.90	0.82	0.00	2.36	-3.10E-02 1.666217
1996 7 24 12 0	-2.62	-0.01	15.06	0.00	-1.04	0.00	0.15	2.27	0.18	-0.18	0.00	-13.38	-3.32	0.61	0.90	0.77	0.00	2.34	-2.90E-02 1.332531
1996 7 31 15 0	-4.07	0.00	13.72	0.00	-0.90	0.00	0.15	2.25	0.16	-0.17	0.00	-10.74	-3.26	0.61	0.90	0.74	0.00	2.31	-2.95E-02 1.302152
1996 8 7 18 0	-13.28	0.00	17.76	0.00	-0.39	0.00	0.15	2.33	0.11	-0.11	0.00	-6.25	-3.33	0.60	0.64	0.72	0.00	2.29	-3.02E-02 0.880784
1996 8 14 21 0	-0.98	0.00	8.24	0.00	-0.74	0.00	0.15	2.26	0.03	-0.03	0.00	-8.20	-3.35	0.60	0.62	0.70	0.00	2.26	-2.92E-02 1.291789
1996 8 22 0 0	-3.04	0.00	8.89	0.00	-0.60	0.00	0.14	2.24	0.02	-0.02	0.00	-6.93	-3.40	0.60	0.62	0.69	0.00	2.24	-2.98E-02 1.199686
1996 8 29 3 0	-0.81	0.00	6.79	0.00	-0.68	0.00	0.13	2.24	0.12	-0.11	0.00	-6.76	-3.37	0.60	0.67	0.67	0.00	2.22	-2.98E-02 1.312562
1996 9 5 6 0	-4.63	0.35	7.73	0.00	-0.37	0.00	0.13	2.27	0.13	-0.13	0.00	-4.73	-3.37	0.59	0.44	0.65	0.00	2.20	-3.07E-02 0.931272
1996 9 12 9 0	-1.71	-0.34	5.88	0.00	-0.37	0.00	0.13	2.31	0.21	-0.22	0.00	-4.98	-3.44	0.58	0.32	0.64	0.00	2.19	-3.22E-02 0.766018
1996 9 19 12 0	-34.73	3.83	19.82	0.00	-1.00	0.00	0.13	2.41	0.16	-0.17	0.00	-7.82	-3.61	0.60	0.32	0.64	0.00	2.18	-3.65E-02 0.049619
1996 9 26 15 0	-8.16	-3.83	15.90	0.00	-0.68	0.00	0.13	2.36	0.23	-0.23	0.00	-4.99	-3.68	0.61	0.32	0.73	0.00	2.16	-3.52E-02 0.590444
1996 10 3 18 0	-0.03	6.78	0.00	-0.42	0.00	0.12	2.31	0.12	-0.13	0.00	-6.12	-3.69	0.60	0.25	0.65	0.00	2.16	-3.67E-02 0.998035	
1996 10 10 21 0	-3.78	0.05	4.64	0.00	-0.09	0.00	0.13	2.37	0.04	-0.04	0.00	-2.72	-3.63	0.59	0.13	0.65	0.00	2.17	-4.13E-02 0.781642
1996 10 18 0 0	-55.36	5.41	8.17	1.92	6.80	0.00	0.14	2.64	0.03	-0.03	0.00	-29.53	-3.64	0.59	0.13	0.99	0.00	2.20	-5.67E-02 0.592783
1996 10 25 3 0	-77.97	-0.01	8.48	0.00	8.83	0.00	0.18	2.87	0.05	-0.04	0.00	-37.96	-3.63	0.60	0.13	0.94	0.00	2.20	-5.67E-02 0.592783
1996 11 1 16 0	-33.90	-0.42	8.17	-4.65	2.67	-0.01	0.20	2.33	0.03	-0.03	0.00	-21.78	-3.67	0.61	0.35	0.73	0.00	2.12	-3.98E-02 0.742016
1996 11 8 9 0	-10.79	0.44	0.31	0.00	0.27	1.93	0.44	0.00	0.19	0.00	0.00	7.27	-3.74	0.61	0.35	0.69	0.00	2.16	-7.32E-02 0.175018
1996 11 15 12 0	-13.39	0.00	0.27	1.93	-0.51	-0.03	1.25	0.21	0.15	0.00	0.00	6.27	-3.75	0.61	0.13	2.19	0.00	2.20	-6.10E-02 0.381878
1996 11 22 18 0	-43.45	0.00	0.27	1.93	-0.51	-0.03	1.35	0.21	0.15	0.00	0.00	21.92	-3.75	0.62	0.13	2.19	0.00	2.18	-7.82E-02 0.686454
1996 11 29 18 0	-41.05	0.00	0.27	9.46	-1.46	-0.01	1.81	0.06	0.20	0.00	0.00	20.75	-3.78	0.62	0.13	2.05	0.00	2.19	-1.08715 0.6466537
1996 12 6 21 0	-34.00	0.00	0.05	27.35	-0.97	-0.01	1.81	0.06	0.20	0.00	0.00	1.38	-3.93	0.65	0.26	4.90	0.00	2.24	-1.783523 0.190537
1996 12 14 0	-55.22	0.00	0.05	5.10	5.30	-0.10	0.32	3.88	0.00	0.00	0.00	26.89	-4.13	0.69	0.29	11.05	0.00	2.22	-1.75E-02 0.722299
1996 12 21 3 0	-10.85	0.00	0.00	10.85	-2.38	0.00	0.18	2.84	0.00	0.00	0.00	-4.00	-4.26	0.70	0.29	5.95	0.00	2.29	-9.51E-02 1.222299
1996 12 28 6 0	-32.32	0.00	0.00	32.32	-1.52	0.00	0.18	2.89	0.00	0.00	0.00	-3.05	-4.19	0.68	0.29	3.50	0.00	2.34	-5.59E-02 0.825657
1997 1 11 18 0	-41.05	0.00	0.00	14.70	-10.57	-0.14	4.03	0.37	0.37	0.00	0.00	32.58	-4.15	0.70	0.27	13.30	0.00	2.24	-0.179333 0.333404
1997 1 18 12 0	-8.15	0.00	0.00	4.66	-1.43	-0.04	1.41	0.25	0.25	0.00	0.00	2.26	-4.89	0.79	0.24	11.18	0.00	2.33	-0.19201 1.567534
1997 1 25 15 0	-15.24	0.57	0.00	13.74	-2.24	0.00	0.21	3.09	0.00	0.00	0.00	-4.36	-4.80	0.77	0.24	6.43	0.00	2.45	-9.49E-02 0.495132
1997 1 32 21 0	-11.51	0.72	0.00	8.05	-1.12	-0.01	2.31	0.24	0.24	0.00	0.00	-2.01	-4.46	0.74	0.24	4.70	0.00	2.49	-7.52E-02 0.723148
1997 1 39 2 0	-14.68	1.52	0.08	-1.43	1.53	-0.04	0.23	3.09	0.00	0.00	0.00	4.87	-4.26	0.71	0.25	5.01	0.00	2.48	-6.83E-02 0.964875
1997 1 26 3 0	-6.80	0.00	0.08	6.09	-1.69	0.00	0.20	2.96	0.00	0.00	0.00	-3.67	-4.28	0.72	0.29	3.22	0.00	2.47	-7.12E-02 1.012456
1997 1 23 24 0	-21.24	0.27	0.07	0.72	-14.70	-0.97	0.04	3.03	0.00	0.00	0.00	-7.9	-4.19	0.71	0.29	2.51	0.00	2.57	-6.72E-02 0.948349
1997 1 23 26 0	-23.29	0.08	0.75	14.50	-5.53	-0.05	0.26	3.10	0.00	0.00	0.00	-3.15	-4.21	0.72	0.29	4.07	0.00	2.54	-0.110278 0.984252
1997 1 29 21 0	-4.91	-1.24	7.27	-14.01	-2.24	-0.02	0.63	4.13	0.00	0.00	0.00	-0.74	-4.83	0.79	0.34	13.93	0.00	2.57	-0.118866 0.973744
1997 1 36 7 0	-1.08	-1.52	17.69	-4.64	-8.18	0.00	0.48	3.71	0.05	-0.04	0.00	-13.01	-4.88	0.80	0.47	8.78	0.00	2.69	-0.118866 0.973223
1997 1 43 14 0	-4.16	-0.23	18.91	-4.09	-5.97	0.00	0.40	3.24	0.06	-0.04	0.00	-3.23	-4.54	0.75	0.50	6.34	0.00	2.76	-8.83E-02 0.579091
1997 1 42 6 0	-30.89	3.25	19.35	-5.44	-1.17	-0.03	0.41	3.22	0.06	-0.04	0.00	-1.40	-4.50	0.79	0.50	7.99	0.00	2.69	-8.78E-02 0.582337
1997 1 42 9 0	-33.71	-1.53	21.11	-4.48	0.27	-0.03	0.39	3.07	0.07	-0.05	0.00	-1.72	-4.54	0.85	0.58	6.02	0.00	2.53	-0.12126 0.747

