WELL_ID	RESULTS	CHEMICAL	DATE_	UNITS	QUALIFER	RL	LATITUDE	LONGITUDE	WELL_TYPE	WELL_DEPTH_FT	TOP_OF_SCREEN_FT	SCREEN_LENGTH_FT	SOURCE	SOURCE_NAME	OTHER_NAMES
USGS-402321122203101	6.9	PH	5/17/1983	PH UNITS		UNK	40.3890416	-122.34306	UNK	200			USGSNEW	USGS-402321122203101	USGS-402321122203101
USGS-402321122203101	233	SC	5/17/1983	UMHOS/CM		UNK	40.3890416	-122.34306	UNK	200			USGSNEW	USGS-402321122203101	USGS-402321122203101
USGS-402321122203101	225	SC	5/17/1983	UMHOS/CM		UNK	40.3890416	-122.34306	UNK	200			USGSNEW	USGS-402321122203101	USGS-402321122203101
USGS-402321122203101	6.3	SO4	5/17/1983	MG/L		UNK	40.3890416	-122.34306	UNK	200			USGSNEW	USGS-402321122203101	USGS-402321122203101
USGS-402321122203101	174	TDS	5/17/1983	MG/L		UNK	40.3890416	-122.34306	UNK	200			USGSNEW	USGS-402321122203101	USGS-402321122203101
USGS-402321122203101		TDS	5/17/1983	MG/L		UNK	40.3890416	-122.34306	UNK	200			USGSNEW	USGS-402321122203101	USGS-402321122203101
USGS-402321122203101	164	TDS	5/17/1983	MG/L		UNK	40.3890416	-122.34306	UNK	200			USGSNEW	USGS-402321122203101	USGS-402321122203101
USGS-402321122203101	21	TEMP	5/17/1983	CELSIUS		UNK	40.3890416	-122.34306	UNK	200			USGSNEW	USGS-402321122203101	USGS-402321122203101
USGS-402321122203101	0	B	10/18/1983	MG/L	ND	UNK	40.3890416	-122.34306	UNK	200			USGSNEW	USGS-402321122203101	USGS-402321122203101
USGS-402321122203101	21	CA	10/18/1983	MG/L		UNK	40.3890416	-122.34306	UNK	200			USGSNEW	USGS-402321122203101	USGS-402321122203101
USGS-402321122203101	5.9	CL	10/18/1983	MG/L		UNK	40.3890416	-122.34306	UNK	200			USGSNEW	USGS-402321122203101	USGS-402321122203101
USGS-402321122203101	0.2	F	10/18/1983	MG/L		UNK	40.3890416	-122.34306	UNK	200			USGSNEW	USGS-402321122203101	USGS-402321122203101
USGS-402321122203101	0	FE	10/18/1983	UG/L	ND	UNK	40.3890416	-122.34306	UNK	200			USGSNEW	USGS-402321122203101	USGS-402321122203101
USGS-402321122203101	0.7	K	10/18/1983	MG/L		UNK	40.3890416	-122.34306	UNK	200			USGSNEW	USGS-402321122203101	USGS-402321122203101
USGS-402321122203101	13	MG	10/18/1983	MG/L		UNK	40.3890416	-122.34306	UNK	200			USGSNEW	USGS-402321122203101	USGS-402321122203101
USGS-402321122203101	0	MN	10/18/1983	UG/L	ND	UNK	40.3890416	-122.34306	UNK	200			USGSNEW	USGS-402321122203101	USGS-402321122203101
USGS-402321122203101	13	NA	10/18/1983	MG/L		UNK	40.3890416	-122.34306	UNK	200			USGSNEW	USGS-402321122203101	USGS-402321122203101
USGS-402321122203101	6.8	PH	10/18/1983	PH UNITS		UNK	40.3890416	-122.34306	UNK	200			USGSNEW	USGS-402321122203101	USGS-402321122203101
USGS-402321122203101	251	SC	10/18/1983	UMHOS/CM		UNK	40.3890416	-122.34306	UNK	200			USGSNEW	USGS-402321122203101	USGS-402321122203101
USGS-402321122203101	262	SC	10/18/1983	UMHOS/CM		UNK	40.3890416	-122.34306	UNK	200			USGSNEW	USGS-402321122203101	USGS-402321122203101
USGS-402321122203101	5.8	SO4	10/18/1983	MG/L		UNK	40.3890416	-122.34306	UNK	200			USGSNEW	USGS-402321122203101	USGS-402321122203101
USGS-402321122203101	185	TDS	10/18/1983	MG/L		UNK	40.3890416	-122.34306	UNK	200			USGSNEW	USGS-402321122203101	USGS-402321122203101
USGS-402321122203101	170	TDS	10/18/1983	MG/L		UNK	40.3890416	-122.34306	UNK	200			USGSNEW	USGS-402321122203101	USGS-402321122203101
USGS-402321122203101		TDS	10/18/1983	MG/L		UNK	40.3890416	-122.34306	UNK	200			USGSNEW	USGS-402321122203101	USGS-402321122203101
USGS-402321122203101	17.5	TEMP	10/18/1983	CELSIUS		UNK	40.3890416	-122.34306	UNK	200			USGSNEW	USGS-402321122203101	USGS-402321122203101
USGS-402321122203101	0	B	5/15/1984	MG/L	ND	UNK	40.3890416	-122.34306	UNK	200			USGSNEW	USGS-402321122203101	USGS-402321122203101
USGS-402321122203101	21	CA	5/15/1984	MG/L		UNK	40.3890416	-122.34306	UNK	200			USGSNEW	USGS-402321122203101	USGS-402321122203101
USGS-402321122203101	5.4	CL	5/15/1984	MG/L		UNK	40.3890416	-122.34306	UNK	200			USGSNEW	USGS-402321122203101	USGS-402321122203101
USGS-402321122203101	0.2	F	5/15/1984	MG/L		UNK	40.3890416	-122.34306	UNK	200			USGSNEW	USGS-402321122203101	USGS-402321122203101
USGS-402321122203101	430	FE	5/15/1984	UG/L		UNK	40.3890416	-122.34306	UNK	200			USGSNEW	USGS-402321122203101	USGS-402321122203101
USGS-402321122203101	0.5	K	5/15/1984	MG/L		UNK	40.3890416	-122.34306	UNK	200			USGSNEW	USGS-402321122203101	USGS-402321122203101
USGS-402321122203101	12	MG	5/15/1984	MG/L		UNK	40.3890416	-122.34306	UNK	200			USGSNEW	USGS-402321122203101	USGS-402321122203101
USGS-402321122203101	18	MN	5/15/1984	UG/L		UNK	40.3890416	-122.34306	UNK	200			USGSNEW	USGS-402321122203101	USGS-402321122203101
USGS-402321122203101	13	NA	5/15/1984	MG/L		UNK	40.3890416	-122.34306	UNK	200			USGSNEW	USGS-402321122203101	USGS-402321122203101
USGS-402321122203101	6.9	PH	5/15/1984	PH UNITS		UNK	40.3890416	-122.34306	UNK	200			USGSNEW	USGS-402321122203101	USGS-402321122203101
USGS-402321122203101	259	SC	5/15/1984	UMHOS/CM		UNK	40.3890416	-122.34306	UNK	200			USGSNEW	USGS-402321122203101	USGS-402321122203101
USGS-402321122203101	256	SC	5/15/1984	UMHOS/CM		UNK	40.3890416	-122.34306	UNK	200			USGSNEW	USGS-402321122203101	USGS-402321122203101
USGS-402321122203101	6.3	SO4	5/15/1984	MG/L		UNK	40.3890416	-122.34306	UNK	200			USGSNEW	USGS-402321122203101	USGS-402321122203101
USGS-402321122203101	170	TDS	5/15/1984	MG/L		UNK	40.3890416	-122.34306	UNK	200			USGSNEW	USGS-402321122203101	USGS-402321122203101
USGS-402321122203101	185	TDS	5/15/1984	MG/L		UNK	40.3890416	-122.34306	UNK	200			USGSNEW	USGS-402321122203101	USGS-402321122203101
USGS-402321122203101		TDS	5/15/1984	MG/L		UNK	40.3890416	-122.34306	UNK	200			USGSNEW	USGS-402321122203101	USGS-402321122203101
USGS-402321122203101	19	TEMP	5/15/1984	CELSIUS		UNK	40.3890416	-122.34306	UNK	200			USGSNEW	USGS-402321122203101	USGS-402321122203101
USGS-402330122303901	20	AL	10/25/1982	UG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	0	AL	10/25/1982	UG/L	ND	UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	60	AS	10/25/1982	UG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	66	AS	10/25/1982	UG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	0.07	B	10/25/1982	MG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	0.22	B	10/25/1982	MG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	3.1	CA	10/25/1982	MG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	4.6	CA	10/25/1982	MG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	0	CD	10/25/1982	UG/L	ND	UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	2.6	CL	10/25/1982	MG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	18	CL	10/25/1982	MG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	0	CR	10/25/1982	UG/L	ND	UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	0	CU	10/25/1982	MG/L	ND	UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	0.1	F	10/25/1982	MG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	0.2	F	10/25/1982	MG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	10	FE	10/25/1982	UG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	40	FE	10/25/1982	UG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	0.1	HG	10/25/1982	UG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	0	HG	10/25/1982	UG/L	ND	UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901		HGE	10/25/1982		ND	UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901		HGE	10/25/1982			UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	0.8	K	10/25/1982	MG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	1.3	K	10/25/1982	MG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	0	LI	10/25/1982	UG/L	ND	UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	10	LI	10/25/1982	UG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	2.7	MG	10/25/1982	MG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	1.6	MG	10/25/1982	MG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	30	MN	10/25/1982	UG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	50	MN	10/25/1982	UG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901

WELL_ID	RESULTS	CHEMICAL	DATE_	UNITS	QUALIFER	RL	LATITUDE	LONGITUDE	WELL_TYPE	WELL_DEPTH_FT	TOP_OF_SCREEN_FT	SCREEN_LENGTH_FT	SOURCE	SOURCE_NAME	OTHER_NAMES
USGS-402330122303901	8	MO	10/25/1982	UG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	60	NA	10/25/1982	MG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	90	NA	10/25/1982	MG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	0	NI	10/25/1982	UG/L	ND	UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	0	PB	10/25/1982	UG/L	ND	UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	8.2	PH	10/25/1982	PH UNITS		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	8.4	PH	10/25/1982	PH UNITS		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	8	PH	10/25/1982	PH UNITS		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	8.1	PH	10/25/1982	PH UNITS		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	286	SC	10/25/1982	UMHOS/CM		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	388	SC	10/25/1982	UMHOS/CM		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	400	SC	10/25/1982	UMHOS/CM		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	279	SC	10/25/1982	UMHOS/CM		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	0	SE	10/25/1982	UG/L	ND	UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	0	SO4	10/25/1982	MG/L	ND	UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	30	SR	10/25/1982	UG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	40	SR	10/25/1982	UG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	0	TDS	10/25/1982	MG/L	ND	UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	247	TDS	10/25/1982	MG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	213	TDS	10/25/1982	MG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901		TDS	10/25/1982	MG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	18	TEMP	10/25/1982	CELSIUS		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	17	TEMP	10/25/1982	CELSIUS		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	0	V	10/25/1982	UG/L	ND	UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	0	ZN	10/25/1982	MG/L	ND	UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	0.01	ZN	10/25/1982	MG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	40	AL	10/26/1982	UG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	32	AS	10/26/1982	UG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	0.05	B	10/26/1982	MG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	12	CA	10/26/1982	MG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	0	CD	10/26/1982	UG/L	ND	UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	6	CL	10/26/1982	MG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	0	CR	10/26/1982	UG/L	ND	UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	0	CU	10/26/1982	MG/L	ND	UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	0.2	F	10/26/1982	MG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	40	FE	10/26/1982	UG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	0	HG	10/26/1982	UG/L	ND	UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901		HGE	10/26/1982		ND	UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	1.3	K	10/26/1982	MG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	0	LI	10/26/1982	UG/L	ND	UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	6.2	MG	10/26/1982	MG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	50	MN	10/26/1982	UG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	9	MO	10/26/1982	UG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	44	NA	10/26/1982	MG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	0	NI	10/26/1982	UG/L	ND	UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	0	PB	10/26/1982	UG/L	ND	UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	8.3	PH	10/26/1982	PH UNITS		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	8	PH	10/26/1982	PH UNITS		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	278	SC	10/26/1982	UMHOS/CM		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	286	SC	10/26/1982	UMHOS/CM		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	1	SE	10/26/1982	UG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	10	SO4	10/26/1982	MG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	70	SR	10/26/1982	UG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901		TDS	10/26/1982	MG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	207	TDS	10/26/1982	MG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	193	TDS	10/26/1982	MG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	16	TEMP	10/26/1982	CELSIUS		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	2.8	V	10/26/1982	UG/L		UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402330122303901	0	ZN	10/26/1982	MG/L	ND	UNK	40.3915403	-122.511955	UNK	246			USGSNEW	USGS-402330122303901	USGS-402330122303901
USGS-402331122191201	0	AL	10/26/1982	UG/L	ND	UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	1	AS	10/26/1982	UG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	0	B	10/26/1982	MG/L	ND	UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	11	CA	10/26/1982	MG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	6.9	CL	10/26/1982	MG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	0.2	F	10/26/1982	MG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	10	FE	10/26/1982	UG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	0.6	K	10/26/1982	MG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	7.9	MG	10/26/1982	MG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	0	MN	10/26/1982	UG/L	ND	UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	14	NA	10/26/1982	MG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	7.2	PH	10/26/1982	PH UNITS		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201

WELL_ID	RESULTS	CHEMICAL	DATE_	UNITS	QUALIFER	RL	LATITUDE	LONGITUDE	WELL_TYPE	WELL_DEPTH_FT	TOP_OF_SCREEN_FT	SCREEN_LENGTH_FT	SOURCE	SOURCE_NAME	OTHER_NAMES
USGS-402331122191201	7.4	PH	10/26/1982	PH UNITS		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	180	SC	10/26/1982	UMHOS/CM		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	0	SO4	10/26/1982	MG/L	ND	UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	145	TDS	10/26/1982	MG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	0	TDS	10/26/1982	MG/L	ND	UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201		TDS	10/26/1982	MG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	20	TEMP	10/26/1982	CELSIUS		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	0	AL	5/17/1983	UG/L	ND	UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	1	AS	5/17/1983	UG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	9.5	CA	5/17/1983	MG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	4.7	CL	5/17/1983	MG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	0.2	F	5/17/1983	MG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	10	FE	5/17/1983	UG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	0.6	K	5/17/1983	MG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	7.4	MG	5/17/1983	MG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	0	MN	5/17/1983	UG/L	ND	UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	13	NA	5/17/1983	MG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	6.8	PH	5/17/1983	PH UNITS		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	165	SC	5/17/1983	UMHOS/CM		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	169	SC	5/17/1983	UMHOS/CM		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	3	SO4	5/17/1983	MG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	141	TDS	5/17/1983	MG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201		TDS	5/17/1983	MG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	132	TDS	5/17/1983	MG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	22.5	TEMP	5/17/1983	CELSIUS		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	0	B	10/18/1983	MG/L	ND	UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	11	CA	10/18/1983	MG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	9.1	CL	10/18/1983	MG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	0.2	F	10/18/1983	MG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	20	FE	10/18/1983	UG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	0.6	K	10/18/1983	MG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	8.4	MG	10/18/1983	MG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	0	MN	10/18/1983	UG/L	ND	UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	14	NA	10/18/1983	MG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	6.9	PH	10/18/1983	PH UNITS		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	7	PH	10/18/1983	PH UNITS		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	191	SC	10/18/1983	UMHOS/CM		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	180	SC	10/18/1983	UMHOS/CM		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	3.5	SO4	10/18/1983	MG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201		TDS	10/18/1983	MG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	151	TDS	10/18/1983	MG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	150	TDS	10/18/1983	MG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	17	TEMP	10/18/1983	CELSIUS		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	0	B	5/15/1984	MG/L	ND	UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	9.6	CA	5/15/1984	MG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	5.3	CL	5/15/1984	MG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	0.2	F	5/15/1984	MG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	450	FE	5/15/1984	UG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	0.5	K	5/15/1984	MG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	7.1	MG	5/15/1984	MG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	30	MN	5/15/1984	UG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	13	NA	5/15/1984	MG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	6.8	PH	5/15/1984	PH UNITS		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	7	PH	5/15/1984	PH UNITS		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	161	SC	5/15/1984	UMHOS/CM		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	164	SC	5/15/1984	UMHOS/CM		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	2.8	SO4	5/15/1984	MG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	141	TDS	5/15/1984	MG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	142	TDS	5/15/1984	MG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	127	TDS	5/15/1984	MG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201		TDS	5/15/1984	MG/L		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402331122191201	20.5	TEMP	5/15/1984	CELSIUS		UNK	40.3918195	-122.321115	UNK	140			USGSNEW	USGS-402331122191201	USGS-402331122191201
USGS-402335122125401	0	AL	10/26/1982	UG/L	ND	UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	1	AS	10/26/1982	UG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	0.01	B	10/26/1982	MG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	30	CA	10/26/1982	MG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	23	CL	10/26/1982	MG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	0.2	F	10/26/1982	MG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	0	FE	10/26/1982	UG/L	ND	UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	3	K	10/26/1982	MG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	25	MG	10/26/1982	MG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401

WELL_ID	RESULTS	CHEMICAL	DATE_	UNITS	QUALIFER	RL	LATITUDE	LONGITUDE	WELL_TYPE	WELL_DEPTH_FT	TOP_OF_SCREEN_FT	SCREEN_LENGTH_FT	SOURCE	SOURCE_NAME	OTHER_NAMES
USGS-402335122125401	0	MN	10/26/1982	UG/L	ND	UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	20	NA	10/26/1982	MG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	7	PH	10/26/1982	PH UNITS		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	7.3	PH	10/26/1982	PH UNITS		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	471	SC	10/26/1982	UMHOS/CM		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	423	SC	10/26/1982	UMHOS/CM		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	23	SO4	10/26/1982	MG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	304	TDS	10/26/1982	MG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	312	TDS	10/26/1982	MG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401		TDS	10/26/1982	MG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	17	TEMP	10/26/1982	CELSIUS		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	0	AL	5/16/1983	UG/L	ND	UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	1	AS	5/16/1983	UG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	29	CA	5/16/1983	MG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	20	CL	5/16/1983	MG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	0.2	F	5/16/1983	MG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	0	FE	5/16/1983	UG/L	ND	UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	3	K	5/16/1983	MG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	24	MG	5/16/1983	MG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	0	MN	5/16/1983	UG/L	ND	UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	18	NA	5/16/1983	MG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	7.4	PH	5/16/1983	PH UNITS		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	7.2	PH	5/16/1983	PH UNITS		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	411	SC	5/16/1983	UMHOS/CM		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	412	SC	5/16/1983	UMHOS/CM		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	17	SO4	5/16/1983	MG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401		TDS	5/16/1983	MG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	291	TDS	5/16/1983	MG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	277	TDS	5/16/1983	MG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	19	TEMP	5/16/1983	CELSIUS		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	0.01	B	10/17/1983	MG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	27	CA	10/17/1983	MG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	21	CL	10/17/1983	MG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	0.1	F	10/17/1983	MG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	10	FE	10/17/1983	UG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	3	K	10/17/1983	MG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	23	MG	10/17/1983	MG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	0	MN	10/17/1983	UG/L	ND	UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	18	NA	10/17/1983	MG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	7	PH	10/17/1983	PH UNITS		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	7.2	PH	10/17/1983	PH UNITS		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	380	SC	10/17/1983	UMHOS/CM		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	414	SC	10/17/1983	UMHOS/CM		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	18	SO4	10/17/1983	MG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	280	TDS	10/17/1983	MG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	268	TDS	10/17/1983	MG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401		TDS	10/17/1983	MG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	19	TEMP	10/17/1983	CELSIUS		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	0	B	5/14/1984	MG/L	ND	UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	28	CA	5/14/1984	MG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	14	CL	5/14/1984	MG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	0.2	F	5/14/1984	MG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	190	FE	5/14/1984	UG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	2.9	K	5/14/1984	MG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	23	MG	5/14/1984	MG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	0	MN	5/14/1984	UG/L	ND	UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	18	NA	5/14/1984	MG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	7.4	PH	5/14/1984	PH UNITS		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	7.3	PH	5/14/1984	PH UNITS		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	404	SC	5/14/1984	UMHOS/CM		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	407	SC	5/14/1984	UMHOS/CM		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	20	SO4	5/14/1984	MG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	293	TDS	5/14/1984	MG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	269	TDS	5/14/1984	MG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401		TDS	5/14/1984	MG/L		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122125401	18	TEMP	5/14/1984	CELSIUS		UNK	40.3929315	-122.216111	UNK	100			USGSNEW	USGS-402335122125401	USGS-402335122125401
USGS-402335122164801	0.3	B	10/10/1979	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	7	CA	10/10/1979	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	5	CL	10/10/1979	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	0	F	10/10/1979	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	2.4	K	10/10/1979	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801

WELL_ID	RESULTS	CHEMICAL	DATE_	UNITS	QUALIFER	RL	LATITUDE	LONGITUDE	WELL_TYPE	WELL_DEPTH_FT	TOP_OF_SCREEN_FT	SCREEN_LENGTH_FT	SOURCE	SOURCE_NAME	OTHER_NAMES
USGS-402335122164801	3	MG	10/10/1979	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	51	NA	10/10/1979	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	0.2	NO3N	10/10/1979	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	7.2	PH	10/10/1979	PH UNITS		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	160	SC	10/10/1979	UMHOS/CM		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	1	SO4	10/10/1979	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	176	TDS	10/10/1979	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	181	TDS	10/10/1979	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801		TDS	10/10/1979	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	18.5	TEMP	10/10/1979	CELSIUS		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	0	AL	10/26/1982	UG/L	ND	UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	1	AS	10/26/1982	UG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	0	B	10/26/1982	MG/L	ND	UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	8.9	CA	10/26/1982	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	3.1	CL	10/26/1982	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	0.2	F	10/26/1982	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	0	FE	10/26/1982	UG/L	ND	UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	0.5	K	10/26/1982	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	7.4	MG	10/26/1982	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	0	MN	10/26/1982	UG/L	ND	UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	14	NA	10/26/1982	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	7.7	PH	10/26/1982	PH UNITS		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	7.2	PH	10/26/1982	PH UNITS		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	164	SC	10/26/1982	UMHOS/CM		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	167	SC	10/26/1982	UMHOS/CM		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	0	SO4	10/26/1982	MG/L	ND	UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	0	TDS	10/26/1982	MG/L	ND	UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801		TDS	10/26/1982	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	117	TDS	10/26/1982	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	16	TEMP	10/26/1982	CELSIUS		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	0	AL	5/17/1983	UG/L	ND	UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	1	AS	5/17/1983	UG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	9.3	CA	5/17/1983	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	2.9	CL	5/17/1983	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	0.2	F	5/17/1983	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	40	FE	5/17/1983	UG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	0.7	K	5/17/1983	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	8	MG	5/17/1983	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	0	MN	5/17/1983	UG/L	ND	UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	14	NA	5/17/1983	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	7.3	PH	5/17/1983	PH UNITS		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	165	SC	5/17/1983	UMHOS/CM		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	172	SC	5/17/1983	UMHOS/CM		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	2.2	SO4	5/17/1983	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	119	TDS	5/17/1983	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	135	TDS	5/17/1983	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801		TDS	5/17/1983	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	17.5	TEMP	5/17/1983	CELSIUS		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	0	B	10/17/1983	MG/L	ND	UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	8.5	CA	10/17/1983	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	2.8	CL	10/17/1983	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	0.2	F	10/17/1983	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	0	FE	10/17/1983	UG/L	ND	UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	0.6	K	10/17/1983	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	7.4	MG	10/17/1983	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	0	MN	10/17/1983	UG/L	ND	UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	14	NA	10/17/1983	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	7.3	PH	10/17/1983	PH UNITS		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	7.4	PH	10/17/1983	PH UNITS		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	165	SC	10/17/1983	UMHOS/CM		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	157	SC	10/17/1983	UMHOS/CM		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	2.3	SO4	10/17/1983	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	136	TDS	10/17/1983	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	120	TDS	10/17/1983	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801		TDS	10/17/1983	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	18.1	TEMP	10/17/1983	CELSIUS		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	0	B	5/14/1984	MG/L	ND	UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	9	CA	5/14/1984	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	2.6	CL	5/14/1984	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	0.2	F	5/14/1984	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	40	FE	5/14/1984	UG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801

WELL_ID	RESULTS	CHEMICAL	DATE_	UNITS	QUALIFER	RL	LATITUDE	LONGITUDE	WELL_TYPE	WELL_DEPTH_FT	TOP_OF_SCREEN_FT	SCREEN_LENGTH_FT	SOURCE	SOURCE_NAME	OTHER_NAMES
USGS-402335122164801	0.5	K	5/14/1984	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	7.7	MG	5/14/1984	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	0	MN	5/14/1984	UG/L	ND	UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	13	NA	5/14/1984	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	7.1	PH	5/14/1984	PH UNITS		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	7.5	PH	5/14/1984	PH UNITS		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	164	SC	5/14/1984	UMHOS/CM		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	160	SC	5/14/1984	UMHOS/CM		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	2.2	SO4	5/14/1984	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	135	TDS	5/14/1984	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	119	TDS	5/14/1984	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801		TDS	5/14/1984	MG/L		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402335122164801	18	TEMP	5/14/1984	CELSIUS		UNK	40.3929309	-122.281114	UNK	151			USGSNEW	USGS-402335122164801	USGS-402335122164801
USGS-402336122210001	0	B	10/10/1979	MG/L		UNK	40.3932082	-122.351116	UNK	180			USGSNEW	USGS-402336122210001	USGS-402336122210001
USGS-402336122210001	11	CA	10/10/1979	MG/L		UNK	40.3932082	-122.351116	UNK	180			USGSNEW	USGS-402336122210001	USGS-402336122210001
USGS-402336122210001	3	CL	10/10/1979	MG/L		UNK	40.3932082	-122.351116	UNK	180			USGSNEW	USGS-402336122210001	USGS-402336122210001
USGS-402336122210001	0.1	F	10/10/1979	MG/L		UNK	40.3932082	-122.351116	UNK	180			USGSNEW	USGS-402336122210001	USGS-402336122210001
USGS-402336122210001	0.7	K	10/10/1979	MG/L		UNK	40.3932082	-122.351116	UNK	180			USGSNEW	USGS-402336122210001	USGS-402336122210001
USGS-402336122210001	7	MG	10/10/1979	MG/L		UNK	40.3932082	-122.351116	UNK	180			USGSNEW	USGS-402336122210001	USGS-402336122210001
USGS-402336122210001	16	NA	10/10/1979	MG/L		UNK	40.3932082	-122.351116	UNK	180			USGSNEW	USGS-402336122210001	USGS-402336122210001
USGS-402336122210001	0.9	NO3N	10/10/1979	MG/L		UNK	40.3932082	-122.351116	UNK	180			USGSNEW	USGS-402336122210001	USGS-402336122210001
USGS-402336122210001	7.1	PH	10/10/1979	PH UNITS		UNK	40.3932082	-122.351116	UNK	180			USGSNEW	USGS-402336122210001	USGS-402336122210001
USGS-402336122210001	176	SC	10/10/1979	UMHOS/CM		UNK	40.3932082	-122.351116	UNK	180			USGSNEW	USGS-402336122210001	USGS-402336122210001
USGS-402336122210001	0	SO4	10/10/1979	MG/L		UNK	40.3932082	-122.351116	UNK	180			USGSNEW	USGS-402336122210001	USGS-402336122210001
USGS-402336122210001	152	TDS	10/10/1979	MG/L		UNK	40.3932082	-122.351116	UNK	180			USGSNEW	USGS-402336122210001	USGS-402336122210001
USGS-402336122210001	155	TDS	10/10/1979	MG/L		UNK	40.3932082	-122.351116	UNK	180			USGSNEW	USGS-402336122210001	USGS-402336122210001
USGS-402336122210001		TDS	10/10/1979	MG/L		UNK	40.3932082	-122.351116	UNK	180			USGSNEW	USGS-402336122210001	USGS-402336122210001
USGS-402336122210001	23.5	TEMP	10/10/1979	CELSIUS		UNK	40.3932082	-122.351116	UNK	180			USGSNEW	USGS-402336122210001	USGS-402336122210001
USGS-402348122144301	0	AG	10/17/1979	UG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	2	AS	10/17/1979	UG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	0	B	10/17/1979	MG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	0.02	BA	10/17/1979	MG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	10	CA	10/17/1979	MG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	0	CD	10/17/1979	UG/L	ND	UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	2	CL	10/17/1979	MG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	0	CR	10/17/1979	UG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	0	CU	10/17/1979	MG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	0.1	F	10/17/1979	MG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	0	FE	10/17/1979	UG/L	ND	UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	0	HG	10/17/1979	UG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301		HGE	10/17/1979			UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	0.9	K	10/17/1979	MG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	8	MG	10/17/1979	MG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	0	MN	10/17/1979	UG/L	ND	UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	12	NA	10/17/1979	MG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	0.59	NO3N	10/17/1979	MG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	0	PB	10/17/1979	UG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	7.1	PH	10/17/1979	PH UNITS		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	151	SC	10/17/1979	UMHOS/CM		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	0	SE	10/17/1979	UG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	5	SO4	10/17/1979	MG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	136	TDS	10/17/1979	MG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	129	TDS	10/17/1979	MG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301		TDS	10/17/1979	MG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	17.5	TEMP	10/17/1979	CELSIUS		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	0.13	ZN	10/17/1979	MG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	0	AL	10/26/1982	UG/L	ND	UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	1	AS	10/26/1982	UG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	0	B	10/26/1982	MG/L	ND	UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	9	CA	10/26/1982	MG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	1.9	CL	10/26/1982	MG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	0.2	F	10/26/1982	MG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	0	FE	10/26/1982	UG/L	ND	UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	0.9	K	10/26/1982	MG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	8.1	MG	10/26/1982	MG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	0	MN	10/26/1982	UG/L	ND	UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	12	NA	10/26/1982	MG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	7.6	PH	10/26/1982	PH UNITS		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	7.3	PH	10/26/1982	PH UNITS		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	166	SC	10/26/1982	UMHOS/CM		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	160	SC	10/26/1982	UMHOS/CM		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301

WELL_ID	RESULTS	CHEMICAL	DATE_	UNITS	QUALIFER	RL	LATITUDE	LONGITUDE	WELL_TYPE	WELL_DEPTH_FT	TOP_OF_SCREEN_FT	SCREEN_LENGTH_FT	SOURCE	SOURCE_NAME	OTHER_NAMES
USGS-402348122144301	0	SO4	10/26/1982	MG/L	ND	UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301		TDS	10/26/1982	MG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	117	TDS	10/26/1982	MG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	0	TDS	10/26/1982	MG/L	ND	UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	16	TEMP	10/26/1982	CELSIUS		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	0	AL	5/17/1983	UG/L	ND	UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	1	AS	5/17/1983	UG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	9.4	CA	5/17/1983	MG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	1.9	CL	5/17/1983	MG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	0.2	F	5/17/1983	MG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	0	FE	5/17/1983	UG/L	ND	UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	1.1	K	5/17/1983	MG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	8.5	MG	5/17/1983	MG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	0	MN	5/17/1983	UG/L	ND	UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	13	NA	5/17/1983	MG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	7.3	PH	5/17/1983	PH UNITS		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	7.4	PH	5/17/1983	PH UNITS		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	159	SC	5/17/1983	UMHOS/CM		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	171	SC	5/17/1983	UMHOS/CM		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	3.6	SO4	5/17/1983	MG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	114	TDS	5/17/1983	MG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	129	TDS	5/17/1983	MG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301		TDS	5/17/1983	MG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	17	TEMP	5/17/1983	CELSIUS		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	0	B	10/17/1983	MG/L	ND	UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	10	CA	10/17/1983	MG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	1.9	CL	10/17/1983	MG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	0.1	F	10/17/1983	MG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	20	FE	10/17/1983	UG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	1.1	K	10/17/1983	MG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	8.4	MG	10/17/1983	MG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	0	MN	10/17/1983	UG/L	ND	UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	12	NA	10/17/1983	MG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	7.3	PH	10/17/1983	PH UNITS		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	7.4	PH	10/17/1983	PH UNITS		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	170	SC	10/17/1983	UMHOS/CM		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	158	SC	10/17/1983	UMHOS/CM		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	3.6	SO4	10/17/1983	MG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	120	TDS	10/17/1983	MG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	128	TDS	10/17/1983	MG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301		TDS	10/17/1983	MG/L		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402348122144301	18	TEMP	10/17/1983	CELSIUS		UNK	40.3965422	-122.24639	UNK	89			USGSNEW	USGS-402348122144301	USGS-402348122144301
USGS-402400122160001	0	24D	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	AG	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	AL	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	ALACL	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	ALDICARB	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	ALDSULF	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	ALDSULFOX	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	7.7	AS	10/25/2007	UG/L		UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	ATRAZINE	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	AZIPM	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0.09	B	10/25/2007	MG/L		UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0.0502	BA	10/25/2007	MG/L		UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	BDCME	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	BE	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0.058	BR	10/25/2007	MG/L		UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	BRME	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	BROMCIL	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	BTBZN	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	BTBZS	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	BTBZT	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	BTZ	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	BZ	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	BZME	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	34.14	C-14	10/25/2007	PCT MODERN		UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0.19	C-14	10/25/2007	PCT MODERN		UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	10.2	CA	10/25/2007	MG/L		UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	CD	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	CDS	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	21.7	CL	10/25/2007	MG/L		UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001

WELL_ID	RESULTS	CHEMICAL	DATE_	UNITS	QUALIFER	RL	LATITUDE	LONGITUDE	WELL_TYPE	WELL_DEPTH_FT	TOP_OF_SCREEN_FT	SCREEN_LENGTH_FT	SOURCE	SOURCE_NAME	OTHER_NAMES
USGS-402400122160001	0	CLBZ	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	CR	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	CRBFN	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	CTCL	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	CU	10/25/2007	MG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	DBCME	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	DBCP	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	DCA11	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	DCA12	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	DCE11	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	DCE12C	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	DCE12T	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	DCMA	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	DCPA12	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	DIAZ	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	DICAMBA	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	DICHLORVOS	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	DIELDRIN	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	DIMETHAT	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	DINOSEB	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	DIURON	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	EBZ	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	EDB	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	ETBE	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	F	10/25/2007	MG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	FC113	10/25/2007	MG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	7.9	FE	10/25/2007	UG/L		UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	FENPHOS	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	FONOFOS	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0.6	H-3	10/25/2007	pCi/L		UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	HCBU	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	HEXAZINONE	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	HG	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001		HGE	10/25/2007		ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	17	I	10/25/2007	UG/L		UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	IME	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	IPBZ	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	IPRODIONE	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	1.7	K	10/25/2007	MG/L		UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	2.01	LI	10/25/2007	UG/L		UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	LINURON	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	MALA	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	METALAXYL	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	METHOMYL	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	METOCHLOR	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	METRIBUZ	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	3.18	MG	10/25/2007	MG/L		UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	MIBK	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	19.9	MN	10/25/2007	UG/L		UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	2.29	MO	10/25/2007	UG/L		UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	MOLINATE	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	MTBE	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	-2	N15N14NO3	10/25/2007	per mil		UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	37.9	NA	10/25/2007	MG/L		UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	NAPH	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0.04	NH3NH4N	10/25/2007	MG/L		UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0.053	NH3NH4N	10/25/2007	MG/L		UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	NI	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0.003	NO2	10/25/2007	MG/L		UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0.066	NO3N	10/25/2007	MG/L		UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	NORFLUZON	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	OXAMYL	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	PB	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	PBZN	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	PCA	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	PCATE	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	8.3	PH	10/25/2007	PH UNITS		UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	8.2	PH	10/25/2007	PH UNITS		UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	PHORATE	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	PICLORAM	10/25/2007	MG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	PROMETON	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001

WELL_ID	RESULTS	CHEMICAL	DATE_	UNITS	QUALIFER	RL	LATITUDE	LONGITUDE	WELL_TYPE	WELL_DEPTH_FT	TOP_OF_SCREEN_FT	SCREEN_LENGTH_FT	SOURCE	SOURCE_NAME	OTHER_NAMES
USGS-402400122160001	0	PROMETRYN	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	PROPANIL	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	SB	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	250	SC	10/25/2007	UMHOS/CM		UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	254	SC	10/25/2007	UMHOS/CM		UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0.09	SE	10/25/2007	UG/L		UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	SEVIN	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	SIMAZINE	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	1.8	SO4	10/25/2007	MG/L		UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	99.3	SR	10/25/2007	UG/L		UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	STY	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	TAME	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	TBME	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	TCA111	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	TCA112	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	TCB124	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	TCLME	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	TCPR123	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	163	TDS	10/25/2007	MG/L		UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001		TDS	10/25/2007	MG/L		UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	153	TDS	10/25/2007	MG/L		UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	TEBUTHIURON	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	21.5	TEMP	10/25/2007	CELSIUS		UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	THIOBENCARB	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	TL	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	TMB124	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	TMB135	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	TRICLOPYR	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	TRIFLURALIN	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	4.8	V	10/25/2007	UG/L		UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0	VC	10/25/2007	UG/L	ND	UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122160001	0.0113	ZN	10/25/2007	MG/L		UNK	40.4140278	-122.278361	UNK				USGSNEW	USGS-402400122160001	USGS-402400122160001
USGS-402400122185601	0	B	10/10/1979	MG/L		UNK	40.399875	-122.316671	UNK	235			USGSNEW	USGS-402400122185601	USGS-402400122185601
USGS-402400122185601	11	CA	10/10/1979	MG/L		UNK	40.399875	-122.316671	UNK	235			USGSNEW	USGS-402400122185601	USGS-402400122185601
USGS-402400122185601	3	CL	10/10/1979	MG/L		UNK	40.399875	-122.316671	UNK	235			USGSNEW	USGS-402400122185601	USGS-402400122185601
USGS-402400122185601	0.1	F	10/10/1979	MG/L		UNK	40.399875	-122.316671	UNK	235			USGSNEW	USGS-402400122185601	USGS-402400122185601
USGS-402400122185601	0.9	K	10/10/1979	MG/L		UNK	40.399875	-122.316671	UNK	235			USGSNEW	USGS-402400122185601	USGS-402400122185601
USGS-402400122185601	8	MG	10/10/1979	MG/L		UNK	40.399875	-122.316671	UNK	235			USGSNEW	USGS-402400122185601	USGS-402400122185601
USGS-402400122185601	14	NA	10/10/1979	MG/L		UNK	40.399875	-122.316671	UNK	235			USGSNEW	USGS-402400122185601	USGS-402400122185601
USGS-402400122185601	0.7	NO3N	10/10/1979	MG/L		UNK	40.399875	-122.316671	UNK	235			USGSNEW	USGS-402400122185601	USGS-402400122185601
USGS-402400122185601	6.9	PH	10/10/1979	PH UNITS		UNK	40.399875	-122.316671	UNK	235			USGSNEW	USGS-402400122185601	USGS-402400122185601
USGS-402400122185601	175	SC	10/10/1979	UMHOS/CM		UNK	40.399875	-122.316671	UNK	235			USGSNEW	USGS-402400122185601	USGS-402400122185601
USGS-402400122185601	2	SO4	10/10/1979	MG/L		UNK	40.399875	-122.316671	UNK	235			USGSNEW	USGS-402400122185601	USGS-402400122185601
USGS-402400122185601	156	TDS	10/10/1979	MG/L		UNK	40.399875	-122.316671	UNK	235			USGSNEW	USGS-402400122185601	USGS-402400122185601
USGS-402400122185601	158	TDS	10/10/1979	MG/L		UNK	40.399875	-122.316671	UNK	235			USGSNEW	USGS-402400122185601	USGS-402400122185601
USGS-402400122185601		TDS	10/10/1979	MG/L		UNK	40.399875	-122.316671	UNK	235			USGSNEW	USGS-402400122185601	USGS-402400122185601
USGS-402400122185601	21	TEMP	10/10/1979	CELSIUS		UNK	40.399875	-122.316671	UNK	235			USGSNEW	USGS-402400122185601	USGS-402400122185601
USGS-402401122230201	0	AG	10/10/1979	UG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	1	AS	10/10/1979	UG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	0	B	10/10/1979	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	0.03	BA	10/10/1979	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	10	CA	10/10/1979	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	0	CD	10/10/1979	UG/L	ND	UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	3	CL	10/10/1979	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	0	CR	10/10/1979	UG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	0	CU	10/10/1979	MG/L	ND	UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	0.1	F	10/10/1979	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	0	FE	10/10/1979	UG/L	ND	UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	0	HG	10/10/1979	UG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201		HGE	10/10/1979			UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	5	K	10/10/1979	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	6	MG	10/10/1979	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	0	MN	10/10/1979	UG/L	ND	UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	17	NA	10/10/1979	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	0.5	NO3N	10/10/1979	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	0	PB	10/10/1979	UG/L	ND	UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	6.8	PH	10/10/1979	PH UNITS		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	171	SC	10/10/1979	UMHOS/CM		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	0	SE	10/10/1979	UG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	0	SO4	10/10/1979	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201		TDS	10/10/1979	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201

WELL_ID	RESULTS	CHEMICAL	DATE_	UNITS	QUALIFER	RL	LATITUDE	LONGITUDE	WELL_TYPE	WELL_DEPTH_FT	TOP_OF_SCREEN_FT	SCREEN_LENGTH_FT	SOURCE	SOURCE_NAME	OTHER_NAMES
USGS-402401122230201	143	TDS	10/10/1979	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	154	TDS	10/10/1979	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	19.5	TEMP	10/10/1979	CELSIUS		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	1.3	ZN	10/10/1979	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	0	AL	10/26/1982	UG/L	ND	UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	1	AS	10/26/1982	UG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	0	B	10/26/1982	MG/L	ND	UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	10	CA	10/26/1982	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	3.4	CL	10/26/1982	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	0.1	F	10/26/1982	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	0	FE	10/26/1982	UG/L	ND	UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	0.6	K	10/26/1982	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	6.4	MG	10/26/1982	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	0	MN	10/26/1982	UG/L	ND	UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	17	NA	10/26/1982	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	7.2	PH	10/26/1982	PH UNITS		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	7.3	PH	10/26/1982	PH UNITS		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	162	SC	10/26/1982	UMHOS/CM		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	173	SC	10/26/1982	UMHOS/CM		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	0	SO4	10/26/1982	MG/L	ND	UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	145	TDS	10/26/1982	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201		TDS	10/26/1982	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	0	TDS	10/26/1982	MG/L	ND	UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	19	TEMP	10/26/1982	CELSIUS		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	0	AL	5/18/1983	UG/L	ND	UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	0	AS	5/18/1983	UG/L	ND	UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	10	CA	5/18/1983	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	3.3	CL	5/18/1983	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	0	F	5/18/1983	MG/L	ND	UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	20	FE	5/18/1983	UG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	0.6	K	5/18/1983	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	6.3	MG	5/18/1983	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	0	MN	5/18/1983	UG/L	ND	UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	16	NA	5/18/1983	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	7	PH	5/18/1983	PH UNITS		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	7.1	PH	5/18/1983	PH UNITS		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	109	SC	5/18/1983	UMHOS/CM		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	175	SC	5/18/1983	UMHOS/CM		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	1	SO4	5/18/1983	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	135	TDS	5/18/1983	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201		TDS	5/18/1983	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	154	TDS	5/18/1983	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	19.5	TEMP	5/18/1983	CELSIUS		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	0	B	10/18/1983	MG/L	ND	UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	10	CA	10/18/1983	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	3.6	CL	10/18/1983	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	0	F	10/18/1983	MG/L	ND	UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	0	FE	10/18/1983	UG/L	ND	UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	0.6	K	10/18/1983	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	6.2	MG	10/18/1983	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	0	MN	10/18/1983	UG/L	ND	UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	17	NA	10/18/1983	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	6.9	PH	10/18/1983	PH UNITS		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	6.8	PH	10/18/1983	PH UNITS		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	156	SC	10/18/1983	UMHOS/CM		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	173	SC	10/18/1983	UMHOS/CM		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	0.5	SO4	10/18/1983	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	140	TDS	10/18/1983	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	149	TDS	10/18/1983	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201		TDS	10/18/1983	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	18	TEMP	10/18/1983	CELSIUS		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	0	B	5/16/1984	MG/L	ND	UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	10	CA	5/16/1984	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	3.4	CL	5/16/1984	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	0.2	F	5/16/1984	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	40	FE	5/16/1984	UG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	0.5	K	5/16/1984	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	6.3	MG	5/16/1984	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	0	MN	5/16/1984	UG/L	ND	UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	17	NA	5/16/1984	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	7	PH	5/16/1984	PH UNITS		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201

WELL_ID	RESULTS	CHEMICAL	DATE_	UNITS	QUALIFER	RL	LATITUDE	LONGITUDE	WELL_TYPE	WELL_DEPTH_FT	TOP_OF_SCREEN_FT	SCREEN_LENGTH_FT	SOURCE	SOURCE_NAME	OTHER_NAMES
USGS-402401122230201	7.1	PH	5/16/1984	PH UNITS		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	174	SC	5/16/1984	UMHOS/CM		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	172	SC	5/16/1984	UMHOS/CM		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	0.8	SO4	5/16/1984	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201		TDS	5/16/1984	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	153	TDS	5/16/1984	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	138	TDS	5/16/1984	MG/L		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402401122230201	18	TEMP	5/16/1984	CELSIUS		UNK	40.4001523	-122.385006	UNK	220			USGSNEW	USGS-402401122230201	USGS-402401122230201
USGS-402402122115701	0	B	10/17/1979	MG/L		UNK	40.4004316	-122.200278	UNK	120			USGSNEW	USGS-402402122115701	USGS-402402122115701
USGS-402402122115701	9	CA	10/17/1979	MG/L		UNK	40.4004316	-122.200278	UNK	120			USGSNEW	USGS-402402122115701	USGS-402402122115701
USGS-402402122115701	2	CL	10/17/1979	MG/L		UNK	40.4004316	-122.200278	UNK	120			USGSNEW	USGS-402402122115701	USGS-402402122115701
USGS-402402122115701	0.1	F	10/17/1979	MG/L		UNK	40.4004316	-122.200278	UNK	120			USGSNEW	USGS-402402122115701	USGS-402402122115701
USGS-402402122115701	2	K	10/17/1979	MG/L		UNK	40.4004316	-122.200278	UNK	120			USGSNEW	USGS-402402122115701	USGS-402402122115701
USGS-402402122115701	6	MG	10/17/1979	MG/L		UNK	40.4004316	-122.200278	UNK	120			USGSNEW	USGS-402402122115701	USGS-402402122115701
USGS-402402122115701	12	NA	10/17/1979	MG/L		UNK	40.4004316	-122.200278	UNK	120			USGSNEW	USGS-402402122115701	USGS-402402122115701
USGS-402402122115701	1.2	NO3N	10/17/1979	MG/L		UNK	40.4004316	-122.200278	UNK	120			USGSNEW	USGS-402402122115701	USGS-402402122115701
USGS-402402122115701	7.6	PH	10/17/1979	PH UNITS		UNK	40.4004316	-122.200278	UNK	120			USGSNEW	USGS-402402122115701	USGS-402402122115701
USGS-402402122115701	138	SC	10/17/1979	UMHOS/CM		UNK	40.4004316	-122.200278	UNK	120			USGSNEW	USGS-402402122115701	USGS-402402122115701
USGS-402402122115701	4	SO4	10/17/1979	MG/L		UNK	40.4004316	-122.200278	UNK	120			USGSNEW	USGS-402402122115701	USGS-402402122115701
USGS-402402122115701	143	TDS	10/17/1979	MG/L		UNK	40.4004316	-122.200278	UNK	120			USGSNEW	USGS-402402122115701	USGS-402402122115701
USGS-402402122115701		TDS	10/17/1979	MG/L		UNK	40.4004316	-122.200278	UNK	120			USGSNEW	USGS-402402122115701	USGS-402402122115701
USGS-402402122115701	157	TDS	10/17/1979	MG/L		UNK	40.4004316	-122.200278	UNK	120			USGSNEW	USGS-402402122115701	USGS-402402122115701
USGS-402402122115701	19	TEMP	10/17/1979	CELSIUS		UNK	40.4004316	-122.200278	UNK	120			USGSNEW	USGS-402402122115701	USGS-402402122115701
USGS-402414122242501	0	AL	10/27/1982	UG/L	ND	UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	1	AS	10/27/1982	UG/L		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	0	B	10/27/1982	MG/L	ND	UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	9	CA	10/27/1982	MG/L		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	2.9	CL	10/27/1982	MG/L		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	0.1	F	10/27/1982	MG/L		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	0	FE	10/27/1982	UG/L	ND	UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	0.5	K	10/27/1982	MG/L		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	5.9	MG	10/27/1982	MG/L		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	0	MN	10/27/1982	UG/L	ND	UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	13	NA	10/27/1982	MG/L		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	7.1	PH	10/27/1982	PH UNITS		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	6.9	PH	10/27/1982	PH UNITS		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	149	SC	10/27/1982	UMHOS/CM		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	151	SC	10/27/1982	UMHOS/CM		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	0	SO4	10/27/1982	MG/L	ND	UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501		TDS	10/27/1982	MG/L		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	0	TDS	10/27/1982	MG/L	ND	UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	131	TDS	10/27/1982	MG/L		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	19.5	TEMP	10/27/1982	CELSIUS		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	0	AL	5/17/1983	UG/L	ND	UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	0	AS	5/17/1983	UG/L	ND	UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	8.9	CA	5/17/1983	MG/L		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	2.8	CL	5/17/1983	MG/L		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	0.1	F	5/17/1983	MG/L		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	10	FE	5/17/1983	UG/L		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	0.5	K	5/17/1983	MG/L		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	5.8	MG	5/17/1983	MG/L		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	0	MN	5/17/1983	UG/L	ND	UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	12	NA	5/17/1983	MG/L		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	6.8	PH	5/17/1983	PH UNITS		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	6.9	PH	5/17/1983	PH UNITS		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	140	SC	5/17/1983	UMHOS/CM		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	147	SC	5/17/1983	UMHOS/CM		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	3	SO4	5/17/1983	MG/L		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	131	TDS	5/17/1983	MG/L		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501		TDS	5/17/1983	MG/L		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	134	TDS	5/17/1983	MG/L		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	20.5	TEMP	5/17/1983	CELSIUS		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	0	B	10/18/1983	MG/L	ND	UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	8.9	CA	10/18/1983	MG/L		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	4.1	CL	10/18/1983	MG/L		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	0.1	F	10/18/1983	MG/L		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	0	FE	10/18/1983	UG/L	ND	UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	0.5	K	10/18/1983	MG/L		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	5.9	MG	10/18/1983	MG/L		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	0	MN	10/18/1983	UG/L	ND	UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	12	NA	10/18/1983	MG/L		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501

WELL_ID	RESULTS	CHEMICAL	DATE_	UNITS	QUALIFER	RL	LATITUDE	LONGITUDE	WELL_TYPE	WELL_DEPTH_FT	TOP_OF_SCREEN_FT	SCREEN_LENGTH_FT	SOURCE	SOURCE_NAME	OTHER_NAMES
USGS-402414122242501	7	PH	10/18/1983	PH UNITS		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	142	SC	10/18/1983	UMHOS/CM		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	151	SC	10/18/1983	UMHOS/CM		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	2.8	SO4	10/18/1983	MG/L		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501		TDS	10/18/1983	MG/L		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	133	TDS	10/18/1983	MG/L		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	140	TDS	10/18/1983	MG/L		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	20.5	TEMP	10/18/1983	CELSIUS		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	0	B	5/17/1984	MG/L	ND	UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	9.3	CA	5/17/1984	MG/L		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	3	CL	5/17/1984	MG/L		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	0.1	F	5/17/1984	MG/L		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	30	FE	5/17/1984	UG/L		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	0.5	K	5/17/1984	MG/L		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	6.3	MG	5/17/1984	MG/L		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	0	MN	5/17/1984	UG/L	ND	UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	12	NA	5/17/1984	MG/L		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	7.2	PH	5/17/1984	PH UNITS		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	7	PH	5/17/1984	PH UNITS		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	153	SC	5/17/1984	UMHOS/CM		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	144	SC	5/17/1984	UMHOS/CM		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	1.1	SO4	5/17/1984	MG/L		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	135	TDS	5/17/1984	MG/L		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501		TDS	5/17/1984	MG/L		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	138	TDS	5/17/1984	MG/L		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402414122242501	20	TEMP	5/17/1984	CELSIUS		UNK	40.4037632	-122.408063	UNK	271			USGSNEW	USGS-402414122242501	USGS-402414122242501
USGS-402418122134301	0	AL	10/26/1982	UG/L	ND	UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	0	AS	10/26/1982	UG/L	ND	UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	0.03	B	10/26/1982	MG/L		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	9.4	CA	10/26/1982	MG/L		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	2	CL	10/26/1982	MG/L		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	0	F	10/26/1982	MG/L	ND	UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	0	FE	10/26/1982	UG/L	ND	UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	0.6	K	10/26/1982	MG/L		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	5.4	MG	10/26/1982	MG/L		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	0	MN	10/26/1982	UG/L	ND	UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	6.3	NA	10/26/1982	MG/L		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	6.6	PH	10/26/1982	PH UNITS		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	7	PH	10/26/1982	PH UNITS		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	126	SC	10/26/1982	UMHOS/CM		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	123	SC	10/26/1982	UMHOS/CM		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	6	SO4	10/26/1982	MG/L		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	86	TDS	10/26/1982	MG/L		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301		TDS	10/26/1982	MG/L		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	79	TDS	10/26/1982	MG/L		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	17	TEMP	10/26/1982	CELSIUS		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	0	AL	5/16/1983	UG/L	ND	UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	0	AS	5/16/1983	UG/L	ND	UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	12	CA	5/16/1983	MG/L		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	2.2	CL	5/16/1983	MG/L		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	0	F	5/16/1983	MG/L	ND	UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	40	FE	5/16/1983	UG/L		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	0.6	K	5/16/1983	MG/L		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	6.8	MG	5/16/1983	MG/L		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	20	MN	5/16/1983	UG/L		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	6.7	NA	5/16/1983	MG/L		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	7.1	PH	5/16/1983	PH UNITS		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	6.7	PH	5/16/1983	PH UNITS		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	136	SC	5/16/1983	UMHOS/CM		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	147	SC	5/16/1983	UMHOS/CM		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	4.7	SO4	5/16/1983	MG/L		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301		TDS	5/16/1983	MG/L		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	95	TDS	5/16/1983	MG/L		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	88	TDS	5/16/1983	MG/L		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	15.5	TEMP	5/16/1983	CELSIUS		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	0.03	B	10/17/1983	MG/L		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	12	CA	10/17/1983	MG/L		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	2	CL	10/17/1983	MG/L		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	0	F	10/17/1983	MG/L	ND	UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	0.7	K	10/17/1983	MG/L		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	6.1	MG	10/17/1983	MG/L		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301

WELL_ID	RESULTS	CHEMICAL	DATE_	UNITS	QUALIFER	RL	LATITUDE	LONGITUDE	WELL_TYPE	WELL_DEPTH_FT	TOP_OF_SCREEN_FT	SCREEN_LENGTH_FT	SOURCE	SOURCE_NAME	OTHER_NAMES
USGS-402418122134301	0	MN	10/17/1983	UG/L	ND	UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	6.5	NA	10/17/1983	MG/L		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	6.6	PH	10/17/1983	PH UNITS		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	130	SC	10/17/1983	UMHOS/CM		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	137	SC	10/17/1983	UMHOS/CM		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	4.6	SO4	10/17/1983	MG/L		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301		TDS	10/17/1983	MG/L		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	92	TDS	10/17/1983	MG/L		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	90	TDS	10/17/1983	MG/L		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	18	TEMP	10/17/1983	CELSIUS		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	0.02	B	5/14/1984	MG/L		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	12	CA	5/14/1984	MG/L		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	2.4	CL	5/14/1984	MG/L		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	0	F	5/14/1984	MG/L	ND	UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	650	FE	5/14/1984	UG/L		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	0.5	K	5/14/1984	MG/L		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	6.9	MG	5/14/1984	MG/L		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	0	MN	5/14/1984	UG/L	ND	UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	6.3	NA	5/14/1984	MG/L		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	7	PH	5/14/1984	PH UNITS		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	146	SC	5/14/1984	UMHOS/CM		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	144	SC	5/14/1984	UMHOS/CM		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	4.9	SO4	5/14/1984	MG/L		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	94	TDS	5/14/1984	MG/L		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301		TDS	5/14/1984	MG/L		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	70	TDS	5/14/1984	MG/L		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	96	TDS	5/14/1984	MG/L		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122134301	15.5	TEMP	5/14/1984	CELSIUS		UNK	40.4048757	-122.229723	UNK	100			USGSNEW	USGS-402418122134301	USGS-402418122134301
USGS-402418122140501	0	B	10/17/1979	MG/L		UNK	40.4048756	-122.235834	UNK	100			USGSNEW	USGS-402418122140501	USGS-402418122140501
USGS-402418122140501	12	CA	10/17/1979	MG/L		UNK	40.4048756	-122.235834	UNK	100			USGSNEW	USGS-402418122140501	USGS-402418122140501
USGS-402418122140501	3	CL	10/17/1979	MG/L		UNK	40.4048756	-122.235834	UNK	100			USGSNEW	USGS-402418122140501	USGS-402418122140501
USGS-402418122140501	0.1	F	10/17/1979	MG/L		UNK	40.4048756	-122.235834	UNK	100			USGSNEW	USGS-402418122140501	USGS-402418122140501
USGS-402418122140501	1.6	K	10/17/1979	MG/L		UNK	40.4048756	-122.235834	UNK	100			USGSNEW	USGS-402418122140501	USGS-402418122140501
USGS-402418122140501	10	MG	10/17/1979	MG/L		UNK	40.4048756	-122.235834	UNK	100			USGSNEW	USGS-402418122140501	USGS-402418122140501
USGS-402418122140501	10	NA	10/17/1979	MG/L		UNK	40.4048756	-122.235834	UNK	100			USGSNEW	USGS-402418122140501	USGS-402418122140501
USGS-402418122140501	0.59	NO3N	10/17/1979	MG/L		UNK	40.4048756	-122.235834	UNK	100			USGSNEW	USGS-402418122140501	USGS-402418122140501
USGS-402418122140501	7.1	PH	10/17/1979	PH UNITS		UNK	40.4048756	-122.235834	UNK	100			USGSNEW	USGS-402418122140501	USGS-402418122140501
USGS-402418122140501	178	SC	10/17/1979	UMHOS/CM		UNK	40.4048756	-122.235834	UNK	100			USGSNEW	USGS-402418122140501	USGS-402418122140501
USGS-402418122140501	7	SO4	10/17/1979	MG/L		UNK	40.4048756	-122.235834	UNK	100			USGSNEW	USGS-402418122140501	USGS-402418122140501
USGS-402418122140501	176	TDS	10/17/1979	MG/L		UNK	40.4048756	-122.235834	UNK	100			USGSNEW	USGS-402418122140501	USGS-402418122140501
USGS-402418122140501	165	TDS	10/17/1979	MG/L		UNK	40.4048756	-122.235834	UNK	100			USGSNEW	USGS-402418122140501	USGS-402418122140501
USGS-402418122140501		TDS	10/17/1979	MG/L		UNK	40.4048756	-122.235834	UNK	100			USGSNEW	USGS-402418122140501	USGS-402418122140501
USGS-402418122140501	18	TEMP	10/17/1979	CELSIUS		UNK	40.4048756	-122.235834	UNK	100			USGSNEW	USGS-402418122140501	USGS-402418122140501
USGS-402446122240601	0	B	10/11/1979	MG/L		UNK	40.412652	-122.402785	UNK	375			USGSNEW	USGS-402446122240601	USGS-402446122240601
USGS-402446122240601	11	CA	10/11/1979	MG/L		UNK	40.412652	-122.402785	UNK	375			USGSNEW	USGS-402446122240601	USGS-402446122240601
USGS-402446122240601	4	CL	10/11/1979	MG/L		UNK	40.412652	-122.402785	UNK	375			USGSNEW	USGS-402446122240601	USGS-402446122240601
USGS-402446122240601	0.1	F	10/11/1979	MG/L		UNK	40.412652	-122.402785	UNK	375			USGSNEW	USGS-402446122240601	USGS-402446122240601
USGS-402446122240601	0.5	K	10/11/1979	MG/L		UNK	40.412652	-122.402785	UNK	375			USGSNEW	USGS-402446122240601	USGS-402446122240601
USGS-402446122240601	8	MG	10/11/1979	MG/L		UNK	40.412652	-122.402785	UNK	375			USGSNEW	USGS-402446122240601	USGS-402446122240601
USGS-402446122240601	17	NA	10/11/1979	MG/L		UNK	40.412652	-122.402785	UNK	375			USGSNEW	USGS-402446122240601	USGS-402446122240601
USGS-402446122240601	0.79	NO3N	10/11/1979	MG/L		UNK	40.412652	-122.402785	UNK	375			USGSNEW	USGS-402446122240601	USGS-402446122240601
USGS-402446122240601	6.8	PH	10/11/1979	PH UNITS		UNK	40.412652	-122.402785	UNK	375			USGSNEW	USGS-402446122240601	USGS-402446122240601
USGS-402446122240601	175	SC	10/11/1979	UMHOS/CM		UNK	40.412652	-122.402785	UNK	375			USGSNEW	USGS-402446122240601	USGS-402446122240601
USGS-402446122240601	3	SO4	10/11/1979	MG/L		UNK	40.412652	-122.402785	UNK	375			USGSNEW	USGS-402446122240601	USGS-402446122240601
USGS-402446122240601	156	TDS	10/11/1979	MG/L		UNK	40.412652	-122.402785	UNK	375			USGSNEW	USGS-402446122240601	USGS-402446122240601
USGS-402446122240601		TDS	10/11/1979	MG/L		UNK	40.412652	-122.402785	UNK	375			USGSNEW	USGS-402446122240601	USGS-402446122240601
USGS-402446122240601	164	TDS	10/11/1979	MG/L		UNK	40.412652	-122.402785	UNK	375			USGSNEW	USGS-402446122240601	USGS-402446122240601
USGS-402446122240601	21	TEMP	10/11/1979	CELSIUS		UNK	40.412652	-122.402785	UNK	375			USGSNEW	USGS-402446122240601	USGS-402446122240601
USGS-402457122194501	0	B	10/10/1979	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	13	CA	10/10/1979	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	3	CL	10/10/1979	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	0.1	F	10/10/1979	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	0.9	K	10/10/1979	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	9	MG	10/10/1979	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	17	NA	10/10/1979	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	0.41	NO3N	10/10/1979	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	7	PH	10/10/1979	PH UNITS		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	200	SC	10/10/1979	UMHOS/CM		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	2	SO4	10/10/1979	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	151	TDS	10/10/1979	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	157	TDS	10/10/1979	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501

WELL_ID	RESULTS	CHEMICAL	DATE_	UNITS	QUALIFER	RL	LATITUDE	LONGITUDE	WELL_TYPE	WELL_DEPTH_FT	TOP_OF_SCREEN_FT	SCREEN_LENGTH_FT	SOURCE	SOURCE_NAME	OTHER_NAMES
USGS-402457122194501		TDS	10/10/1979	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	22	TEMP	10/10/1979	CELSIUS		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	0	AL	10/27/1982	UG/L	ND	UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	3	AS	10/27/1982	UG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	0	B	10/27/1982	MG/L	ND	UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	13	CA	10/27/1982	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	3.5	CL	10/27/1982	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	0.1	F	10/27/1982	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	0	FE	10/27/1982	UG/L	ND	UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	0.8	K	10/27/1982	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	9.2	MG	10/27/1982	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	0	MN	10/27/1982	UG/L	ND	UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	18	NA	10/27/1982	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	7.4	PH	10/27/1982	PH UNITS		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	7.7	PH	10/27/1982	PH UNITS		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	212	SC	10/27/1982	UMHOS/CM		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	213	SC	10/27/1982	UMHOS/CM		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	0	SO4	10/27/1982	MG/L	ND	UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501		TDS	10/27/1982	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	0	TDS	10/27/1982	MG/L	ND	UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	152	TDS	10/27/1982	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	19.5	TEMP	10/27/1982	CELSIUS		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	0	AL	5/17/1983	UG/L	ND	UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	3	AS	5/17/1983	UG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	13	CA	5/17/1983	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	3.4	CL	5/17/1983	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	0.1	F	5/17/1983	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	0	FE	5/17/1983	UG/L	ND	UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	0.9	K	5/17/1983	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	9.2	MG	5/17/1983	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	0	MN	5/17/1983	UG/L	ND	UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	17	NA	5/17/1983	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	7.3	PH	5/17/1983	PH UNITS		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	7.1	PH	5/17/1983	PH UNITS		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	204	SC	5/17/1983	UMHOS/CM		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	216	SC	5/17/1983	UMHOS/CM		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	3.6	SO4	5/17/1983	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	154	TDS	5/17/1983	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	148	TDS	5/17/1983	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501		TDS	5/17/1983	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	20	TEMP	5/17/1983	CELSIUS		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	0	B	10/18/1983	MG/L	ND	UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	13	CA	10/18/1983	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	3.5	CL	10/18/1983	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	0.1	F	10/18/1983	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	0	FE	10/18/1983	UG/L	ND	UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	0.9	K	10/18/1983	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	9.1	MG	10/18/1983	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	0	MN	10/18/1983	UG/L	ND	UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	18	NA	10/18/1983	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	7.3	PH	10/18/1983	PH UNITS		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	7.2	PH	10/18/1983	PH UNITS		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	212	SC	10/18/1983	UMHOS/CM		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	203	SC	10/18/1983	UMHOS/CM		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	3.7	SO4	10/18/1983	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	142	TDS	10/18/1983	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501		TDS	10/18/1983	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	166	TDS	10/18/1983	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	21.5	TEMP	10/18/1983	CELSIUS		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	0	B	1/1/1984	MG/L	ND	UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	13	CA	1/1/1984	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	3.3	CL	1/1/1984	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	0.2	F	1/1/1984	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	670	FE	1/1/1984	UG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	0.8	K	1/1/1984	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	9.2	MG	1/1/1984	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	80	MN	1/1/1984	UG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	17	NA	1/1/1984	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	7	PH	1/1/1984	PH UNITS		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	7.3	PH	1/1/1984	PH UNITS		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	211	SC	1/1/1984	UMHOS/CM		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501

WELL_ID	RESULTS	CHEMICAL	DATE_	UNITS	QUALIFER	RL	LATITUDE	LONGITUDE	WELL_TYPE	WELL_DEPTH_FT	TOP_OF_SCREEN_FT	SCREEN_LENGTH_FT	SOURCE	SOURCE_NAME	OTHER_NAMES
USGS-402457122194501	189	SC	1/1/1984	UMHOS/CM		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	3.7	SO4	1/1/1984	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	143	TDS	1/1/1984	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	162	TDS	1/1/1984	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501		TDS	1/1/1984	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	19.5	TEMP	1/1/1984	CELSIUS		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	13	CA	5/15/1984	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	3.3	CL	5/15/1984	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	0.2	F	5/15/1984	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	0.8	K	5/15/1984	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	9.2	MG	5/15/1984	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	17	NA	5/15/1984	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	7	PH	5/15/1984	PH UNITS		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	189	SC	5/15/1984	UMHOS/CM		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	3.7	SO4	5/15/1984	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501		TDS	5/15/1984	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	161	TDS	5/15/1984	MG/L		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402457122194501	19.5	TEMP	5/15/1984	CELSIUS		UNK	40.4157081	-122.330282	UNK	336			USGSNEW	USGS-402457122194501	USGS-402457122194501
USGS-402500122110001	0	24D	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	AG	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	AL	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	ALACL	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	ALDICARB	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	ALDSULF	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	ALDSULFOX	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	1.3	AS	12/5/2007	UG/L		UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	ATRAZINE	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	AZIPM	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0.027	B	12/5/2007	MG/L		UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0.0128	BA	12/5/2007	MG/L		UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	BDCME	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	BE	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0.017	BR	12/5/2007	MG/L		UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	BRME	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	BROMCIL	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	BTBZN	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	BTBZS	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	BTBZT	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	BTZ	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	BZ	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	BZME	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0.34	C-14	12/5/2007	PCT MODERN		UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	71.85	C-14	12/5/2007	PCT MODERN		UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	20.5	CA	12/5/2007	MG/L		UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	CD	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	CDS	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	2.81	CL	12/5/2007	MG/L		UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	CLBZ	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	3.6	CR	12/5/2007	UG/L		UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	4	CR	12/5/2007	UG/L		UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	CRBFN	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	CTCL	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	CU	12/5/2007	MG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	DBCME	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	DBCP	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	DCA11	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	DCA12	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	DCE11	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	DCE12C	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	DCE12T	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	DCMA	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	DCPA12	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	DIAZ	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	DICAMBA	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	DICHLORVOS	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	DIELDRIN	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	DIMETHAT	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	DINOSEB	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	DIURON	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	EBZ	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	EDB	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001

WELL_ID	RESULTS	CHEMICAL	DATE_	UNITS	QUALIFER	RL	LATITUDE	LONGITUDE	WELL_TYPE	WELL_DEPTH_FT	TOP_OF_SCREEN_FT	SCREEN_LENGTH_FT	SOURCE	SOURCE_NAME	OTHER_NAMES
USGS-402500122110001	0	ETBE	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0.1	F	12/5/2007	MG/L		UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	FC113	12/5/2007	MG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	FE	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	FENPHOS	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	FONOFOS	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	H-3	12/5/2007	pCi/L		UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0.6	H-3	12/5/2007	pCi/L		UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	HCBU	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	HEXAZINONE	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	HG	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001		HGE	12/5/2007		ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	I	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	IME	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	IPBZ	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	IPRODIONE	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	2.21	K	12/5/2007	MG/L		UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	LI	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	LINURON	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	MALA	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	METALAXYL	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	METHOMYL	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	METOCHLOR	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	METRIBUZ	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	20.1	MG	12/5/2007	MG/L		UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	MIBK	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	MN	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0.318	MO	12/5/2007	UG/L		UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	MOLINATE	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	MTBE	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	3	N15N14NO3	12/5/2007	per mil		UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	14.6	NA	12/5/2007	MG/L		UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	NAPH	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	NH3NH4N	12/5/2007	MG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	NI	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	NO2	12/5/2007	MG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0.653	NO3N	12/5/2007	MG/L		UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	NORFLUZON	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	OXAMYL	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	PB	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	PBZN	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	PCA	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0.15	PCATE	12/5/2007	UG/L		UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	PCATE	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	7.7	PH	12/5/2007	PH UNITS		UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	PHORATE	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	PROMETON	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	PROMETRYN	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	PROPANIL	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	SB	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	304	SC	12/5/2007	UMHOS/CM		UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	302	SC	12/5/2007	UMHOS/CM		UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0.07	SE	12/5/2007	UG/L		UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	SEVIN	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	SIMAZINE	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0.57	SO4	12/5/2007	MG/L		UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	124	SR	12/5/2007	UG/L		UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	STY	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	TAME	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	TBME	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	TCA111	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	TCA112	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	TCB124	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	TCLME	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	TCPR123	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	203	TDS	12/5/2007	MG/L		UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001		TDS	12/5/2007	MG/L		UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	232	TDS	12/5/2007	MG/L		UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	TEBUTHIURON	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	18	TEMP	12/5/2007	CELSIUS		UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	THIOBENCARB	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001

WELL_ID	RESULTS	CHEMICAL	DATE_	UNITS	QUALIFER	RL	LATITUDE	LONGITUDE	WELL_TYPE	WELL_DEPTH_FT	TOP_OF_SCREEN_FT	SCREEN_LENGTH_FT	SOURCE	SOURCE_NAME	OTHER_NAMES
USGS-402500122110001	0	TL	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	TMB124	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	TMB135	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	TRICLOPYR	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	TRIFLURALIN	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	24.4	V	12/5/2007	UG/L		UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	VC	12/5/2007	UG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122110001	0	ZN	12/5/2007	MG/L	ND	UNK	40.4181389	-122.195972	UNK				USGSNEW	USGS-402500122110001	USGS-402500122110001
USGS-402500122130001	0	24D	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	AG	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	AL	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	ALACL	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	ALDICARB	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	ALDSULF	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	ALDSULFOX	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	1.2	AS	12/12/2007	UG/L		UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	ATRAZINE	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	AZIPM	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0.009	B	12/12/2007	MG/L		UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0.0465	BA	12/12/2007	MG/L		UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	BDCME	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	BE	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	BR	12/12/2007	MG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	BRME	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	BROMCIL	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	BTBZN	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	BTBZS	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	BTBZT	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	BTZ	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	BZ	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	BZME	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	120.1	C-14	12/12/2007	PCT MODERN		UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0.5	C-14	12/12/2007	PCT MODERN		UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	16.2	CA	12/12/2007	MG/L		UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	CD	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	CDS	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	3.06	CL	12/12/2007	MG/L		UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	CLBZ	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	2	CR	12/12/2007	UG/L		UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	1.7	CR	12/12/2007	UG/L		UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	CRBFN	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	CTCL	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	CU	12/12/2007	MG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	DBCME	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	DBCP	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	DCA11	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	DCA12	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	DCE11	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	DCE12C	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	DCE12T	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	DCMA	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	DCPA12	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	DIAZ	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	DICAMBA	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	DICHLORVOS	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	DIELDRIN	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	DIMETHAT	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	DINOSEB	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	DIURON	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	EBZ	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	EDB	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	ETBE	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0.16	F	12/12/2007	MG/L		UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	FC113	12/12/2007	MG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	FE	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	FENPHOS	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	FONOFOS	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	14.4	H-3	12/12/2007	pCi/L		UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	1	H-3	12/12/2007	pCi/L		UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	HCBU	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	HEXAZINONE	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001

WELL_ID	RESULTS	CHEMICAL	DATE_	UNITS	QUALIFER	RL	LATITUDE	LONGITUDE	WELL_TYPE	WELL_DEPTH_FT	TOP_OF_SCREEN_FT	SCREEN_LENGTH_FT	SOURCE	SOURCE_NAME	OTHER_NAMES
USGS-402500122130001	0	HG	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001		HGE	12/12/2007		ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	I	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	IME	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	IPBZ	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	IPRODIONE	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	1.82	K	12/12/2007	MG/L		UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0.72	LI	12/12/2007	UG/L		UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	LINURON	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	MALA	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	METALAXYL	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	METHOMYL	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	METOCHLOR	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	METRIBUZ	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	14.2	MG	12/12/2007	MG/L		UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	MIBK	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	MN	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0.353	MO	12/12/2007	UG/L		UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	MOLINATE	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	MTBE	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	5.92	N15N14NO3	12/12/2007	per mil		UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	14	NA	12/12/2007	MG/L		UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	NAPH	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	NH3NH4N	12/12/2007	MG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	NI	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	NO2	12/12/2007	MG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	1.81	NO3N	12/12/2007	MG/L		UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	NORFLUZON	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	OXAMYL	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	PB	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	PBZN	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	PCA	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	PCATE	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	7.7	PH	12/12/2007	PH UNITS		UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	7.4	PH	12/12/2007	PH UNITS		UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	PHORATE	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	PICLORAM	12/12/2007	MG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	PROMETON	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	PROMETRYN	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	PROPANIL	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	SB	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	255	SC	12/12/2007	UMHOS/CM		UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	256	SC	12/12/2007	UMHOS/CM		UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0.03	SE	12/12/2007	UG/L		UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	SEVIN	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	SIMAZINE	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	8.19	SO4	12/12/2007	MG/L		UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	142	SR	12/12/2007	UG/L		UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	STY	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	TAME	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	TBME	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	TCA111	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	TCA112	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	TCB124	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	TCLME	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	TCPR123	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001		TDS	12/12/2007	MG/L		UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	190	TDS	12/12/2007	MG/L		UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	200	TDS	12/12/2007	MG/L		UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	TEBUTHIURON	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	18	TEMP	12/12/2007	CELSIUS		UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	THIOBENCARB	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	TL	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	TMB124	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	TMB135	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	TRICLOPYR	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	TRIFLURALIN	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	13.8	V	12/12/2007	UG/L		UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	VC	12/12/2007	UG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122130001	0	ZN	12/12/2007	MG/L	ND	UNK	40.42525	-122.225722	UNK				USGSNEW	USGS-402500122130001	USGS-402500122130001
USGS-402500122250001	0	24D	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001

WELL_ID	RESULTS	CHEMICAL	DATE_	UNITS	QUALIFER	RL	LATITUDE	LONGITUDE	WELL_TYPE	WELL_DEPTH_FT	TOP_OF_SCREEN_FT	SCREEN_LENGTH_FT	SOURCE	SOURCE_NAME	OTHER_NAMES
USGS-402500122250001	0	AG	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	AL	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	ALACL	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	ALDICARB	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0.49	AS	12/3/2007	UG/L		UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	ATRAZINE	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	AZIPM	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0.003	B	12/3/2007	MG/L		UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0.0244	BA	12/3/2007	MG/L		UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	BDCME	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	BE	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0.038	BR	12/3/2007	MG/L		UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	BRME	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	BROMCIL	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	BTBZN	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	BTBZS	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	BTBZT	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	BTZ	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	BZ	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	BZME	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	87.23	C-14	12/3/2007	PCT MODERN		UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0.4	C-14	12/3/2007	PCT MODERN		UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	10.3	CA	12/3/2007	MG/L		UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	CD	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	CDS	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	5.41	CL	12/3/2007	MG/L		UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	CLBZ	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	CR	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	CRBFN	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	CTCL	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	CU	12/3/2007	MG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	DBCME	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	DBCP	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	DCA11	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	DCA12	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	DCE11	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	DCE12C	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	DCE12T	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	DCMA	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	DCPA12	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	DIAZ	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	DICAMBA	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	DICHLORVOS	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	DIELDRIN	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	DIMETHAT	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	DINOSEB	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	DIURON	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	EBZ	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	EDB	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	ETBE	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0.09	F	12/3/2007	MG/L		UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	FC113	12/3/2007	MG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	7.5	FE	12/3/2007	UG/L		UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	FENPHOS	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	FONOFOS	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0.6	H-3	12/3/2007	pCi/L		UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	3.8	H-3	12/3/2007	pCi/L		UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	HCBU	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	HEXAZINONE	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	HG	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001		HGE	12/3/2007		ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	I	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	IME	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	IPBZ	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	IPRODIONE	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0.46	K	12/3/2007	MG/L		UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	1.44	LI	12/3/2007	UG/L		UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	LINURON	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	MALA	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	METALAXYL	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	METOCHLOR	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001

WELL_ID	RESULTS	CHEMICAL	DATE_	UNITS	QUALIFER	RL	LATITUDE	LONGITUDE	WELL_TYPE	WELL_DEPTH_FT	TOP_OF_SCREEN_FT	SCREEN_LENGTH_FT	SOURCE	SOURCE_NAME	OTHER_NAMES
USGS-402500122250001	0	METRIBUZ	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	6.89	MG	12/3/2007	MG/L		UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	MIBK	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0.43	MN	12/3/2007	UG/L		UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0.229	MO	12/3/2007	UG/L		UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	MOLINATE	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	MTBE	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	4.31	N15N14NO3	12/3/2007	per mil		UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	16.7	NA	12/3/2007	MG/L		UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	NAPH	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	NH3NH4N	12/3/2007	MG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	NI	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	NO2	12/3/2007	MG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	1.05	NO3N	12/3/2007	MG/L		UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	NORFLUZON	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0.833	PB	12/3/2007	UG/L		UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	PBZN	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	PCA	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0.59	PCATE	12/3/2007	UG/L		UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	PCATE	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	6.9	PH	12/3/2007	PH UNITS		UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	7	PH	12/3/2007	PH UNITS		UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	PHORATE	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	PROMETON	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	PROMETRYN	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	PROPANIL	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	SB	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	173	SC	12/3/2007	UMHOS/CM		UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0.17	SE	12/3/2007	UG/L		UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	SEVIN	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	SIMAZINE	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0.65	SO4	12/3/2007	MG/L		UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	89	SR	12/3/2007	UG/L		UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	STY	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	TAME	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	TBME	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	TCA111	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	TCA112	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	TCB124	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	TCLME	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	TCPR123	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	147	TDS	12/3/2007	MG/L		UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	153	TDS	12/3/2007	MG/L		UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001		TDS	12/3/2007	MG/L		UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	TEBUTHIURON	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	19.5	TEMP	12/3/2007	CELSIUS		UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	THIOBENCARB	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	TL	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	TMB124	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	TMB135	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	TRICLOPYR	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	TRIFLURALIN	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	4.7	V	12/3/2007	UG/L		UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0	VC	12/3/2007	UG/L	ND	UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402500122250001	0.261	ZN	12/3/2007	MG/L		UNK	40.4215833	-122.418667	UNK				USGSNEW	USGS-402500122250001	USGS-402500122250001
USGS-402505122170401	0	AL	10/27/1982	UG/L	ND	UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	1	AS	10/27/1982	UG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	0.01	B	10/27/1982	MG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	11	CA	10/27/1982	MG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	2.6	CL	10/27/1982	MG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	0.2	F	10/27/1982	MG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	0	FE	10/27/1982	UG/L	ND	UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	0.8	K	10/27/1982	MG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	7.5	MG	10/27/1982	MG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	0	MN	10/27/1982	UG/L	ND	UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	18	NA	10/27/1982	MG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	8	PH	10/27/1982	PH UNITS		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	7.7	PH	10/27/1982	PH UNITS		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	195	SC	10/27/1982	UMHOS/CM		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	197	SC	10/27/1982	UMHOS/CM		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	5	SO4	10/27/1982	MG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401

WELL_ID	RESULTS	CHEMICAL	DATE_	UNITS	QUALIFER	RL	LATITUDE	LONGITUDE	WELL_TYPE	WELL_DEPTH_FT	TOP_OF_SCREEN_FT	SCREEN_LENGTH_FT	SOURCE	SOURCE_NAME	OTHER_NAMES
USGS-402505122170401		TDS	10/27/1982	MG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	153	TDS	10/27/1982	MG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	137	TDS	10/27/1982	MG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	19.5	TEMP	10/27/1982	CELSIUS		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	0	AL	5/17/1983	UG/L	ND	UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	1	AS	5/17/1983	UG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	11	CA	5/17/1983	MG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	2.6	CL	5/17/1983	MG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	0.2	F	5/17/1983	MG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	10	FE	5/17/1983	UG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	0.8	K	5/17/1983	MG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	7.7	MG	5/17/1983	MG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	0	MN	5/17/1983	UG/L	ND	UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	18	NA	5/17/1983	MG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	7.4	PH	5/17/1983	PH UNITS		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	7.3	PH	5/17/1983	PH UNITS		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	192	SC	5/17/1983	UMHOS/CM		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	198	SC	5/17/1983	UMHOS/CM		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	4.7	SO4	5/17/1983	MG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	139	TDS	5/17/1983	MG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401		TDS	5/17/1983	MG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	153	TDS	5/17/1983	MG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	21.5	TEMP	5/17/1983	CELSIUS		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	0.01	B	10/19/1983	MG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	11	CA	10/19/1983	MG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	2.8	CL	10/19/1983	MG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	0.2	F	10/19/1983	MG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	0	FE	10/19/1983	UG/L	ND	UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	0.8	K	10/19/1983	MG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	7.6	MG	10/19/1983	MG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	0	MN	10/19/1983	UG/L	ND	UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	18	NA	10/19/1983	MG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	7.6	PH	10/19/1983	PH UNITS		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	7.5	PH	10/19/1983	PH UNITS		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	184	SC	10/19/1983	UMHOS/CM		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	193	SC	10/19/1983	UMHOS/CM		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	5	SO4	10/19/1983	MG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401		TDS	10/19/1983	MG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	147	TDS	10/19/1983	MG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	139	TDS	10/19/1983	MG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	18.5	TEMP	10/19/1983	CELSIUS		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	0.01	B	5/15/1984	MG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	11	CA	5/15/1984	MG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	2.5	CL	5/15/1984	MG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	0.2	F	5/15/1984	MG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	210	FE	5/15/1984	UG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	0.7	K	5/15/1984	MG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	7.6	MG	5/15/1984	MG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	0	MN	5/15/1984	UG/L	ND	UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	17	NA	5/15/1984	MG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	7.3	PH	5/15/1984	PH UNITS		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	7.7	PH	5/15/1984	PH UNITS		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	194	SC	5/15/1984	UMHOS/CM		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	191	SC	5/15/1984	UMHOS/CM		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	4.8	SO4	5/15/1984	MG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401		TDS	5/15/1984	MG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	146	TDS	5/15/1984	MG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	130	TDS	5/15/1984	MG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	145	TDS	5/15/1984	MG/L		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402505122170401	19	TEMP	5/15/1984	CELSIUS		UNK	40.4179306	-122.285558	UNK	300			USGSNEW	USGS-402505122170401	USGS-402505122170401
USGS-402515122170501	0	AG	10/10/1979	UG/L		UNK	40.4207084	-122.285836	UNK	320			USGSNEW	USGS-402515122170501	USGS-402515122170501
USGS-402515122170501	1	AS	10/10/1979	UG/L		UNK	40.4207084	-122.285836	UNK	320			USGSNEW	USGS-402515122170501	USGS-402515122170501
USGS-402515122170501	0	B	10/10/1979	MG/L		UNK	40.4207084	-122.285836	UNK	320			USGSNEW	USGS-402515122170501	USGS-402515122170501
USGS-402515122170501	0.03	BA	10/10/1979	MG/L		UNK	40.4207084	-122.285836	UNK	320			USGSNEW	USGS-402515122170501	USGS-402515122170501
USGS-402515122170501	13	CA	10/10/1979	MG/L		UNK	40.4207084	-122.285836	UNK	320			USGSNEW	USGS-402515122170501	USGS-402515122170501
USGS-402515122170501	0	CD	10/10/1979	UG/L	ND	UNK	40.4207084	-122.285836	UNK	320			USGSNEW	USGS-402515122170501	USGS-402515122170501
USGS-402515122170501	2	CL	10/10/1979	MG/L		UNK	40.4207084	-122.285836	UNK	320			USGSNEW	USGS-402515122170501	USGS-402515122170501
USGS-402515122170501	0	CR	10/10/1979	UG/L		UNK	40.4207084	-122.285836	UNK	320			USGSNEW	USGS-402515122170501	USGS-402515122170501
USGS-402515122170501	0	CU	10/10/1979	MG/L	ND	UNK	40.4207084	-122.285836	UNK	320			USGSNEW	USGS-402515122170501	USGS-402515122170501
USGS-402515122170501	0.1	F	10/10/1979	MG/L		UNK	40.4207084	-122.285836	UNK	320			USGSNEW	USGS-402515122170501	USGS-402515122170501
USGS-402515122170501	0	FE	10/10/1979	UG/L	ND	UNK	40.4207084	-122.285836	UNK	320			USGSNEW	USGS-402515122170501	USGS-402515122170501