Time Step	Precp	Canyon Stor. Change	Snow Stor/Change	O/L Bou/Outflow	O/L Bou/Inflow	O/L River	Irrigation	O/L Stor/River	Stor/Chnge	SubSurf/Bou/Outflow	SubSurf/Bou/Outflow	Abstraction	Drain->River	Drain Inflow	Drain Outflow	Basflow from river	Error	
1997 7 8 15 0	-15.27	2.16	24.61	-2.09	-0.01	0.18	2.55	0.12	-0.17	0.00	-13.45	-3.52	0.90	2.13	0.00	2.63	-4.64E-02	
1997 7 15 18 0	-17.10	-2.39	28.89	0.00	-1.40	0.00	2.54	0.18	-0.18	0.00	-12.08	-3.53	0.90	1.81	0.00	2.61	-4.29E-02	
1997 7 22 21 0	-7.20	0.00	19.53	0.00	-1.41	0.00	2.45	0.18	-0.18	0.00	-14.07	-3.39	0.90	1.18	0.00	2.61	-3.27E-02	
1997 7 30 0	-1.18	0.00	13.20	0.00	-1.42	0.00	2.37	0.16	-0.17	0.00	-13.37	-3.28	0.64	0.90	1.07	0.00	2.55	
1997 8 6 3 0	-0.74	0.00	9.89	0.00	-1.07	0.00	2.39	0.15	-0.23	0.00	-10.47	-3.25	0.61	0.70	0.99	0.00	2.50	
1997 8 13 6 0	-0.44	0.00	7.89	0.00	-0.96	0.00	2.39	0.15	-0.15	0.00	-8.87	-3.25	0.60	0.62	0.93	0.00	2.45	
1997 8 20 9 0	-1.03	0.00	7.67	0.00	-0.86	0.00	2.38	0.11	-0.11	0.00	-8.04	-3.24	0.59	0.62	0.88	0.00	2.43	
1997 8 27 12 0	-12.35	0.00	15.88	0.00	-0.38	0.00	2.38	0.11	-0.10	0.00	-5.64	-3.29	0.60	0.62	0.84	0.00	2.40	
1997 9 15 0	-8.09	1.40	9.68	0.00	-0.50	0.00	2.40	0.16	-0.16	0.00	-4.72	-3.24	0.59	0.51	0.84	0.00	2.37	
1997 9 18 18 0	-1.40	8.79	0.00	-0.56	0.00	2.45	0.12	-0.21	0.00	-6.01	-3.29	0.58	0.32	0.79	0.00	2.35		
1997 9 17 21 0	-52.23	5.50	17.60	0.00	-4.43	0.00	2.61	0.16	-0.17	0.00	-21.39	-3.36	0.59	0.32	0.86	0.00	2.33	
1997 9 25 0	-0.28	-0.50	21.43	0.00	-2.04	0.00	2.56	0.25	-0.23	0.00	-6.57	-3.49	0.60	0.32	1.35	0.00	2.33	
1997 10 2 0	-3.33	0.61	14.16	0.00	-1.75	0.00	2.43	0.19	-0.19	0.00	-10.70	-3.58	0.60	0.29	0.88	0.00	2.32	
1997 10 9 6 0	-30.81	4.75	8.29	0.12	-1.89	0.00	2.64	0.15	-0.04	0.00	-12.21	-3.54	0.59	0.13	1.20	0.00	2.31	
1997 10 16 9 0	-13.71	-1.62	8.37	-0.12	0.37	0.00	2.64	0.04	-0.03	0.00	-3.33	-3.60	0.59	0.13	1.59	0.00	2.29	
1997 10 23 12 0	-2.21	-3.37	7.99	0.08	-0.98	0.00	2.53	0.15	-0.04	0.00	-4.18	-3.69	0.60	0.13	1.13	0.00	2.29	
1997 10 30 15 0	-50.55	5.15	8.13	-0.08	6.76	-0.01	2.76	0.05	-0.04	0.00	-25.92	-3.69	0.60	0.13	1.76	0.00	2.27	
1997 11 1 6 0	-0.71	-0.07	1.85	0.56	-0.76	-0.01	2.74	0.00	0.00	0.00	-3.89	-3.68	0.61	0.13	3.67	0.00	2.18	
1997 11 13 21 0	-4.75	-0.08	0.27	0.42	-0.40	0.00	2.67	0.15	-0.15	0.00	-1.07	-3.71	0.60	0.13	2.13	0.00	2.27	
1997 11 21 0	-35.69	0.10	0.27	5.20	4.34	0.00	0.17	2.87	0.00	0.00	20.79	-3.72	0.61	0.13	2.14	0.00	2.29	
1997 11 28 3 0	-18.78	0.00	0.27	1.86	1.81	0.00	0.16	2.89	0.00	0.00	9.97	-3.77	0.62	0.13	3.27	0.00	2.22	
1997 12 5 6 0	-1.00	0.01	-0.33	-0.73	0.00	0.16	2.67	0.00	0.00	0.00	-1.58	-3.92	0.63	0.23	1.93	0.00	2.33	
1997 12 12 9 0	-9.45	0.00	0.00	9.45	-0.91	0.00	0.16	2.62	0.00	0.00	-1.88	-4.13	0.67	0.24	1.40	0.00	2.32	
1997 12 19 12 0	-35.89	0.02	0.00	-4.91	5.69	-0.02	0.21	3.16	0.00	0.00	27.24	-4.08	0.66	0.29	4.25	0.00	2.25	
1997 12 26 15 0	-41.44	0.00	0.00	41.44	-1.28	0.00	0.17	2.79	0.00	0.00	23.27	-4.00	0.66	0.29	3.01	0.00	2.27	
1998 1 2 18 0	-38.95	-4.70	0.00	7.12	3.88	-0.06	0.25	3.34	0.00	0.00	7.12	-3.88	0.65	0.28	5.44	0.00	2.23	
1998 1 9 21 0	-35.98	0.25	0.00	27.31	-0.15	-0.02	0.18	2.95	0.00	0.00	2.24	-3.77	0.64	0.24	4.49	0.00	2.26	
1998 1 17 0	-19.77	1.11	0.00	14.61	-0.54	-0.01	0.16	2.86	0.00	0.00	-0.34	-3.73	0.63	0.24	2.82	0.00	2.30	
1998 1 24 3 0	-27.51	0.86	0.00	-11.74	5.07	-0.09	0.27	3.51	0.00	0.00	22.22	-3.71	0.64	0.24	5.91	0.00	2.29	