WELL_ID	RESULTS	CHEMICAL	DATE_	UNITS	QUALIFER	RL	LATITUDE	LONGITUDE	WELL_TYPE	WELL_DEPTH_FT	TOP_OF_SCREEN_FT	SCREEN_LENGTH_FT	SOURCE	SOURCE_NAME	OTHER_NAMES
USGS-402515122170501	0	HG	10/10/1979	UG/L		UNK	40.4207084	-122.285836	UNK	320			USGSNEW	USGS-402515122170501	USGS-402515122170501
USGS-402515122170501		HGE	10/10/1979			UNK	40.4207084	-122.285836	UNK	320			USGSNEW	USGS-402515122170501	USGS-402515122170501
USGS-402515122170501	0.8	K	10/10/1979	MG/L		UNK	40.4207084	-122.285836	UNK	320			USGSNEW	USGS-402515122170501	USGS-402515122170501
USGS-402515122170501	10	MG	10/10/1979	MG/L		UNK	40.4207084	-122.285836	UNK	320			USGSNEW	USGS-402515122170501	USGS-402515122170501
USGS-402515122170501	0	MN	10/10/1979	UG/L	ND	UNK	40.4207084	-122.285836	UNK	320			USGSNEW	USGS-402515122170501	USGS-402515122170501
USGS-402515122170501	18	NA	10/10/1979	MG/L		UNK	40.4207084	-122.285836	UNK	320			USGSNEW	USGS-402515122170501	USGS-402515122170501
USGS-402515122170501	0.29	NO3N	10/10/1979	MG/L		UNK	40.4207084	-122.285836	UNK	320			USGSNEW	USGS-402515122170501	USGS-402515122170501
USGS-402515122170501	0	PB	10/10/1979	UG/L		UNK	40.4207084	-122.285836	UNK	320			USGSNEW	USGS-402515122170501	USGS-402515122170501
USGS-402515122170501	7.4	PH	10/10/1979	PH UNITS		UNK	40.4207084	-122.285836	UNK	320			USGSNEW	USGS-402515122170501	USGS-402515122170501
USGS-402515122170501	217	SC	10/10/1979	UMHOS/CM		UNK	40.4207084	-122.285836	UNK	320			USGSNEW	USGS-402515122170501	USGS-402515122170501
USGS-402515122170501	1	SE	10/10/1979	UG/L		UNK	40.4207084	-122.285836	UNK	320			USGSNEW	USGS-402515122170501	USGS-402515122170501
USGS-402515122170501	6	SO4	10/10/1979	MG/L		UNK	40.4207084	-122.285836	UNK	320			USGSNEW	USGS-402515122170501	USGS-402515122170501
USGS-402515122170501	149	TDS	10/10/1979	MG/L		UNK	40.4207084	-122.285836	UNK	320			USGSNEW	USGS-402515122170501	USGS-402515122170501
USGS-402515122170501		TDS	10/10/1979	MG/L		UNK	40.4207084	-122.285836	UNK	320			USGSNEW	USGS-402515122170501	USGS-402515122170501
USGS-402515122170501	159	TDS	10/10/1979	MG/L		UNK	40.4207084	-122.285836	UNK	320			USGSNEW	USGS-402515122170501	USGS-402515122170501
USGS-402515122170501	23	TEMP	10/10/1979	CELSIUS		UNK	40.4207084	-122.285836	UNK	320			USGSNEW	USGS-402515122170501	USGS-402515122170501
USGS-402515122170501	1.6	ZN	10/10/1979	MG/L		UNK	40.4207084	-122.285836	UNK	320			USGSNEW	USGS-402515122170501	USGS-402515122170501
USGS-402538122254901	0	AG	10/10/1979	UG/L		UNK	40.4270961	-122.431397	UNK	402			USGSNEW	USGS-402538122254901	USGS-402538122254901
USGS-402538122254901	1	AS	10/10/1979	UG/L		UNK	40.4270961	-122.431397	UNK	402			USGSNEW	USGS-402538122254901	USGS-402538122254901
USGS-402538122254901	0	B	10/10/1979	MG/L		UNK	40.4270961	-122.431397	UNK	402			USGSNEW	USGS-402538122254901	USGS-402538122254901
USGS-402538122254901	0.03	BA	10/10/1979	MG/L		UNK	40.4270961	-122.431397	UNK	402			USGSNEW	USGS-402538122254901	USGS-402538122254901
USGS-402538122254901	7	CA	10/10/1979	MG/L		UNK	40.4270961	-122.431397	UNK	402			USGSNEW	USGS-402538122254901	USGS-402538122254901
USGS-402538122254901	0	CD	10/10/1979	UG/L	ND	UNK	40.4270961	-122.431397	UNK	402			USGSNEW	USGS-402538122254901	USGS-402538122254901
USGS-402538122254901	2	CL	10/10/1979	MG/L		UNK	40.4270961	-122.431397	UNK	402			USGSNEW	USGS-402538122254901	USGS-402538122254901
USGS-402538122254901	0	CR	10/10/1979	UG/L		UNK	40.4270961	-122.431397	UNK	402			USGSNEW	USGS-402538122254901	USGS-402538122254901
USGS-402538122254901	0	CU	10/10/1979	MG/L	ND	UNK	40.4270961	-122.431397	UNK	402			USGSNEW	USGS-402538122254901	USGS-402538122254901
USGS-402538122254901	0.1	F	10/10/1979	MG/L		UNK	40.4270961	-122.431397	UNK	402			USGSNEW	USGS-402538122254901	USGS-402538122254901
USGS-402538122254901	0	FE	10/10/1979	UG/L	ND	UNK	40.4270961	-122.431397	UNK	402			USGSNEW	USGS-402538122254901	USGS-402538122254901
USGS-402538122254901	0	HG	10/10/1979	UG/L		UNK	40.4270961	-122.431397	UNK	402			USGSNEW	USGS-402538122254901	USGS-402538122254901
USGS-402538122254901		HGE	10/10/1979			UNK	40.4270961	-122.431397	UNK	402			USGSNEW	USGS-402538122254901	USGS-402538122254901
USGS-402538122254901	0.3	K	10/10/1979	MG/L		UNK	40.4270961	-122.431397	UNK	402			USGSNEW	USGS-402538122254901	USGS-402538122254901
USGS-402538122254901	4	MG	10/10/1979	MG/L		UNK	40.4270961	-122.431397	UNK	402			USGSNEW	USGS-402538122254901	USGS-402538122254901
USGS-402538122254901	0	MN	10/10/1979	UG/L	ND	UNK	40.4270961	-122.431397	UNK	402			USGSNEW	USGS-402538122254901	USGS-402538122254901
USGS-402538122254901	12	NA	10/10/1979	MG/L		UNK	40.4270961	-122.431397	UNK	402			USGSNEW	USGS-402538122254901	USGS-402538122254901
USGS-402538122254901	0.41	NO3N	10/10/1979	MG/L		UNK	40.4270961	-122.431397	UNK	402			USGSNEW	USGS-402538122254901	USGS-402538122254901
USGS-402538122254901	0	PB	10/10/1979	UG/L		UNK	40.4270961	-122.431397	UNK	402			USGSNEW	USGS-402538122254901	USGS-402538122254901
USGS-402538122254901	6.7	PH	10/10/1979	PH UNITS		UNK	40.4270961	-122.431397	UNK	402			USGSNEW	USGS-402538122254901	USGS-402538122254901
USGS-402538122254901	118	SC	10/10/1979	UMHOS/CM		UNK	40.4270961	-122.431397	UNK	402			USGSNEW	USGS-402538122254901	USGS-402538122254901
USGS-402538122254901	0	SE	10/10/1979	UG/L		UNK	40.4270961	-122.431397	UNK	402			USGSNEW	USGS-402538122254901	USGS-402538122254901
USGS-402538122254901	2	SO4	10/10/1979	MG/L		UNK	40.4270961	-122.431397	UNK	402			USGSNEW	USGS-402538122254901	USGS-402538122254901
USGS-402538122254901	122	TDS	10/10/1979	MG/L		UNK	40.4270961	-122.431397	UNK	402			USGSNEW	USGS-402538122254901	USGS-402538122254901
USGS-402538122254901	133	TDS	10/10/1979	MG/L		UNK	40.4270961	-122.431397	UNK	402			USGSNEW	USGS-402538122254901	USGS-402538122254901
USGS-402538122254901		TDS	10/10/1979	MG/L		UNK	40.4270961	-122.431397	UNK	402			USGSNEW	USGS-402538122254901	USGS-402538122254901
USGS-402538122254901	20.5	TEMP	10/10/1979	CELSIUS		UNK	40.4270961	-122.431397	UNK	402			USGSNEW	USGS-402538122254901	USGS-402538122254901
USGS-402538122254901	1	ZN	10/10/1979	MG/L		UNK	40.4270961	-122.431397	UNK	402			USGSNEW	USGS-402538122254901	USGS-402538122254901
USGS-402545122131101	0	B	10/17/1979	MG/L		UNK	40.4290422	-122.220834	UNK	137			USGSNEW	USGS-402545122131101	USGS-402545122131101
USGS-402545122131101	17	CA	10/17/1979	MG/L		UNK	40.4290422	-122.220834	UNK	137			USGSNEW	USGS-402545122131101	USGS-402545122131101
USGS-402545122131101	3	CL	10/17/1979	MG/L		UNK	40.4290422	-122.220834	UNK	137			USGSNEW	USGS-402545122131101	USGS-402545122131101
USGS-402545122131101	0.1	F	10/17/1979	MG/L		UNK	40.4290422	-122.220834	UNK	137			USGSNEW	USGS-402545122131101	USGS-402545122131101
USGS-402545122131101	1.6	K	10/17/1979	MG/L		UNK	40.4290422	-122.220834	UNK	137			USGSNEW	USGS-402545122131101	USGS-402545122131101
USGS-402545122131101	15	MG	10/17/1979	MG/L		UNK	40.4290422	-122.220834	UNK	137			USGSNEW	USGS-402545122131101	USGS-402545122131101
USGS-402545122131101	11	NA	10/17/1979	MG/L		UNK	40.4290422	-122.220834	UNK	137			USGSNEW	USGS-402545122131101	USGS-402545122131101
USGS-402545122131101	0.5	NO3N	10/17/1979	MG/L		UNK	40.4290422	-122.220834	UNK	137			USGSNEW	USGS-402545122131101	USGS-402545122131101
USGS-402545122131101	7	PH	10/17/1979	PH UNITS		UNK	40.4290422	-122.220834	UNK	137			USGSNEW	USGS-402545122131101	USGS-402545122131101
USGS-402545122131101	236	SC	10/17/1979	UMHOS/CM		UNK	40.4290422	-122.220834	UNK	137			USGSNEW	USGS-402545122131101	USGS-402545122131101
USGS-402545122131101	6	SO4	10/17/1979	MG/L		UNK	40.4290422	-122.220834	UNK	137			USGSNEW	USGS-402545122131101	USGS-402545122131101
USGS-402545122131101	188	TDS	10/17/1979	MG/L		UNK	40.4290422	-122.220834	UNK	137			USGSNEW	USGS-402545122131101	USGS-402545122131101
USGS-402545122131101	182	TDS	10/17/1979	MG/L		UNK	40.4290422	-122.220834	UNK	137			USGSNEW	USGS-402545122131101	USGS-402545122131101
USGS-402545122131101		TDS	10/17/1979	MG/L		UNK	40.4290422	-122.220834	UNK	137			USGSNEW	USGS-402545122131101	USGS-402545122131101
USGS-402545122131101	16.5	TEMP	10/17/1979	CELSIUS		UNK	40.4290422	-122.220834	UNK	137			USGSNEW	USGS-402545122131101	USGS-402545122131101
USGS-402600122180001	0	24D	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	AG	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	AL	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	ALACL	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	ALDICARB	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	ALDSULF	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	ALDSULFOX	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0.79	AS	1/15/2008	UG/L		UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	ATRAZINE	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	AZIPM	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0.009	B	1/15/2008	MG/L		UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001

WELL_ID	RESULTS	CHEMICAL	DATE_	UNITS	QUALIFER	RL	LATITUDE	LONGITUDE	WELL_TYPE	WELL_DEPTH_FT	TOP_OF_SCREEN_FT	SCREEN_LENGTH_FT	SOURCE	SOURCE_NAME	OTHER_NAMES
USGS-402600122180001	0.0211	BA	1/15/2008	MG/L		UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	BDCME	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	BE	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0.037	BR	1/15/2008	MG/L		UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	BRME	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	BROMCIL	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	BTBZN	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	BTBZS	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	BTBZT	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	BTZ	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	BZ	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	BZME	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	91.74	C-14	1/15/2008	PCT MODERN		UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0.41	C-14	1/15/2008	PCT MODERN		UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	9.8	CA	1/15/2008	MG/L		UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	CD	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	CDS	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	3.66	CL	1/15/2008	MG/L		UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	CLBZ	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	1.5	CR	1/15/2008	UG/L		UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	2	CR	1/15/2008	UG/L		UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	CRBFN	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	CTCL	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	CU	1/15/2008	MG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	DBCME	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	DBCP	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	DCA11	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	DCA12	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	DCE11	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	DCE12C	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	DCE12T	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	DCMA	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	DCPA12	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	DIAZ	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	DICAMBA	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	DICHLORVOS	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	DIELDRIN	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	DIMETHAT	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	DINOSEB	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	DIURON	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	EBZ	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	EDB	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	ETBE	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0.18	F	1/15/2008	MG/L		UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	FC113	1/15/2008	MG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	FE	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	FENPHOS	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	FONOFOS	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	8	H-3	1/15/2008	pCi/L		UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	1	H-3	1/15/2008	pCi/L		UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	HCBU	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	HEXAZINONE	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	HG	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001		HGE	1/15/2008		ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	I	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	IME	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	IPBZ	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	IPRODIONE	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0.93	K	1/15/2008	MG/L		UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0.92	LI	1/15/2008	UG/L		UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	LINURON	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	MALA	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	METALAXYL	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	METHOMYL	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	METOCHLOR	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	METRIBUZ	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	9.19	MG	1/15/2008	MG/L		UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	MIBK	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0.89	MN	1/15/2008	UG/L		UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0.583	MO	1/15/2008	UG/L		UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	MOLINATE	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001

WELL_ID	RESULTS	CHEMICAL	DATE_	UNITS	QUALIFER	RL	LATITUDE	LONGITUDE	WELL_TYPE	WELL_DEPTH_FT	TOP_OF_SCREEN_FT	SCREEN_LENGTH_FT	SOURCE	SOURCE_NAME	OTHER_NAMES
USGS-402600122180001	0	MTBE	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	6.35	N15N14NO3	1/15/2008	per mil		UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	10.8	NA	1/15/2008	MG/L		UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	NAPH	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0.01	NH3NH4N	1/15/2008	MG/L		UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0.014	NH3NH4N	1/15/2008	MG/L		UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0.51	NI	1/15/2008	UG/L		UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0.001	NO2	1/15/2008	MG/L		UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	1.33	NO3N	1/15/2008	MG/L		UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	NORFLUZON	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	OXAMYL	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	PB	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	PBZN	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	PCA	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0.15	PCATE	1/15/2008	UG/L		UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	7.3	PH	1/15/2008	PH UNITS		UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	7.2	PH	1/15/2008	PH UNITS		UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	PHORATE	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	PICLORAM	1/15/2008	MG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	PROMETON	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	PROMETRYN	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	PROPANIL	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	SB	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	166	SC	1/15/2008	UMHOS/CM		UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	164	SC	1/15/2008	UMHOS/CM		UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0.46	SE	1/15/2008	UG/L		UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	SEVIN	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	SIMAZINE	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	8.28	SO4	1/15/2008	MG/L		UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	70.7	SR	1/15/2008	UG/L		UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	STY	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	TAME	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	TBME	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	TCA111	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	TCA112	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	TCB124	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	TCLME	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	TCPR123	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	147	TDS	1/15/2008	MG/L		UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001		TDS	1/15/2008	MG/L		UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	141	TDS	1/15/2008	MG/L		UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	TEBUTHIURON	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	20.5	TEMP	1/15/2008	CELSIUS		UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	THIOBENCARB	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	TL	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	TMB124	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	TMB135	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	TRICLOPYR	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	TRIFLURALIN	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	9.6	V	1/15/2008	UG/L		UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	VC	1/15/2008	UG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180001	0	ZN	1/15/2008	MG/L	ND	UNK	40.4411944	-122.301583	UNK				USGSNEW	USGS-402600122180001	USGS-402600122180001
USGS-402600122180002	0	24D	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	AG	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	AL	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	ALACL	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	ALDICARB	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0.66	AS	1/15/2008	UG/L		UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	ATRAZINE	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	AZIPM	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0.01	B	1/15/2008	MG/L		UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0.0216	BA	1/15/2008	MG/L		UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	BDCME	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	BE	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0.016	BR	1/15/2008	MG/L		UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	BRME	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	BROMCIL	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	BTBZN	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	BTBZS	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	BTBZT	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	BTZ	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002

WELL_ID	RESULTS	CHEMICAL	DATE_	UNITS	QUALIFER	RL	LATITUDE	LONGITUDE	WELL_TYPE	WELL_DEPTH_FT	TOP_OF_SCREEN_FT	SCREEN_LENGTH_FT	SOURCE	SOURCE_NAME	OTHER_NAMES
USGS-402600122180002	0.037	BZ	1/15/2008	UG/L		UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0.19	BZME	1/15/2008	UG/L		UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	79.61	C-14	1/15/2008	PCT MODERN		UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0.36	C-14	1/15/2008	PCT MODERN		UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	11.2	CA	1/15/2008	MG/L		UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	CD	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	CDS	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	3.35	CL	1/15/2008	MG/L		UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	CLBZ	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	1.8	CR	1/15/2008	UG/L		UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	1	CR	1/15/2008	UG/L		UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	CRBFN	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	CTCL	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	CU	1/15/2008	MG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	DBCME	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	DBCP	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	DCA11	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	DCA12	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	DCE11	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	DCE12C	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	DCE12T	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	DCMA	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	DCPA12	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	DIAZ	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	DICAMBA	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	DICHLORVOS	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	DIELDRIN	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	DIMETHAT	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	DINOSEB	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	DIURON	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0.04	EBZ	1/15/2008	UG/L		UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	EDB	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	ETBE	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0.16	F	1/15/2008	MG/L		UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	FC113	1/15/2008	MG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	10.1	FE	1/15/2008	UG/L		UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	FENPHOS	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	FONOFOS	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	1	H-3	1/15/2008	pCi/L		UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	9.6	H-3	1/15/2008	pCi/L		UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	HCBU	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	HEXAZINONE	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	HG	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002		HGE	1/15/2008		ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	1	I	1/15/2008	UG/L		UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	IME	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	IPBZ	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	IPRODIONE	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0.75	K	1/15/2008	MG/L		UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0.73	LI	1/15/2008	UG/L		UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	LINURON	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	MALA	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	METALAXYL	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	METOCHLOR	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	METRIBUZ	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	8.8	MG	1/15/2008	MG/L		UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	MIBK	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0.6	MN	1/15/2008	UG/L		UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0.922	MO	1/15/2008	UG/L		UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	MOLINATE	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	MTBE	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	6.44	N15N14NO3	1/15/2008	per mil		UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	12.1	NA	1/15/2008	MG/L		UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	NAPH	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	NH3NH4N	1/15/2008	MG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	1.2	NI	1/15/2008	UG/L		UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0.001	NO2	1/15/2008	MG/L		UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	1.43	NO3N	1/15/2008	MG/L		UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	NORFLUZON	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	PB	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	PBZN	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002

WELL_ID	RESULTS	CHEMICAL	DATE_	UNITS	QUALIFER	RL	LATITUDE	LONGITUDE	WELL_TYPE	WELL_DEPTH_FT	TOP_OF_SCREEN_FT	SCREEN_LENGTH_FT	SOURCE	SOURCE_NAME	OTHER_NAMES
USGS-402600122180002	0	PCA	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0.13	PCATE	1/15/2008	UG/L		UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	7.4	PH	1/15/2008	PH UNITS		UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	7.1	PH	1/15/2008	PH UNITS		UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	PHORATE	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	PICLORAM	1/15/2008	MG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	PROMETON	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	PROMETRYN	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	PROPANIL	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	SB	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	175	SC	1/15/2008	UMHOS/CM		UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	174	SC	1/15/2008	UMHOS/CM		UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0.19	SE	1/15/2008	UG/L		UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	SEVIN	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	SIMAZINE	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	5.65	SO4	1/15/2008	MG/L		UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	75.8	SR	1/15/2008	UG/L		UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	STY	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	TAME	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	TBME	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	TCA111	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	TCA112	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	TCB124	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	TCLME	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	TCPR123	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	143	TDS	1/15/2008	MG/L		UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002		TDS	1/15/2008	MG/L		UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	145	TDS	1/15/2008	MG/L		UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	TEBUTHIURON	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	18	TEMP	1/15/2008	CELSIUS		UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	THIOBENCARB	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	TL	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0.037	TMB124	1/15/2008	UG/L		UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	TMB135	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	TRICLOPYR	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	TRIFLURALIN	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	7.6	V	1/15/2008	UG/L		UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	VC	1/15/2008	UG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180002	0	ZN	1/15/2008	MG/L	ND	UNK	40.4411389	-122.301556	UNK				USGSNEW	USGS-402600122180002	USGS-402600122180002
USGS-402600122180003	0	24D	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	AG	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	2.1	AL	1/15/2008	UG/L		UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	ALACL	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	ALDICARB	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0.71	AS	1/15/2008	UG/L		UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	ATRAZINE	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	AZIPM	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0.014	B	1/15/2008	MG/L		UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0.0212	BA	1/15/2008	MG/L		UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	BDCME	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	BE	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	BR	1/15/2008	MG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	BRME	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	BROMCIL	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	BTBZN	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	BTBZS	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	BTBZT	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	BTZ	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0.063	BZ	1/15/2008	UG/L		UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0.35	BZME	1/15/2008	UG/L		UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0.35	C-14	1/15/2008	PCT MODERN		UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	74.38	C-14	1/15/2008	PCT MODERN		UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	9.42	CA	1/15/2008	MG/L		UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	CD	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	CDS	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	3.97	CL	1/15/2008	MG/L		UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	CLBZ	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	CR	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	CRBFN	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	CTCL	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	CU	1/15/2008	MG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003

WELL_ID	RESULTS	CHEMICAL	DATE_	UNITS	QUALIFER	RL	LATITUDE	LONGITUDE	WELL_TYPE	WELL_DEPTH_FT	TOP_OF_SCREEN_FT	SCREEN_LENGTH_FT	SOURCE	SOURCE_NAME	OTHER_NAMES
USGS-402600122180003	0	DBCME	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	DBCP	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	DCA11	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	DCA12	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	DCE11	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	DCE12C	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	DCE12T	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	DCMA	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	DCPA12	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	DIAZ	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	DICAMBA	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	DICHLORVOS	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	DIELDRIN	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	DIMETHAT	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	DINOSEB	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	DIURON	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0.051	EBZ	1/15/2008	UG/L		UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	EDB	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	ETBE	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0.14	F	1/15/2008	MG/L		UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	FC113	1/15/2008	MG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	549	FE	1/15/2008	UG/L		UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	FENPHOS	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	FONOFOS	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	-0.3	H-3	1/15/2008	pCi/L		UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0.6	H-3	1/15/2008	pCi/L		UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	HCBU	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	HEXAZINONE	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	HG	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003		HGE	1/15/2008		ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	3	I	1/15/2008	UG/L		UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	IME	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	IPBZ	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	IPRODIONE	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0.86	K	1/15/2008	MG/L		UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0.64	LI	1/15/2008	UG/L		UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	LINURON	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	MALA	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	METALAXYL	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	METOCHLOR	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	METRIBUZ	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	6.82	MG	1/15/2008	MG/L		UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	MIBK	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	60.3	MN	1/15/2008	UG/L		UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	1	MO	1/15/2008	UG/L		UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	MOLINATE	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	MTBE	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	3.07	N15N14NO3	1/15/2008	per mil		UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	13.7	NA	1/15/2008	MG/L		UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	NAPH	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0.02	NH3NH4N	1/15/2008	MG/L		UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0.022	NH3NH4N	1/15/2008	MG/L		UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0.73	NI	1/15/2008	UG/L		UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0.007	NO2	1/15/2008	MG/L		UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0.712	NO3N	1/15/2008	MG/L		UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	NORFLUZON	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	PB	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	PBZN	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	PCA	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	PCATE	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	7.7	PH	1/15/2008	PH UNITS		UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	7.6	PH	1/15/2008	PH UNITS		UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	PHORATE	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	PICLORAM	1/15/2008	MG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	PROMETON	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	PROMETRYN	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	PROPANIL	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0.17	SB	1/15/2008	UG/L		UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	155	SC	1/15/2008	UMHOS/CM		UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	156	SC	1/15/2008	UMHOS/CM		UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0.29	SE	1/15/2008	UG/L		UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003

WELL_ID	RESULTS	CHEMICAL	DATE_	UNITS	QUALIFER	RL	LATITUDE	LONGITUDE	WELL_TYPE	WELL_DEPTH_FT	TOP_OF_SCREEN_FT	SCREEN_LENGTH_FT	SOURCE	SOURCE_NAME	OTHER_NAMES
USGS-402600122180003	0	SEVIN	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	SIMAZINE	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	3.27	SO4	1/15/2008	MG/L		UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	73.3	SR	1/15/2008	UG/L		UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	STY	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	TAME	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	TBME	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	TCA111	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	TCA112	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	TCB124	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	TCLME	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	TCPR123	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003		TDS	1/15/2008	MG/L		UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	117	TDS	1/15/2008	MG/L		UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	122	TDS	1/15/2008	MG/L		UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	TEBUTHIURON	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	20.5	TEMP	1/15/2008	CELSIUS		UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	THIOBENCARB	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	TL	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0.121	TMB124	1/15/2008	UG/L		UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	TMB135	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	TRICLOPYR	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	TRIFLURALIN	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	6.1	V	1/15/2008	UG/L		UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	VC	1/15/2008	UG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402600122180003	0	ZN	1/15/2008	MG/L	ND	UNK	40.44125	-122.301806	UNK				USGSNEW	USGS-402600122180003	USGS-402600122180003
USGS-402610122260001	0	B	10/10/1979	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	8	CA	10/10/1979	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	2	CL	10/10/1979	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	0.1	F	10/10/1979	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	0.3	K	10/10/1979	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	5	MG	10/10/1979	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	13	NA	10/10/1979	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	0.29	NO3N	10/10/1979	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	7	PH	10/10/1979	PH UNITS		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	131	SC	10/10/1979	UMHOS/CM		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	3	SO4	10/10/1979	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001		TDS	10/10/1979	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	119	TDS	10/10/1979	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	124	TDS	10/10/1979	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	20.5	TEMP	10/10/1979	CELSIUS		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	0	AL	10/27/1982	UG/L	ND	UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	2	AS	10/27/1982	UG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	0	B	10/27/1982	MG/L	ND	UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	7.6	CA	10/27/1982	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	2.2	CL	10/27/1982	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	0.1	F	10/27/1982	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	0	FE	10/27/1982	UG/L	ND	UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	0.3	K	10/27/1982	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	4.8	MG	10/27/1982	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	0	MN	10/27/1982	UG/L	ND	UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	13	NA	10/27/1982	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	7.3	PH	10/27/1982	PH UNITS		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	7.2	PH	10/27/1982	PH UNITS		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	132	SC	10/27/1982	UMHOS/CM		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	0	SO4	10/27/1982	MG/L	ND	UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	0	TDS	10/27/1982	MG/L	ND	UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001		TDS	10/27/1982	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	116	TDS	10/27/1982	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	19	TEMP	10/27/1982	CELSIUS		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	0	AL	5/17/1983	UG/L	ND	UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	2	AS	5/17/1983	UG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	7.8	CA	5/17/1983	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	2.2	CL	5/17/1983	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	0.1	F	5/17/1983	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	0	FE	5/17/1983	UG/L	ND	UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	0.3	K	5/17/1983	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	4.9	MG	5/17/1983	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	0	MN	5/17/1983	UG/L	ND	UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	13	NA	5/17/1983	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	6.8	PH	5/17/1983	PH UNITS		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001

WELL_ID	RESULTS	CHEMICAL	DATE_	UNITS	QUALIFER	RL	LATITUDE	LONGITUDE	WELL_TYPE	WELL_DEPTH_FT	TOP_OF_SCREEN_FT	SCREEN_LENGTH_FT	SOURCE	SOURCE_NAME	OTHER_NAMES
USGS-402610122260001	7	PH	5/17/1983	PH UNITS		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	138	SC	5/17/1983	UMHOS/CM		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	125	SC	5/17/1983	UMHOS/CM		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	0.8	SO4	5/17/1983	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	120	TDS	5/17/1983	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001		TDS	5/17/1983	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	112	TDS	5/17/1983	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	19.5	TEMP	5/17/1983	CELSIUS		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	0	B	10/18/1983	MG/L	ND	UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	7.7	CA	10/18/1983	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	2.2	CL	10/18/1983	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	0.1	F	10/18/1983	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	0	FE	10/18/1983	UG/L	ND	UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	0.3	K	10/18/1983	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	4.7	MG	10/18/1983	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	0	MN	10/18/1983	UG/L	ND	UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	13	NA	10/18/1983	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	7.1	PH	10/18/1983	PH UNITS		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	7.3	PH	10/18/1983	PH UNITS		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	130	SC	10/18/1983	UMHOS/CM		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	125	SC	10/18/1983	UMHOS/CM		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	0.9	SO4	10/18/1983	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001		TDS	10/18/1983	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	96	TDS	10/18/1983	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	119	TDS	10/18/1983	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	19.5	TEMP	10/18/1983	CELSIUS		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	0	B	5/17/1984	MG/L	ND	UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	7.5	CA	5/17/1984	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	2.6	CL	5/17/1984	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	0.1	F	5/17/1984	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	60	FE	5/17/1984	UG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	0.3	K	5/17/1984	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	4.7	MG	5/17/1984	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	0	MN	5/17/1984	UG/L	ND	UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	12	NA	5/17/1984	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	7.1	PH	5/17/1984	PH UNITS		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	7.3	PH	5/17/1984	PH UNITS		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	133	SC	5/17/1984	UMHOS/CM		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	126	SC	5/17/1984	UMHOS/CM		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	0.7	SO4	5/17/1984	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	120	TDS	5/17/1984	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001		TDS	5/17/1984	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	116	TDS	5/17/1984	MG/L		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402610122260001	18.5	TEMP	5/17/1984	CELSIUS		UNK	40.4359849	-122.434453	UNK	398			USGSNEW	USGS-402610122260001	USGS-402610122260001
USGS-402634122215501	0	B	10/10/1979	MG/L		UNK	40.442652	-122.366395	UNK	215			USGSNEW	USGS-402634122215501	USGS-402634122215501
USGS-402634122215501	8	CA	10/10/1979	MG/L		UNK	40.442652	-122.366395	UNK	215			USGSNEW	USGS-402634122215501	USGS-402634122215501
USGS-402634122215501	6	CL	10/10/1979	MG/L		UNK	40.442652	-122.366395	UNK	215			USGSNEW	USGS-402634122215501	USGS-402634122215501
USGS-402634122215501	0	F	10/10/1979	MG/L		UNK	40.442652	-122.366395	UNK	215			USGSNEW	USGS-402634122215501	USGS-402634122215501
USGS-402634122215501	0.5	K	10/10/1979	MG/L		UNK	40.442652	-122.366395	UNK	215			USGSNEW	USGS-402634122215501	USGS-402634122215501
USGS-402634122215501	4	MG	10/10/1979	MG/L		UNK	40.442652	-122.366395	UNK	215			USGSNEW	USGS-402634122215501	USGS-402634122215501
USGS-402634122215501	11	NA	10/10/1979	MG/L		UNK	40.442652	-122.366395	UNK	215			USGSNEW	USGS-402634122215501	USGS-402634122215501
USGS-402634122215501	1.3	NO3N	10/10/1979	MG/L		UNK	40.442652	-122.366395	UNK	215			USGSNEW	USGS-402634122215501	USGS-402634122215501
USGS-402634122215501	6.2	PH	10/10/1979	PH UNITS		UNK	40.442652	-122.366395	UNK	215			USGSNEW	USGS-402634122215501	USGS-402634122215501
USGS-402634122215501	117	SC	10/10/1979	UMHOS/CM		UNK	40.442652	-122.366395	UNK	215			USGSNEW	USGS-402634122215501	USGS-402634122215501
USGS-402634122215501	5	SO4	10/10/1979	MG/L		UNK	40.442652	-122.366395	UNK	215			USGSNEW	USGS-402634122215501	USGS-402634122215501
USGS-402634122215501	122	TDS	10/10/1979	MG/L		UNK	40.442652	-122.366395	UNK	215			USGSNEW	USGS-402634122215501	USGS-402634122215501
USGS-402634122215501		TDS	10/10/1979	MG/L		UNK	40.442652	-122.366395	UNK	215			USGSNEW	USGS-402634122215501	USGS-402634122215501
USGS-402634122215501	121	TDS	10/10/1979	MG/L		UNK	40.442652	-122.366395	UNK	215			USGSNEW	USGS-402634122215501	USGS-402634122215501
USGS-402634122215501	22	TEMP	10/10/1979	CELSIUS		UNK	40.442652	-122.366395	UNK	215			USGSNEW	USGS-402634122215501	USGS-402634122215501
USGS-402635122233401	0	B	10/10/1979	MG/L		UNK	40.4429296	-122.393896	UNK	260			USGSNEW	USGS-402635122233401	USGS-402635122233401
USGS-402635122233401	8	CA	10/10/1979	MG/L		UNK	40.4429296	-122.393896	UNK	260			USGSNEW	USGS-402635122233401	USGS-402635122233401
USGS-402635122233401	3	CL	10/10/1979	MG/L		UNK	40.4429296	-122.393896	UNK	260			USGSNEW	USGS-402635122233401	USGS-402635122233401
USGS-402635122233401	0.2	F	10/10/1979	MG/L		UNK	40.4429296	-122.393896	UNK	260			USGSNEW	USGS-402635122233401	USGS-402635122233401
USGS-402635122233401	0.8	K	10/10/1979	MG/L		UNK	40.4429296	-122.393896	UNK	260			USGSNEW	USGS-402635122233401	USGS-402635122233401
USGS-402635122233401	6	MG	10/10/1979	MG/L		UNK	40.4429296	-122.393896	UNK	260			USGSNEW	USGS-402635122233401	USGS-402635122233401
USGS-402635122233401	20	NA	10/10/1979	MG/L		UNK	40.4429296	-122.393896	UNK	260			USGSNEW	USGS-402635122233401	USGS-402635122233401
USGS-402635122233401	0	NO3N	10/10/1979	MG/L		UNK	40.4429296	-122.393896	UNK	260			USGSNEW	USGS-402635122233401	USGS-402635122233401
USGS-402635122233401	7.4	PH	10/10/1979	PH UNITS		UNK	40.4429296	-122.393896	UNK	260			USGSNEW	USGS-402635122233401	USGS-402635122233401
USGS-402635122233401	170	SC	10/10/1979	UMHOS/CM		UNK	40.4429296	-122.393896	UNK	260			USGSNEW	USGS-402635122233401	USGS-402635122233401
USGS-402635122233401	9	SO4	10/10/1979	MG/L		UNK	40.4429296	-122.393896	UNK	260			USGSNEW	USGS-402635122233401	USGS-402635122233401
USGS-402635122233401	135	TDS	10/10/1979	MG/L		UNK	40.4429296	-122.393896	UNK	260			USGSNEW	USGS-402635122233401	USGS-402635122233401

WELL_ID	RESULTS	CHEMICAL	DATE_	UNITS	QUALIFER	RL	LATITUDE	LONGITUDE	WELL_TYPE	WELL_DEPTH_FT	TOP_OF_SCREEN_FT	SCREEN_LENGTH_FT	SOURCE	SOURCE_NAME	OTHER_NAMES
USGS-402635122233401	144	TDS	10/10/1979	MG/L		UNK	40.4429296	-122.393896	UNK	260			USGSNEW	USGS-402635122233401	USGS-402635122233401
USGS-402635122233401		TDS	10/10/1979	MG/L		UNK	40.4429296	-122.393896	UNK	260			USGSNEW	USGS-402635122233401	USGS-402635122233401
USGS-402635122233401	20.5	TEMP	10/10/1979	CELSIUS		UNK	40.4429296	-122.393896	UNK	260			USGSNEW	USGS-402635122233401	USGS-402635122233401
USGS-402639122145801	0	B	10/17/1979	MG/L		UNK	40.4440417	-122.250557	UNK	60			USGSNEW	USGS-402639122145801	USGS-402639122145801
USGS-402639122145801	11	CA	10/17/1979	MG/L		UNK	40.4440417	-122.250557	UNK	60			USGSNEW	USGS-402639122145801	USGS-402639122145801
USGS-402639122145801	3	CL	10/17/1979	MG/L		UNK	40.4440417	-122.250557	UNK	60			USGSNEW	USGS-402639122145801	USGS-402639122145801
USGS-402639122145801	0.1	F	10/17/1979	MG/L		UNK	40.4440417	-122.250557	UNK	60			USGSNEW	USGS-402639122145801	USGS-402639122145801
USGS-402639122145801	1.4	K	10/17/1979	MG/L		UNK	40.4440417	-122.250557	UNK	60			USGSNEW	USGS-402639122145801	USGS-402639122145801
USGS-402639122145801	9	MG	10/17/1979	MG/L		UNK	40.4440417	-122.250557	UNK	60			USGSNEW	USGS-402639122145801	USGS-402639122145801
USGS-402639122145801	9	NA	10/17/1979	MG/L		UNK	40.4440417	-122.250557	UNK	60			USGSNEW	USGS-402639122145801	USGS-402639122145801
USGS-402639122145801	1.2	NO3N	10/17/1979	MG/L		UNK	40.4440417	-122.250557	UNK	60			USGSNEW	USGS-402639122145801	USGS-402639122145801
USGS-402639122145801	7	PH	10/17/1979	PH UNITS		UNK	40.4440417	-122.250557	UNK	60			USGSNEW	USGS-402639122145801	USGS-402639122145801
USGS-402639122145801	156	SC	10/17/1979	UMHOS/CM		UNK	40.4440417	-122.250557	UNK	60			USGSNEW	USGS-402639122145801	USGS-402639122145801
USGS-402639122145801	5	SO4	10/17/1979	MG/L		UNK	40.4440417	-122.250557	UNK	60			USGSNEW	USGS-402639122145801	USGS-402639122145801
USGS-402639122145801	141	TDS	10/17/1979	MG/L		UNK	40.4440417	-122.250557	UNK	60			USGSNEW	USGS-402639122145801	USGS-402639122145801
USGS-402639122145801	149	TDS	10/17/1979	MG/L		UNK	40.4440417	-122.250557	UNK	60			USGSNEW	USGS-402639122145801	USGS-402639122145801
USGS-402639122145801		TDS	10/17/1979	MG/L		UNK	40.4440417	-122.250557	UNK	60			USGSNEW	USGS-402639122145801	USGS-402639122145801
USGS-402639122145801	16.5	TEMP	10/17/1979	CELSIUS		UNK	40.4440417	-122.250557	UNK	60			USGSNEW	USGS-402639122145801	USGS-402639122145801
USGS-402700122200001	0	24D	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	AG	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	AL	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	ALACL	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	ALDICARB	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	ALDSULF	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	ALDSULFOX	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0.68	AS	11/7/2007	UG/L		UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	ATRAZINE	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	AZIPM	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0.008	B	11/7/2007	MG/L		UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0.0248	BA	11/7/2007	MG/L		UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	BDCME	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	BE	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0.013	BR	11/7/2007	MG/L		UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	BRME	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	BROMCIL	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	BTBZN	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	BTBZS	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	BTBZT	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	BTZ	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	BZ	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	BZME	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	89.89	C-14	11/7/2007	PCT MODERN		UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0.43	C-14	11/7/2007	PCT MODERN		UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	7.99	CA	11/7/2007	MG/L		UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	CD	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	CDS	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	2.45	CL	11/7/2007	MG/L		UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	CLBZ	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	CR	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	CRBFN	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	CTCL	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	CU	11/7/2007	MG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	DBCME	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	DBCP	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	DCA11	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	DCA12	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	DCE11	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	DCE12C	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	DCE12T	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	DCMA	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	DCPA12	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	DIAZ	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	DICAMBA	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	DICHLORVOS	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	DIELDRIN	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	DIMETHAT	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	DINOSEB	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	DIURON	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	EBZ	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	EDB	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	ETBE	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001

WELL_ID	RESULTS	CHEMICAL	DATE_	UNITS	QUALIFER	RL	LATITUDE	LONGITUDE	WELL_TYPE	WELL_DEPTH_FT	TOP_OF_SCREEN_FT	SCREEN_LENGTH_FT	SOURCE	SOURCE_NAME	OTHER_NAMES
USGS-402700122200001	0.23	F	11/7/2007	MG/L		UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	FC113	11/7/2007	MG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	FE	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	FENPHOS	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	FONOFOS	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	1	H-3	11/7/2007	pCi/L		UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	5.8	H-3	11/7/2007	pCi/L		UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	HCBU	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	HEXAZINONE	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	HG	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001		HGE	11/7/2007		ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	I	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	IME	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	IPBZ	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	IPRODIONE	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0.51	K	11/7/2007	MG/L		UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	1.11	LI	11/7/2007	UG/L		UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	LINURON	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	MALA	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	METALAXYL	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	METHOMYL	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	METOCHLOR	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	METRIBUZ	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	6.05	MG	11/7/2007	MG/L		UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	MIBK	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0.56	MN	11/7/2007	UG/L		UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0.395	MO	11/7/2007	UG/L		UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	MOLINATE	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	MTBE	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	4.52	N15N14NO3	11/7/2007	per mil		UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	12.7	NA	11/7/2007	MG/L		UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	NAPH	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	NH3NH4N	11/7/2007	MG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0.54	NI	11/7/2007	UG/L		UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	NO2	11/7/2007	MG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0.841	NO3N	11/7/2007	MG/L		UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	NORFLUZON	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	OXAMYL	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	PB	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	PBZN	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	PCA	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	PCATE	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	7.2	PH	11/7/2007	PH UNITS		UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	6.7	PH	11/7/2007	PH UNITS		UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	PHORATE	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	PICLORAM	11/7/2007	MG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	PROMETON	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	PROMETRYN	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	PROPANIL	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	SB	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	148	SC	11/7/2007	UMHOS/CM		UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	146	SC	11/7/2007	UMHOS/CM		UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0.42	SE	11/7/2007	UG/L		UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	SEVIN	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	SIMAZINE	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	3.26	SO4	11/7/2007	MG/L		UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	67.2	SR	11/7/2007	UG/L		UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	STY	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	TAME	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	TBME	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	TCA111	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	TCA112	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	TCB124	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	TCLME	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	TCPR123	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	132	TDS	11/7/2007	MG/L		UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001		TDS	11/7/2007	MG/L		UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	126	TDS	11/7/2007	MG/L		UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	TEBUTHIURON	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	18.5	TEMP	11/7/2007	CELSIUS		UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	THIOBENCARB	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001

WELL_ID	RESULTS	CHEMICAL	DATE_	UNITS	QUALIFER	RL	LATITUDE	LONGITUDE	WELL_TYPE	WELL_DEPTH_FT	TOP_OF_SCREEN_FT	SCREEN_LENGTH_FT	SOURCE	SOURCE_NAME	OTHER_NAMES
USGS-402700122200001	0	TL	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	TMB124	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	TMB135	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	TRICLOPYR	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	TRIFLURALIN	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	8.5	V	11/7/2007	UG/L		UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0	VC	11/7/2007	UG/L	ND	UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402700122200001	0.0055	ZN	11/7/2007	MG/L		UNK	40.4655	-122.336028	UNK				USGSNEW	USGS-402700122200001	USGS-402700122200001
USGS-402716122145601	0.1	B	8/26/1970	MG/L		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	20	CA	8/26/1970	MG/L		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	3	CL	8/26/1970	MG/L		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	170	HCO3	8/26/1970	MG/L		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	0.4	K	8/26/1970	MG/L		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	19	MG	8/26/1970	MG/L		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	10	NA	8/26/1970	MG/L		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	1.1	NO3N	8/26/1970	MG/L		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	6.3	PH	8/26/1970	PH UNITS		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	290	SC	8/26/1970	UMHOS/CM		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	5.4	SO4	8/26/1970	MG/L		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	146	TDS	8/26/1970	MG/L		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601		TDS	8/26/1970	MG/L		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	172	TDS	8/26/1970	MG/L		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	18	TEMP	8/26/1970	CELSIUS		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	5.9	PH	6/15/1971	PH UNITS		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	245	SC	6/15/1971	UMHOS/CM		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	22	TEMP	6/15/1971	CELSIUS		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	16	CA	6/12/1972	MG/L		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	2.3	CL	6/12/1972	MG/L		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	120	HCO3	6/12/1972	MG/L		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	3	K	6/12/1972	MG/L		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	14	MG	6/12/1972	MG/L		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	8.4	NA	6/12/1972	MG/L		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	1.4	NO3N	6/12/1972	MG/L		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	6.8	PH	6/12/1972	PH UNITS		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	225	SC	6/12/1972	UMHOS/CM		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	5.6	SO4	6/12/1972	MG/L		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	158	TDS	6/12/1972	MG/L		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	115	TDS	6/12/1972	MG/L		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601		TDS	6/12/1972	MG/L		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	18.9	TEMP	6/12/1972	CELSIUS		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	6.5	PH	7/2/1973	PH UNITS		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	255	SC	7/2/1973	UMHOS/CM		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	17.2	TEMP	7/2/1973	CELSIUS		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	6.3	PH	5/29/1974	PH UNITS		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	285	SC	5/29/1974	UMHOS/CM		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	17.8	TEMP	5/29/1974	CELSIUS		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	6.4	PH	5/27/1975	PH UNITS		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	280	SC	5/27/1975	UMHOS/CM		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	18.3	TEMP	5/27/1975	CELSIUS		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	6.3	PH	6/2/1976	PH UNITS		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	280	SC	6/2/1976	UMHOS/CM		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	16.7	TEMP	6/2/1976	CELSIUS		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	19	CA	5/2/1977	MG/L		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	1	CL	5/2/1977	MG/L		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	0.2	K	5/2/1977	MG/L		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	15	MG	5/2/1977	MG/L		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	12	NA	5/2/1977	MG/L		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	2.5	NO3N	5/2/1977	MG/L		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	6.5	PH	5/2/1977	PH UNITS		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	260	SC	5/2/1977	UMHOS/CM		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	6	SO4	5/2/1977	MG/L		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	130	TDS	5/2/1977	MG/L		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601		TDS	5/2/1977	MG/L		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	197	TDS	5/2/1977	MG/L		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	14.4	TEMP	5/2/1977	CELSIUS		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	6.6	CL	5/25/1978	MG/L		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	12	NA	5/25/1978	MG/L		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	6.8	PH	5/25/1978	PH UNITS		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	310	SC	5/25/1978	UMHOS/CM		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	16.1	TEMP	5/25/1978	CELSIUS		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	6.6	PH	6/11/1979	PH UNITS		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601

WELL_ID	RESULTS	CHEMICAL	DATE_	UNITS	QUALIFER	RL	LATITUDE	LONGITUDE	WELL_TYPE	WELL_DEPTH_FT	TOP_OF_SCREEN_FT	SCREEN_LENGTH_FT	SOURCE	SOURCE_NAME	OTHER_NAMES
USGS-402716122145601	270	SC	6/11/1979	UMHOS/CM		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	17.2	TEMP	6/11/1979	CELSIUS		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	18	CA	5/30/1980	MG/L		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	6	CL	5/30/1980	MG/L		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	0.4	K	5/30/1980	MG/L		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	16	MG	5/30/1980	MG/L		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	12	NA	5/30/1980	MG/L		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	4.29	NO3N	5/30/1980	MG/L		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	6.4	PH	5/30/1980	PH UNITS		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	260	SC	5/30/1980	UMHOS/CM		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	15.5	TEMP	5/30/1980	CELSIUS		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	6.3	PH	6/9/1981	PH UNITS		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	300	SC	6/9/1981	UMHOS/CM		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402716122145601	18	TEMP	6/9/1981	CELSIUS		UNK	40.4543194	-122.250002	UNK	52			USGSNEW	USGS-402716122145601	USGS-402716122145601
USGS-402742122231401	0	B	10/10/1979	MG/L		UNK	40.4615406	-122.388341	UNK	208			USGSNEW	USGS-402742122231401	USGS-402742122231401
USGS-402742122231401	7	CA	10/10/1979	MG/L		UNK	40.4615406	-122.388341	UNK	208			USGSNEW	USGS-402742122231401	USGS-402742122231401
USGS-402742122231401	3	CL	10/10/1979	MG/L		UNK	40.4615406	-122.388341	UNK	208			USGSNEW	USGS-402742122231401	USGS-402742122231401
USGS-402742122231401	0.1	F	10/10/1979	MG/L		UNK	40.4615406	-122.388341	UNK	208			USGSNEW	USGS-402742122231401	USGS-402742122231401
USGS-402742122231401	0.6	K	10/10/1979	MG/L		UNK	40.4615406	-122.388341	UNK	208			USGSNEW	USGS-402742122231401	USGS-402742122231401
USGS-402742122231401	6	MG	10/10/1979	MG/L		UNK	40.4615406	-122.388341	UNK	208			USGSNEW	USGS-402742122231401	USGS-402742122231401
USGS-402742122231401	12	NA	10/10/1979	MG/L		UNK	40.4615406	-122.388341	UNK	208			USGSNEW	USGS-402742122231401	USGS-402742122231401
USGS-402742122231401	0.29	NO3N	10/10/1979	MG/L		UNK	40.4615406	-122.388341	UNK	208			USGSNEW	USGS-402742122231401	USGS-402742122231401
USGS-402742122231401	6.6	PH	10/10/1979	PH UNITS		UNK	40.4615406	-122.388341	UNK	208			USGSNEW	USGS-402742122231401	USGS-402742122231401
USGS-402742122231401	136	SC	10/10/1979	UMHOS/CM		UNK	40.4615406	-122.388341	UNK	208			USGSNEW	USGS-402742122231401	USGS-402742122231401
USGS-402742122231401	3	SO4	10/10/1979	MG/L		UNK	40.4615406	-122.388341	UNK	208			USGSNEW	USGS-402742122231401	USGS-402742122231401
USGS-402742122231401	141	TDS	10/10/1979	MG/L		UNK	40.4615406	-122.388341	UNK	208			USGSNEW	USGS-402742122231401	USGS-402742122231401
USGS-402742122231401		TDS	10/10/1979	MG/L		UNK	40.4615406	-122.388341	UNK	208			USGSNEW	USGS-402742122231401	USGS-402742122231401
USGS-402742122231401	142	TDS	10/10/1979	MG/L		UNK	40.4615406	-122.388341	UNK	208			USGSNEW	USGS-402742122231401	USGS-402742122231401
USGS-402742122231401	18.5	TEMP	10/10/1979	CELSIUS		UNK	40.4615406	-122.388341	UNK	208			USGSNEW	USGS-402742122231401	USGS-402742122231401
USGS-402745122195301	0	B	10/10/1979	MG/L		UNK	40.4623743	-122.332505	UNK	88			USGSNEW	USGS-402745122195301	USGS-402745122195301
USGS-402745122195301	7	CA	10/10/1979	MG/L		UNK	40.4623743	-122.332505	UNK	88			USGSNEW	USGS-402745122195301	USGS-402745122195301
USGS-402745122195301	2	CL	10/10/1979	MG/L		UNK	40.4623743	-122.332505	UNK	88			USGSNEW	USGS-402745122195301	USGS-402745122195301
USGS-402745122195301	0.1	F	10/10/1979	MG/L		UNK	40.4623743	-122.332505	UNK	88			USGSNEW	USGS-402745122195301	USGS-402745122195301
USGS-402745122195301	0.9	K	10/10/1979	MG/L		UNK	40.4623743	-122.332505	UNK	88			USGSNEW	USGS-402745122195301	USGS-402745122195301
USGS-402745122195301	6	MG	10/10/1979	MG/L		UNK	40.4623743	-122.332505	UNK	88			USGSNEW	USGS-402745122195301	USGS-402745122195301
USGS-402745122195301	9	NA	10/10/1979	MG/L		UNK	40.4623743	-122.332505	UNK	88			USGSNEW	USGS-402745122195301	USGS-402745122195301
USGS-402745122195301	0.59	NO3N	10/10/1979	MG/L		UNK	40.4623743	-122.332505	UNK	88			USGSNEW	USGS-402745122195301	USGS-402745122195301
USGS-402745122195301	7.3	PH	10/10/1979	PH UNITS		UNK	40.4623743	-122.332505	UNK	88			USGSNEW	USGS-402745122195301	USGS-402745122195301
USGS-402745122195301	118	SC	10/10/1979	UMHOS/CM		UNK	40.4623743	-122.332505	UNK	88			USGSNEW	USGS-402745122195301	USGS-402745122195301
USGS-402745122195301	2	SO4	10/10/1979	MG/L		UNK	40.4623743	-122.332505	UNK	88			USGSNEW	USGS-402745122195301	USGS-402745122195301
USGS-402745122195301		TDS	10/10/1979	MG/L		UNK	40.4623743	-122.332505	UNK	88			USGSNEW	USGS-402745122195301	USGS-402745122195301
USGS-402745122195301	95	TDS	10/10/1979	MG/L		UNK	40.4623743	-122.332505	UNK	88			USGSNEW	USGS-402745122195301	USGS-402745122195301
USGS-402745122195301	94	TDS	10/10/1979	MG/L		UNK	40.4623743	-122.332505	UNK	88			USGSNEW	USGS-402745122195301	USGS-402745122195301
USGS-402745122195301	21.5	TEMP	10/10/1979	CELSIUS		UNK	40.4623743	-122.332505	UNK	88			USGSNEW	USGS-402745122195301	USGS-402745122195301
USGS-402753122313802	0	AL	10/27/1982	UG/L	ND	UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	0	AS	10/27/1982	UG/L	ND	UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	0.05	B	10/27/1982	MG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	11	CA	10/27/1982	MG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	2.9	CL	10/27/1982	MG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	0.2	F	10/27/1982	MG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	130	FE	10/27/1982	UG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	0.5	K	10/27/1982	MG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	5.8	MG	10/27/1982	MG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	70	MN	10/27/1982	UG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	25	NA	10/27/1982	MG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	7.8	PH	10/27/1982	PH UNITS		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	7.9	PH	10/27/1982	PH UNITS		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	197	SC	10/27/1982	UMHOS/CM		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	204	SC	10/27/1982	UMHOS/CM		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	0	SO4	10/27/1982	MG/L	ND	UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	142	TDS	10/27/1982	MG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	0	TDS	10/27/1982	MG/L	ND	UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802		TDS	10/27/1982	MG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	14.5	TEMP	10/27/1982	CELSIUS		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	0	AL	5/18/1983	UG/L	ND	UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	0	AS	5/18/1983	UG/L	ND	UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	13	CA	5/18/1983	MG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	1.6	CL	5/18/1983	MG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	0.2	F	5/18/1983	MG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	50	FE	5/18/1983	UG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	0.4	K	5/18/1983	MG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802

WELL_ID	RESULTS	CHEMICAL	DATE_	UNITS	QUALIFER	RL	LATITUDE	LONGITUDE	WELL_TYPE	WELL_DEPTH_FT	TOP_OF_SCREEN_FT	SCREEN_LENGTH_FT	SOURCE	SOURCE_NAME	OTHER_NAMES
USGS-402753122313802	14	MG	5/18/1983	MG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	0	MN	5/18/1983	UG/L	ND	UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	16	NA	5/18/1983	MG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	7	PH	5/18/1983	PH UNITS		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	222	SC	5/18/1983	UMHOS/CM		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	240	SC	5/18/1983	UMHOS/CM		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	2.8	SO4	5/18/1983	MG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	149	TDS	5/18/1983	MG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	168	TDS	5/18/1983	MG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802		TDS	5/18/1983	MG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	21	TEMP	5/18/1983	CELSIUS		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	0.05	B	10/18/1983	MG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	11	CA	10/18/1983	MG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	2.9	CL	10/18/1983	MG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	0.2	F	10/18/1983	MG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	260	FE	10/18/1983	UG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	0.5	K	10/18/1983	MG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	5.8	MG	10/18/1983	MG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	60	MN	10/18/1983	UG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	25	NA	10/18/1983	MG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	7.5	PH	10/18/1983	PH UNITS		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	7.9	PH	10/18/1983	PH UNITS		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	190	SC	10/18/1983	UMHOS/CM		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	205	SC	10/18/1983	UMHOS/CM		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	0.7	SO4	10/18/1983	MG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	150	TDS	10/18/1983	MG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802		TDS	10/18/1983	MG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	18	TEMP	10/18/1983	CELSIUS		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	0.05	B	5/16/1984	MG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	11	CA	5/16/1984	MG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	2.6	CL	5/16/1984	MG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	0.2	F	5/16/1984	MG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	200	FE	5/16/1984	UG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	0.4	K	5/16/1984	MG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	5.8	MG	5/16/1984	MG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	60	MN	5/16/1984	UG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	24	NA	5/16/1984	MG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	7.8	PH	5/16/1984	PH UNITS		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	7.9	PH	5/16/1984	PH UNITS		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	194	SC	5/16/1984	UMHOS/CM		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	205	SC	5/16/1984	UMHOS/CM		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	0.4	SO4	5/16/1984	MG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	138	TDS	5/16/1984	MG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	151	TDS	5/16/1984	MG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802		TDS	5/16/1984	MG/L		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402753122313802	17.5	TEMP	5/16/1984	CELSIUS		UNK	40.4645952	-122.528346	UNK	100			USGSNEW	USGS-402753122313802	USGS-402753122313802
USGS-402756122250101	0	B	10/10/1979	MG/L		UNK	40.4654292	-122.418064	UNK	200			USGSNEW	USGS-402756122250101	USGS-402756122250101
USGS-402756122250101	7	CA	10/10/1979	MG/L		UNK	40.4654292	-122.418064	UNK	200			USGSNEW	USGS-402756122250101	USGS-402756122250101
USGS-402756122250101	2	CL	10/10/1979	MG/L		UNK	40.4654292	-122.418064	UNK	200			USGSNEW	USGS-402756122250101	USGS-402756122250101
USGS-402756122250101	0.2	F	10/10/1979	MG/L		UNK	40.4654292	-122.418064	UNK	200			USGSNEW	USGS-402756122250101	USGS-402756122250101
USGS-402756122250101	0.5	K	10/10/1979	MG/L		UNK	40.4654292	-122.418064	UNK	200			USGSNEW	USGS-402756122250101	USGS-402756122250101
USGS-402756122250101	5	MG	10/10/1979	MG/L		UNK	40.4654292	-122.418064	UNK	200			USGSNEW	USGS-402756122250101	USGS-402756122250101
USGS-402756122250101	13	NA	10/10/1979	MG/L		UNK	40.4654292	-122.418064	UNK	200			USGSNEW	USGS-402756122250101	USGS-402756122250101
USGS-402756122250101	0	NO3N	10/10/1979	MG/L		UNK	40.4654292	-122.418064	UNK	200			USGSNEW	USGS-402756122250101	USGS-402756122250101
USGS-402756122250101	7	PH	10/10/1979	PH UNITS		UNK	40.4654292	-122.418064	UNK	200			USGSNEW	USGS-402756122250101	USGS-402756122250101
USGS-402756122250101	133	SC	10/10/1979	UMHOS/CM		UNK	40.4654292	-122.418064	UNK	200			USGSNEW	USGS-402756122250101	USGS-402756122250101
USGS-402756122250101	3	SO4	10/10/1979	MG/L		UNK	40.4654292	-122.418064	UNK	200			USGSNEW	USGS-402756122250101	USGS-402756122250101
USGS-402756122250101	114	TDS	10/10/1979	MG/L		UNK	40.4654292	-122.418064	UNK	200			USGSNEW	USGS-402756122250101	USGS-402756122250101
USGS-402756122250101		TDS	10/10/1979	MG/L		UNK	40.4654292	-122.418064	UNK	200			USGSNEW	USGS-402756122250101	USGS-402756122250101
USGS-402756122250101	115	TDS	10/10/1979	MG/L		UNK	40.4654292	-122.418064	UNK	200			USGSNEW	USGS-402756122250101	USGS-402756122250101
USGS-402756122250101	19	TEMP	10/10/1979	CELSIUS		UNK	40.4654292	-122.418064	UNK	200			USGSNEW	USGS-402756122250101	USGS-402756122250101
USGS-402758122322201	0	B	10/10/1979	MG/L		UNK	40.465984	-122.540568	UNK	194			USGSNEW	USGS-402758122322201	USGS-402758122322201
USGS-402758122322201	13	CA	10/10/1979	MG/L		UNK	40.465984	-122.540568	UNK	194			USGSNEW	USGS-402758122322201	USGS-402758122322201
USGS-402758122322201	3	CL	10/10/1979	MG/L		UNK	40.465984	-122.540568	UNK	194			USGSNEW	USGS-402758122322201	USGS-402758122322201
USGS-402758122322201	0.2	F	10/10/1979	MG/L		UNK	40.465984	-122.540568	UNK	194			USGSNEW	USGS-402758122322201	USGS-402758122322201
USGS-402758122322201	0.6	K	10/10/1979	MG/L		UNK	40.465984	-122.540568	UNK	194			USGSNEW	USGS-402758122322201	USGS-402758122322201
USGS-402758122322201	9	MG	10/10/1979	MG/L		UNK	40.465984	-122.540568	UNK	194			USGSNEW	USGS-402758122322201	USGS-402758122322201
USGS-402758122322201	25	NA	10/10/1979	MG/L		UNK	40.465984	-122.540568	UNK	194			USGSNEW	USGS-402758122322201	USGS-402758122322201
USGS-402758122322201	0	NO3N	10/10/1979	MG/L		UNK	40.465984	-122.540568	UNK	194			USGSNEW	USGS-402758122322201	USGS-402758122322201
USGS-402758122322201	7.1	PH	10/10/1979	PH UNITS		UNK	40.465984	-122.540568	UNK	194			USGSNEW	USGS-402758122322201	USGS-402758122322201
USGS-402758122322201	226	SC	10/10/1979	UMHOS/CM		UNK	40.465984	-122.540568	UNK	194			USGSNEW	USGS-402758122322201	USGS-402758122322201

WELL_ID	RESULTS	CHEMICAL	DATE_	UNITS	QUALIFER	RL	LATITUDE	LONGITUDE	WELL_TYPE	WELL_DEPTH_FT	TOP_OF_SCREEN_FT	SCREEN_LENGTH_FT	SOURCE	SOURCE_NAME	OTHER_NAMES
USGS-402758122322201	3	SO4	10/10/1979	MG/L		UNK	40.465984	-122.540568	UNK	194			USGSNEW	USGS-402758122322201	USGS-402758122322201
USGS-402758122322201	181	TDS	10/10/1979	MG/L		UNK	40.465984	-122.540568	UNK	194			USGSNEW	USGS-402758122322201	USGS-402758122322201
USGS-402758122322201	173	TDS	10/10/1979	MG/L		UNK	40.465984	-122.540568	UNK	194			USGSNEW	USGS-402758122322201	USGS-402758122322201
USGS-402758122322201		TDS	10/10/1979	MG/L		UNK	40.465984	-122.540568	UNK	194			USGSNEW	USGS-402758122322201	USGS-402758122322201
USGS-402758122322201	21	TEMP	10/10/1979	CELSIUS		UNK	40.465984	-122.540568	UNK	194			USGSNEW	USGS-402758122322201	USGS-402758122322201
USGS-402843122231301	0	B	10/11/1979	MG/L		UNK	40.4784849	-122.388063	UNK	208			USGSNEW	USGS-402843122231301	USGS-402843122231301
USGS-402843122231301	6	CA	10/11/1979	MG/L		UNK	40.4784849	-122.388063	UNK	208			USGSNEW	USGS-402843122231301	USGS-402843122231301
USGS-402843122231301	2	CL	10/11/1979	MG/L		UNK	40.4784849	-122.388063	UNK	208			USGSNEW	USGS-402843122231301	USGS-402843122231301
USGS-402843122231301	0.2	F	10/11/1979	MG/L		UNK	40.4784849	-122.388063	UNK	208			USGSNEW	USGS-402843122231301	USGS-402843122231301
USGS-402843122231301	0.5	K	10/11/1979	MG/L		UNK	40.4784849	-122.388063	UNK	208			USGSNEW	USGS-402843122231301	USGS-402843122231301
USGS-402843122231301	3	MG	10/11/1979	MG/L		UNK	40.4784849	-122.388063	UNK	208			USGSNEW	USGS-402843122231301	USGS-402843122231301
USGS-402843122231301	12	NA	10/11/1979	MG/L		UNK	40.4784849	-122.388063	UNK	208			USGSNEW	USGS-402843122231301	USGS-402843122231301
USGS-402843122231301	0.5	NO3N	10/11/1979	MG/L		UNK	40.4784849	-122.388063	UNK	208			USGSNEW	USGS-402843122231301	USGS-402843122231301
USGS-402843122231301	6.3	PH	10/11/1979	PH UNITS		UNK	40.4784849	-122.388063	UNK	208			USGSNEW	USGS-402843122231301	USGS-402843122231301
USGS-402843122231301	99	SC	10/11/1979	UMHOS/CM		UNK	40.4784849	-122.388063	UNK	208			USGSNEW	USGS-402843122231301	USGS-402843122231301
USGS-402843122231301	1	SO4	10/11/1979	MG/L		UNK	40.4784849	-122.388063	UNK	208			USGSNEW	USGS-402843122231301	USGS-402843122231301
USGS-402843122231301		TDS	10/11/1979	MG/L		UNK	40.4784849	-122.388063	UNK	208			USGSNEW	USGS-402843122231301	USGS-402843122231301
USGS-402843122231301	124	TDS	10/11/1979	MG/L		UNK	40.4784849	-122.388063	UNK	208			USGSNEW	USGS-402843122231301	USGS-402843122231301
USGS-402843122231301	18	TEMP	10/11/1979	CELSIUS		UNK	40.4784849	-122.388063	UNK	208			USGSNEW	USGS-402843122231301	USGS-402843122231301
USGS-402914122215601	0	AG	10/10/1979	UG/L		UNK	40.4870961	-122.366674	UNK	116			USGSNEW	USGS-402914122215601	USGS-402914122215601
USGS-402914122215601	1	AS	10/10/1979	UG/L		UNK	40.4870961	-122.366674	UNK	116			USGSNEW	USGS-402914122215601	USGS-402914122215601
USGS-402914122215601	0	B	10/10/1979	MG/L		UNK	40.4870961	-122.366674	UNK	116			USGSNEW	USGS-402914122215601	USGS-402914122215601
USGS-402914122215601	0.04	BA	10/10/1979	MG/L		UNK	40.4870961	-122.366674	UNK	116			USGSNEW	USGS-402914122215601	USGS-402914122215601
USGS-402914122215601	8	CA	10/10/1979	MG/L		UNK	40.4870961	-122.366674	UNK	116			USGSNEW	USGS-402914122215601	USGS-402914122215601
USGS-402914122215601	0	CD	10/10/1979	UG/L	ND	UNK	40.4870961	-122.366674	UNK	116			USGSNEW	USGS-402914122215601	USGS-402914122215601
USGS-402914122215601	3	CL	10/10/1979	MG/L		UNK	40.4870961	-122.366674	UNK	116			USGSNEW	USGS-402914122215601	USGS-402914122215601
USGS-402914122215601	0	CR	10/10/1979	UG/L		UNK	40.4870961	-122.366674	UNK	116			USGSNEW	USGS-402914122215601	USGS-402914122215601
USGS-402914122215601	0	CU	10/10/1979	MG/L	ND	UNK	40.4870961	-122.366674	UNK	116			USGSNEW	USGS-402914122215601	USGS-402914122215601
USGS-402914122215601	0.1	F	10/10/1979	MG/L		UNK	40.4870961	-122.366674	UNK	116			USGSNEW	USGS-402914122215601	USGS-402914122215601
USGS-402914122215601	0	FE	10/10/1979	UG/L	ND	UNK	40.4870961	-122.366674	UNK	116			USGSNEW	USGS-402914122215601	USGS-402914122215601
USGS-402914122215601	0	HG	10/10/1979	UG/L		UNK	40.4870961	-122.366674	UNK	116			USGSNEW	USGS-402914122215601	USGS-402914122215601
USGS-402914122215601		HGE	10/10/1979			UNK	40.4870961	-122.366674	UNK	116			USGSNEW	USGS-402914122215601	USGS-402914122215601
USGS-402914122215601	0.5	K	10/10/1979	MG/L		UNK	40.4870961	-122.366674	UNK	116			USGSNEW	USGS-402914122215601	USGS-402914122215601
USGS-402914122215601	6	MG	10/10/1979	MG/L		UNK	40.4870961	-122.366674	UNK	116			USGSNEW	USGS-402914122215601	USGS-402914122215601
USGS-402914122215601	10	MN	10/10/1979	UG/L		UNK	40.4870961	-122.366674	UNK	116			USGSNEW	USGS-402914122215601	USGS-402914122215601
USGS-402914122215601	13	NA	10/10/1979	MG/L		UNK	40.4870961	-122.366674	UNK	116			USGSNEW	USGS-402914122215601	USGS-402914122215601
USGS-402914122215601	0.5	NO3N	10/10/1979	MG/L		UNK	40.4870961	-122.366674	UNK	116			USGSNEW	USGS-402914122215601	USGS-402914122215601
USGS-402914122215601	0	PB	10/10/1979	UG/L		UNK	40.4870961	-122.366674	UNK	116			USGSNEW	USGS-402914122215601	USGS-402914122215601
USGS-402914122215601	6.5	PH	10/10/1979	PH UNITS		UNK	40.4870961	-122.366674	UNK	116			USGSNEW	USGS-402914122215601	USGS-402914122215601
USGS-402914122215601	135	SC	10/10/1979	UMHOS/CM		UNK	40.4870961	-122.366674	UNK	116			USGSNEW	USGS-402914122215601	USGS-402914122215601
USGS-402914122215601	0	SE	10/10/1979	UG/L		UNK	40.4870961	-122.366674	UNK	116			USGSNEW	USGS-402914122215601	USGS-402914122215601
USGS-402914122215601	1	SO4	10/10/1979	MG/L		UNK	40.4870961	-122.366674	UNK	116			USGSNEW	USGS-402914122215601	USGS-402914122215601
USGS-402914122215601		TDS	10/10/1979	MG/L		UNK	40.4870961	-122.366674	UNK	116			USGSNEW	USGS-402914122215601	USGS-402914122215601
USGS-402914122215601	110	TDS	10/10/1979	MG/L		UNK	40.4870961	-122.366674	UNK	116			USGSNEW	USGS-402914122215601	USGS-402914122215601
USGS-402914122215601	126	TDS	10/10/1979	MG/L		UNK	40.4870961	-122.366674	UNK	116			USGSNEW	USGS-402914122215601	USGS-402914122215601
USGS-402914122215601	19	TEMP	10/10/1979	CELSIUS		UNK	40.4870961	-122.366674	UNK	116			USGSNEW	USGS-402914122215601	USGS-402914122215601
USGS-402914122215601	0.04	ZN	10/10/1979	MG/L		UNK	40.4870961	-122.366674	UNK	116			USGSNEW	USGS-402914122215601	USGS-402914122215601
USGS-403000122220001	0	24D	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	AG	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	AL	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	ALACL	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	ALDICARB	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	ALDSULF	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	ALDSULFOX	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	-1.6	ALPHA	10/22/2007	pCi/L		UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	-1.5	ALPHA	10/22/2007	pCi/L		UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0.26	AS	10/22/2007	UG/L		UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0.007	ATRAZINE	10/22/2007	UG/L		UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	AZIPM	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0.014	B	10/22/2007	MG/L		UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0.0196	BA	10/22/2007	MG/L		UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	BDCME	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	BE	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	BR	10/22/2007	MG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	BRME	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	BROMCIL	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	BTBZN	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	BTBZS	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	BTBZT	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	BTZ	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	BZ	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001

WELL_ID	RESULTS	CHEMICAL	DATE_	UNITS	QUALIFER	RL	LATITUDE	LONGITUDE	WELL_TYPE	WELL_DEPTH_FT	TOP_OF_SCREEN_FT	SCREEN_LENGTH_FT	SOURCE	SOURCE_NAME	OTHER_NAMES
USGS-403000122220001	0	BZME	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0.5	C-14	10/22/2007	PCT MODERN		UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	108.4	C-14	10/22/2007	PCT MODERN		UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	10.9	CA	10/22/2007	MG/L		UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	CD	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	CDS	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	2.2	CL	10/22/2007	MG/L		UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	CLBZ	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	CR	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	CRBFN	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	CTCL	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	CU	10/22/2007	MG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	DBCME	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	DBCP	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	DCA11	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	DCA12	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	DCE11	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	DCE12C	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	DCE12T	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	DCMA	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	DCPA12	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	DIAZ	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	DICAMBA	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	DICHLORVOS	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	DIELDRIN	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	DIMETHAT	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	DINOSEB	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	DIURON	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	EBZ	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	EDB	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	ETBE	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	F	10/22/2007	MG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	FC113	10/22/2007	MG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	FE	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	FENPHOS	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	FONOFOS	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	1	H-3	10/22/2007	pCi/L		UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	9	H-3	10/22/2007	pCi/L		UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	HCBU	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	69	HCO3	10/22/2007	MG/L		UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	HEXAZINONE	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	HG	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001		HGE	10/22/2007		ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	I	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	IME	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	IPBZ	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	IPRODIONE	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0.51	K	10/22/2007	MG/L		UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0.53	LI	10/22/2007	UG/L		UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	LINURON	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	MALA	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	METALAXYL	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	METHOMYL	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	METOCHLOR	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	METRIBUZ	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	6.41	MG	10/22/2007	MG/L		UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	MIBK	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	MN	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	MO	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	MOLINATE	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	MTBE	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	3.79	N15N14NO3	10/22/2007	per mil		UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	6.65	NA	10/22/2007	MG/L		UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	NAPH	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0.017	NH3NH4N	10/22/2007	MG/L		UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0.01	NH3NH4N	10/22/2007	MG/L		UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	NI	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	NNSM	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	NO2	10/22/2007	MG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	1.1	NO3N	10/22/2007	MG/L		UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	NORFLUZON	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001

WELL_ID	RESULTS	CHEMICAL	DATE_	UNITS	QUALIFER	RL	LATITUDE	LONGITUDE	WELL_TYPE	WELL_DEPTH_FT	TOP_OF_SCREEN_FT	SCREEN_LENGTH_FT	SOURCE	SOURCE_NAME	OTHER_NAMES
USGS-403000122220001	0	OXAMYL	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	PB	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	PBZN	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	PCA	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	PCATE	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	6.4	PH	10/22/2007	PH UNITS		UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	7.5	PH	10/22/2007	PH UNITS		UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	PHORATE	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	PICLORAM	10/22/2007	MG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	PROMETON	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	PROMETRYN	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	PROPANIL	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	-0.001	RA-226	10/22/2007	pCi/L		UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	-0.05	RA-228	10/22/2007	pCi/L		UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	30	RN-222	10/22/2007	pCi/L		UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	710	RN-222	10/22/2007	pCi/L		UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	SB	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	128	SC	10/22/2007	UMHOS/CM		UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	133	SC	10/22/2007	UMHOS/CM		UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0.1	SE	10/22/2007	UG/L		UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	SEVIN	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	3.64	SO4	10/22/2007	MG/L		UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	72.1	SR	10/22/2007	UG/L		UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	STY	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	TAME	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	TBME	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	TCA111	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	TCA112	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	TCB124	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	TCLME	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	TCPR123	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	106	TDS	10/22/2007	MG/L		UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	97	TDS	10/22/2007	MG/L		UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001		TDS	10/22/2007	MG/L		UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	TEBUTHIURON	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	19	TEMP	10/22/2007	CELSIUS		UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	THIOBENCARB	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	TL	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	TMB124	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	TMB135	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	TRICLOPYR	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	TRIFLURALIN	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	1.5	V	10/22/2007	UG/L		UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	VC	10/22/2007	UG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403000122220001	0	ZN	10/22/2007	MG/L	ND	UNK	40.5131111	-122.381639	UNK				USGSNEW	USGS-403000122220001	USGS-403000122220001
USGS-403035122231601	0	AG	10/10/1979	UG/L		UNK	40.5095957	-122.388897	UNK	105			USGSNEW	USGS-403035122231601	USGS-403035122231601
USGS-403035122231601	1	AS	10/10/1979	UG/L		UNK	40.5095957	-122.388897	UNK	105			USGSNEW	USGS-403035122231601	USGS-403035122231601
USGS-403035122231601	0.2	B	10/10/1979	MG/L		UNK	40.5095957	-122.388897	UNK	105			USGSNEW	USGS-403035122231601	USGS-403035122231601
USGS-403035122231601	0.01	BA	10/10/1979	MG/L		UNK	40.5095957	-122.388897	UNK	105			USGSNEW	USGS-403035122231601	USGS-403035122231601
USGS-403035122231601	2	CA	10/10/1979	MG/L		UNK	40.5095957	-122.388897	UNK	105			USGSNEW	USGS-403035122231601	USGS-403035122231601
USGS-403035122231601	0	CD	10/10/1979	UG/L	ND	UNK	40.5095957	-122.388897	UNK	105			USGSNEW	USGS-403035122231601	USGS-403035122231601
USGS-403035122231601	4	CL	10/10/1979	MG/L		UNK	40.5095957	-122.388897	UNK	105			USGSNEW	USGS-403035122231601	USGS-403035122231601
USGS-403035122231601	0	CR	10/10/1979	UG/L		UNK	40.5095957	-122.388897	UNK	105			USGSNEW	USGS-403035122231601	USGS-403035122231601
USGS-403035122231601	0	CU	10/10/1979	MG/L	ND	UNK	40.5095957	-122.388897	UNK	105			USGSNEW	USGS-403035122231601	USGS-403035122231601
USGS-403035122231601	0.2	F	10/10/1979	MG/L		UNK	40.5095957	-122.388897	UNK	105			USGSNEW	USGS-403035122231601	USGS-403035122231601
USGS-403035122231601	20	FE	10/10/1979	UG/L		UNK	40.5095957	-122.388897	UNK	105			USGSNEW	USGS-403035122231601	USGS-403035122231601
USGS-403035122231601	0	HG	10/10/1979	UG/L		UNK	40.5095957	-122.388897	UNK	105			USGSNEW	USGS-403035122231601	USGS-403035122231601
USGS-403035122231601		HGE	10/10/1979			UNK	40.5095957	-122.388897	UNK	105			USGSNEW	USGS-403035122231601	USGS-403035122231601
USGS-403035122231601	0.4	K	10/10/1979	MG/L		UNK	40.5095957	-122.388897	UNK	105			USGSNEW	USGS-403035122231601	USGS-403035122231601
USGS-403035122231601	0	MG	10/10/1979	MG/L		UNK	40.5095957	-122.388897	UNK	105			USGSNEW	USGS-403035122231601	USGS-403035122231601
USGS-403035122231601	50	MN	10/10/1979	UG/L		UNK	40.5095957	-122.388897	UNK	105			USGSNEW	USGS-403035122231601	USGS-403035122231601
USGS-403035122231601	30	NA	10/10/1979	MG/L		UNK	40.5095957	-122.388897	UNK	105			USGSNEW	USGS-403035122231601	USGS-403035122231601
USGS-403035122231601	0	NO3N	10/10/1979	MG/L		UNK	40.5095957	-122.388897	UNK	105			USGSNEW	USGS-403035122231601	USGS-403035122231601
USGS-403035122231601	0	PB	10/10/1979	UG/L		UNK	40.5095957	-122.388897	UNK	105			USGSNEW	USGS-403035122231601	USGS-403035122231601
USGS-403035122231601	7.7	PH	10/10/1979	PH UNITS		UNK	40.5095957	-122.388897	UNK	105			USGSNEW	USGS-403035122231601	USGS-403035122231601
USGS-403035122231601	135	SC	10/10/1979	UMHOS/CM		UNK	40.5095957	-122.388897	UNK	105			USGSNEW	USGS-403035122231601	USGS-403035122231601
USGS-403035122231601	0	SE	10/10/1979	UG/L		UNK	40.5095957	-122.388897	UNK	105			USGSNEW	USGS-403035122231601	USGS-403035122231601
USGS-403035122231601	0	SO4	10/10/1979	MG/L		UNK	40.5095957	-122.388897	UNK	105			USGSNEW	USGS-403035122231601	USGS-403035122231601
USGS-403035122231601	110	TDS	10/10/1979	MG/L		UNK	40.5095957	-122.388897	UNK	105			USGSNEW	USGS-403035122231601	USGS-403035122231601
USGS-403035122231601	107	TDS	10/10/1979	MG/L		UNK	40.5095957	-122.388897	UNK	105			USGSNEW	USGS-403035122231601	USGS-403035122231601
USGS-403035122231601		TDS	10/10/1979	MG/L		UNK	40.5095957	-122.388897	UNK	105			USGSNEW	USGS-403035122231601	USGS-403035122231601

WELL_ID	RESULTS	CHEMICAL	DATE_	UNITS	QUALIFER	RL	LATITUDE	LONGITUDE	WELL_TYPE	WELL_DEPTH_FT	TOP_OF_SCREEN_FT	SCREEN_LENGTH_FT	SOURCE	SOURCE_NAME	OTHER_NAMES
USGS-403035122231601	18.5	TEMP	10/10/1979	CELSIUS		UNK	40.5095957	-122.388897	UNK	105			USGSNEW	USGS-403035122231601	USGS-403035122231601
USGS-403035122231601	0	ZN	10/10/1979	MG/L	ND	UNK	40.5095957	-122.388897	UNK	105			USGSNEW	USGS-403035122231601	USGS-403035122231601
USGS-403036122261601	0	B	10/10/1979	MG/L		UNK	40.5098731	-122.438899	UNK	60			USGSNEW	USGS-403036122261601	USGS-403036122261601
USGS-403036122261601	12	CA	10/10/1979	MG/L		UNK	40.5098731	-122.438899	UNK	60			USGSNEW	USGS-403036122261601	USGS-403036122261601
USGS-403036122261601	6	CL	10/10/1979	MG/L		UNK	40.5098731	-122.438899	UNK	60			USGSNEW	USGS-403036122261601	USGS-403036122261601
USGS-403036122261601	0	F	10/10/1979	MG/L		UNK	40.5098731	-122.438899	UNK	60			USGSNEW	USGS-403036122261601	USGS-403036122261601
USGS-403036122261601	1.9	K	10/10/1979	MG/L		UNK	40.5098731	-122.438899	UNK	60			USGSNEW	USGS-403036122261601	USGS-403036122261601
USGS-403036122261601	5	MG	10/10/1979	MG/L		UNK	40.5098731	-122.438899	UNK	60			USGSNEW	USGS-403036122261601	USGS-403036122261601
USGS-403036122261601	14	NA	10/10/1979	MG/L		UNK	40.5098731	-122.438899	UNK	60			USGSNEW	USGS-403036122261601	USGS-403036122261601
USGS-403036122261601	0	NO3N	10/10/1979	MG/L		UNK	40.5098731	-122.438899	UNK	60			USGSNEW	USGS-403036122261601	USGS-403036122261601
USGS-403036122261601	6.6	PH	10/10/1979	PH UNITS		UNK	40.5098731	-122.438899	UNK	60			USGSNEW	USGS-403036122261601	USGS-403036122261601
USGS-403036122261601	196	SC	10/10/1979	UMHOS/CM		UNK	40.5098731	-122.438899	UNK	60			USGSNEW	USGS-403036122261601	USGS-403036122261601
USGS-403036122261601	4	SO4	10/10/1979	MG/L		UNK	40.5098731	-122.438899	UNK	60			USGSNEW	USGS-403036122261601	USGS-403036122261601
USGS-403036122261601	144	TDS	10/10/1979	MG/L		UNK	40.5098731	-122.438899	UNK	60			USGSNEW	USGS-403036122261601	USGS-403036122261601
USGS-403036122261601	142	TDS	10/10/1979	MG/L		UNK	40.5098731	-122.438899	UNK	60			USGSNEW	USGS-403036122261601	USGS-403036122261601
USGS-403036122261601		TDS	10/10/1979	MG/L		UNK	40.5098731	-122.438899	UNK	60			USGSNEW	USGS-403036122261601	USGS-403036122261601
USGS-403036122261601	17.5	TEMP	10/10/1979	CELSIUS		UNK	40.5098731	-122.438899	UNK	60			USGSNEW	USGS-403036122261601	USGS-403036122261601

Units

MG/L	milligrams per liter
NG/L	nanograms per liter
pCi/L	picoCuries per liter
PCT MODERN	percent modern carbon
per mil	per millilter
UG/L	micrograms per liter
UMHOS/CM	micro Mhos per centimeter

Qualifier

<	less than
>	greater than
ND	not detected
R	rejected
SU	standard unit

Notes:

RL	Reporting Limit
DHS	Department of Health Services
USGSNEW	U.S. Geological Survey (new location)
UNK	unknown