1998 1 31 6 0	-19.92	0.85	0.00	-28.35	6.15	-0.09	0.37	3.88	0.00	0.00	22.71	-3.84	0.67	0.24	15.57	0.00	2.24	
1998 2 7 9 0	-4.64	0.23	0.61	1.46	-3.50	0.00	0.23	3.23	0.00	0.00	-3.60	-4.12	0.69	0.29	8.25	0.00	2.37	
1998 2 14 12 0	-29.42	0.15	0.71	23.13	-1.45	-0.02	0.24	3.17	0.00	0.00	-6.65	-4.20	0.70	0.29	5.59	0.00	2.44	
1998 2 21 15 0	-14.26	0.05	0.75	9.66	-1.20	-0.01	0.24	3.19	0.00	0.00	-1.10	-4.22	0.71	0.29	4.10	0.00	2.50	
1998 2 28 18 0	-10.28	1.17	0.75	0.70	-0.61	0.22	0.35	2.85	0.00	0.00	1.73	-4.21	0.76	0.30	3.58	0.00	2.33	
1998 3 7 21 0	-22.28	0.01	7.14	-37.98	10.29	-0.10	0.43	3.84	0.00	0.00	24.58	-4.10	0.69	0.34	13.40	0.00	2.33	
1998 3 15 0 0	-25.40	-1.20	7.32	-17.96	3.63	-0.08	0.77	4.33	0.00	0.00	12.51	-3.99	0.69	0.34	18.32	0.00	2.33	
1998 3 22 3 0	-9.72	-0.23	7.32	-3.25	0.01	-0.02	0.75	3.76	0.00	0.00	0.88	-4.02	0.70	0.34	12.48	0.00	2.45	
1998 3 29 6 0	-20.94	1.09	7.37	-6.04	1.00	-0.04	0.82	3.77	0.00	0.00	2.93	-4.29	0.73	0.34	10.95	0.00	2.51	
1998 4 5 9 0	-3.01	-4.13	14.92	-4.17	-4.60	-0.01	0.55	3.51	0.04	-0.02	0.00	-9.17	-4.65	0.44	0.45	8.45	0.00	2.52
1998 4 12 12 0	-6.55	-0.33	19.87	-1.88	-5.68	0.00	0.42	3.17	0.07	-0.05	0.00	-12.30	-4.61	0.76	0.50	5.37	0.00	2.59
1998 4 19 15 0	0.00	-0.07	17.53	-2.32	-6.31	0.00	0.36	3.06	0.05	-0.03	0.00	-13.98	-4.54	0.76	0.50	3.58	0.00	2.61
1998 4 26 18 0	-12.06	-0.04	18.11	-3.43	-2.89	-0.01	0.35	2.91	0.06	-0.05	0.00	-6.24	-4.40	0.74	0.50	4.80	0.00	2.55
1998 5 2 15 0	-4.31	-0.31	18.17	-4.31	-3.92	-0.02	0.31	2.86	0.06	-0.04	0.00	-15.47	-4.07	0.75	0.53	4.38	0.00	2.52
1998 5 9 11 0	-0.51	-0.10	18.68	-2.14	-2.59	0.00	0.27	2.79	0.10	-0.05	0.00	-17.60	-4.65	0.63	0.52	3.52	0.00	2.52
1998 5 18 3 0	-28.12	3.76	24.80	-0.93	-0.34	-0.01	0.26	2.79	0.07	-0.06	0.00	-3.53	-4.52	0.63	0.52	3.54	0.00	2.55
1998 5 25 6 0	-31.65	-0.08	30.75	-1.00	0.11	0.26	2.84	0.19	0.07	-0.06	0.00	-2.88	-4.24	0.72	0.63	3.55	0.00	2.56
1998 6 1 9 0	-44.77	-3.76	32.72	-0.28	2.35	0.00	0.31	2.96	0.07	-0.06	0.00	-7.86	-4.52	0.74	0.64	3.56	0.00	2.46
1998 6 8 12 0	-6.01	-0.05	29.87	-0.15	-4.51	0.00	0.25	2.60	0.22	-0.17	0.00	-22.31	-4.62	0.77	0.89	2.18	0.00	2.51
1998 6 15 15 0	-13.55	2.02	24.45	0.00	-1.04	0.00	0.24	2.53	0.17	-0.15	0.00	-15.22	-4.07	0.71	0.71	1.49	0.00	2.50
1998 6 22 18 0	-24.91	-0.93	28.43	0.00	0.18	0.00	0.26	2.61	0.20	-0.17	0.00	-6.41	-3.90	0.69	0.89	1.25	0.00	2.49
1998 6 29 21 0	-3.14	-1.09	20.36	0.00	-1.69	0.00	0.23	2.45	0.19	-0.18	0.00	-17.43	-3.76	0.67	1.14	1.44	0.00	2.53
1998 7 7 0 0	-15.61	0.00	26.31	0.00	-0.69	0.00	0.23	2.45	0.28	-0.22	0.00	-12.95	-3.65	0.65	0.89	1.06	0.00	2.50
1998 7 14 3 0	-12.35	0.00	24.09	0.00	-0.90	0.00	0.21	2.38	0.12	-0.12	0.00	-13.71	-3.58	0.64	0.90	0.99	0.00	2.46
1998 7 21 6 0	0.00	14.16	0.00	-1.30	0.00	0.19	2.29	0.18	-0.17	0.00	-15.05	-3.50	0.63	0.90	0.89	0.00	2.42	
1998 7 28 9 0	-0.47	0.00	11.42	0.00	-1.15	0.00	0.17	2.28	0.16	-0.15	0.00	-11.71	-3.48	0.63	0.84	0.90	0.00	2.40
1998 8 4 12 0	-5.71	0.00	13.31	0.00	-0.81	0.00	0.17	2.31	0.18	-0.18	0.00	-8.05	-3.54	0.62	0.76	0.81	0.00	2.37
1998 8 11 15 0	0.00	0.00	7.27	0.00	-0.83	0.00	0.16	2.26	0.11	-0.10	0.00	-7.27	-3.51	0.61	0.62	0.78	0.00	2.34
1998 8 18 18 0	0.00	-0.89	7.34	0.00	-0.79	0.00	0.16	2.28	0.16	-0.11	0.00	-7.27	-3.51	0.61	0.62	0.78	0.00	2.32
1998 8 25 21 0	-3.08	0.00	8.53	0.00	-0.68	0.00	0.15	2.26	0.03	-0.02	0.00	-6.50	-3.48	0.61	0.62	0.73	0.00	2.30
1998 9 2 0 0	0.00	5.46	0.00	-0.72	0.00	0.14	2.25	0.14</td										

Time Step	Precip	Canyon Stor. Change	Evapotrans	Snow Stor/Change	Oil Stor/Outflow	Oil Bou/Inflow	Oil Bou/Outflow	Irrigation	Irr. Import	Irr/Rain	Sus/Surf Chan age	Sus/Surf Bound/Out low	Sus/Surf Bound/Out low	Abstraction	Drain->River	Drain Inflow	Drain Outflow	Basewflow from river	Error		
1998 10/14 18 0	-12.29	3.23	5.76	0.08	0.25	0.00	0.16	2.44	0.04	0.00	0.86	-3.78	0.60	0.13	0.63	0.00	0.00	-0.04	0.05		
1998 10/21 0	-1.62	-2.96	6.22	-0.08	0.00	0.15	2.43	-0.03	-0.03	0.00	-3.19	-3.77	0.60	0.13	0.68	0.00	0.00	-2.22	-0.04		
1998 10/29 0	-4.58	0.69	4.18	0.20	-0.09	0.00	0.15	2.40	0.04	0.00	-2.34	-3.77	0.60	0.13	0.68	0.00	0.00	-2.22	-0.04		
1998 11 5 0	-14.11	3.79	3.52	1.18	0.52	0.00	0.15	2.47	0.01	0.00	2.75	-3.75	0.60	0.13	0.74	0.00	0.00	-2.22	-0.04		
1998 11 12 6 0	-5.39	0.41	0.27	0.70	0.11	0.00	0.15	2.46	0.00	0.00	2.21	-3.72	0.60	0.13	0.74	0.00	0.00	-2.21	-0.04		
1998 11 19 9 0	-21.85	0.02	0.27	2.89	2.76	0.00	0.16	2.59	0.00	0.00	13.02	-3.73	0.60	0.13	0.83	0.00	0.00	-2.20	-0.04		
1998 11 26 12 0	-56.66	-0.01	0.27	6.23	8.02	0.00	0.17	2.90	0.00	0.00	36.80	-3.86	0.62	0.13	1.92	0.00	0.00	-2.21	-0.06		
1998 12 3 15 0	-60.61	0.22	0.17	6.60	7.73	-0.03	0.28	3.59	0.00	0.00	39.23	-4.01	0.64	0.19	3.09	0.00	0.00	-2.20	-0.09		
1998 12 10 18 0	-15.82	0.00	0.00	15.29	-1.43	0.00	0.19	2.69	0.00	0.00	-1.48	-4.34	0.69	0.29	2.66	0.00	0.00	-2.21	-0.09		
1998 12 17 21 0	-25.27	0.00	0.00	7.99	3.33	-0.04	0.22	3.29	0.00	0.00	23.38	-4.40	0.69	0.29	3.67	0.00	0.00	-2.19	-0.09		
1998 12 25 0	-25.46	0.00	0.00	25.46	-1.44	0.00	0.22	2.78	0.00	0.00	1.94	-4.38	0.69	0.28	2.56	0.00	0.00	-2.25	-0.07		
1999 1 12 0	0.00	0.00	26.62	5.95	-0.07	0.36	3.73	0.00	0.00	32.41	-4.24	0.68	0.29	6.55	0.00	0.00	2.19	-0.13			
1999 1 3 0	-76.12	0.00	0.00	23.37	-2.44	0.00	0.24	2.73	0.00	0.00	-2.80	-4.41	0.70	0.24	5.18	0.00	0.00	-2.22	-0.13		
1999 1 8 0	-2.37	0.00	0.00	5.39	-2.91	-0.04	0.29	3.20	0.00	0.00	15.56	-4.36	0.70	0.24	5.55	0.00	0.00	-2.20	-0.10		
1999 1 15 0	-18.05	-3.66	0.00	5.86	4.85	3.65	-0.07	3.50	0.00	0.00	17.17	-4.48	0.73	0.24	5.23	0.00	0.00	-2.25	-0.18		
1999 1 22 0	-39.10	0.86	0.00	4.00	4.62	-0.60	-0.02	0.26	0.00	0.00	1.49	-4.60	0.74	0.24	6.61	0.00	0.00	-2.33	-0.13		
1999 1 29 0	-14.78	1.04	0.24	13.65	-0.74	-0.03	0.28	3.18	0.00	0.00	3.68	-4.40	0.74	0.28	6.17	0.00	0.00	-2.42	-0.09		
1999 2 5 18 0	-24.89	0.24	0.00	24.96	-1.24	0.00	0.22	2.78	0.00	0.00	-1.94	-4.38	0.69	0.28	2.56	0.00	0.00	-2.25	-0.07		
1999 2 12 21 0	-24.90	0.26	0.69	18.69	-1.20	-0.02	0.26	3.19	0.00	0.00	-0.25	-4.25	0.72	0.29	4.98	0.00	0.00	2.52	-0.06		
1999 2 22 0	-30.26	0.04	0.75	22.28	-0.96	-0.03	0.25	3.18	0.00	0.00	1.79	-4.12	0.71	0.29	3.86	0.00	0.00	2.55	-0.05		
1999 2 27 3 0	-57.62	0.21	0.75	43.11	0.02	-0.06	0.28	3.23	0.00	0.00	6.14	-4.01	0.71	0.29	4.71	0.00	0.00	2.61	-0.06		
1999 3 6 0	-9.64	0.66	5.61	-27.72	4.27	-0.05	0.30	3.30	0.00	0.00	14.84	-4.39	0.74	0.33	8.09	0.00	0.00	2.57	-0.09		
1999 3 13 0	-1.05	-0.48	7.30	-40.97	-26.35	3.11	-0.10	0.50	3.71	0.00	0.00	11.93	-4.46	0.72	0.34	13.34	0.00	0.00	2.41	-0.14	
1999 3 20 12 0	-13.25	0.05	7.32	-26.35	3.11	-0.10	0.50	3.71	0.00	0.00	4.37	-4.25	0.72	0.34	14.63	0.00	0.00	2.43	-0.16		
1999 3 27 15 0	-6.29	-0.29	7.31	-17.95	-0.18	-0.03	0.55	3.71	0.00	0.00	0.19	-4.35	0.73	0.34	10.14	0.00	0.00	2.54	-0.13		