CHEMICAL VVL	CHEMICAL NAME	NATURALLY OCCURRING	UNITS	COMPARISON CONCENTRATION (VALUE)	COMPARISON CONCENTRATION TYPE	CDPH (STORET)	DPR
10:2FTS	10:2 Fluorotelomer sulfonic acid		NG/L	0	No Comparison Conc.		
11ClPF3OUDS	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid		NG/L	0	No Comparison Conc.	C2817	
17DIMETHYLX	1,7-Dimethylxanthine		UG/L	0	No Comparison Conc.		
24D	2,4-Dichlorophenoxyacetic acid (2,4 D)		UG/L	70	MCL	39730	636
3:3FTCA	4,4,5,5,6,6,6-HeptafluorohexanoicAcid		NG/L	0	No Comparison Conc.		
4:2FTS	4:2 Fluorotelomer sulfonic acid		NG/L	0	No Comparison Conc.		
5:3FTCA	2H,2H,3H,3H-Perfluorooctanoic Acid		NG/L	0	No Comparison Conc.		
6:2FTS	6:2 Fluorotelomer sulfonic acid		NG/L	0	No Comparison Conc.		
7:3FTCA	2H,2H,3H,3H-Perfluorodecanoicacid		NG/L	0	No Comparison Conc.		
8:2FTS	8:2 Fluorotelomer sulfonic acid		NG/L	0	No Comparison Conc.		
9ClPF3ONS	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid		NG/L	0	No Comparison Conc.	C2816	
ACB	Anion/Cation Balance	X	Count	0	No Comparison Conc.		
ACE	Acetone		UG/L	6300	RfD	81552	
ACETAMPHEN	Acetaminophen		UG/L	0	No Comparison Conc.	A-058	
ADONA	4,8-Dioxa-3H-perfluorononanoic acid		NG/L	0	No Comparison Conc.	C2818	
AG	Silver	X	UG/L	100	SMCL	1077	
AL	Aluminum	X	UG/L	1000	MCL	01105, 01106	
ALACL	Alachlor		UG/L	2	MCL	77825	678
ALBUTEROL	Albuterol		UG/L	0	No Comparison Conc.		
ALDICARB	Aldicarb		UG/L	7	HBSL	39053	575
ALDSULF	Aldicarb Sulfone		UG/L	7	HBSL	A-020	2265
ALDSULFOX	Aldicarb sulfoxide		UG/L	7	HBSL	A-019	2361
ALK	Alkalinity, total	X	MG/L	0	No Comparison Conc.	410	
ALKB	Bicarbonate Alkalinity	X	MG/L	0	No Comparison Conc.	440	
ALKCACO3	Alkalinity as CaCO3	X	MG/L	0	No Comparison Conc.	410	
ALPHA	Gross Alpha radioactivity	X	pCi/L	15	MCL	1501	
AR	Argon	X	cm3STP/g	0	No Comparison Conc.		
AS	Arsenic	X	UG/L	10	MCL	1002	
ASBESTOS	Asbestos	X	MFL	7	MCL	81855	
ATRAZINE	Atrazine		UG/L	1	CA MCL	39033	45
AZIPE	Azinphos Ethyl		UG/L	10	HBSL	81292	
AZIPM	Guthion (Azinphos Methyl)		UG/L	10	HBSL	39580	314
B	Boron	X	MG/L	1	NL	1020	
BA	Barium	X	MG/L	1	MCL	1007	
BDCME	Bromodichloromethane (THM)		UG/L	80	MCL	32101	
BE	Beryllium	X	UG/L	4	MCL	1012	
BENSULM	Bensulfuron Methyl		UG/L	1000	HBSL		
BETA	Gross beta	X	pCi/L	50	MCL	3501	
BHCALPHA	Alpha-Benzene Hexachloride (Alpha-BHC)		UG/L	0.15	CA-Prop65	39337	
BHCBETA	Beta-Benzene Hexachloride (Beta- BHC)		UG/L	0.25	CA-Prop65	39338	
BHCGAMMA	Lindane (Gamma-BHC)		UG/L	0.2	MCL	39340	359
BIS2EHP	Di(2-ethylhexyl)phthalate (DEHP)		UG/L	4	MCL	39100	
BR	Bromide	X	MG/L	0	No Comparison Conc.	82298	
BRACETICA	Bromoacetic Acid		UG/L	0	No Comparison Conc.	A-041	
BRME	Methyl Bromide (Bromomethane)		UG/L	10	HAL-US	34413	
BRO3	Bromate		UG/L	10	MCL	A-027	
BROMCIL	Bromacil		UG/L	70	HAL-US	82198	
BTBZN	n-Butylbenzene		UG/L	260	NL	A-010	
BTBZS	sec-Butylbenzene		UG/L	260	NL	77350	
BTBZT	tert-Butylbenzene		UG/L	260	NL	77353	
BTZ	Bentazon		UG/L	18	MCL	38710	1944
BZ	Benzene		UG/L	1	CA MCL	34030	

CHEMICAL VVL	CHEMICAL NAME	DWR	EDF	DOM WELL EL_DORADO	DOM WELL EDF	GAMA LLNL
10:2FTS	10:2 Fluorotelomer sulfonic acid		10:2FTS			
11ClPF3OUDS	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid		11ClPF3OUDS			
17DIMETHYLX	1,7-Dimethylxanthine		17DIMETHYLX			
24D	2,4-Dichlorophenoxyacetic acid (2,4 D)	2,4-D	24D			
3:3FTCA	4,4,5,5,6,6,6-HeptafluorohexanoicAcid		3:3FTCA			
4:2FTS	4:2 Fluorotelomer sulfonic acid		4:2FTS			
5:3FTCA	2H,2H,3H,3H-Perfluorooctanoic Acid		5:3FTCA			
6:2FTS	6:2 Fluorotelomer sulfonic acid		6:2FTS			
7:3FTCA	2H,2H,3H,3H-Perfluorodecanoicacid		7:3FTCA			
8:2FTS	8:2 Fluorotelomer sulfonic acid		8:2FTS			
9ClPF3ONS	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid		9ClPF3ONS			
ACB	Anion/Cation Balance		ACB			
ACE	Acetone		ACE	ACETONE		
ACETAMPHEN	Acetaminophen		ACETAMPHEN			
ADONA	4,8-Dioxa-3H-perfluorononanoic acid		ADONA			
AG	Silver	Dissolved Silver, Total Silver	AG	Silver		
AL	Aluminum	Dissolved Aluminum, Total Aluminum	AL	ALUMINUM		
ALACL	Alachlor	Alachlor	ALACL			
ALBUTEROL	Albuterol		ALBUTEROL			
ALDICARB	Aldicarb	Aldicarb	ALDICARB			
ALDSULF	Aldicarb Sulfone	Aldicarb sulfone	ALDSULF			
ALDSULFOX	Aldicarb sulfoxide	Aldicarb sulfoxide	ALDSULFOX			
ALK	Alkalinity, total		ALK, ALKCACO3	ALKALINITY (TOTAL) AS CACO3		
ALKB	Bicarbonate Alkalinity		ALKB	BICARBONATE ALKALINITY		
ALKCACO3	Alkalinity as CaCO3	Total Alkalinity	ALKCACO3	ALKALINITY (TOTAL) AS CACO3		
ALPHA	Gross Alpha radioactivity		ALPHA	GROSS ALPHA		
AR	Argon		AR, AR			
AS	Arsenic	Dissolved Arsenic, Total Arsenic	AS	ARSENIC		
ASBESTOS	Asbestos		ASBESTOS	ASBESTOS		
ATRAZINE	Atrazine	Atrazine	ATRAZINE			
AZIPE	Azinphos Ethyl		AZIPE			
AZIPM	Guthion (Azinphos Methyl)	Azinphos methyl (Guthion)	AZIPM			
B	Boron	Dissolved Boron	B			
BA	Barium	Dissolved Barium	BA	BARIUM		
BDCME	Bromodichloromethane (THM)	Bromodichloromethane	BDCME	BROMODICHLOROMETHANE/ DICHLOROBROMOMETHANE		
BE	Beryllium	Dissolved Beryllium	BE	BERYLLIUM		
BENSULM	Bensulfuron Methyl		BENSULM			
BETA	Gross beta		BETA			
BHCALPHA	Alpha-Benzene Hexachloride (Alpha-BHC)	BHC-alpha	BHCALPHA			
BHCBETA	Beta-Benzene Hexachloride (Beta- BHC)	BHC-beta	BHCBETA			
BHCGAMMA	Lindane (Gamma-BHC)	BHC-gamma (Lindane)	BHCGAMMA			
BIS2EHP	Di(2-ethylhexyl)phthalate (DEHP)		BIS2EHP			
BR	Bromide		BR			
BRACETICA	Bromoacetic Acid	Monobromoacetic Acid (MBAA)	BRACETICA			
BRME	Methyl Bromide (Bromomethane)	Bromomethane	BRME	BROMOMETHANE/ Methyl Bromide		
BRO3	Bromate		BRO3			
BROMCIL	Bromacil	Bromacil	BROMCIL			
BTBZN	n-Butylbenzene	n-Butylbenzene	BTBZN	n-BUTYLBENZENE		
BTBZS	sec-Butylbenzene	sec-Butylbenzene	BTBZS	sec-Butylbenzene		
BTBZT	tert-Butylbenzene	tert-Butylbenzene	BTBZT	tert-Butylbenzene		
BTZ	Bentazon		BTZ			
BZ	Benzene	Benzene	BZ	BENZENE		

CHEMICAL VVL	CHEMICAL NAME	DOM WELL TEHAMA	GAMA USGS	DOM WELL YUBA
10:2FTS	10:2 Fluorotelomer sulfonic acid			
11ClPF3OUDS	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid			
17DIMETHYLX	1,7-Dimethylxanthine		1,7-Dimethylxanthine, wf	
24D	2,4-Dichlorophenoxyacetic acid (2,4 D)		2,4-D, wf	
3:3FTCA	4,4,5,5,6,6,6-HeptafluorohexanoicAcid			
4:2FTS	4:2 Fluorotelomer sulfonic acid		4:2 FTS, wu	
5:3FTCA	2H,2H,3H,3H-Perfluorooctanoic Acid			
6:2FTS	6:2 Fluorotelomer sulfonic acid		6:2 FTS, wu	
7:3FTCA	2H,2H,3H,3H-Perfluorodecanoicacid			
8:2FTS	8:2 Fluorotelomer sulfonic acid		8:2 FTS, wu	
9ClPF3ONS	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid			
ACB	Anion/Cation Balance			
ACE	Acetone	ACE	Acetone, wu	
ACETAMPHEN	Acetaminophen		Acetaminophen, wf	
ADONA	4,8-Dioxa-3H-perfluorononanoic acid			
AG	Silver	AG	Silver, wf	Silver, FAA
AL	Aluminum	AL	Aluminum, wf	Aluminum, FAA, Aluminum, GFAA
ALACL	Alachlor		Alachlor, wf	
ALBUTEROL	Albuterol		Albuterol, wf	
ALDICARB	Aldicarb		Aldicarb, w,gf<.7u	
ALDSULF	Aldicarb Sulfone		Aldicarb sulfone, w,gf<.7	
ALDSULFOX	Aldicarb sulfoxide		Aldicarb sulfoxide, w,gf.7	
ALK	Alkalinity, total	ALK	Alkalinity,wf,fixedEP,lab	Alkalinity, Total
ALKB	Bicarbonate Alkalinity	ALKB		Alkalinity, Bicarbonate
ALKCACO3	Alkalinity as CaCO3	ALK	Alkalinity,wf,fixedEP,lab	Alkalinity, Total
ALPHA	Gross Alpha radioactivity	MBAS	Alpha activity, 30d,wf,Th230	
AR	Argon			
AS	Arsenic	AS	Arsenic, wf	Arsenic, Hydride
ASBESTOS	Asbestos			
ATRAZINE	Atrazine		Atrazine, wf	
AZIPE	Azinphos Ethyl			
AZIPM	Guthion (Azinphos Methyl)		Azinphos-methyl, w,gf<.7u	
B	Boron		Boron, wf	
BA	Barium	BA	Barium, wf	Barium, FAA
BDCME	Bromodichloromethane (THM)	BDCME	Bromochloromethane, wu	BROMODICHLOROMETHANE/ DICHLOROBROMOMETHANE
BE	Beryllium	BE	Beryllium, wf	Beryllium, GFAA
BENSULM	Bensulfuron Methyl		Bensulfuron-methyl, wf	
BETA	Gross beta		Beta activity, 72hr/ Cs137,wf	
BHCALPHA	Alpha-Benzene Hexachloride (Alpha-BHC)			
BHCBETA	Beta-Benzene Hexachloride (Beta- BHC)			
BHCGAMMA	Lindane (Gamma-BHC)			
BIS2EHP	Di(2-ethylhexyl)phthalate (DEHP)			
BR	Bromide		Bromide, wf	
BRACETICA	Bromoacetic Acid			
BRME	Methyl Bromide (Bromomethane)	BRME	Bromomethane, wu	BROMOMETHANE/ Methyl Bromide
BRO3	Bromate			
BROMCIL	Bromacil		Bromacil, wf	
BTBZN	n-Butylbenzene	BTBZN	N(4Chlorophenyl)N'methylurea, n-Butylbenzene, wu	n-BUTYLBENZENE
BTBZS	sec-Butylbenzene	BTBZS	sec-Butylbenzene, wu	sec-Butylbenzene
BTBZT	tert-Butylbenzene	BTBZT		tert-Butylbenzene
BTZ	Bentazon	ACRAMD		
BZ	Benzene	BZ	Benzene, wu	BENZENE

CHEMICAL VVL	CHEMICAL NAME	NATURALLY OCCURRING	UNITS	COMPARISON CONCENTRATION (VALUE)	COMPARISON CONCENTRATION TYPE	CDPH (STORET)	DPR
BZAP	Benzo(a)pyrene		UG/L	0.2	MCL	34247	
BZME	Toluene		UG/L	150	CA MCL	34010	
C-14	Carbon 14	X	PCT MODERN	0	No Comparison Conc.		
CA	Calcium	X	MG/L	0	No Comparison Conc.	916	
CAA	Chloroacetic Acid		UG/L	0	No Comparison Conc.	A-042	
CARBAMPINE	Carbamazepine		UG/L	0	No Comparison Conc.	A-061	
CD	Cadmium	X	UG/L	5	MCL	1027	
CDS	Carbon Disulfide	X	UG/L	160	NL	77041	
CH4	Methane, dissolved	X	MG/L	0	No Comparison Conc.		
CHLORATE	Chlorate		UG/L	800	NL	A-037	
CHLORDANE	Chlordane		UG/L	0.1	CA MCL	39350	130
CHLORITE	Chlorite		MG/L	1	MCL	50074	
CL	Chloride	X	MG/L	500	SMCL	940	
CLBZ	Chlorobenzene		UG/L	70	CA MCL	34301	
CLBZME2	2 Chlorotoluene		UG/L	140	NL	A-008	
CLBZME4	4 Chlorotoluene		UG/L	140	NL	A-009	
CLPICRIN	Chloropicrin		UG/L	12	NAS-HAL	77548	
CN	Cyanide (CN)		UG/L	150	MCL	1291	
CO	Cobalt	X	UG/L	0	No Comparison Conc.	1035	
CO3	carbonate CO3	X	MG/L	0	No Comparison Conc.		
CODEINE	Codeine		UG/L	0	No Comparison Conc.		
COLIFORM	Total Coliform Bacteria	X	Count	0.99	MCL		
COTININE	Cotinine		UG/L	0	No Comparison Conc.		
CR	Chromium	X	UG/L	50	MCL	1034	
CR6	Chromium, Hexavalent (Cr6)	X	UG/L	20	HBSL	1032	
CRBFN	Carbofuran		UG/L	18	CA MCL	81405	106
CTCL	Carbon Tetrachloride		UG/L	0.5	CA MCL	32102	
CU	Copper	X	MG/L	1	SMCL	1042	
CYANAZ	Cyanazine		UG/L	0.3	HBSL	81757	
CYPERM	Cypermethrin		UG/L	40	HBSL		2171
DACTACID	Dacthalmonoacid		UG/L	0	No Comparison Conc.		
DACTH	Dacthal		UG/L	70	HBSL	39770	
DALAPON	Dalapon		UG/L	200	MCL	38432	
DBCME	Dibromochloromethane (THM)		UG/L	80	MCL	32105	
DBCP	1,2-Dibromo-3-chloropropane (DBCP)		UG/L	0.2	MCL	38761	183
DBRACETICA	Dibromoacetic acid		UG/L	0	No Comparison Conc.	82721	
DCA11	1,1-Dichloroethane (1,1 DCA)		UG/L	5	CA MCL	34496	
DCA12	1,2 Dichloroethane (1,2 DCA)		UG/L	0.5	CA MCL	34531	
DCAA	Dichloroacetic Acid		UG/L	0	No Comparison Conc.	77288	
DCBZ12	1,2 Dichlorobenzene (1,2-DCB)		UG/L	600	MCL	34536	578, 90683
DCBZ13	1,3-Dichlorobenzene		UG/L	600	HAL-US	34566	
DCBZ14	1,4-Dichlorobenzene (p-DCB)		UG/L	5	MCL	34571	
DCE11	1,1 Dichloroethylene (1,1 DCE)		UG/L	6	CA MCL	34501	
DCE12C	cis-1,2 Dichloroethylene		UG/L	6	CA MCL	77093	
DCE12T	trans-1,2, Dichloroethylene		UG/L	10	CA MCL	34546	
DCE12TOT	1,2-Dichloroethene		UG/L	0	No Comparison Conc.		
DCMA	Dichloromethane (Methylene Chloride)		UG/L	5	MCL	34423	
DCP13	1,3 Dichloropropene		UG/L	0.5	CA MCL	34561	573
DCPA12	1,2 Dichloropropane (1,2 DCP)		UG/L	5	MCL	34541	2501
DCPROP	Dichlorprop		UG/L	300	HBSL	82356	
DDD44	4,4'-DDD		UG/L	0.1	CA-CPF	39310	
DDE44	4,4'-DDE		UG/L	0.1	CA-CPF	39320	

CHEMICAL VVL	CHEMICAL NAME	DWR	EDF	DOM WELL EL_DORADO	DOM WELL EDF	GAMA LLNL
BZAP	Benzo(a)pyrene		BZAP			
BZME	Toluene	Toluene	BZME	TOLUENE		
C-14	Carbon 14		C-14			
CA	Calcium		CA	CALCIUM		CALCIUM
CAA	Chloroacetic Acid	Monochloroacetic Acid (MCAA)	CAA			
CARBAMPINE	Carbamazepine		CARBAMPINE			
CD	Cadmium	Dissolved Cadmium, Total Cadmium	CD	CADMIUM		
CDS	Carbon Disulfide		CDS	Carbon Disulfide		
CH4	Methane, dissolved		CH4			
CHLORATE	Chlorate		CHLORATE			
CHLORDANE	Chlordane	Chlordane	CHLORDANE, CHLORDANETOT			
CHLORITE	Chlorite		CHLORITE			
CL	Chloride	Dissolved Chloride	CL	CHLORIDE		CHLORIDE
CLBZ	Chlorobenzene	Chlorobenzene	CLBZ	Chlorobenzene/ Monochlorobenzene		
CLBZME2	2 Chlorotoluene	2-Chlorotoluene	CLBZME2	2-Chlorotoluene		
CLBZME4	4 Chlorotoluene	4-Chlorotoluene	CLBZME4	4-Chlorotoluene		
CLPICRIN	Chloropicrin		CLPICRIN			
CN	Cyanide (CN)		CN	Cyanide (Total)		
CO	Cobalt		CO			
CO3	carbonate CO3	Dissolved Carbonate (CO3--)	CO3	CARBONATE		
CODEINE	Codeine		CODEINE			
COLIFORM	Total Coliform Bacteria		COLIFORM	TOTAL COLIFORM		
COTININE	Cotinine		COTININE			
CR	Chromium	Total Chromium	CR	CHROMIUM (TOTAL)		
CR6	Chromium, Hexavalent (Cr6)		CR6			
CRBFN	Carbofuran	Carbofuran	CRBFN			
CTCL	Carbon Tetrachloride	Carbon tetrachloride	CTCL	Carbon Tetrachloride		
CU	Copper	Dissolved Copper, Total Copper	CU	COPPER		
CYANAZ	Cyanazine	Cyanazine	CYANAZ			
CYPERM	Cypermethrin		CYPERM			
DACTACID	Dacthalmonoacid		DACTACID			
DACTH	Dacthal	Dacthal (DCPA)	DACTH			
DALAPON	Dalapon		DALAPON			
DBCME	Dibromochloromethane (THM)	Dibromochloromethane	DBCME	Dibromochloromethane		
DBCP	1,2-Dibromo-3-chloropropane (DBCP)	1,2-Dibromo-3-chloropropane (DBCP)	DBCP	1,2-Dibromo-3-Chloropropane		
DBRACETICA	Dibromoacetic acid		DBRACETICA, ACETICACID			
DCA11	1,1-Dichloroethane (1,1 DCA)	1,1-Dichloroethane	DCA11	1,1-Dichloroethane		
DCA12	1,2 Dichloroethane (1,2 DCA)	1,2-Dichloroethane	DCA12	1,2-Dichloroethane		
DCAA	Dichloroacetic Acid		DCAA			
DCBZ12	1,2 Dichlorobenzene (1,2-DCB)	1,2-Dichlorobenzene	DCBZ12	1,2-Dichlorobenzene		
DCBZ13	1,3-Dichlorobenzene	1,3-Dichlorobenzene	DCBZ13	1,3-Dichlorobenzene		
DCBZ14	1,4-Dichlorobenzene (p-DCB)	1,4-Dichlorobenzene	DCBZ14	1,4-Dichlorobenzene		
DCE11	1,1 Dichloroethylene (1,1 DCE)	1,1-Dichloroethene	DCE11	1,1-Dichloroethene/ 1,1-Dichloroethylene		
DCE12C	cis-1,2 Dichloroethylene	cis-1,2-Dichloroethene	DCE12C	cis-1,2-Dichloroethene/ cis-1,2-Dichloroethylene		
DCE12T	trans-1,2, Dichloroethylene	trans-1,2-Dichloroethene	DCE12T	trans-1,2-Dichloroethene/ trans-1,2-Dichloroethylene		
DCE12TOT	1,2-Dichloroethene		DCE12TOT			
DCMA	Dichloromethane (Methylene Chloride)	Methylene chloride	DCMA	DICHLOROMETHANE		
DCP13	1,3 Dichloropropene		DCP13			
DCPA12	1,2 Dichloropropane (1,2 DCP)	1,2-Dichloropropane	DCPA12	1,2-Dichloropropane		
DCPROP	Dichlorprop	Dichlorprop	DCPROP			
DDD44	4,4'-DDD	p,p'-DDD	DDD44			
DDE44	4,4'-DDE	p,p'-DDE	DDE44			

CHEMICAL VVL	CHEMICAL NAME	DOM WELL TEHAMA	GAMA USGS	DOM WELL YUBA
BZAP	Benzo(a)pyrene			
BZME	Toluene	BZME	Toluene, wu	TOLUENE
C-14	Carbon 14		C-14, wf	
CA	Calcium	CA	Calcium, wf	Calcium, Titrimetric
CAA	Chloroacetic Acid			
CARBAMPINE	Carbamazepine		Carbamazepine, wf	
CD	Cadmium	CD	Cadmium, wf	Cadmium, GFAA
CDS	Carbon Disulfide	CDS	Carbon disulfide, wu	
CH4	Methane, dissolved			
CHLORATE	Chlorate			
CHLORDANE	Chlordane			
CHLORITE	Chlorite			
CL	Chloride	CL	Chloride, wf	Chloride
CLBZ	Chlorobenzene	CLBZ	Chlorobenzene, wu	Chlorobenzene/ Monochlorobenzene
CLBZME2	2 Chlorotoluene	CLBZME2	2-Chlorotoluene, wu	2-Chlorotoluene
CLBZME4	4 Chlorotoluene	CLBZME4	4-Chlorotoluene, wu	4-Chlorotoluene
CLPICRIN	Chloropicrin			
CN	Cyanide (CN)	CN		
CO	Cobalt		Cobalt, wf	
CO3	carbonate CO3	CO3	Carbonate, wf,inflect pt,fld	
CODEINE	Codeine		Codeine, wf	
COLIFORM	Total Coliform Bacteria	COLIFORM		Total Coliform Bacteria
COTININE	Cotinine		Cotinine, wf	
CR	Chromium	CR	Chromium, wf	Chromium, GFAA @ 1 ug/ L
CR6	Chromium, Hexavalent (Cr6)			
CRBFN	Carbofuran		Carbofuran, w,gf<.7u	
CTCL	Carbon Tetrachloride	CTCL	Tetrachloromethane, wu	Carbon Tetrachloride
CU	Copper	CU	Copper, wf	Copper, FAA
CYANAZ	Cyanazine		Cyanazine, wf	
CYPERM	Cypermethrin		Cypermethrin, wf	
DACTACID	Dacthalmonoacid		DCPA monoacid, w,gf<.7u	
DACTH	Dacthal		DCPA, w,gf<.7u	
DALAPON	Dalapon			
DBCME	Dibromochloromethane (THM)	DBCME	Dibromochloromethane, wu	Dibromochloromethane
DBCP	1,2-Dibromo-3-chloropropane (DBCP)		Dibromochloropropane, wu	
DBRACETICA	Dibromoacetic acid			
DCA11	1,1-Dichloroethane (1,1 DCA)	DCA11	1,1-Dichloroethane, wu	1,1-Dichloroethane
DCA12	1,2 Dichloroethane (1,2 DCA)	DCA12	1,2-Dichloroethane, wu	1,2-Dichloroethane
DCAA	Dichloroacetic Acid			
DCBZ12	1,2 Dichlorobenzene (1,2-DCB)	DCBZ12	1,2-Dichlorobenzene, wu	1,2-Dichlorobenzene
DCBZ13	1,3-Dichlorobenzene	DCBZ13	1,3-Dichlorobenzene, wu	1,3-Dichlorobenzene
DCBZ14	1,4-Dichlorobenzene (p-DCB)	DCBZ14	, 1,4-Dichlorobenzene, wu	1,4-Dichlorobenzene
DCE11	1,1 Dichloroethylene (1,1 DCE)	DCE11	1,1-Dichloroethene, wu	1,1-Dichloroethene/ 1,1-Dichloroethylene
DCE12C	cis-1,2 Dichloroethylene	DCE12C		cis-1,2-Dichloroethene/ cis-1,2-Dichloroethylene
DCE12T	trans-1,2, Dichloroethylene	DCE12T	trans-1,2-Dichloroethene, wu	trans-1,2-Dichloroethene/ trans-1,2-Dichloroethylene
DCE12TOT	1,2-Dichloroethene			
DCMA	Dichloromethane (Methylene Chloride)	MTLNCL	Dichloromethane, wu	DICHLOROMETHANE/ Methylene Chloride
DCP13	1,3 Dichloropropene	DCP13C, DCP13T	cis-1,3-Dichloropropene, wu, trans-1,3-Dichloropropene, wu	Total, 1,3-Dichloropropene
DCPA12	1,2 Dichloropropane (1,2 DCP)	DCPA12	1,2-Dichloropropane, wu	1,2-Dichloropropane
DCPROP	Dichlorprop		Dichlorprop, w,gf<.7u	
DDD44	4,4'-DDD			
DDE44	4,4'-DDE			

CHEMICAL VVL	CHEMICAL NAME	NATURALLY OCCURRING	UNITS	COMPARISON CONCENTRATION (VALUE)	COMPARISON CONCENTRATION TYPE	CDPH (STORET)	DPR
DDT44	4,4'-DDT		UG/L	0.1	CA-CPF	39300	
DEATZ	Deethylatrazine		UG/L	50	CA-Prop65		
DEHYDRONIF	Dehydronifedipine		UG/L	0	No Comparison Conc.		
DEUTERIUM	Deuterium	X	UG/L	0	No Comparison Conc.		
DIAZ	Diazinon		UG/L	1.2	NL	39570	
DICAMBA	Dicamba		UG/L	210	RfD	82052	
DICHLORVOS	Dichlorvos (DDVP)		UG/L	0.4	HBSL		187
DICOFOL	Dicofol		UG/L	0	No Comparison Conc.	39780	
DIELDRIN	Dieldrin		UG/L	0.002	HBSL	39380	
DIESEL	Diesel		UG/L	100	HAL-US		
DILTIAZEM	Diltiazem		UG/L	0	No Comparison Conc.		
DIMETHAT	Dimethoate		UG/L	2	HBSL	38458	216
DINOSEB	Dinoseb		UG/L	7	MCL	81287	
DIOXANE14	1,4-Dioxane		UG/L	1	NL	A-032	
DIPATZ	Deisopropyl Atrazine		UG/L	0	No Comparison Conc.		
DIPE	diisopropyl ether		UG/L	0	No Comparison Conc.	A-036	
DIPHENHYDR	Diphenhydramine		UG/L	0	No Comparison Conc.		
DIQUAT	Diquat		UG/L	20	MCL	78885	
DIURON	Diuron		UG/L	2	HBSL	39650	231
DO	Dissolved Oxygen (DO)	X	MG/L	0	No Comparison Conc.		
DOA	Di(2-ethylhexyl)adipate		MG/L	0.4	MCL	A-026	
DOSAT	Dissolved Oxygen, Percent Saturation	X	PERCENT	0	No Comparison Conc.		
EBZ	Ethylbenzene		UG/L	300	CA MCL	34371	
EDB	1,2 Dibromoethane (EDB)		UG/L	0.05	MCL	77651	271
ENDOSULFANA	Endosulfan I		UG/L	42	RfD	34361	
ENDOSULFANB	Endosulfan II		UG/L	42	RfD	34356	
ENDOSULFANS	Endosulfan Sulfate		UG/L	42	RfD	34351	
ENDOTHAL	Endothall		UG/L	100	MCL	38926	260
ENDRIN	Endrin		UG/L	2	MCL	39390	
ENDRINALD	Endrin Aldehyde		UG/L	0	No Comparison Conc.	34366	
EPTAM	EPTC		UG/L	200	HBSL	81894	264
ETBE	Ethyl tertiary butyl ether (ETBE)		UG/L	0	No Comparison Conc.	A-033	
ETEGLY	Ethylene glycol		MG/L	14	NL	77023	
ETFOSA	N-Ethylperfluorooctanesulfonamide		NG/L	0	No Comparison Conc.		
ETFOSE	N-Ethylperfluorooctanesulfonamide ethanol		NG/L	0	No Comparison Conc.		
F	Fluoride	X	MG/L	2	MCL	951	
FC11	Trichlorofluoromethane (Freon 11)		UG/L	150	CA MCL	34488	
FC113	1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113)		MG/L	1.2	CA MCL	81611	
FC12	Dichlorodifluoromethane		MG/L	1	NL	34668	
FCOLIFORM	Fecal Coliform (bacteria)		Count	0.99	MCL		
FE	Iron	X	UG/L	300	SMCL	01045, 01046	
FENPHOS	Fenamiphos		UG/L	0.7	HBSL	38929	1857
FOAMAGENTS	Foaming Agents (MBAS)		MG/L	0.5	SMCL	38260	
FONOFOS	Fonofos		UG/L	10	HBSL	81294	254
FORMALD	Formaldehyde		UG/L	100	NL	71880	
GASOLINE	Gasoline		UG/L	5	HAL-US		
GLYP	Glyphosate (Round-up)		UG/L	700	MCL	39941, 79743	1855
H2H1RAT	delta H2/H1	X	per mil	0	No Comparison Conc.		
H-3	Tritium	X	pCi/L	20000	MCL	7000	
HARD	Hardness	X	MG/L	0	No Comparison Conc.	900	
HCBU	Hexachlorobutadiene		UG/L	0.9	HBSL	34391	
HCCP	Hexachlorocyclopentadiene		UG/L	50	MCL	34386	

CHEMICAL VVL	CHEMICAL NAME	DWR	EDF	DOM WELL EL_DORADO	DOM WELL EDF	GAMA LLNL
DDT44	4,4'-DDT	p,p'-DDT	DDT44			
DEATZ	Deethylatrazine		DEATZ			
DEHYDRONIF	Dehydronifedipine		DEHYDRONIF			
DEUTERIUM	Deuterium		DEUTERIUM			
DIAZ	Diazinon	Diazinon	DIAZ			
DICAMBA	Dicamba	Dicamba	DICAMBA			
DICHLORVOS	Dichlorvos (DDVP)		DICHLORVOS			
DICOFOL	Dicofol	Dicofol	DICOFOL			
DIELDRIN	Dieldrin		DIELDRIN			
DIESEL	Diesel		DIESEL			
DILTIAZEM	Diltiazem		DILTIAZEM			
DIMETHAT	Dimethoate	Dimethoate	DIMETHAT			
DINOSEB	Dinoseb	Dinoseb (DNPB)	DINOSEB			
DIOXANE14	1,4-Dioxane		DIOXANE14			
DIPATZ	Deisopropyl Atrazine		DIPATZ			
DIPE	diisopropyl ether		DIPE			
DIPHENHYDR	Diphenhydramine		DIPHENHYDR			
DIQUAT	Diquat		DIQUAT			
DIURON	Diuron	Diuron	DIURON			
DO	Dissolved Oxygen (DO)		DO			
DOA	Di(2-ethylhexyl)adipate		DOA			
DOSAT	Dissolved Oxygen, Percent Saturation		DOSAT			
EBZ	Ethylbenzene	Ethyl benzene	EBZ	Ethylbenzene		
EDB	1,2 Dibromoethane (EDB)	1,2-Dibromoethane (EDB)	EDB	1,2-Dibromoethane (EDB)		
ENDOSULFANA	Endosulfan I	Endosulfan-I	ENDOSULFANA			
ENDOSULFANB	Endosulfan II	Endosulfan-II	ENDOSULFANB			
ENDOSULFANS	Endosulfan Sulfate	Endosulfan sulfate	ENDOSULFANS			
ENDOTHAL	Endothall		ENDOTHAL			
ENDRIN	Endrin	Endrin	ENDRIN			
ENDRINALD	Endrin Aldehyde	Endrin aldehyde	ENDRINALD			
EPTAM	EPTC		EPTAM			
ETBE	Ethyl tertiary butyl ether (ETBE)		ETBE	Ethyl tert-Butyl Ether (ETBE)		
ETEGLY	Ethylene glycol		ETEGLY			
ETFOSA	N-Ethylperfluorooctanesulfonamide		ETFOSA			
ETFOSE	N-Ethylperfluorooctanesulfonamide ethanol		ETFOSE			
F	Fluoride	Dissolved Fluoride	F	FLUORIDE (TEMPERATURE DEPENDENT)		FLUORIDE
FC11	Trichlorofluoromethane (Freon 11)	Trichlorofluoromethane	FC11	Trichlorofluoromethane (FREON 11)		
FC113	1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113)		FC113	Trichlorotrifluoroethane (FREON 113)		
FC12	Dichlorodifluoromethane	Dichlorodifluoromethane	FC12	Dichlorodifluoromethane		
FCOLIFORM	Fecal Coliform (bacteria)		FCOLIFORM	FECAL COLIFORM		
FE	Iron	Dissolved Iron	FE	IRON		
FENPHOS	Fenamiphos		FENPHOS			
FOAMAGENTS	Foaming Agents (MBAS)		FOAMAGENTS, SURFACT	FOAMING AGENTS (MBAS)		
FONOFOS	Fonofos		FONOFOS			
FORMALD	Formaldehyde		FORMALD			
GASOLINE	Gasoline		GASOLINE			
GLYP	Glyphosate (Round-up)	Glyphosate	GLYP			
H2H1RAT	delta H2/H1		H2H1RAT			
H-3	Tritium		H-3			
HARD	Hardness	Hardness	HARD	HARDNESS (TOTAL) AS CACO3		
HCBU	Hexachlorobutadiene	Hexachlorobutadiene	HCBU			
HCCP	Hexachlorocyclopentadiene		HCCP			

CHEMICAL VVL	CHEMICAL NAME	DOM WELL TEHAMA	GAMA USGS	DOM WELL YUBA
DDT44	4,4'-DDT			
DEATZ	Deethylatrazine			
DEHYDRONIF	Dehydronifedipine		Dehydronifedipine, wf	
DEUTERIUM	Deuterium			
DIAZ	Diazinon		Diazinon, wf	
DICAMBA	Dicamba		Dicamba, w,gf<.7u	
DICHLORVOS	Dichlorvos (DDVP)		Dichlorvos, wf	
DICOFOL	Dicofol			
DIELDRIN	Dieldrin		Dieldrin, wf	
DIESEL	Diesel			
DILTIAZEM	Diltiazem		Diltiazem, wf	
DIMETHAT	Dimethoate		Dimethoate, w,gf<.7u	
DINOSEB	Dinoseb		Dinoseb, w,gf<.7u	
DIOXANE14	1,4-Dioxane		1,4-Dioxane, wu	
DIPATZ	Deisopropyl Atrazine			
DIPE	diisopropyl ether		Diisopropyl ether, wu	
DIPHENHYDR	Diphenhydramine		Diphenhydramine, wf	
DIQUAT	Diquat			
DIURON	Diuron		Diuron, w,gf<.7u	
DO	Dissolved Oxygen (DO)		Dissolved oxygen	
DOA	Di(2-ethylhexyl)adipate			
DOSAT	Dissolved Oxygen, Percent Saturation			
EBZ	Ethylbenzene	EBZ	Ethylbenzene, wu	Ethylbenzene
EDB	1,2 Dibromoethane (EDB)		1,2-Dibromoethane, wu	
ENDOSULFANA	Endosulfan I			
ENDOSULFANB	Endosulfan II			
ENDOSULFANS	Endosulfan Sulfate		Endosulfan sulfate, wf	
ENDOTHAL	Endothall			
ENDRIN	Endrin			
ENDRINALD	Endrin Aldehyde			
EPTAM	EPTC		EPTC, w,gf<.7u	
ETBE	Ethyl tertiary butyl ether (ETBE)			Ethyl tert-Butyl Ether (ETBE)
ETEGLY	Ethylene glycol			
ETFOSA	N-Ethylperfluorooctanesulfonamide			
ETFOSE	N-Ethylperfluorooctanesulfonamide ethanol			
F	Fluoride	F	Fluoride, wf	Fluoride
FC11	Trichlorofluoromethane (Freon 11)	FC11	CFC-11, wu	Trichlorofluoromethane (FREON 11)
FC113	1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113)	FC113	CFC-113, wu	
FC12	Dichlorodifluoromethane	FC12	CFC-12, wu	Dichlorodifluoromethane
FCOLIFORM	Fecal Coliform (bacteria)	FCOLIFORM		Fecal Coliform
FE	Iron	FE	Iron, wf	Iron, FAA
FENPHOS	Fenamiphos		Fenamiphos, wf	
FOAMAGENTS	Foaming Agents (MBAS)	MBAS		Foaming Agents (MBAS)
FONOFOS	Fonofos		Fonofos, wf	
FORMALD	Formaldehyde			
GASOLINE	Gasoline			
GLYP	Glyphosate (Round-up)			
H2H1RAT	delta H2/H1		delta H-2/ H-1, wu	
H-3	Tritium		Tritium, wu	
HARD	Hardness	HARD	Hardness, water	Hardness
HCBU	Hexachlorobutadiene		Hexachlorobutadiene, wu	
HCCP	Hexachlorocyclopentadiene			

CHEMICAL VVL	CHEMICAL NAME	NATURALLY OCCURRING	UNITS	COMPARISON CONCENTRATION (VALUE)	COMPARISON CONCENTRATION TYPE	CDPH (STORET)	DPR
HCLBZ	Hexachlorobenzene (HCB)		UG/L	1	MCL	39700	
HCO3	bicarbonate HCO3	X	MG/L	0	No Comparison Conc.		
HE-3/HE-4	Helium-3/Helium-4	X	atom ratio	0	No Comparison Conc.		
HE-4	Helium	X	cm3STP/g	0	No Comparison Conc.		
HEPTACHLOR	Heptachlor		UG/L	0.01	CA MCL	39410	317
HEPT-EPOX	Heptachlor Epoxide		UG/L	0.01	CA MCL	39420	4073
HEXAZINONE	Hexazinone		UG/L	400	HBSL	38815	1871
HFPA-DA	2,3,3,3-tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy) propanoic acid		NG/L	0	No Comparison Conc.	C2815	
HG	Mercury	X	UG/L	2	MCL	71900	
HMX	Octogen (HMX)		MG/L	0.35	NL	82203	
I	Iodide	X	UG/L	1190	NAS-HAL	71865	
IME	Methyl Iodide		UG/L	0	No Comparison Conc.		
IPBZ	Isopropylbenzene (Cumene)		UG/L	770	NL	77356	
IPRODIONE	Iprodione		UG/L	0.8	HBSL		
K	Potassium	X	MG/L	0	No Comparison Conc.	937	
KEROSENE	Kerosene		UG/L	100	HAL-US	78878	
KR	Krypton	X	cm3STP/g	0	No Comparison Conc.		
LI	Lithium	X	UG/L	0	No Comparison Conc.	1132	
LINURON	Linuron		UG/L	5	HBSL	38478	361
MALA	Malathion		UG/L	500	HBSL	39530	367
MEFOSA	N-Methylperfluorooctanesulfonamide		NG/L	0	No Comparison Conc.		
MEFOSE	N-Methylperfluorooctanesulfonamide ethanol		NG/L	0	No Comparison Conc.		
METABOLITES	Dacthal Monoacide		UG/L	0	No Comparison Conc.		
METALAXYL	Metalaxyl		UG/L	500	HBSL		2132
METHOMYL	Methomyl		UG/L	200	HBSL	39051	383
METOCHLOR	Metolachlor		UG/L	700	HBSL	39356	1996
METRIBUZ	Metribuzin		UG/L	90	HBSL	81408	1692
MG	Magnesium	X	MG/L	0	No Comparison Conc.	927	
MIBK	Methyl Isobutyl Ketone (MIBK)		UG/L	120	NL	81596	
MN	Manganese	X	UG/L	50	SMCL	01055, 01056	
MO	Molybdenum	X	UG/L	40	HAL-US	1062	
MOLINATE	Molinate		UG/L	20	CA MCL	82199	449
MTBE	MTBE (Methyl-tert-butyl ether)		UG/L	13	MCL	46491	
MTXYCL	Methoxychlor		UG/L	30	CA MCL	39480	384
N15N14NO3	delta N-15, NO3	X	per mil	0	No Comparison Conc.		
NA	Sodium	X	MG/L	50	Action Level	929	
NALED	Naled		UG/L	10	HBSL	38855	418
NAPH	Naphthalene		UG/L	17	NL	34696	
NAPROPAM	Napropamide		UG/L	800	HBSL	79195	1728
NE	Neon	X	cm3STP/g	0	No Comparison Conc.		
NETFOSAA	N-Ethyl perfluorooctane sulfonamidoacetic acid		NG/L	0	No Comparison Conc.	C2807	
NH3NH4N	Ammonia		MG/L	30	HAL-US	612	
NI	Nickel	X	UG/L	100	CA MCL	1067	
NMEFOSAA	N-Methyl perfluorooctane sulfonamidoacetic acid		NG/L	0	No Comparison Conc.	C2808	
NNSE	N-Nitrosodiethylamine (NDEA)		UG/L	0.01	NL	78200	
NNSM	N-Nitrosodimethylamine (NDMA)		UG/L	0.01	NL	34438	
NNSPR	N-Nitrosodi-N-Propylamine (NDPA)		UG/L	0.01	NL	34428	
NO2	Nitrite as N	X	MG/L	1	MCL	620	
NO3N	Nitrate as N	X	MG/L	10	MCL	00618, 71850	
NO3NO2N	Nitrate+Nitrite	X	MG/L	10	MCL		
NORFLUZON	Norflurazon		UG/L	10	HBSL		2019
O18O16NO3	delta O18, NO3	X	per mil	0	No Comparison Conc.		

CHEMICAL VVL	CHEMICAL NAME	DWR	EDF	DOM WELL EL_DORADO	DOM WELL EDF	GAMA LLNL
HCLBZ	Hexachlorobenzene (HCB)		HCLBZ			
HCO3	bicarbonate HCO3	Dissolved Bicarbonate (HCO3-)	HCO3	BICARBONATE		
HE-3/HE-4	Helium-3/Helium-4		HE-3/ HE-4			
HE-4	Helium		HE-4			
HEPTACHLOR	Heptachlor	Heptachlor	HEPTACHLOR	Hexachlorobutadiene		
HEPT-EPOX	Heptachlor Epoxide	Heptachlor epoxide	HEPT-EPOX			
HEXAZINONE	Hexazinone		HEXAZINONE			
HFPA-DA	2,3,3,3-tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy) pr		HFPA-DA, HFPO-DA			
HG	Mercury	Dissolved Mercury, Total Mercury	HG	MERCURY		
HMX	Octogen (HMX)		HMX			
I	Iodide		I			
IME	Methyl Iodide		IME	Methyl Iodide		
IPBZ	Isopropylbenzene (Cumene)	Isopropylbenzene	IPBZ	Isopropylbenzene (Cumene)		
IPRODIONE	Iprodione		IPRODIONE			
K	Potassium	Dissolved Potassium	K	POTASSIUM		POTASSIUM
KEROSENE	Kerosene		KEROSENE			
KR	Krypton		KR			
LI	Lithium		LI			
LINURON	Linuron		LINURON			
MALA	Malathion	Malathion	MALA			
MEFOSA	N-Methylperfluorooctanesulfonamide		MEFOSA			
MEFOSE	N-Methylperfluorooctanesulfonamide ethanol		MEFOSE			
METABOLITES	Dacthal Monoacide		METABOLITES			
METALAXYL	Metalaxyl		METALAXYL			
METHOMYL	Methomyl	Methomyl	METHOMYL			
METOCHLOR	Metolachlor	Metolachlor	METOCHLOR			
METRIBUZ	Metribuzin		METRIBUZ			
MG	Magnesium	Dissolved Magnesium, Total Magnesium	MG	MAGNESIUM		MAGNESIUM
MIBK	Methyl Isobutyl Ketone (MIBK)		MIBK			
MN	Manganese	Dissolved Manganese, Total Manganese	MN	MANGANESE		
MO	Molybdenum		MO			
MOLINATE	Molinate		MOLINATE			
MTBE	MTBE (Methyl-tert-butyl ether)	Methyl tert-butyl ether (MTBE)	MTBE	METHYL-TERT-BUTYL-ETHER (MTBE)		
MTXYCL	Methoxychlor	Methoxychlor	MTXYCL			
N15N14NO3	delta N-15, NO3		N15N14NO3			
NA	Sodium		NA	SODIUM		SODIUM
NALED	Naled	Naled	NALED			
NAPH	Naphthalene	Naphthalene	NAPH	Naphthalene		
NAPROPAM	Napropamide	Napropamide	NAPROPAM			
NE	Neon		NE			
NETFOSAA	N-Ethyl perfluorooctane sulfonamidoacetic acid		NETFOSAA			
NH3NH4N	Ammonia		NH3-NH4, NH3NH4N			AMMONIUM
NI	Nickel	Total Nickel	NI	NICKEL		
NMEFOSAA	N-Methyl perfluorooctane sulfonamidoacetic acid		NMEFOSAA			
NNSE	N-Nitrosodiethylamine (NDEA)		NNSE			
NNSM	N-Nitrosodimethylamine (NDMA)		NNSM			
NNSPR	N-Nitrosodi-N-Propylamine (NDPA)		NNSPR			
NO2	Nitrite as N		NO2, NO2N			NITRITE
NO3N	Nitrate as N	Dissolved Nitrate	NO3N, NO3	NITRATE + NITRITE (AS N)		NITRATE
NO3NO2N	Nitrate+Nitrite		NO3NO2N	NITRATE + NITRITE (AS N)		
NORFLUZON	Norflurazon		NORFLUZON			
O18O16NO3	delta O18, NO3		O18O16NO3			

CHEMICAL VVL	CHEMICAL NAME	DOM WELL TEHAMA	GAMA USGS	DOM WELL YUBA
HCLBZ	Hexachlorobenzene (HCB)			
HCO3	bicarbonate HCO3	HCO3	Bicarbonate,wf,inflect pt,fld	
HE-3/HE-4	Helium-3/Helium-4			
HE-4	Helium			
HEPTACHLOR	Heptachlor			
HEPT-EPOX	Heptachlor Epoxide			
HEXAZINONE	Hexazinone		Hexazinone, wf	
HFPA-DA	2,3,3,3-tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy) pr			
HG	Mercury	HG	Mercury, wf	Mercury, CVAA
HMX	Octogen (HMX)			
I	Iodide		Iodide, wf	
IME	Methyl Iodide		Iodomethane, wu	
IPBZ	Isopropylbenzene (Cumene)	IPBZ	, Isopropylbenzene, wu	Isopropylbenzene (Cumene)
IPRODIONE	Iprodione		Iprodione, wf	
K	Potassium	K	Potassium, wf	
KEROSENE	Kerosene			
KR	Krypton			
LI	Lithium		Lithium, wf	
LINURON	Linuron		Linuron, w,gf<.7u	
MALA	Malathion		Malathion, wf	
MEFOSA	N-Methylperfluorooctanesulfonamide			
MEFOSE	N-Methylperfluorooctanesulfonamide ethanol			
METABOLITES	Dacthal Monoacide		DCPA monoacid, w,gf<.7u	
METALAXYL	Metalaxyl		Metalaxyl, wf	
METHOMYL	Methomyl		Methomyl, w,gf<.7u	
METOCHLOR	Metolachlor		Metolachlor, wf	
METRIBUZ	Metribuzin		Metribuzin, wf	
MG	Magnesium	MG	Magnesium, wf	Magnesium, Calculation
MIBK	Methyl Isobutyl Ketone (MIBK)	MIBK		
MN	Manganese	MN	Manganese, wf	Manganese, FAA
MO	Molybdenum		Molybdenum, wf	
MOLINATE	Molinate		Molinate, w,gf<.7u	
MTBE	MTBE (Methyl-tert-butyl ether)	MTBE	MTBE, wu	METHYL-TERT-BUTYL-ETHER (MTBE)
MTXYCL	Methoxychlor			
N15N14NO3	delta N-15, NO3		delta N-15/ N-14, NO3, wf	
NA	Sodium	NA	Sodium, wf	Sodium, FAA
NALED	Naled			
NAPH	Naphthalene	NAPH	, Naphthalene, wu	
NAPROPAM	Napropamide			
NE	Neon			
NETFOSAA	N-Ethyl perfluorooctane sulfonamidoacetic acid		N-EtFOSAA, wu	
NH3NH4N	Ammonia		Ammonia, wf	
NI	Nickel	NI	Nickel, wf	Nickel, GFAA
NMEFOSAA	N-Methyl perfluorooctane sulfonamidoacetic acid		N-MeFOSAA, wu	
NNSE	N-Nitrosodiethylamine (NDEA)			
NNSM	N-Nitrosodimethylamine (NDMA)		N-Nitrosodimethylamine, wu	
NNSPR	N-Nitrosodi-N-Propylamine (NDPA)			
NO2	Nitrite as N	NO2N	Nitrite, wf	Nitrogen, Nitrite-N
NO3N	Nitrate as N	NO3	Nitrate, wf	Nitrogen, Nitrite-N
NO3NO2N	Nitrate+Nitrite	NO3NO2N	NO3+NO2, wf	Nitrate-N plus Nitrite-N
NORFLUZON	Norflurazon		Norflurazon, w,gf<.7u	
O18O16NO3	delta O18, NO3		delta O-18/ O-16, NO3, wf	

CHEMICAL VVL	CHEMICAL NAME	NATURALLY OCCURRING	UNITS	COMPARISON CONCENTRATION (VALUE)	COMPARISON CONCENTRATION TYPE	CDPH (STORET)	DPR
O18O16RAT	delta O18/O16 in water	X	per mil	0	No Comparison Conc.		
OXAMYL	Oxamyl		UG/L	50	CA MCL	38865	1910
OXYFLUOREN	Oxyfluorfen		UG/L	20	HBSL		1973
PARAE	Parathion		UG/L	0.02	HBSL	39540	459
PB	Lead	X	UG/L	15	Action Level	1051	
PBZN	n-Propylbenzene (Isocumene)		UG/L	260	NL	77224	
PCA	1,1,2,2 Tetrachloroethane (PCA)		UG/L	1	CA MCL	34516	
PCATE	Perchlorate		UG/L	6	CA MCL	A-031	
PCB1016	Polychlorinated Biphenyls (PCBs)		UG/L	0.5	MCL	39516	
PCE	Tetrachloroethene (PCE)		UG/L	5	MCL	34475	
PCNB	PCNB		UG/L	21	RfD	39029	
PCP	Pentachlorophenol (PCP)		UG/L	1	MCL	39032	
PERMETHRIN	Permethrin		UG/L	4	HBSL	79191	2008
PFBSA	Perfluorobutanesulfonic acid		NG/L	0	No Comparison Conc.	C2801	
PFBTA	Perfluorobutanoic acid		NG/L	0	No Comparison Conc.		
PFDOA	Perfluorododecanoic acid		NG/L	0	No Comparison Conc.	C2810	
PFDSA	Perfluorodecanesulfonic acid		NG/L	0	No Comparison Conc.		
PFHA	Perfluorohexanoic acid		NG/L	0	No Comparison Conc.	C2811	
PFHPA	Perfluoroheptanoic acid		NG/L	0	No Comparison Conc.	C2802	
PFHPSA	Perfluoroheptanesulfonic acid		NG/L	0	No Comparison Conc.		
PFHXDA	Perfluorohexadecanoic acid		NG/L	0	No Comparison Conc.		
PFHXSA	Perfluorohexanesulfonic acid		NG/L	0	No Comparison Conc.	C2803	
PFNA	Perfluorononanoic acid		NG/L	0	No Comparison Conc.	C2804	
PFNDCA	Perfluorodecanoic acid		NG/L	0	No Comparison Conc.	C2809	
PFNS	Perfluorononanesulfonic acid		NG/L	0	No Comparison Conc.		
PFOA	Perfluorooctanoic acid		NG/L	5.1	NL	C2806	
PFODA	Perfluorooctadecanoic acid		NG/L	0	No Comparison Conc.		
PFOS	Perfluorooctanoic sulfonate		NG/L	6.5	NL	C2805	
PFOSA	Perfluorooctane sulfonamide		NG/L	0	No Comparison Conc.		
PFPA	Perfluoropentanoicacid		NG/L	0	No Comparison Conc.		
PFPES	Perfluoropentanesulfonoicacid		NG/L	0	No Comparison Conc.		
PFTEDA	Perfluorotetradecanoic acid		NG/L	0	No Comparison Conc.	C2812	
PFTRIDA	Perfluorotridecanoic acid		NG/L	0	No Comparison Conc.	C2813	
PFUNDCA	Perfluoroundecanoic acid		NG/L	0	No Comparison Conc.	C2814	
PH	pH	X	PH UNITS	0	No Comparison Conc.	00400, 00403	
PHC	Total Petroleum Hydrocarbons	X	UG/L	0	No Comparison Conc.		
PHORATE	Phorate		UG/L	4	HBSL	38870	
PICLORAM	Picloram		MG/L	0.5	MCL	39720	
PORTHO	orthophosphate	X	MG/L	0	No Comparison Conc.	660	
PROMETON	Prometon		UG/L	400	HBSL	39056	499
PROMETRYN	Prometryn		UG/L	300	HBSL	39057	502
PROPACHLOR	Propachlor (2-Chloro-N-isopropylacetanilide)		UG/L	90	NL	38533	
PROPANIL	Propanil		UG/L	6	HBSL	39037	
PROPGITE	Propargite		UG/L	1	HBSL	82065	445
RA-226	Radium 226	X	pCi/L	5	MCL	9501	
RA-228	Radium 228	X	pCi/L	5	MCL	11501	
RDX	RDX (hexahydro-1,3,5-trinitro-1,3,5-triazine)		MG/L	0.3	NL	81364	
RN-222	Radon 222	X	pCi/L	4000	MCL	82303	
SB	Antimony	X	UG/L	6	MCL	1097	
SC	Specific Conductivity	X	UMHOS/CM	1600	SMCL	95	
SE	Selenium	X	UG/L	50	MCL	1147	
SEVIN	Carbaryl (1-naphthyl methylcarbamate)		UG/L	40	HBSL	77700	

CHEMICAL VVL	CHEMICAL NAME	DWR	EDF	DOM WELL EL_DORADO	DOM WELL EDF	GAMA LLNL
O18O16RAT	delta O18/O16 in water		O18O16RAT			
OXAMYL	Oxamyl	Oxamyl	OXAMYL			
OXYFLUOREN	Oxyfluorfen	Oxyfluorfen	OXYFLUOREN			
PARAE	Parathion	Parathion (Ethyl)	PARAE			
PB	Lead	Dissolved Lead, Total Lead	PB	LEAD		
PBZN	n-Propylbenzene (Isocumene)		PBZN	n-Propylbenzene		
PCA	1,1,2,2 Tetrachloroethane (PCA)	1,1,2,2-Tetrachloroethane	PCA	1,1,2,2-Tetrachloroethane		
PCATE	Perchlorate		PCATE			
PCB1016	Polychlorinated Biphenyls (PCBs)	PCB-1016, PCB-1260	PCB1016, PCB1260			
PCE	Tetrachloroethene (PCE)	Tetrachloroethene	PCE	TETRACHLOROETHYLENE		
PCNB	PCNB	Pentachloronitrobenzene (PCNB)	PCNB, PECLNO2BZ			
PCP	Pentachlorophenol (PCP)	Pentachlorophenol (PCP)	PCP			
PERMETHRIN	Permethrin		PERMETHRIN			
PFBSA	Perfluorobutanesulfonic acid		PFBSA			
PFBTA	Perfluorobutanoic acid		PFBTA			
PFDOA	Perfluorododecanoic acid		PFDOA			
PFDSA	Perfluorodecanesulfonic acid		PFDSA			
PFHA	Perfluorohexanoic acid		PFHA			
PFHPA	Perfluoroheptanoic acid		PFHPA			
PFHPSA	Perfluoroheptanesulfonic acid		PFHPSA			
PFHXDA	Perfluorohexadecanoic acid		PFHXDA			
PFHXSA	Perfluorohexanesulfonic acid		PFHXSA			
PFNA	Perfluorononanoic acid		PFNA			
PFNDCA	Perfluorodecanoic acid		PFNDCA			
PFNS	Perfluorononanesulfonic acid		PFNS			
PFOA	Perfluorooctanoic acid		PFOA			
PFODA	Perfluorooctadecanoic acid		PFODA			
PFOS	Perfluorooctanoic sulfonate		PFOS, PFOS_A			
PFOSA	Perfluorooctane sulfonamide		PFOSA			
PFPA	Perfluoropentanoicacid		PFPA			
PFPES	Perfluoropentanesulfonoicacid		PFPES			
PFTEDA	Perfluorotetradecanoic acid		PFTEDA			
PFTRIDA	Perfluorotridecanoic acid		PFTRIDA			
PFUNDCA	Perfluoroundecanoic acid		PFUNDCA			
PH	pH	pH	PH	PH, LABORATORY		
PHC	Total Petroleum Hydrocarbons		PHC			
PHORATE	Phorate	Phorate	PHORATE			
PICLORAM	Picloram	Picloram	PICLORAM			
PORTHO	orthophosphate		PORTHO			
PROMETON	Prometon		PROMETON			
PROMETRYN	Prometryn	Prometryn	PROMETRYN			
PROPACHLOR	Propachlor (2-Chloro-N-isopropylacetanilide)		PROPACHLOR			
PROPANIL	Propanil		PROPANIL			
PROPGITE	Propargite		PROPGITE			
RA-226	Radium 226		RA-226			
RA-228	Radium 228		RA-228			
RDX	RDX (hexahydro-1,3,5-trinitro-1,3,5-triazine)		RDX			
RN-222	Radon 222		RN-222			
SB	Antimony	Dissolved Antimony	SB	ANTIMONY		
SC	Specific Conductivity	Conductance (EC)	COND, SC	SPECIFIC CONDUCTANCE		
SE	Selenium	Total Selenium	SE	SELENIUM		
SEVIN	Carbaryl (1-naphthyl methylcarbamate)	Carbaryl	SEVIN			

CHEMICAL VVL	CHEMICAL NAME	DOM WELL TEHAMA	GAMA USGS	DOM WELL YUBA
O18O16RAT	delta O18/O16 in water		delta O-18/ O-16, wu	
OXAMYL	Oxamyl		Oxamyl, w,gf<.7u	
OXYFLUOREN	Oxyfluorfen		Oxyfluorfen, wf	
PARAE	Parathion			
PB	Lead	PB	Lead, wf	Lead, GFAA
PBZN	n-Propylbenzene (Isocumene)	PBZN	n-Propylbenzene, wu	n-Propylbenzene
PCA	1,1,2,2 Tetrachloroethane (PCA)		1,1,2,2-Tetrachloroethane, wu	1,1,2,2-Tetrachloroethane
PCATE	Perchlorate		Perchlorate, wf, Perchlorate, wu	
PCB1016	Polychlorinated Biphenyls (PCBs)			
PCE	Tetrachloroethene (PCE)	PCE	Tetrachloroethene, wu	TETRACHLOROETHYLENE/ TETRACHLOROETHENE (PCE)
PCNB	PCNB			
PCP	Pentachlorophenol (PCP)			
PERMETHRIN	Permethrin		cis-Permethrin, w,gf<.7u	
PFBSA	Perfluorobutanesulfonic acid		PFBS, wu	
PFBTA	Perfluorobutanoic acid		PFBA, wu	
PFDOA	Perfluorododecanoic acid		PFDoA, wu	
PFDSA	Perfluorodecanesulfonic acid		PFDS, wu	
PFHA	Perfluorohexanoic acid		PFHxA, wu	
PFHPA	Perfluoroheptanoic acid		PFHpA, wu	
PFHPSA	Perfluoroheptanesulfonic acid		PFHpS, wu	
PFHXDA	Perfluorohexadecanoic acid			
PFHXSA	Perfluorohexanesulfonic acid		PFHxS, wu	
PFNA	Perfluorononanoic acid		PFNA, wu	
PFNDCA	Perfluorodecanoic acid		PFDA, wu	
PFNS	Perfluorononanesulfonic acid		PFNS, wu	
PFOA	Perfluorooctanoic acid		PFOA, wu	
PFODA	Perfluorooctadecanoic acid			
PFOS	Perfluorooctanoic sulfonate		PFOS, wu	
PFOSA	Perfluorooctane sulfonamide		PFOSA, wu	
PFPA	Perfluoropentanoicacid		PFPeA, wu	
PFPES	Perfluoropentanesulfonoicacid		PFPeS, wu	
PFTEDA	Perfluorotetradecanoic acid		PFTeDA, wu	
PFTRIDA	Perfluorotridecanoic acid		PFTrDA, wu	
PFUNDCA	Perfluoroundecanoic acid		PFUnA, wu	
PH	pH	PH	pH, pH, wu,lab	pH
PHC	Total Petroleum Hydrocarbons			
PHORATE	Phorate		Phorate, w,gf<.7u	
PICLORAM	Picloram		Picloram, w,gf<.7u	
PORTHO	orthophosphate		Orthophosphate, wf	
PROMETON	Prometon		Prometon, wf	
PROMETRYN	Prometryn		Prometryn, wf	
PROPACHLOR	Propachlor (2-Chloro-N-isopropylacetanilide)			
PROPANIL	Propanil		Propanil, w,gf<.7u	
PROPGITE	Propargite		Propargite, w,gf<.7u	
RA-226	Radium 226		Ra-226, wf, radon method	
RA-228	Radium 228		Ra-228, wf	
RDX	RDX (hexahydro-1,3,5-trinitro-1,3,5-triazine)			
RN-222	Radon 222		Rn-222, wu	
SB	Antimony	SB		Antimony, GFAA
SC	Specific Conductivity	COND	SpecCond,wu25degCLab, Specific cond at 25C	Specific Conductance
SE	Selenium	SE	Selenium, wf	Selenium, Hydride
SEVIN	Carbaryl (1-naphthyl methylcarbamate)		Carbaryl, w,gf<.7u	

CHEMICAL VVL	CHEMICAL NAME	NATURALLY OCCURRING	UNITS	COMPARISON CONCENTRATION (VALUE)	COMPARISON CONCENTRATION TYPE	CDPH (STORET)	DPR
SILVEX	2,4,5-TP (Silvex)		UG/L	50	MCL	39045	
SIMAZINE	Simazine		UG/L	4	MCL	39055	531
SO4	Sulfate	X	MG/L	500	SMCL	945	
SR	Strontium	X	UG/L	4000	HAL-US		
SR-90	Strontium 90		pCi/L	8	MCL	13501	
STODSOLV	Stoddard Solvent	X	UG/L	0	No Comparison Conc.		
STY	Styrene		UG/L	100	MCL	77128	
SULFAMETH	Sulfamethoxazole		UG/L	0	No Comparison Conc.		
TAME	Tertiary amyl methyl ether		UG/L	0	No Comparison Conc.	A-034	
TBA	tert-Butyl alcohol (TBA)		UG/L	12	NL	77035	
TBME	Bromoform (THM)		UG/L	80	MCL	32104	
TCA111	1,1,1-Trichloroethane		UG/L	200	MCL	34506	
TCA112	1,1,2-Trichloroethane		UG/L	5	MCL	34511	
TCAA	Trichloroacetic Acid		UG/L	0	No Comparison Conc.	82723	
TCB124	1,2,4- Trichlorobenzene (1,2,4 TCB)		UG/L	5	CA MCL	34551	
TCDD2378	2,3,7,8-TCDD		UG/L	0.00003	MCL	34676	
TCE	Trichloroethene (TCE)		UG/L	5	MCL	39180	
TCLME	Chloroform (THM)		UG/L	80	MCL	32106	
TCPR123	1,2,3-Trichloropropane (1,2,3 TCP)		UG/L	0.005	CA MCL	77443, 7744X	
TDS	Total Dissolved Solids	X	MG/L	500	SMCL	70300	
TEBUTHIURON	tebuthiuron		UG/L	1000	HBSL	45607	
TEMP	Temperature		CELSIUS	0	No Comparison Conc.		
TERMIL	Chorothalonil		UG/L	0	No Comparison Conc.	70314	
THIABEND	Thiabendazole		UG/L	231	HHBP		
THIOBENCARB	Thiobencarb		UG/L	70	CA MCL	A-001	1933
THM	Total Trihalomethanes		UG/L	80	MCL	82080	
TL	Thallium	X	UG/L	2	MCL	1059	
TMB124	1,2,4-Trimethylbenzene		UG/L	330	NL	77222	
TMB135	1,3,5-Trimethylbenzene		UG/L	330	NL	77226	
TNT	2,4,6-Trinitrotoluene (TNT)		UG/L	1	NL	81360	
TOCH	Total Organic Carbon	X	MG/L	0	No Comparison Conc.	680	
TOXAP	Toxaphene		UG/L	3	MCL	39400	594
TRICLOPYR	Trichlopyr		UG/L	400	HBSL		
TRIFLURALIN	Trifluralin		UG/L	20	HBSL	81284	
TRIMETHOP	Trimethoprim		UG/L	0	No Comparison Conc.		
U	Uranium	X	pCi/L	20	MCL	28011, 28012	
V	Vanadium	X	UG/L	50	NL	1087	
VC	Vinyl Chloride		UG/L	0.5	CA MCL	39175	
W	Tungsten	X	UG/L	0	No Comparison Conc.		
WARFARIN	Warfarin		UG/L	2	HBSL		
XE	Xenon	X	cm3STP/g	0	No Comparison Conc.		
XYLENES	Xylenes (total)		UG/L	1750	CA MCL	81551	622
ZN	Zinc	X	MG/L	5	SMCL	1092	

CHEMICAL VVL	CHEMICAL NAME	DWR	EDF	DOM WELL EL_DORADO	DOM WELL EDF	GAMA LLNL
SILVEX	2,4,5-TP (Silvex)	2,4,5-TP (Silvex)	SILVEX			
SIMAZINE	Simazine	Simazine	SIMAZINE			
SO4	Sulfate	Dissolved Sulfate	SO4	SULFATE		SULFATE
SR	Strontium		SR			
SR-90	Strontium 90		SR-90			
STODSOLV	Stoddard Solvent		STODSOLV			
STY	Styrene	Styrene	STY	Styrene		
SULFAMETH	Sulfamethoxazole		SULFAMETH			
TAME	Tertiary amyl methyl ether		TAME	METHYL TERT-AMYL ETHER/ tert-Amyl Methyl Ether (TAME)		
TBA	tert-Butyl alcohol (TBA)		TBA	TERT-BUTYL ALCOHOL		
TBME	Bromoform (THM)	Bromoform	TBME	BROMOFORM (THM)		
TCA111	1,1,1-Trichloroethane	1,1,1-Trichloroethane	TCA111	1,1,1-Trichloroethane		
TCA112	1,1,2-Trichloroethane	1,1,2-Trichloroethane	TCA112	1,1,2-Trichloroethane		
TCAA	Trichloroacetic Acid		TCAA			
TCB124	1,2,4- Trichlorobenzene (1,2,4 TCB)	1,2,4-Trichlorobenzene	TCB124	1,2,4-Trichlorobenzene		
TCDD2378	2,3,7,8-TCDD		TCDD2378			
TCE	Trichloroethene (TCE)	Trichloroethene	TCE	Trichloroethene/ Trichloroethylene		
TCLME	Chloroform (THM)	Chloroform	TCLME	CHLOROFORM (THM)		
TCPR123	1,2,3-Trichloropropane (1,2,3 TCP)	1,2,3-Trichloropropane	TCPR123	1,2,3-Trichloropropane		
TDS	Total Dissolved Solids	Total Dissolved Solids	TDS	TOTAL DISSOLVED SOLIDS		
TEBUTHIURON	tebuthiuron		TEBUTHIURON			
TEMP	Temperature		TEMP			
TERMIL	Chorothalonil	Chlorothalonil	TERMIL			
THIABEND	Thiabendazole		THIABEND			
THIOBENCARB	Thiobencarb	Thiobencarb	THIOBENCARB			
THM	Total Trihalomethanes		THM	TOTAL TRIHALOMETHANES		
TL	Thallium	Dissolved Thallium	TL	THALLIUM		
TMB124	1,2,4-Trimethylbenzene	1,2,4-Trimethylbenzene	TMB124	1,2,4-Trimethylbenzene		
TMB135	1,3,5-Trimethylbenzene	1,3,5-Trimethylbenzene	TMB135	1,3,5-Trimethylbenzene		
TNT	2,4,6-Trinitrotoluene (TNT)		TNT			
TOCH	Total Organic Carbon	Total Organic Carbon	TOC1, TOCH			
TOXAP	Toxaphene	Toxaphene	TOXAP			
TRICLOPYR	Trichlopyr	Triclopyr	TRICLOPYR			
TRIFLURALIN	Trifluralin	Trifluralin	TRIFLURALIN			
TRIMETHOP	Trimethoprim		TRIMETHOP			
U	Uranium		U, UTOT			
V	Vanadium		V			
VC	Vinyl Chloride	Vinyl chloride	VC	Vinyl Chloride		
W	Tungsten		W			
WARFARIN	Warfarin		WARFARIN			
XE	Xenon		XE			
XYLENES	Xylenes (total)		XYLENES	XYLENES (TOTAL)		
ZN	Zinc	Dissolved Zinc, Total Zinc	ZN	ZINC		

CHEMICAL VVL	CHEMICAL NAME	DOM WELL TEHAMA	GAMA USGS	DOM WELL YUBA
SILVEX	2,4,5-TP (Silvex)			
SIMAZINE	Simazine		Simazine, wf	
SO4	Sulfate	SO4	Sulfate, wf	Sulfate
SR	Strontium		Strontium, wf	
SR-90	Strontium 90			
STODSOLV	Stoddard Solvent			
STY	Styrene	STY	Styrene, wu	Styrene
SULFAMETH	Sulfamethoxazole		Sulfamethoxazole, wf	
TAME	Tertiary amyl methyl ether			METHYL TERT-AMYL ETHER/ tert-Amyl Methyl Ether (TAME)
TBA	tert-Butyl alcohol (TBA)			TERT-BUTYL ALCOHOL (TBA)
TBME	Bromoform (THM)	TBME	, Tribromomethane, wu	BROMOFORM (THM)
TCA111	1,1,1-Trichloroethane	TCA111	1,1,1-Trichloroethane, wu	1,1,1-Trichloroethane
TCA112	1,1,2-Trichloroethane	TCA112	1,1,2-Trichloroethane, wu	1,1,2-Trichloroethane
TCAA	Trichloroacetic Acid			
TCB124	1,2,4- Trichlorobenzene (1,2,4 TCB)	TCB124	1,2,4-Trichlorobenzene, wu	1,2,4-Trichlorobenzene
TCDD2378	2,3,7,8-TCDD			
TCE	Trichloroethene (TCE)	TCE	Trichloroethene, wu	Trichloroethene/ Trichloroethylene (TCE)
TCLME	Chloroform (THM)	TCLME	Trichloromethane, wu	CHLOROFORM (THM)
TCPR123	1,2,3-Trichloropropane (1,2,3 TCP)		1,2,3-Trichloropropane, wu	1,2,3-Trichloropropane
TDS	Total Dissolved Solids	TDS	Diss solids dry@180C	Solids, Total Dissolved
TEBUTHIURON	tebuthiuron		Tebuthiuron, w,gf<.7u	
TEMP	Temperature		Temperature, water	
TERMIL	Chorothalonil			
THIABEND	Thiabendazole		Thiabendazole, wf	
THIOBENCARB	Thiobencarb		Thiobencarb, w,gf<.7u	
THM	Total Trihalomethanes	TTHM		TOTAL TRIHALOMETHANES
TL	Thallium	TL		Thallium, GFAA
TMB124	1,2,4-Trimethylbenzene	TMB124		1,2,4-Trimethylbenzene
TMB135	1,3,5-Trimethylbenzene	TMB135		1,3,5-Trimethylbenzene
TNT	2,4,6-Trinitrotoluene (TNT)			
TOCH	Total Organic Carbon		Organic carbon, wf	
TOXAP	Toxaphene			
TRICLOPYR	Trichlopyr		Triclopyr, w,gf<.7u	
TRIFLURALIN	Trifluralin		Trifluralin, w,gf<.7u	
TRIMETHOP	Trimethoprim		Trimethoprim, wf	
U	Uranium		Uranium, wf, Uranium, wf	
V	Vanadium		Vanadium, wf	
VC	Vinyl Chloride	VC	Vinyl chloride, wu	Vinyl Chloride
W	Tungsten		Tungsten, wf	
WARFARIN	Warfarin		Warfarin, wf	
XE	Xenon			
XYLENES	Xylenes (total)	XYLENES	m- + p-Xylene, wu, o-Xylene, wu	XYLENES (TOTAL M, P, O)
ZN	Zinc	ZN	Zinc, wf	Zinc, FAA

CHEMICAL VVL	CHEMICAL NAME	NATURALLY OCCURRING	UNITS	COMPARISON CONCENTRATION (VALUE)	COMPARISON CONCENTRATION TYPE	CDPH (STORET)	DPR
Notes:							
CA-CPF	California Cancer Potency Factor						
CA MCL	California maximum contaminant level						
CA-Prop65	California Proposition 65 Safe Harbor Levels as a drinking water level						
CDPH	California Department of Public Health						
cm3STP/g	cubic centimeter of gas at standard temperature and pressure per gram of water						
DOM	domestic well						
DPR	Department of Pesticide Regulation						
EDF	State and Regional Water Board regulatory programs						
HAL-US	Federal Health Advisory Level						
HBSL	health-based screening level						
LLNL	Lawrence Livermore National Lab						
MCL	federal maximum contaminant level						
MFL	million fibers per liter, with fiber length >10 microns						
MG/L	milligrams per liter						
NA-HAL	National Academy of Science Health Advisory Level						
NG/L	nanograms per liter						
NL	notification level						
pCi/L	picoCuries per liter						
PCT MODERN	percent modern carbon						
per mil	per milliliter						
RfD	reference dose						
SMCL	secondary maximum contaminant level						
UG/L	micrograms per liter						
UMHOS/CM	micro Mhos per centimeter						
VVL	valid value						

Appendix F
Numerical Flow Model Documentation

Numerical Flow Model Documentation

Appendix F

Draft

January 2021

Enterprise Anderson Groundwater Sustainability Agency

Contents

Attachments

Tables

Figures

Acronyms and Abbreviations

3D	three-dimensional
ACID	Anderson-Cottonwood Irrigation District
AFY	acre-feet per year
AN	above normal
ASCII	American Standard Code for Information Interchange
BCM	Basin Characterization Model
bgs	below ground surface
BN	below normal
BVWD	Bella Vista Water District
C	critically dry
CanESM2	Canadian Earth System Model
CCSD	Clear Creek Community Services District
cfs	cubic feet per second
CIMIS	California Irrigation Management Information System
CNRM-CM5	Centre National de Recherches Météorologiques
COA	City of Anderson
COR	City of Redding
CSD	Community Services District
CVP	Central Valley Project
D	dry
DWR	California Department of Water Resources
EAGSA	Enterprise Anderson Groundwater Sustainability Agency
EAGSA Model	Integrated Groundwater/Surface-water Flow Model
ET	evapotranspiration
ET_0	reference evapotranspiration
FMP	Farm Process Package
GCM	global climate model
gpcd	gallons per capita per day
GSA	groundwater sustainability agency
GSP	Groundwater Sustainability Plan
HadGEM2-ES	Met Office Hadley Centre Earth System Model
Kc	crop coefficient
K_h	horizontal hydraulic conductivity

K_v	vertical hydraulic conductivity
Lidar	light detection and ranging
MAF	millions of acre-feet
MAP	mean annual precipitation
MIROC5	Model for Interdisciplinary Research on Climate
MNW	Multi-Node Well Package
MR	mean residual
NSE	Nash-Sutcliffe Efficiency
PRISM	Parameter-elevation Regressions on Independent Slopes Model
R^2	coefficient of determination
RAGB	Redding Area Groundwater Basin
RCP	Representative Concentration Pathway
Reclamation	U.S. Bureau of Reclamation
REDFEM	Redding Finite Element Model
RMSR	root mean squared residual
RMSR/Range	RMSR divided by the range of target head values
Sacramento Valley WY Index	Sacramento Valley Water Year Hydrologic Classification Index
SFR	Streamflow Routing Package
SGMA	Sustainable Groundwater Management Act
SMC or SMCs	sustainable management criteria
S_s	specific storage
SSURGO	Soil Survey Geography
S_y	specific yield
TAF	thousand acre-feet
TAFY	thousand acre-feet per year
USGS	U.S. Geological Survey
W	wet
WBS	Water Balance Subareas
WWTP	wastewater treatment plant
WY	water year
WYT	water year type

1. Introduction

On behalf of the Enterprise Anderson Groundwater Sustainability Agency (EAGSA), CH2M HILL Engineers, Inc. (and now Jacobs) has developed the Integrated Groundwater/Surface-water Flow Model (EAGSA Model) of an area encompassing the Redding Area Groundwater Basin (RAGB) in portions of Shasta and Tehama Counties, California. The EAGSA Model has been named as such to differentiate it from other numerical models developed in recent years for this area and to emphasize its intended use to support EAGSA in the development of its Groundwater Sustainability Plans (GSPs). This report was prepared by Jacobs and documents the development, calibration, and application of this numerical model to support the EAGSA in the preparation of its GSPs or plans for the Enterprise and Anderson Subbasins.

The EAGSA Model was developed in consultation with members of the EAGSA Management Committee. This committee includes staff from each EAGSA member agency, including the City of Anderson (COA), Shasta County, Clear Creek Community Services District (CCCSD), Bella Vista Water District (BVWD), Anderson-Cottonwood Irrigation District (ACID), and City of Redding (COR). The EAGSA hosted multiple EAGSA Management Committee meetings during the development of the EAGSA Model. These meetings provided opportunities for EAGSA Management Committee members to review and comment on major aspects of model and GSP development.

The EAGSA Model integrates the three-dimensional (3D) groundwater and surface-water systems, land surface processes, and operations in the RAGB. Development of this model included the assimilation of information on land use, water infrastructure, hydrogeologic conditions, water demands and supplies, and population. The EAGSA Model was built on an existing numerical groundwater flow model called the Redding Finite Element Model (REDFEM) (Reclamation and ACID, 2011), which was developed through California Proposition 50 Integrated Regional Water Management funds administered by the California Department of Water Resources (DWR). The EAGSA Model is based upon the best available data and information as of January 2020. It is expected that this model will be updated as additional monitoring data are collected and analyzed, and as knowledge of the hydrogeologic conceptual model evolves during GSP implementation.

The center of the RAGB is located at latitude 40.48°N and longitude 122.32°W, approximately 140 miles north of downtown Sacramento. Figure 1-1 (figures are located at the end of their respective sections) shows the location of the RAGB. The study area boundary (shown as the dashed black line on Figure 1-1) was selected to coincide with natural hydrologic features, such as catchment and RAGB (5-006) boundaries, to help establish a hydrologic framework for the EAGSA Model.

1.1 Background

In 2014, in response to continued overdraft of many of California's groundwater basins, the State of California enacted the Sustainable Groundwater Management Act (SGMA) to provide local and regional agencies the authority to sustainably manage groundwater. Portions of the RAGB are subject to SGMA, because in 2014 they were designated by DWR as being medium-priority based on population, groundwater use, and other factors. Under SGMA, high- and medium-priority basins not identified as critically overdrafted must adopt a GSP by January 31, 2022. DWR has identified the Enterprise Subbasin (5-006.4) and the Anderson Subbasin (5-006.3), which are two of the five subbasins of the RAGB (5-006), as medium-priority subbasins. SGMA requires medium-priority groundwater basins being managed by a groundwater sustainability agency to reach sustainability within 20 years of implementing its GSP. Within the framework of SGMA, sustainable groundwater management is defined as the management and use of groundwater in a manner that can be maintained during the planning and implementation period without causing undesirable results. The EAGSA Model has been developed to help prepare water budgets and guide planning efforts associated with the GSPs for the Enterprise and Anderson Subbasins.

1.2 Modeling Objectives

The modeling objectives include the following:

- Support refinement of the hydrogeologic conceptual model.
- Support development of surface-water and groundwater budgets for historical, current, and future conditions for the GSP.
- Help guide the development of sustainable management criteria (SMC or SMCs) as part of the GSP process.
- Support refinement of monitoring networks during implementation of the GSP, as needed.
- Provide insights into how implementation of projects and management actions, if needed, could affect groundwater conditions during GSP implementation.

The EAGSA Model is only one line of analysis being used to help the EAGSA develop and implement its GSPs. This model will not ultimately “decide” whether the subbasins are being managed sustainably. Collection, reporting, and analysis of field data during GSP implementation will be used in conjunction with SMCs to demonstrate to DWR whether the subbasins are being managed sustainably. One of the main purposes of the model is to provide reasonable water budget estimates for the GSPs. The EAGSA used these estimates to evaluate the need to implement projects and management actions (as described in Chapter 7 of each GSP prepared for the Enterprise and Anderson Subbasins), to continue sustainable management of the subbasins.

1.3 Model Function

To achieve the modeling objectives, the EAGSA Model was developed and calibrated using available data and professional judgment. This 3D model was constructed and calibrated to simulate monthly groundwater and surface-water flow conditions within an 816-square-mile area encompassing the RAGB. The U.S. Geological Survey (USGS) codes MODFLOW-OWHM: One Water Hydrologic Flow Model version 2 (Boyce et al., 2020) and the Basin Characterization Model (BCM) version 8 (Flint et al., 2013; Flint and Flint, 2014) were used in conjunction with the graphical-user-interface Groundwater Vistas version 8 (ESI, 2020) and other custom utilities to develop and use the EAGSA Model to achieve the modeling objectives. Subsequent sections of this report provide additional details regarding the development and application of the EAGSA Model.

1.4 Model Assumptions and Limitations

The development of the EAGSA Model included the following assumptions and limitations:

- Subsurface geologic materials, including granular unconsolidated material (for example, gravel, sand, silt, and clay) are all modeled as equivalent porous media.
- Groundwater and surface water are modeled as a single-density fluid.
- Groundwater no-flow conditions are assumed along portions of the lateral boundary and at the bottom of the EAGSA Model.
- Monthly stress periods have been incorporated into the simulations. As such, variations in flow processes that occur within a given month are not explicitly simulated; instead, monthly average flow rates are implemented.

- Mathematical models like the EAGSA Model described herein can only approximate surface and subsurface flow processes, despite their high degree of precision. A major cause of uncertainty in these types of models is the discrepancy between the coverage of measurements needed to understand site conditions and the coverage of measurements generally made under the constraints of limited time and budget (Rojstaczer, 1994).
- Because the EAGSA Model is a flow model, it cannot perform solute transport calculations. Therefore, it cannot directly provide estimates or forecasts of chemical concentrations in the modeled environment. Therefore, other approaches are being implemented to support the EAGSA in addressing water quality aspects of its GSPs.

Given these assumptions and limitations, numerical flow models like the EAGSA Model should be considered insight tools that can provide projections of future conditions. Therefore, important planning decisions that use output from the EAGSA Model must be made with an understanding of the uncertainty in and sensitivity to model input parameters. These planning decisions should also consider other site data, local and regional drivers, professional judgment, and the inclusion of safety factors.

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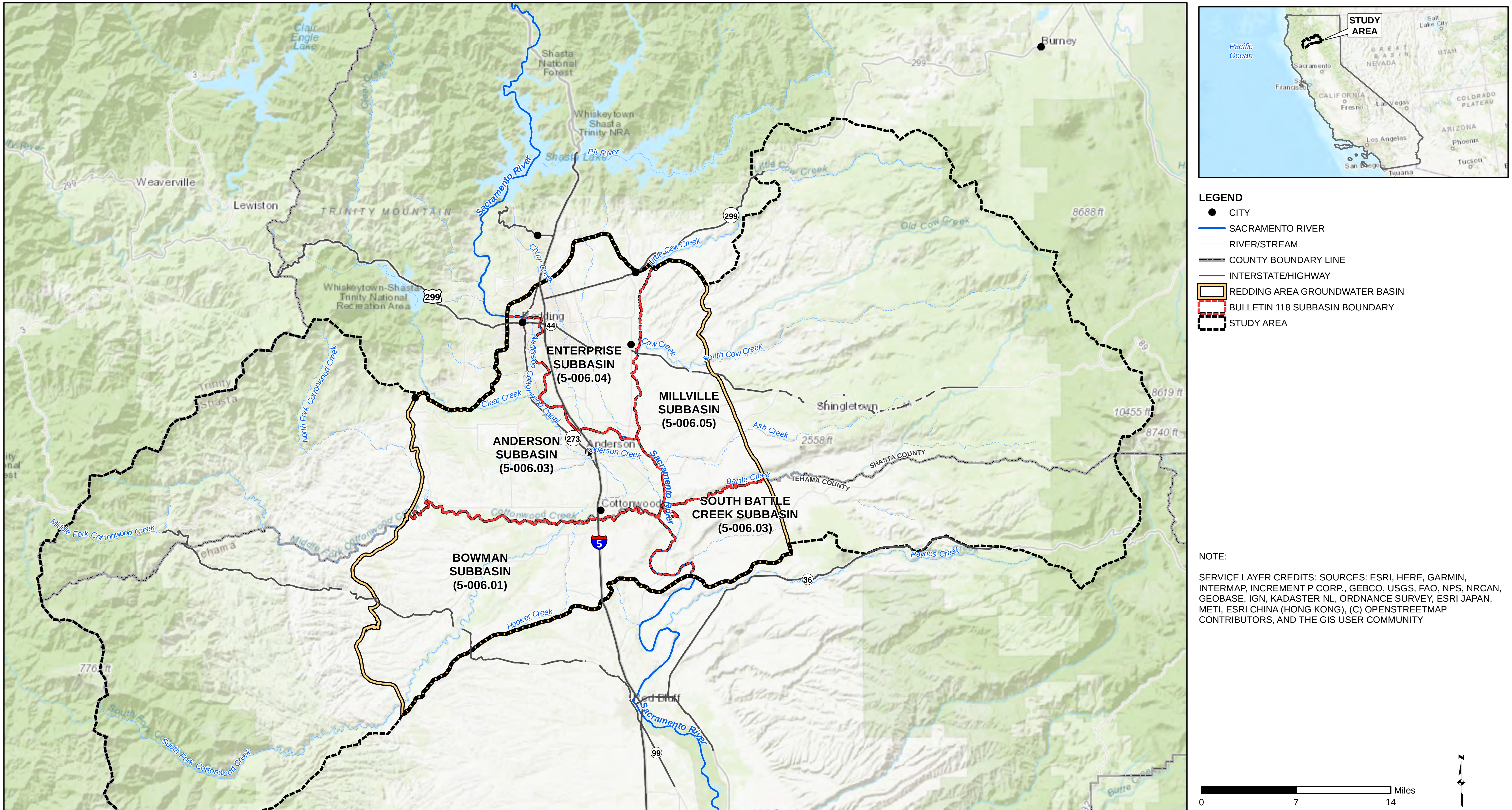

LEGEND

● CITY

SACRAMENTO RIVER

RIVER/STREAM

COUNTY BOUNDARY LINE

INTERSTATE/HIGHWAY

REDDING AREA GROUNDWATER BASIN

BULLETIN 118 SUBBASIN BOUNDARY

STUDY AREA

NOTE:

SERVICE LAYER CREDITS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY

FIGURE 1-1
STUDY AREA MAP
Numerical Flow Model Documentation
Redding Area Groundwater Basin

DATUM: NAD 1983. DATA SOURCE: DWR, 2019; ESRI, 2019; SHASTA COUNTY 2019

D:\REDDINGCACITYOF\EAGSA\FIGURES\ARCMAP\MAPFILES\MODEL\1.0\FIG01-01_STUDYAREA.MXD 6/28/2021 2:46:02 PM FELHADID

Jacobs

2. Conceptual Model Overview

The RAGB (5-006) encompasses an area of approximately 597 square miles in the northernmost portion of the Sacramento Valley. Underlying Tehama and Shasta Counties, it is bordered by the Klamath Mountains to the north, the Coast Range to the west, and the Cascade Mountains to the east. The Red Bluff Arch, between Cottonwood and Red Bluff, separates the RAGB from the Sacramento Valley Groundwater Basin to the south. The RAGB is composed of five groundwater subbasins, including the Enterprise, Anderson, and Millville Subbasins in Shasta County and the Bowman and South Battle Creek Subbasins in Tehama County (Figure 1-1). As discussed in Section 1.1, DWR has identified the Enterprise Subbasin (5-006.4) and the Anderson Subbasin (5-006.3) as medium-priority subbasins. SGMA requires medium-priority groundwater basins being managed by a groundwater sustainability agency to reach sustainability within 20 years of adopting its GSP. This report provides information for not only the RAGB, but where appropriate, also provides additional information on the Enterprise and Anderson Subbasins to support development of the respective GSPs.

The Enterprise Subbasin (5-006.04) is oriented roughly north and south and is approximately 15 miles long and 8 miles wide. The Sacramento River coincides with the western/southwestern boundary of the subbasin. Little Cow Creek and Cow Creek coincide with the eastern boundary, and the Klamath Mountains form the northern boundary (DWR, 2004). The Anderson Subbasin (5-006.03) is oriented roughly east and west and is approximately 5 to 15 miles long and 18 miles wide. The Sacramento River coincides with the northeastern boundary of the subbasin, the Klamath Mountains form the north/northwestern boundary, the Coast Ranges form the west/southwestern boundary, and Cottonwood Creek coincides with the southern boundary (DWR, 1968; DWR, 2004). The Sacramento River is the largest river of Northern California and flows south for 400 miles before reaching the Sacramento–San Joaquin River Delta and San Francisco Bay.

Within the RAGB, summers are hot and arid, and winters are cool and typically wet. Based on 30-year averages from Parameter-elevation Regressions on Independent Slopes Model (PRISM) datasets, the foothills of the Klamath Mountains on the north/northwestern periphery of the subbasin receive a mean annual precipitation of approximately 44 to 51 inches, and portions of the valley floor to the south receive approximately 26 to 30 inches per year (PRISM Climate Group, 2020). The RAGB receives about 84 percent of its precipitation in the autumn (35 percent) and winter (49 percent), with only about 16 percent falling in the spring (14 percent) and summer (2 percent) (UCC, 2019; Station USR0000CREA).

Major water supplies in the greater RAGB are stored in surface reservoirs; and as a result, the communities in the region are less dependent on groundwater. This may contribute to the fact that groundwater elevations in the RAGB do not show evidence of continuous decline. Depths to groundwater are shallowest near the Sacramento River, Clear Creek, Cottonwood Creek, and Cow Creek, and are generally within a range of a few feet to 25 feet below land surface. However, depths to groundwater generally increase with increasing distance from streams. In areas outside of large drainages within Anderson Subbasin, depths to groundwater can range from 150 to 250 feet below ground surface (bgs). Similarly, in the central portions of Enterprise Subbasin, depths to groundwater range between 100 to 150 feet bgs and approach depths of nearly 200 feet bgs.

The RAGB consists of a sediment-filled, southward-plunging symmetrical trough (DWR, 2003). Simultaneous deposition of material from the Coast Range and the Cascade Range resulted in two different formations that together comprise the principal aquifer in the RAGB. The Tuscan Formation in the east is derived from Cascade Range volcanic sediments, and the Tehama Formation in the western and northwestern portion of the RAGB is derived from Coast Range sediments. These formations are up to approximately 2,000 feet thick near the confluence of the Sacramento River and Cottonwood Creek. The Tuscan Formation is generally more permeable and productive than the Tehama Formation (Pierce, 1983).

The base of fresh water in the RAGB coincides with the top of the Chico Formation, which is composed of marine deposits of sandstone, conglomerates, and shale, and contains salt water under artesian pressure. Fresh groundwater is found above the Chico Formation in the Tuscan and Tehama Formations. The Tuscan and Tehama Formations are generally overlain by the moderately permeable Red Bluff Formation, which is composed of coarse gravels and boulders in a sand, silt, and clay matrix. Unconsolidated moderately permeable alluvial deposits underlie the floodplains of the Sacramento River and its tributaries, and permeability is higher where gravels dominate (Pierce, 1983).

Groundwater flow in the study area generally converges on the Sacramento River. Some of the groundwater is intercepted by groundwater wells or is partially consumed by evaporation and transpiration (the combined process of shallow groundwater evapotranspiration [ET]) within riparian or groundwater discharge areas. Groundwater that is extracted through pumping is used for domestic and commercial potable water and irrigation.

Chapter 3 of each GSP prepared for the Enterprise and Anderson Subbasins provides additional information on the hydrogeological conceptual model of these subbasins.

3. Numerical Model Construction

The following steps were implemented to translate the hydrogeologic conceptual model into a form that is suitable for numerical modeling:

1) Selecting numerical codes for groundwater and surface-water flow
2) Establishing a model domain and developing a model grid
3) Spatially distributing surface parameter values
4) Spatially distributing subsurface parameter values
5) Selecting a time-discretization approach appropriate for evaluating the field problem and achieving the modeling objectives (Section 1.2)
6) Establishing initial flow conditions for groundwater and surface-water flow
7) Establishing boundary conditions for groundwater and surface-water flow

The following subsections describe the methodology for executing these design steps.

3.1 Code Selection

The USGS code OneWater version 2 (Boyce et al., 2020) was selected for this modeling effort, in conjunction with the graphical-user-interface Groundwater Vistas version 8 (ESI, 2020) and other custom utilities to develop the EAGSA Model. OneWater is an updated formulation built upon the MODFLOW-2005 (Harbaugh, 2005) framework. OneWater accommodates the development of a 3D, physically based, spatially distributed, integrated groundwater/surface-water flow model. The OneWater code was selected for the following reasons:

- OneWater is based on MODFLOW-2005, which is well-documented and has been used extensively in groundwater evaluations worldwide for many years. OneWater contains an improved solution scheme that can handle a variety of complex, variably saturated flow conditions, which are relevant to groundwater conditions in the RAGB.
- OneWater has been benchmarked and verified; thus, the numerical solutions generated by the code have been compared with analytical solutions, subjected to scientific review, and used on other modeling projects. Verification of the code confirms that OneWater can accurately solve the governing equations that constitute the mathematical model.
- OneWater accommodates a comprehensive suite of groundwater and surface-water boundary conditions.

In addition to using OneWater as the primary mathematical code upon which the EAGSA Model is built, version 8 of the BCM (Flint et al., 2013; Flint and Flint, 2014) was selected for use as a companion rainfall–runoff model. The BCM has been used to help provide runoff estimates to the EAGSA Model domain from contributing catchments located outside the EAGSA Model domain. The use of the BCM to support the modeling effort is described in more detail in Section 3.7.

3.1.1 Numerical Assumptions

OneWater is conceptualized mathematically into two interconnected hydrologic flow regimes: surface flow and subsurface flow. The surface-flow regime, as configured for the EAGSA Model described herein, includes runoff, channel flow, and interaction with the subsurface. The subsurface-flow regime underlies the surface-flow regime and includes variably saturated zones representing porous media through which groundwater flows and can interact with the surface-flow regime. Interactions between the surface- and subsurface-flow regimes are established through the Farm Process Package (FMP) of OneWater establishing linkages with other MODFLOW packages to facilitate the simulation of various hydrologic processes. In general, input data to FMP includes, but is not limited to, precipitation and potential ET, land use, root zone and irrigation parameterization, rainfall-runoff process parameterization, and land surface-water balance tracking areas. Within FMP, these types of input data establish conditions for the simulation of the rainfall-runoff and irrigation processes. This includes the partitioning of natural and anthropogenic sources of water into runoff to streams, ET, surface evaporation, and infiltration. As the fate of these water sources are simulated, the FMP communicates with other packages to simulate connections between surface processes and between surface and subsurface processes. For example, runoff that is calculated through the FMP (as configured for this project) is routed to nearby Streamflow Routing Package (SFR) segments, providing an inflow of water to nearby stream channels.

From a water supply and outdoor water-demand standpoint, the FMP simulates a specific hierarchy of water sources available to meet potential crop consumptive use. Indoor water use demand is generally not explicitly simulated as part of the EAGSA Model given the complexities of the urban water balance, except for areas where private groundwater pumping occurs to meet indoor water use demands. Further details on the urban water budgets is discussed throughout Section 3.7. The hierarchy of water supplies (as configured for this project) to meet monthly outdoor water demands is as follows:

1) Shallow groundwater through root uptake, if rooting depths are near or intersect the water table during a given month.
2) Precipitation, if available during a given month.
3) Purveyor water deliveries (that is, diverted surface water and/or groundwater pumped from purveyor supply wells), if the monthly outdoor demand has not been satisfied by shallow groundwater and precipitation.
4) Groundwater pumping, if the monthly outdoor water demand has not been met by the first three sources of water, the FMP will make up the remaining deficit through distributed groundwater pumping in areas outside of a water purveyor's service area.

Deliveries of surface water and distributed groundwater pumping require the user to establish the monthly rates of available sources of water. Each of these sources of supply plays a role in the numerical simulation of the surface- and subsurface-flow regimes, depending on the area and the specific water management activities within that area. Further details on the specific configuration of FMP in the EAGSA Model is provided in Section 3.7.

3.1.2 Scientific Basis

The theory and numerical techniques that are incorporated into OneWater and the BCM have been scientifically tested. The governing equations for rainfall-runoff, streamflow, and variably saturated subsurface flow have been solved by several modeling codes over the past few decades, on a wide range of field problems. Therefore, the scientific basis of the theory and the numerical techniques for solving these equations have been well-established. The OneWater user's manual (Boyce et al., 2020) and the BCM documentation (Flint et al., 2013; Flint and Flint, 2014) detail the governing equations and other information on the codes.

3.1.3 Data Formats

Several American Standard Code for Information Interchange (ASCII) data files were used to parameterize the EAGSA Model. Table 3-1 shows the grouping of various data items in the EAGSA Model input files.

Table 3-1. OneWater Input File Description

File Extension	Version	Purpose[a]	Parameters[a,b]
BAS	6	▪ Basic Package establishes active and inactive cells and initial heads.	▪ IBOUND array by layer (active domain) ▪ Initial heads by layer
DIS	NA	▪ Discretization Package establishes information on how time and space are subdivided. ▪ Establishes whether the numerical solution is steady state or transient.	▪ Grid cell dimensions ▪ Layer interface elevations ▪ Stress-period durations ▪ Number of time steps per stress period ▪ Time step multiplier ▪ Stress period type (steady state or transient)
UPW	1	▪ Upstream Weighting Package contains aquifer hydraulic parameters, which constrain flow between model cells.	▪ Horizontal and vertical hydraulic conductivity ▪ Groundwater storage parameters
FMP	4	▪ Farm Process contains soil, vegetation, water source, and water use information. ▪ Controls supply and demand to facilitate computation of runoff, groundwater recharge from precipitation and applied water, and agricultural pumping.	▪ Consumptive use terms ▪ Soil type ▪ Rooting depths ▪ Irrigation efficiency ▪ Groundwater root flag and root pressures ▪ Capillary fringe ▪ Vadose zone options ▪ ET factors ▪ Water source and delivery information ▪ Irrigation fractions
SFR	7	▪ SFR constrains streamflow and groundwater/stream interaction.	▪ Stream segment and reach information ▪ Channel geometry and elevation information ▪ Slope and resistance terms ▪ Optional flow rules and constraints, such as surface-water diversions or conveyance-capacity constraints ▪ Streamflow-tolerance solver criteria ▪ Streambed properties
GHB	NA	▪ General-Head Boundary Package controls groundwater outflow underneath the Sacramento River outlet of the model.	▪ Boundary head and conductance by stress period ▪ Model-layer designations

Table 3-1. OneWater Input File Description

File Extension	Version	Purpose[a]	Parameters[a,b]
WEL	v2	▪ Well Package v2 establishes septic system discharges.	▪ Specified injection rate by stress period ▪ Model layer designations
DRT	7	▪ Drain Return Package directs rejected recharge to streams.	▪ Drain head and conductance ▪ Recipient SFR nodes for drained groundwater
MNW	2	▪ Multi-Node Well Package simulates municipal (purveyor) groundwater pumping.	▪ Well dimension and construction information ▪ Groundwater pumping rate by stress period ▪ Model layer(s) designations
NWT	1.2.0	▪ Newton Solver solves the governing flow equations.	▪ Solver iteration and closure terms ▪ Backtracking and other solver options
NAM	NA	▪ Name File specifies names of input and output files.	▪ No parameters are included
OC	NA	▪ Output Control File specifies the type of runtime information to write to output files.	▪ User-defined print and save statements
GAGE	NA	▪ Establishes streamflow gauging station locations in the model and generates output files containing simulated gauge station information at each gauge location.	▪ Specified SFR segment and reach for each gauge location ▪ Output file unit number convention and naming of gauge locations

[a] As implemented in the EAGSA Model. Alternative uses of the package are also possible.

[b] Not intended to be an exhaustive list of input parameters. Please see the model code documentation and online resources for additional information.

Note:

NA = not applicable, because it is built into the main OneWater code

Output from the EAGSA Model also follows the USGS MODFLOW output file formats and includes ASCII as well as binary files. Although a variety of optional output files can be generated with the OneWater code, Table 3-2 summarizes the main output files used for this modeling effort.

Table 3-2. Selected OneWater Output File Description

File Name or Extension	Content
LST	▪ ASCII listing file containing runtime information included in the simulation
FB-Details	▪ ASCII file containing Farm Process inflows and outflows by water balance subregions for all output times
FDS	▪ ASCII file containing supply and demand information for all output times
SFRBUD	▪ ASCII file containing reach-specific stream inflows, outflows, and other physical parameters of the stream reach for all output times
HDS	▪ Binary file containing cell-by-cell modeled heads (that is, groundwater elevations) for all output times
CBB	▪ Binary file containing cell-by-cell subsurface flows for all output times

3.2 Model Domain

A numerical model must use discrete space to represent the hydrologic system. The simplest way to discretize space is to subdivide the study area into many subregions (that is, grid blocks) of the same size. This grid-building strategy was implemented for this modeling effort and is described in the following subsections.

3.2.1 Areal Characteristics of Model Grid

The EAGSA Model grid mathematically represents an 816-square-mile area that includes the RAGB and a portion of the surrounding contributing area. The model grid is aligned north-south and east-west and georeferenced to the 1983 North American Datum of the State Plane California Zone 1 coordinate system, in units of U.S. feet. The EAGSA Model boundary follows the RAGB boundary, except in the north, where the boundary was extended to encompass areas representing water purveyor service areas. Expanding the modeling domain into this northern area facilitates inclusion of local water purveyor service areas that affect groundwater conditions in the RAGB. Figure 3-1 shows the EAGSA Model domain, which is partitioned into grid blocks (that is, cells) horizontally spaced on 500-foot centers, which results in 91,032 active cells per model layer. The 500-foot cell spacing allows for sufficient spatial resolution to support development of water budgets for the Enterprise and Anderson GSPs.

3.2.2 Vertical Characteristics of Model Grid

The EAGSA Model was subdivided into four vertically stacked layers to provide a 3D representation of the principal aquifers. Table 3-3 lists the model layer designations and thicknesses. These layers were developed to provide sufficient vertical resolution to facilitate the following:

- Evaluation of the effects of groundwater pumping on shallow and regional water resources
- Assignment of pumping stresses to appropriate depths within the aquifer that reflect the major producing zones within the aquifer system

Table 3-3. Summary of Model Layers

Model Layer	Description	Model Layer Thickness (feet)	Depth of Layer Bottom (feet bgs)
1	Water table layer adjusted to maintain SFR streambed elevations in Model Layer 1	20 to 575	20 to 575
2	Bulk aquifer layer	5 to 757	47 to 1,151
3	Bulk aquifer layer	5 to 757	73 to 1,726
4	Bulk aquifer layer	5 to 757	100 to 2,301

Note:

Model Layers 1, 2, 3, and 4 are set as unconfined, convertible layers to allow transmissivity to vary temporally and spatially according to the layer's saturated thickness and horizontal hydraulic conductivity. The bottom of Model Layer 4 coincides with the interface between the principal aquifer and the underlying Chico Formation.

The total model thickness represents the thickness of the unconsolidated sediments above the Chico Formation, as modified from DWR's Bulletin 74-8, Water Well Standards Shasta County (DWR, 1968) (Figure 3-2). The total modeled thickness was established by subtracting the depth to the Chico Formation from the land surface elevation and making further adjustments to the bottoms of Model Layer 1 cells that represent modeled streams. These adjustments ensured that the bottom elevation of Model Layer 1 was below modeled streambed elevations. Model Layer 1 ranges in thickness from 20 to 575 feet. Model Layers 2 through 4 were subdivided evenly to account for the remaining saturated thickness of the principal aquifer overlying the Chico Formation. The thickness across Model Layers 2 through 4 are vertically uniform ranging from 5 to 757 feet.

3.3 Surface Parameters

The surface parameters required by the EAGSA Model are the land surface elevations, stream channel characteristics, and land cover characteristics.

3.3.1 Topography

A single topographic surface was developed based on a combination of digital elevation model and light detection and ranging (Lidar) data for the entire EAGSA Model domain. These data sources include the following:

- USGS 1/3-arcsecond (approximately 30-foot) digital elevation model data (USGS, 2019)
- Lidar data collected as part of a Federal Emergency Management Agency study of the Cow Creek drainage area; 2-foot resolution (USGS, 2018)
- High-resolution (3-foot) Lidar data collected as part of a collaborative effort between COR and Shasta County (COR, 2019, pers. comm.)

This combined topographic surface forms the basis for land surface elevations covering the modeling domain. These land surface elevations were assigned to the top of Model Layer 1. Elevation data were processed using ArcGIS Version 10 software. Figure 3-3 illustrates the land surface elevations incorporated into the top of the model grid.

3.3.2 Stream Channel Features

The stream channel network used in the EAGSA model was adapted from USGS hydrography datasets to serve as a starting point for development of SFR. Figure 3-4 presents the stream network used in the EAGSA Model. SFR requires definition of stream channel segments that are intersected with the model grid to obtain stream channel networks. Stream channel parameters required for the calculation of streamflow routing are specified throughout the SFR network. As a starting point, parameter values were idealized for all stream segments. With this setup, stream channel width was set to 100 feet, streambed hydraulic conductivity was set to 10 feet per day (3.5×10^{-3} centimeters per second) (Freeze and Cherry, 1979), and the Manning's roughness coefficient was set to 0.025 (Chow, 1959). Parameter values associated with SFR were modified during the calibration process as necessary to achieve acceptable goodness of fit in matching target datasets. The calibration process and results are discussed further in Section 4.

3.3.3 Land Cover

Land cover parameters provide an important component to the modeling framework because they are used in hydraulic calculations that affect irrigation pumping rates and areal groundwater recharge rates in the EAGSA Model. The following subsections describe the basis for the starting values associated with land cover.

3.3.3.1 Soils

Soil survey information was compiled from the U.S. Department of Agriculture Natural Resources Conservation Service Soil Survey Geography (SSURGO) geodatabase for the study area (USDA, 2019). The primary parameter used from the SSURGO database is a texture classification that defines the soil type assigned in the EAGSA Model. Figure 3-5 presents the four soil categories that were defined throughout the EAGSA Model domain. Each model grid cell is assigned a unique soil type classification that links the soil type to capillary fringe depths. Table 3-4 presents the capillary fringe depths for the unique soil type classifications based on values simulated in the Central Valley Hydrologic Model (Faunt, 2009) to provide an initial set of parameters based on previously published work using the OneWater modeling framework.

Table 3-4. Summary of Capillary Fringe Depths

Soil Classification	Capillary Fringe Depth (feet)
Sand	2.84
Sandy Loam	2.84
Silt	2.17
Silty Clay	2.77

3.3.3.2 Land Use and Vegetation

Land use in the EAGSA Model is based on a combination of different data sources, including DWR and county land use surveys. Ultimately, a composite land use dataset was developed based on the 1999 Tehama County and 2012 Shasta County land use surveys, and was supplemented with the 2014 LandIQ dataset. The 2014 LandIQ dataset provided the most recent representation of irrigated agriculture in the EAGSA Model domain. The LandIQ data replaced areas of overlap with the older Tehama and Shasta County land use surveys. A map of the combined land uses developed from this effort is presented on Figure 3-6. Table 3-5 summarizes the crops and associated acreages within the RAGB and EAGSA Model domain. The largest crop category in both the RAGB and EAGSA Model domain is native vegetation. Land use throughout the EAGSA Model domain has not changed much over the last few decades; thus, use of a single land use dataset in the EAGSA Model is considered appropriate.

Table 3-5. Summary of Crop Categories and Associated Parameter Assumptions

Crop	Irrigated?	Rooting Depth (inches)*	Area within RAGB (acres)	Area within EAGSA Model Domain (acres)
Pasture	Yes	3	20,389	20,861
Miscellaneous Crops	Yes	3	5,717	5,721
Native Vegetation	No	3.2	276,211	388,693
Riparian Vegetation	No	3.2	2,512	2,575
Water	No	3	5,591	6,681
Idle	No	3	5,462	5,488
Commercial	No	2	4,328	4,693
Industrial	No	2	3,004	4,321
Urban Impervious	No	2	6,417	8,124
Urban Landscape	Yes	2	1,127	1,345
Urban Residential	Yes	2	50,399	73,951

* Rooting depth values adapted from Faunt, 2009.

3.3.3.3 Water Purveyor Service Areas

Within the EAGSA Model domain several municipalities supply water for indoor and outdoor use. Purveyors provide water from either a combination of surface water and groundwater or solely from groundwater. Figure 3-7 presents the water purveyor service areas that encompass a portion of the EAGSA Model domain.

The FMP of the EAGSA Model requires the delineation of Water Balance Subareas (WBSs) to define unique subareas of the model that receive water from the same source. The water purveyor service areas served as the starting point for WBS delineation in the EAGSA Model, thereby allowing the model to mathematically supply purveyor water deliveries throughout the purveyor service areas. This setup also facilitates developing WBS-specific water budgets to allow for purveyor-specific reviews of input assumptions and model output. Thus, to develop water budgets at a local scale, the WBSs were clipped to the subbasin extents to provide flexibility in summarizing model output at individual subbasin scales. Figure 3-8 illustrates the WBSs within the EAGSA Model domain. Model grid cells that fall outside of a water purveyor service area were lumped by subbasin or outlying area to establish a full distribution of the WBS throughout the EAGSA Model domain and to provide flexibility in reporting water budgets at the subbasin scale. Additionally, water purveyor boundaries that span multiple subbasins were split to provide flexibility in water budget reporting by subbasin, as previously discussed. For example, COR was split into two separate WBSs to separately account for the portions of the COR service areas that overlie the Enterprise and Anderson Subbasins.

Given the unique configuration of ACID, additional considerations were made in delineating WBSs designated as receiving water from ACID. In some areas, the ACID service area overlaps with multiple water purveyors in the RAGB (Figure 3-8). Thus, within these areas of overlap, model cells where irrigated land use categories were designated have been assigned to receive water deliveries from ACID and were split into separate divisions and then split again by subbasin as necessary. This configuration allowed for explicit simulation of the ACID main canal and associated deliveries from the main canal.

3.4 Subsurface Flow Parameters

The subsurface hydraulic parameters required by the EAGSA Model are horizontal hydraulic conductivity (K_h), vertical hydraulic conductivity (K_v), specific yield (S_y), and specific storage (S_s).

3.4.1 Hydraulic Conductivity

Hydraulic conductivity values from REDFEM (Reclamation and ACID, 2011; CH2M HILL, 2011) were used in the initial parameterization of the EAGSA Model. During the development of REDFEM, several steps were taken to aid in assigning aquifer properties across the modeling domain representing the RAGB. Various reports prepared by DWR, USGS, and area consultants were reviewed; and, where available, aquifer property data were compiled. Hundreds of well completion logs were also obtained from DWR and reviewed for well-construction and specific-capacity information. Aquifer properties were estimated from specific-capacity information for discrete-depth intervals in the RAGB, based on the well-construction information, and plotted on a basin map. Approximately 90 wells provided both well-construction and specific-capacity information that was used during the development of REDFEM. After the dataset was finalized, the reported specific-capacity data for each well were used to estimate aquifer transmissivity for each location. Equation 3-1 is a simplified version of the Jacob nonequilibrium equation (Driscoll, 1986) used to estimate aquifer transmissivity:

$$SC = T/2000 \tag{3-1}$$

where:

SC = specific capacity of an operating production well (gallons per minute per foot of drawdown)

T = aquifer transmissivity (gallons per day per foot)

After a transmissivity estimate was computed for each of the 90 well locations, the transmissivity value was then divided by the screen length of the well to yield an estimate of the K_h of the aquifer materials. The point values obtained by this process were then interpolated to develop a K_h distribution across the REDFEM model domain. The modeled aquifer transmissivity at each REDFEM node for each model layer was then computed by multiplying the hydraulic conductivity value at that node by the thickness of the model layer. Insufficient data were available to attempt to subdivide the dataset into depth-varying hydraulic conductivity distributions, and it was initially assumed that the computed mean hydraulic conductivity values were representative of the principal aquifers in all model layers (that is, K_h varies laterally based on the interpolated distribution, but the K_h is the same in each model layer at a given model node). The ratio of the K_h to K_v ranges from 10 to 1, up to 100 to 1 in the EAGSA Model. Figure 3-9 shows the initial distribution of transmissivity used in the EAGSA Model.

3.4.2 Groundwater Storage

The specific yield of the principal aquifers was assigned a uniform value of 10 percent. This value was within the range previously reported by Olmsted and Davis (1961) and Pierce (1983). A uniform specific storage coefficient of 2×10^{-6} per foot of aquifer thickness was also assumed for calculation of the storage coefficient. The storage coefficient is computed automatically by OneWater by multiplying the model layer thickness by the specific storage value of 2×10^{-6} per foot in "confined" model layers (that is, fully saturated model layers).

3.5 Time Discretization

3.5.1 Climate Period Analysis

3.5.1.1 Historical Period

An analysis was performed to evaluate recent historical climate trends and the availability of data to characterize hydrology, land, and water use within the RAGB to determine the most appropriate time period to use for the historical simulation period. Figure 3-10 presents the annual precipitation totals for the EAGSA Model domain for a 20-year period, including water years [WY] 1999 through 2018. Monthly BCM precipitation data were processed across the EAGSP Model domain to ultimately provide cell-by-cell precipitation values as input to the model. See Section 3.7.1.1 for further discussion on incorporating precipitation in the EAGSP Model. As part of the historical climate trends analysis, the monthly BCM data were averaged across the EAGSP Model domain and totaled into WY annual precipitation values. The precipitation data presented on Figure 3-10 represent the spatial averages of BCM precipitation grid values throughout the EAGSA Model domain. The mean annual precipitation (MAP) over the 20-year historical period is 37.55 inches.

The Sacramento Valley Water Year Hydrologic Classification Index[1] (Sacramento Valley WY Index) (State Water Board, 1999) was adapted for use in assigning each WY with an associated water year type (WYT). This was done to characterize annual climate variability for use in time-period selection and water budget reporting. The Sacramento Valley WY Index is defined by the sum (in millions of acre-feet [MAF]) of unimpaired streamflow at Bend Bridge on the Sacramento River, Feather River inflow to Lake Oroville, Yuba River at Smartville, and American River inflow to Folsom Lake. Equation 3-2 is used to calculate the Sacramento Valley WY Index (annual runoff terms are in units of MAF):

$$\text{Sacramento Valley WY Index} = 0.4 \times \text{Current April-July Runoff Forecast} + 0.3 \times \text{Current October-March Runoff} + 0.3 \times \text{Previous Year's Sacramento Valley WY Index} \qquad (3\text{-}2)$$

Using the calculated Sacramento Valley WY Index, each WY is assigned a WYT based on the following criteria:

- Wet (W): Equal or greater than 9.2 MAF
- Above Normal (AN): Greater than 7.8 MAF, and less than 9.2 MAF
- Below Normal (BN): Greater than 6.5 MAF, and equal to or less than 7.8 MAF
- Dry (D): Greater than 5.4 MAF, and equal to or less than 6.5 MAF
- Critically Dry (C): Equal to or less than 5.4 MAF

Annual departures from the WYs 1999 through 2018 MAP are displayed as yellow bars on Figure 3-10 and are calculated by subtracting the MAP value of 37.55 inches from each total annual precipitation value. Above Normal and Wet WYs generally have positive annual departure values above the dashed blue line, whereas Dry and Critically Dry WYs generally have negative annual departure values below the dashed blue line. Below Normal WYs exhibit both positive and negative departures from the MAP. Because the Sacramento Valley WY Index was developed as a regional-scale water management tool, it will not always be consistent with local precipitation within the RAGB. For example, WY 1999 is listed as a Wet year

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[1] http://cdec.water.ca.gov/reportapp/javareports?name=wsihist (last accessed June 7, 2021).

in the Sacramento Valley WY Index; however, precipitation that fell locally in the RAGB in WY 1999 resulted in a negative departure from the MAP.

The cumulative departure from the WYs 1999 through 2018 MAP is also presented on Figure 3-10 (shown as the black solid line) and is computed by accumulating the annual departures (that is, the yellow bars) from WY 1999 forward in time. The annual departures and cumulative departure data indicate a reasonable balance of wet, normal, and dry conditions for model calibration. Additionally, because the availability and reliability of hydrologic and water budget data are more favorable for this recent period as compared with earlier periods, the recent 20-year period was selected for model calibration and to serve as the historical water budget period. GSP regulations § 354.18 requires not only a historical water budget, but also a current water budget. The current water budget was developed using the last four years of this historical period, including WYs 2015 through 2018, as the averaging period. Historical and current water budgets are discussed in Section 4.4.

3.5.1.2 Future Period

In addition to development of historical and current water budgets, GSP regulations § 354.18 requires GSAs to develop projected water budgets that incorporate assumptions regarding climate change. These regulations specify the use of historical precipitation, reference evapotranspiration (ET_0), and streamflow as a baseline for the development of projected hydrology and incorporation of climate change projections through perturbation of the historical variability; however, DWR has clarified that other climate-change approaches can be used, as long as the chosen approach is based on the best available science and is technically defensible. Two climate-change approaches were considered for developing projected precipitation and ET_0 for the EAGSA Model. The first approach considered is based on a “time-period analysis" as offered by DWR. With this approach, 50 years of historical monthly precipitation and ET_0 data are selected by the modeler and then processed through a DWR tool that adjusts these datasets to account for climate change. The second approach considered is based on a “transient analysis.” With this approach, precipitation and air temperature projections from a global climate model (GCM) are used along with a rainfall-runoff model to establish projected precipitation and ET_0 datasets. Available GCMs include projected climate conditions out to the year 2100 under a variety of climatic and greenhouse-gas-emission assumptions made by atmospheric scientists (for example, CCTAG, 2015; Pierce et al., 2018). This second approach (that is, transient analysis) was selected for the projection simulations, based on the reasons that follow:

- Climate projections indicate that past climatic patterns over the last several decades are not necessarily good indicators of future climatic patterns over the next several decades. Thus, although the regulations indicate that the projected water budget be based on 50 years of historical hydrology to reflect long-term hydrologic conditions, selecting an appropriate historical hydrologic period on which to base climate-change factors is not as straightforward as it may seem.
- Considerable research on climate change has been and will continue to be undertaken by dedicated atmospheric scientists with appropriate technical backgrounds. Thus, the GCMs developed by these specialists are based on the best available science, are technically defensible, and, therefore, comply with the intent of GSP regulations § 354.18.

The transient analysis approach allowed the GSP technical team to maintain consistency with the modeling tools, assumptions, and workflow associated with the development of the historical, current, and projected water budgets.

To account for future hydrologic conditions associated with potential changes in climate, various datasets and reports were analyzed to determine the appropriate set of climate-change assumptions and methodology best suited for incorporation into the projection version of the EAGSA Model. As part of the California Fourth Climate Change Assessment (Pierce et al., 2018), a suite of ten GCMs previously identified by Climate Change Technical Advisory Group (2015) was reduced to four GCMs identified as representative of the projected climate variability in California. These include the following:

- Met Office Hadley Centre Earth System Model (HadGEM2-ES) (warm/dry)
- Canadian Earth System Model (CanESM2) (average)
- Model for Interdisciplinary Research on Climate (MIROC5) (complement/diversity scenario)
- Centre National de Recherches Météorologiques (CNRM-CM5) (cool/wet)

Each of these GCMs considers Representative Concentration Pathway (RCP) scenarios that describe potential greenhouse-gas- and aerosol-emission conditions (IPCC, 2013). Two RCP scenarios have been analyzed for each GCM with "RCP 4.5" representing a medium scenario in which a reduction in greenhouse-gas emissions is considered, versus "RCP 8.5," which assumes a "business as usual" emissions scenario (Pierce et al., 2018). A study conducted by Schwalm et al. (2020) identified that the RCP 8.5 emissions scenario closely tracks historical total cumulative carbon dioxide emissions and is the best match for mid-century projections of greenhouse-gas emissions, based on current and stated policies. Thus, annual precipitation projections were processed for the RAGB area from the four GCMs identified above with the RCP 8.5 emissions scenario to review how these projections compare and to recommend a GCM as an appropriate climate-change scenario for the EAGSA Model.

Monthly precipitation data for WYs 2019 through 2100 from each of the four recommended GCMs were initially processed into average annual precipitation values across the EAGSA Model domain. For the purposes of the GSPs, the projection period includes WYs 2019 through 2071. GSP regulations require a 50-year projection period from the time of GSP adoption. The GSPs will be submitted to DWR in WY 2022; therefore, the EAGSA Model projection period is required to extend through WY 2071. An additional 3 years (WYs 2019 through 2021) were incorporated into the beginning of the projection period to create a continuous simulation that extends from the end of the historical and current periods through 2071. Thus, projected precipitation summaries presented herein span this 53-year period.

Figure 3-11 presents comparisons of cumulative departure from the historical simulation period (that is, WYs 1999 through 2018) MAP value of 37.55 inches for the four GCMs. Overall, the four GCMs indicate different outlooks as compared with the historical MAP, especially after the 2050 to 2060 timeframe. As compared to the MAP, the CNRM-CM5 scenario indicates the largest increase in year-to-year precipitation during the projection period, with the CanESM2 becoming wetter after 2045 approaching a similar cumulative departure as the CNRM-CM5 scenario. Conversely, the MIROC5 scenario shows the largest decrease in year-to-year precipitation (as compared to the MAP) throughout the projection period. The annual precipitation associated with the HadGEM2-ES scenario shows less precipitation prior to 2035, contains a wetter period from 2035 through 2060, and then declines through the end of the projection period to a departure slightly more than that of the MIROC5 scenario.

Another important aspect to consider, in addition to the annual precipitation totals and year-to-year variability, is the magnitude and timing of precipitation during a given year. Figure 3-12 presents the average monthly precipitation for each of the four GCMs during the projection period, along with the monthly average precipitation values for the historical period. The two wetter scenarios (that is, CanESM2 and CNRM-CM5) show greater peak precipitation rates with earlier shifts in the timing of peak precipitation rates during the winter (see January peaks on Figure 3-12), as compared with rates associated with the MIROC5 and HadGEM2-ES scenarios. The HadGEM2-ES scenario generally mirrored the monthly precipitation pattern of the historical period, with lower average monthly precipitation in December, January, and February. The MIROC5 scenario had slightly higher-than-historical-average precipitation in January with lower monthly precipitation in December and February.

The HadGEM2-ES, RCP 8.5 (IPCC, 2013) scenario was ultimately selected to represent future climate conditions for the projection period. This dataset assumes "business as usual" greenhouse-gas emissions and represents climatic conditions that plot within the range, but on the drier side of the four California-specific GCMs. Further details associated with the projected simulations are discussed in Section 5.

3.5.2 Simulation Period

The calibration version of the EAGSA Model simulates historical hydrologic conditions from October 1997 through September 2018, whereas the projection version of the EAGSA Model simulates future hydrologic conditions from October 2018 through September 2071. All versions of the EAGSA Model include monthly stress periods to adequately simulate seasonal hydrologic processes.

3.6 Initial Flow Conditions

The establishment of a transient EAGSA Model necessitates establishment of initial flow conditions in the hydrologic system. Initial conditions refer to the initial distribution of heads (that is, groundwater elevations) throughout the model domain. Initial conditions for the calibration simulations were established in a “spin-up” manner. This step involved assigning initial heads intended to approximate September 1997 conditions and then allowing the monthly stress periods to “work through” the monthly conditions through September 1998 (that is, the end of the spin-up period). This spin-up period is necessary because it is not possible to assign initial conditions in the surface-water boundary conditions of the EAGSA Model. As such, the surface-water boundary conditions start out dry and must be allowed some simulation time to “wet up” and begin routing water in a manner that is consistent with the intended month-to-month hydrologic variations. Therefore, model output data from the spin-up period are not included in the assessment of calibration or water budgets. Presentation of calibration results and water budgets described in Sections 4 and 5 of this modeling appendix are representative of October 1, 1998 through September 30, 2018 (that is, WYs 1999 through 2018).

3.7 Boundary Conditions

Boundary conditions are mathematical statements (that is, rules) that specify head (that is, groundwater elevation) or water flux at particular locations within the model domain. The following three types of boundary conditions were used in the EAGSA Model during calibration.

- **Specified flux:** Water fluxes are assigned to selected model cells and remain unchanged during a monthly stress period. A specified-flux boundary condition is a two-way boundary condition, whereby values indicate either water inflow or outflow rates.
- **Head-dependent flux:** Head and hydraulic-conductance values are assigned to selected model cells, and water fluxes are computed by the model code across the boundary using an appropriate governing-flow equation, based on the head assigned to the boundary condition and the simulated groundwater elevation. A head-dependent flux boundary condition is also a two-way boundary condition, depending on the direction of the hydraulic gradient (into or out of the modeled aquifer system).
- **No flow:** Water can flow parallel to the boundary, but not across it.

Table 3-6 summarizes these boundary conditions, and Figure 3-13 depicts locations and types of boundary conditions used to calibrate the EAGSA Model.

Table 3-6. Summary of EAGSA Model Boundary Conditions for Calibration

Hydrologic Process	Specified Flux	Head-dependent Flux
Stream Inflow from Contributing Catchments	X	
Reservoir Releases	X	
Precipitation	X*	
Applied Water	X*	X*
Groundwater Recharge from Precipitation, Applied Water, and Septic Systems	X*	X*
Groundwater/Surface-water Interaction		X
Evapotranspiration		X*
Groundwater Pumping	X*	X*
Surface-water Diversions	X*	
Wastewater Treatment Plant Discharge	X	

* Processed and managed through the FMP, which includes some aspects of both specified flux and head-dependent flux boundary conditions.

No-flow boundaries are simulated at lateral boundaries of active surface and subsurface nodes not already assigned specified fluxes and at the bottom of the deepest model layer (that is, Model Layer 4).

3.7.1 Specified Fluxes

The following section describes boundary conditions in the EAGSA Model where either a volumetric or linear flux is used to simulate various flow processes.

3.7.1.1 Precipitation and Reference Evapotranspiration

With use of the FMP, fluxes of precipitation and ET_0 are specified directly for each model cell. Grass is the reference crop for the ET_0 term. Monthly precipitation and ET_0 estimates were processed from the USGS BCM v8 (Flint et al., 2013, Flint et al., 2014), 270-square-meter raster data for the historical simulation period. Additionally, measured ET_0 data from the California Irrigation Management Information System (CIMIS) Gerber #8 station were used to bias-correct the BCM ET_0 data to better reflect climate conditions in the EAGSA Model domain. For this correction, a monthly factor was calculated for each month in the historical simulation period as the ratio of BCM ET_0 to CIMIS ET_0. Figure 3-14 presents the historical average monthly precipitation and CIMIS station ET_0 across the EAGSA Model domain. In general, peak precipitation throughout the model domain occurs in the December through February timeframe, with peak rainfall occurring in the month of December at just over 7 inches (Figure 3-14). On average, there is less than 1 inch of rain from June through September, during which time the ET_0 is near annual maximum values. The seasonal timing of greater ET_0 with lower precipitation highlights the reason that water deliveries are needed as an additional source of water to irrigate agricultural lands throughout the summer and early fall months.

3.7.1.2 Consumptive Use

Monthly crop coefficients were processed from the statewide Cal-SIMETAW dataset available from DWR and the University of California, Davis (Orang et al., 2013) for Shasta and Tehama Counties. Table 3-7 presents the relationship between EAGSA and Cal-SIMETAW crop categories. Figure 3-15 presents the average monthly crop coefficients for each of the Cal-SIMETAW crop categories incorporated in the EAGSA Model. Monthly crop coefficients are specified for each EAGSA crop category for every stress period in the model. The crop coefficient (Kc) is related to consumptive use by multiplying by the ET_0 value for each stress period, as shown in Equation 3-3:

$$\text{Monthly Consumptive Use} = Kc \times ET0 \tag{3-3}$$

Table 3-7. Cal-SIMETAW Crop Coefficient Relationship

EAGSA Crop Category	Cal-SIMETAW Crop Category
Miscellaneous Crops	Average of numerous categories*
Pasture	Pasture
Native Vegetation	Native Vegetation
Riparian Vegetation	Riparian
Commercial	Urban Landscape
Idle	Urban Landscape
Industrial	Urban Landscape
Urban Impervious	Urban Landscape
Urban Landscape	Urban Landscape
Urban Residential	Urban Landscape
Water	Water Surface

* Miscellaneous average includes grain, rice, cotton, sugar beets, corn, dry beans, safflower, other field, tomato processing, tomato fresh, cucurbits, onions and garlic, potatoes, truck crops, almond and pistachios, other deciduous, citrus and subtropical, and vineyard.

Additionally, the land use dataset discussed in Section 3.3.3.2 was intersected with the EAGSA Model grid to obtain fractions of each crop category per model grid cell. Crop area fractions and the associated consumptive use estimate serve as the basis for consumptive use of water for each WBS of the model.

3.7.1.3 Stream Inflows from Contributing Areas

As shown on Figure 3-16, there are contributing catchments upstream from and outside of the EAGSA Model domain. Although there are some streamflow gauges within the EAGSA Model domain, most of the contributing catchments upstream from the EAGSA Model domain are ungauged. Surface-water inflows from these contributing catchments need to be accounted for as a boundary condition in the model. Stream inflows from ungauged watersheds were estimated for the historical period by aggregating the BCM runoff in the contributing watersheds on a monthly scale upgradient from the inflow points to the model domain (see yellow triangles on Figure 3-16). To account for potential biases in the BCM estimate of runoff, a bias-correction process was implemented to refine the estimates of stream inflows for ungauged watersheds.

Based on the available gauge data, alternate contributing watershed delineations were developed to coincide with USGS streamflow gauges containing adequate data for the bias-correction process. Figure 3-17 presents the contributing catchments and corresponding USGS gauge locations used in the bias-correction process. The bias-correction process includes the development of monthly and annual adjustment factors to modify the simulated response of the contributing catchments to be more consistent with historical measured monthly and annual streamflows, where available. These adjustment factors are then used to develop historical stream inflows from ungauged catchments. The following subsections describe the bias-correction process in more detail.

Monthly and Annual Adjustment Factor Development

The implemented bias-correction process requires measured streamflow data and BCM runoff aggregated across the contributing catchment area corresponding to the USGS stream gauge location. An approach was implemented to develop monthly and annual WYT adjustment factors for the gauged Cow Creek catchment (green), Battle Creek catchment (orange), and Cottonwood Creek catchment (purple) as shown on Figure 3-17. These catchments were selected because of the existence of the associated stream gauges and the measured streamflow data available for these locations. The WYT includes designating each WY as Wet, Above Normal, Below Normal, Dry, or Critically Dry, as described in Section 3.5.1.

The first step in the bias-correction process is to apply a monthly average adjustment factor for each month in the historical simulation period (that is, WYs 1998 through 2018). Monthly average adjustment factors are developed by calculating the monthly average values of measured streamflow and the BCM runoff. A ratio is then calculated for each month as the measured monthly average streamflow divided by the BCM monthly average runoff. This ratio is then multiplied against the original BCM runoff for every month in the historical simulation period, resulting in a monthly adjusted BCM runoff dataset. Table 3-8 lists the monthly adjustment factors. Due to BCM being an uncalibrated model, the performance of the model was generally poor for the summer and fall months when baseflow typically sustains streamflow in these creeks. As a result, BCM runoff is orders of magnitude less than the measured values, resulting in large monthly adjustment factors in these months. These factors were capped at a value of 10.0, a value determined to provide the best bias-correction fit for all gauges, to limit the potential for over-estimation of streamflow during these months when applying these factors to ungauged watersheds. Applying monthly adjustments to the BCM runoff estimates results in better alignment of the modeled timing and magnitude of streamflows with the measured streamflows.

Table 3-8. Monthly BCM Adjustment Factors

Month	Cow Creek Monthly Adjustment Factor	Battle Creek Monthly Adjustment Factor	Cottonwood Creek Monthly Adjustment Factor
Oct	10.0	10.0	10.0
Nov	10.0	10.0	10.0
Dec	4.3	6.7	5.3
Jan	4.2	6.0	4.8
Feb	4.0	5.7	4.3
Mar	4.7	5.4	3.7
Apr	4.7	3.8	4.1
May	5.0	2.8	3.9
Jun	10.0	3.5	8.1
Jul	10.0	6.9	10.0
Aug	1.0	10.0	10.0
Sep	10.0	10.0	10.0

The second step in the bias-correction process is to calculate WYT-specific annual averages of measured streamflow and BCM monthly adjusted runoff for the historical simulation period. An adjustment factor is then calculated for each WYT based on the ratio of measured streamflow to BCM monthly adjusted runoff. WYT annual adjustment factors are then applied to the corresponding WYTs of the BCM monthly-adjusted runoff to adjust the overall annual volume. Table 3-9 lists the annual adjustment factors by WYT.

Table 3-9. Annual BCM Adjustment Factors

Water Year Type	Cow Creek Monthly Adjustment Factor	Battle Creek Monthly Adjustment Factor	Cottonwood Creek Monthly Adjustment Factor
Wet	1.0	0.9	0.9
Above Normal	1.1	1.3	1.1
Below Normal	0.9	0.9	0.8
Dry	1.3	2.1	1.4
Critically Dry	1.3	1.7	1.4

Figures 3-18 through 3-20 present various summary plots that illustrates results from the two-step bias-correction approach for Cow Creek, Battle Creek, and Cottonwood Creek. The two-step approach seeks to strike a balance between matching the measured monthly timing and annual volume of streamflow. Although bias-correction methods never result in perfect matches on a monthly and annual basis, there is much improved consistency between bias-corrected and measured total cumulative streamflows, which is an important aspect of long-term water supply planning.

Application of Adjustment Factors to Ungauged Contributing Catchments

Monthly and annual adjustment factors were applied to ungauged contributing catchments based on the proximity of the ungauged contributing catchment to one of the three catchments for which the adjustment factors were developed. Table 3-10 presents the relationship between the adjustment factor catchments and the ungauged contributing catchments. Figure 3-21 presents total annual stream inflows (that is, the sum of the stream inflow for all of the ungauged contributing catchments) for three summary catchments where Northeast represents ungauged contributing catchments where Cow Creek adjustment factors were applied, East represents ungauged contributing catchments where Battle Creek adjustment factors were applied, and West represents ungauged contributing catchments where Cottonwood Creek adjustment factors were applied.

Table 3-10. Ungauged Contributing Catchments Adjustment Factor Relationship

Adjustment Factor Catchment	Ungauged Contributing Catchments
Cow Creek (Northeast)	Ash Creek, Basin Hollow Creek, Bear Creek, Clover Creek, Inks Creek, Lack Creek, Little Cow Creek, Oak Run Creek, Old Cow Creek, Rancheria Creek, and South Cow Creek
Battle Creek (East)	Battle Creek and Spring Branch
Cottonwood Creek (West)	Cold Fork, Crow Creek, Dry Creek (SC), Dry Creek (TC), Fork Creek, Long Gulch, Middle Fork Cottonwood Creek, North Fork Cottonwood Creek, Red Bank Gulch, Roaring River, Salt Creek (TC), and South Fork Cottonwood Creek

Notes:

SC = Shasta County
TC = Tehama County

3.7.1.4 Reservoir Releases

As presented on Figure 3-13, there are three locations where streamflow associated with monthly measured reservoir releases has been specified as an inflow to SFR. Figure 3-22 presents historical annual summaries of the monthly measured reservoir releases from Shasta Dam, Keswick Dam, and Clair A. Hill Whiskeytown Dam. Although Shasta Dam is upstream from Keswick Dam, releases from Shasta Dam have been incorporated into the EAGSA Model to reflect flows through Lake Keswick that result from the impoundment of Keswick Dam. Modeled streamflow that enters Lake Keswick is removed from the model, and measured Keswick Dam releases are specified at the location of Keswick Dam to reflect Keswick Dam operations. This configuration allows for representation of potential surface-water and groundwater interaction along the portion of Sacramento River upgradient from Keswick Dam, while accurately reflecting actual reservoir releases into the Sacramento River from Keswick Dam. Releases from Keswick Dam ranged from approximately 3.8 MAF in WY 2015 up to approximately 11 MAF in WY 2006. Shasta Dam releases ranged from approximately 2.7 MAF in WY 2014 up to approximately 10.3 MAF in WY 1998.

Additionally, reservoir releases from Clair A. Hill Whiskeytown Dam were incorporated to represent flows into Clear Creek (Figure 3-13). Releases from Whiskeytown are significantly less than Shasta Dam and Keswick Dam, ranging from approximately 85 thousand acre-feet (TAF) in WY 2001 up to approximately 169 TAF in WY 2017 (Figure 3-22).

3.7.1.5 Surface-water Diversions

As presented on Figure 3-13, there are four locations where surface-water diversions occur along the Sacramento River downstream from Keswick Dam. Figure 3-23 presents the historical annual COR, BVWD, and the combined flows from the two Sacramento River diversions operated by ACID. The COR, BVWD, and ACID’s Churn Creek service area diversions are simulated solely as specified outflows from the surface-water system where the monthly flow volumes exit the Sacramento River and model. In reality, these diversions provide water for their respective conveyance systems from which water is delivered to customers throughout the COR and BVWD service areas and the Churn Creek area of ACID’s service area (Figure 3-7). Although the conveyance pipelines and laterals in these particular service areas are not explicitly simulated in the EAGSA Model, the delivered water to the associated WBSs in these service areas is simulated via FMP as discussed in Section 3.7.1.8.

At the main ACID diversion, which is located upstream from ACID’s Churn Creek Bottom diversion, surface water leaves the Sacramento River, enters the upstream end of the ACID main canal, and is routed downstream in the main canal to customers. ACID’s main canal is simulated using SFR, so it is simulated in the same manner as natural streams in the EAGSA Model. Along the ACID main canal there are five “semi-routed” diversion locations (Figure 3-13) where surface water is diverted from the ACID main canal to supply neighboring WBSs with irrigation water, based on the water demand associated with each WBS within the ACID service area.

3.7.1.6 Groundwater Pumping

Many water purveyors within the RAGB supply groundwater to customers throughout the region. Major water purveyor pumping wells are metered; therefore, pumped volumes over the historical simulation period of the EAGSA Model are available. Measured purveyor well pumping rates are specified in the EAGSA Model through the Multi-Node Well Package (MNW) at discrete pumping well locations. Well locations and available construction information were incorporated into MNW to define the location and vertical extent of well screens for each pumping well. Figure 3-24 presents the annual volumes of water purveyor groundwater pumping. Annual values presented on Figure 3-24 are calculated based on measured monthly values provided by the purveyors. Monthly pumping volumes serve as direct input to

MNW as a specified flux. COR uses the most groundwater as compared to the other purveyors with metered groundwater pumping wells, ranging from approximately 6 TAF in WY 2018 up to a maximum of approximately 10 TAF in WY 2007. Additionally, ACID has in recent years performed groundwater pumping in Dry and Critically Dry WYs in-lieu of diverted water from the Sacramento River, as part of its groundwater substitution program. Groundwater pumping from the ACID pumping wells has been incorporated along with the water purveyor pumping in MNW.

Groundwater pumping associated with domestic water use was implemented separately using the Well package. Locations of residences and their associated groundwater use were estimated based on the modeled land use classifications of urban residential land use. Estimates of the number of people living outside of a water purveyor service area were estimated based on the modeled land use dataset and Census Tract population data. Population density estimates at the Census Tract level were mapped to the urban residential areas based on the overlapping areas of Census Tracts and urban residential areas. Through this process, an estimate of the number of people per urban residential area was estimated. Assuming domestic indoor water use of approximately 55 gallons per capita per day (gpcd) as recommended by the California Water Code (2019), the total domestic indoor water demand per urban residential area was evenly distributed across the EAGSA Model grid cells that intersect with the urban residential area. Figure 3-13 presents the extent of rural domestic water use areas throughout the EAGSA Model.

Additionally, distributed pumping occurs in WBSs outside of purveyor service areas if consumptive use requirements are not met through shallow groundwater ET, precipitation, or water deliveries. The intent of this configuration is to simulate private pumping wells used for irrigation in these outlying areas. Irrigation requirements within these WBSs are calculated in the FMP and are assigned evenly across all model grid cells designated as an FMP pumping well for that WBS. Model grid cells that have been designated to contain an irrigated land use category outside of purveyor service areas have been assigned in the EAGSA Model as FMP pumping wells. All distributed pumping from these FMP pumping wells are assigned to Model Layer 1.

3.7.1.7 Exported Water

ACID has previously instituted a groundwater substitution program in Dry and Critically Dry WYs. The groundwater substitution process includes ACID pumping local groundwater in-lieu of using a similar volume of their Sacramento River water allocations, thereby providing surface water for beneficial use to selected downstream users. Allowable maximum annual pumping volumes under the groundwater substitution program is 2,400 acre-feet per year (AFY) and 4,000 AFY during Dry and Critically Dry WYTs, respectively (Currey, 2021, pers. comm.). These volumes represent the maximum allowable rates; however, actual historical pumping volumes under the groundwater substitution program range from 1,572 AFY in 2013 (Dry year) up to 3,785 AFY in 2015 (Critically Dry year) as shown on Figure 3-24.

3.7.1.8 Water Deliveries

Historical water deliveries to water purveyor customers were incorporated into the EAGSA Model to account for deliveries of groundwater, surface water, or some combination thereof. Water delivery volumes provided by the respective purveyor were implemented through the “non-routed delivery” feature in FMP that provides irrigated parcels with a volume of water available to meet the associated applied water demand of those irrigated parcels.

Although the ACID deliveries are not represented as specified fluxes in the EAGSA Model, they are described in this section. As previously described, along the ACID main canal there are five “semi-routed” diversion locations (Figure 3-13) where surface water is diverted from the ACID main canal to supply neighboring WBSs with irrigation water, based on the water demand associated with each WBS within the

ACID service area. Figure 3-25 presents the simulated historical annual water deliveries by water purveyor in the EAGSA Model. Annual water deliveries from ACID solely reflect deliveries associated with crop demands within the ACID service area based on simulated land use and associated applied water demands after accounting for precipitation and groundwater uptake. The ACID main canal is represented in the EAGSA Model as a discrete SFR feature; therefore, losses from the main canal are simulated. However, ACID canal laterals are not represented as discrete SFR features; thus, conveyance losses along the canal laterals are not explicitly simulated. Annual purveyor deliveries are fairly consistent throughout the historical simulation period; however, some decreasing trends in deliveries are apparent for WYs 2014 and 2015 during the most recent drought period. Annual purveyor deliveries range from approximately 0.1 TAF to approximately 27 TAF.

Annual purveyor water deliveries presented on Figure 3-25 were calculated based on monthly measured delivery data provided by water purveyors. These monthly measured deliveries reflect both indoor and outdoor water use for the customers within each purveyor service area. There are numerous complexities associated with urban water management that are difficult to characterize on a spatial scale and, therefore, to incorporate accurately within an integrated hydrologic modeling framework. Such complexities for the EAGSA Model include differences in the water distribution and wastewater collection service areas, combined storm and wastewater sewer systems, and potential inflow and losses from underground conveyance pipelines. Given these complexities, the EAGSA Model does not explicitly simulate indoor water use demand, water treatment and conveyance systems, or the collection of wastewater within sewered areas. Thus, purveyor water deliveries in the EAGSA Model are simulated solely to satisfy outdoor water use demands such as irrigation of domestic landscaping in urban areas or for agricultural practices in more rural areas of the purveyor service areas. Although not accounting for indoor water use in purveyor service areas may be seen as a limitation, the fate of wastewater back into the Sacramento River from indoor water use is accounted for to ensure that the water balance surrounding indoor water use is adequately represented in the EAGSA Model. Further discussion of wastewater discharge to streams is provided in the following subsection.

3.7.1.9 Wastewater Discharge to Streams

Within the EAGSA Model, three separate wastewater treatment plant (WWTP) discharges are simulated to account for treated wastewater flows that outfall into the Sacramento River. Figure 3-13 presents the point locations where WWTP discharge to the Sacramento River is simulated for the Clear Creek WWTP, Stillwater WWTP, and COA WWTP. Figure 3-26 presents the annual WWTP discharge to the Sacramento River from the three WWTPs. Monthly WWTP discharge, provided by COR and COA, is specified as an inflow to SFR at each of the WWTP discharge locations.

3.7.1.10 Groundwater Recharge from Septic Systems

Groundwater recharge from septic systems outside of sewer service areas within the RAGB is incorporated in the EAGSA Model using the “Direct Recharge” feature of FMP. With this feature, the groundwater recharge representing the monthly volume of water entering the groundwater system from septic systems was specified directly on a cell-by-cell basis. Septic recharge rates were assigned the same volumetric rate and location as the rural domestic (indoor) pumping boundary rate that is presented in Section 3.7.1.6. This is appropriate because areas with septic systems are generally located outside of sewer service areas, so their indoor water use would be directed to their respective septic system. Figure 3-13 presents the locations of rural domestic water use and associated groundwater recharge from septic systems.

3.7.2 Head-dependent Fluxes

The following subsections describe boundary conditions in the EAGSA Model where the flux used to simulate various hydrologic processes are dependent on heads (that is, simulated groundwater elevations compared to the boundary condition elevation).

3.7.2.1 Groundwater Recharge from Precipitation

Groundwater recharge from precipitation is computed by FMP, whereby the water that is not consumed through consumptive use is available for either recharge to the water table or overland runoff. If the modeled water table is at land surface during a given month of the simulation, recharge of precipitation is rejected and routed through the drain return package to the nearest SFR segment. This boundary condition is applied areally across the top of the entire model domain (see Figure 3-13). If the simulated water table is below land surface during a given month of the simulation, a portion of the precipitation percolates through the vadose zone to the underlying aquifer.

3.7.2.2 Groundwater Recharge from Applied Water

Groundwater recharge from applied water is computed by FMP, based on the inefficient losses associated with irrigation practices that are determined on the basis of irrigation requirements and associated on-farm efficiency parameters. The inefficient losses can either recharge the aquifer or become overland runoff, which is routed through the drain return package to the nearest SFR segment. This boundary condition only applies to model cells representing irrigated lands.

3.7.2.3 Shallow Groundwater Uptake

Shallow groundwater uptake (that is, subsurface ET) is computed by FMP, whereby crops can use shallow groundwater as a source of supply to meet consumptive use water demands. Access to shallow groundwater is determined based on the crop rooting depths (Table 3-5), capillary fringe height (Table 3-4), and the elevation of the water table during a given month in the simulation. This boundary condition is applied areally across the top of the entire model domain (see Figure 3-13).

3.7.2.4 Groundwater/Surface-water Interaction

Groundwater/surface-water interaction at modeled streams and the ACID main canal is simulated with SFR (see Figure 3-13). SFR includes stream segments that can gain water from and lose water to the underlying aquifer, based on the hydraulic gradient between the modeled water table and modeled stage (that is, surface-water elevation) in the SFR reach during each month of the simulation. The monthly gaining or losing water flux is computed based on the hydraulic gradient, streambed hydraulic conductivity, stream channel geometry, and streambed thickness. Section 3.3.2 discussed the initial stream channel characteristics.

3.7.3 No-flow Boundaries

The lateral model boundary cells depicted on Figure 3-13 that are not assigned other boundary conditions and the bottom of the deepest model layer (that is, Model Layer 4) are assigned the no-flow boundary condition. Inherent with the assignment of no-flow boundaries is the assumption that these boundaries coincide with locations of groundwater divides.

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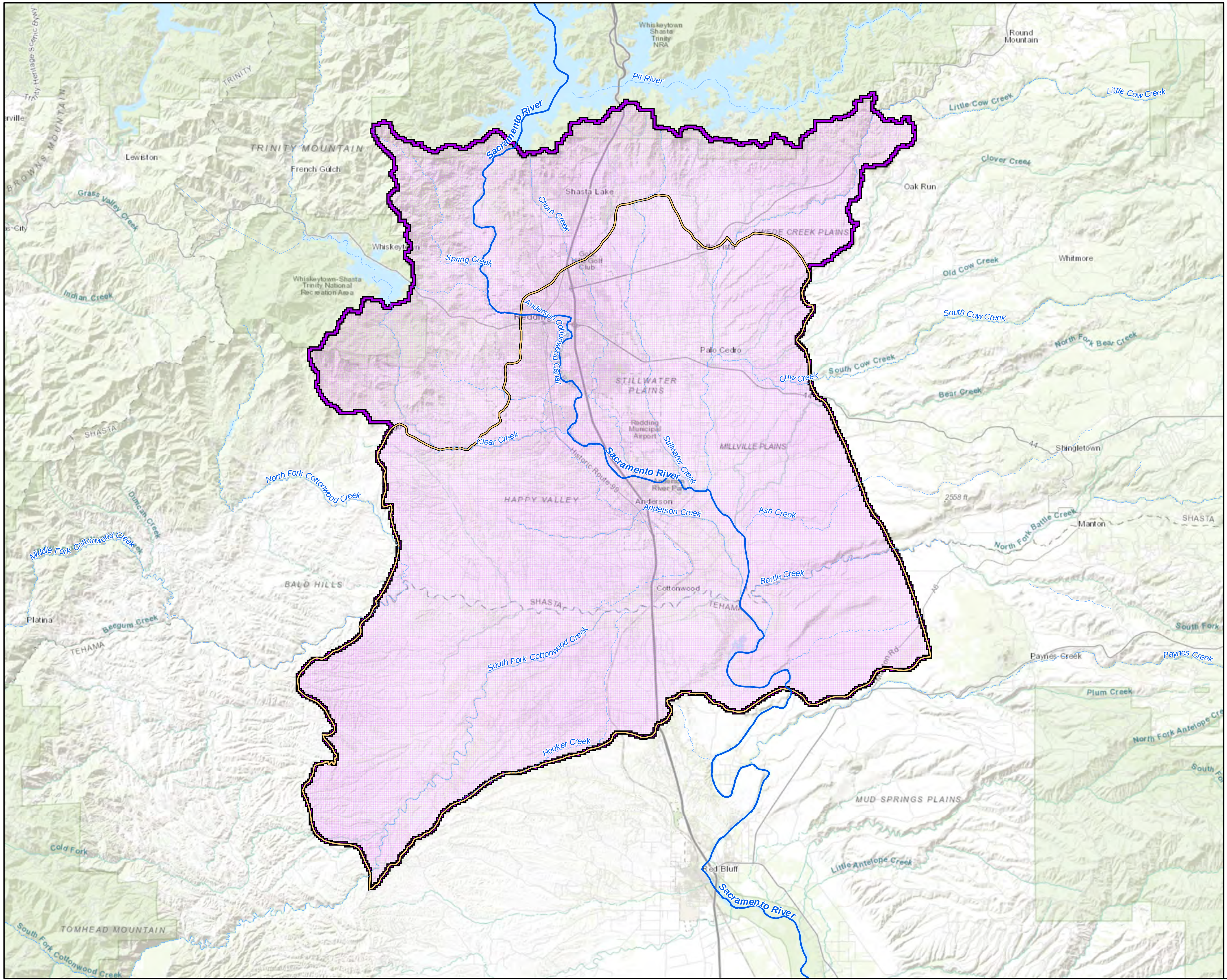
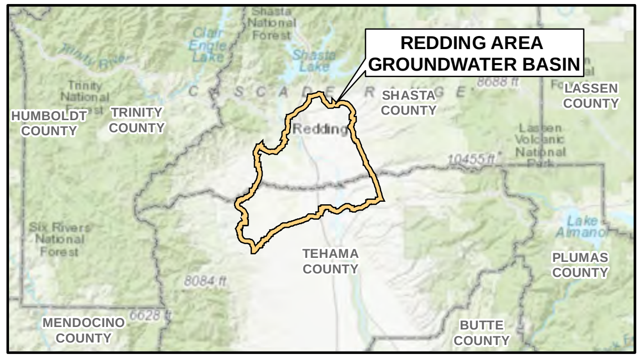




LEGEND

- SACRAMENTO RIVER
- RIVER/STREAM
- ACTIVE MODEL CELL BOUNDARY
- MODEL DOMAIN BOUNDARY
- REDDING AREA GROUNDWATER BASIN

NOTES:

MODEL CELLS HAVE UNIFORM DIMENSIONS OF 500 BY 500 FEET.

SERVICE LAYER CREDITS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY

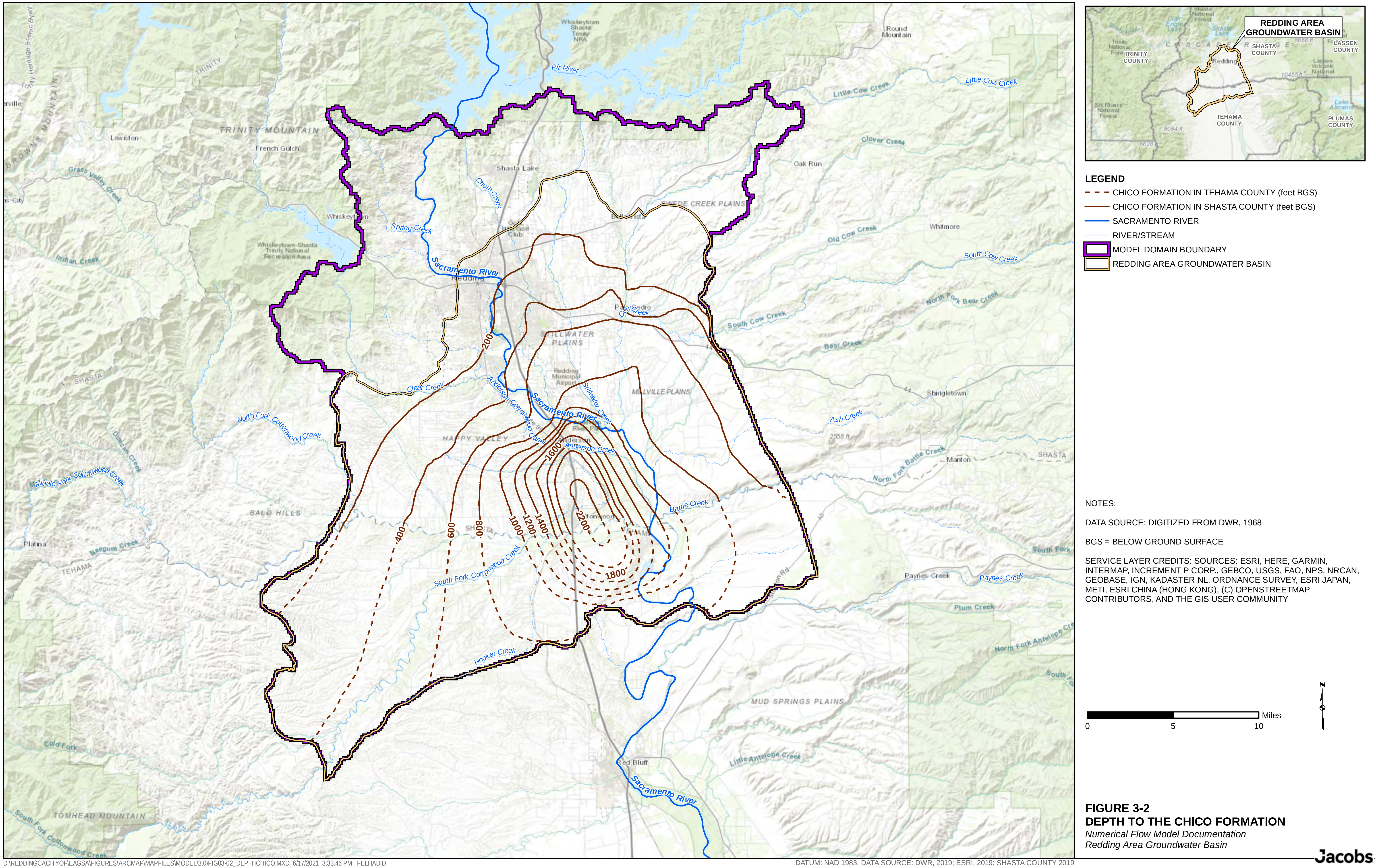
0 5 10 Miles

FIGURE 3-1
MODEL DOMAIN: PLAN VIEW
Numerical Flow Model Documentation
Redding Area Groundwater Basin

Jacobs

D:\REDDINGCACITYOFIEAGSA\FIGURES\ARCMAP\MAPFILES\MODEL\3.0\FIG03-01_MODELDOMAIN.MXD 7/27/2021 9:51:06 AM FELHADID

DATUM: NAD 1983. DATA SOURCE: DWR, 2019; ESRI, 2019; SHASTA COUNTY 2019



LEGEND

- - - CHICO FORMATION IN TEHAMA COUNTY (feet BGS)

— CHICO FORMATION IN SHASTA COUNTY (feet BGS)

— SACRAMENTO RIVER

— RIVER/STREAM

▭ MODEL DOMAIN BOUNDARY

▭ REDDING AREA GROUNDWATER BASIN

NOTES:

DATA SOURCE: DIGITIZED FROM DWR, 1968

BGS = BELOW GROUND SURFACE

SERVICE LAYER CREDITS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY

0 5 10 Miles

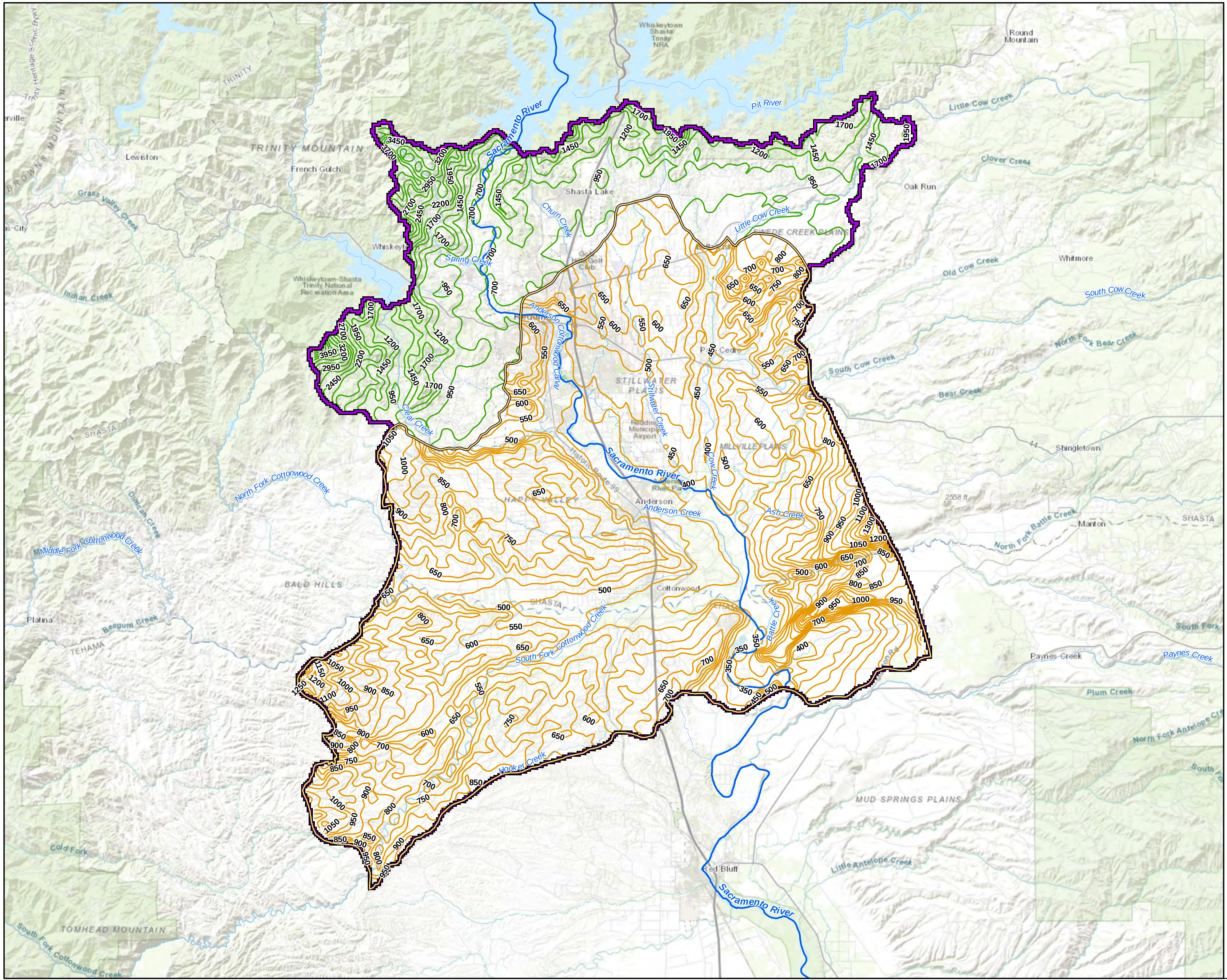
N

FIGURE 3-2
DEPTH TO THE CHICO FORMATION
Numerical Flow Model Documentation
Redding Area Groundwater Basin

Jacobs

D:\REDDINGCACITYOFIEAGSA\FIGURES\ARCMAP\MAPFILES\MODEL\3.0\FIG03-02_DEPTHCHICO.MXD 6/17/2021 3:33:46 PM FELHADID

DATUM: NAD 1983. DATA SOURCE: DWR, 2019; ESRI, 2019; SHASTA COUNTY 2019



LEGEND

- SACRAMENTO RIVER
- RIVER/STREAM

MODELED LAND SURFACE ELEVATION CONTOUR (feet NAVD88)

- MODELED LAND SURFACE ELEVATION CONTOUR (50 foot)
- MODELED LAND SURFACE ELEVATION CONTOUR (250 foot)
- MODEL DOMAIN BOUNDARY
- REDDING AREA GROUNDWATER BASIN

NOTES:

NAVD88 = NORTH AMERICAN VERTICAL DATUM OF 1988

SERVICE LAYER CREDITS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY

0 5 10 Miles

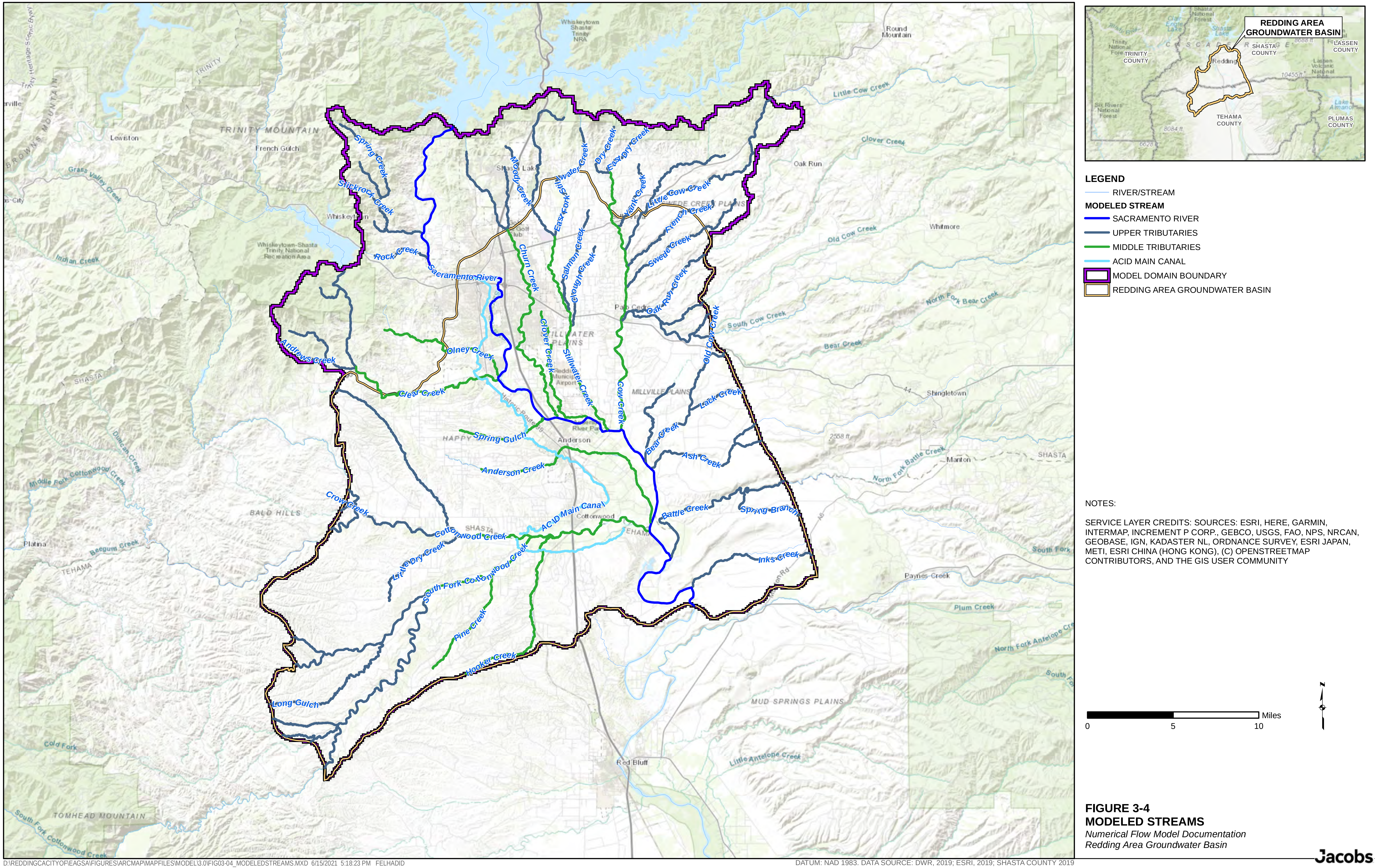
N

FIGURE 3-3
MODELED LAND SURFACE ELEVATIONS

Numerical Flow Model Documentation
Redding Area Groundwater Basin

D:\REDDINGCACITYOFEAGSA\FIGURES\ARCMAP\MAPFILES\MODEL\3.0\FIG03-03_MODELEDLANDSURFACE.MXD 6/16/2021 5:15:10 PM FELHADID

DATUM: NAD 1983. DATA SOURCE: DWR, 2019; ESRI, 2019; SHASTA COUNTY 2019



LEGEND

RIVER/STREAM

MODELED STREAM

SACRAMENTO RIVER

UPPER TRIBUTARIES

MIDDLE TRIBUTARIES

ACID MAIN CANAL

MODEL DOMAIN BOUNDARY

REDDING AREA GROUNDWATER BASIN

NOTES:

SERVICE LAYER CREDITS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY

FIGURE 3-4
MODELED STREAMS
Numerical Flow Model Documentation
Redding Area Groundwater Basin

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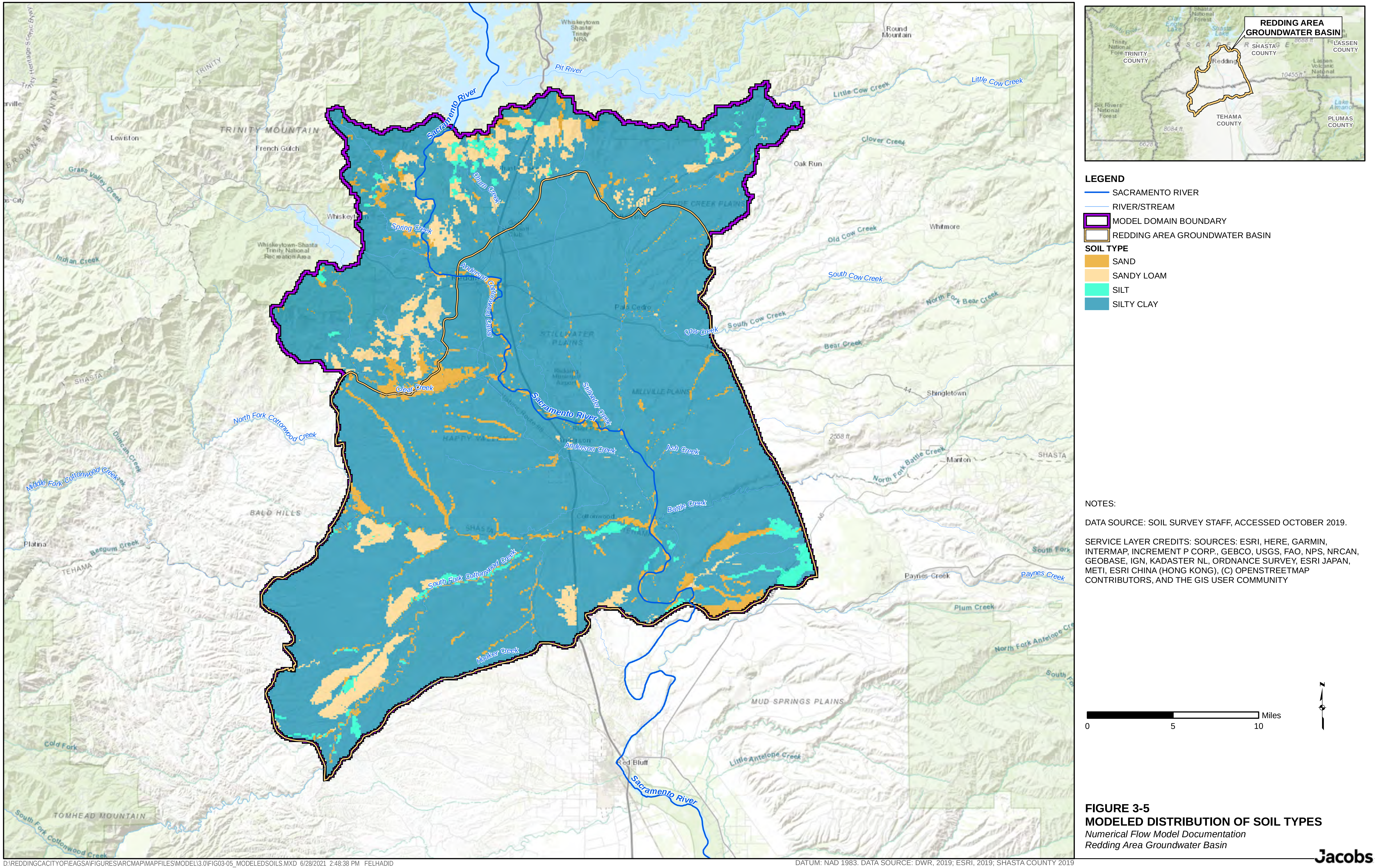
DATUM: NAD 1983. DATA SOURCE: DWR, 2019; ESRI, 2019; SHASTA COUNTY 2019



LEGEND

SACRAMENTO RIVER

RIVER/STREAM

MODEL DOMAIN BOUNDARY

REDDING AREA GROUNDWATER BASIN

SOIL TYPE

- 🟧 SAND
- 🟨 SANDY LOAM
- 🟩 SILT
- 🟦 SILTY CLAY

NOTES:

DATA SOURCE: SOIL SURVEY STAFF, ACCESSED OCTOBER 2019.