1999 4 3 18 0	-14.16	-0.87	-10.08	-20.75	-3.24	-0.07	0.37	3.34	0.07	-0.04	0.00	-0.19	-4.72	0.77	0.40	11.74	0.00	0.00	2.51	-0.16	
1999 4 10 21 0	-11.82	-1.11	0.20	19.49	-15.69	-0.23	0.01	0.45	3.31	0.06	-0.03	0.00	-8.35	-4.61	0.76	0.50	6.14	0.00	0.00	2.65	-0.09
1999 4 18 0	-2.78	0.20	-1.31	18.95	-11.45	-0.03	0.66	3.11	0.06	-0.04	0.00	-6.80	-4.36	0.74	0.50	4.77	0.00	0.00	2.67	-0.07	
1999 5 3 20 3 0	-9.03	-0.18	0.36	-4.01	0.40	2.93	0.09	0.07	0.00	-0.07	0.00	-5.30	-4.41	0.74	0.50	5.74	0.00	0.00	2.52	-0.11	
1999 5 2 6 0	-5.57	0.00	0.18	18.75	-3.36	-0.01	0.40	2.93	0.09	-0.07	0.00	-11.17	-4.77	0.78	0.52	5.62	0.00	0.00	2.54	-0.11	
1999 5 9 9 0	-23.41	-0.28	29.43	-1.17	-2.14	0.00	0.38	3.06	0.11	-0.08	0.00	-7.94	-4.83	0.79	0.63	3.95	0.00	0.00	2.59	-0.09	
1999 5 16 12 0	-5.75	-0.22	-3.90	-3.41	0.00	0.32	2.85	0.16	-0.05	0.00	-14.29	-4.68	0.77	0.63	3.06	0.00	0.00	2.60	-0.08		
1999 5 23 15 0	-3.62	-0.17	20.71	-5.75	-2.98	-0.01	0.29	2.72	0.06	-0.05	0.00	-13.89	-4.53	0.76	0.63	4.08	0.00	0.00	2.54	-0.09	
1999 5 30 18 0	-1.61	-0.15	17.82	-4.60	-1.84	-0.02	0.26	2.77	0.08	-0.07	0.00	-14.86	-4.72	0.77	0.63	4.22	0.00	0.00	2.49	-0.09	
1999 6 6 21 3 0	-12.14	-0.11	23.56	-1.60	-2.20	-0.01	0.24	2.72	0.16	-0.14	0.00	-11.84	-5.00	0.84	0.84	3.50	0.00	0.00	2.50	-0.09	
1999 6 14 0	0.00	0.35	-0.06	18.76	-1.47	-1.38	-0.01	0.23	2.62	0.15	-0.13	0.00	-13.90	-4.86	0.80	0.89	2.30	0.00	0.00	2.56	-0.08
1999 6 21 3 0	-7.42	0.07	-2.36	18.47	-0.07	0.11	-0.02	0.23	2.58	0.16	-0.15	0.00	-12.26	-4.62	0.78	0.89	2.11	0.00	0.00	2.57	-0.07
1999 6 28 6 0	-44.66	0.07	29.48	-1.20	3.26	0.28	2.91	0.14	-0.13	0.00	-7.86	-4.46	0.76	0.76	4.66	0.00	0.00	2.55	-0.07		
1999 7 5 9 0	-6.53	-0.90	29.24	-1.15	-3.57	-0.01	0.23	2.52	0.07	0.00	-20.96	-4.09	0.73	0.89	2.12	0.00	0.00	2.56	-0.05		
1999 7 12 12 0	-1.05	-0.09	18.19	-0.33	-2.50	0.00	0.21	2.41	0.17	-0.16	0.00	-17.58	-3.72	0.69	0.90	1.87	0.00	0.00	2.58	-0.04	
1999 7 19 15 0	-7.19	0.00	18.39	-0.01	-1.23	0.00	0.19	2.37	0.16	-0.17	0.00	-12.71	-3.63	0.66	0.90	1.18	0.00	0.00	2.54	-0.04	
1999 7 26 18 0	-0.21	0.00	11.52	0.00	-1.27	0.00	0.18	2.32	0.18	-0.17	0.00	-12.25	-3.52	0.64	0.90	0.97	0.00	0.00	2.50	-0.03	
1999 8 2 21 0	-0.05	0.00	9.20	0.00	-1.07	0.00	0.17	2.30	0.18	-0.18	0.00	-10.12	-3.42	0.62	0.82	0.90	0.00	0.00	2.45	-0.03	
1999 8 10 0	-10.32	0.00	14.72	0.00	-0.59	0.00	0.16	2.37	0.14	-0.14	0.00	-6.13	-3.42	0.62	0.86	0.85	0.00	0.00	2.42	-0.03	
1999 8 17 3 0	-5.60	0.00	11.81	0.00	-0.74	0.00	0.16	2.34	0.11	-0.11	0.00	-7.44	-3.51	0.62	0.81	0.00	0.00	0.00	2.39	-0.03	
1999 8 24 6 0	-1.26	0.00	7451	0.00	-0.76	0.00	0.15	2.31	0.03	-0.10	0.00	-4.59	-3.49	0.62	0.78	0.00	0.00	0.00	2.37	-0.03	
1999 8 31 9 0	-14.18	0.14	16.58	0.00	-0.21	0.00	0.16	2.33	0.10	-0.10	0.00	-4.59	-3.40	0.61	0.62	0.75	0.00	0.00	2.34	-0.03	
1999 9 7 12 0	-4.29	-0.14	8.12	0.00	-0.44	0.00	0.16	2.38	0.19	-0.18	0.00	-5.26	-3.37	0.59	0.93	0.73	0.00	0.00	2.32	-0.03	
1999 9 14 15 0	0.00	0.00	4.40	0.00	-0.50	0.00	0.15	2.37	0.18	-0.17	0.00	-5.24	-3.40	0.59	0.90	0.71	0.00	0.00	2.30	-0.03	
1999 9 21 18 0	0.00	0.00	4.09	0.00	-0.46	0.00	0.15	2.35	0.20	-0.18	0.00	-5.08	-3.59	0.60	0.92	0.71	0.00	0.00	2.28	-0.03	
1999 9 28 21 0	-6.70	0.00	8.99	0.00	-0.30	0.00	0.15	2.37	0.20	-0.26	0.00	-3.60	-3.68	0.61	0.91	0.67	0.00	0.00	2.27	-0.04	
1999 9 30 0 0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.27	-0.04	