SERVICE LAYER CREDITS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY

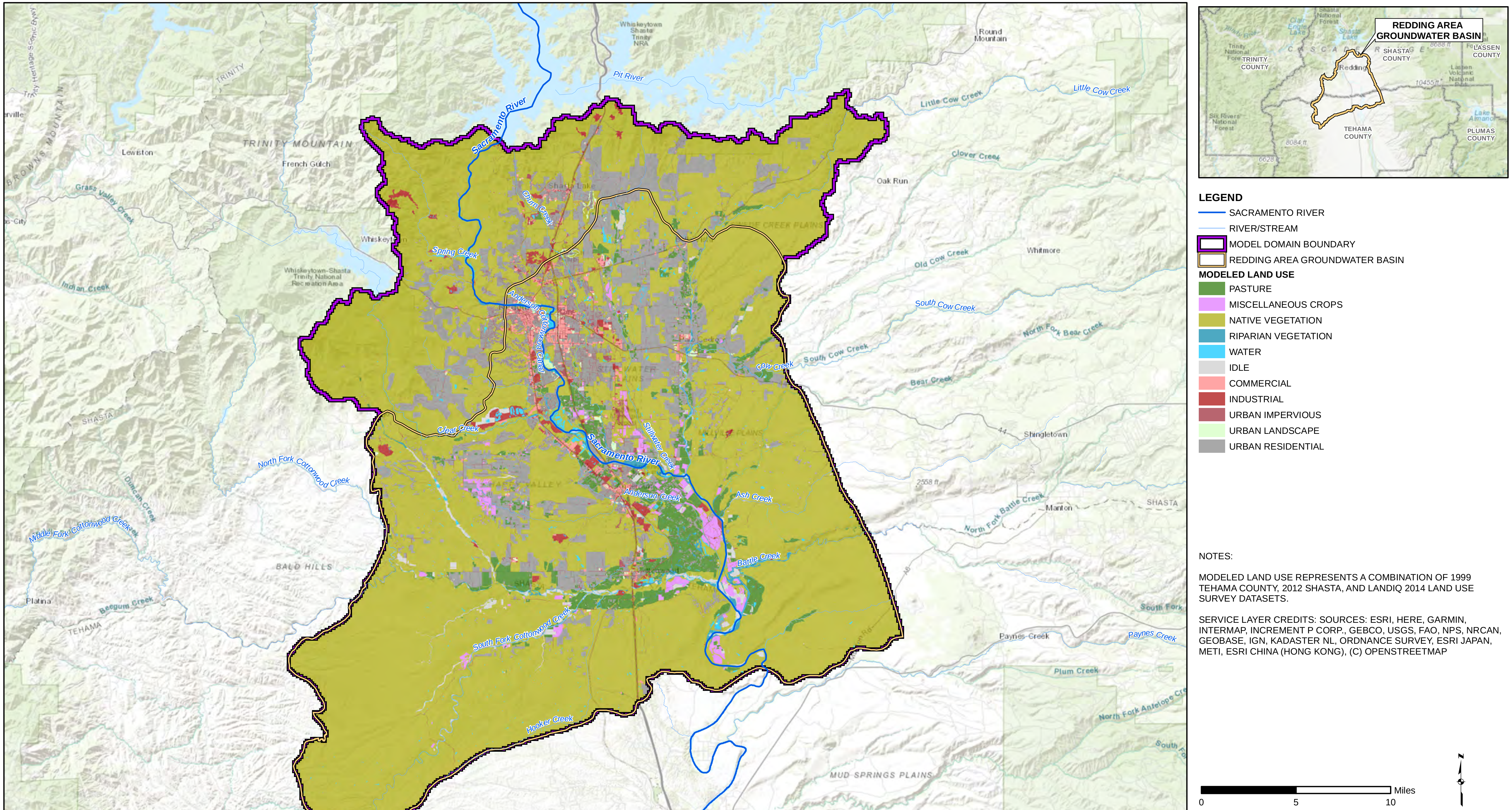
FIGURE 3-5
MODELED DISTRIBUTION OF SOIL TYPES

Numerical Flow Model Documentation
Redding Area Groundwater Basin

Jacobs

D:\REDDINGCACITYOF\EAGSA\FIGURES\ARCMAP\MAPFILES\MODEL\3.0\FIG03-05_MODELEDSOILS.MXD 6/28/2021 2:48:38 PM FELHADID

DATUM: NAD 1983. DATA SOURCE: DWR, 2019; ESRI, 2019; SHASTA COUNTY 2019



LEGEND

- SACRAMENTO RIVER
- RIVER/STREAM
- MODEL DOMAIN BOUNDARY
- REDDING AREA GROUNDWATER BASIN

MODELED LAND USE

- 🟩 PASTURE
- 🟪 MISCELLANEOUS CROPS
- 🟨 NATIVE VEGETATION
- 🟦 RIPARIAN VEGETATION
- 🟦 WATER
- ⬜ IDLE
- 🟥 COMMERCIAL
- 🟥 INDUSTRIAL
- 🟥 URBAN IMPERVIOUS
- 🟩 URBAN LANDSCAPE
- ⬜ URBAN RESIDENTIAL

NOTES:

MODELED LAND USE REPRESENTS A COMBINATION OF 1999 TEHAMA COUNTY, 2012 SHASTA, AND LANDIQ 2014 LAND USE SURVEY DATASETS.

SERVICE LAYER CREDITS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP

FIGURE 3-6
MODELED LAND USE
Numerical Flow Model Documentation
Redding Area Groundwater Basin

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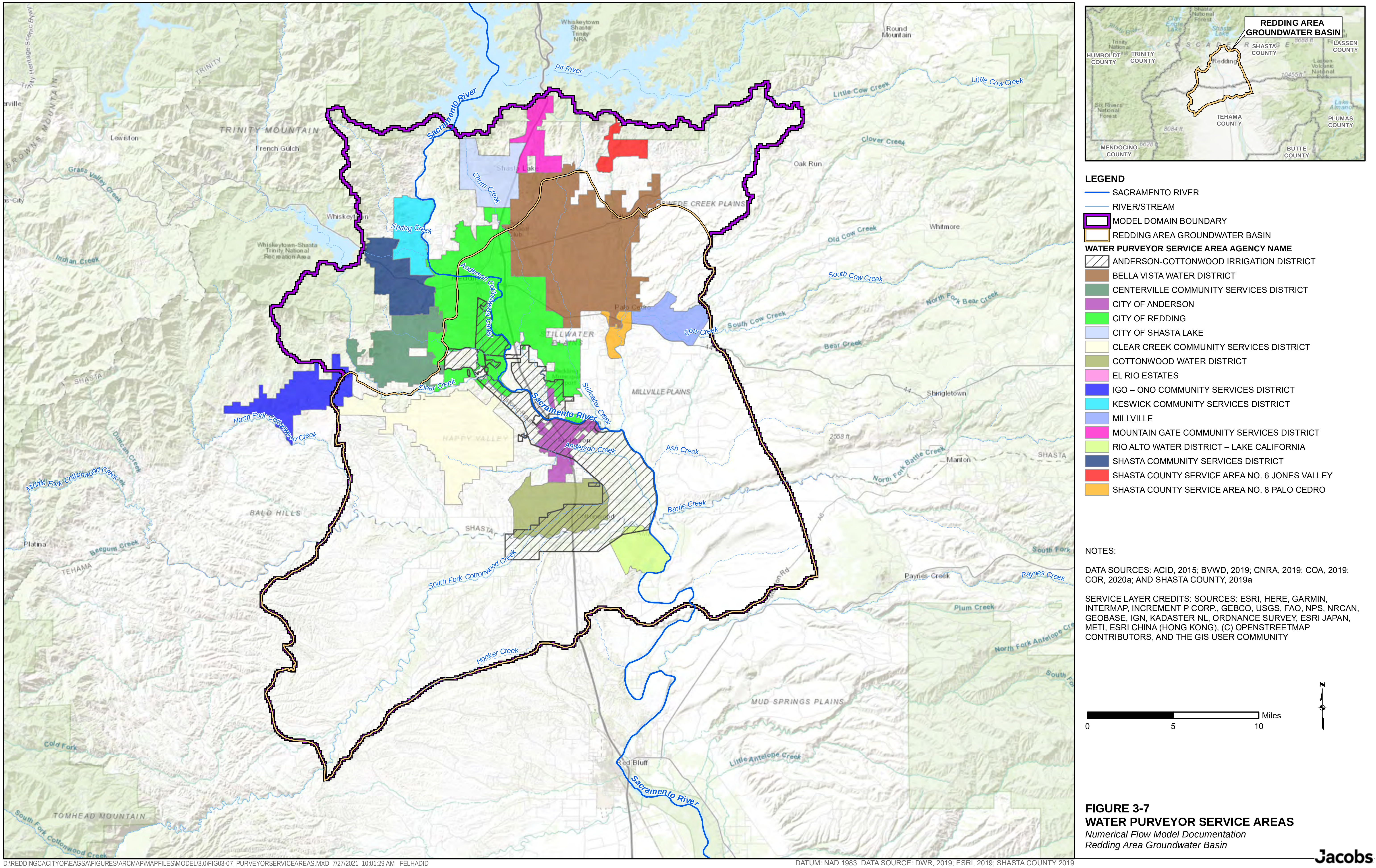
DATUM: NAD 1983. DATA SOURCE: DWR, 2019; ESRI, 2019; SHASTA COUNTY 2019



LEGEND

— SACRAMENTO RIVER

— RIVER/STREAM

☐ MODEL DOMAIN BOUNDARY

☐ REDDING AREA GROUNDWATER BASIN

WATER PURVEYOR SERVICE AREA AGENCY NAME

▨ ANDERSON-COTTONWOOD IRRIGATION DISTRICT

🟫 BELLA VISTA WATER DISTRICT

🟩 CENTERVILLE COMMUNITY SERVICES DISTRICT

🟪 CITY OF ANDERSON

🟩 CITY OF REDDING

🟦 CITY OF SHASTA LAKE

⬜ CLEAR CREEK COMMUNITY SERVICES DISTRICT

🟩 COTTONWOOD WATER DISTRICT

🟪 EL RIO ESTATES

🟦 IGO – ONO COMMUNITY SERVICES DISTRICT

🟦 KESWICK COMMUNITY SERVICES DISTRICT

🟦 MILLVILLE

🟪 MOUNTAIN GATE COMMUNITY SERVICES DISTRICT

🟩 RIO ALTO WATER DISTRICT – LAKE CALIFORNIA

🟦 SHASTA COMMUNITY SERVICES DISTRICT

🟥 SHASTA COUNTY SERVICE AREA NO. 6 JONES VALLEY

🟧 SHASTA COUNTY SERVICE AREA NO. 8 PALO CEDRO

NOTES:

DATA SOURCES: ACID, 2015; BVWD, 2019; CNRA, 2019; COA, 2019; COR, 2020a; AND SHASTA COUNTY, 2019a

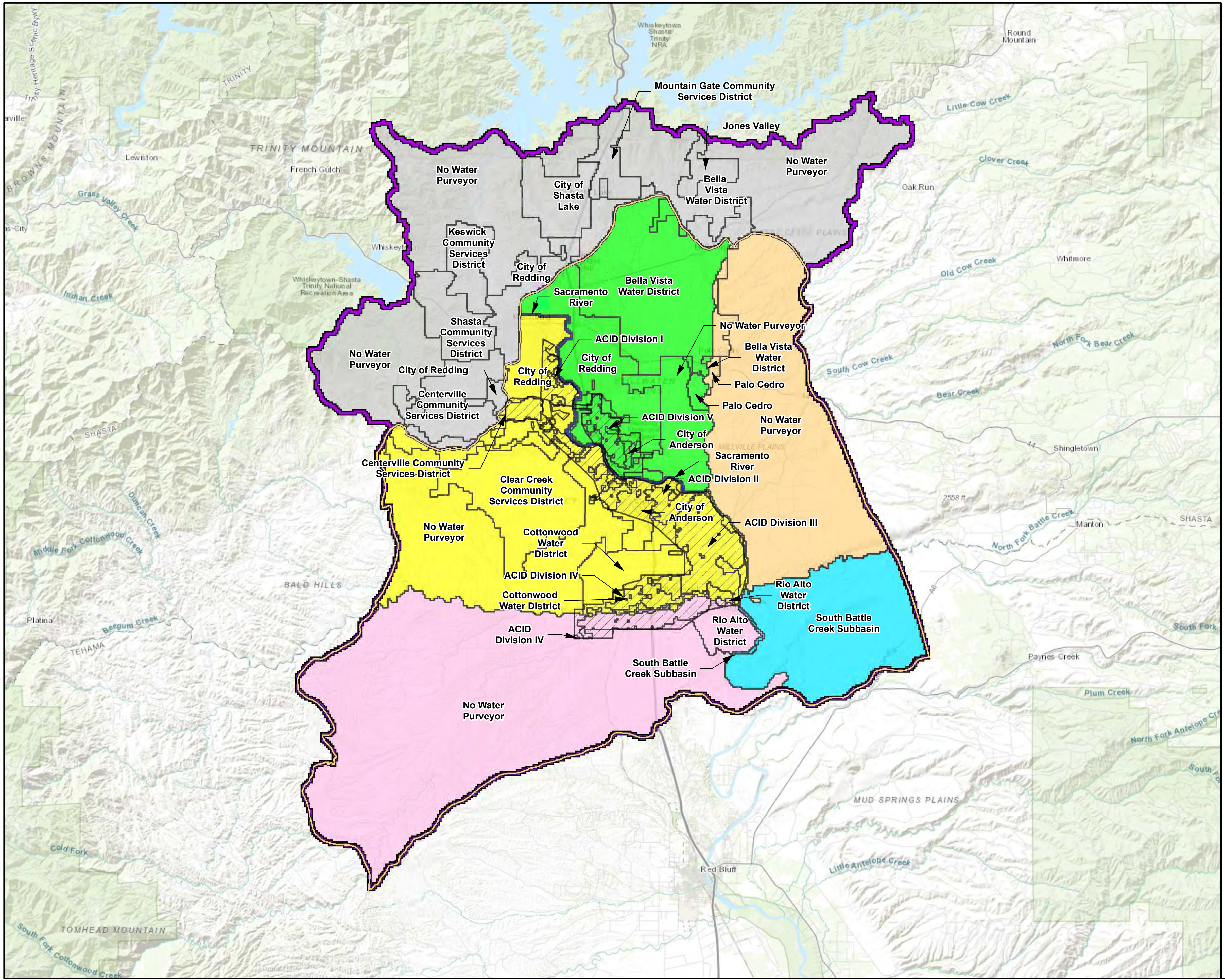
SERVICE LAYER CREDITS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY

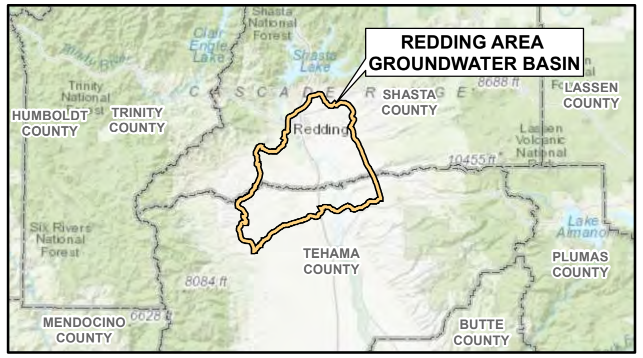
FIGURE 3-7
WATER PURVEYOR SERVICE AREAS
Numerical Flow Model Documentation
Redding Area Groundwater Basin

Jacobs

D:\REDDINGCACITYOFEAGSA\FIGURES\ARCMAP\MAPFILES\MODEL\3.0\FIG03-07_PURVEYORSERVICEAREAS.MXD 7/27/2021 10:01:29 AM FELHADID

DATUM: NAD 1983. DATA SOURCE: DWR, 2019; ESRI, 2019; SHASTA COUNTY 2019





LEGEND

- SACRAMENTO RIVER
- RIVER/STREAM
- MODEL DOMAIN BOUNDARY
- REDDING AREA GROUNDWATER BASIN
- ▨ ANDERSON-COTTONWOOD IRRIGATION DISTRICT

WATER BALANCE SUBAREA

- 🟨 Anderson Subbasin
- ▧ Bowman Subbasin
- 🟩 Enterprise Subbasin
- 🟧 Millville Subbasin
- 🟦 Sacramento River
- ▧ South Battle Creek Subbasin
- ⬜ Outside of Redding Area Groundwater Basin

NOTES:

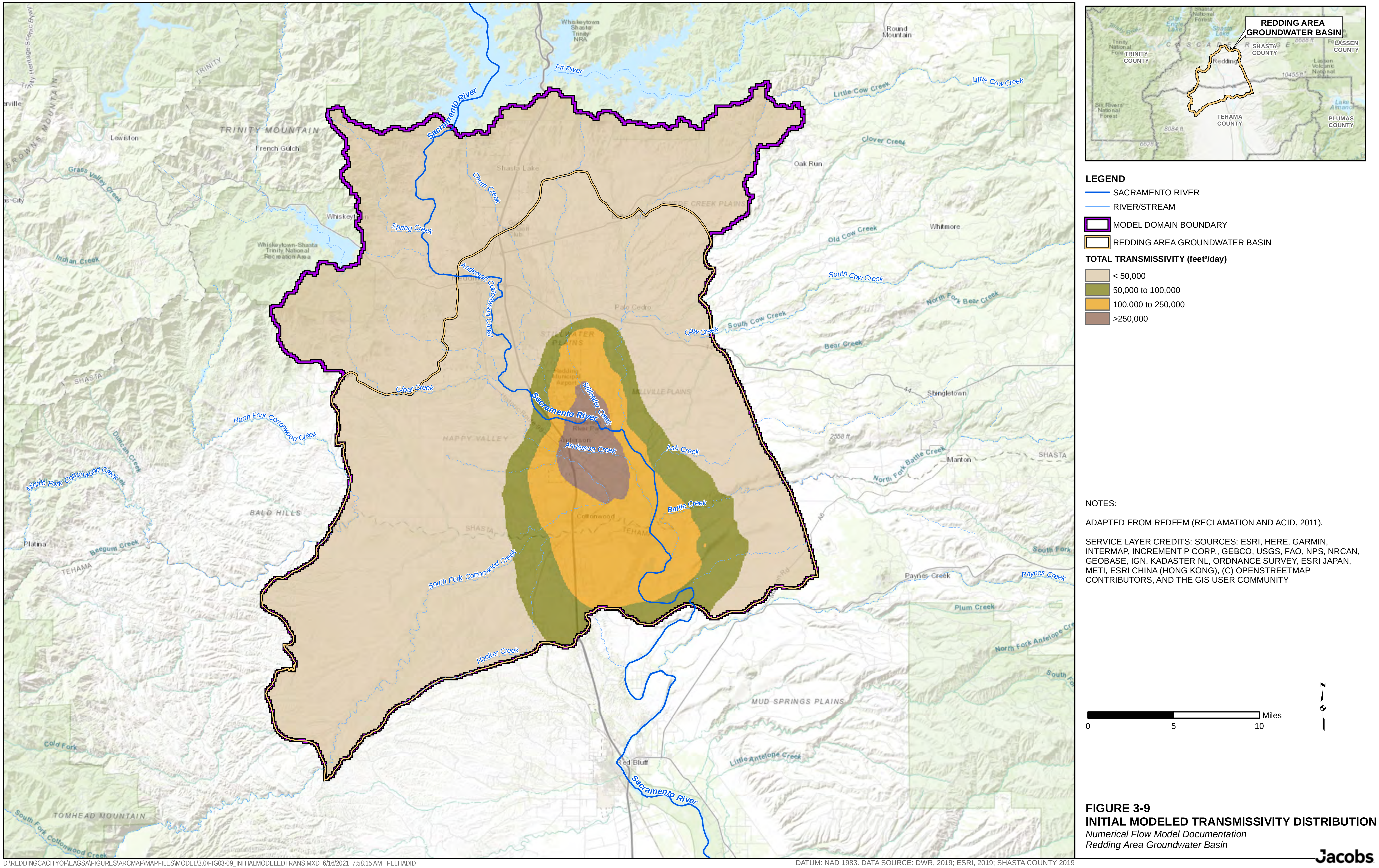
THE INTENT OF THIS FIGURE IS ONLY TO PROVIDE A GENERAL SENSE OF THE SPATIAL DISTRIBUTION OF WATER BALANCE SUBAREAS, WHICH ARE DISPLAYED AS COLOR-FILLED POLYGONS. IT IS NOT INTENDED TO PROVIDE A DETAILED ASSOCIATION WITH SPECIFIC STATEMENTS MADE IN THE REPORT.

SERVICE LAYER CREDITS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY

FIGURE 3-8
MODELED WATER BALANCE SUBAREAS
Numerical Flow Model Documentation
Redding Area Groundwater Basin

D:\REDDINGCACITYOFEAGSA\FIGURES\ARCMAP\MAPFILES\MODEL\3.0\FIG03-08_MODELEDWBS.MXD 11/18/2021 3:00:06 PM FELHADID

DATUM: NAD 1983. DATA SOURCE: DWR, 2019; ESRI, 2019; SHASTA COUNTY 2019



LEGEND

- SACRAMENTO RIVER
- RIVER/STREAM
- MODEL DOMAIN BOUNDARY
- REDDING AREA GROUNDWATER BASIN

TOTAL TRANSMISSIVITY (feet²/day)

- < 50,000
- 50,000 to 100,000
- 100,000 to 250,000
- >250,000

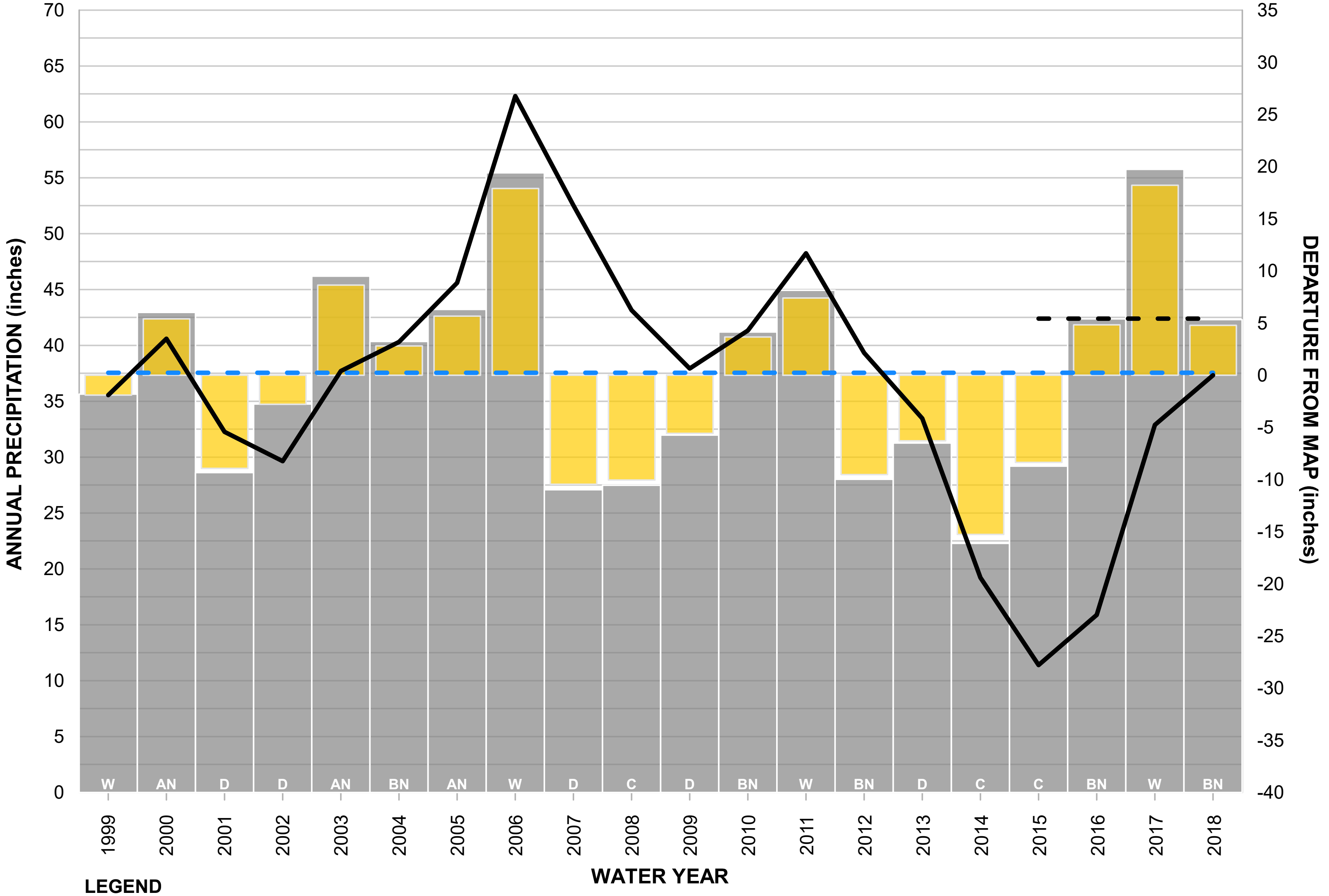
NOTES:

ADAPTED FROM REDFEM (RECLAMATION AND ACID, 2011).

SERVICE LAYER CREDITS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY

FIGURE 3-9
INITIAL MODELED TRANSMISSIVITY DISTRIBUTION
Numerical Flow Model Documentation
Redding Area Groundwater Basin

DATUM: NAD 1983. DATA SOURCE: DWR, 2019; ESRI, 2019; SHASTA COUNTY 2019



LEGEND

▇ HISTORICAL ANNUAL PRECIPITATION

- - 1999–2018 MEAN ANNUAL PRECIPITATION (MAP) (37.55 inches)

- - 2015–2018 MAP (42.40 inches)

— CUMULATIVE DEPARTURE FROM 1999–2018 MAP (right axis)

▇ DEPARTURE FROM MAP (right axis)

FIGURE 3-10
HISTORICAL ANNUAL PRECIPITATION
Numerical Flow Model Documentation
Redding Area Groundwater Basin

D:\ReddingCACityof\EAGSA\Figures\Grapher\Model\FIG03-10_HistAnnPrecip.grf

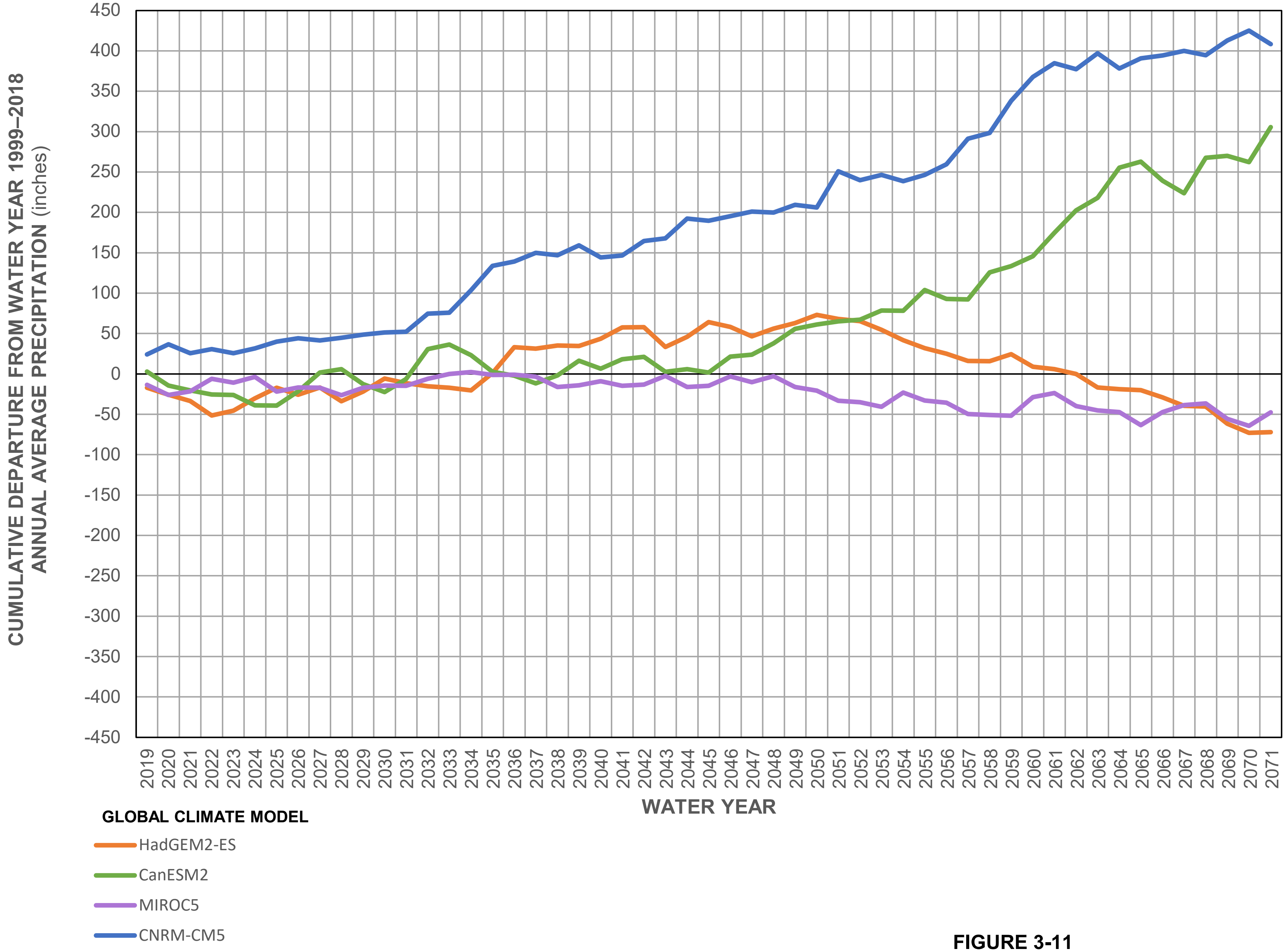
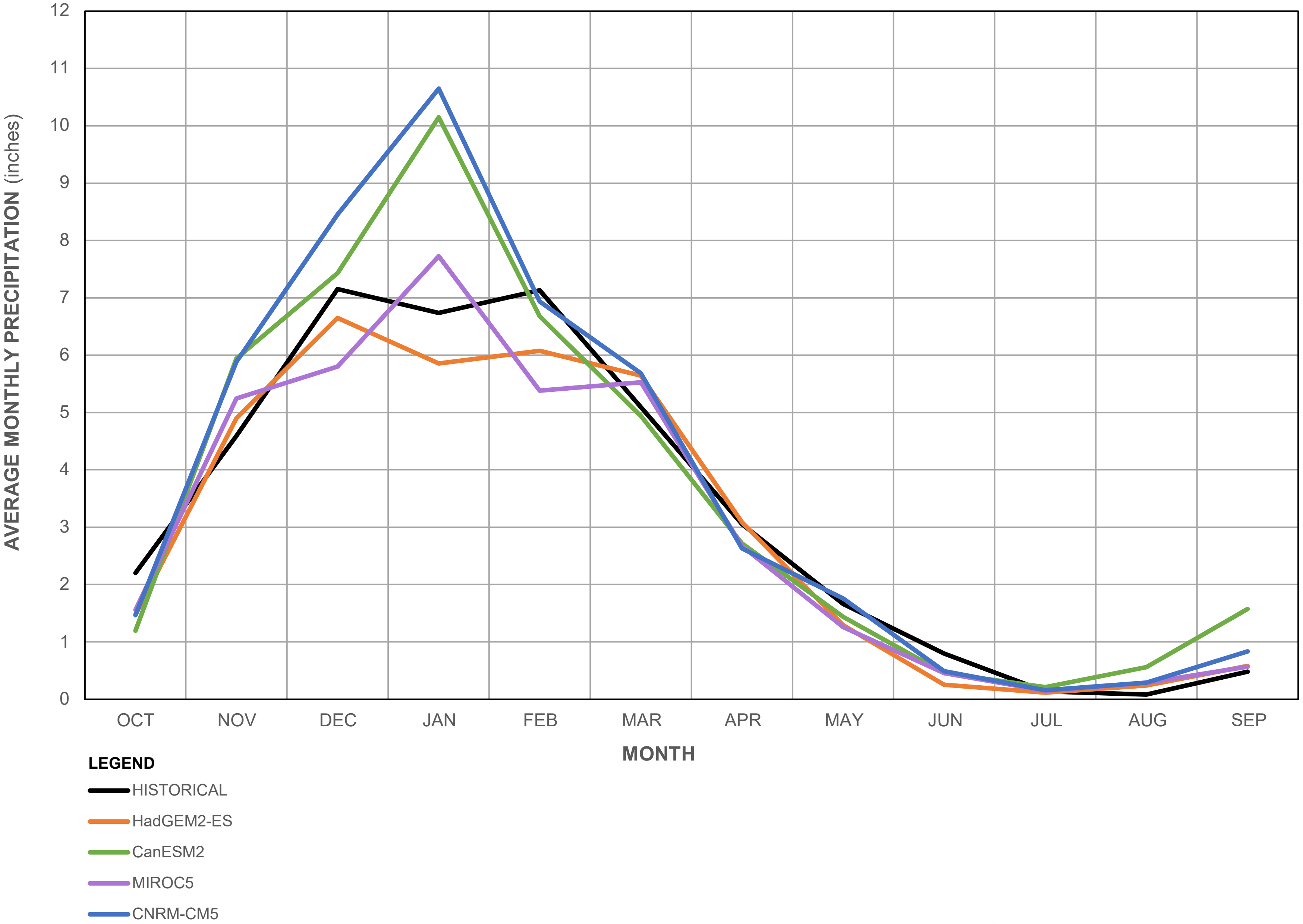


FIGURE 3-11
CUMULATIVE DEPARTURE COMPARISONS OF GLOBAL CLIMATE MODELS DURING THE GSP PLANNING PERIOD
Numerical Flow Model Documentation
Redding Area Groundwater Basin



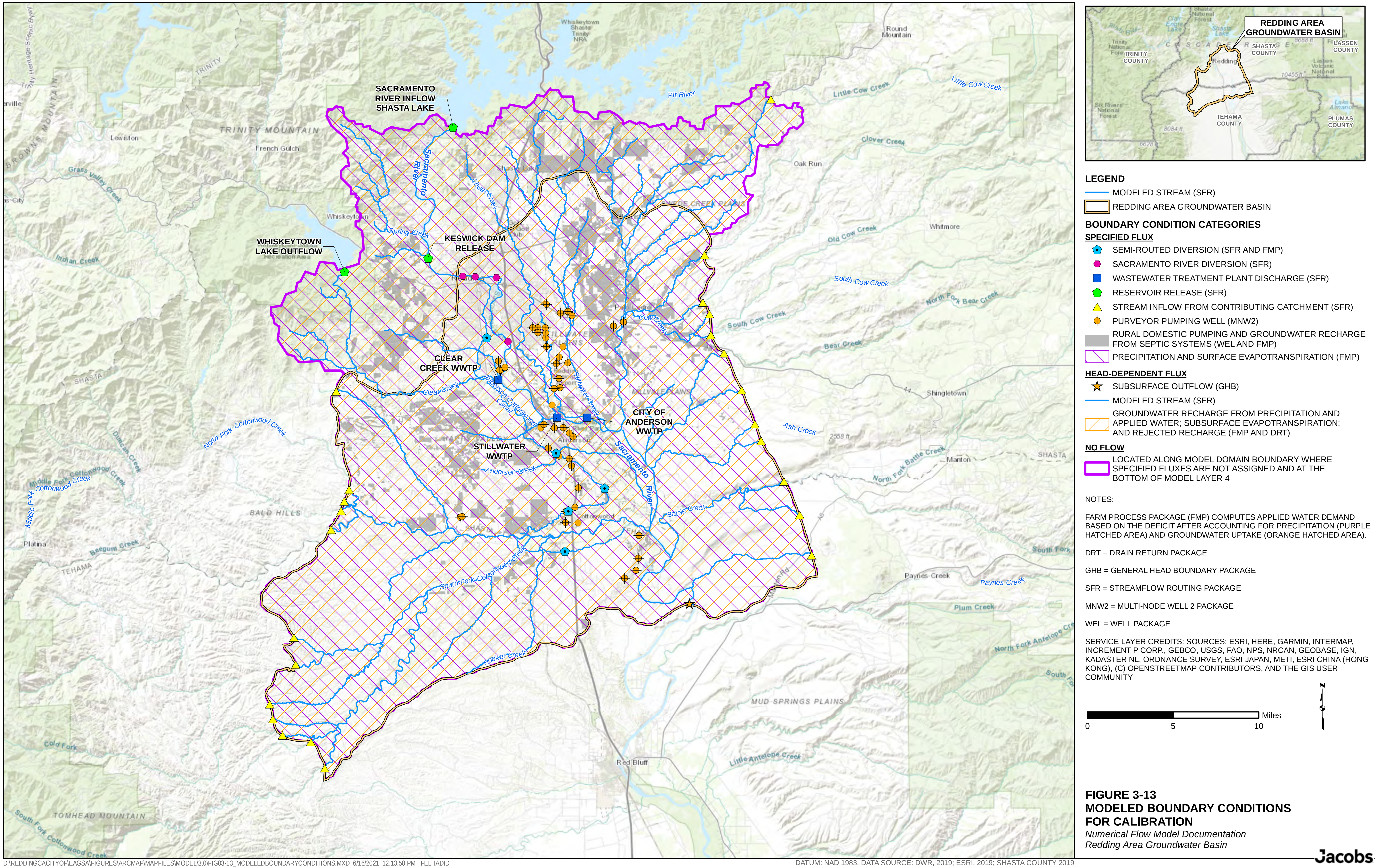
NOTES:

Average monthly values are representative of water years 1998 through 2018.

Average monthly values for the Global Climate Models are representative of water years 2020 through 2071.

FIGURE 3-12
AVERAGE MONTHLY PRECIPITATION OF GLOBAL CLIMATE MODELS DURING THE GSP PLANNING PERIOD

Numerical Flow Model Documentation
Redding Area Groundwater Basin



LEGEND

― MODELED STREAM (SFR)

▭ REDDING AREA GROUNDWATER BASIN

BOUNDARY CONDITION CATEGORIES

SPECIFIED FLUX

⬟ SEMI-ROUTED DIVERSION (SFR AND FMP)

⬢ SACRAMENTO RIVER DIVERSION (SFR)

■ WASTEWATER TREATMENT PLANT DISCHARGE (SFR)

⬟ RESERVOIR RELEASE (SFR)

△ STREAM INFLOW FROM CONTRIBUTING CATCHMENT (SFR)

⊕ PURVEYOR PUMPING WELL (MNW2)

▨ RURAL DOMESTIC PUMPING AND GROUNDWATER RECHARGE FROM SEPTIC SYSTEMS (WEL AND FMP)

▨ PRECIPITATION AND SURFACE EVAPOTRANSPIRATION (FMP)

HEAD-DEPENDENT FLUX

☆ SUBSURFACE OUTFLOW (GHB)

― MODELED STREAM (SFR)

▨ GROUNDWATER RECHARGE FROM PRECIPITATION AND APPLIED WATER; SUBSURFACE EVAPOTRANSPIRATION; AND REJECTED RECHARGE (FMP AND DRT)

NO FLOW

▭ LOCATED ALONG MODEL DOMAIN BOUNDARY WHERE SPECIFIED FLUXES ARE NOT ASSIGNED AND AT THE BOTTOM OF MODEL LAYER 4

NOTES:

FARM PROCESS PACKAGE (FMP) COMPUTES APPLIED WATER DEMAND BASED ON THE DEFICIT AFTER ACCOUNTING FOR PRECIPITATION (PURPLE HATCHED AREA) AND GROUNDWATER UPTAKE (ORANGE HATCHED AREA).

DRT = DRAIN RETURN PACKAGE

GHB = GENERAL HEAD BOUNDARY PACKAGE

SFR = STREAMFLOW ROUTING PACKAGE

MNW2 = MULTI-NODE WELL 2 PACKAGE

WEL = WELL PACKAGE

SERVICE LAYER CREDITS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY

FIGURE 3-13
MODELED BOUNDARY CONDITIONS FOR CALIBRATION
Numerical Flow Model Documentation
Redding Area Groundwater Basin

DATUM: NAD 1983. DATA SOURCE: DWR, 2019; ESRI, 2019; SHASTA COUNTY 2019

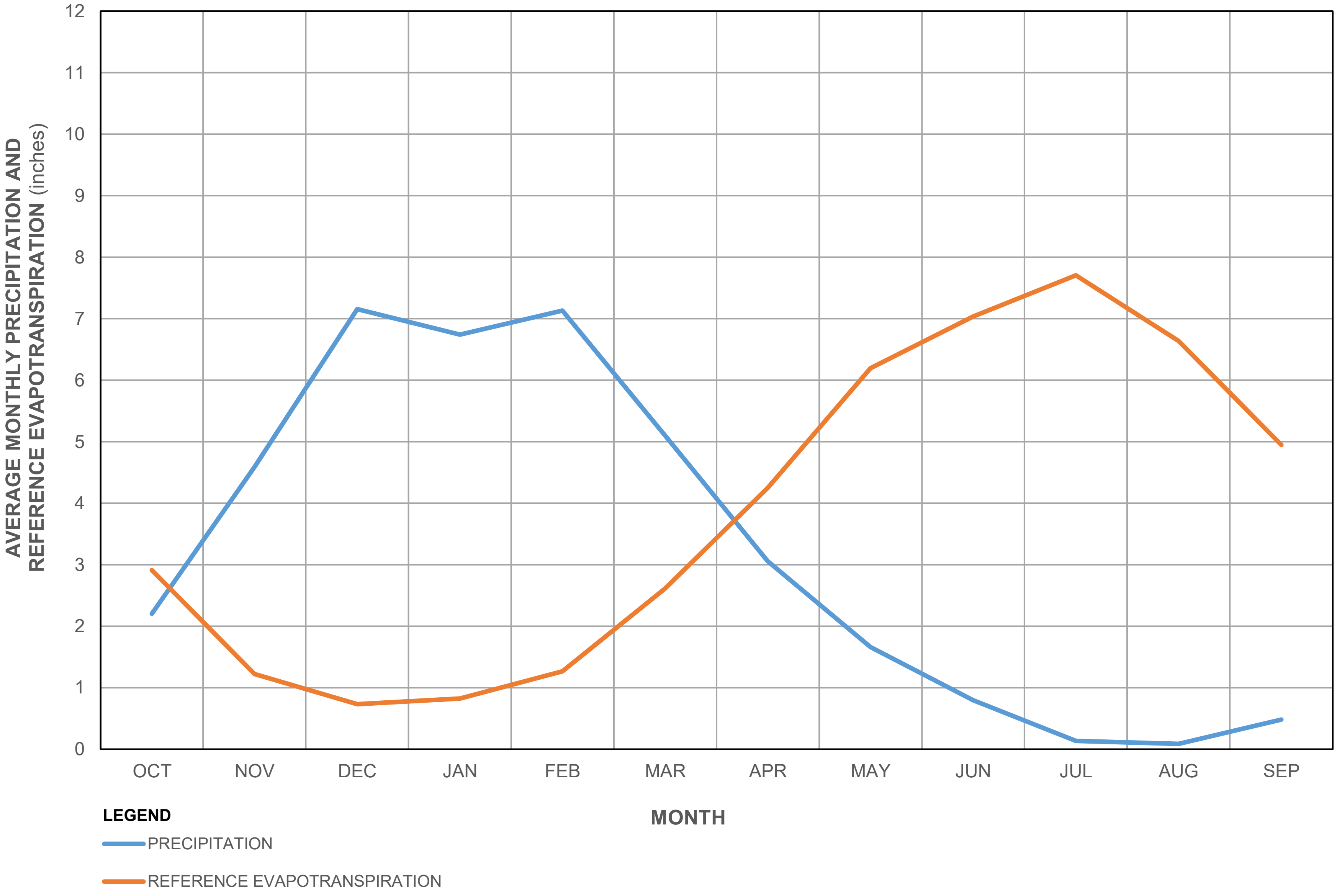
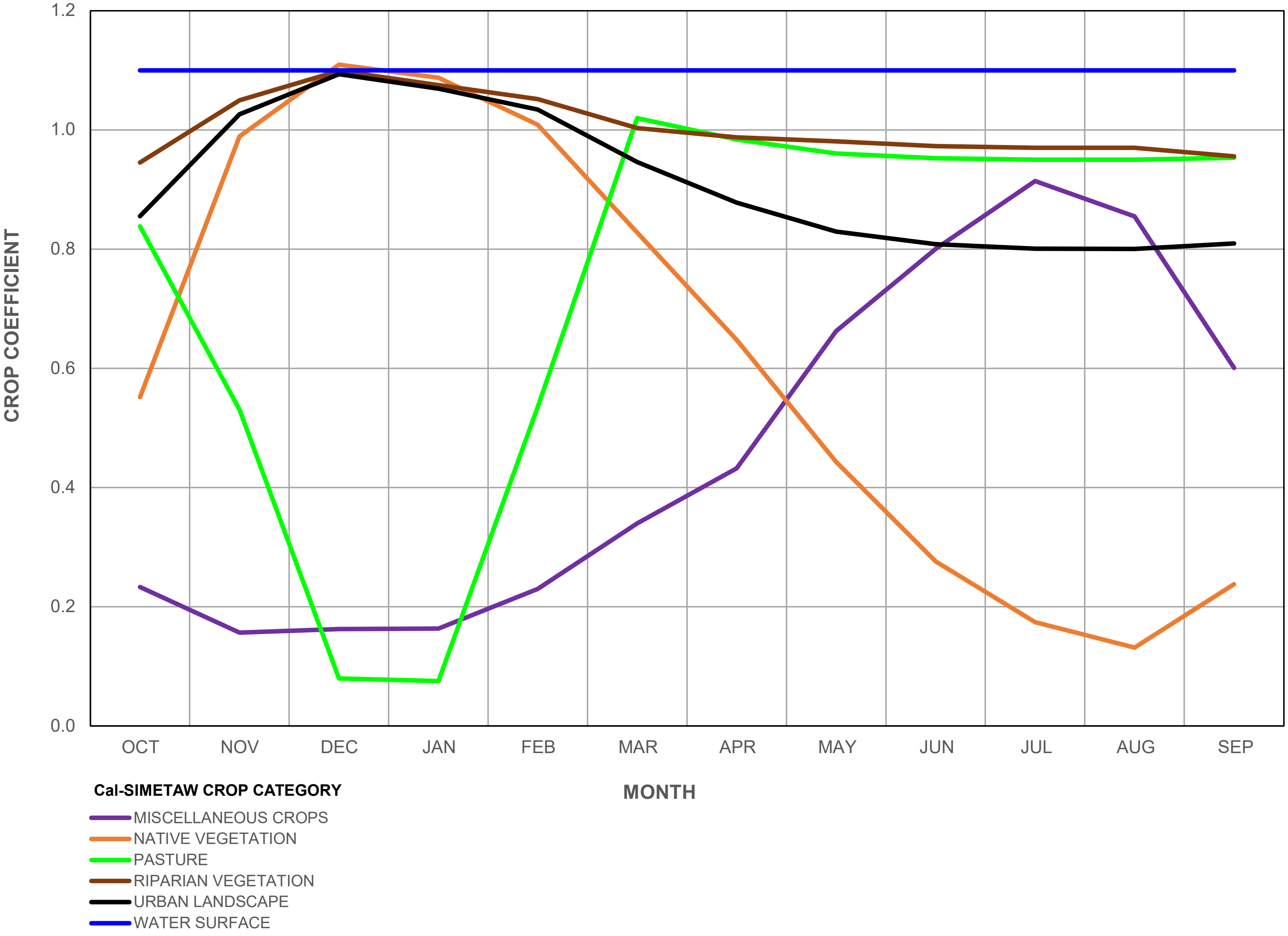
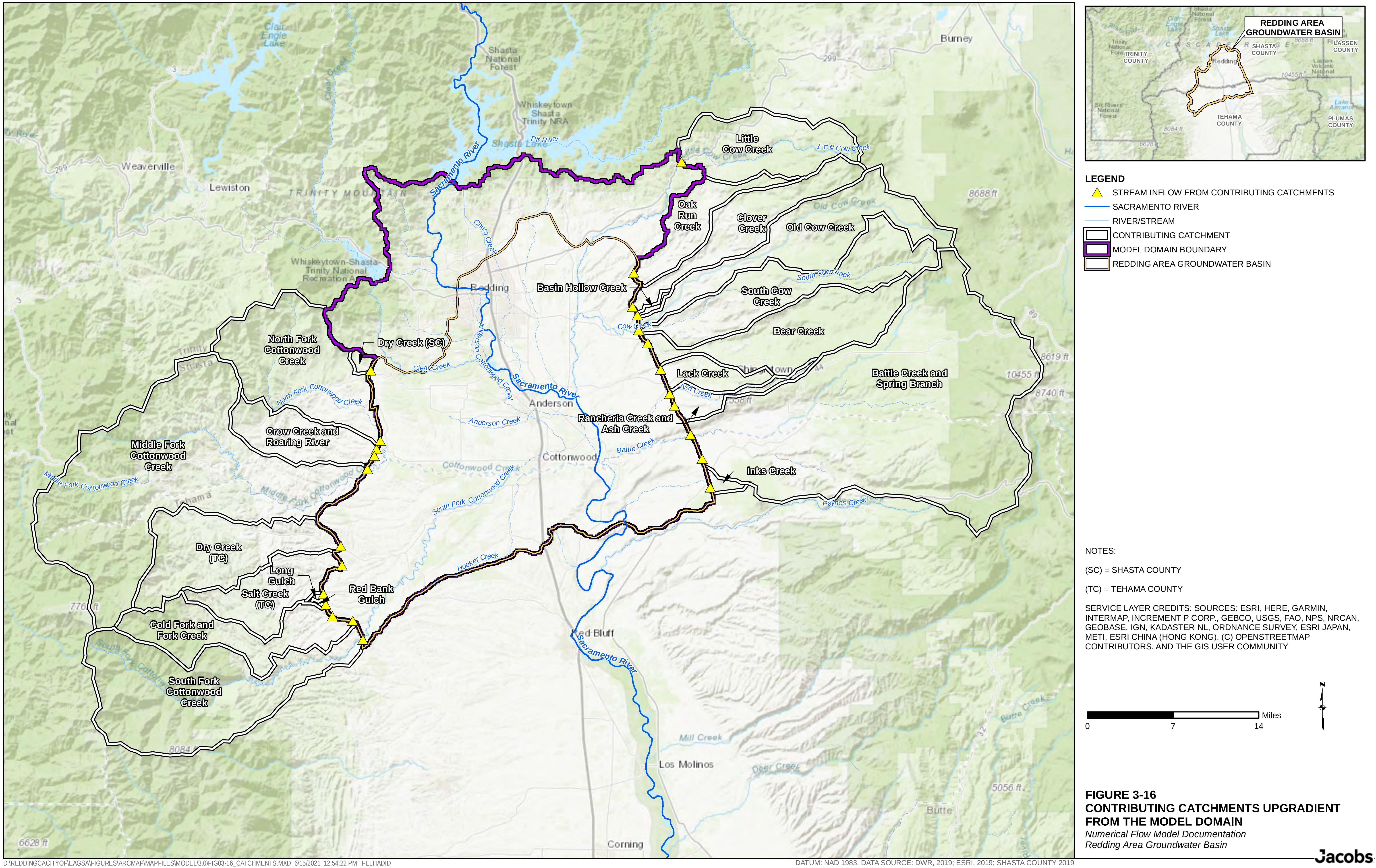


FIGURE 3-14
AVERAGE MONTHLY PRECIPITATION AND REFERENCE EVAPOTRANSPIRATION
Numerical Flow Model Documentation
Redding Area Groundwater Basin



DATA SOURCE: ORANG ET AL., 2013

FIGURE 3-15
MONTHLY CROP COEFFICIENTS
Numerical Flow Model Documentation
Redding Area Groundwater Basin



LEGEND

- ▲ STREAM INFLOW FROM CONTRIBUTING CATCHMENTS
- SACRAMENTO RIVER
- RIVER/STREAM
- ☐ CONTRIBUTING CATCHMENT
- ☐ MODEL DOMAIN BOUNDARY
- ☐ REDDING AREA GROUNDWATER BASIN

NOTES:

(SC) = SHASTA COUNTY

(TC) = TEHAMA COUNTY

SERVICE LAYER CREDITS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY

Miles
0 7 14

N

FIGURE 3-16
CONTRIBUTING CATCHMENTS UPGRADIENT FROM THE MODEL DOMAIN
Numerical Flow Model Documentation
Redding Area Groundwater Basin

Jacobs

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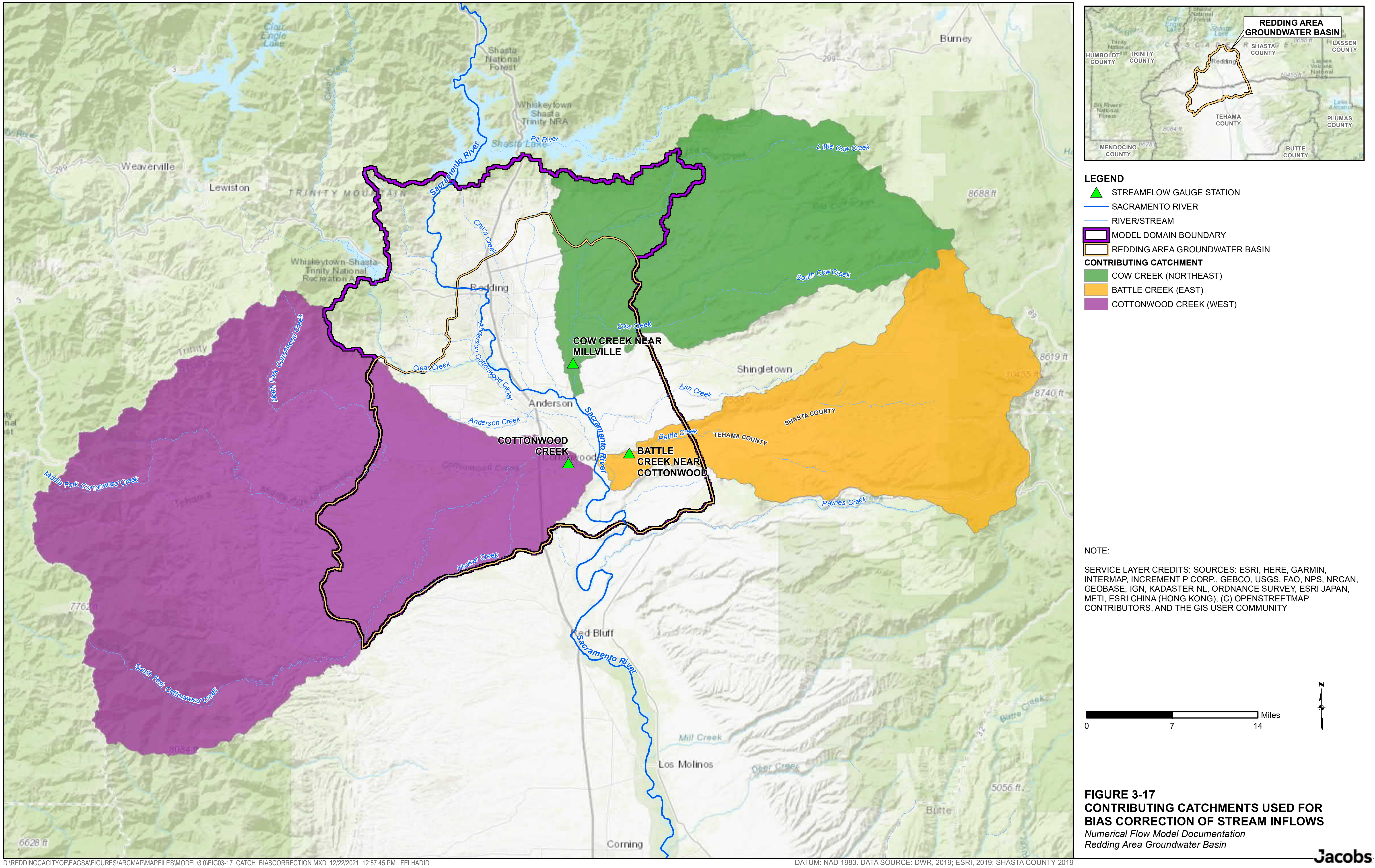
DATUM: NAD 1983. DATA SOURCE: DWR, 2019; ESRI, 2019; SHASTA COUNTY 2019



LEGEND

▲ STREAMFLOW GAUGE STATION

SACRAMENTO RIVER

RIVER/STREAM

▭ MODEL DOMAIN BOUNDARY

▭ REDDING AREA GROUNDWATER BASIN

CONTRIBUTING CATCHMENT

🟩 COW CREEK (NORTHEAST)

🟧 BATTLE CREEK (EAST)

🟪 COTTONWOOD CREEK (WEST)

NOTE:

SERVICE LAYER CREDITS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY

FIGURE 3-17
CONTRIBUTING CATCHMENTS USED FOR BIAS CORRECTION OF STREAM INFLOWS
Numerical Flow Model Documentation
Redding Area Groundwater Basin

Jacobs

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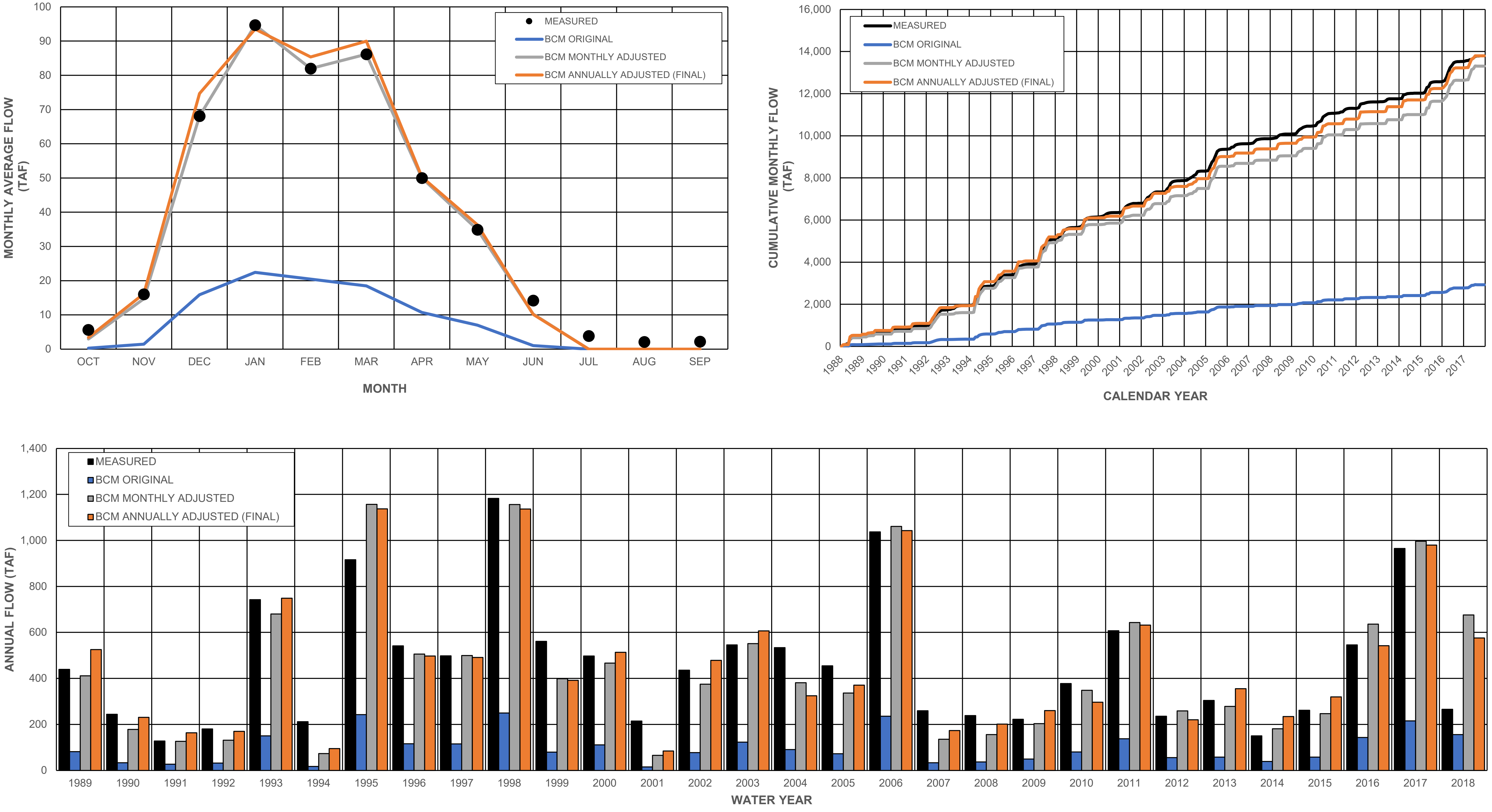
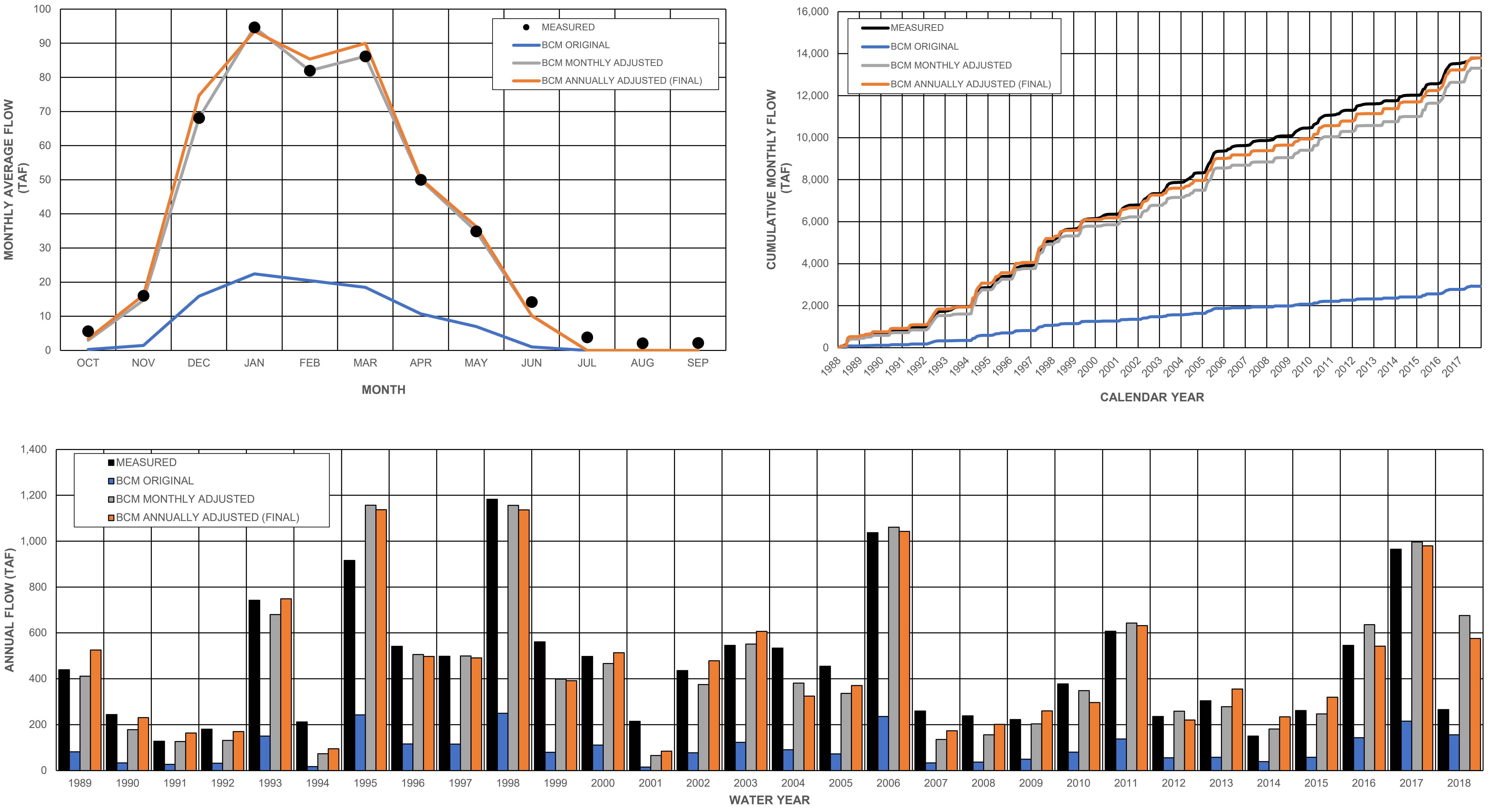
DATUM: NAD 1983. DATA SOURCE: DWR, 2019; ESRI, 2019; SHASTA COUNTY 2019



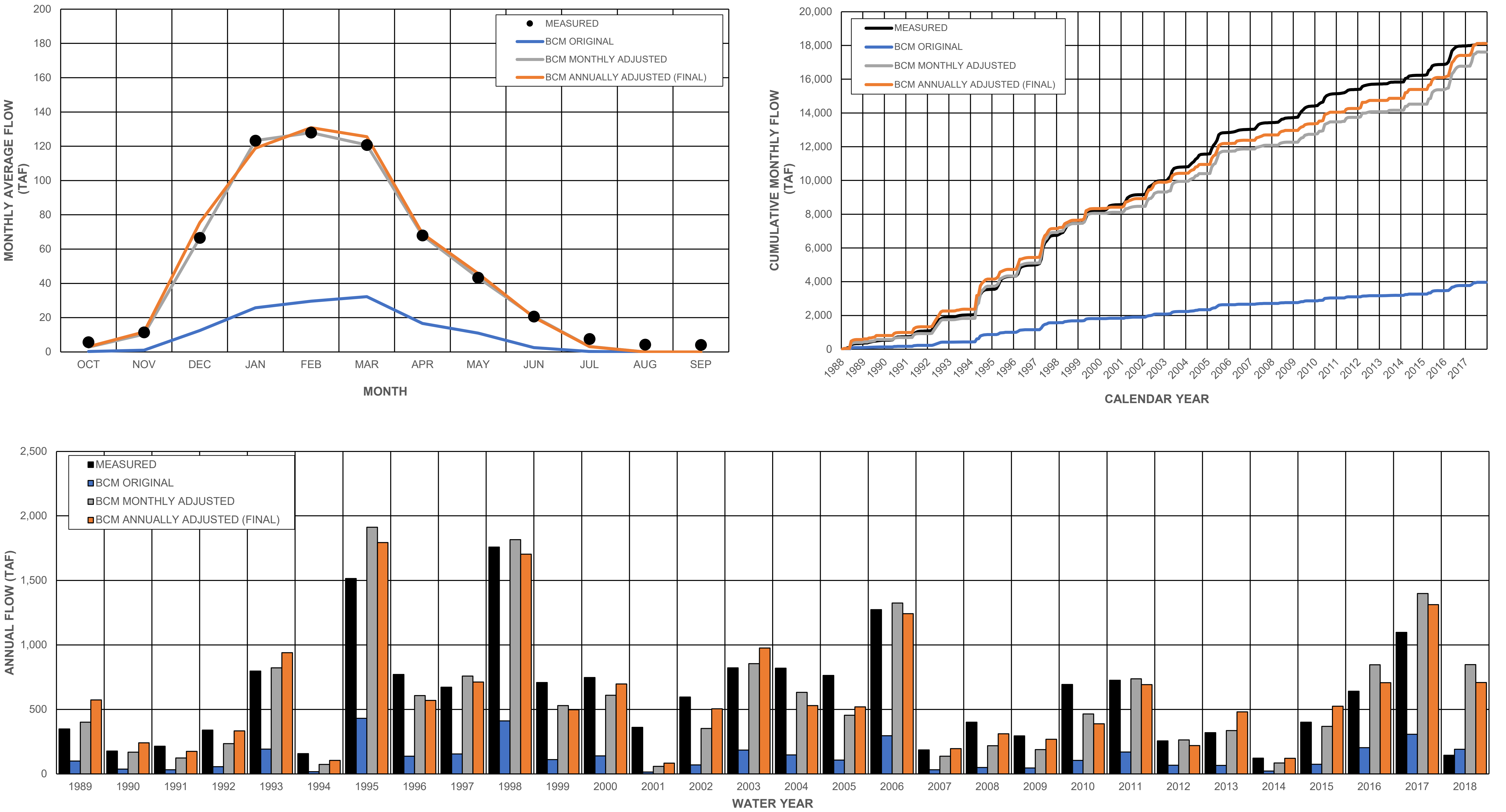
SOURCE: BASIN CHARACTERIZATION MODEL (BCM) (FLINT ET AL., 2013; FLINT AND FLINT, 2014)

FIGURE 3-18
COW CREEK MONTHLY AND ANNUAL ADJUSTMENT FACTOR DEVELOPMENT
Numerical Flow Model Documentation
Redding Area Groundwater Basin



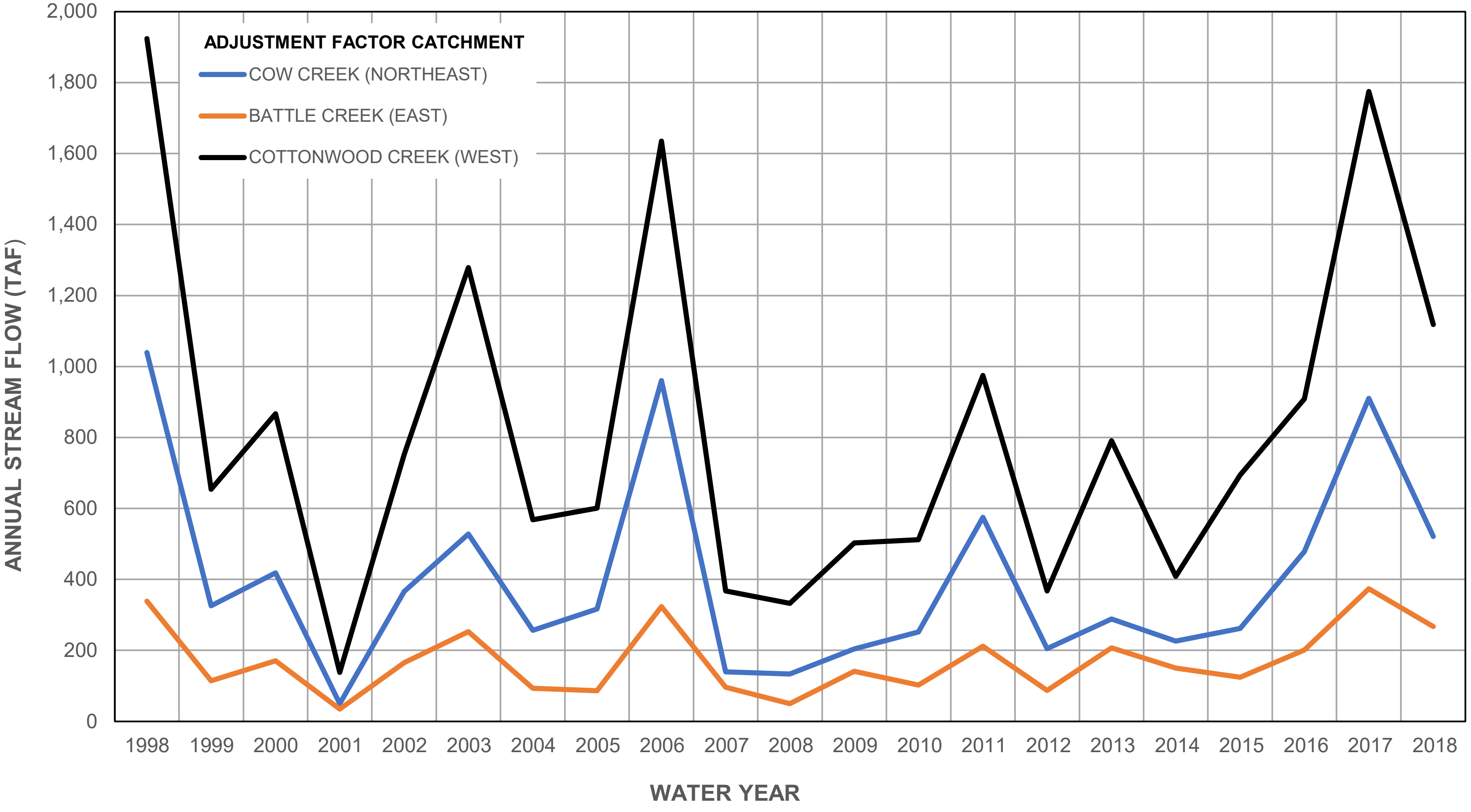
SOURCE: BASIN CHARACTERIZATION MODEL (BCM) (FLINT ET AL., 2013; FLINT AND FLINT, 2014)

FIGURE 3-19
BATTLE CREEK MONTHLY AND ANNUAL ADJUSTMENT FACTOR DEVELOPMENT
Numerical Flow Model Documentation
Redding Area Groundwater Basin



SOURCE: BASIN CHARACTERIZATION MODEL (BCM) (FLINT ET AL., 2013; FLINT AND FLINT, 2014)

FIGURE 3-20
COTTONWOOD CREEK MONTHLY AND ANNUAL ADJUSTMENT FACTOR DEVELOPMENT
Numerical Flow Model Documentation
Redding Area Groundwater Basin



ADJUSTMENT FACTOR CATCHMENT	UNGAUGED SUBCATCHMENTS
COW CREEK (NORTHEAST)	ASH CREEK, BASIN HOLLOW CREEK, BEAR CREEK, CLOVER CREEK, INKS CREEK, LACK CREEK, LITTLE COW CREEK, OAK RUN CREEK, OLD COW CREEK, RANCHERIA CREEK, AND SOUTH COW CREEK
BATTLE CREEK (EAST)	BATTLE CREEK AND SPRING BRANCH
COTTONWOOD CREEK (WEST)	COLD FORK, CROW CREEK, DRY CREEK (SC), DRY CREEK (TC), FORK CREEK, LONG GULCH, MIDDLE FORK COTTONWOOD CREEK, NORTH FORK COTTONWOOD CREEK, RED BANK GULCH, ROARING RIVER, SALT CREEK (TC), AND SOUTH FORK COTTONWOOD CREEK

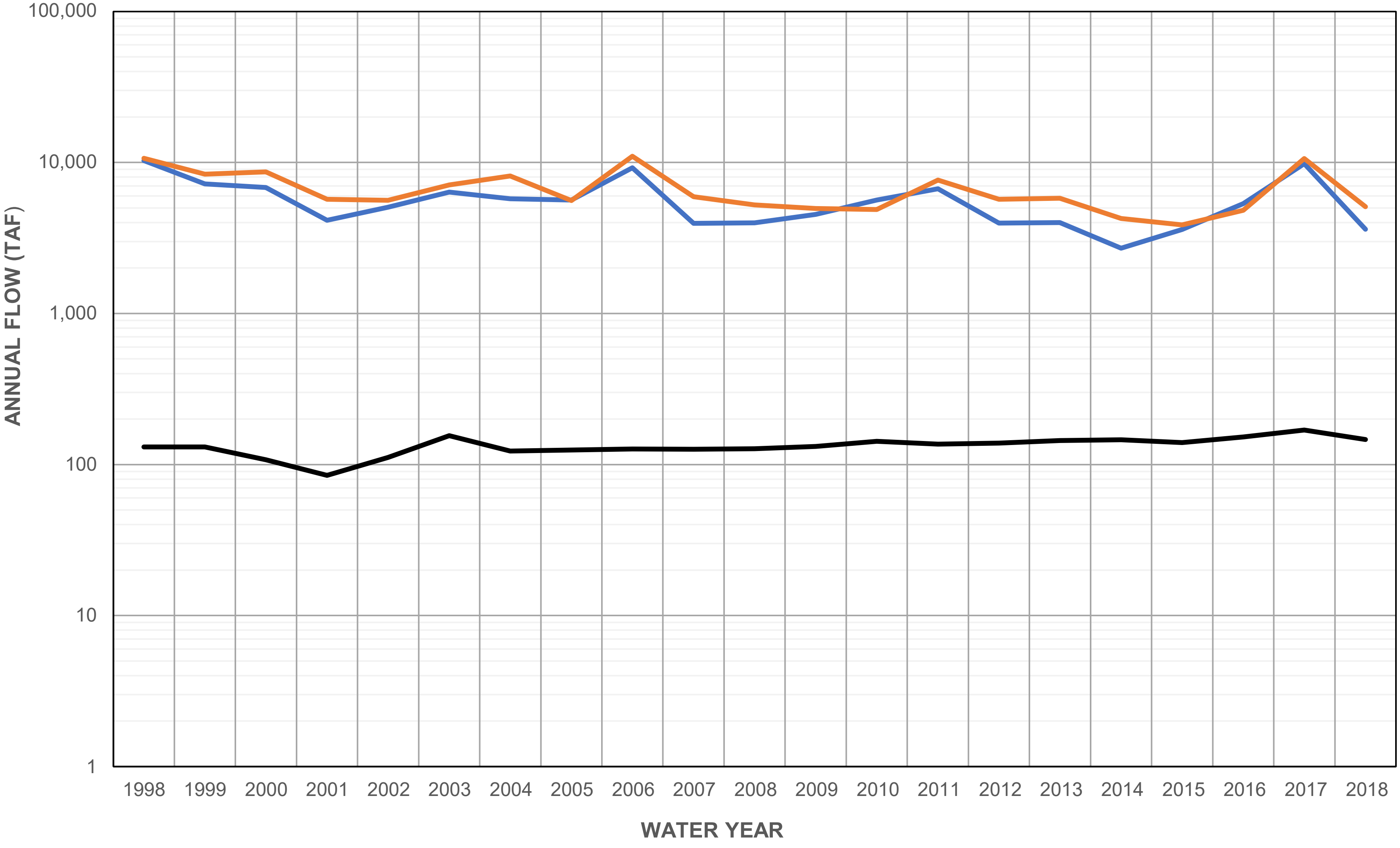
NOTES:

SC = SHASTA COUNTY

TC =TEHAMA COUNTY

FIGURE 3-21
COMPUTED ANNUAL STREAM INFLOWS FROM CONTRIBUTING CATCHMENTS

Numerical Flow Model Documentation
Redding Area Groundwater Basin

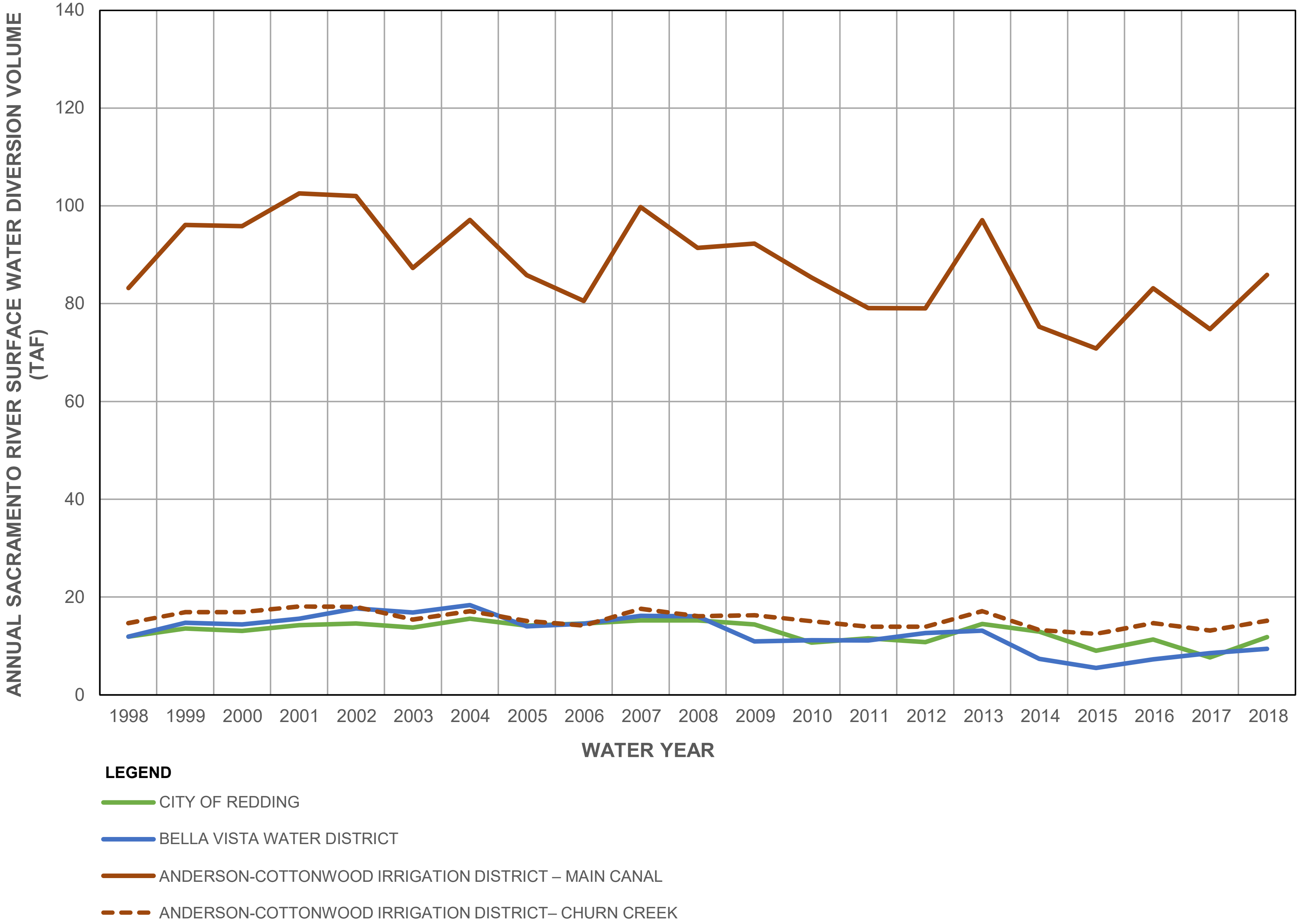


LEGEND

- SHASTA DAM RELEASES
- KESWICK DAM RELEASES
- WHISKEYTOWN DAM RELEASES

DATA SOURCES: DWR, 2019c; DWR, 2019d

FIGURE 3-22
HISTORICAL ANNUAL RESERVOIR RELEASES
Numerical Flow Model Documentation
Redding Area Groundwater Basin



NOTES:

OF THE TOTAL ACID SACRAMENTO RIVER DIVERSIONS, 85 PERCENT OF THE DIVERSION IS ASSUMED TO BE DIVERTED INTO THE ACID MAIN CANAL, WHILE THE REMAINING 15 PERCENT IS DIVERTED INTO THE CHURN CREEK BOTTOM AREA.

SACRAMENTO RIVER DIVERSION VOLUMES HAVE BEEN PROVIDED BY THE RESPECTIVE PURVEYOR.

FIGURE 3-23
HISTORICAL ANNUAL SACRAMENTO RIVER SURFACE-WATER DIVERSIONS
Numerical Flow Model Documentation
Redding Area Groundwater Basin

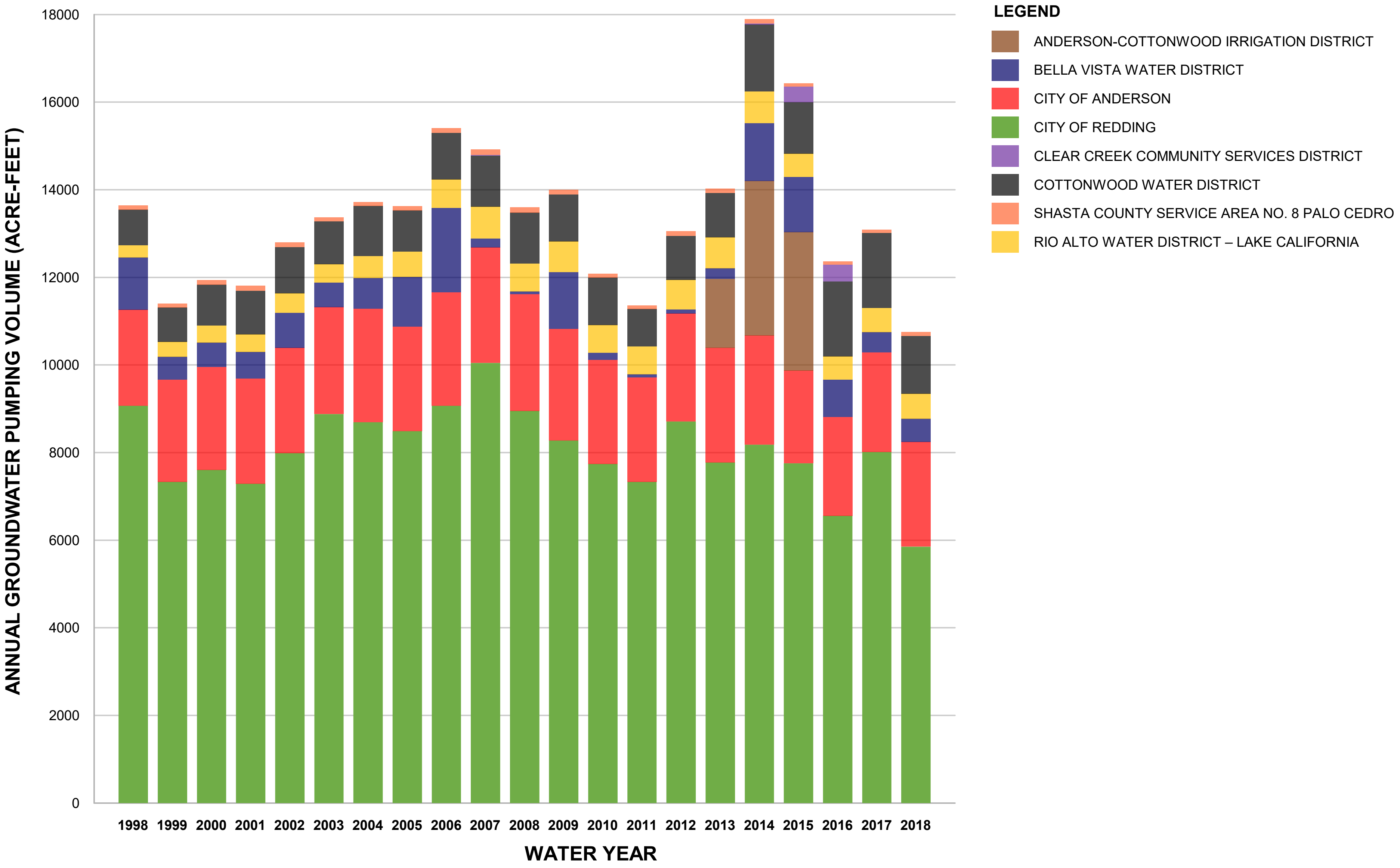
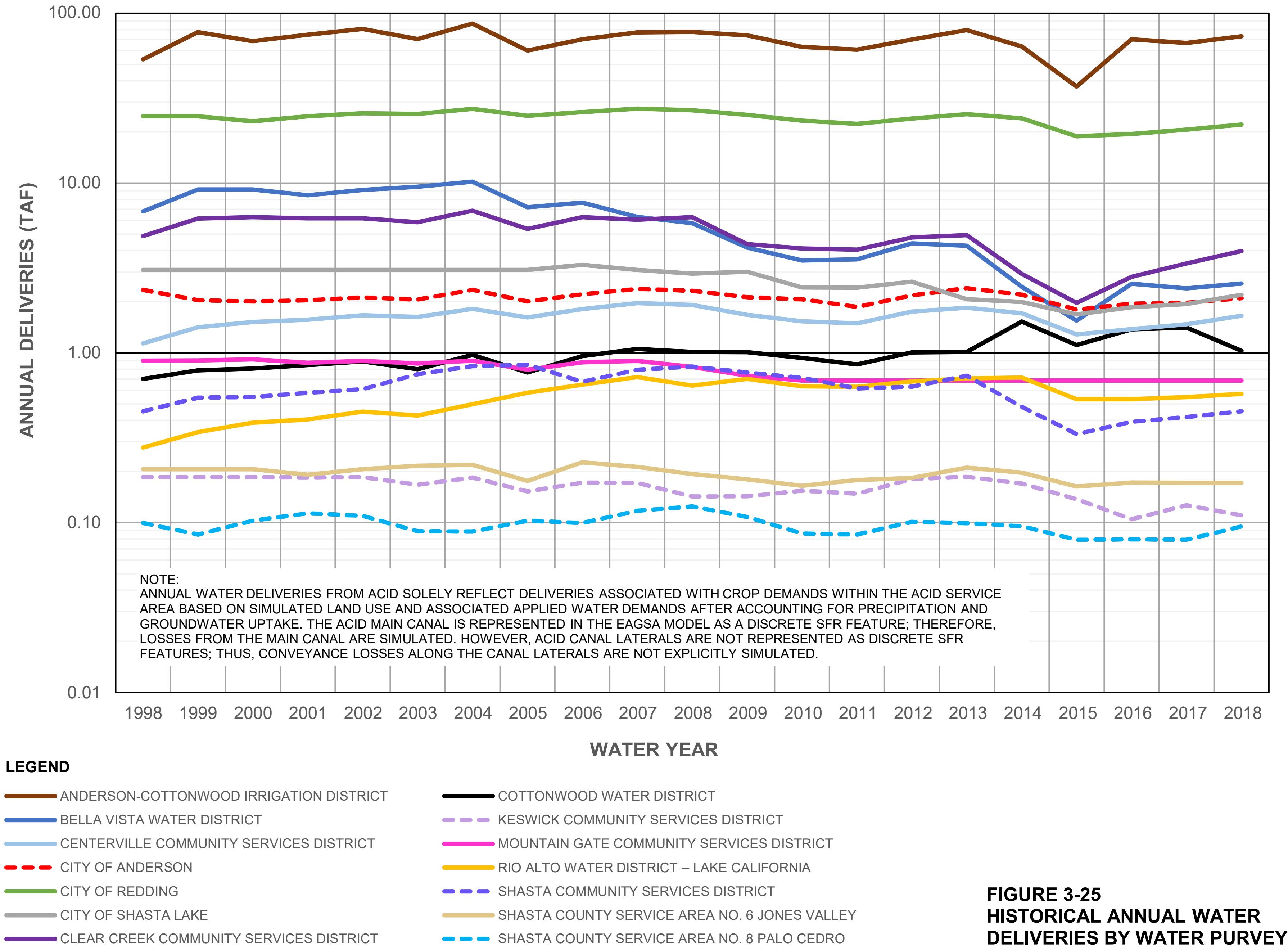


FIGURE 3-24
HISTORICAL ANNUAL PURVEYOR GROUNDWATER PUMPING
Numerical Flow Model Documentation
Redding Area Groundwater Basin

Jacobs



NOTE:
ANNUAL WATER DELIVERIES FROM ACID SOLELY REFLECT DELIVERIES ASSOCIATED WITH CROP DEMANDS WITHIN THE ACID SERVICE AREA BASED ON SIMULATED LAND USE AND ASSOCIATED APPLIED WATER DEMANDS AFTER ACCOUNTING FOR PRECIPITATION AND GROUNDWATER UPTAKE. THE ACID MAIN CANAL IS REPRESENTED IN THE EAGSA MODEL AS A DISCRETE SFR FEATURE; THEREFORE, LOSSES FROM THE MAIN CANAL ARE SIMULATED. HOWEVER, ACID CANAL LATERALS ARE NOT REPRESENTED AS DISCRETE SFR FEATURES; THUS, CONVEYANCE LOSSES ALONG THE CANAL LATERALS ARE NOT EXPLICITLY SIMULATED.

FIGURE 3-25
HISTORICAL ANNUAL WATER DELIVERIES BY WATER PURVEYOR
Numerical Flow Model Documentation
Redding Area Groundwater Basin

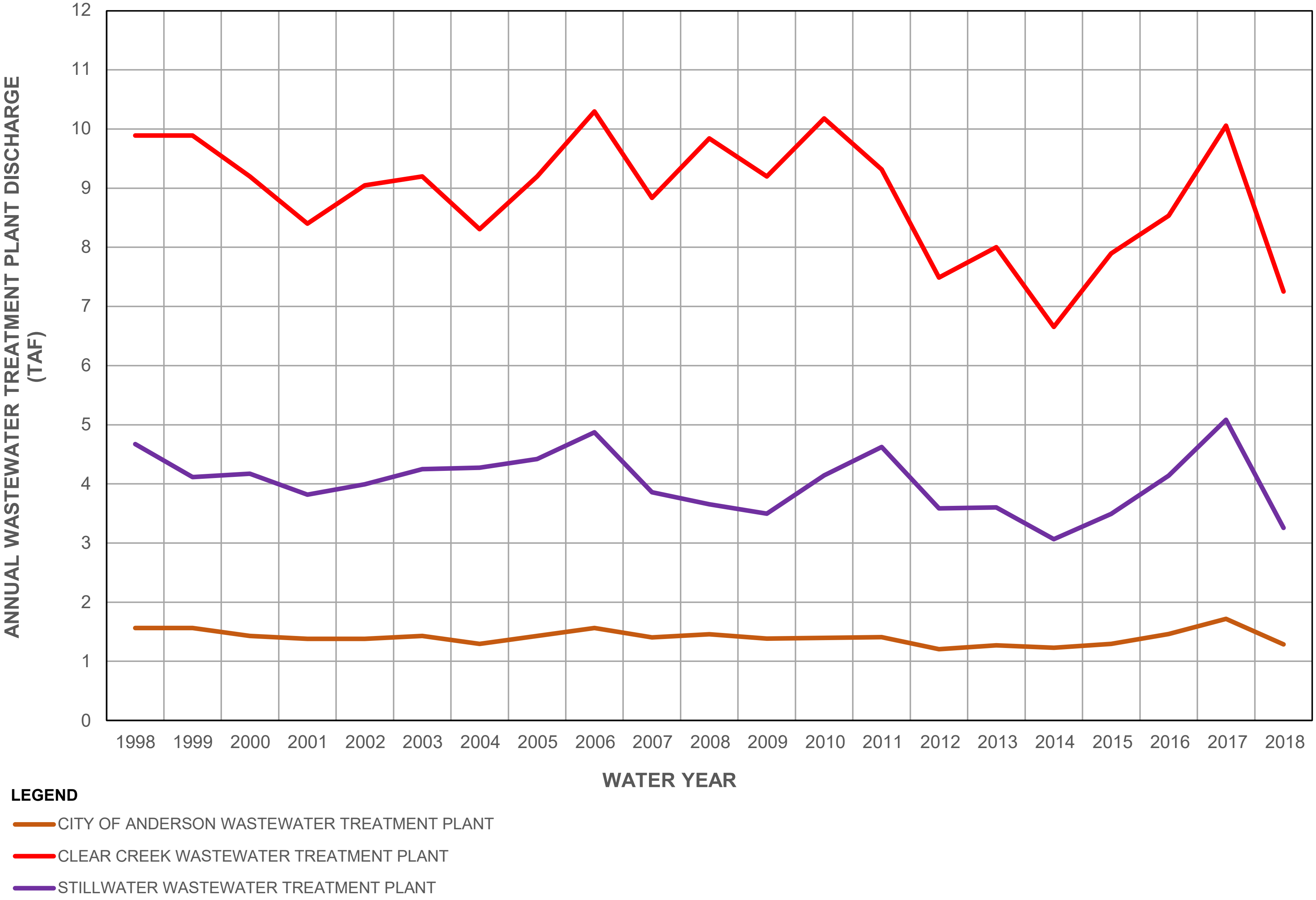


FIGURE 3-26
HISTORICAL ANNUAL WASTEWATER DISCHARGE TO THE SACRAMENTO RIVER

Numerical Flow Model Documentation
Redding Area Groundwater Basin

4. Model Calibration

Model calibration is a process of adjusting numerical model parameters to adequately replicate measured field conditions of interest. The numerical models described herein were calibrated in accordance with the Standard Guide for Calibrating a Ground-Water Flow Model Application (ASTM International, 1996) and the Modeling Best Management Practice (DWR, 2016a). As described in Section 3.5, WYs 1999 through 2018 was selected as the historical water budget period and is therefore also the model calibration period. This period includes a reasonable balance of wet, normal, and dry conditions for model calibration and more reliable hydrologic and water budget data, as compared with earlier periods. This section discusses the calibration targets, process, and results, including the historical and current water budgets.

4.1 Calibration Targets

Quantitative and qualitative calibration targets were selected to evaluate progress during calibration of the EAGSA Model. Time-varying heads and measured streamflows at gauging stations served as quantitative calibration targets. Calibration involved adjusting K_h, K_v, storage parameters, FMP parameters, and SFR parameters within reasonable ranges until there was adequate consistency between modeled and calibration target values. Calibration summary statistics were computed for head and streamflow targets to provide a quantitative measure of the EAGSA Model's ability to replicate target values. Head and streamflow calibration was evaluated using the following summary statistics:

- Residual, computed as the modeled head value minus the target (that is, measured) head and streamflow value (computed for heads and streamflows)
- Mean residual (MR), computed as the sum of all residuals divided by the number of observations (computed for heads and streamflows)
- Root mean squared residual (RMSR), computed as the square root of the mean of all squared residuals (computed for heads only)
- RMSR divided by the range of target head values (RMSR/Range) (computed for heads only)
- Coefficient of determination (R^2), computed as the square of the correlation coefficient (computed for heads and streamflows)
- Nash-Sutcliffe Efficiency (NSE), computed as one minus the ratio of the error variance of the modeled time series divided by the variance of the observed time series (computed for streamflows only)

During the quantitative calibration effort, Jacobs executed work with the following general goals:

- Minimize global bias in heads (for example, all heads being too high or too low as compared with the target heads)
- Minimize the spatial bias of residuals in key subareas of the model domain
- Minimize residuals, MR, RMSR, and RMSR/Range values
- Strive for R^2 and NSE values as close to 1.00 as possible

In addition to calibrating to transient heads and streamflow, qualitative targets were used to aid in the calibration process. Calibration summary statistics were not computed for qualitative calibration targets. The qualitative targets used for the modeling effort are as follows:

- General groundwater flow patterns throughout the model domain
- Simulation of ACID main canal leakage as compared to previous study estimates (CH2M HILL, 2001)
- Sacramento River gain and loss as compared to previous study estimates (CH2M HILL, 2001)

Targets classified as "qualitative" should not be interpreted as being unimportant. The main distinction is that summary statistics are not computed for qualitative targets. Figure 4-1 shows the calibration target locations for head and streamflow.

4.2 Calibration Process

The calibration process focused on defining FMP parameter values, surface and subsurface parameter distributions, and boundary-condition values within reasonable ranges until there was an adequate match to both quantitative and qualitative targets. The main parameters adjusted during the calibration process were the FMP and SFR parameters.

The product resulting from this calibration process was an integrated groundwater/surface-water flow model that incorporates important aspects of the hydrogeologic conceptual model and the professional judgment of engineers and scientists familiar with the study area. The following section describes the results of the calibration effort.

4.3 Calibration Results

The following subsections describe the calibration results for time-varying groundwater levels, simulated streamflow, and general groundwater flow patterns. Calibrated values for key parameters and boundary conditions are also presented.

4.3.1 Groundwater Levels

Figure 4-2 presents the modeled versus target (that is, measured) groundwater levels to evaluate potential global biases and the overall ability of the EAGSA Model to replicate historical groundwater levels. In general, points trend along the one-to-one correlation line with some points falling above and below the line. This highlights that the EAGSA Model does not contain a global bias where all modeled groundwater levels are either always above or always below this line. Global calibration statistics for the data presented on Figure 4-2 are listed in Table 4-1 and are within industry standards for adequate model calibration (for example, small MR with an RMSR/Range <5 percent with an R^2 close to 1).

Table 4-1. Calibration Summary Statistics for Groundwater Elevations

Calibration Statistic	Value	Unit
Mean Residual (MR)	-7.8	Feet
Root Mean Squared Residual (RMSR)	19.3	Feet
Range of Measured Values (Range)	622	Feet
RMSR/Range	3.1	Percent
Coefficient of Determination (R^2)	0.85	Unitless
Number of Values	6,807	Unitless

Note:

Residual is computed by subtracting the target (that is, measured) groundwater level from the modeled groundwater level.

Although there is no indication of global bias in modeled groundwater levels, there is an indication of some degree of spatial bias. For example, there is a cluster of points in the x-axis range of 600 to 650 feet above the North American Vertical Datum of 1988 on Figure 4-2 where the model tends to underestimate groundwater levels. Additionally, modeled groundwater levels in the target head range 975 feet North American Vertical Datum of 1988 and greater tend to overestimate measured groundwater levels. Figure 4-3 is provided to further evaluate spatial biases in modeled groundwater levels by displaying a spatial distribution of MR values for each calibration target well. According to this figure, there is some spatial bias where the EAGSA Model tends to underestimate groundwater levels (see negative MR values) in the middle of the domain and overestimates groundwater levels (see positive MR values) in the northern portion of the model. However, most of the model domain has MR values within ±10 feet (see black points) at the target locations; this is consistent with the global MR of -7.8 feet listed in Table 4-1.

Figure 4-4 shows hydrograph comparisons on a map to show how the transient modeled and target groundwater levels compare at eight selected locations. These particular locations were chosen to provide a general sense of the quality of calibration (similarity between modeled and target heads over time) across the Enterprise and Anderson Subbasins. Hydrographs at all target locations are included in Attachment 1. The horizontal and vertical axes on the hydrographs presented on Figure 4-4 have been standardized to facilitate making comparisons among the hydrographs. The general trends in modeled groundwater levels are reasonably consistent with target trends, as evidenced by the hydrograph comparisons and the R^2 of 0.85 listed in Table 4-1. Measured versus simulated groundwater levels at all target locations are presented in Attachment 1.

Figure 4-5 illustrates the modeled water table during May 2005, which has been classified as an Above Normal WYT with an annual rainfall of approximately 43.2 inches. Although precipitation in WY 2005 is slightly higher than average, the intent of Figure 4-5 is to illustrate general patterns of groundwater flow under conditions that are close to “normal.” Because of sharp contrast in the slope of the water table inside the RAGB versus outside of the RAGB in the surrounding rock, Figure 4-5 provides two sets of contour intervals with a 25-foot contour interval in the RAGB and a 250-foot contour interval in the surrounding rock. This figure shows that the water table is steeper as one moves outward toward the fringes of the RAGB where the topography steepens and the alluvium thins. Groundwater generally moves toward the center of the RAGB where the Sacramento River drains the northern Sacramento Valley. The overall groundwater flow pattern illustrated on Figure 4-5 is reasonable based on the understanding of groundwater use in the RAGB and local hydrogeologic characteristics.

4.3.2 Streamflows

Figure 4-6 (see 4-6a through 4-6e) presents the modeled versus measured monthly average streamflow, cumulative monthly streamflow, and annual streamflow for each of the five streamflow target locations. These plots were generated to evaluate potential global biases and the overall ability of the EAGSA Model to replicate historical streamflow. Considering all the complexities regarding the timing of streamflow events and the physical characteristics of each stream and associated catchments, the EAGSA Model in general replicates streamflows well. However, the model tends to overestimate streamflows, especially during peak streamflow months. This can be seen in the top-left plot of Figures 4-6a through 4-6e, where the largest difference between target and modeled streamflows tends to occur in the winter months during peak flows for the year. Overestimation of peak flows may be due to a number of physical processes where either the runoff to streams, stream inflows from upgradient catchments, or groundwater discharge to streams may all contribute more water to streams than what actually occurred.

The top-right plot of Figures 4-6a through 4-6e presents the cumulative monthly streamflow for each of the five streamflow target locations. Because the EAGSA Model is intended to support water supply planning, it is important to consider the model’s ability to replicate total streamflow through the domain for the entire historical calibration period. In general, the modeled cumulative monthly streamflow trends closely with the target monthly cumulative streamflow for Cow Creek near Millville (Figure 4-6a), Cottonwood Creek near Cottonwood (Figure 4-6c), and Sacramento River at Bend Bridge (Figure 4-6e). For Clear Creek near Igo (Figure 4-6b), the EAGSA Model overestimates streamflow throughout the calibration period as compared to the target monthly streamflow. Finally, the EAGSA Model tends to underestimate cumulative monthly streamflows as compared to target values for Battle Creek near Cottonwood (Figure 4-6d). As will be discussed further below, this may be related to the presence of hydropower facilities on the stream upgradient from the EAGSA Model domain.

The trends presented in the cumulative monthly streamflow plots can be further analyzed in the bottom plots of Figures 4-6a through 4-6e showing annual streamflow at each of the five streamflow target locations. The annual streamflow plots provide a sense of the model's ability to replicate annual variability in streamflow throughout the historical calibration period. Annual modeled versus target streamflows are generally in good agreement for the Cow Creek near Millville, Cottonwood Creek near Cottonwood, and Sacramento River at Bend Bridge, each of which are important stream systems along the Enterprise and Anderson Subbasins. Conversely, Clear Creek near Igo and Battle Creek near Cottonwood tend to show more variance between modeled and target streamflows on an annual basis, with some years offering good agreement and others over- and underestimating target streamflows. In general, the simulation of streamflows at all target locations is adequate for the intended uses of the EAGSA Model.

Ultimately, there may variability in the EAGSA Model's ability to replicate streamflows through individual watersheds; however, the modeled streamflow leaving the model domain at the Sacramento River at Bend Bridge target location agrees very well with target streamflows. The Sacramento River is the main conduit for streamflow through the EAGSA Model domain and is interconnected with groundwater throughout the most productive portions of the Enterprise and Anderson Subbasins. Thus, during calibration, greater emphasis was placed on accurately modeling streamflows at the Sacramento River at Bend Bridge.

Table 4-2 presents the calibration summary statistics for each of the streamflow targets. The NSE statistic was included for the streamflow calibration targets because it is a standard metric to evaluate a model's performance in computing streamflows. In general, the closer the NSE is to a value of 1.0, the better the model is able to compute accurate streamflows. As the NSE approaches zero, it suggests that the model is only able to predict streamflows as well as the mean of the squared residual of the streamflow dataset. Additionally, if the NSE becomes negative, then the average target streamflow is a better predictor for streamflow than the model (Nash and Sutcliffe, 1970).

Table 4-2. Calibration Summary Statistics for Streamflow

Calibration Statistic	Cow Creek near Millville	Clear Creek near Igo	Cottonwood Creek near Cottonwood	Battle Creek near Cottonwood	Sacramento River at Bend Bridge	Unit
Mean Residual (MR)	1.6	3.1	4.4	-1.6	20.8	cfs
Coefficient of Determination (R^2)	0.79	0.78	0.69	0.42	0.92	Unitless
Nash-Sutcliffe Efficiency (NSE)	0.70	0.65	0.70	-2.7	0.93	Unitless
Number of Values	240	240	240	240	240	Unitless

Notes:

Residual is computed by subtracting the target (that is, measured) streamflow from the modeled streamflow.

cfs = cubic feet per second

Calibration summary statistics are generally within acceptable ranges, except for Battle Creek near Cottonwood. Within the Battle Creek watersheds, a series of hydropower facilities significantly modify instream flow conditions in the mainstem of Battle Creek, which ultimately flows to the domain of the EAGSA Model. The BCM bias-corrected data are not able to accurately account for hydropower operations within the Battle Creek watershed, leading to an underestimation of total streamflow throughout the historical simulation period. The portion of Battle Creek within the EAGSA Model is outside of the Enterprise and Anderson Subbasins and flows into the Sacramento River approximately 8 river miles from the outlet of the Sacramento River in the EAGSA Model. Thus, the EAGSA Model's ability to replicate historical streamflow along Battle Creek has been deemed less important than other target locations.

4.3.3 Surface Parameters

Stream channel parameters were refined during the calibration process to better represent local channel geometries and to improve model stability. Better estimates of channel widths were obtained and specified for each of the major creeks and rivers through review of aerial imagery. Table 4-3 presents the calibrated SFR parameters by stream group as defined on Figure 3-4.

Table 4-3. Calibrated Stream Parameters

Stream Group	Channel Width (feet)	Hydraulic Conductivity (feet/day)
Sacramento River	300	1
Upper Tributaries	50	1
Middle Tributaries	100	1
ACID Main Canal	75	0.15 to 15

Notes:

Initial parameters: channel width of 100 feet and hydraulic conductivity of 10 feet/day for all streams.

Streams are modeled with rectangular channel geometries, a streambed thickness of 1 foot, and a Manning's Roughness Coefficient of 0.025.

Hydraulic conductivity values along the ACID main canal were modified to ensure adequate supply along the entirety of the canal, to simulate groundwater recharge along the canal consistent with previous studies (CH2M HILL, 2001), and to provide adequate simulation of groundwater elevations at targets close to the canal.

The capillary fringe length parameters were reviewed during the calibration effort to ensure consistency with soil type. Initial capillary fringe values in the EAGSA Model ranged from 2 to 3 feet, which are in the range of literature values (Boyce et al., 2020). After evaluation of various parameter values associated with land use and vegetation, the parameter values listed in Table 3-4 and 3-5 in Section 3.3.3 were ultimately retained in the final calibrated version of the model.

4.3.4 Subsurface Parameters

Initial total transmissivity values, extracted from the REDFEM model presented in Section 3.4.1 (Figure 3-9), were modified during model calibration. Figure 4-7 presents the final modeled total transmissivity as simulated in the EAGSA Model. Total transmissivity values range from less than 25,000 square feet per day to more than 250,000 square feet per day. The bulk of the high transmissivity zones occur toward the center of the RAGB near COA, where the depth to the Chico Formation is greatest (DWR, 1968) (Figure 3-2).

Specific storage and specific yield values were specified uniformly across the EAGSA Model domain at 1×10^{-6} per foot and 0.10, respectively. These values are reasonable for the hydrogeologic setting in the RAGB.

4.3.5 Numerical Mass Balance

The percent discrepancy in the mass balance for each stress period ranged from -0.07 to 0.0004 percent in the calibration simulation. The cumulative percent discrepancy in the numerical mass balance was 0.00 percent in the calibration simulation. Thus, the transient historical model achieved excellent numerical mass balances associated with the water budgets described in the following sections.

4.4 Historical and Current Enterprise Subbasin Water Budgets

This section describes the historical and current water budgets for the Enterprise and Anderson Subbasins for the reference volumes shown on Figure 4-8. As defined by GSP regulations § 354.18, this section quantifies the following:

- Total surface water entering and leaving the subbasin by water source type
- Inflow to the groundwater system by water source type
- Outflows from the groundwater system by water use sector
- Change in the annual volume of groundwater in storage between seasonal-high conditions
- If overdraft conditions occur, a quantification of overdraft over a period of years during which WY and water supply conditions approximate average conditions
- WYT associated with the annual supply, demand, and change in groundwater stored
- An estimate of sustainable yield for the subbasin

The water budgets described in this section have been developed in accordance with the guidelines provided in DWR's Water Budget Best Management Practice (DWR, 2016b) to help quantify the volumetric rate of water entering and leaving the land, surface-water, and groundwater systems of the subbasin. Water enters and leaves the Enterprise and Anderson Subbasins naturally, such as through precipitation and streamflow, and through human activities, such as pumping and groundwater recharge from irrigation.

Separate historical and current water budgets have been developed for three different subbasin “systems”: a land system, a surface-water system, and a groundwater system. Figure 4-9 illustrates how these different systems relate to each other, and Table 4-4 lists the water budget components for each of these systems.

- The land system accounts for processes occurring on the land surface and between the land surface and the water table. For example, precipitation falls onto the land surface and is an inflow to the land system water budget. The portion of precipitation that percolates downward through the soil and reaches the water table (that is, groundwater recharge from precipitation) becomes an outflow from the land system budget and an inflow to the groundwater system budget.
- The surface-water budget accounts for water flowing into and out of streams and canals. For example, precipitation that does not percolate into the soil, flows over the land surface, and enters a stream as runoff is an outflow from the land system budget and an inflow to the surface-water budget. Water that is pumped from a stream for beneficial uses becomes an outflow from the surface-water system, whereas water that is diverted from a river into a canal remains in the surface-water system, because rivers and canals are both part of the surface-water system.

- The groundwater budget accounts for groundwater flowing into and out of the aquifer in the Enterprise and Anderson Subbasins. For example, groundwater that leaves the aquifer as it discharges into a stream (groundwater discharge to streams) is an outflow from the groundwater budget and an inflow to the surface-water budget. When groundwater wells are pumped, they remove groundwater from the aquifer system; therefore, groundwater pumping is an outflow from the groundwater system.

Thus, as shown on Figure 4-9 and in Table 4-4, an outflow from one system can be an inflow to another system.

Table 4-4. Land, Surface-water, and Groundwater Systems Water Budget Components

Land System Inflow Components	Land System Outflow Components
Precipitation	Runoff to Streams/Canals
Applied Water from Purveyor Deliveries (Groundwater and Surface Water)	ET of Precipitation
Applied Groundwater Outside of Purveyor Service Areas	ET of Shallow Groundwater
Shallow Groundwater Uptake	ET of Applied Water
Groundwater Discharge to Land Surface	Groundwater Recharge from Precipitation, Applied Water, and Septic Systems
Surface-water System Inflow Components	**Surface-water System Outflow Components**
Runoff to Streams/Canals	Stream/Canal Outflow to Adjacent Areas
Stream/Canal Inflow from Adjacent Areas	Groundwater Recharge from Streams/Canals
Groundwater Discharge to Streams/Canals	Diversions for Use Inside the Subbasin
WWTP Discharge to Streams	Diversions for Use Outside of the Subbasin
Groundwater System Inflow Components	**Groundwater System Outflow Components**
Groundwater Recharge from Precipitation, Applied Water, and Septic Systems	Shallow Groundwater Uptake (ET of shallow groundwater)
Groundwater Recharge from Streams/Canals	Groundwater Discharge to Streams/Canals
Subsurface Inflow from Adjacent Areas	Groundwater Pumping
	Subsurface Outflow to Adjacent Areas
	Groundwater Discharge to Land Surface

The historical water budget evaluates the availability and reliability of past surface-water supplies and water demands relative to WYT. The 20-year hydrologic period of WYs 1999 through 2018 was selected for developing the historical water budget. This period includes a sequence of representative hydrology while capturing recent subbasin operation conditions. Table 4-5 lists the assumptions for information incorporated into the EAGSA Model for the development of historical and current water budgets.

Table 4-5. Water Budget Assumptions for the Historical and Current Periods

Water Budget Item	Assumption/Basis for Historical and Current Water Budget
Hydrologic Period	▪ Historical: WYs 1999 through 2018. ▪ Current: WYs 2015 through 2018. ▪ Monthly time intervals.
Precipitation	▪ Precipitation data from the PRISM Climate Group (2020) were used and processed with modeling software (Boyce et al., 2020; Flint et al., 2013) to compute the recharge and runoff of precipitation.
Reference Evapotranspiration (ET_0)*	▪ Air temperature data from the PRISM Climate Group (2020) were processed with modeling software (Flint et al., 2013) to compute ET_0.
Evapotranspiration (ET)	▪ Crop coefficients are based on Cal-SIMETAW (Orang et al., 2013) for land use/cropping distribution multiplied by historical ET_0 as computed by the modeling software (Flint et al., 2013).
Stream Inflows	▪ Sacramento River releases from Keswick Reservoir (DWR, 2019c). ▪ Clear Creek releases from Clair A. Hill Whiskeytown Dam (DWR, 2019d). ▪ Inflows for ungauged streams are based on runoff estimates computed by the modeling software (Flint et al., 2013).
Land Use/Cropping	▪ 2012 Shasta County DWR land use survey. ▪ 1999 Tehama County DWR land use survey. ▪ 2014 LandIQ data from DWR for irrigated agriculture.
Purveyor Well Infrastructure, Pumping, Surface-water Diversions, Deliveries, WWTP Discharges	▪ Information provided by purveyors for WYs 1999 through 2018.
Domestic Water Use (non-purveyor areas)	▪ Per capita water use and census data.

* The crop associated with the ET_0 is grass.

The water budgets for the three "systems" have been estimated with the aid of the EAGSA Model. There is unavoidable uncertainty associated with these water budget estimates; uncertainty is always present to various degrees in water budget calculations. Furthermore, these estimates are subject to change as the understanding of RAGB conditions evolves as monitoring data are collected and analyzed during GSP implementation.

Figures 4-10 and 4-11 present three sets of charts showing average annual historical and current water budgets for the Enterprise and Anderson Subbasins, respectively. The top, middle, and bottom charts show the land system, surface-water system, and groundwater system water budget summaries, respectively. Figures 4-12 and 4-13 present three sets of charts, one for each water budget system, displaying the annual time series of the historical and current water budgets for the Enterprise and Anderson Subbasins, respectively. The colors of the water budget components on Figures 4-10 through 4-13 have been standardized to facilitate making comparisons across the figures. The following subsections provide an overview of the approach and results of the water budget analysis. As discussed in this section, the Enterprise and Anderson Subbasins have been managed sustainably.

4.4.1 Land System

Table 4-6 and Figure 4-10 present averages of the components of the historical and current land system budgets for the Enterprise Subbasin, whereas Figure 4-12 presents the total of each component of the historical, current, and projected land system budgets for each year. According to the EAGSA Model results, the subbasin received an annual average of about 240 TAF of land system inflows and outflows during the 20-year historical period. The fact that the inflows equal the outflows means that the land system is in balance. During this period, annual inflows were mostly from precipitation (199 TAF), followed by applied water (both purveyor and non-purveyor supplied), groundwater discharge to land surface, and shallow groundwater uptake. ACID deliveries in the Enterprise Subbasin average approximately 16 TAF annually for the historical and current periods, respectively. Application of this water for irrigation is not only beneficial for sustaining agriculture but also for providing an additional source of groundwater recharge in the Enterprise Subbasin. The largest outflows from the land system were ET of precipitation; runoff to streams; and groundwater recharge from precipitation, applied water and septic systems (all of which were of similar magnitude ranging from 70 to 77 TAF), followed by ET of applied water and ET of shallow groundwater. Attachment 2 includes the annual land system water budget values for the historical and current periods for the Enterprise Subbasin.

Table 4-6. Enterprise Subbasin Average Annual Land System Water Budgets

Land System Budget Component	Historical Average Water Volume (TAF) WYs 1999–2018	Current Average Water Volume (TAF) WYs 2015–2018
Inflows		
Precipitation	199	235
Applied Water from Purveyor Deliveries (Groundwater and Surface Water)[a]	18	17
Applied Groundwater Outside of Purveyor Service Areas	10	10
Shallow Groundwater Uptake	1	2
Groundwater Discharge to Land Surface	14	18
Total Inflow	**242**	**282**
Outflows		
Runoff to Streams/Canals	76	98
ET of Precipitation	77	79
Non-native Vegetation	46	47
Native Vegetation[b]	31	32
ET of Shallow Groundwater	1	2
Non-native Vegetation	1	1
Native Vegetation[b]	1	1
ET of Applied Water	19	17
Groundwater Recharge from Precipitation, Applied Water, and Septic Systems	70	87
Total Outflow	**243**	**283**

[a] ACID deliveries in the Enterprise Subbasin average approximately 16 TAF for the historical and current periods.

[b] Native vegetation represents riparian and native vegetation land use classifications based on the available land use datasets available at the time of model development. The native vegetation classification does not include managed wetlands. Further review of 2016 and 2018 LandIQ datasets indicated that no managed wetlands are present in the Enterprise Subbasin.

The relative order (largest to smallest volumes) of the Enterprise Subbasin land system water budget components is similar between the 20-year historical and the 4-year current averaging periods. However, the total inflows and outflows under current conditions (approximately 280 TAF) are about 16 percent higher than the total inflows and outflows under historical conditions (approximately 240 TAF). The larger amount of water moving through the land system is largely driven by the higher magnitude of precipitation in WY 2017, which was designated as a Wet WYT.

Table 4-7 and Figure 4-11 present annual averages of the components of the historical and current land system budgets for the Anderson Subbasin, whereas Figure 4-13 presents the total of each component of the historical and current land system budgets for each year. According to the EAGSA Model results, the Anderson Subbasin received an annual average of about 440 TAF of land system inflows and outflows during the 20-year historical period. As with the Enterprise Subbasin, land system inflows equal the land system outflows, meaning the land system is in balance. During this period, annual inflows were mostly from precipitation (280 TAF), followed by applied water (both purveyor and non-purveyor supplied), groundwater discharge to land surface, and shallow groundwater uptake. Annual ACID deliveries in the Anderson Subbasin average approximately 50 TAF for the historical and current periods. Application of this water for irrigation is not only beneficial for sustaining agriculture, but also for providing an additional source of groundwater recharge in the Anderson Subbasin. The largest annual outflows from the land system were runoff to streams (167 TAF) followed by ET of precipitation and groundwater recharge from precipitation, applied water, and septic systems (which were roughly equal), followed by ET of applied water and ET of shallow groundwater. Attachment 3 includes the annual land system water budget values for the historical and current periods for the Anderson Subbasin.

Table 4-7. Anderson Subbasin Average Annual Land System Water Budgets

Land System Budget Component	Historical Average Water Volume (TAF) WYs 1999–2018	Current Average Water Volume (TAF) WYs 2015–2018
Precipitation	280	322
Applied Water from Purveyor Deliveries (Groundwater and Surface Water)[a]	57	56
Applied Groundwater Outside of Purveyor Service Areas	16	16
Shallow Groundwater Uptake	3	3
Groundwater Discharge to Land Surface	84	91
Total Inflow	**440**	**488**
Runoff to Streams/Canals	167	194
ET of Precipitation	117	120
Non-native Vegetation	50	52
Native Vegetation[b]	67	69
ET of Shallow Groundwater	3	3
Non-native Vegetation	2	2
Native Vegetation[b]	1	1
ET of Applied Water	40	40
Groundwater Recharge from Precipitation, Applied Water, and Septic Systems	111	131
Total Outflow	**438**	**488**

[a] ACID deliveries in the Anderson Subbasin average approximately 50 TAF for the historical and current periods.

[b] Native vegetation represents riparian and native vegetation land use classifications based on the available land use datasets available at the time of model development. The native vegetation classification does not include managed wetlands. Further review of 2016 and 2018 LandIQ datasets indicated that no managed wetlands are present in the Anderson Subbasin.

The relative order (largest to smallest volumes) of the Anderson Subbasin land system water budget components is similar between the 20-year historical and the 4-year current averaging periods. However, the total inflows and outflows under current conditions (approximately 490 TAF) are about 10 percent higher than the total inflows and outflows under historical conditions (approximately 440 TAF). The larger amount of water moving through the land system is largely driven by the higher magnitude of precipitation in WY 2017, which was designated as a Wet WYT.

As discussed above, the total land system budget inflows for the Enterprise and Anderson Subbasins generally equal the land system budget outflows for the historical and current periods. This means that the land system water budgets have been in balance.

4.4.2 Surface-water System

Table 4-8 and Figure 4-10 present averages of the individual components of the historical and current surface-water system budgets for the Enterprise Subbasin, whereas Figure 4-12 presents the total of each subbasin component of the historical and current surface-water system budgets for each year. As discussed in Chapter 2 of the Enterprise Subbasin GSP, water source types in the Enterprise Subbasin come from a combination of Central Valley Project (CVP) (that is, releases from Keswick and Clair A. Hill Whiskeytown Dams) and local supplies (that is, smaller tributaries). According to the EAGSA Model, the subbasin received an annual average of about 7,600 TAF of surface-water inflows during the 20-year historical period. During this period, stream inflow from adjacent areas (7,250 TAF) was the largest surface-water inflow component, followed by groundwater discharge to streams (stream gains), runoff to streams, and WWTP discharge to streams. Annual outflow from the surface-water system also averaged approximately 7,600 TAF during the historical period. The fact that the inflows equal the outflows means that the surface-water system water budget is in balance. The largest annual outflows from the system were stream outflow to adjacent areas (7,265 TAF), followed by groundwater recharge from streams (stream leakage), and surface-water diversions.

Table 4-8. Enterprise Subbasin Average Annual Surface-water System Water Budgets

Surface-water System Budget Component	Historical Average Water Volume (TAF) WYs 1999–2018	Current Average Water Volume (TAF) WYs 2015–2018
Inflows		
Stream/Canal Inflow from Adjacent Areas	7,252	7,075
Groundwater Discharge to Streams/Canals	251	257
Runoff to Streams/Canals	76	98
WWTP Discharge to Streams/Canals	14	14
Total Inflow	**7,593**	**7,444**
Outflows		
Stream/Canal Outflow to Adjacent Areas	7,265	7,151
Groundwater Recharge from Streams/Canals	160	160
Diversions for Use Inside the Enterprise Subbasin[a]	42	32
Diversions to Areas Outside the Enterprise Subbasin[b]	88	79
Total Outflow	**7,555**	**7,422**

[a] Average annual diversion values represent the volume of water removed from streams for uses inside the Enterprise Subbasin. The 2010–2019 ACID Churn Creek diversion from the Sacramento River averaged 14.5 TAF annually (SWRCB, 2021).

[b] Average annual diversion values represent the volume of water removed from streams for uses outside of the Enterprise Subbasin.

Because the Sacramento River forms the boundary between the Enterprise and Anderson Subbasins, the diversion volumes presented in Table 4-8 and Figures 4-10 and 4-12 represent water that is diverted by users in both subbasins. Surface water diverted by purveyors such as COR and BVWD exits the surface-water system and is conveyed through pipelines. These diversion rates are included in Table 4-8 as diversions for use inside the Enterprise Subbasin. Surface water diverted by ACID is conveyed through open canals and laterals, with approximately 85 percent of the water diverted for use in Anderson Subbasin (included in Table 4-8 as diversions to areas outside the Enterprise Subbasin) and 15 percent diverted for use in the Churn Creek Bottom area of the Enterprise Subbasin (diversions for use inside the Enterprise Subbasin) (SWRCB, 2021). Attachment 4 includes the annual surface-water system water budget values for the historical and current periods for the Enterprise Subbasin.

Table 4-9 and Figure 4-11 present averages of the individual components of the historical and current surface-water system budgets for the Anderson Subbasin, whereas Figure 4-13 presents the total of each subbasin component of the historical and current surface-water system budgets for each year. As discussed in Chapter 2 of the Anderson Subbasin GSP, water source types in the Anderson Subbasin come from a combination of CVP (that is, releases from Keswick and Clair A. Hill Whiskeytown Dams) and local supplies (that is, smaller tributaries). According to the EAGSA Model, the subbasin received an annual average of about 8,500 TAF of surface-water inflows during the 20-year historical period. During this period, stream inflow from adjacent areas (8,100 TAF) was the largest surface-water inflow component, followed by groundwater discharge to streams (stream gains), runoff to streams, and WWTP discharge to streams. Annual outflow from the surface-water system averaged approximately 8,500 TAF during the historical period. The fact that the inflows equal the outflows means that the surface-water system water budget is in balance. The largest outflows from the system were stream outflow to adjacent areas (8,200 TAF per year [TAFY]), followed by groundwater recharge from streams (stream leakage), and surface-water diversions.

Because the Sacramento River forms the boundary between the Enterprise and Anderson Subbasins, the diversion volumes presented in Table 4-9 and Figures 4-11 and 4-13 represent water that is diverted by users in both subbasins. Surface water diverted by purveyors such as COR and BVWD exits the surface-water system and is conveyed through pipelines (largely within the Enterprise Subbasin). These diversion rates are included in Table 4-9 as diversions to areas outside the Anderson Subbasin. Surface water diverted by ACID is conveyed through open canals and laterals, with approximately 85 percent of the water diverted for use in the Anderson Subbasin and 15 percent diverted for use in the Enterprise Subbasin. Because ACID's main canal is simulated as a stream in the EAGSA Model, the water diverted from the Sacramento River into the ACID main canal remains part of the surface-water system in the Anderson Subbasin. Thus, although the ACID Sacramento River diversion at Caldwell Park in Redding is incorporated into the model, ACID's diversion rates for out-of-basin use included in Table 4-9 represent the modeled volume of water delivered to customers in the Enterprise Subbasin (that is, surface water that is diverted from the Sacramento River that is not available for use in the Anderson Subbasin). The diversion rates listed in Table 4-9 for use in the Anderson Subbasin represent deliveries from the ACID main canal to farms in the Subbasin. Attachment 5 includes the annual surface-water system water budget values for the historical and current periods for the Anderson Subbasin.

Table 4-9. Anderson Subbasin Average Annual Surface-water System Water Budgets

Surface-water System Budget Component	Historical Average Water Volume (TAF) WYs 1999–2018	Current Average Water Volume (TAF) WYs 2015–2018
Inflows		
Stream/Canal Inflow from Adjacent Areas	8,098	8,230
Groundwater Discharge to Streams/Canals	226	229
Runoff to Streams/Canals	168	194
WWTP Discharge to Streams	14	14
Total Inflow	**8,506**	**8,667**
Outflows		
Stream/Canal Outflow to Adjacent Areas[a]	8,165	8,327
Groundwater Recharge from Streams/Canals[b]	247	252
Diversions for Use Inside the Anderson Subbasin	88	79
Diversions to Areas Outside the Anderson Subbasin[c]	42	32
Total Outflow	**8,543**	**8,691**

[a] Includes approximately 2 to 4 TAF of exports during ACID water transfer years.

[b] Leakage from the ACID main canal annually contributes approximately 29 to 37 TAF of groundwater recharge to the aquifer system during the historical period.

[c] Average annual diversion values represent the volume of water removed from streams for uses outside of the Anderson Subbasin. The 2010–2019 ACID Churn Creek diversion from the Sacramento River averaged 14.5 TAF annually (SWRCB, 2021).

4.4.3 Groundwater System

Table 4-10 and Figure 4-10 present averages of the individual components of the historical and current groundwater system budgets for the Enterprise Subbasin, whereas Figure 4-11 presents the total of each subbasin component of the historical and current groundwater system budgets for each year. According to the EAGSA Model, the subbasin received an annual average of about 315 TAF of groundwater inflows during the 20-year historical period. These inflows consist primarily of groundwater recharge from streams (stream leakage) (160 TAF), followed by subsurface inflow from adjacent areas, and groundwater recharge from precipitation, applied water, and septic systems. During this same period, the total outflow from the groundwater was approximately 1 TAFY more than the inflow. The fact that the inflows nearly equal the outflows means that the groundwater system is in balance. The largest outflow from the groundwater system was groundwater discharge to streams (stream gains) (250 TAF), followed by subsurface outflow to adjacent areas, groundwater pumping, groundwater discharge to land surface, and ET of shallow groundwater. Attachment 6 includes the annual groundwater system water budget values for the historical and current periods for the Enterprise Subbasin.

Table 4-10. Enterprise Subbasin Average Annual Groundwater System Water Budgets

Groundwater System Budget Component	Historical Average Water Volume (TAF) WYs 1999–2018	Current Average Water Volume (TAF) WYs 2015–2018
Inflows		
Groundwater Recharge from Precipitation, Applied Water, and Septic Systems	70	87
Groundwater Recharge from Streams/Canals	161	161
Subsurface Inflow from Adjacent Areas	84	85
Total Inflow	**315**	**333**
Outflows		
Shallow Groundwater Uptake (ET of Shallow Groundwater)	1	2
Groundwater Discharge to Streams/Canals	251	257
Groundwater Pumping	20	19
Subsurface Outflow to Adjacent Areas	30	29
Groundwater Discharge to Land Surface	14	18
Total Outflow	**316**	**325**
Average of Total Inflows and Outflows	316	329
Change in Groundwater Storage	-1	8
Change in Groundwater Storage as a Percent of the Average of Total Inflows and Outflows	-0.32%	2.43%

The total inflows and outflows of the groundwater system under current conditions are slightly higher by approximately 3 percent than historical conditions with order of largest to smallest water budget component volumes. The increase of approximately 6 percent over the historical period was primarily due to the 14 to 24 percent increase in groundwater recharge from precipitation, applied water, and septic systems. Increases in total outflows from the groundwater system during the current period (3 to 5 percent as compared to the historical period) were mostly due to increased groundwater discharge to streams and to land surface during the current period.

The average change in groundwater storage in the Enterprise Subbasin is computed by subtracting the average total groundwater outflows from the average total groundwater inflows. The historical and current groundwater system budgets indicate an average change in groundwater storage ranging from a decrease of 1 TAF under historical conditions to an increase of 8 TAFY under current conditions (Table 4-10). The increase in groundwater storage under current conditions results primarily from increased groundwater recharge from precipitation, applied water, and septic systems (likely a result of wet climatic conditions in WY 2017) with only a slight increase in the groundwater outflow components. The total groundwater system inflows generally equal or are larger than the groundwater system outflows for the historical and current periods. This means that the groundwater system has been managed sustainably.

Table 4-11 and Figure 4-11 present averages of the individual components of the historical and current groundwater system budgets for the Anderson Subbasin, whereas Figure 4-13 presents the total of each subbasin component of the historical and current groundwater system budgets for each year. According to the EAGSA Model, the subbasin received an annual average of about 490 TAF of groundwater inflows during the 20-year historical period. These inflows consist primarily of groundwater recharge from streams and canals (stream leakage) (247 TAF), followed by subsurface inflow from adjacent areas, and groundwater recharge from precipitation, applied water, and septic systems. Leakage from the ACID main canal annually contributes approximately 29 to 37 TAF of groundwater recharge to the aquifer system in the Anderson Subbasin. During this same period, the total outflow from the groundwater was approximately equal to the inflow. The fact that the inflows equal the outflows means that the groundwater system is in balance. The largest outflow from the groundwater system was groundwater discharge to streams (stream gains) (225 TAF), followed by subsurface outflow to adjacent areas, groundwater pumping, groundwater discharge to land surface, and ET of shallow groundwater. Attachment 7 includes the annual groundwater system water budget values for the historical and current periods for the Anderson Subbasin.

Table 4-11. Anderson Subbasin Average Annual Groundwater System Water Budgets

Groundwater System Budget Component	Historical Average Water Volume (TAF) WYs 1999–2018	Current Average Water Volume (TAF) WYs 2015–2018
Inflows		
Groundwater Recharge from Precipitation, Applied Water, and Septic Systems	111	131
Groundwater Recharge from Streams/Canals*	247	252
Subsurface Inflow from Adjacent Areas	128	130
Total Inflow	**486**	**513**
Outflows		
Shallow Groundwater Uptake (ET of Shallow Groundwater)	3	3
Groundwater Discharge to Streams/Canals	225	228
Groundwater Pumping	20	21
Subsurface Outflow to Adjacent Areas	156	155
Groundwater Discharge to Land Surface	84	91
Total Outflow	**488**	**498**
Average of Total Inflows and Outflows	488	503
Change in Groundwater Storage	-2	15
Change in Groundwater Storage as a Percent of the Average of Total Inflows and Outflows	-0.41%	2.97%

* Leakage from the ACID main canal annually contributes approximately 29 to 37 TAF of groundwater recharge to the aquifer system in the Anderson Subbasin.

The total inflows and outflow to the Anderson Subbasin groundwater system under current conditions are slightly higher (2 to 4 percent) than historical conditions with similar order of largest to smallest water budget component volumes. Increased inflows to the groundwater system under current conditions primarily result from the approximately 15 percent higher groundwater recharge from precipitation, applied water, and septic systems. Increases in total outflows from the groundwater system during the current period is mostly due to increased groundwater discharge to land surface.

The historical and current groundwater system budgets indicate an average change in groundwater storage ranging from a decrease of 2 TAFY under historical conditions up to an increase of 15 TAFY under current conditions (Table 4-11). The increase in groundwater storage under current conditions results primarily from increased groundwater recharge from precipitation, applied water, and septic systems (likely a result of wet climatic conditions in WY 2017) and only slight increase in the groundwater outflow components. The total groundwater system inflows generally equal or are larger than the groundwater system outflows for the historical and current periods. This means that the groundwater system has been managed sustainably.

4.4.4 Water Supply and Demand

Table 4-12 summarizes the annual average supply and demand by WYT in the Enterprise Subbasin for the historical and current water budgets. Total supply is equal to the total surface water diverted for in-basin use (excluding conveyance losses) and groundwater pumped within the subbasin. Because water purveyors in the Enterprise Subbasin only divert surface water or pump groundwater in response to a demand (that is, an indoor or outdoor water need), the total demands listed in Table 4-12 are equal to the total supply. The data indicate that total water supplies have been, and will continue to be, sufficient to meet total water demands in the subbasin.

As discussed in Chapter 2 of the Enterprise Subbasin GSP, CSA #8 - Palo Cedro relies solely on groundwater, ACID relies solely on surface water, and COR and BVWD rely on a combination of surface-water and groundwater supplies to meet water demands in the Enterprise Subbasin. COR diverts CVP water under two separate contracts with U.S. Bureau of Reclamation (Reclamation). The larger contract (up to 21 TAF annually) represents a senior water right (pre-1914). During April through October of Critically Dry years, this contract may be reduced by no more than 25 percent of the volume that COR diverted during the previous 3 non-critical WYs (COR, 2016). The smaller contract (up to 6,140 AFY) represents a more junior water right. During Critically Dry or less severe WYs, this contract may be reduced by no more than 75 percent of the volume that COR diverted during the previous 3 non-constrained (that is, full allocation) WYs. Similar to COR, ACID's April through October water rights are subject to reduction of no more than 25 percent during Critically Dry years (based on diversions during the 3 previous non-critical WYs). BVWD holds a contract with Reclamation to divert up to 24,578 AFY of CVP water from the Sacramento River (BVWD, 2016). This contract is subject to Reclamation's Water Shortage Policy (Reclamation, 2017). During shortage years, BVWD's municipal and industrial supply can be reduced by no more than 75 percent of the volume diverted during the previous 3 non-constrained WYs or to an estimated public health and safety volume (which may be a significantly smaller volume than a 25 percent allocation). BVWD's agricultural surface-water supply can be reduced by up to 100 percent during shortage years. Although there is a measure of uncertainty with respect to the reliability of surface-water supplies for the more junior contracts, purveyors have the ability to meet water demand through groundwater pumping, intrabasin water transfers, and conservation measures.

Table 4-12. Enterprise Subbasin Average Annual Supply and Demand by Water Year Type

Water Budget Component	Wet (TAF)	Above Normal (TAF)	Below Normal (TAF)	Dry (TAF)	Critically Dry (TAF)
Historical Period (WYs 1999–2018)					
Annual Groundwater Supply	15	14	15	16	17
ACID	*0*	*0*	*0*	*0*	*0*
COR	*5*	*5*	*5*	*5*	*5*
BVWD	*1*	*1*	*0*	*1*	*1*
Palo Cedro	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*
Private	*9*	*8*	*10*	*10*	*11*

Table 4-12. Enterprise Subbasin Average Annual Supply and Demand by Water Year Type

Water Budget Component	Wet (TAF)	Above Normal (TAF)	Below Normal (TAF)	Dry (TAF)	Critically Dry (TAF)
Annual Surface-water Supply	38	43	38	44	34
ACID	*15*	*16*	*15*	*17*	*14*
COR	*11*	*12*	*11*	*12*	*10*
BVWD	*12*	*15*	*12*	*15*	*10*
Annual Total Supply	53	57	53	60	51
Annual Total Demand	53	57	53	60	51
Change in Groundwater Storage	5	3	3	-11	-5
Current Period (WYs 2015–2018)					
Annual Groundwater Supply	14	NA	15	NA	17
ACID	*0*	*NA*	*0*	*NA*	*0*
COR	*5*	*NA*	*4*	*NA*	*5*
BVWD	*0*	*NA*	*1*	*NA*	*1*
Palo Cedro	*0.1*	*NA*	*0.1*	*NA*	*0.1*
Private	*9*	*NA*	*10*	*NA*	*11*
Annual Surface-water Supply	31	NA	34	NA	27
ACID	*13*	*NA*	*15*	*NA*	*13*
COR	*9*	*NA*	*11*	*NA*	*8*
BVWD	*9*	*NA*	*8*	*NA*	*6*
Annual Total Supply	45	NA	49	NA	44
Annual Total Demand	45	NA	49	NA	44
Change in Groundwater Storage	18	NA	8	NA	0

Notes:

NA = not applicable because no Above Normal or Dry year occurred during the current period.

Total Subbasin Groundwater Supply = Sum of purveyor and private groundwater supply.

- ACID Groundwater Supply = Zero, ACID does not operate pumping wells in the Enterprise Subbasin.
- COR Groundwater Supply = Approximately 60 percent of total COR groundwater supply is assumed to serve the Enterprise Subbasin.
- BVWD and Palo Cedro Groundwater Supply = Total groundwater pumped reported by each respective purveyor.
- Private Groundwater Supply = EAGSA Model estimate of private groundwater pumping in the Enterprise Subbasin.

Total Subbasin Surface-water Supply = Sum of ACID, COR, and BVWD surface-water diversions.

- ACID Surface-water Supply = Approximately 15 percent of the total ACID Sacramento River Diversions (SWRCB, 2021).
- COR Surface-water Supply = Approximately 60 percent of total COR Sacramento River and Whiskeytown diversions is assumed to serve the Enterprise Subbasin.
- BVWD Surface-water Supply = Total BVWD Sacramento River diversions.

Total Subbasin Supply = Sum of total groundwater and surface-water supply.

Total Subbasin Demand = Total groundwater pumping and surface-water supply (that is, diversions) to reflect total indoor and outdoor water use demands and associated conveyance losses.

Change in Groundwater Storage = Total inflows minus total outflows from the EAGSA Model groundwater system budget.

As discussed in Chapter 2 of the Enterprise Subbasin GSP, CSA #8 - Palo Cedro relies solely on groundwater, ACID relies solely on surface water, and COR and BVWD rely on a combination of surface-water and groundwater supplies to meet water demands in the Enterprise Subbasin. COR diverts CVP water under two separate contracts with Reclamation. The larger contract (up to 21 TAF annually) represents a senior water right (pre-1914). During April through October of Critically Dry years, this contract may be reduced by no more than 25 percent of the volume that COR diverted during the previous 3 non-critical WYs (COR, 2016). The smaller contract (up to 6,140 AFY) represents a more junior water right. During Critically Dry or less severe WYs, this contract may be reduced by no more than 75 percent of the volume that COR diverted during the previous 3 non-constrained (that is, full allocation) WYs. Similar to COR, ACID's April through October water rights are subject to reduction of no more than 25 percent during Critically Dry years (based on diversions during the 3 previous non-critical WYs). BVWD holds a contract with Reclamation to divert up to 24,578 AFY of CVP water from the Sacramento River (BVWD, 2016). This contract is subject to Reclamation's Water Shortage Policy (Reclamation, 2015). During shortage years, BVWD's municipal and industrial supply can be reduced by no more than 75 percent of the volume diverted during the previous 3 non-constrained WYs or to an estimated public health and safety volume (which may be a significantly smaller volume than a 25 percent allocation). BVWD's agricultural surface-water supply can be reduced by up to 100 percent during shortage years. Although there is a measure of uncertainty with respect to the reliability of surface-water supplies for the more junior contracts, purveyors have the ability to meet water demand through groundwater pumping, intrabasin water transfers, and conservation measures.

As shown in Table 4-12, total water supplies in the Enterprise Subbasin during the historical period are composed of approximately 55 to 65 percent surface water and approximately 35 to 45 percent groundwater. There was increased demand on groundwater resources under Critically Dry WYs (with groundwater increasing to nearly half of the total water supplies) due to less precipitation and reduced surface-water supplies during these year types. Annual total water demands among the WYTs varied by less than approximately 15 percent, which is to be expected given that population growth has been modest, and there have not been substantial changes in land use during this period. Changes in groundwater storage listed in Table 4-12 are estimated from the EAGSA Model based on the difference between average simulated inflows to and outflows of the groundwater system for the different WYTs. Because change in groundwater storage is related to the groundwater system budget, a positive or negative value does not necessarily mean that there was a surplus or deficit in total supplies (that is, change in storage is not directly related to total water supply or demand). Changes in groundwater storage vary between WYTs with increases in groundwater storage during Wet, Above Normal, and Below Normal years and decreases in groundwater storage during Dry and Critically Dry years. Water supplies met water demands during the historical period.

Observations of the current supply and demand are similar to those of the 20-year historical period, except that there was a slightly increased reliance on groundwater (42 to 55 percent of total supply on average). Additionally, neither an Above Normal nor Dry WY occurred in WYs 2015 through 2018 (Table 4-12). Surface-water supplies were significantly reduced under recent Critically Dry WY; however, purveyors in the subbasin were able to compensate for the reduced surface-water allocations through increased groundwater pumping during this period.

Table 4-13 summarizes the annual average supply and demand by WYT in the Anderson Subbasin for the historical and current water budgets. Total supply is equal to the total surface water diverted for in-basin use (excluding conveyance losses) and groundwater pumped within the subbasin. Because water purveyors in the Anderson Subbasin only divert surface water or pump groundwater in response to a demand (that is, an indoor or outdoor water need), the total demands listed in Table 4-13 are equal to the total supply. The data listed in Table 4-13 indicate that total water supplies have been sufficient to meet total water demands in the subbasin.

As discussed in Chapter 2 of the Anderson Subbasin GSP, major purveyors in the Subbasin rely on surface water, groundwater, or a combination to meet water demands. Although portions of Igo-Ono Community Services District (CSD) and Centerville CSD overlie the Anderson Subbasin (Figure 3-7), these areas represent small fractions of their respective service areas; therefore, the water supplies and demands associated with these two CSDs in the subbasin are considered negligible. ACID and CCCSD rely primarily on surface-water supplies, COA and Cottonwood Water District rely solely on groundwater, and COR uses a combination of surface water and groundwater. COR diverts CVP water under two separate contracts with Reclamation. The larger contract (up to 21 TAF annually) represents a senior water right (pre-1914). During April through October of Critically Dry years, this contract may be reduced by no more than 25 percent of the volume that COR diverted during the previous 3 non-critical WYs (COR, 2016). The smaller contract (up to 6,140 AFY) represents a more junior water right. During Critically Dry or less severe WYs, this contract may be reduced by no more than 75 percent of the volume that COR diverted during the previous 3 non-constrained (that is, full allocation) WYs. ACID diverts CVP water from the Sacramento River under two contracts with Reclamation of up to 125 TAF and 3 TAF annually, respectively. Similar to COR, ACID's April through October water rights are subject to reduction of no more than 25 percent during Critically Dry years (based on diversions during the 3 previous non-critical WYs). CCCSD diverts up to 15,300 AFY of CVP water at Clair A. Hill Whiskeytown Dam under a contract with Reclamation. Because CCCSD holds a more junior water right, the district is subject to the Reclamation water shortage policy and may experience reductions to a public health and safety volume during drought years (CCCSD, 2015; Reclamation, 2017). Although there is a measure of uncertainty with respect to the reliability of surface-water supplies for the more junior contracts, purveyors have the ability to meet water demand through groundwater pumping, intrabasin water transfers, and conservation measures.

Table 4-13. Anderson Subbasin Average Annual Supply and Demand by Water Year Type

Water Budget Component	Wet (TAF)	Above Normal (TAF)	Below Normal (TAF)	Dry (TAF)	Critically Dry (TAF)
Historical Period (WYs 1999–2018)					
Annual Groundwater Supply	17	20	18	20	22
COR	*2*	*2*	*2*	*2*	*2*
ACID	*0*	*0*	*0*	*0*	*2*
COA	*2*	*2*	*2*	*3*	*2*
Cottonwood Water District	*1*	*1*	*1*	*1*	*1*
CCCSD	*0*	*0*	*0*	*0*	*0*
Private	*12*	*15*	*13*	*14*	*15*
Annual Surface-water Supply	74	82	76	93	70
COR	*4*	*5*	*4*	*5*	*4*
ACID	*65*	*71*	*68*	*82*	*62*
CCCSD	*5*	*6*	*4*	*6*	*4*
Annual Total Supply	91	102	94	113	92
Annual Total Demand	91	102	94	113	92
Change in Groundwater Storage	12	3	4	-18	-13

Table 4-13. Anderson Subbasin Average Annual Supply and Demand by Water Year Type

Water Budget Component	Wet (TAF)	Above Normal (TAF)	Below Normal (TAF)	Dry (TAF)	Critically Dry (TAF)
Current Period (WYs 2015–2018)					
Annual Groundwater Supply	20	NA	20	NA	23
COR	2	NA	2	NA	2
ACID	*0*	*NA*	*0*	*NA*	*4*
COA	*2*	*NA*	*2*	*NA*	*2*
Cottonwood Water District	*2*	*NA*	*2*	*NA*	*1*
CCCSD	*0*	*NA*	*0*	*NA*	*0*
Private	14	NA	14	NA	14
Annual Surface-water Supply	64	NA	73	NA	58
COR	4	NA	4	NA	3
ACID	*57*	*NA*	*66*	*NA*	*54*
CCCSD	*3*	*NA*	*3*	*NA*	*1*
Annual Total Supply	84	NA	93	NA	81
Annual Total Demand	84	NA	93	NA	81
Change in Groundwater Storage	34	NA	13	NA	-3

Notes:

NA = not applicable because no Above Normal or Dry year occurred during the current period.

Total Subbasin Groundwater Supply = Sum of purveyor and private groundwater supply.

- COR Groundwater Supply: Approximately 25 percent of total COR groundwater supply is assumed to serve Anderson Subbasin.
- ACID, COA, Cottonwood Water District, CCCSD Groundwater Supply = Total groundwater pumping reported by each respective purveyor.
- Private Groundwater Supply = EAGSA Model estimate of private groundwater pumping in the Anderson Subbasin.

Total Subbasin Surface-water Supply = Sum of COR, ACID, and CCCSD surface-water diversions.

- COR Surface-water Supply: Approximately 25 percent of total COR Sacramento River and Whiskeytown diversions is assumed to serve Anderson Subbasin.
- ACID Surface-water Supply = Total ACID Sacramento River diversion at Caldwell Park (estimated to be 85 percent of the total ACID diversion on average [SWRCB, 2021]) minus the simulated 29 to 37 TAF of ACID main canal leakage.
- CCCSD Surface-water Supply = Total CCCSD Whiskeytown diversions minus the Centerville CSD Whiskeytown allocation.

Total Subbasin Supply = Sum of total groundwater and surface-water supply.

Total Subbasin Demand = Total groundwater pumping and surface-water supply (that is, diversions) to reflect total indoor and outdoor water use demands and associated conveyance losses.

Change in Groundwater Storage = Total inflows minus total outflows from the EAGSA Model groundwater system budget.

As discussed in Chapter 2 of the Anderson Subbasin GSP, major purveyors in the Subbasin rely on surface water, groundwater, or a combination to meet water demands. Although portions of Igo-Ono CSD and Centerville CSD overlie the Anderson Subbasin (Figure 3-7), these areas represent small fractions of their respective service areas; therefore, the water supplies and demands associated with these two CSDs in the subbasin are considered negligible. ACID and CCCSD rely primarily on surface-water supplies, COA and Cottonwood Water District rely solely on groundwater, and COR uses a combination of surface water and groundwater. COR diverts CVP water under two separate contracts with Reclamation. The larger contract (up to 21 TAF annually) represents a senior water right (pre-1914). During April through October of Critically Dry years, this contract may be reduced by no more than 25 percent of the volume that COR diverted during the previous 3 non-critical WYs (COR, 2016). The smaller contract (up to 6,140 AFY) represents a more junior water right. During Critically Dry or less severe WYs, this contract may be reduced by no more than 75 percent of the volume that COR diverted during the previous 3 non-constrained (that is, full allocation) WYs. ACID diverts CVP water from the Sacramento River under two contracts with Reclamation of up to 125 TAF and 3 TAF annually, respectively. Similar to COR, ACID's April through October water rights are subject to reduction of no more than 25 percent during Critically Dry years (based on diversions during the 3 previous non-critical WYs). CCCSD diverts up to 15,300 AFY of CVP water at Clair A. Hill Whiskeytown Dam under a contract with Reclamation. Because CCCSD holds a more junior water right, the district is subject to the Reclamation water shortage policy and may experience reductions to a public health and safety volume during drought years (CCCSD, 2015; Reclamation, 2017). Although there is a measure of uncertainty with respect to the reliability of surface-water supplies for the more junior contracts, purveyors have the ability to meet water demand through groundwater pumping, intrabasin water transfers, and conservation measures.

As shown in Table 4-13, surface water made up approximately 70 to 80 percent of the total water supplies in the Anderson Subbasin during the historical period, with increased demand on groundwater resources (up to nearly 30 percent of total water supplies) under Critically Dry WYs due to less precipitation and reduced surface-water supplies during these WYTs. Annual total water demands among the WYTs varied by less than approximately 30 percent, which is to be expected given that population growth has been modest, and there have not been substantial changes in land use during this period. Changes in groundwater storage listed in Table 4-13 are estimated from the EAGSA Model based on the difference between average simulated inflows to and outflows from the groundwater system for the different WYTs. Because change in groundwater storage is related to the groundwater system budget, a positive or negative value does not necessarily mean that there was a surplus or deficit in total supplies (that is, change in storage is not directly related to total water supply or demand). Changes in groundwater storage vary between WYTs with increases in groundwater storage during Wet, Above Normal, and Below Normal years and decreases in groundwater storage during Dry and Critically Dry years. Water supplies met water demands during the historical period.

Observations of the current supply and demand are similar to those of the 20-year historical period, except that neither an Above Normal nor Dry WY occurred in WYs 2015 through 2018 (Table 4-13). Additionally, surface-water supplies were reduced under recent Critically Dry WYs, creating a smaller difference between surface-water and groundwater supplies in the Anderson Subbasin during the 2015 Critically Dry year. Despite the surface-water reductions during the current period, purveyors in the subbasin were able to compensate for the reduced surface-water allocations through increased groundwater pumping.

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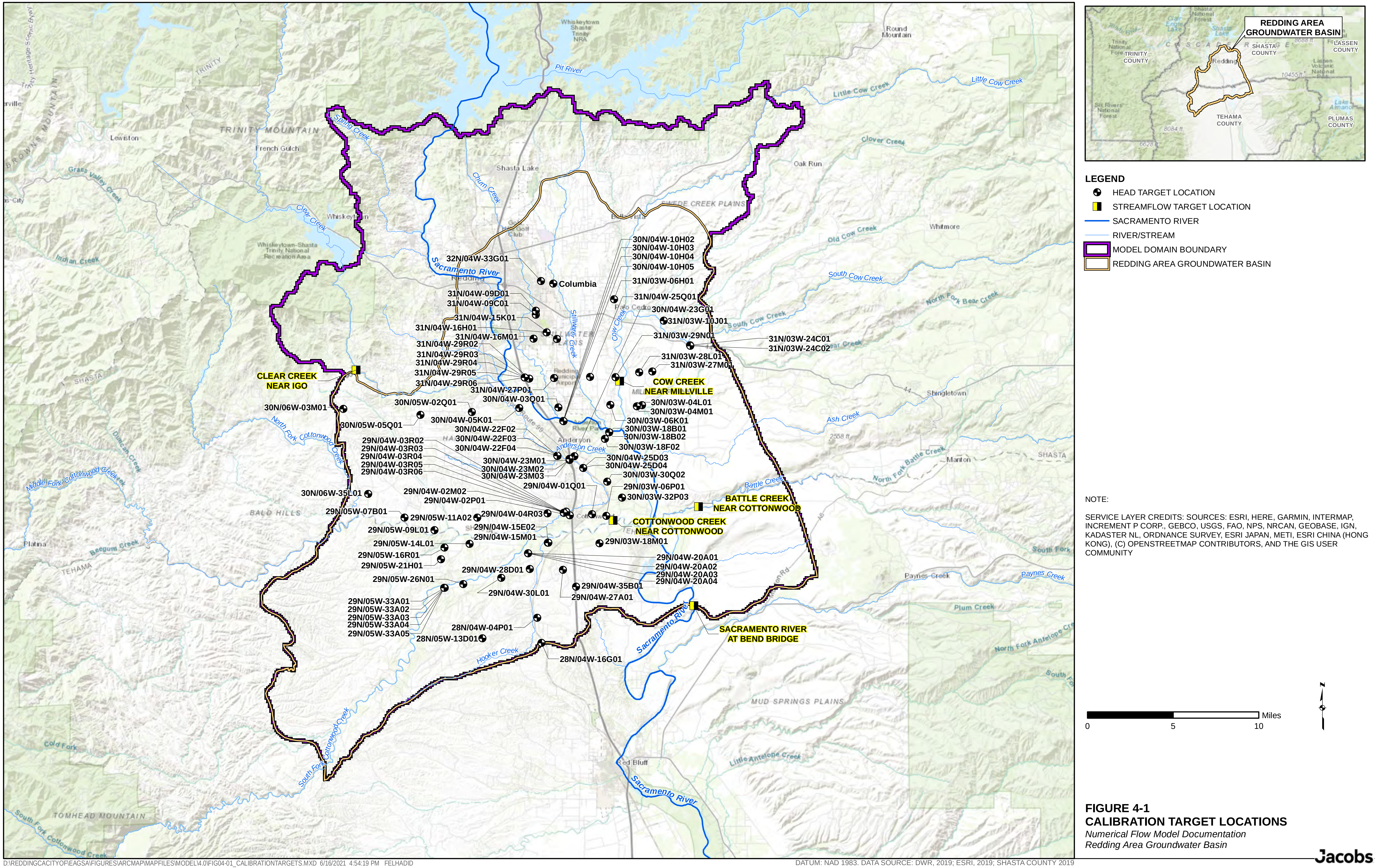

NOTE:

SERVICE LAYER CREDITS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY

DATUM: NAD 1983. DATA SOURCE: DWR, 2019; ESRI, 2019; SHASTA COUNTY 2019

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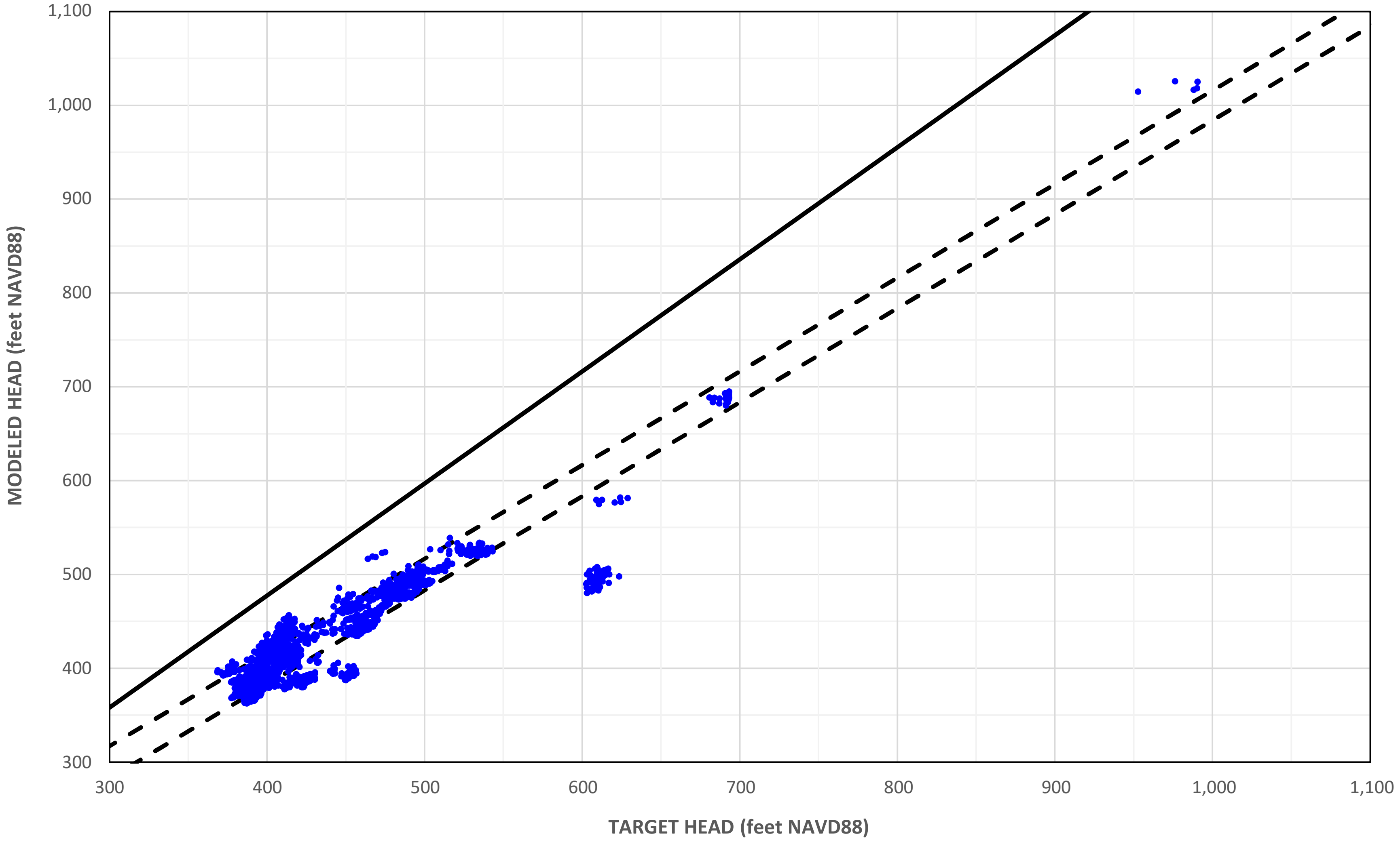
FIGURE 4-1
CALIBRATION TARGET LOCATIONS

Numerical Flow Model Documentation
Redding Area Groundwater Basin

Jacobs



LEGEND

● MODELED VERSUS TARGET HEAD (feet NAVD88)

━━ ONE-TO-ONE CORRELATION LINE

– – ± 1 RESIDUAL STANDARD DEVIATION LINE

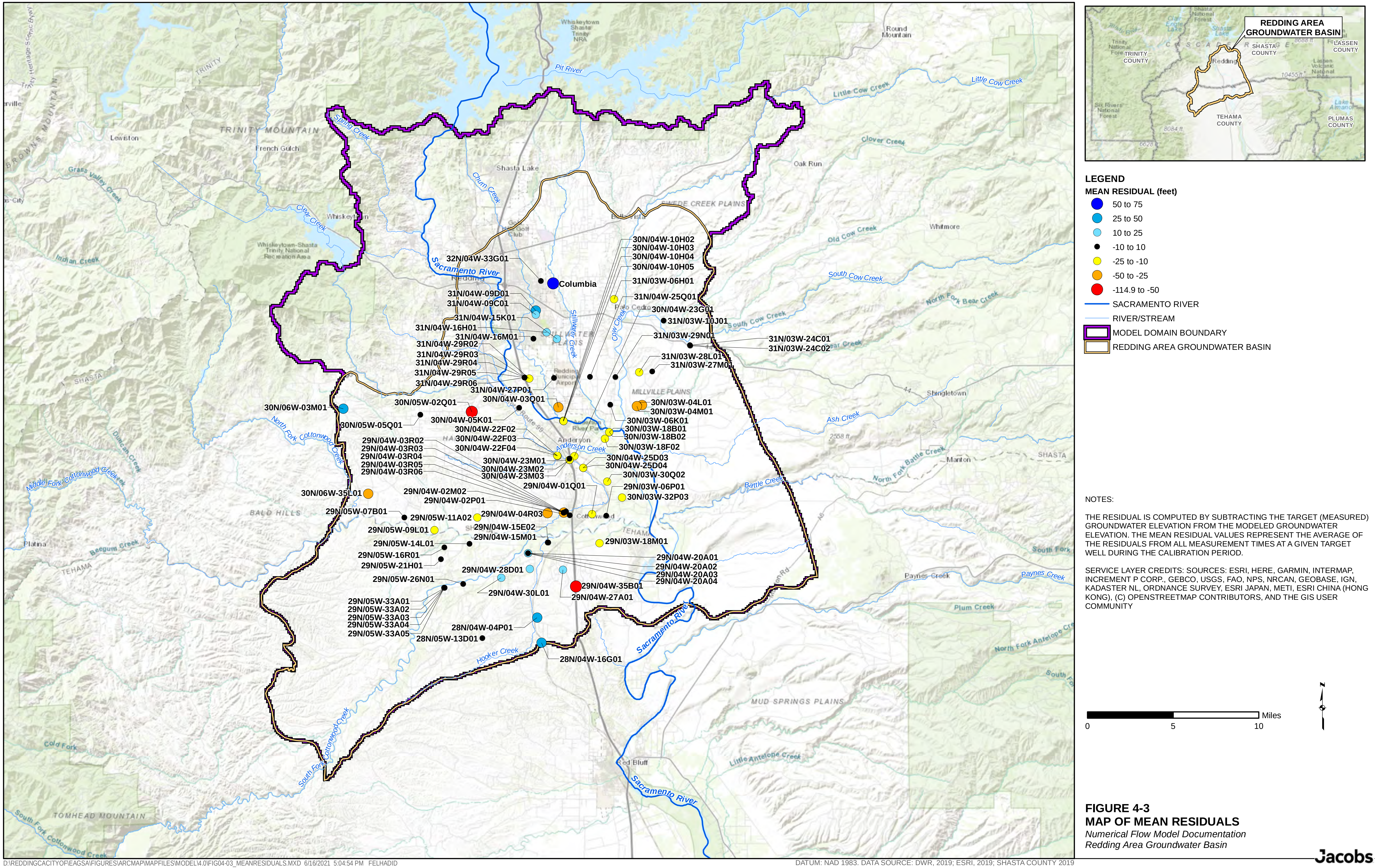
NOTE:

NAVD88 = NORTH AMERICAN VERTICAL DATUM OF 1988

FIGURE 4-2
MODELED VERSUS TARGET GROUNDWATER ELEVATIONS

Numerical Flow Model Documentation
Redding Area Groundwater Basin

Jacobs



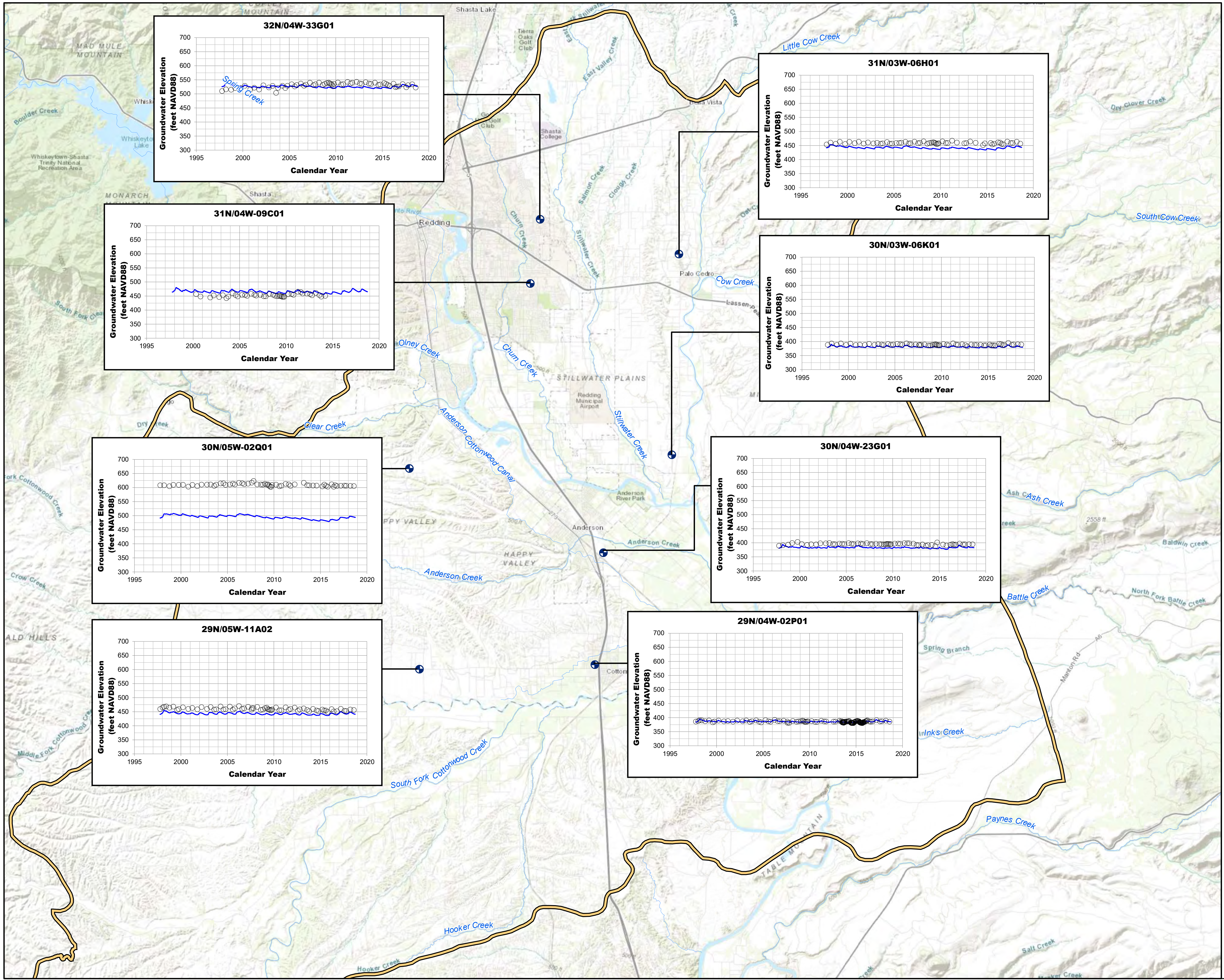
NOTES:

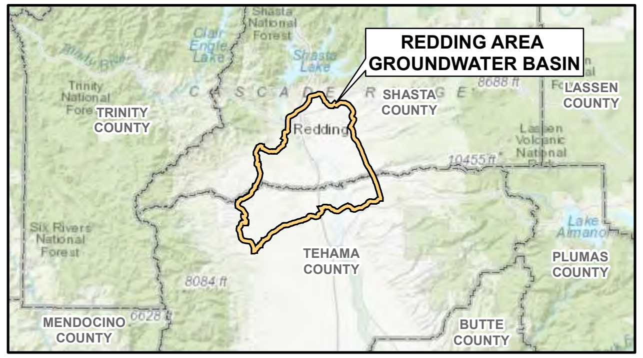
THE RESIDUAL IS COMPUTED BY SUBTRACTING THE TARGET (MEASURED) GROUNDWATER ELEVATION FROM THE MODELED GROUNDWATER ELEVATION. THE MEAN RESIDUAL VALUES REPRESENT THE AVERAGE OF THE RESIDUALS FROM ALL MEASUREMENT TIMES AT A GIVEN TARGET WELL DURING THE CALIBRATION PERIOD.