Table D-2
Table D2Table D-1 and D-2



This figure was originally produced in color.
Reproduction in black and white may result
in loss of information.

Map Projection:
Washington State Plane, NAD83,
North Zone, Feet

Source: USGS, WSDOE,
Golder Associates Inc.

Mean Annual Depth of Overland Water

WRIA 55&57/WATERSHED PLANNING/WA

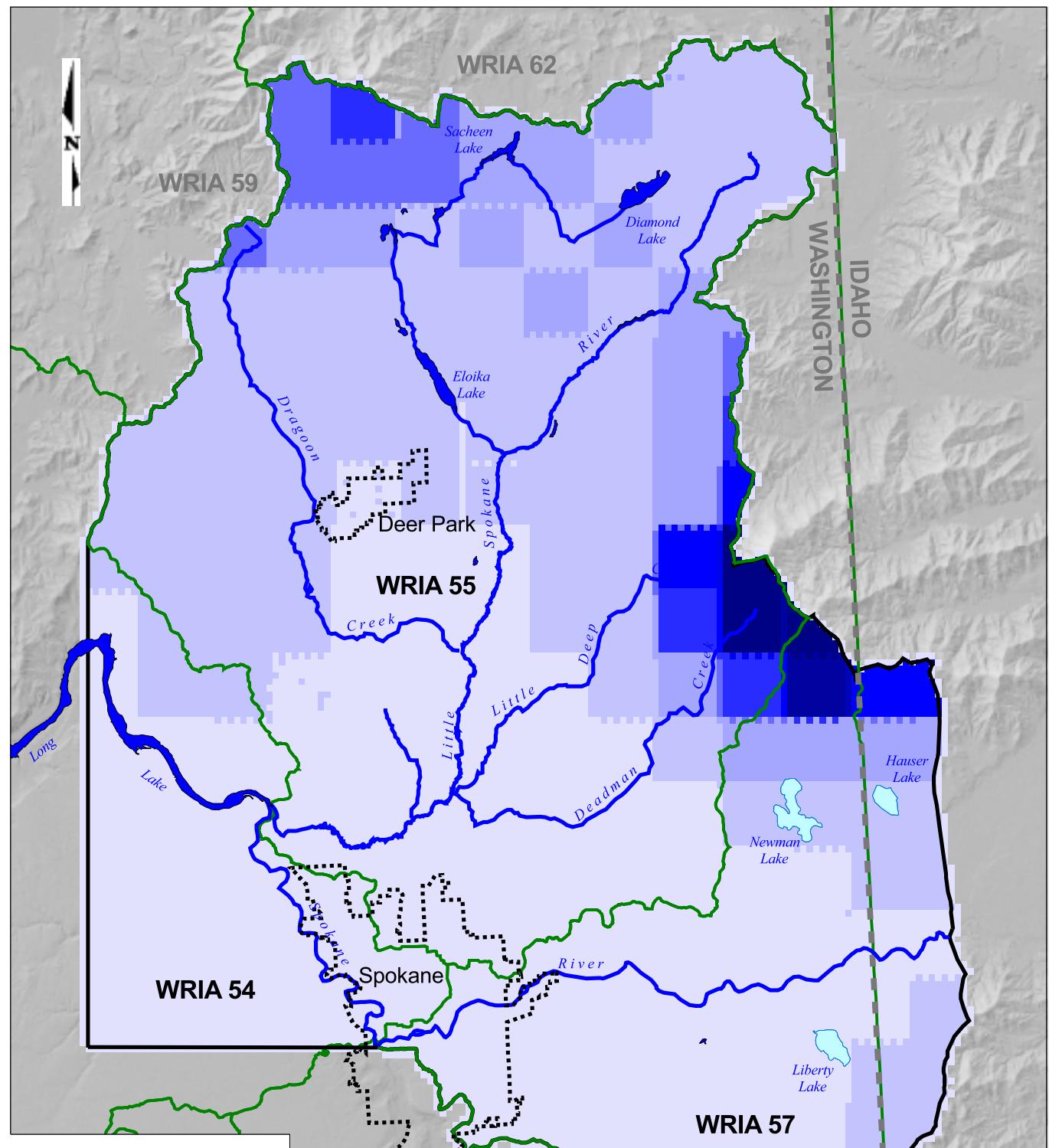
Drawn: SAC

Revision: GKL

Date: May 13, 2003

Figure: D1

Golder Associates



LEGEND

Peak Snow Storage (mm)

0 - 100	500 - 600
100 - 200	600 - 700
200 - 300	700 - 800
300 - 400	800 - 900
400 - 500	900 - 1000

Model Domain

Lakes

City Limits

WRIA Boundaries

Mike11 Rivers

0 30,000

Scale 1" = 30,000 Feet

Map Projection:
Washington State Plane, NAD83,
North Zone, Feet

Source: USGS, WSDOE,
Golder Associates Inc.

This figure was originally produced in color.
Reproduction in black and white may result
in loss of information.