SERVICE LAYER CREDITS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY

FIGURE 4-3
MAP OF MEAN RESIDUALS
Numerical Flow Model Documentation
Redding Area Groundwater Basin

DATUM: NAD 1983. DATA SOURCE: DWR, 2019; ESRI, 2019; SHASTA COUNTY 2019





MAP LEGEND

- ● GROUNDWATER ELEVATION LOCATION
- SACRAMENTO RIVER
- RIVER/STREAM
- ▭ REDDING AREA GROUNDWATER BASIN

GRAPH LEGEND

- ○ TARGET GROUNDWATER ELEVATION (feet NAVD88)
- MODELED GROUNDWATER ELEVATION (feet NAVD88)

NOTES:

DATA SOURCE: DWR, 2019b

NAVD88 = NORTH AMERICAN VERTICAL DATUM OF 1988

SERVICE LAYER CREDITS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP

0 3 6 Miles

FIGURE 4-4
MODELED VERSUS TARGET GROUNDWATER ELEVATION HYDROGRAPHS

Numerical Flow Model Documentation
Redding Area Groundwater Basin

Jacobs

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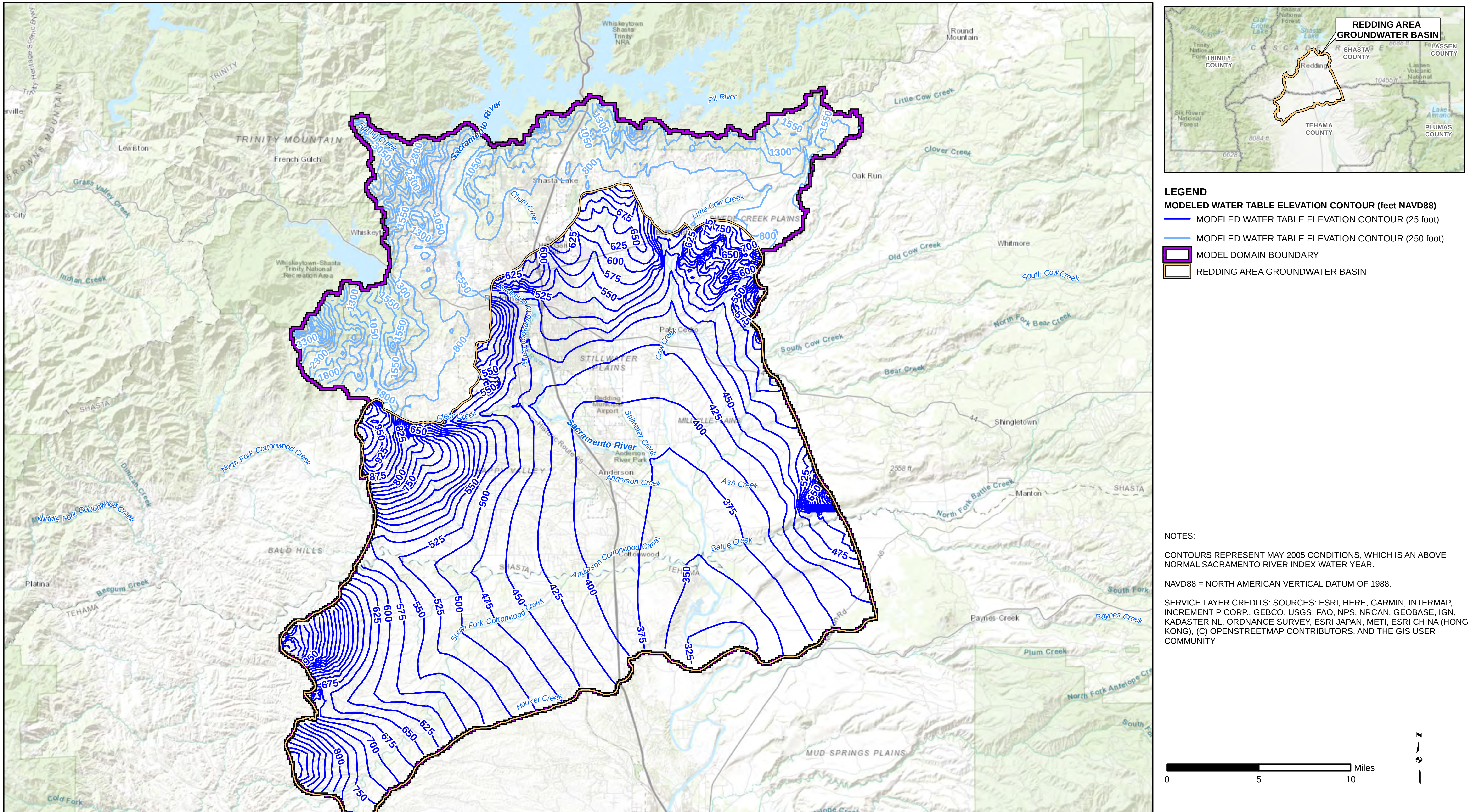
DATUM: NAD 1983. DATA SOURCE: DWR, 2019; ESRI, 2019; SHASTA COUNTY 2019



LEGEND

MODELED WATER TABLE ELEVATION CONTOUR (feet NAVD88)

- MODELED WATER TABLE ELEVATION CONTOUR (25 foot)
- MODELED WATER TABLE ELEVATION CONTOUR (250 foot)
- MODEL DOMAIN BOUNDARY
- REDDING AREA GROUNDWATER BASIN

NOTES:

CONTOURS REPRESENT MAY 2005 CONDITIONS, WHICH IS AN ABOVE NORMAL SACRAMENTO RIVER INDEX WATER YEAR.

NAVD88 = NORTH AMERICAN VERTICAL DATUM OF 1988.

SERVICE LAYER CREDITS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY

FIGURE 4-5
MODELED WATER TABLE DURING AN ABOVE NORMAL WATER YEAR
Numerical Flow Model Documentation
Redding Area Groundwater Basin

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DATUM: NAD 1983. DATA SOURCE: DWR, 2019; ESRI, 2019; SHASTA COUNTY 2019

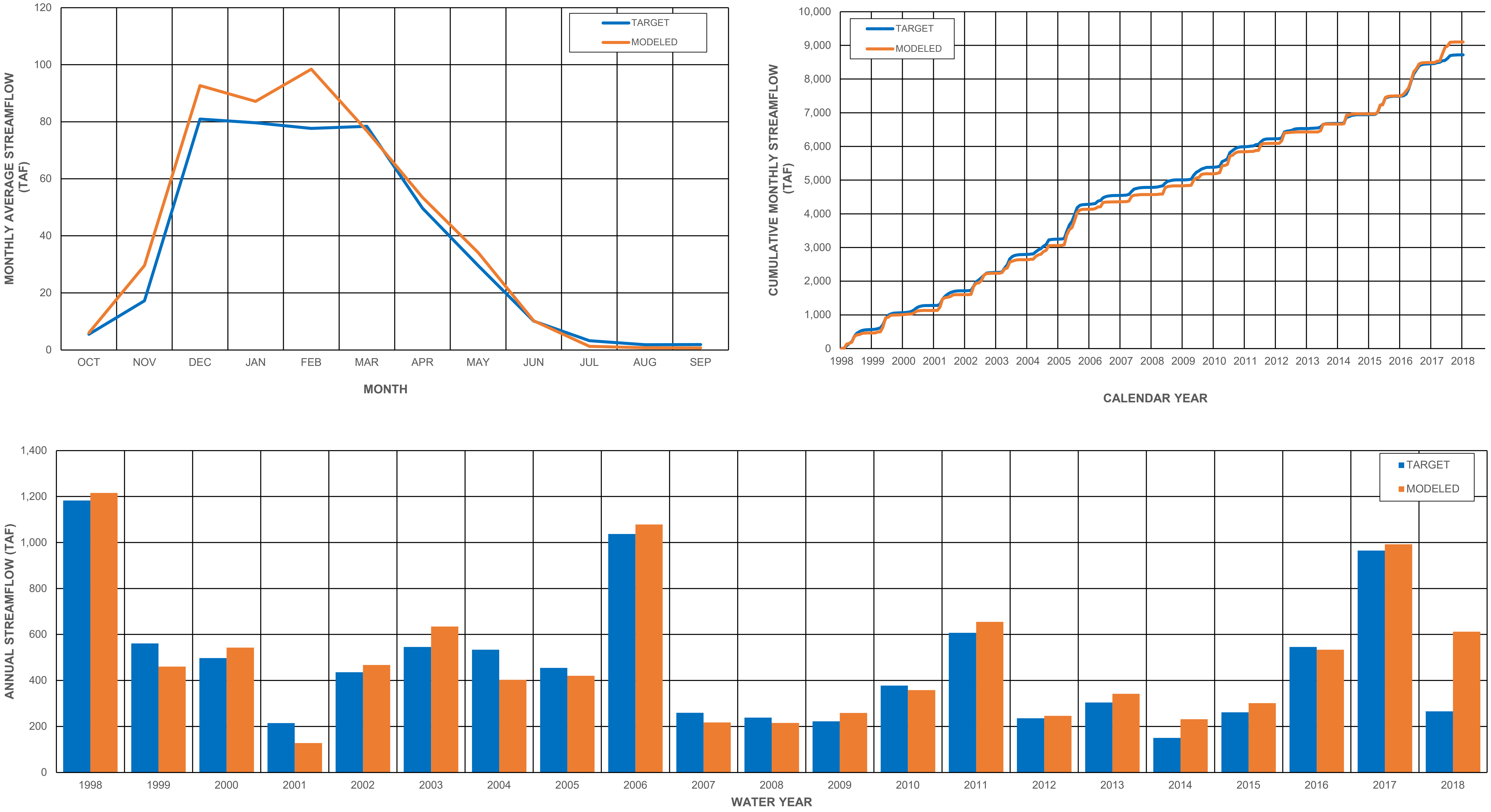

FIGURE 4-6a
MODELED VERSUS TARGET STREAMFLOW –
COW CREEK NEAR MILLVILLE
Numerical Flow Model Documentation
Redding Area Groundwater Basin

D:\ReddingCACityof\EAGSA\Figures\XLSX\Model\4.0\FIG04-06_Streamflow_Calibration_Plots.xlsx\FIG04-6a

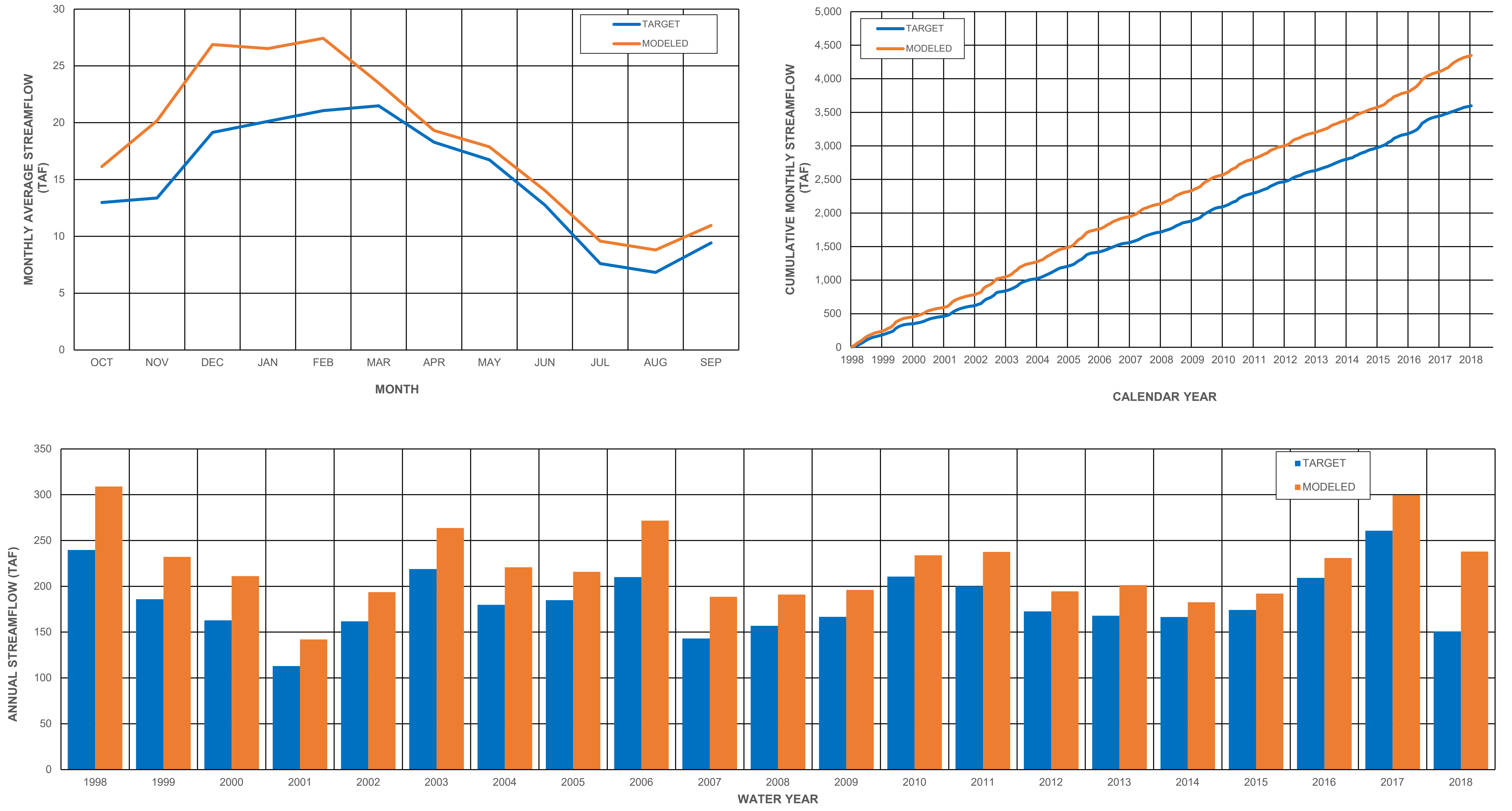

FIGURE 4-6b
MODELED VERSUS TARGET STREAMFLOW –
CLEAR CREEK NEAR IGO
Numerical Flow Model Documentation
Redding Area Groundwater Basin

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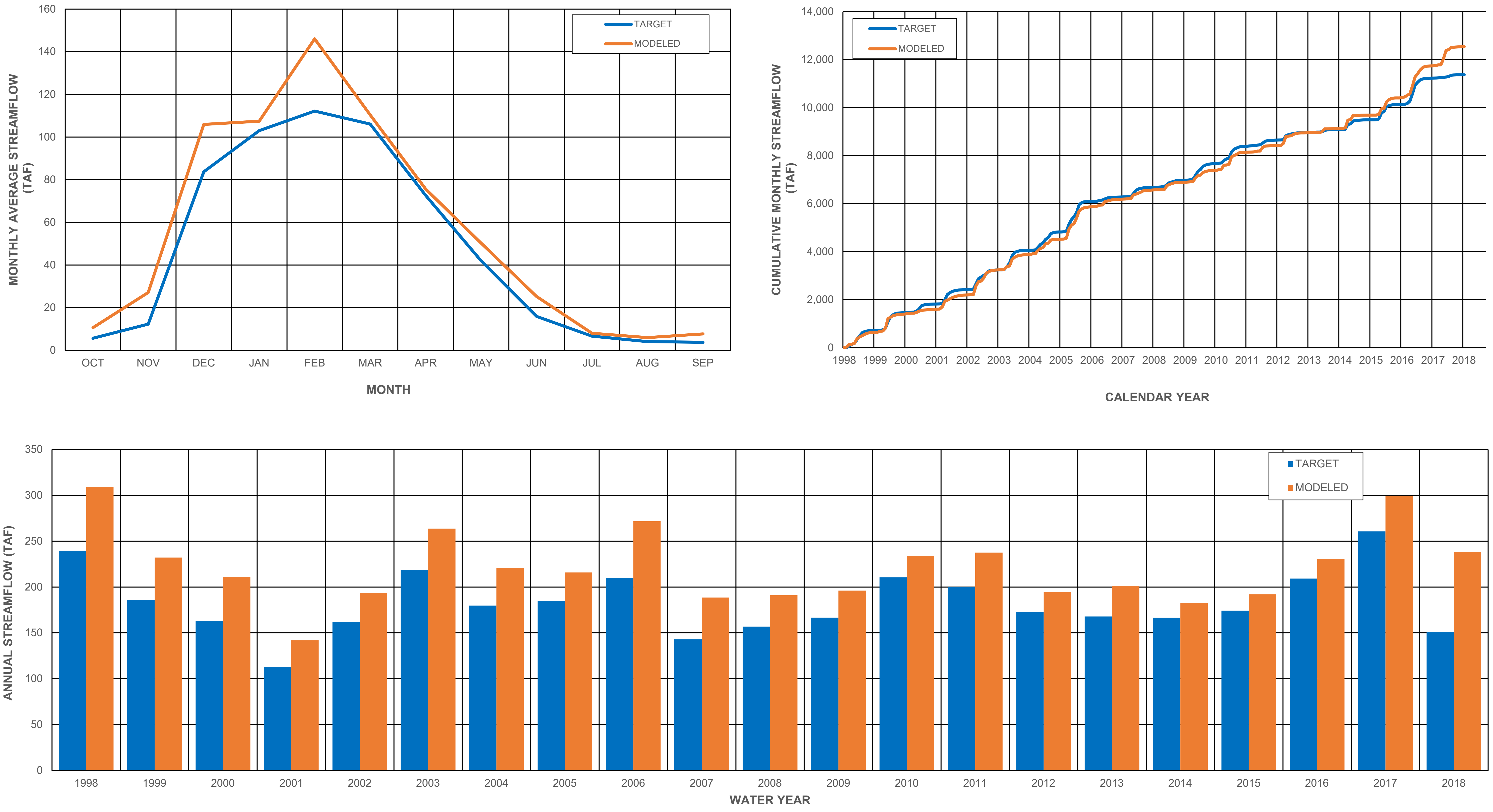


FIGURE 4-6c
MODELED VERSUS TARGET STREAMFLOW – COTTONWOOD CREEK NEAR COTTONWOOD
Numerical Flow Model Documentation
Redding Area Groundwater Basin

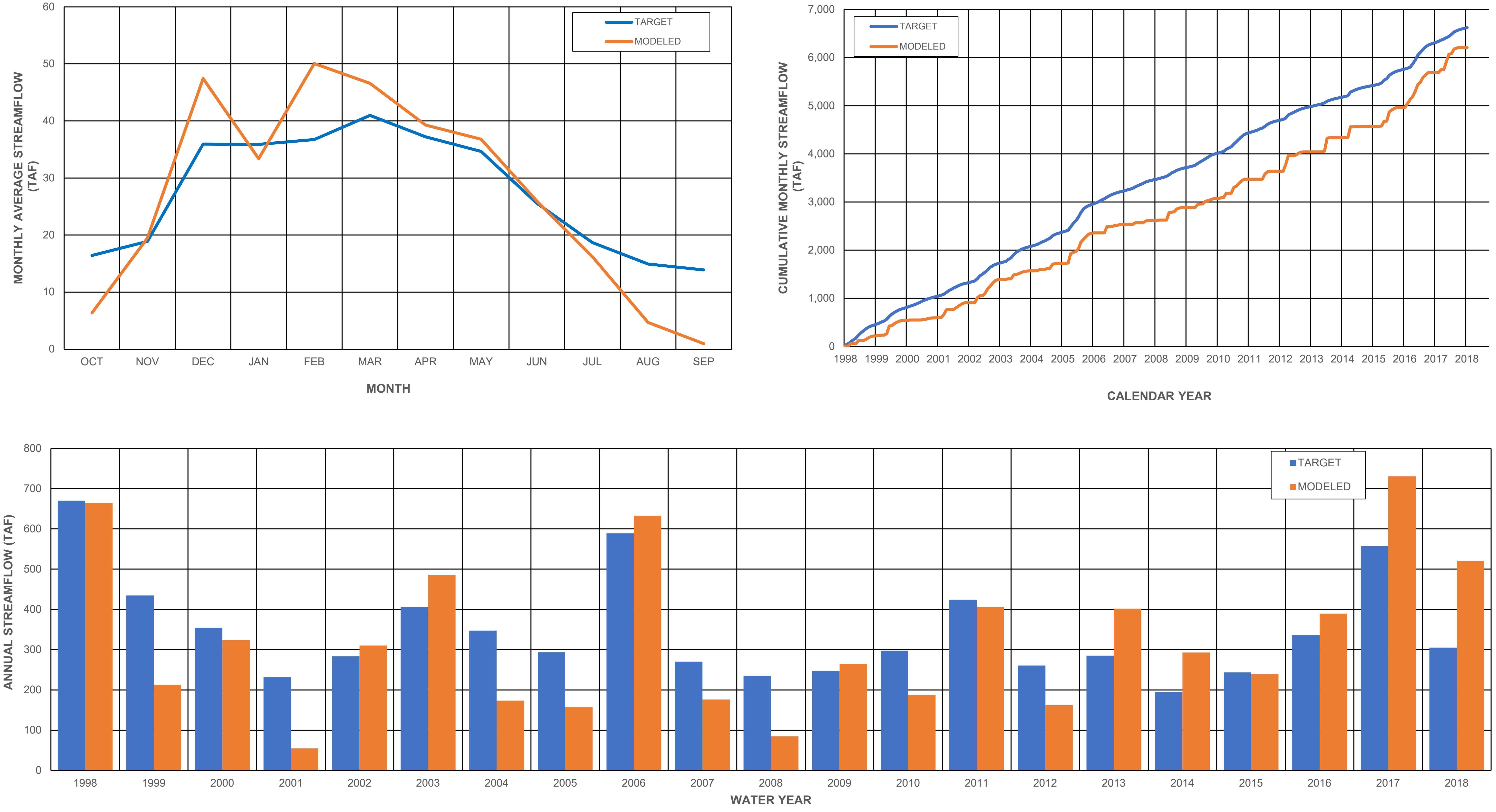


FIGURE 4-6d
MODELED VERSUS TARGET STREAMFLOW –
BATTLE CREEK NEAR COTTONWOOD
Numerical Flow Model Documentation
Redding Area Groundwater Basin

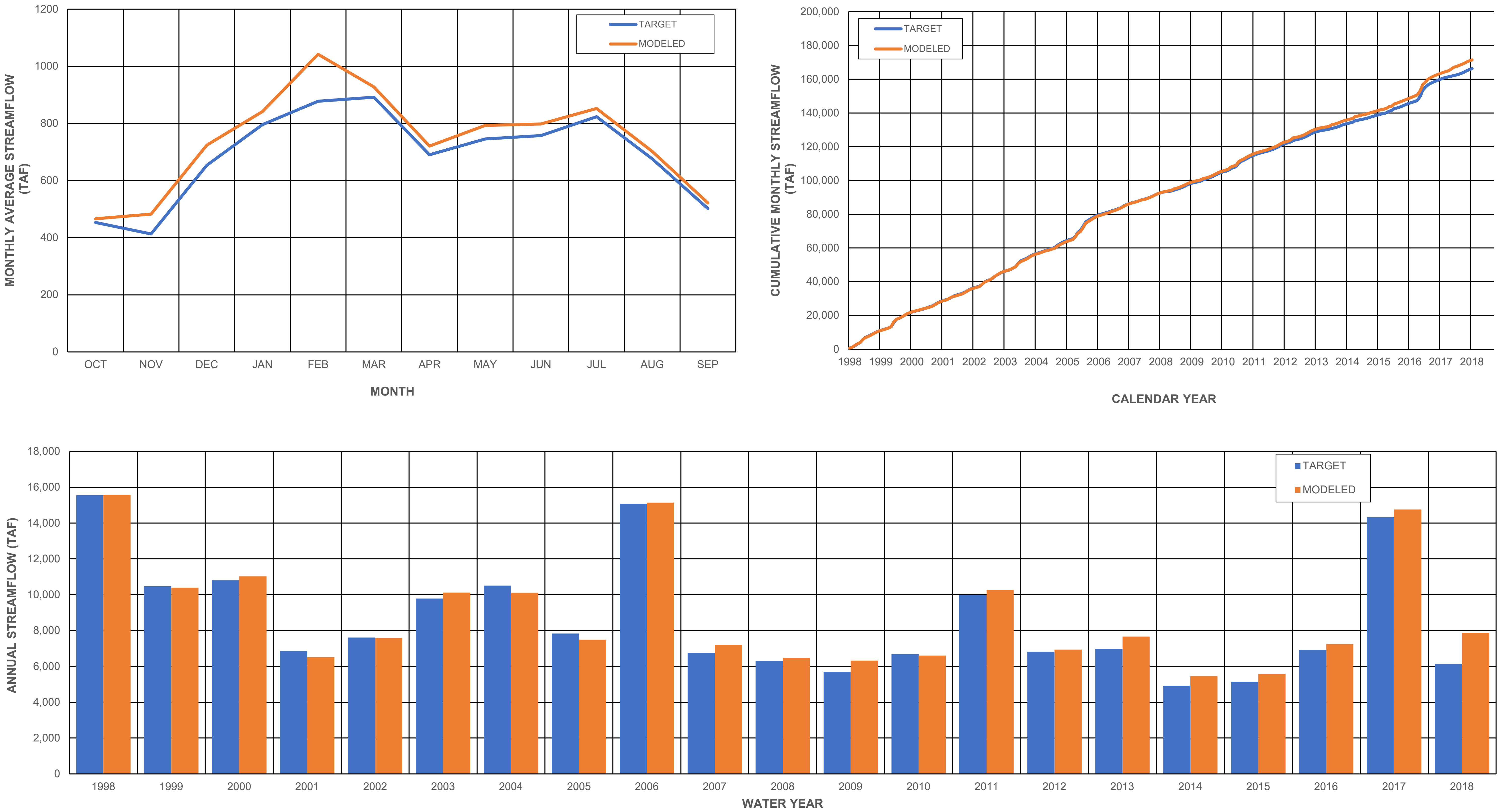
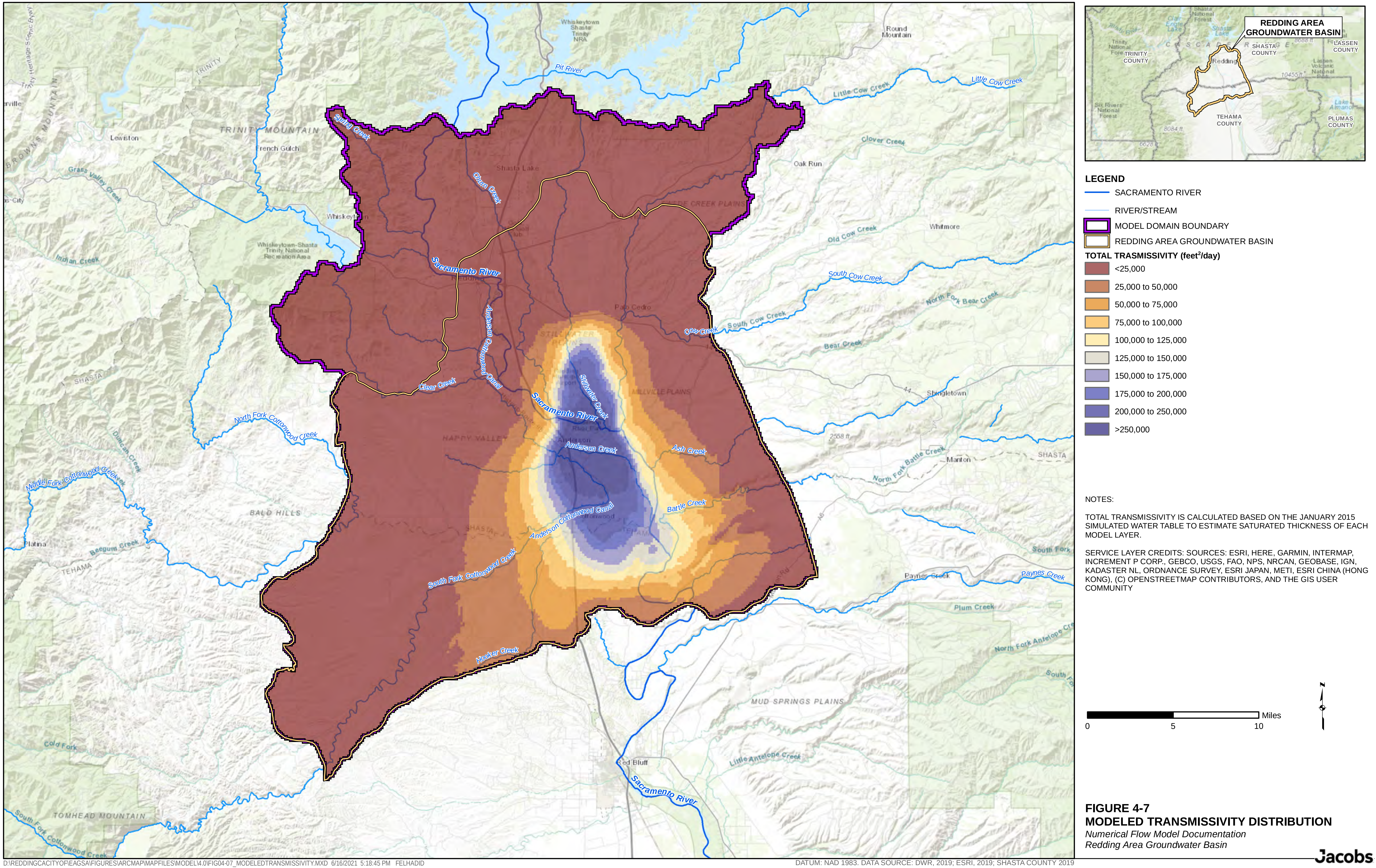


FIGURE 4-6e
MODELED VERSUS TARGET STREAMFLOW –
SACRAMENTO RIVER AT BEND BRIDGE
Numerical Flow Model Documentation
Redding Area Groundwater Basin



LEGEND

- SACRAMENTO RIVER
- RIVER/STREAM
- MODEL DOMAIN BOUNDARY
- REDDING AREA GROUNDWATER BASIN

TOTAL TRASMISSIVITY (feet^2/day)

- <25,000
- 25,000 to 50,000
- 50,000 to 75,000
- 75,000 to 100,000
- 100,000 to 125,000
- 125,000 to 150,000
- 150,000 to 175,000
- 175,000 to 200,000
- 200,000 to 250,000
- >250,000

NOTES:

TOTAL TRANSMISSIVITY IS CALCULATED BASED ON THE JANUARY 2015 SIMULATED WATER TABLE TO ESTIMATE SATURATED THICKNESS OF EACH MODEL LAYER.

SERVICE LAYER CREDITS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY

FIGURE 4-7
MODELED TRANSMISSIVITY DISTRIBUTION
Numerical Flow Model Documentation
Redding Area Groundwater Basin

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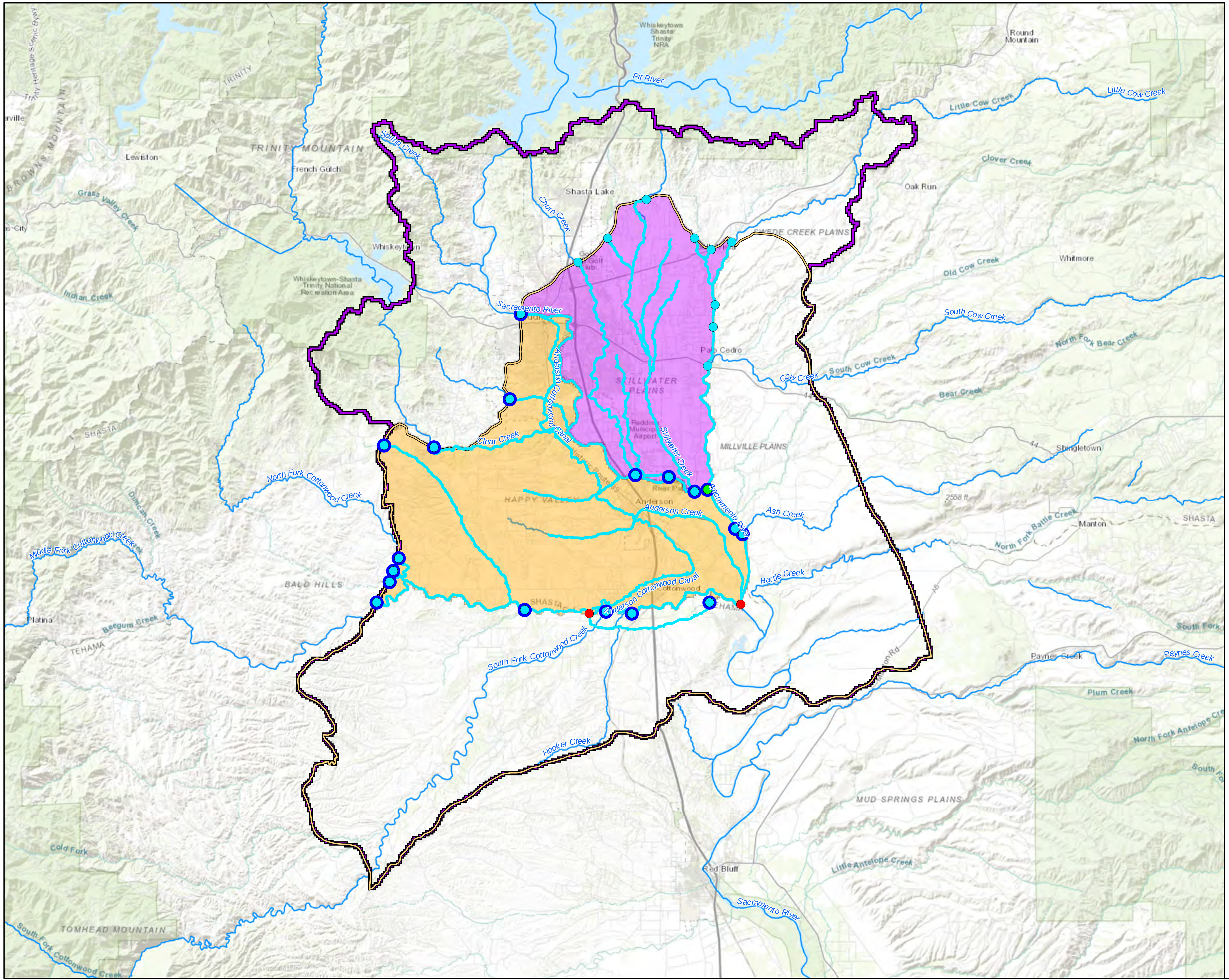
DATUM: NAD 1983. DATA SOURCE: DWR, 2019; ESRI, 2019; SHASTA COUNTY 2019



LEGEND

- ○ SURFACE-WATER BUDGET INFLOW
- ● SURFACE-WATER BUDGET OUTFLOW
- ● ENTERPRISE GROUNDWATER SUBBASIN SURFACE-WATER INFLOW
- ● ENTERPRISE GROUNDWATER SUBBASIN SURFACE-WATER OUTFLOW
- — WATER BUDGET STREAM/RIVER
- — RIVER/STREAM
- ▨ ENTERPRISE GROUNDWATER SUBBASIN WATER BUDGET AREA
- ▨ ANDERSON GROUNDWATER SUBBASIN WATER BUDGET AREA
- ☐ MODEL DOMAIN BOUNDARY
- ☐ REDDING AREA GROUNDWATER BASIN

NOTES:

THE WATER BUDGET REFERENCE VOLUMES INCLUDE THE PRINCIPAL AQUIFERS IN THE WATER BUDGET AREAS DOWN TO, BUT NOT INCLUDING, THE CHICO FORMATION.

SERVICE LAYER CREDITS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY

FIGURE 4-8
WATER BUDGET REFERENCE VOLUME
Numerical Flow Model Documentation
Redding Area Groundwater Basin

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DATUM: NAD 1983. DATA SOURCE: DWR, 2019; ESRI, 2019; SHASTA COUNTY 2019

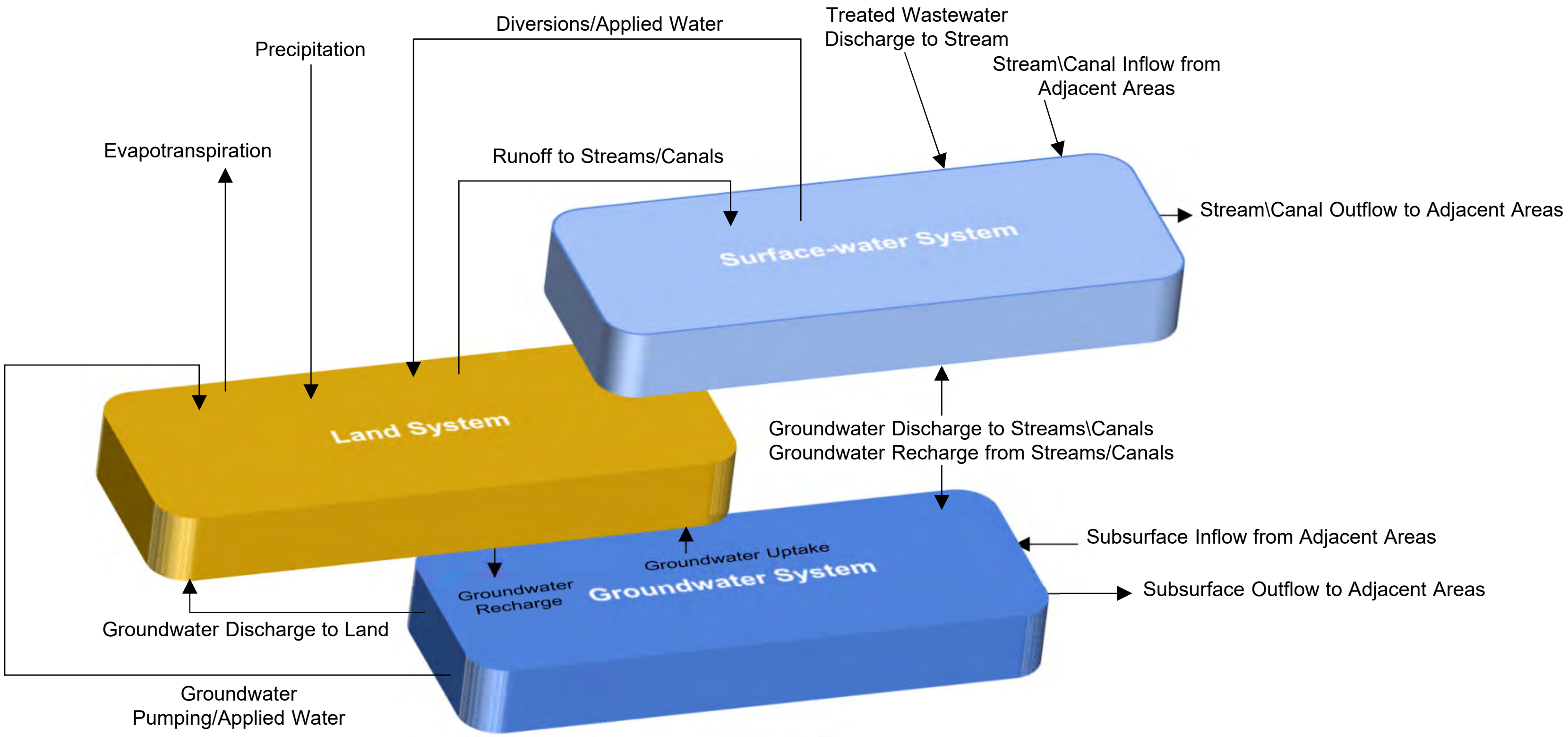


FIGURE 4-9
GENERALIZED WATER BUDGET DIAGRAM

Numerical Flow Model Documentation
Redding Area Groundwater Basin

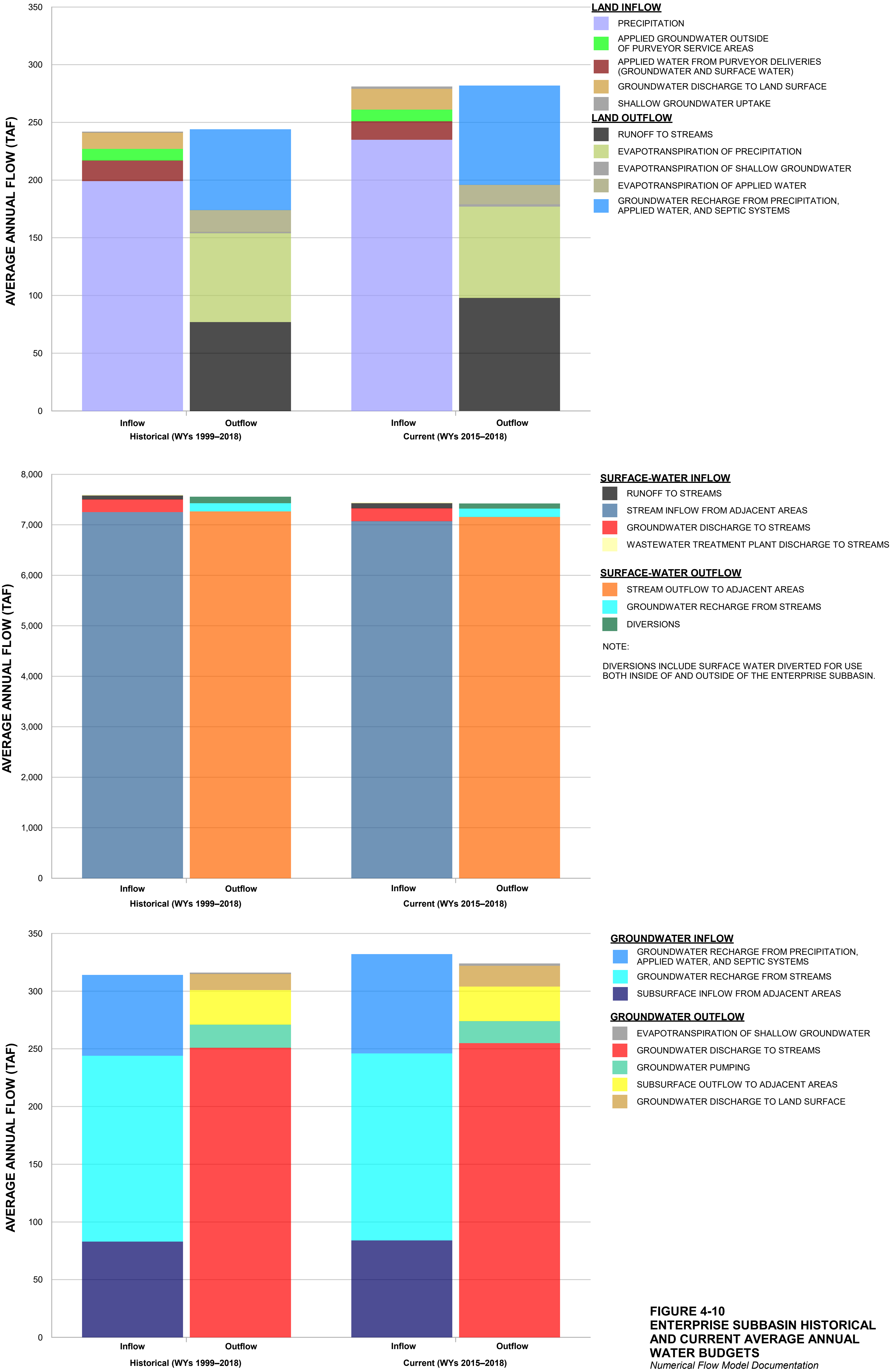


FIGURE 4-10
ENTERPRISE SUBBASIN HISTORICAL AND CURRENT AVERAGE ANNUAL WATER BUDGETS
Numerical Flow Model Documentation
Redding Area Groundwater Basin

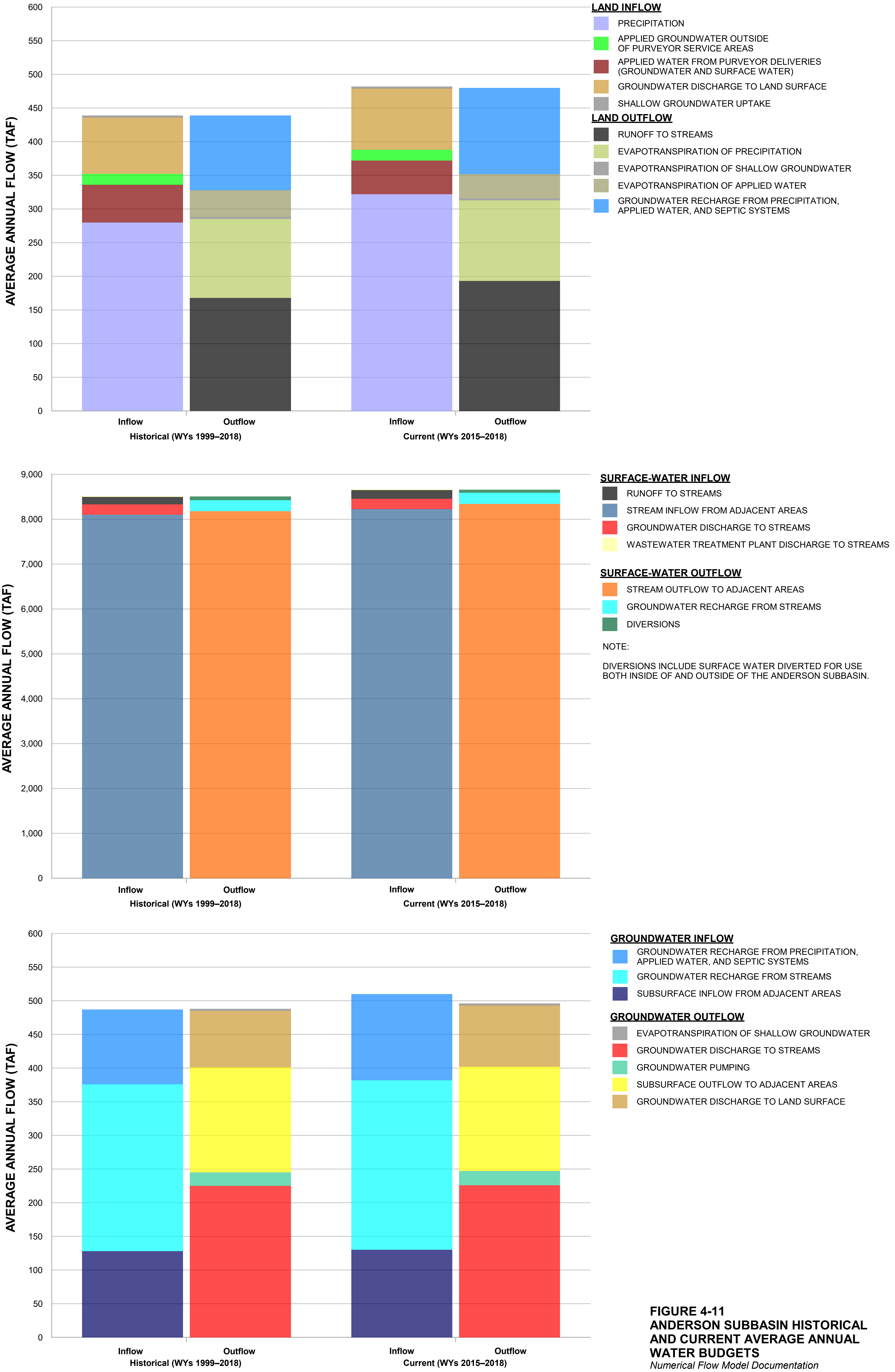
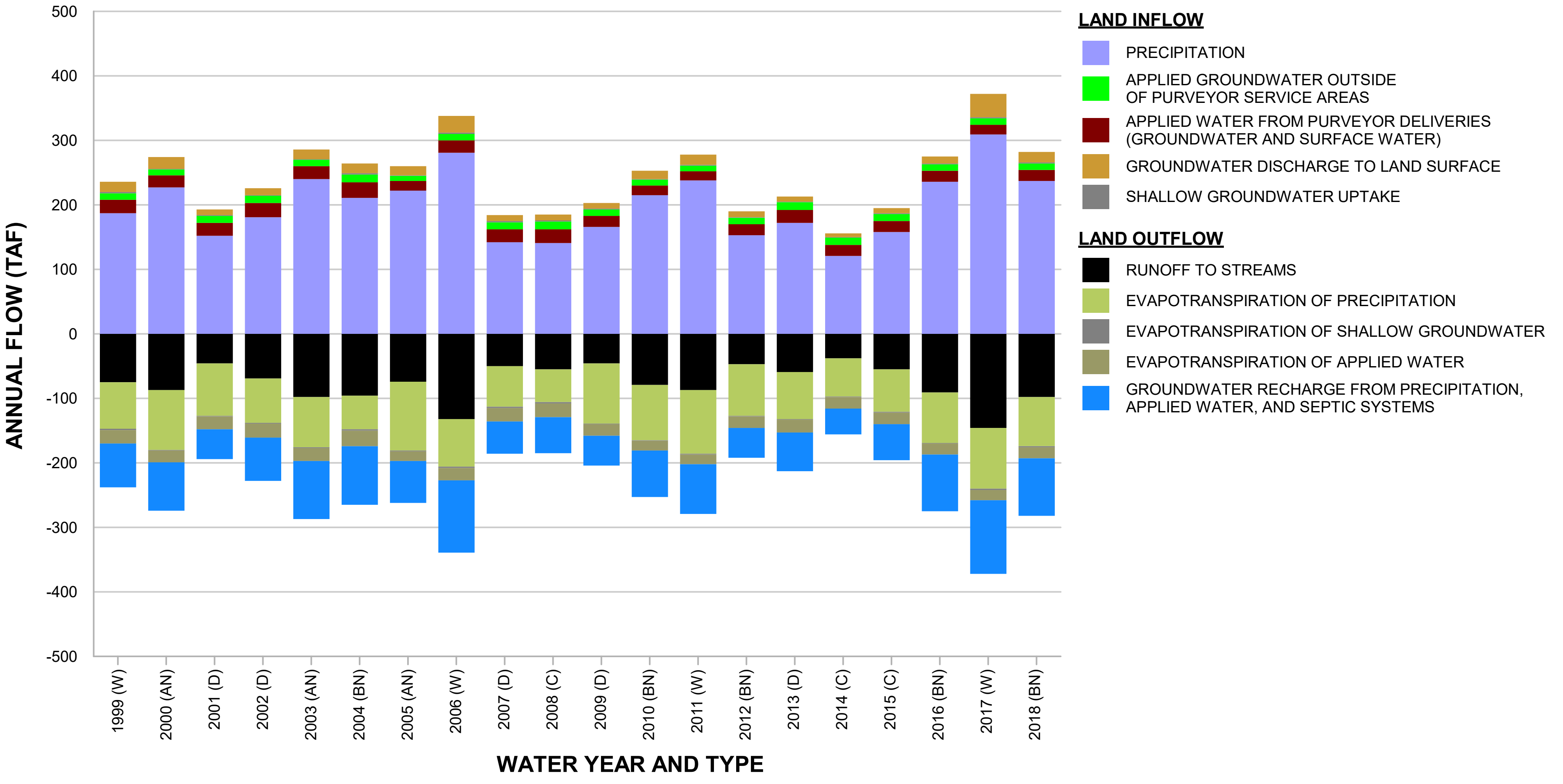
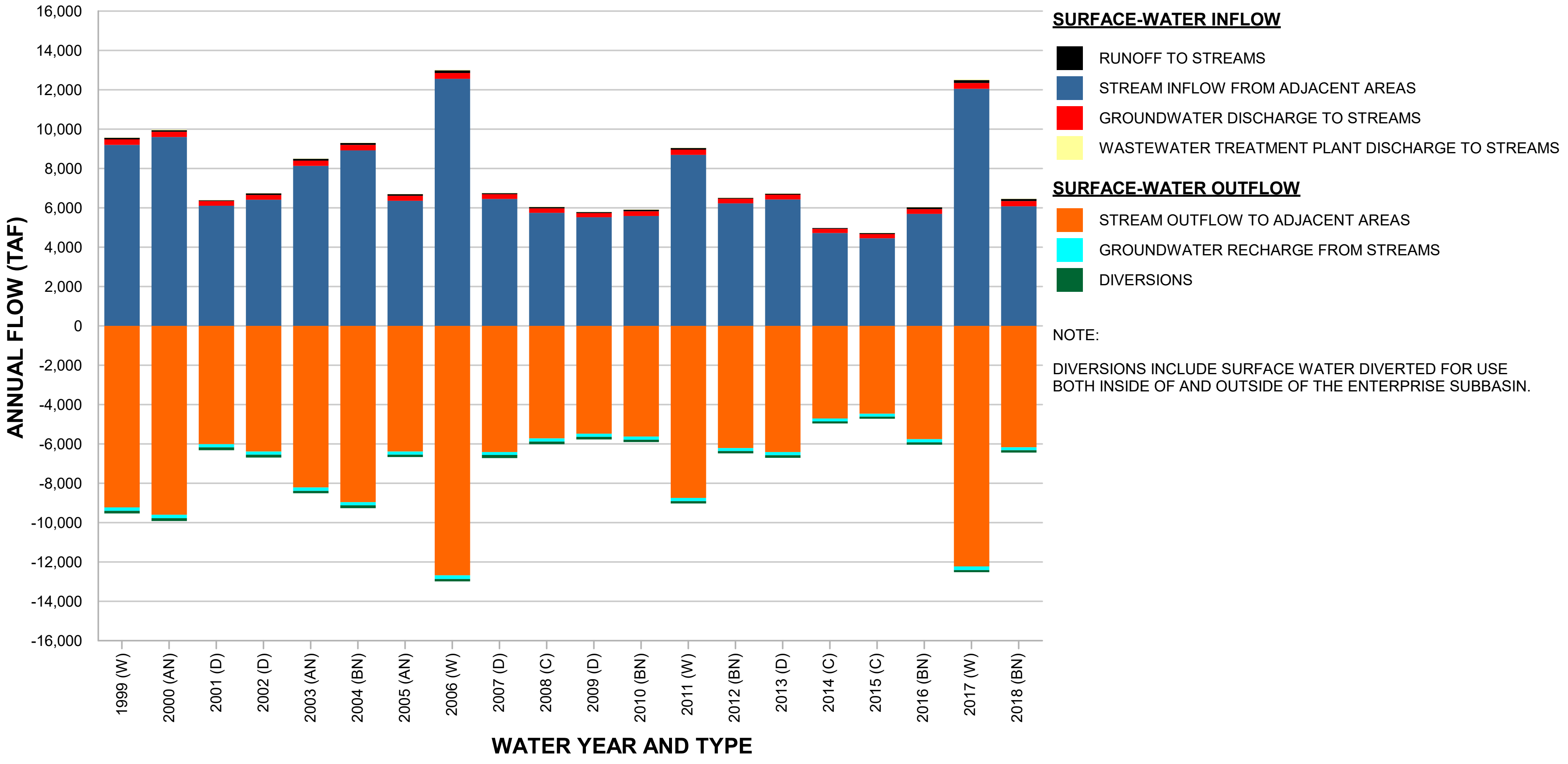


FIGURE 4-11
ANDERSON SUBBASIN HISTORICAL AND CURRENT AVERAGE ANNUAL WATER BUDGETS
Numerical Flow Model Documentation
Redding Area Groundwater Basin





NOTE:

DIVERSIONS INCLUDE SURFACE WATER DIVERTED FOR USE BOTH INSIDE OF AND OUTSIDE OF THE ENTERPRISE SUBBASIN.

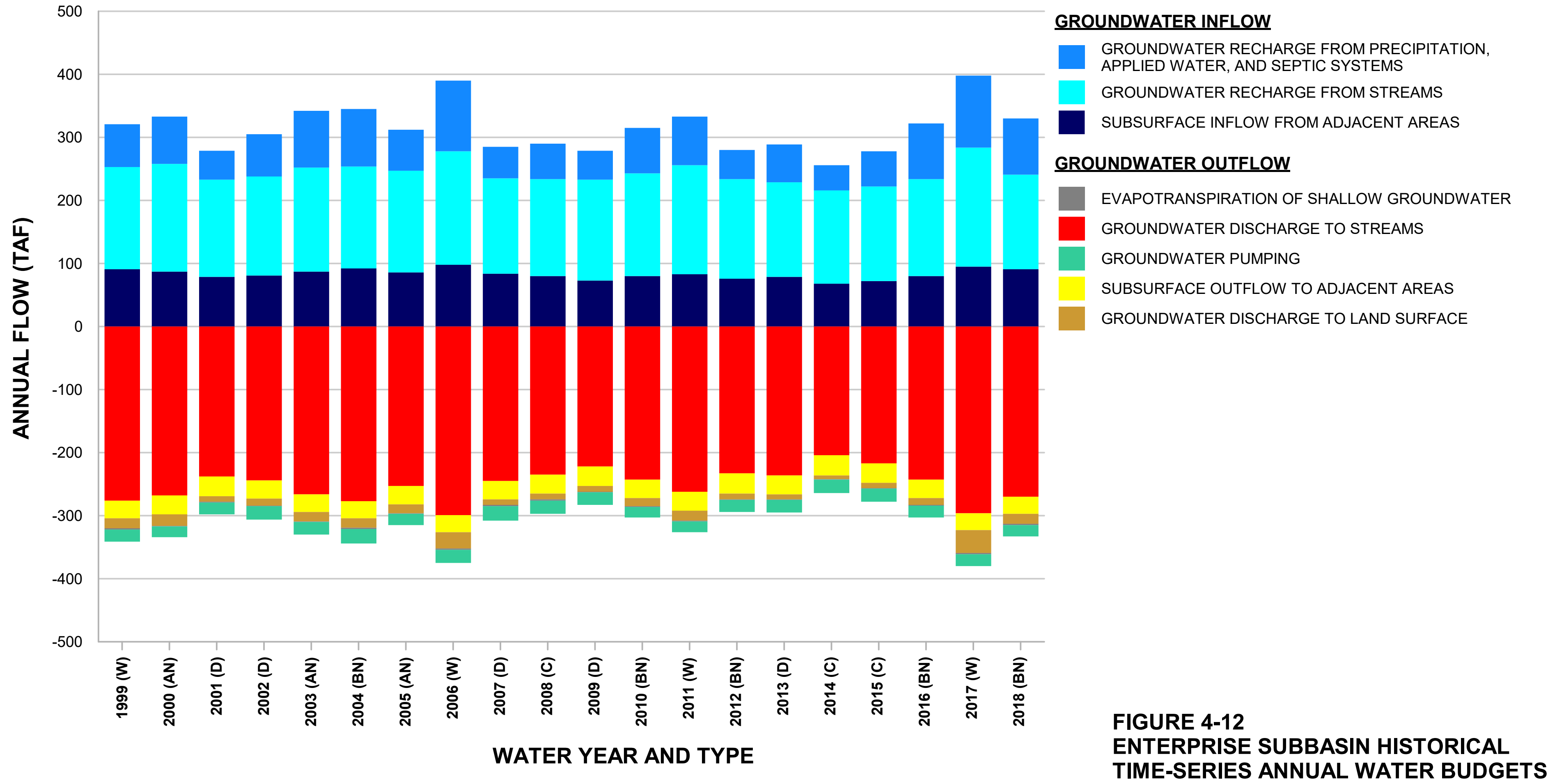


FIGURE 4-12
ENTERPRISE SUBBASIN HISTORICAL TIME-SERIES ANNUAL WATER BUDGETS
Numerical Flow Model Documentation
Redding Area Groundwater Basin

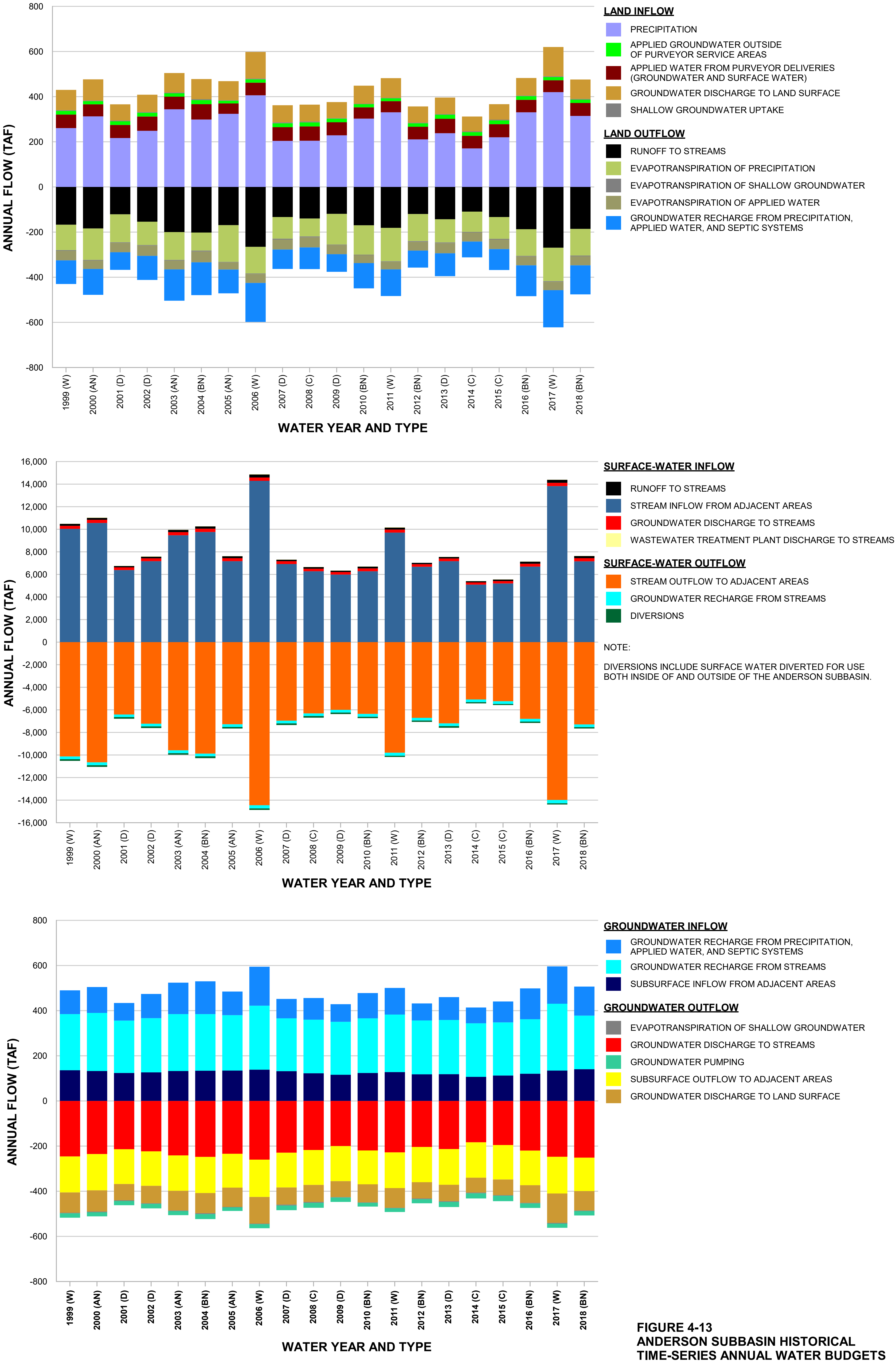


FIGURE 4-13
ANDERSON SUBBASIN HISTORICAL TIME-SERIES ANNUAL WATER BUDGETS
Numerical Flow Model Documentation
Redding Area Groundwater Basin

5. Model Projections

Although it is impossible to predict future hydrology with certainty, the EAGSA Model is the best available tool to forecast the response of the principal aquifer to potential future conditions. Application of this tool as described in this section is intended to provide projected water budgets under assumed climate conditions to support development of the Enterprise and Anderson GSPs.

5.1 Assumed Future Conditions

GSP regulations § 354.18 requires the EAGSA to develop historical, current, and projected water budgets for the Enterprise and Anderson Subbasins. Section 4.4 of this report discusses the historical and current water budgets. To develop the projected water budget, certain boundary conditions needed to be modified from the calibration version of the model, which was used to evaluate historical conditions, to convert it into a projection tool configured to simulate assumed future climatic conditions. The projection simulation is referred to as the Future Baseline Scenario. The following sections describe the process of converting the historical model into the Future Baseline Scenario.

5.1.1 Climate Change

Pursuant to GSP regulations, the projected water budget is required to account for the effects of climate change. As discussed in Section 3.5.1, an analysis was performed to establish a compliant projection period and associated climate-change approach. Based on this analysis, climate-change projections from the HadGEM2-ES, RCP 8.5 GCM were selected to serve as the basis for future precipitation and ET_0 data simulated in the EAGSA Model. Precipitation and ET_0 raster datasets were intersected with the EAGSA Model grid cells, based on the BCM v8 simulation of the HadGEM2-ES, RCP 8.5 GCM. Projected ET_0 data for the EAGSA Model domain were bias corrected to reflect the historical monthly adjustment applied to historical BCM ET_0 estimates to better reflect RAGB climate conditions as discussed in Section 3.7.1. These factors were averaged into long-term monthly adjustment factors and were applied to each corresponding month in the projection period to reduce biases inherit in BCM's raw ET_0 estimates.

Figure 5-1 presents the historical and projected annual precipitation and bias-corrected ET_0 for the EAGSA Model. As previously discussed, the projected precipitation is taken directly from the HadGEM2-ES, RCP8.5 GCM. According to this GCM, annual precipitation is projected to vary from year to year with a low of 13 inches in WY 2043 to a maximum of about 69 inches in WY 2036. The projected MAP over WY 2019 through WY 2071 is approximately 36 inches, which is slightly lower than the approximate 38-inch MAP over the historical period. Generally, the variability into the future, according to the selected GCM, is within the range of the historical precipitation; however, multi-year droughts are apparent in the selected GCM. For example, beyond 2060 a significant drought with 5 consecutive Critically Dry or Dry years is projected to occur, followed by a single Above Normal year, and another 5 consecutive years of Critically Dry or Dry years.

In contrast, projected ET_0 exhibits very minor fluctuations from year-to-year; however, there is a clear increasing trend in the projected ET_0. This is a direct result of the changes in temperature simulated by the HadGEM2-ES, RCP 8.5 GCM. However, the projected ET_0 is within the historical variability of the BCM bias-corrected historical ET_0.

Additionally, changes in surface-water conditions under projected climate conditions from the HadGEM2-ES RCP8.5 GCM were incorporated in the EAGSA Model for the simulation of projected conditions. The following sections describe the specific methodologies used to incorporate these projections into various components of the water budget.

5.1.2 Stream Inflows from Contributing Catchments

The methodology described in Section 3.7.1 for the development of stream inflows from contributing catchments from ungauged watersheds was adapted for the development of projected stream inflows for the EAGSA Model based on the BCM simulation of HadGEM2-ES RCP8.5 GCM projections. Initially, the BCM-derived runoff was aggregated across each of the contributing catchments through the projection period (that is, WYs 2019 through 2071). These runoff estimates were then adjusted using the same bias-correction technique on a monthly and annual scale. Adjustment factors presented in Tables 3-8 and 3-9 in Section 3.7.1 were applied to the projected runoff, based on the same contributing catchment relationship as shown in Table 3-10. Figure 5-2 presents the historical and projected stream inflows for summarized contributing catchments of the EAGSA Model. Stream inflows from the west and northeast contributing catchments are the two largest contributors of stream inflows to the EAGSA Model. All three contributing catchments exhibit similar streamflow responses throughout the historical and projected periods. For the west contributing catchments, there is a single year where stream inflows are greater than the historical simulation period maximum (approximately 1,775 TAF in WY 2017) with peak streamflow of around 2,714 TAF occurring in WY 2036. Similarly, the northeast and east contributing catchments portray a peak stream inflow year in WY 2036 of around 1,135 TAF and 370 TAF, respectively.

5.1.3 Reservoir Releases

As discussed in Section 3.7.1.4, releases from three reservoirs are simulated as stream inflows to SFR. To develop projected reservoir operations, a WYT average sampling method was used to compute projected reservoir releases for future WYTs based on the historical patterns of reservoir releases. The future WYT sequence was developed based on HadGEM2-ES RCP8.5 projections of Sacramento Valley streamflow as described in Section 3.5.1. Table 5-1 summarizes the historical monthly average reservoir release for the three reservoirs by WYT. These data were used to simulate reservoir releases during the projection period based on the future WYT for each year from WY 2019 through WY 2071. For example, WY 2043 is projected to be a Critically Dry WY; therefore, reservoir releases from the last column of Table 5-1 were assigned for WY 2043. Figure 5-3 presents the historical and projected annual reservoir releases from Shasta Dam, Keswick Dam, and Clair A. Hill Whiskeytown Dam. On an annual basis, historical releases from these reservoirs are essentially replicated, but with less overall variability, based on projected WYTs. This approach assumes that future operations of these reservoirs will occur in a similar manner to what has occurred in the past.

Table 5-1. Monthly Average Reservoir Releases by Water Year Type

Month	Monthly Average Shasta Dam / Keswick Dam / Clair A. Hill Whiskeytown Dam Releases by WYT (TAF)				
	Wet	Above Normal	Below Normal	Dry	Critically Dry
October	304 / 372 / 13	278 / 416 / 12	335 / 414 / 13	269 / 390 / 11	216 / 352 / 12
November	257 / 335 / 12	236 / 329 / 11	273 / 316 / 12	259 / 311 / 11	243 / 286 / 11
December	454 / 510 / 13	229 / 335 / 12	274 / 307 / 13	237 / 277 / 12	209 / 261 / 12
January	903 / 1,007 / 12	352 / 505 / 13	217 / 276 / 13	239 / 294 / 12	189 / 213 / 12
February	1,031 / 1,175 / 13	528 / 752 / 11	331 / 404 / 12	184 / 219 / 10	158 / 180 / 10
March	1,124 / 1,270 / 13	688 / 595 / 12	328 / 398 / 14	204 / 275 / 11	192 / 190 / 12
April	754 / 843 / 14	342 / 388 / 15	239 / 306 / 12	331 / 389 / 12	308 / 279 / 12
May	583 / 704 / 13	670 / 863 / 18	487 / 521 / 13	566 / 608 / 11	458 / 477 / 14

Table 5-1. Monthly Average Reservoir Releases by Water Year Type

Month	Monthly Average Shasta Dam / Keswick Dam / Clair A. Hill Whiskeytown Dam Releases by WYT (TAF)				
	Wet	Above Normal	Below Normal	Dry	Critically Dry
June	621 / 757 / 12	654 / 748 / 8	602 / 670 / 14	654 / 748 / 9	465 / 552 / 13
July	671 / 812 / 8	753 / 880 / 5	690 / 792 / 8	720 / 872 / 6	509 / 625 / 10
August	629 / 743 / 7	568 / 664 / 5	582 / 664 / 7	561 / 673 / 6	466 / 554 / 9
September	447 / 552 / 9	394 / 469 / 7	410 / 485 / 10	351 / 459 / 9	311 / 426 / 10

5.1.4 Surface-water Diversions

Locations of historical surface-water diversions from the Sacramento River were retained for simulation under future conditions in the EAGSA Model (that is, it is assumed that there will be no new diversions from the Sacramento River through WY 2071). To develop surface-water diversion rates, a WYT average sampling methodology was implemented to estimate the typical surface-water diversion under similar climate conditions. The lookup approach for surface-water diversions is consistent with that described in Section 5.1.3 for reservoir releases. The average monthly surface-water diversions, by WYT, are presented in Table 5-2. Figure 5-4 presents the historical and projected annual surface-water diversions for the four surface-water diversions simulated in the EAGSA Model. Based on the implemented methodology, it is assumed that future surface-water availability will follow patterns consistent with the past (that is, local water purveyors will have the same access to surface water in the future as they had in the past).

Table 5-2. Monthly Average Sacramento River Diversions by Water Year Type

Month	Monthly Average COR / BVWD / ACID Main Canal / ACID Churn Creek Bottoms Sacramento River Diversions by WYT (TAF)				
	Wet	Above Normal	Below Normal	Dry	Critically Dry
October	1.1 / 1.1 / 6.2 / 1.1	1.3 / 1.6 / 7.5 / 1.3	1.2 / 1 / 5.2 / 0.9	1.3 / 1.3 / 9.7 / 1.7	1.2 / 0.8 / 3.2 / 0.6
November	0.5 / 0.2 / 0 / 0	0.7 / 0.5 / 0 / 0	0.6 / 0.4 / 0 / 0	0.7 / 0.3 / 0 / 0	0.9 / 0.4 / 0 / 0
December	0.4 / 0.1 / 0 / 0	0.7 / 0.2 / 0 / 0	0.4 / 0.2 / 0 / 0	0.7 / 0.3 / 0 / 0	0.5 / 0.3 / 0 / 0
January	0.4 / 0.1 / 0 / 0	0.6 / 0.2 / 0 / 0	0.2 / 0.2 / 0 / 0	0.7 / 0.2 / 0 / 0	0.5 / 0.3 / 0 / 0
February	0.5 / 0.1 / 0 / 0	0.5 / 0.1 / 0 / 0	0.4 / 0.2 / 0 / 0	0.7 / 0.2 / 0 / 0	0.4 / 0.3 / 0 / 0
March	0.4 / 0.2 / 0 / 0	0.7 / 0.4 / 0 / 0	0.4 / 0.3 / 0 / 0	0.8 / 0.4 / 0 / 0	0.5 / 0.4 / 0 / 0
April	0.6 / 0.4 / 2.9 / 0.5	0.8 / 0.6 / 6.8 / 1.2	0.7 / 0.5 / 6.7 / 1.2	1 / 0.8 / 9.4 / 1.7	1 / 0.6 / 9.1 / 1.6
May	1.1 / 1.2 / 13.8 / 2.4	1.1 / 1.1 / 12.7 / 2.2	1.2 / 1.1 / 15.7 / 2.8	1.4 / 1.6 / 16.6 / 2.9	1.3 / 0.9 / 14.7 / 2.6
June	1.4 / 1.8 / 14.5 / 2.6	1.7 / 2.5 / 15.8 / 2.8	1.6 / 1.8 / 14.8 / 2.6	1.7 / 2.3 / 15.4 / 2.7	1.5 / 1.3 / 12.8 / 2.3
July	1.9 / 2.6 / 15.5 / 2.7	2.1 / 3.1 / 16.1 / 2.8	1.9 / 2.3 / 15.4 / 2.7	2 / 2.7 / 16.3 / 2.9	1.7 / 1.4 / 13.8 / 2.4
August	1.8 / 2.5 / 15.6 / 2.8	2 / 3 / 16 / 2.8	1.8 / 2.2 / 14.6 / 2.6	2 / 2.7 / 16.4 / 2.9	1.6 / 1.5 / 13.3 / 2.4
September	1.6 / 1.9 / 14.3 / 2.5	1.5 / 1.9 / 14.8 / 2.6	1.6 / 1.6 / 13.7 / 2.4	1.6 / 2 / 15 / 2.7	1.4 / 1.3 / 12.2 / 2.1

5.1.5 Land Use and Population

Through discussions with local stakeholders, it is assumed that land use conditions will remain at historical conditions as simulated in the EAGSA Model. This is considered to be a reasonable assumption because land use has not changed significantly in the RAGB in the last several decades.

To account for population growth over the projected period (which results in increased water use in the RAGB), population growth rates and indoor and outdoor water use estimates were compiled based on local urban water management plans (UWMPs), water management plans, and through input from local stakeholders. Table 5-3 presents the population and water use growth assumptions for each water purveyor in the RAGB.

Table 5-3. Water Purveyor Population Growth Assumptions

	Purveyor Demand			Source of Assumptions		
Water Purveyor	**2019 Population**	**Population Growth Rate (percent)**	**Indoor and Outdoor Water Use (gpcd)**	**Population**	**Growth Rate**	**Water Use**
City of Redding (COR)	91,756	0.37	224	Department of Finance	2015 UWMP	2015 UWMP
Bella Vista Water District (BVWD)	19,098	0.86	758	2015 UWMP	2015 UWMP	2015 UWMP
City of Shasta Lake	10,593	0.62	202	Department of Finance	2010 UWMP	2010 UWMP
Palo Cedro	1,143	0.62	623	U.S. Census Bureau	Average of COR, BVWD, and Shasta Lake	Average of BVWD and Clear Creek CSD
Clear Creek CSD	9,000	0.71	487	2015 Water Management Plan	Same as COA	2015 Water Management Plan
Rio Alta Water District	2,718	0.71	623	2015 Drinking Water Program Report	Same as COA	Average of BVWD and Clear Creek CSD
Cottonwood Water District	3,316	0.71	623	2018 Drinking Water Program Report	Same as COA	Average of BVWD and Clear Creek CSD
City of Anderson (COA)	10,604	0.71	187	Department of Finance	2015 UWMP	2015 UWMP

5.1.6 Consumptive Use

To develop consumptive use estimates under future conditions, historical Kc values remained fixed from the historical simulation (Section 3.7.1.2) and were multiplied by the projected ET_0 discussed in

Section 5.1.1. Thus, crop-specific Kc values for each land use classification were used in conjunction with the projected monthly ET_0 to compute future consumptive use, according to Equation 3-3.

5.1.7 Water Deliveries

Total (that is, indoor and outdoor) future purveyor water deliveries were developed based on the population growth and future water use assumptions presented in Table 5-3. Annual projected water deliveries were distributed evenly throughout the respective WY to establish monthly water deliveries. As described in Section 3.7.1.8, water deliveries were incorporated as non-routed deliveries and semi-routed deliveries in the FMP, providing a volume of water available to meet both indoor and outdoor water use demands. Semi-routed deliveries are simulated to reflect deliveries of water from ACID conveyance features. Figure 5-5 presents the historical and future annual water deliveries by purveyor based on historical data, projected population growth, and future water use demands. Annual water deliveries from ACID solely reflect deliveries associated with crop demands within the ACID service area based on simulated land use and associated applied water demands after accounting for precipitation and groundwater uptake. The ACID main canal is represented in the EAGSA Model as a discrete SFR feature; therefore, losses from the main canal are simulated. However, ACID canal laterals are not represented as discrete SFR features; thus, conveyance losses along the canal laterals are not explicitly simulated.

5.1.8 Groundwater Pumping

Purveyor groundwater pumping under future conditions were implemented in MNW based on the historical locations and construction of purveyor groundwater pumping as described in Section 3.7.1.6. Groundwater pumping rates were estimated based on the total projected purveyor water use demands according to the assumptions presented in Table 5-3. For purveyors that supply both surface water and groundwater to customers, the projected surface-water diversions, as described under Section 5.1.4, were subtracted from the total projected water use demand to estimate the amount of groundwater required to supplement surface-water supplies. For water purveyors that supply water solely from groundwater, the total projected water use demand was assumed to be provided by the water purveyors' groundwater pumping wells. Figure 5-6 presents the historical and future annual purveyor groundwater pumping volumes by subbasin as simulated in the EAGSA Model.

Projected rural domestic pumping was developed to incorporate projected changes in population and water use demands. Table 5-4 presents the 2019 population, population growth rate, and indoor water use demands for various water purveyors and unincorporated areas within the subbasins that make up the RAGB and extended model domain. Only the indoor water use is considered as part of the population growth projection to appropriately capture the potential increase in water use due to an increase in the number of people per household. No projected changes in land use conditions (that is, urban expansion) were considered as part of the future baseline conditions due to the uncertainty in potential future land use changes within the EAGSA Model domain. Outdoor water use for these residential parcels are handled either through the delivery of water from purveyors or through the FMP based on demand-driven pumping to meet outdoor water use requirements. The outdoor water use demand associated with these residential parcels was assumed to be fixed at historical levels with potential changes in applied water demand due to climate change. Projected rural domestic groundwater pumping was incorporated in the EAGSA Model based on the methodology described in Section 3.7.1.6.

Table 5-4. Future Rural Domestic Groundwater Pumping Assumptions

	Rural Domestic Demand (On Septic Systems)			Source of Assumptions		
Water Purveyor	2019 Population	Population Growth Rate (percent)	Indoor Water Use (gpcd)	Population	Growth Rate	Water Use
Keswick	646	0.62	55	2016 Population Estimate from U.S. Census Bureau	Avg of COR, BVWD, and Shasta Lake	California Water Code § 10608.20
Shasta CSD	2,119	0.62	55	2016 Population Estimate from U.S. Census Bureau	Average of COR, BVWD, and Shasta Lake	California Water Code § 10608.20
Mountain Gate CSD	2,095	0.62	55	2016 Population Estimate from U.S. Census Bureau	Average of COR, BVWD, and Shasta Lake	California Water Code § 10608.20
Enterprise Subbasin	4,849	0.62	55	2016 Population Estimate from U.S. Census Bureau	Average of COR, BVWD, and Shasta Lake	California Water Code § 10608.20
Jones Valley	1,029	0.62	55	2016 Population Estimate from U.S. Census Bureau	Average of COR, BVWD, and Shasta Lake	California Water Code § 10608.20
Centerville CSD	3,053	0.62	55	2016 Population Estimate from U.S. Census Bureau	Average of COR, BVWD, and Shasta Lake	California Water Code § 10608.20
Outside Subbasin/No Water Purveyor	5,790	0.62	55	2016 Population Estimate from U.S. Census Bureau	Average of COR, BVWD, and Shasta Lake	California Water Code § 10608.20
Anderson Subbasin	7,976	0.71	55	2016 Population Estimate from U.S. Census Bureau	Same as COA	California Water Code § 10608.20
Millville Subbasin	3,665	0.71	55	2016 Population Estimate from U.S. Census Bureau	Same as COA	California Water Code § 10608.20
South Battle Creek Subbasin	998	0.71	55	2016 Population Estimate from U.S. Census Bureau	Same as COA	California Water Code § 10608.20
Bowman Subbasin	5,229	0.71	55	2016 Population Estimate from U.S. Census Bureau	Same as COA	California Water Code § 10608.20
ACID	8,608	0.71	55	2016 Population Estimate from U.S. Census Bureau	Same as COA	California Water Code § 10608.20

5.1.9 Exported Water

As discussed in Sections 3.7.1.6 and 3.7.1.7, ACID exported surface water as part of its groundwater substitution program in WYs 2013 through 2015. For the projected simulation, these groundwater substitutions are assumed to continue to occur from July through September at a rate of no more than 2,400 AFY during Dry WYs and from May through September at a rate of no more than 4,000 AFY during Critically Dry years (Currey, 2021, pers. comm.). The simulation of the groundwater pumping rates associated with the groundwater substitution program occurs through MNW as described in Section 3.7.1.6. The historical ACID Sacramento River diversion dataset is assumed to reflect the groundwater substitution program, where groundwater is used in-lieu of diverting surface water from the Sacramento River. Thus, the projected sampling of ACID Sacramento River diversions, as described in Section 5.1.4, incorporates the reduction in surface-water diversions in Dry and Critically Dry WYs.

5.1.10 Wastewater Discharge to Streams

Wastewater discharge at three separate locations (Figure 3-13) were assumed to continue to occur into the future period. To develop project wastewater discharge to streams, a historical WYT average sampling methodology was based on the developed projected WYTs from the HadGEM2-ES RCP8.5 GCM. The lookup approach for wastewater discharges is consistent with that described in Section 5.1.3 for reservoir releases. The average monthly WWTP discharges, by WYT, are presented in Table 5-5. Figure 5-7 presents the historical and projected annual wastewater discharge to streams.

Table 5-5. Monthly Average Wastewater Treatment Plant Discharge by Water Year Type

Month	Monthly Average Stillwater WWTP / Clear Creek WWTP / COA WWTP Discharge to Sacramento River by WYT (TAF)				
	Wet	**Above Normal**	**Below Normal**	**Dry**	**Critically Dry**
October	0.29 / 0.69 / 0.09	0.27 / 0.65 / 0.1	0.24 / 0.58 / 0.1	0.25 / 0.63 / 0.1	0.25 / 0.62 / 0.1
November	0.36 / 0.8 / 0.11	0.29 / 0.73 / 0.1	0.27 / 0.62 / 0.09	0.32 / 0.68 / 0.09	0.26 / 0.62 / 0.09
December	0.55 / 1.05 / 0.15	0.41 / 0.85 / 0.12	0.36 / 0.68 / 0.09	0.46 / 0.96 / 0.13	0.43 / 0.98 / 0.13
January	0.57 / 1.44 / 0.18	0.52 / 0.93 / 0.15	0.51 / 0.95 / 0.13	0.37 / 0.8 / 0.13	0.37 / 0.79 / 0.12
February	0.51 / 1.11 / 0.16	0.45 / 1.08 / 0.14	0.41 / 0.77 / 0.12	0.4 / 0.78 / 0.11	0.41 / 0.91 / 0.12
March	0.58 / 1.09 / 0.18	0.48 / 1 / 0.15	0.49 / 0.96 / 0.13	0.4 / 0.92 / 0.12	0.38 / 0.86 / 0.12
April	0.48 / 0.9 / 0.15	0.39 / 0.78 / 0.14	0.4 / 0.86 / 0.13	0.33 / 0.71 / 0.12	0.29 / 0.66 / 0.11
May	0.34 / 0.67 / 0.13	0.4 / 0.71 / 0.13	0.29 / 0.72 / 0.13	0.29 / 0.71 / 0.13	0.24 / 0.62 / 0.13
June	0.28 / 0.63 / 0.12	0.29 / 0.62 / 0.11	0.24 / 0.59 / 0.11	0.25 / 0.63 / 0.12	0.2 / 0.51 / 0.11
July	0.25 / 0.54 / 0.1	0.26 / 0.62 / 0.1	0.22 / 0.54 / 0.1	0.24 / 0.62 / 0.11	0.19 / 0.52 / 0.1
August	0.23 / 0.51 / 0.1	0.26 / 0.61 / 0.1	0.22 / 0.54 / 0.1	0.22 / 0.62 / 0.11	0.19 / 0.51 / 0.1
September	0.22 / 0.48 / 0.09	0.26 / 0.62 / 0.09	0.21 / 0.54 / 0.09	0.22 / 0.64 / 0.11	0.18 / 0.52 / 0.1

5.1.11 Groundwater Recharge from Septic Systems

Groundwater recharge from septic systems was assumed to occur in the same locations that were used for the historical simulation (Figure 3-13). Septic system recharge was assumed to reflect the rural domestic groundwater pumping quantities. See Section 3.7.1.10 for more details.