Peak Snow Storage

WRIA 55&57/WATERSHED PLANNING/WA

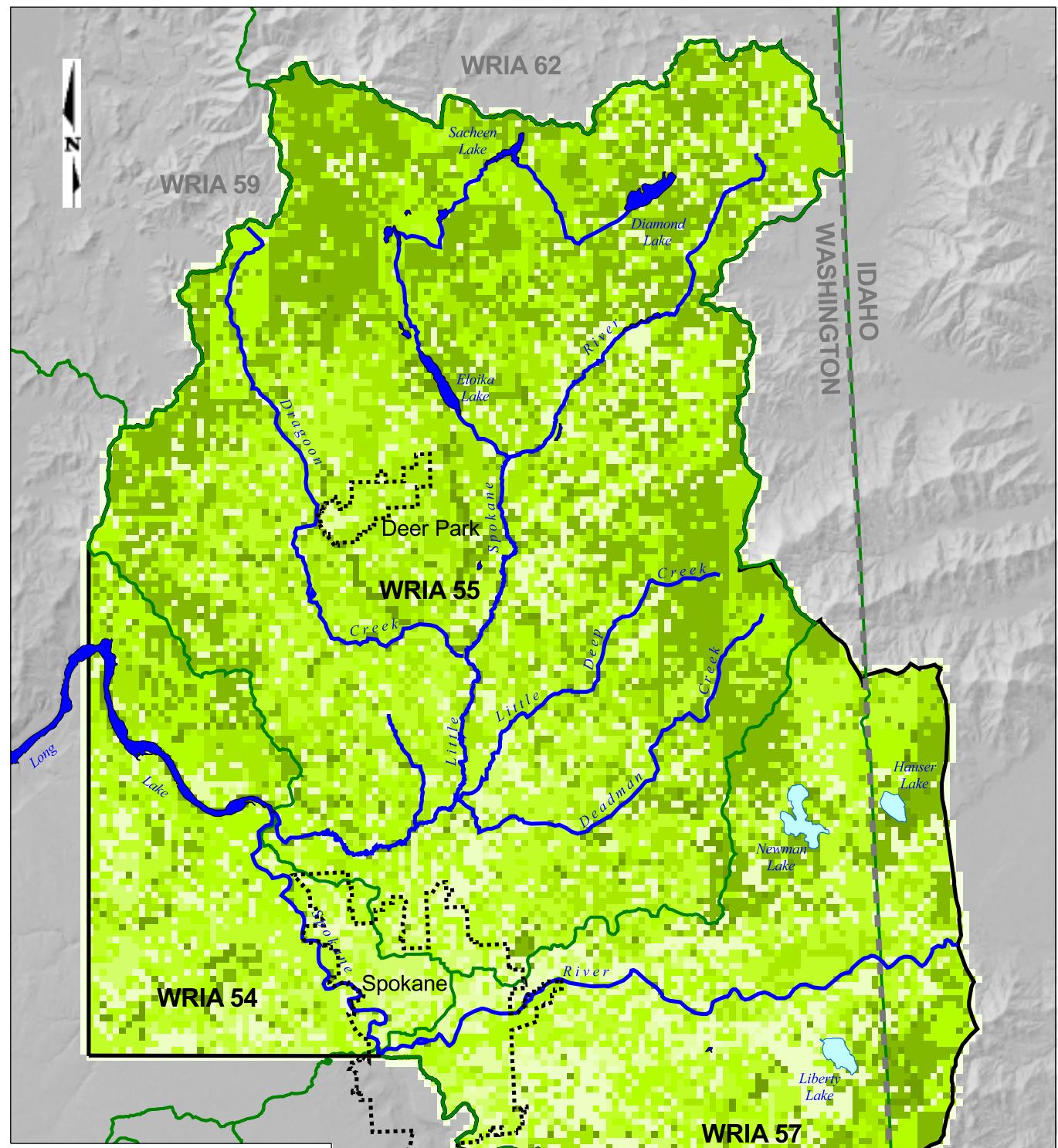
Drawn: SAC

Revision: GKL

Date: May 13, 2003

Figure: D2

Golder Associates



LEGEND

Mean Annual Evapotranspiration (mm/hr)

0 - 0.02	0.1 - 0.12
0.02 - 0.04	0.12 - 0.14
0.04 - 0.06	0.14 - 0.16
0.06 - 0.08	0.16 - 0.18
0.08 - 0.1	0.18 - 0.2

Model Domain Lakes

City Limits

WRIA Boundaries

Mike11 Rivers

0 30,000
Scale 1" = 30,000 Feet

Map Projection:
Washington State Plane, NAD83,
North Zone, Feet

Source: USGS, WSDOE,
Golder Associates Inc.

Mean Annual Evapotranspiration

WRIA 55&57/WATERSHED PLANNING/WA

Drawn: SAC

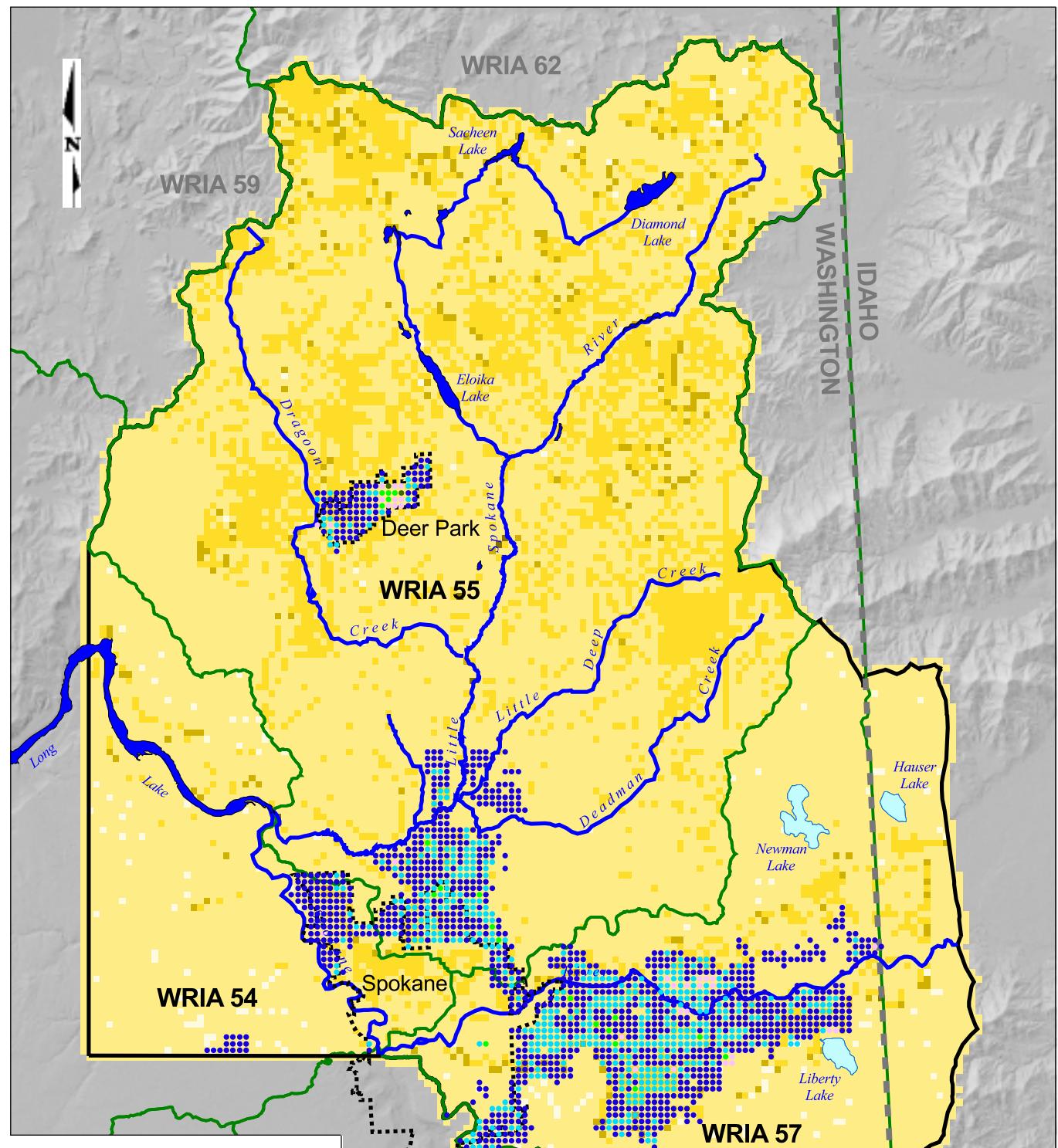
Revision: GKL

Date: May 13, 2003

Figure: D3

Golder Associates

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in loss of information.



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Mean Annual Saturated Zone Recharge and Bypass

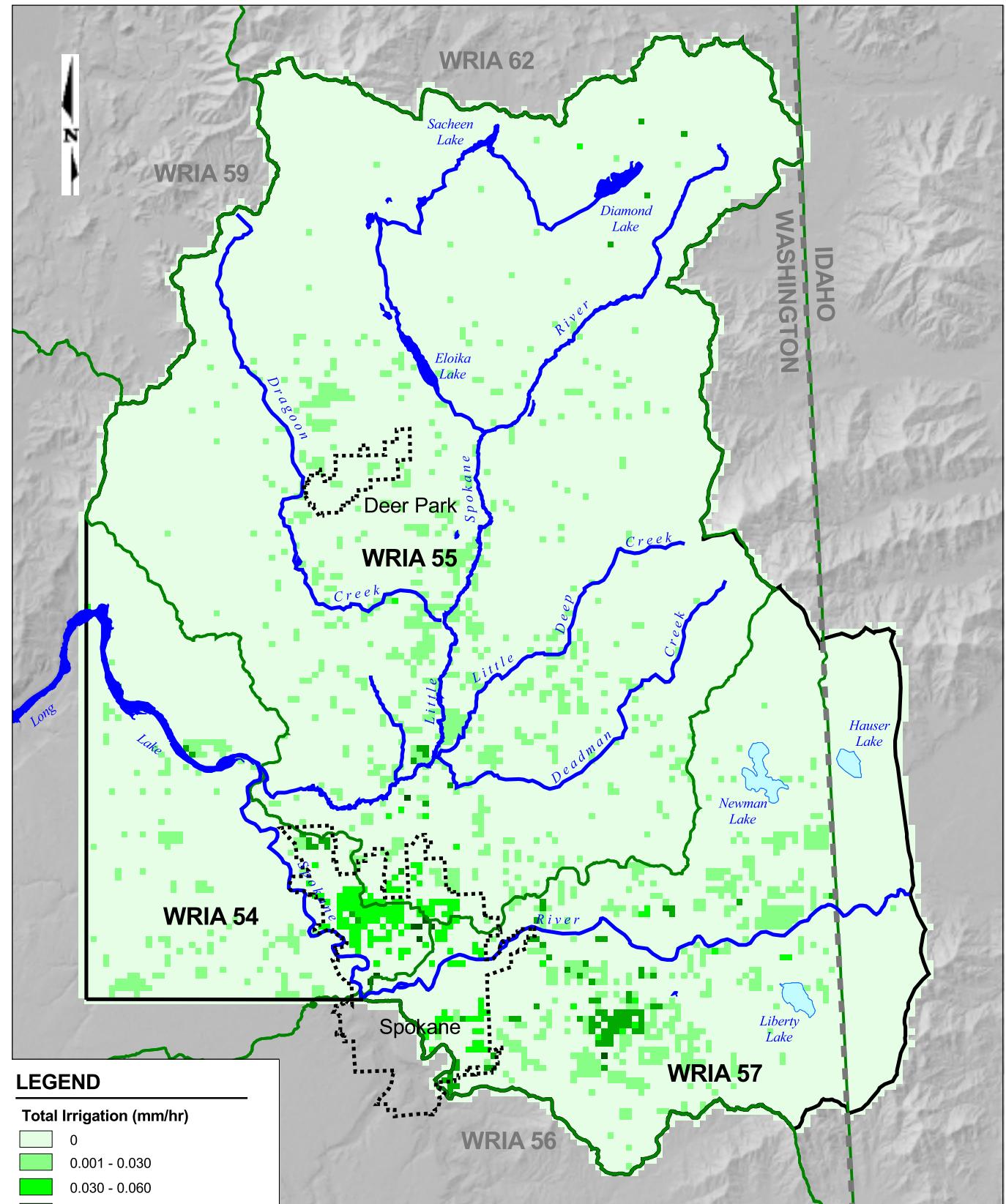
WRIA 55&57/WATERSHED PLANNING/WA

Map Projection:
Washington State Plane, NAD83,
North Zone, Feet

Source: USGS, WSDOE,
Golder Associates Inc.

Drawn: SAC Revision: GKL Date: May 13, 2003 Figure: D4

Golder Associates



LEGEND

Total Irrigation (mm/hr)

- 0
- 0.001 - 0.030
- 0.030 - 0.060
- 0.060 - 0.080
- 0.080 - 0.110

Model Domain

Lakes

City Limits

WRIA Boundaries

Mike11 Rivers

0 30,000

Scale 1" = 30,000 Feet

Map Projection:
Washington State Plane, NAD83,
North Zone, Feet

Source: USGS, WSDOE,
Golder Associates Inc.

Total Irrigation

WRIA 55&57/WATERSHED PLANNING/WA

Drawn: SAC

Revision: GKL

Date: May 13, 2003

Figure: D5

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