5.2 Model Setup for the Future Baseline Scenario

The model input parameters and assumptions described in Sections 3 and 4 for the historical period were combined with the assumptions described in Section 5.1 to generate an EAGSA Model simulation referred to as the Future Baseline Scenario. For this simulation, the EAGSA Model was configured to run the historical and projected periods as one continuous simulation (WY 1999 through WY 2071). Simulating the historical and projected periods as a continuous simulation ensures that there are no discontinuities in groundwater and surface-water conditions between the end of the historical period and the start of the projection period. Although modeled groundwater levels at the end of the historical simulation could be used as initial conditions of the projected simulation, other boundary conditions, such as the SFRs, do not allow the user to specify initial conditions. Thus, a continuous simulation allows any potential surface-water storage at the end of the historical simulation to be retained for the start of the projection simulation. Table 5-6 presents a comparison of the assumptions associated with the historical and projection simulations.

Table 5-6. Overview of Assumptions for Historical and Projection Periods

Water Budget Item	Assumption/Basis for Historical and Current Water Budget	Assumption/Basis for Projected Water Budgets
Hydrologic Period	▪ Historical: WYs 1999 through 2018 ▪ Current: WYs 2015 through 2018 ▪ Monthly time intervals	▪ WYs 2019 through 2071 ▪ Monthly time intervals
Precipitation	▪ Downscaled PRISM (PRISM Climate Group, 2020) precipitation dataset, as processed using the BCM (Flint et al., 2013)	▪ Downscaled PRISM (PRISM Climate Group, 2020) precipitation dataset that incorporates climate change based on the HadGEM2-ES, RCP 8.5 (IPCC, 2013) GCM, as process using the BCM (Flint et al., 2013)
Reference Evapotranspiration (ET_0)*	▪ Downscaled PRISM (PRISM Climate Group, 2020) air temperature datasets with ET_0 processed using the BCM (Flint et al., 2013)	▪ Downscaled PRISM (PRISM Climate Group, 2020) air temperature dataset that incorporates climate change based on the HadGEM2-ES, RCP 8.5 (IPCC, 2013) GCM, as processed using the BCM ▪ ET_0 is computed using the BCM (Flint et al., 2013) based on air temperature projections
Evapotranspiration (ET)	▪ Crop coefficients based on Cal-SIMETAW (Orang et al., 2013) for land use/cropping distribution multiplied by historical ET_0 as computed by the BCM (Flint et al., 2013)	▪ Crop coefficients based on Cal-SIMETAW (Orang et al., 2013) for land use/cropping distribution multiplied by projected ET_0 as computed by BCM (Flint et al., 2013)
Stream Inflows	▪ Sacramento River releases from Keswick Reservoir (DWR, 2019a) ▪ Clear Creek releases from Clair A. Hill Whiskeytown Dam (DWR, 2019b)	▪ Monthly reservoir releases by WYT based on average historical data ▪ Runoff projections computed by the BCM (Flint et al., 2013) based on the HadGEM2-ES, RCP 8.5 (IPCC, 2013) GCM and bias corrected by Jacobs

Table 5-6. Overview of Assumptions for Historical and Projection Periods

Water Budget Item	Assumption/Basis for Historical and Current Water Budget	Assumption/Basis for Projected Water Budgets
	▪ Inflows for ungauged streams are based on runoff estimates computed by the BCM (Flint et al., 2013) and bias corrected by Jacobs	
Land Use/Cropping	▪ 2012 Shasta County DWR land use survey ▪ 1999 Tehama County DWR land use survey ▪ 2014 LandIQ data from DWR for irrigated agriculture	▪ 2012 Shasta County DWR land use survey ▪ 1999 Tehama County DWR land use survey ▪ 2014 LandIQ data from DWR for irrigated agriculture
Purveyor Well Infrastructure, Pumping, Surface-water Diversions, Deliveries, WWTP Discharges	▪ Information provided by purveyors for WYs 1999 through 2018	▪ Purveyor pumping projected based on future population growth (estimated at an annual rate of 0.6 to 0.7 percent) and target per capita water use from UWMP (where available) ▪ Surface-water diversions, purveyor deliveries, and WWTP discharges by WYT based on average historical data
Domestic Water Use (non-purveyor areas)	▪ Per capita water use and census data	▪ Per capita water use and census data with projected population growth

* The crop associated with the ET_0 is grass.

5.3 Projected Groundwater Levels

Figure 5-8 presents the historical and projected groundwater-level hydrographs for a selection of representative target wells in the Enterprise and Anderson Subbasins. The horizontal and vertical axes on the hydrographs presented on Figure 5-8 have been standardized to facilitate making comparisons among the hydrographs. These particular locations were chosen to provide a general sense of groundwater conditions across the Enterprise and Anderson Subbasins. Hydrographs at all target locations are included in Attachment 8 for reference.

In general, groundwater levels are generally stable throughout the historical and projected simulation periods. Although the modeled hydrographs indicate seasonal variability and minor declines due to drought periods, groundwater levels tend to rebound and maintain similar levels throughout the entire simulation period. Thus, there is no indication that the Enterprise and Anderson Subbasins are or are projected to be in overdraft.

An important consideration in analyzing these hydrographs and trends is the bias that the EAGSA Model has in replicating historical groundwater levels. Based on the discussion in Section 4.3.1, the EAGSA Model does not perfectly replicate groundwater levels and tends to underestimate and overestimate groundwater levels in different portions of the RAGB. Therefore, head values displayed on Figure 5-8, particularly for the projection period, should not be viewed as fact. However, the groundwater-level trends at the target wells are often consistent with measured groundwater-level trends and are therefore useful for guiding decisions related to SMC.

5.4 Projected Water Budgets

GSP regulations § 354.18 requires the EAGSA to develop historical, current, and projected water budgets for the Enterprise and Anderson Subbasins. Section 4.4 discusses the historical and current water budgets. Figures 5-9 and 5-10 present three sets of charts showing annual average historical, current, and projected water budgets for the Enterprise and Anderson Subbasins, respectively. The top, middle, and bottom charts show the land system, surface-water system, and groundwater system water budget summaries, respectively. Figures 5-11 and 5-12 present three sets of charts, one for each component, with the annual time series of the historical, current, and projected water budgets for the Enterprise and Anderson Subbasins, respectively. The colors of the water budget components on Figures 5-9 through 5-12 have been standardized to facilitate making comparisons across the figures. Following is a description of the projected (Future Baseline Scenario) water budget estimates, which are subject to change as the understanding of RAGB conditions evolves during GSP implementation.

5.4.1 Land System

Table 5-7 and Figure 5-9 present annual averages of the components of the historical, current, and projected land system budgets for the Enterprise Subbasin, whereas Figure 5-11 presents the total of each component of the historical, current, and projected land system budgets for each year. According to the EAGSA Model results, the Enterprise Subbasin received an annual average of about 240 TAF of land system inflows and outflows during the 20-year historical period. The fact that the inflows equal the outflows means that the land system is in balance. During this period, annual inflows were mostly from precipitation (199 TAF), followed by applied water (both purveyor and non-purveyor supplied), groundwater discharge to land surface, and shallow groundwater uptake. Annual ACID deliveries in the Enterprise Subbasin average approximately 8 TAF for the historical and current periods, and 7 TAF for the projection period, respectively. Application of this water for irrigation is not only beneficial for sustaining agriculture, but also for providing an additional source of groundwater recharge in the Enterprise Subbasin. The largest outflows from the land system were ET of precipitation; runoff to streams; and groundwater recharge from precipitation, applied water, and septic systems (all of which were of similar magnitude ranging from 70 to 77 TAF), followed by ET of applied water and ET of shallow groundwater. Attachment 2 includes the annual land system water budget values for the historical, current, and projected periods.

Table 5-7. Enterprise Subbasin Average Annual Land System Water Budgets

Land System Budget Component	Historical Average Water Volume (TAF) WYs 1999–2018	Current Average Water Volume (TAF) WYs 2015–2018	Projected Average Water Volume (TAF) WYs 2019–2071
Inflows			
Precipitation	199	235	205
Applied Water from Purveyor Deliveries (Groundwater and Surface Water)*	18	17	21
Applied Groundwater Outside of Purveyor Service Areas	10	10	9
Shallow Groundwater Uptake	1	2	1
Groundwater Discharge to Land Surface	14	18	15
Total Inflow	**242**	**282**	**251**

Table 5-7. Enterprise Subbasin Average Annual Land System Water Budgets

Land System Budget Component	Historical Average Water Volume (TAF) WYs 1999–2018	Current Average Water Volume (TAF) WYs 2015–2018	Projected Average Water Volume (TAF) WYs 2019–2071
Outflows			
Runoff to Streams/Canals	76	98	89
ET of Precipitation	77	79	62
Non-native Vegetation	46	47	38
Native Vegetation	31	32	25
ET of Shallow Groundwater	1	2	1
Non-native Vegetation	1	1	1
Native Vegetation	1	1	0
ET of Applied Water	19	17	20
Groundwater Recharge from Precipitation, Applied Water, and Septic Systems	70	87	80
Total Outflow	**243**	**283**	**252**

* ACID deliveries in the Enterprise Subbasin average approximately 8 TAF for the historical and current periods, and approximately 7 TAF for the projection period. The 2010–2019 ACID Churn Creek diversion from the Sacramento River averaged 14.5 TAFY (SWRCB, 2021) into Enterprise Subbasin. Thus, the difference between the diverted and delivered rates (that is, 6.5 TAFY) provides a sense of potential groundwater recharge from conveyance loss from ACID operations in Enterprise Subbasin.

The relative order (largest to smallest volumes) of the land system water budget components is similar between the 20-year historical and the 4-year current averaging periods. However, the total inflows and outflows under current conditions (approximately 280 TAF) are about 16 percent higher than the total inflows and outflows under historical conditions (approximately 240 TAF). The larger amount of water moving through the land system is largely driven by the higher magnitude of precipitation in WY 2017, which was designated as a Wet WYT.

Table 5-8 and Figure 5-10 present annual averages of the components of the historical, current, and projected land system budgets for the Anderson Subbasin, whereas Figure 5-12 presents the total of each component of the historical, current, and projected land system budgets for each year. According to the EAGSA Model results, the Anderson Subbasin received an annual average of about 440 TAF of land system inflows and outflows during the 20-year historical period. As with the Enterprise Subbasin, land system inflows equal the land system outflows, meaning the land system is in balance. During this period, annual inflows were mostly from precipitation (280 TAF), followed by applied water (both purveyor and non-purveyor supplied), groundwater discharge to land surface, and shallow groundwater uptake. Annual ACID deliveries in the Anderson Subbasin average approximately 50 TAF for the historical and current periods and 46 TAF for the projection periods, respectively. Application of this water for irrigation is not only beneficial for sustaining agriculture, but also for providing an additional source of groundwater recharge in the Anderson Subbasin. The largest annual outflows during the historical period from the land system were runoff to streams (167 TAF) followed by ET of precipitation and groundwater recharge from precipitation, applied water, and septic systems (which were roughly equal), followed by ET of applied water and ET of shallow groundwater. Attachment 3 includes the full annual land system water budget values for the historical, current, and projected periods for the Anderson Subbasin.

Table 5-8. Anderson Subbasin Average Annual Land System Water Budgets

Land System Budget Component	Historical Average Water Volume (TAF) WYs 1999–2018	Current Average Water Volume (TAF) WYs 2015–2018	Projected Average Water Volume (TAF) WYs 2019–2071
Inflows			
Precipitation	280	322	276
Applied Water from Purveyor Deliveries (Groundwater and Surface Water)*	57	56	51
Applied Groundwater Outside of Purveyor Service Areas	16	16	14
Shallow Groundwater Uptake	3	3	3
Groundwater Discharge to Land Surface	84	91	79
Total Inflow	**440**	**488**	**423**
Outflows			
Runoff to Streams/Canals	168	194	172
ET of Precipitation	117	120	94
Non-native Vegetation	50	52	40
Native Vegetation	67	69	53
ET of Shallow Groundwater	3	3	3
Non-native Vegetation	2	2	2
Native Vegetation	1	1	1
ET of Applied Water	40	40	36
Groundwater Recharge from Precipitation, Applied Water, and Septic Systems	111	131	119
Total Outflow	**439**	**488**	**424**

* ACID deliveries in the Anderson Subbasin average approximately 50 TAF for the historical and current periods, and 46 TAF for the projection period.

The relative order (largest to smallest volumes) of the Anderson Subbasin land system water budget components is similar between the 20-year historical and the 4-year current averaging periods. However, the total inflows and outflows under current conditions (approximately 490 TAF) are about 10 percent higher than the total inflows and outflows under historical conditions (approximately 440 TAF). The larger amount of water moving through the land system is largely driven by the higher magnitude of precipitation in WY 2017, which was designated as a Wet WYT.

As previously discussed, the Future Baseline simulation assumes a gradual increase in future population in the Enterprise and Anderson Subbasins, and per capita water use rates are assumed to decrease based on state water conservation targets. As such, the land system water budget for the projected period looks similar to the historical land system estimates for both the Enterprise and Anderson Subbasins.

As discussed above, the total land system budget inflows generally equal the land system budget outflows for the historical, current, and projection periods for both the Enterprise and Anderson Subbasins. This means that the Enterprise and Anderson Subbasin's land system water budgets have been and are projected to remain in balance.

5.4.2 Surface-water System

Table 5-9 and Figure 5-9 present annual averages of the individual components of the historical, current, and projected surface-water system budgets for the Enterprise Subbasin, whereas Figure 5-11 presents the total of each subbasin component of the historical, current, and projected surface-water system budgets for each year. As discussed in Chapter 2 of the Enterprise Subbasin GSP, water source types in the Enterprise Subbasin come from a combination of CVP (that is, releases from Keswick and Clair A. Hill Whiskeytown Dams) and local supplies (that is, smaller tributaries). According to the EAGSA Model, the Enterprise Subbasin received an annual average of about 7,600 TAF of surface-water inflows during the 20-year historical period. During this period, stream inflow from adjacent areas (7,250 TAFY) was the largest surface-water inflow component, followed by groundwater discharge to streams (stream gains), runoff to streams, and WWTP discharge to streams. Annual outflow from the surface-water system also averaged approximately 7,600 TAF during the historical period. The fact that the inflows equal the outflows means that the surface-water system water budget is in balance. The largest annual outflows from the system were stream outflow to adjacent areas (7,265 TAF), followed by groundwater recharge from streams (stream leakage), and surface-water diversions.

Table 5-9. Enterprise Subbasin Average Annual Surface-water System Water Budgets

Surface-water System Budget Component	Historical Average Water Volume (TAF) WYs 1999–2018	Current Average Water Volume (TAF) WYs 2015–2018	Projected Average Water Volume (TAF) WYs 2019–2071
Inflows			
Stream/Canal Inflow from Adjacent Areas	7,252	7,075	7,049
Groundwater Discharge to Streams/Canals	251	257	257
Runoff to Streams/Canals	76	98	89
WWTP Discharge to Streams/Canals	14	14	14
Total Inflow	**7,593**	**7,444**	**7,409**
Outflows			
Stream/Canal Outflow to Adjacent Areas	7,265	7,151	6,938
Groundwater Recharge from Streams/Canals	160	160	164

Table 5-9. Enterprise Subbasin Average Annual Surface-water System Water Budgets

Surface-water System Budget Component	Historical Average Water Volume (TAF) WYs 1999–2018	Current Average Water Volume (TAF) WYs 2015–2018	Projected Average Water Volume (TAF) WYs 2019–2071
Diversions for Use Inside the Enterprise Subbasin[a]	42	32	40
Diversions to Areas Outside the Enterprise Subbasin[b]	88	79	86
Total Outflow	**7,555**	**7,422**	**7,228**

[a] Average annual diversion values represent the volume of water removed from streams for uses inside the Enterprise Subbasin. The 2010–2019 ACID Churn Creek diversion from the Sacramento River averaged 14.5 TAF annually (SWRCB, 2021).

[b] Average annual diversion values represent the volume of water removed from streams for uses outside of the Enterprise Subbasin.

Because the Sacramento River forms the boundary between the Enterprise and Anderson Subbasins, the diversion volumes presented in Table 5-9 and Figures 5-9 and 5-11 represent water that is diverted by users in both subbasins. Surface water diverted by purveyors such as COR and BVWD exits the surface-water system and is conveyed through pipelines. These diversion rates are included in Table 5-9 as diversions for use inside the Enterprise Subbasin. Surface water diverted by ACID is conveyed through open canals and laterals, with approximately 85 percent of the water diverted for use in the Anderson Subbasin (included in Table 5-9 as diversions to areas outside the Enterprise Subbasin) and 15 percent diverted for use in the Churn Creek Bottom area of the Enterprise Subbasin (diversions for use inside the Enterprise Subbasin) (SWRCB, 2021).

Model projections for the current (WYs 2015 through 2018) and projected (WYs 2019 through 2071) periods indicate slightly smaller average stream inflows (by approximately 2 to 3 percent) and outflows (approximately 2 to 5 percent) than historical averages. The total surface-water system inflows generally equal the surface-water system outflows for the historical, current, and projection periods. This means that the surface-water system is in balance. Attachment 4 includes the annual surface-water system water budget values for the historical, current, and projected periods for the Enterprise Subbasin.

Table 5-10 and Figure 5-10 present averages of the individual components of the historical, current, and projected surface-water system budgets for the Anderson Subbasin, whereas Figure 5-12 presents the total of each subbasin component of the historical, current, and projected surface-water system budgets for each year. As discussed in Chapter 2 of the Anderson Subbasin GSP, water source types in the Anderson Subbasin come from a combination of CVP (that is, releases from Keswick and Clair A. Hill Whiskeytown Dams) and local supplies (that is, smaller tributaries). According to the EAGSA Model, the Anderson Subbasin received an annual average of about 8,500 TAF of surface-water inflows during the 20-year historical period. During this period, stream inflow from adjacent areas (8,100 TAF) was the largest surface-water inflow component, followed by groundwater discharge to streams (stream gains), runoff to streams, and WWTP discharge to streams. Annual outflow from the surface-water system averaged approximately 8,500 TAF during the historical period. The fact that the inflows equal the outflows means that the surface-water system water budget is in balance. The largest annual outflows from the system were stream outflow to adjacent areas (8,200 TAF), followed by groundwater recharge from streams (stream leakage), and surface-water diversions.

Table 5-10. Anderson Subbasin Average Annual Surface-water System Water Budgets

Surface-water System Budget Component	Historical Average Water Volume (TAF) WYs 1999–2018	Current Average Water Volume (TAF) WYs 2015–2018	Projected Average Water Volume (TAF) WYs 2019–2071
Inflows			
Stream/Canal Inflow from Adjacent Areas	8,098	8,230	8,045
Groundwater Discharge to Streams/Canals	226	229	229
Runoff to Streams/Canals	168	194	172
WWTP Discharge to Streams	14	14	14
Total Inflow	**8,506**	**8,667**	**8,460**
Outflows			
Stream/Canal Outflow to Adjacent Areas[a]	8,165	8,327	8,130
Groundwater Recharge from Streams/Canals[b]	247	252	242
Diversions for Use Inside the Anderson Subbasin	88	79	86
Diversions to Areas Outside the Anderson Subbasin[c]	42	32	33
Total Outflow	**8,543**	**8,691**	**8,493**

[a] Includes approximately 2 to 4 TAF of exports during ACID water transfer years.

[b] Leakage from the ACID main canal contributes approximately 29 to 37 TAF of groundwater recharge to the aquifer system under historical and projected conditions.

[c] Average annual diversion values represent the volume of water removed from streams for uses outside of the Anderson Subbasin. The 2010–2019 ACID Churn Creek diversion from the Sacramento River averaged 14.5 TAF annually (SWRCB, 2021).

Because the Sacramento River forms the boundary between the Enterprise and Anderson Subbasins, the diversion volumes presented in Table 5-10 and Figures 5-10 and 5-12 represent water that is diverted by users in both subbasins. Surface water diverted by purveyors such as COR and BVWD exits the surface-water system and is conveyed through pipelines (largely within the Enterprise Subbasin). These diversion rates are included in Table 5-10 as diversions to areas outside the Anderson Subbasin. Surface water diverted by ACID is conveyed through open canals and laterals, with approximately 85 percent of the water diverted for use in the Anderson Subbasin and 15 percent diverted for use in the Enterprise Subbasin. Because ACID's main canal is simulated as a stream in the EAGSA Model, the water diverted from the Sacramento River into the ACID main canal remains part of the surface-water system in the Anderson Subbasin. Thus, although the ACID Sacramento River diversion at Caldwell Park in Redding is incorporated into the model, ACID's diversion rates for out-of-basin use included in Table 5-10 represent the modeled volume of water delivered to customers in the Enterprise Subbasin (that is, surface water that is diverted from the Sacramento River that is not available for use in the Anderson Subbasin). The diversion rates listed in Table 5-10 for use in the Anderson Subbasin represent deliveries from the ACID main canal to farms in the subbasin.

Model projections for the current period (WYs 2015 through 2018) indicate slightly larger average stream inflows and outflows than the historical period (approximately 2 percent), whereas water budget estimates for the projected period (WYs 2019 through 2071) indicate slightly lower inflows and outflows (approximately 1 percent). The total surface-water system inflows generally equal the surface-water system outflows for the historical, current, and projection periods. This means that the surface-water system is in balance. Attachment 5 includes the annual surface-water system water budget values for the historical, current, and projected periods for the Anderson Subbasin.

5.4.3 Groundwater System

Table 5-11 and Figure 5-9 present averages of the individual components of the historical, current, and projected groundwater system budgets for the Enterprise Subbasin, whereas Figure 5-11 presents the total of each subbasin component of the historical, current, and projected groundwater system budgets for each year. According to the EAGSA Model, the Enterprise Subbasin received an annual average of about 315 TAF of groundwater inflows during the 20-year historical period. These inflows consist primarily of groundwater recharge from streams (stream leakage) (160 TAF), followed by subsurface inflow from adjacent areas, and groundwater recharge from precipitation, applied water, and septic systems. During this same period, the total outflow from the groundwater was approximately 1 TAF more than the inflow. The fact that the inflows nearly equal the outflows means that the groundwater system is in balance. The largest annual outflow from the groundwater system was groundwater discharge to streams (stream gains) (250 TAF), followed by subsurface outflow to adjacent areas, groundwater pumping, groundwater discharge to land surface, and ET of shallow groundwater. Attachment 6 includes the annual groundwater system water budget values for the historical, current, and projected periods for the Enterprise Subbasin.

Table 5-11. Enterprise Subbasin Average Annual Groundwater System Water Budgets

Groundwater System Budget Component	Historical Average Water Volume (TAF) WYs 1999–2018	Current Average Water Volume (TAF) WYs 2015–2018	Projected Average Water Volume (TAF) WYs 2019–2071
Inflows			
Groundwater Recharge from Precipitation, Applied Water, and Septic Systems	70	87	80
Groundwater Recharge from Streams/Canals	161	161	165
Subsurface Inflow from Adjacent Areas	84	85	87
Total Inflow	**315**	**333**	**332**
Outflows			
Shallow Groundwater Uptake (ET of Shallow Groundwater)	1	2	1
Groundwater Discharge to Streams/Canals	251	257	256
Groundwater Pumping	20	19	30

Table 5-11. Enterprise Subbasin Average Annual Groundwater System Water Budgets

Groundwater System Budget Component	Historical Average Water Volume (TAF) WYs 1999–2018	Current Average Water Volume (TAF) WYs 2015–2018	Projected Average Water Volume (TAF) WYs 2019–2071
Municipal Groundwater Pumping	9	8	21
Private Agricultural Groundwater Pumping	10	10	8
Private Residential Groundwater Pumping	1	1	1
Subsurface Outflow to Adjacent Areas	30	29	29
Groundwater Discharge to Land Surface	14	18	15
Total Outflow	**316**	**325**	**331**
Average of Total Inflows and Outflows	316	329	332
Change in Groundwater Storage	-1	8	1
Change in Groundwater Storage as a Percent of the Average of Total Inflows and Outflows	-0.32%	2.43%	0.30%

The total inflows and outflows of the groundwater system under current and projected conditions are slightly higher by approximately 3 percent than historical conditions with order of largest to smallest water budget component volumes. The increase of approximately 6 percent over the historical period was primarily due to the 14 to 24 percent increase in groundwater recharge from precipitation, applied water, and septic systems. Increases in total outflows from the groundwater system during the current period (3 to 5 percent as compared to the historical period) were mostly due to increased groundwater discharge to streams and to land surface during the current period. The Future Baseline Scenario conservatively assumes that additional future water demand due to population growth will be met by increased groundwater pumping. Although it is assumed that future water demand will be at lower rates than the current and historical period, increases in total outflow during the projected period (5 percent) are primarily due to greater groundwater pumping volumes.

The average change in groundwater in storage in the Enterprise Subbasin is computed by subtracting the average total groundwater outflows from the average total groundwater inflows. The historical, current, and projected groundwater system budgets indicate an annual average change in groundwater storage ranging from a decrease of 1 TAF under historical conditions to an increase of 8 TAFY under current conditions (Table 5-11). The increase in groundwater storage under current conditions results primarily from increased groundwater recharge from precipitation, applied water, and septic systems (likely a result of wet climatic conditions in WY 2017) and only slight increase in the groundwater outflow components. Although groundwater pumping is assumed to increase by 10 TAFY to meet future water demands in the Future Baseline Scenario, EAGSA Model results suggest that this will not create overdraft conditions, given the average increase in groundwater storage of 1 TAFY during the projection period. The total groundwater system inflows generally equal or are larger than the groundwater system outflows for the historical, current, and projection periods. This means that the Enterprise Subbasin groundwater system has been and is projected to continue to be managed sustainably.

Table 5-12 and Figure 5-10 present annual averages of the individual components of the historical, current, and projected groundwater system budgets for the Anderson Subbasin, whereas Figure 5-12 presents the total of each subbasin component of the historical, current, and projected groundwater system budgets for each year. According to the EAGSA Model, the subbasin received an annual average of about 490 TAF of groundwater inflows during the 20-year historical period. These inflows consist primarily of groundwater recharge from streams and canals (stream leakage) (247 TAFY), followed by subsurface inflow from adjacent areas, and groundwater recharge from precipitation, applied water, and septic systems. Leakage from the ACID main canal contributes approximately 29 to 37 TAF of groundwater recharge to the aquifer system in the Anderson Subbasin. During this same period, the total outflow from the groundwater was approximately equal to the inflow. The fact that the inflows equal the outflows means that the groundwater system is in balance. The largest annual outflow from the groundwater system was groundwater discharge to streams (stream gains) (225 TAF), followed by subsurface outflow to adjacent areas, groundwater pumping, groundwater discharge to land surface, and ET of shallow groundwater. Attachment 7 includes the annual groundwater system water budget values for the historical, current, and projected periods for the Anderson Subbasin.

Table 5-12. Anderson Subbasin Average Annual Groundwater System Water Budgets

Groundwater System Budget Component	Historical Average Water Volume (TAF) WYs 1999–2018	Current Average Water Volume (TAF) WYs 2015–2018	Projected Average Water Volume (TAF) WYs 2019–2071
Inflows			
Groundwater Recharge from Precipitation, Applied Water, and Septic Systems	111	131	119
Groundwater Recharge from Streams/Canals*	247	252	242
Subsurface Inflow from Adjacent Areas	128	130	127
Total Inflow	**486**	**513**	**488**
Outflows			
Shallow Groundwater Uptake (ET of Shallow Groundwater)	3	3	3
Groundwater Discharge to Streams/Canals	225	228	229
Groundwater Pumping	20	21	23
Municipal Groundwater Pumping	4	5	9
Private Agricultural Groundwater Pumping	14	14	12
Private Residential Groundwater Pumping	2	2	2
Subsurface Outflow to Adjacent Areas	156	155	155
Groundwater Discharge to Land Surface	84	91	79
Total Outflow	**488**	**498**	**489**

Table 5-12. Anderson Subbasin Average Annual Groundwater System Water Budgets

Groundwater System Budget Component	Historical Average Water Volume (TAF) WYs 1999–2018	Current Average Water Volume (TAF) WYs 2015–2018	Projected Average Water Volume (TAF) WYs 2019–2071
Average of Total Inflows and Outflows	487	506	489
Change in Groundwater Storage	-2	15	-1
Change in Groundwater Storage as a Percent of the Average of Total Inflows and Outflows	-0.41%	2.97%	-0.20%

* Leakage from the ACID main canal annually contributes approximately 29 to 37 TAF of groundwater recharge to the aquifer system in the Anderson Subbasin under historical and projected conditions.

The total inflows and outflow of the Anderson Subbasin groundwater system under current conditions are slightly higher (2 to 4 percent) than historical conditions with similar order of largest to smallest water budget component volumes. Increased inflows to the groundwater system under current conditions primarily result from the approximately 15 percent higher groundwater recharge from precipitation, applied water, and septic systems. Increases in total outflows from the groundwater system during the current period is mostly due to increased groundwater discharge to land surface.

The Future Baseline Scenario conservatively assumes that additional future water demand due to population growth will be met by increased groundwater pumping; however, the per capita water use is assumed to be reduced in the future to meet state conservation water use targets. As such, the overall projected groundwater system budget is similar to historical conditions (that is, rates of inflows to and outflows from the groundwater system in the future are projected to be similar to past rates of groundwater inflows and outflows).

The historical, current, and projected groundwater system budgets indicate an average annual change in groundwater storage ranging from a decrease of 2 TAF under historical conditions and an increase of 1 TAF under Future Baseline Scenario conditions up to an increase of 15 TAFY under current conditions (Table 5-12). The increase in groundwater storage under current conditions results primarily from increased groundwater recharge from precipitation, applied water, and septic systems (likely a result of wet climatic conditions in WY 2017) and only slight increase in the groundwater outflow components. Because of the modest projected future population growth in the Anderson Subbasin (as compared to the Enterprise Subbasin), annual groundwater pumping is projected to increase by only 1 to 2 TAF to meet future water demands in the Future Baseline Scenario. EAGSA Model results indicate that this will not create overdraft conditions, given the average annual decrease in groundwater storage of only 1 TAF. The total groundwater system inflows generally equal or are larger than the groundwater system outflows for the historical, current, and projection periods. This means that the Anderson Subbasin groundwater system has been and is projected to continue to be managed sustainably.

5.4.4 Water Supply and Demand

Table 5-13 summarizes the annual average supply and demand by WYT in the Enterprise Subbasin for the historical, current, and projected water budgets. Total supply is equal to the total surface water diverted for in-basin use (excluding conveyance losses) and groundwater pumped within the subbasin. Because water purveyors in the Enterprise Subbasin only divert surface water or pump groundwater in response to a demand (that is, an indoor or outdoor water need), the total demands listed in Table 5-13 are equal to the total supply. The data indicate that total water supplies have been, and will continue to be, sufficient to meet total water demands in the Enterprise Subbasin.

Table 5-13. Enterprise Subbasin Average Annual Supply and Demand by Water Year Type

Water Budget Component	Wet (TAF)	Above Normal (TAF)	Below Normal (TAF)	Dry (TAF)	Critically Dry (TAF)
Historical Period (WYs 1999–2018)					
Annual Groundwater Supply	15	14	15	16	17
ACID	*0*	*0*	*0*	*0*	*0*
COR	*5*	*5*	*5*	*5*	*5*
BVWD	*1*	*1*	*0*	*1*	*1*
Palo Cedro	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*
Private	*9*	*8*	*10*	*10*	*11*
Annual Surface-water Supply	38	43	38	44	34
ACID	*15*	*16*	*15*	*17*	*14*
COR	*11*	*12*	*11*	*12*	*10*
BVWD	*12*	*15*	*12*	*15*	*10*
Annual Total Supply	53	57	53	60	51
Annual Total Demand	53	57	53	60	51
Change in Groundwater Storage	5	3	3	-11	-5
Current Period (WYs 2015–2018)					
Annual Groundwater Supply	14	NA	15	NA	17
ACID	*0*	*NA*	*0*	*NA*	*0*
COR	*5*	*NA*	*4*	*NA*	*5*
BVWD	*0*	*NA*	*1*	*NA*	*1*
Palo Cedro	*0.1*	*NA*	*0.1*	*NA*	*0.1*
Private	*9*	*NA*	*10*	*NA*	*11*
Annual Surface-water Supply	31	NA	34	NA	27
ACID	*13*	*NA*	*15*	*NA*	*13*
COR	*9*	*NA*	*11*	*NA*	*8*
BVWD	*9*	*NA*	*8*	*NA*	*6*
Annual Total Supply	45	NA	49	NA	44
Annual Total Demand	45	NA	49	NA	44
Change in Groundwater Storage	18	NA	8	NA	0

Table 5-13. Enterprise Subbasin Average Annual Supply and Demand by Water Year Type

Water Budget Component	Wet (TAF)	Above Normal (TAF)	Below Normal (TAF)	Dry (TAF)	Critically Dry (TAF)
Projected Period (WYs 2019–2071)					
Annual Groundwater Supply	24	21	26	22	30
ACID	*0*	*0*	*0*	*0*	*0*
COR	*8*	*7*	*8*	*7*	*8*
BVWD	*7*	*5*	*9*	*6*	*12*
Palo Cedro	*1*	*1*	*1*	*1*	*1*
Private	*8*	*8*	*8*	*8*	*9*
Annual Surface-water Supply	30	39	31	37	27
ACID	*15*	*16*	*15*	*17*	*14*
COR	*8*	*11*	*9*	*10*	*8*
BVWD	*7*	*12*	*7*	*10*	*5*
Annual Total Supply	54	60	57	59	57
Annual Total Demand	54	60	57	59	57
Change in Groundwater Storage	13	7	-4	-4	-10

Notes:

NA = not applicable because no Above Normal or Dry year occurred during the current period.

Total Subbasin Groundwater Supply = Sum of purveyor and private groundwater supply.

- ACID Groundwater Supply = Zero, ACID does not operate pumping wells in the Enterprise Subbasin.
- COR Groundwater Supply = Approximately 60 percent of total COR groundwater supply is assumed to serve the Enterprise Subbasin.
- BVWD and Palo Cedro Groundwater Supply = Total groundwater pumped reported by each respective purveyor.
- Private Groundwater Supply = EAGSA Model estimate of private groundwater pumping in the Enterprise Subbasin.

Total Subbasin Surface-water Supply = Sum of ACID, COR, and BVWD surface-water diversions.

- ACID Surface-water Supply = Approximately 15 percent of the total ACID Sacramento River Diversions (SWRCB, 2021).
- COR Surface-water Supply = Approximately 60 percent of total COR Sacramento River and Whiskeytown diversions is assumed to serve the Enterprise Subbasin.
- BVWD Surface-water Supply = Total BVWD Sacramento River diversions.

Total Subbasin Supply = Sum of total groundwater and surface-water supply.

Total Subbasin Demand = Total groundwater pumping and surface-water supply (that is, diversions) to reflect total indoor and outdoor water use demands and associated conveyance losses.

Change in Groundwater Storage = Total inflows minus total outflows from the EAGSA Model groundwater system budget.

As shown in Table 5-13, total water supplies in the Enterprise Subbasin during the historical period are composed of approximately 55 to 65 percent surface water and approximately 35 to 45 percent groundwater. There was increased demand on groundwater resources under Critically Dry WYs (with groundwater increasing to nearly half of the total water supplies) due to less precipitation and reduced surface-water supplies during these year types. Annual total water demands among the WYTs varied by less than approximately 15 percent, which is to be expected given that population growth has been modest, and there have not been substantial changes in land use during this period. Changes in groundwater storage listed in Table 5-13 are estimated from the EAGSA Model based on the difference between average simulated inflows to and outflows from the groundwater system for the different WYTs. Because change in groundwater storage is related to the groundwater system budget, a positive or negative value does not necessarily mean that there was a surplus or deficit in total supplies (that is, change in storage is not directly related to total water supply or demand). Changes in groundwater storage vary between WYTs with increases in groundwater storage during Wet, Above Normal, and Below Normal years and decreases in groundwater storage during Dry and Critically Dry years. Water supplies met water demands during the historical period.

Observations of the current supply and demand are similar to those of the 20-year historical period, except that there was a slightly increased reliance on groundwater (42 to 55 percent of total supply on average). Additionally, neither an Above Normal nor Dry WY occurred in WYs 2015 through 2018 (Table 5-13). Surface-water supplies were significantly reduced under recent Critically Dry WYs; however, purveyors in the subbasin were able to compensate for the reduced surface-water allocations through increased groundwater pumping during this period.

Unlike the historical and current groundwater conditions, groundwater pumping serves as the dominant water supply source in the subbasin during the projected period (approximately 50 to 70 percent of total supplies), with the highest demand on pumping required under Critically Dry WYs (Table 5-13). The Future Baseline Scenario assumes that water purveyors will have similar access to surface water in the future as under historical and current conditions (that is, the reliability of surface-water supplies in the future is assumed to be the same as in the past, on average); therefore, increased water demand due to population growth in the subbasin will be met by increased groundwater pumping. As with increased groundwater pumping under current conditions, Future Baseline Scenario groundwater pumping is less than the sustainable yield of the subbasin (as discussed further in Section 5.4.2). Similar to the historical and current periods, changes in groundwater storage vary between WYTs with increases in groundwater storage during Wet and Above Normal years and decreases in groundwater storage during Below Normal, Dry, and Critically Dry years (Table 5-13). Water supplies are projected to meet future water demands.

Table 5-14 summarizes the annual average supply and demand by WYT in the Anderson Subbasin for the historical, current, and projected water budgets. Total supply is equal to the total surface water diverted for in-basin use (excluding conveyance losses) and groundwater pumped within the subbasin. Because water purveyors in the Anderson Subbasin only divert surface water or pump groundwater in response to a demand (that is, an indoor or outdoor water need), the total demands listed in Table 5-14 are equal to the total supply. The data listed in Table 5-14 indicate that total water supplies have been, and will continue to be, sufficient to meet total water demands in the subbasin.

Table 5-14. Anderson Subbasin Average Annual Supply and Demand by Water Year Type

Water Budget Component	Wet (TAF)	Above Normal (TAF)	Below Normal (TAF)	Dry (TAF)	Critically Dry (TAF)
Historical Period (WYs 1999–2018)					
Annual Groundwater Supply	17	20	18	20	22
COR	*2*	*2*	*2*	*2*	*2*
ACID	*0*	*0*	*0*	*0*	*2*
COA	*2*	*2*	*2*	*3*	*2*
Cottonwood Water District	*1*	*1*	*1*	*1*	*1*
CCCSD	*0*	*0*	*0*	*0*	*0*
Private	*12*	*15*	*13*	*14*	*15*
Annual Surface-water Supply	74	82	76	93	70
COR	*4*	*5*	*4*	*5*	*4*
ACID	*65*	*71*	*68*	*82*	*62*
CCCSD	*5*	*6*	*4*	*6*	*4*
Annual Total Supply	91	102	94	113	92
Annual Total Demand	91	102	94	113	92
Change in Groundwater Storage	12	3	4	-18	-13
Current Period (WYs 2015–2018)					
Annual Groundwater Supply	20	NA	20	NA	23
COR	2	NA	2	NA	2
ACID	*0*	*NA*	*0*	*NA*	*4*
COA	*2*	*NA*	*2*	*NA*	*2*
Cottonwood Water District	*2*	*NA*	*2*	*NA*	*1*
CCCSD	*0*	*NA*	*0*	*NA*	*0*
Private	*14*	*NA*	*14*	*NA*	*14*
Annual Surface-water Supply	64	NA	73	NA	58
COR	*4*	*NA*	*4*	*NA*	*3*
ACID	*57*	*NA*	*66*	*NA*	*54*
CCCSD	*3*	*NA*	*3*	*NA*	*1*
Annual Total Supply	84	NA	93	NA	81
Annual Total Demand	84	NA	93	NA	81
Change in Groundwater Storage	34	NA	13	NA	-3

Table 5-14. Anderson Subbasin Average Annual Supply and Demand by Water Year Type

Water Budget Component	Wet (TAF)	Above Normal (TAF)	Below Normal (TAF)	Dry (TAF)	Critically Dry (TAF)
Projected Period (WYs 2019–2071)					
Annual Groundwater Supply	22	22	22	24	26
COR	*3*	*3*	*3*	*3*	*3*
ACID	*0*	*0*	*0*	*2*	*4*
COA	*3*	*3*	*3*	*3*	*3*
Cottonwood Water District	*3*	*3*	*3*	*3*	*3*
CCCSD	*1*	*1*	*1*	*1*	*1*
Private	*12*	*12*	*12*	*12*	*12*
Annual Surface-water Supply	72	79	75	89	67
COR	*3*	*4*	*4*	*4*	*3*
ACID	*65*	*71*	*67*	*81*	*60*
CCCSD	*4*	*4*	*4*	*4*	*4*
Annual Total Supply	94	101	97	113	93
Annual Total Demand	94	101	97	113	93
Change in Groundwater Storage	23	10	-7	-8	-19

Notes:

NA = not applicable because no Above Normal or Dry year occurred during the current period.

Total Subbasin Groundwater Supply = Sum of purveyor and private groundwater supply.

- COR Groundwater Supply: Approximately 25 percent of total COR groundwater supply is assumed to serve Anderson Subbasin.
- ACID, COA, Cottonwood Water District, CCCSD Groundwater Supply = Total groundwater pumping reported by each respective purveyor.
- Private Groundwater Supply = EAGSA Model estimate of private groundwater pumping in the Anderson Subbasin.

Total Subbasin Surface-water Supply = Sum of COR, ACID, and CCCSD surface-water diversions.

- COR Surface-water Supply: Approximately 25 percent of total COR Sacramento River and Whiskeytown diversions is assumed to serve Anderson Subbasin.
- ACID Surface-water Supply = Total ACID Sacramento River diversion at Caldwell Park (estimated to be 85 percent of the total ACID diversion on average [SWRCB, 2021]) minus the simulated 29 to 37 TAF of ACID main canal leakage.
- CCCSD Surface-water Supply = Total CCCSD Whiskeytown diversions minus the Centerville CSD Whiskeytown allocation.

Total Subbasin Supply = Sum of total groundwater and surface-water supply.

Total Subbasin Demand = Total groundwater pumping and surface-water supply (that is, diversions) to reflect total indoor and outdoor water use demands and associated conveyance losses.

Change in Groundwater Storage = Total inflows minus total outflows from the EAGSA Model groundwater system budget.

As shown in Table 5-14, surface water made up approximately 70 to 80 percent of the total water supplies in the Anderson Subbasin during the historical period, with increased demand on groundwater resources (up to nearly 30 percent of total water supplies) under Critically Dry WYs due to less precipitation and reduced surface-water supplies during these WYTs. Annual total water demands among the WYTs varied by less than approximately 30 percent, which is to be expected given that population growth has been modest, and there have not been substantial changes in land use during this period. Changes in groundwater storage listed in Table 5-14 are estimated from the EAGSA Model based on the difference between average simulated inflows to and outflows from the groundwater system for the different WYTs. Because change in groundwater storage is related to the groundwater system budget, a positive or negative value does not necessarily mean that there was a surplus or deficit in total supplies (that is, change in storage is not directly related to total water supply or demand). Changes in groundwater storage vary between WYTs with increases in groundwater storage during Wet, Above Normal, and Below Normal years and decreases in groundwater storage during Dry and Critically Dry years. Water supplies met water demands during the historical period.

Observations of the current supply and demand are similar to those of the 20-year historical period, except that neither an Above Normal nor Dry WY occurred in WYs 2015 through 2018 (Table 5-14). Additionally, surface-water supplies were reduced under recent Critically Dry WYs, creating a smaller difference between surface-water and groundwater supplies in the Anderson Subbasin during the 2015 Critically Dry year. Despite the surface-water reductions during the current period, purveyors in the subbasin were able to compensate for the reduced surface-water allocations through increased groundwater pumping. Water supplies met water demands during the current period.

As previously discussed, the Future Baseline Scenario assumes that water purveyors will have similar access to surface water in the future as under historical and current conditions (that is, the reliability of surface-water supplies in the future is assumed to be the same as in the past, on average); therefore, increased water demand due to population growth in the subbasin will be met by increased groundwater pumping. Because the projected per capita water use is assumed to be reduced in the future to meet state conservation water use targets, the overall projected groundwater pumping is similar in annual volume to the historical and current periods. As such, the projected supply and demand are similar to those of the historical and current periods, with surface water comprising approximately 70 to 80 percent and groundwater comprising 20 to 30 percent of total supplies (Table 5-14). Changes in groundwater storage vary between WYTs with increases in groundwater storage during Wet and Above Normal years and decreases in groundwater storage during Below Normal, Dry, and Critically Dry years. Water supplies are projected to meet future water demands.

5.5 Model Projection Sensitivity Analysis

A sensitivity analysis was performed to support the development of SMCs as part of GSP development for the Enterprise and Anderson Subbasins. Given conditions in the Enterprise and Anderson Subbasins are favorable under historical, current, and projected conditions, an Increased Groundwater Use Scenario was developed to provide a greater stress on the subbasins as compared to the Future Baseline Scenario. The following sections describe the Increased Groundwater Use Scenario and the simulation results used to help inform SMC and GSP development.

5.5.1 Increased Groundwater Use Scenario

To further support the development of SMCs, a modified historical and projected simulation of the EAGSA Model was devised to simulate the scenario in which increased groundwater use would occur within the RAGB. To simulate an increase in groundwater use throughout the RAGB, the consumptive use associated with all irrigated land use categories was doubled by applying a 2-times multiplier on the monthly Kc values to increase the applied water requirements. The increase in applied water demand associated with the modified Kc values is assumed to be met through groundwater pumping. To be clear, the Future Baseline Scenario includes the purveyors' best estimates of growth and future water demands. The Increased Groundwater Use Scenario was developed to create additional groundwater demands beyond what is anticipated in the Future Baseline Scenario to account for potential unforeseen future conditions (such as higher-than-anticipated population growth or differing future climatic conditions than those in the selected GCM). Applying the factor of 2 on the Kc terms increases groundwater pumping by about 2.5 to 4 times beyond the "best estimate" of future conditions. This approach is not intended to imply that increased outdoor use would be the reason for increased groundwater pumping beyond the pumping already included in the Future Baseline Scenario. Applying this factor was simply convenient within the OneWater modeling code framework and resulted in the desired effect of increased groundwater demand and pumping throughout the RAGB. Additional groundwater pumping was assigned to potential future purveyor well field expansion areas as well as rural pumping areas. Assumptions regarding the location of potential expansion of current purveyor well fields were determined through discussions with stakeholders. Groundwater pumping outside of purveyor areas where distributed groundwater pumping occurs (described in Sections 3.7.1.6 and 5.1.8) is assumed to continue under the Increased Groundwater Use Scenario, but at a higher rate than under the Future Baseline Scenario. Figure 5-13 presents the distribution of pumping under the Increased Groundwater Use Scenario.

Table 5-15 presents a comparison of historical and projected average groundwater pumping volumes for the Enterprise and Anderson Subbasins from the baseline and Increased Groundwater Use Scenario simulations. Given the integrated nature of the EAGSA Model framework, the resulting change in consumptive use from applying a factor of 2 on irrigated crop Kc values causes numerous terms in the land surface-water budget to change. For example, an increase in consumptive use may result in increased ET of precipitation depending on the availability of precipitation in each month. While an increase in access to precipitation may reduce applied water requirements, the increased ET of precipitation is likely to occur in the winter months because this is when more precipitation is available. However, crop demands are low during this time; thus, the annual applied water demand may not decrease significantly due to this process. Increased ET of precipitation will then reduce deep percolation of precipitation and runoff to streams, altering groundwater and surface-water conditions as a result. As groundwater conditions change, the availability of shallow groundwater to meet consumptive use is also likely to change. Such changes in the land surface-water budget may change the applied water demand depending on the location of the WBS and the specific water supply configuration associated with that WBS. The Increased Groundwater Use Scenario was configured so that any additional demand not met through shallow groundwater, precipitation, and water purveyor deliveries would resort to groundwater pumping to meet the increased applied water demand. The increased groundwater pumping results in further changing groundwater conditions through lowering groundwater levels, potentially reducing the availability of access to shallow groundwater to meet consumptive use demands, which may further alter the land surface-water budget. Thus, given the complexities of the integrated modeling framework, applying a factor of 2 on the Kc term does not always equate to a factor of 2 on groundwater pumping (as compared to historical and Future Baseline Scenario conditions) and, in some cases, results in an increase in groundwater pumping greater than a factor of 2.

Table 5-15. Comparison of Annual Average Groundwater Pumping

Modeling Scenario	Averaging Period	Enterprise Subbasin Annual Average Groundwater Pumping Volume (TAF)	Anderson Subbasin Annual Average Groundwater Pumping Volume (TAF)
Historical	WY 1999–2018	20	20
Projected – Future Baseline Scenario	WY 2019–2071	30	22
Historical – Increased Groundwater Use Scenario	WY 1999–2018	80	112
Projected – Increased Groundwater Use Scenario	WY 2019–2071	76	100

Figure 5-14 presents a selection of well hydrographs that include the simulated groundwater levels from the Future Baseline and Increased Groundwater Use Scenarios. These particular locations were chosen to provide a general sense of groundwater conditions across the Enterprise and Anderson Subbasins. Hydrographs at all target locations are included in Attachment 2 for reference. Also included on these hydrographs are threshold elevations for the measurable objective, minimum threshold, and historical minimum measured groundwater elevation. Refer to Chapter 6 of the Enterprise and Anderson Subbasin GSPs for further discussion on the development of these thresholds. In general, the Increased Groundwater Use Scenario creates conditions where groundwater levels are projected to be lower than under the historical and Future Baseline Scenario simulations, resulting from the increase in groundwater pumping.

Full historical and projected annual water budget tables, based on the Increase Groundwater Use Scenario, are presented in Attachments 9 through 14. These attachments reflect the land system, surface-water system, and groundwater system annual water budget values for the Enterprise and Anderson Subbasins.

5.5.2 Sustainable Yield Estimates

Sustainable yield is defined in SGMA as follows:

> The maximum quantity of water, calculated over a base period representative of long-term conditions in the basin, and including any temporary surplus that can be withdrawn annually from a groundwater supply without causing an undesirable result.

Based on the locally defined SMCs (discussed in detail in Chapter 6 of the Enterprise and Anderson Subbasin GSPs), the Enterprise and Anderson Subbasins have been and are currently operating within their sustainable yields. That is, the historical and current levels of groundwater pumping within the subbasins have not produced undesirable results (the local definitions of undesirable results are discussed further in Chapter 6). Figures 5-15 and 5-16 present plots illustrating the estimated total groundwater in storage within the Enterprise and Anderson Subbasins (solid blue lines), the annual change in groundwater storage (yellow bars), the cumulative change in groundwater storage (dashed red lines), and the total groundwater storage at the beginning of water year 1999 (dashed gray line) over the historical, current, and projected periods (Future Baseline Scenario in the top chart).

Annual groundwater pumping associated with these groundwater storage estimates range from an average of 20 TAF during the historical and current period (based on the historical version of the EAGSA Model) to an average of 30 TAF during the projected period (based on the Future Baseline Scenario) for the Enterprise Subbasin (Table 5-11). For the Anderson Subbasin, annual groundwater pumping associated with these groundwater storage estimates range from an average of 20 TAF during the historical period (based on the historical version of the EAGSA Model) to an average of 22 TAFY during the projected period (based on the Future Baseline Scenario) (Table 5-12).

The groundwater storage plots presented on Figures 5-15 and 5-16 show that groundwater in storage varies year to year in each subbasin, decreasing during drier periods and increasing during wetter periods. Overall, the annual change in groundwater storage is balanced through about 2050 (that is, there is a roughly equal distribution of positive and negative annual changes in groundwater storage). After approximately 2050, the selected GCM includes a nearly 20-year drought, during which the groundwater outflows in the Future Baseline Scenario exceed the groundwater inflows, resulting in a downward trend in the total groundwater storage. Having groundwater outflows exceed groundwater inflows during droughts is normal and not itself an indicator of overdraft conditions. Regardless, the amount of groundwater in storage at the end of WY 2071 is nearly the same as the groundwater storage at the beginning of the projection period starting in WY 2019. As such, groundwater pumping at these levels, according to the EAGSA Model and the definitions of SMCs discussed in Chapter 6, will not produce undesirable results.

Because the historical, current, and Future Baseline Scenario projections indicate that undesirable conditions will not occur, the Increased Groundwater Use Scenario was developed to aid in estimating a sustainable yield. The average annual projected pumping in the Enterprise Subbasin under the Increased Groundwater Use Scenario is 75 TAF. Figure 5-15 presents the results from this projection scenario (bottom chart) for the Enterprise Subbasin. Although the estimated volume of groundwater in storage is lower than the Future Baseline Scenario simulation, the pattern of annual change in groundwater storage is similar. That is, groundwater storage decreases during drier periods and recovers during wetter periods. Although the cumulative change in storage declines beginning in the mid-century, there is still significant annual recovery during some years. As is discussed further in Chapter 6 of the Enterprise Subbasin GSP, these future conditions are unlikely to create undesirable results. As such, the annual sustainable yield for the Enterprise Subbasin is estimated to be at least 75 TAF, which represents the long-term average groundwater pumping under the Increased Groundwater Use Scenario. The average projected pumping in the Anderson Subbasin under the Increased Groundwater Use Scenario is 89 TAFY. Figure 5-16 presents the results from this projection scenario (bottom chart) for the Anderson Subbasin. Although the estimated volume of groundwater in storage is lower than the Future Baseline Scenario simulation, the pattern of annual change in groundwater storage is similar. That is, groundwater storage decreases during drier periods and recovers during wetter periods. Although the cumulative change in storage declines beginning in the mid-century, there is still annual recovery during some years. As is discussed further in Chapter 6 of the Anderson Subbasin GSP, these future conditions are unlikely to create undesirable results. As such, the annual sustainable yield for the Anderson Subbasin is estimated to be at least 89 TAF, which represents the long-term average groundwater pumping under the Increased Groundwater Use Scenario.

As defined above, the sustainable yield of the subbasin is the long-term average annual volume of groundwater that can be removed from the principal aquifer without causing undesirable results. Groundwater levels, groundwater pumping, and total water supplies will be reported; and SMCs will be evaluated to assess whether undesirable results are present (or may be present in the future given observed trends) as part of SGMA annual reporting and 5-year GSP assessments. As such, the estimate of sustainable yield for the Enterprise and Anderson Subbasins will be further evaluated and refined during GSP implementation. The Enterprise and Anderson Subbasins have historically been operating within their sustainable yields. According to the EAGSA Model and the definitions of undesirable results discussed in Chapter 6 of each respective GSP, if future groundwater pumping locations are similar to past pumping locations, pumping rates could quadruple; and the subbasin would still potentially remain sustainable. This finding will be reassessed as additional monitoring data are collected and knowledge of the HCM evolves during GSP implementation.

5.5.3 Streamflow Depletions of Interconnected Surface Waters

The EAGSA Model was used to help inform the development of SMCs associated with the depletions of interconnected surface waters in the Enterprise and Anderson Subbasins. Figure 5-17 presents the major stream segments where streamflow conditions were analyzed at the end of each segment to support the development of SMCs. To evaluate streamflow depletions at these locations, an analysis was performed as follows:

- The EAGSA Model was run without any groundwater pumping. The simulation was then processed to extract monthly total streamflows at the stream exit points from each subbasin for the simulation period (WY 1999 through WY 2071).
- A second EAGSA Model run was conducted that included the historical, current, and Future Baseline Scenario groundwater pumping. This simulation was then processed to extract monthly total streamflows at the same stream exit points from the subbasin for the simulation period.
- The monthly simulated streamflows for the nonpumping simulation were subtracted from the simulation that included groundwater pumping to compute the streamflow depletion due to groundwater pumping for the Future Baseline Scenario.
- The monthly simulated streamflow for a third simulation, the Increased Groundwater Use Scenario, was used to extract monthly total stream flows at the same exit points.
- The monthly simulated streamflows for the nonpumping simulation were subtracted from the streamflows from the Increased Groundwater Use Scenario to compute the stream depletion that may occur if groundwater pumping in the RAGB were increased by 2.5 to 4 times beyond the “best estimate” of future conditions.
- The data were then rolled-up to the average annual values and summarized in Table 5-16.

Table 5-16. Estimated Depletion of Interconnected Surface Water Due to Groundwater Pumping

	Sacramento River Streamflow at Confluence with Cow Creek (cfs)	Cow Creek at Confluence with Sacramento River (cfs)	Sacramento River at Confluence with Cottonwood Creek (cfs)	Cottonwood Creek at Confluence with Sacramento River (cfs)
Average Annual Depletion of Interconnected Surface Water Due to Groundwater Pumping Prior to SGMA Effective Date (WY 1999 through WY 2014)	16	16	38	14
Average Annual Depletion of Interconnected Surface Water Due to Increased Groundwater Use Scenario (WY 2015 through WY 2071)	123	74	217	89
Average Annual Depletion of Interconnected Surface Water Due to Increased Groundwater Use Scenario Beyond that Prior to SGMA Effective Date	107	58	179	75
Average Annual Simulated Streamflow Under the Increased Groundwater Use	8,880	715	10,130	1,050

Table 5-16. Estimated Depletion of Interconnected Surface Water Due to Groundwater Pumping

	Sacramento River Streamflow at Confluence with Cow Creek (cfs)	**Cow Creek at Confluence with Sacramento River (cfs)**	**Sacramento River at Confluence with Cottonwood Creek (cfs)**	**Cottonwood Creek at Confluence with Sacramento River (cfs)**
Scenario (WY 2015 through WY 2071)				
Interconnected Surface-water Depletion as a Percentage of Streamflow	1.2%	8.1%	1.8%	7.1%
Measured Streamflow Minimum / Average / Maximum (1999 through 2018)	3,730 11,900 92,600	0.07 650 20,900	3,730 11,900 92,600	16 863 32,900

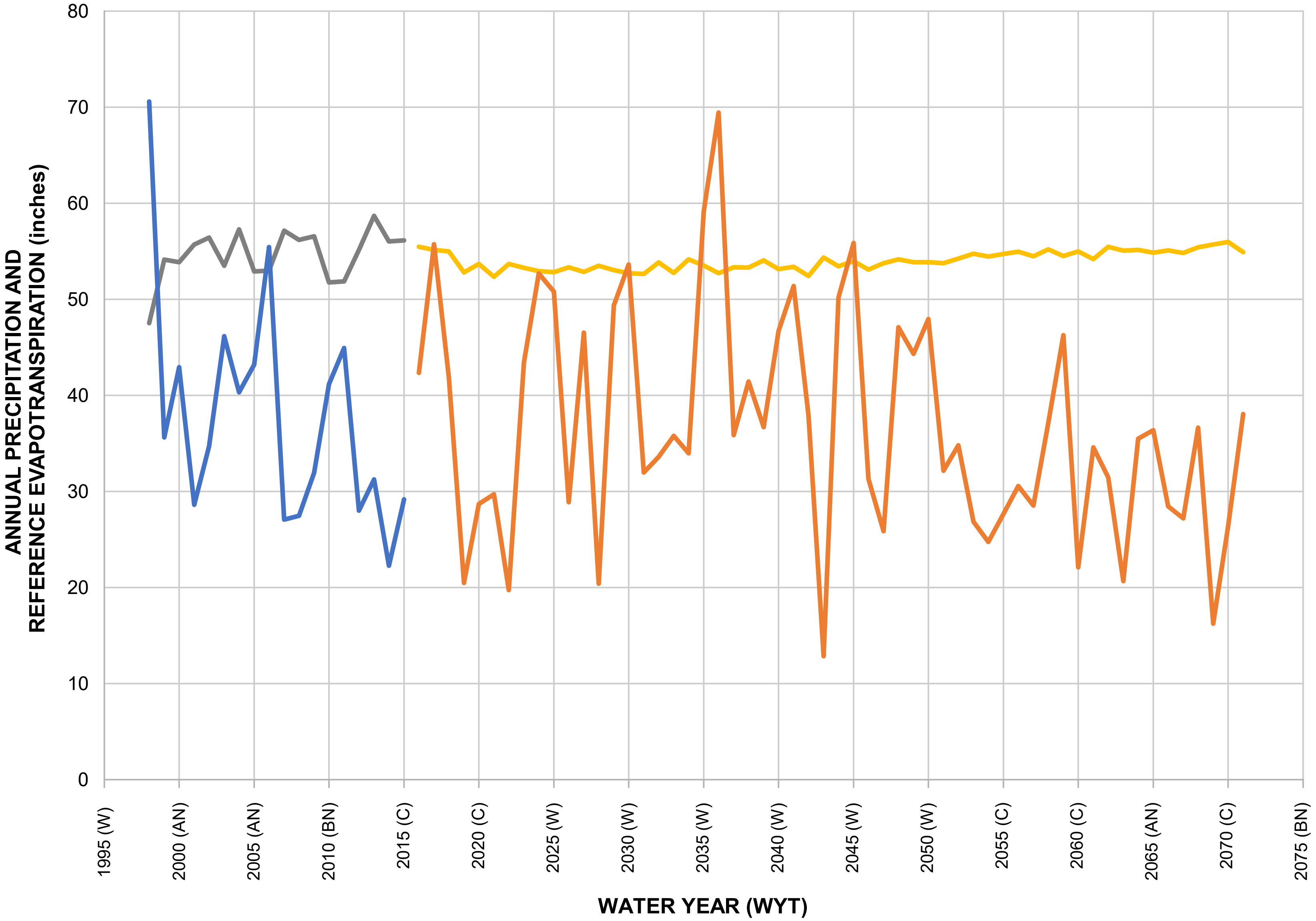
Notes:

Measured streamflow sources:

Data source for Sacramento River: USGS Station 113377100, Sacramento River above Bend Bridge near Red Bluff, CA (https://waterdata.usgs.gov/usa/nwis/uv?site_no=11377100)

Data source for Cow Creek: USGS Station 113374000, Cow Creek near Millville, CA (https://waterdata.usgs.gov/ca/nwis/nwismap/?site_no=11374000&agency_cd=USGS)

Data source for Cottonwood Creek: USGS Station 11376000, Cottonwood Creek near Cottonwood, CA (https://waterdata.usgs.gov/ca/nwis/uv?site_no=11376000)



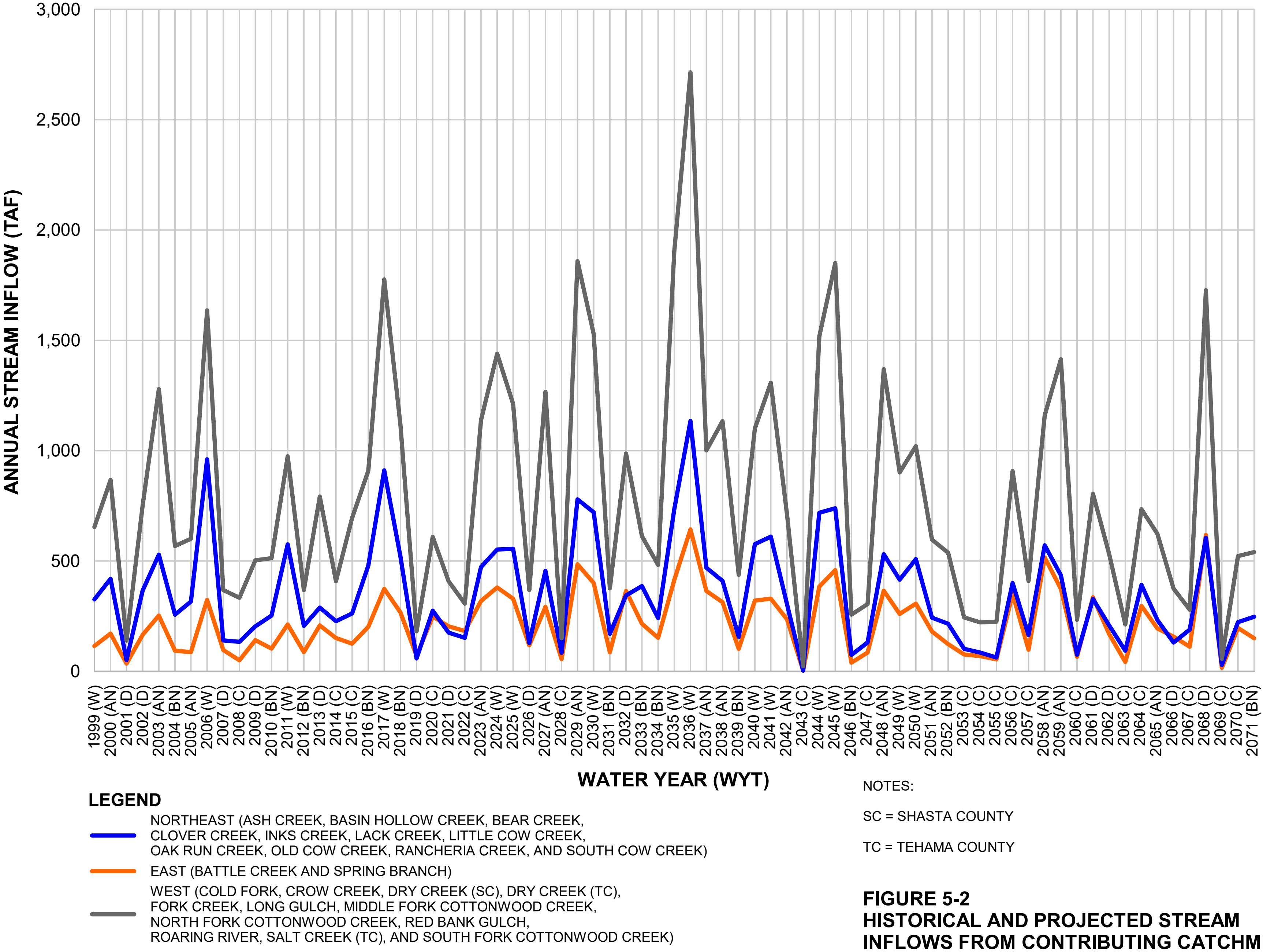
LEGEND

- PRISM HISTORICAL PRECIPITATION
- GCM PROJECTED PRECIPITATION
- BCM BIAS CORRECTED, HISTORICAL REFERENCE EVAPOTRANSPIRATION
- GCM PROJECTED REFERENCE EVAPOTRANSPIRATION

FIGURE 5-1
HISTORICAL AND PROJECTED ANNUAL PRECIPITATION AND REFERENCE EVAPOTRANSPIRATION
Numerical Flow Model Documentation
Redding Area Groundwater Basin

Jacobs

D:\ReddingCACityof\EAGSA\Figures\Grapher\Model\FIG05-01_Projected_Precip_RefET.grf

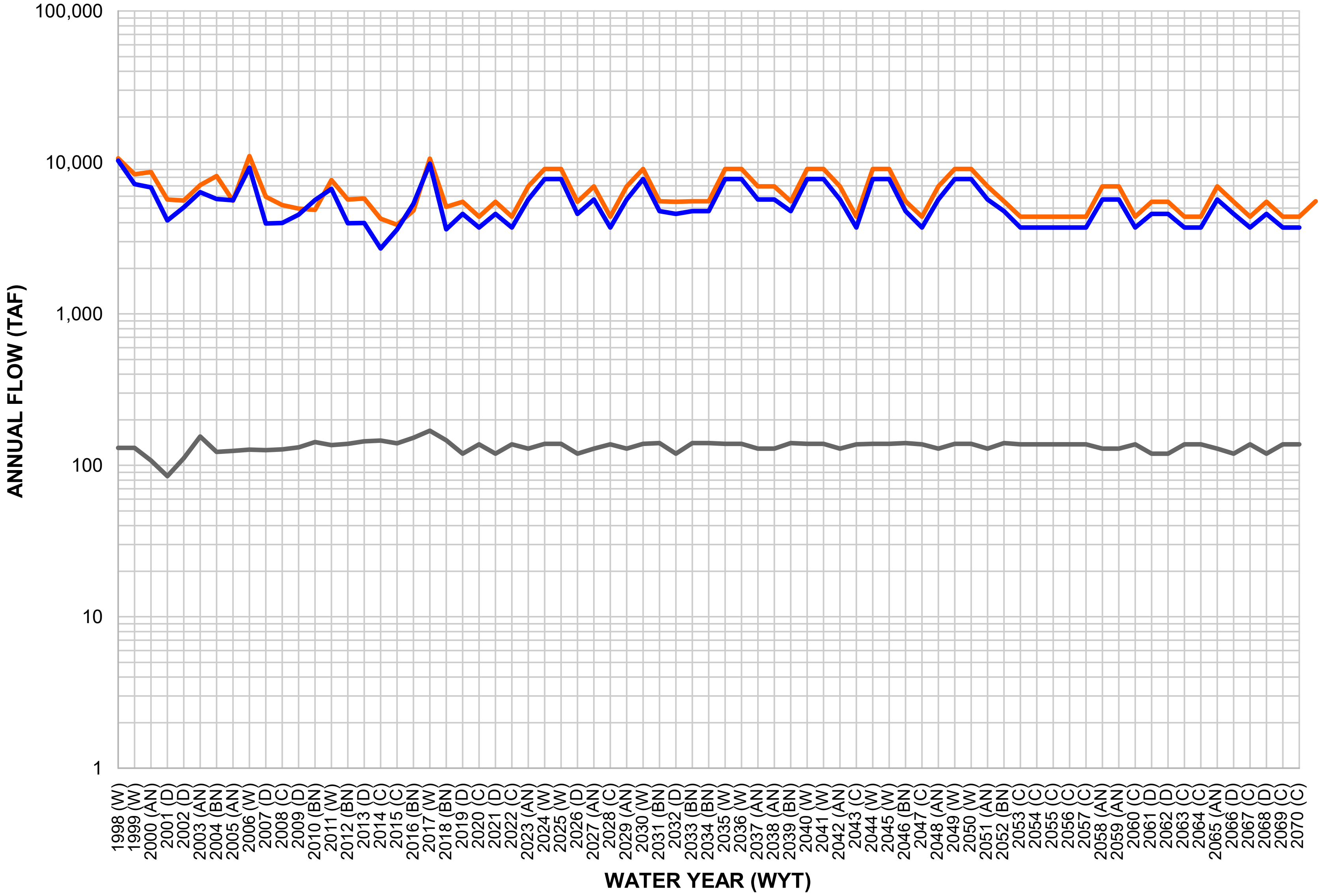


NOTES:

SC = SHASTA COUNTY

TC = TEHAMA COUNTY

FIGURE 5-2
HISTORICAL AND PROJECTED STREAM INFLOWS FROM CONTRIBUTING CATCHMENTS
Numerical Flow Model Documentation
Redding Area Groundwater Basin



LEGEND

- SHASTA DAM RELEASES
- KESWICK DAM RELEASES
- WHISKEYTOWN DAM RELEASES

FIGURE 5-3
HISTORICAL AND PROJECTED
ANNUAL RESERVOIR RELEASES
Numerical Flow Model Documentation
Redding Area Groundwater Basin

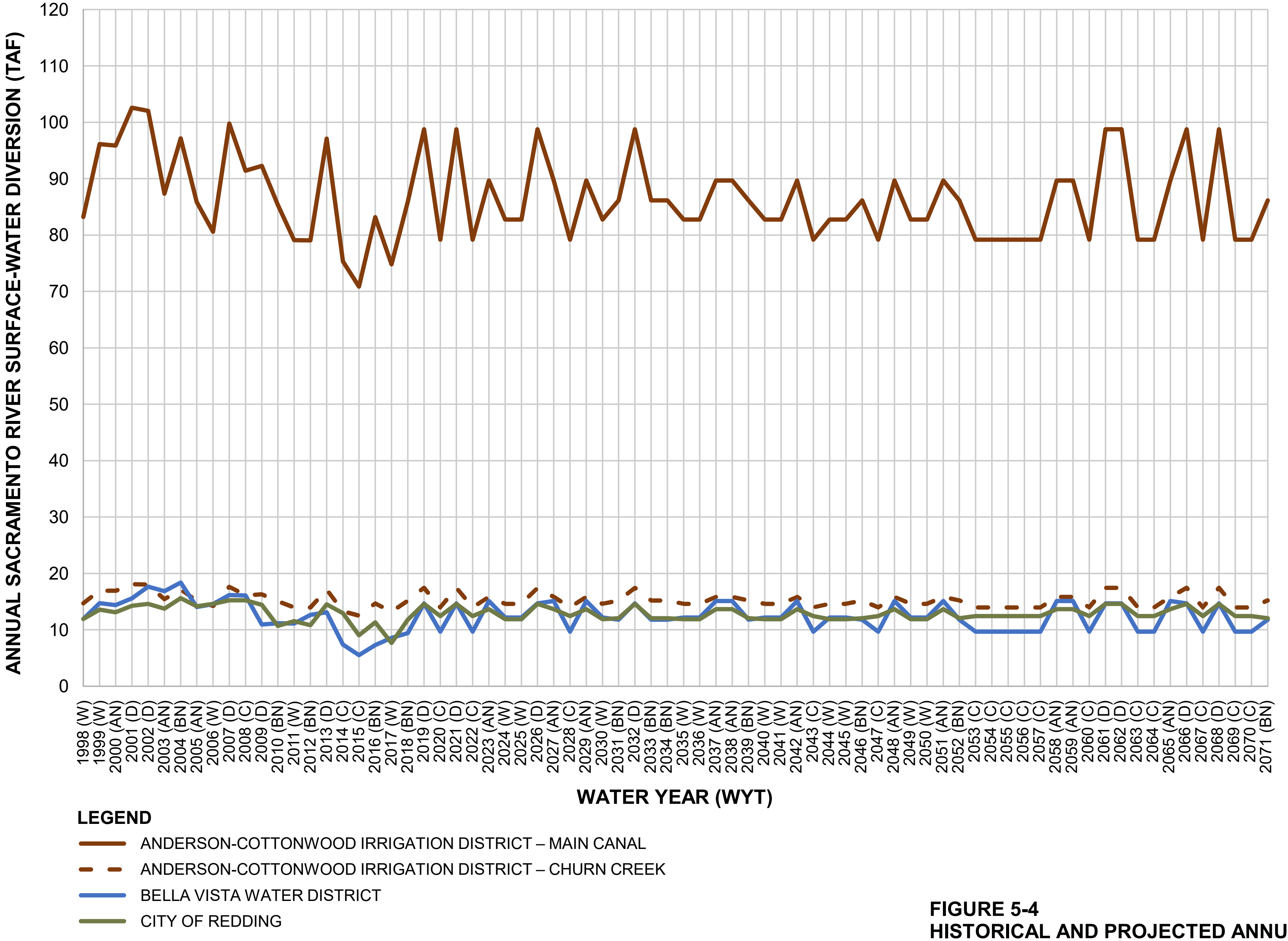


FIGURE 5-4
HISTORICAL AND PROJECTED ANNUAL SACRAMENTO RIVER DIVERSIONS
Numerical Flow Model Documentation
Redding Area Groundwater Basin

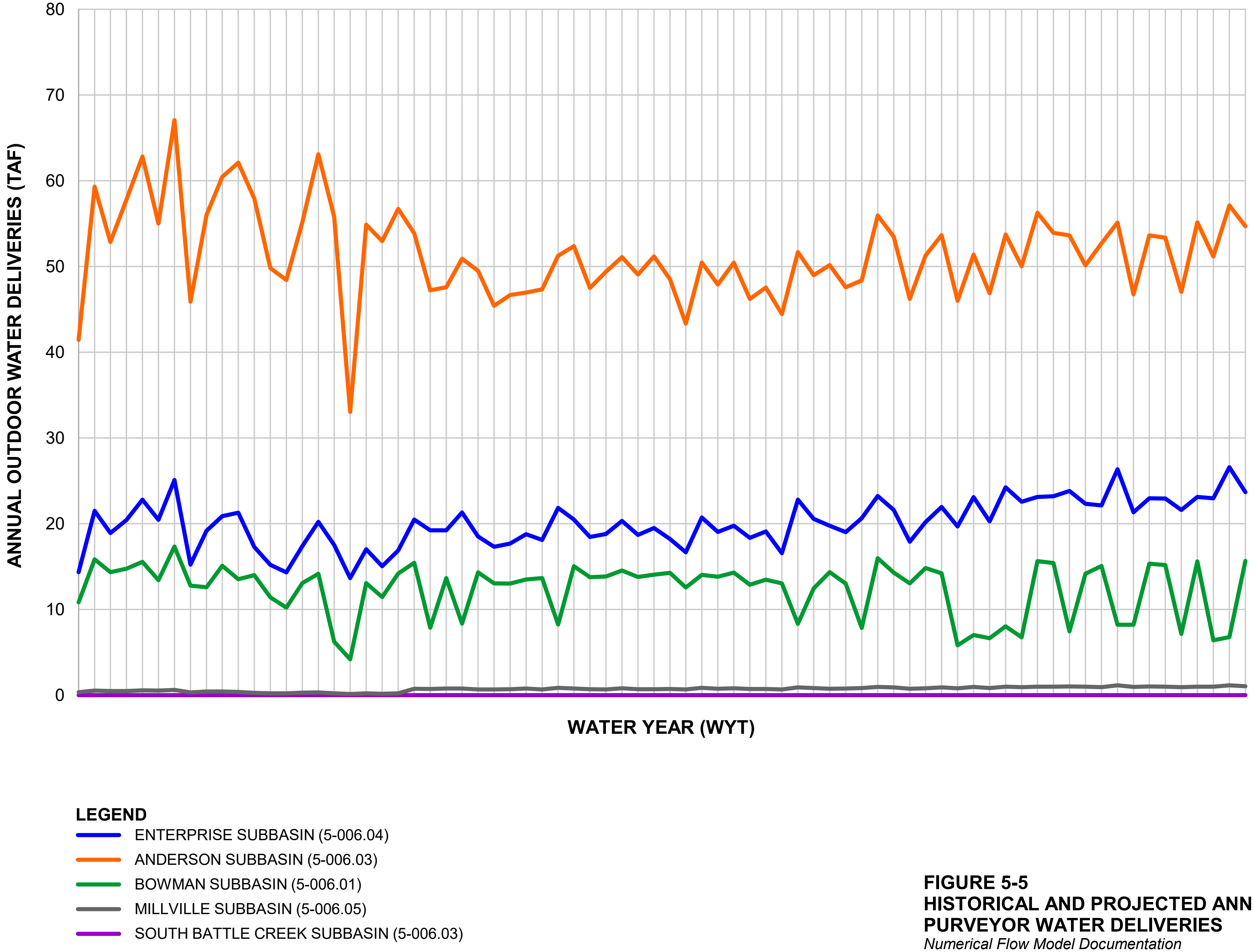


FIGURE 5-5
HISTORICAL AND PROJECTED ANNUAL PURVEYOR WATER DELIVERIES
Numerical Flow Model Documentation
Redding Area Groundwater Basin

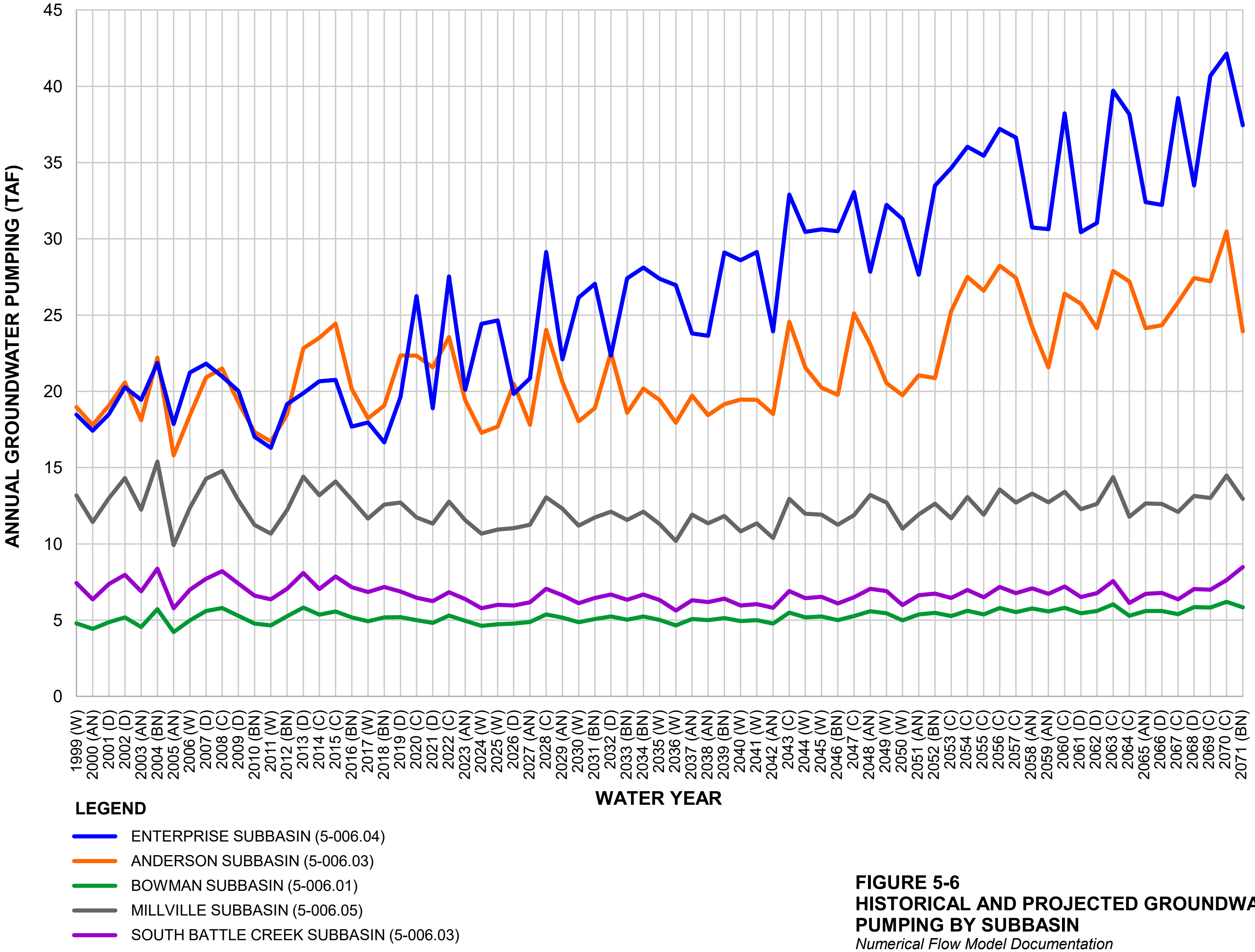


FIGURE 5-6
HISTORICAL AND PROJECTED GROUNDWATER PUMPING BY SUBBASIN
Numerical Flow Model Documentation
Redding Area Groundwater Basin

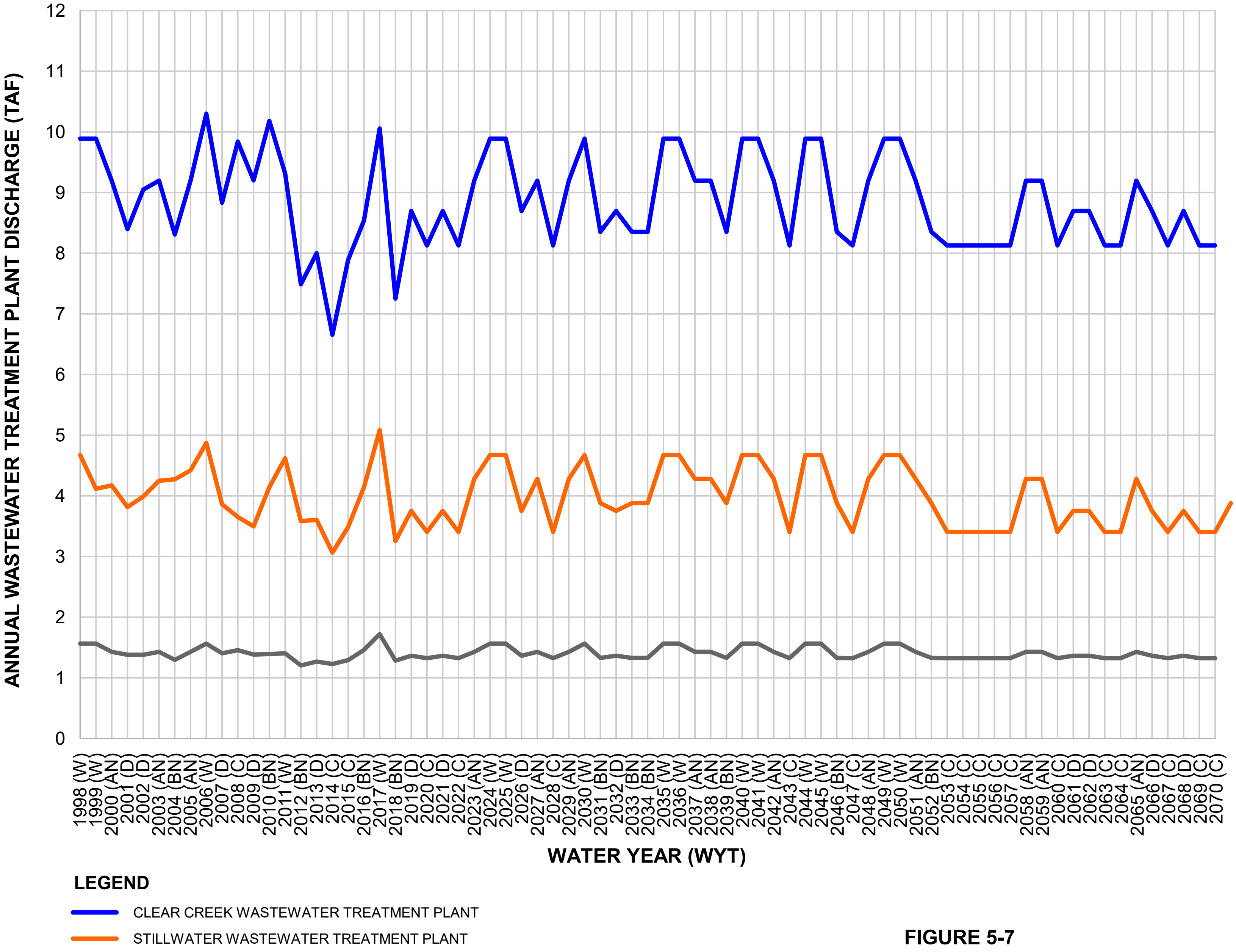
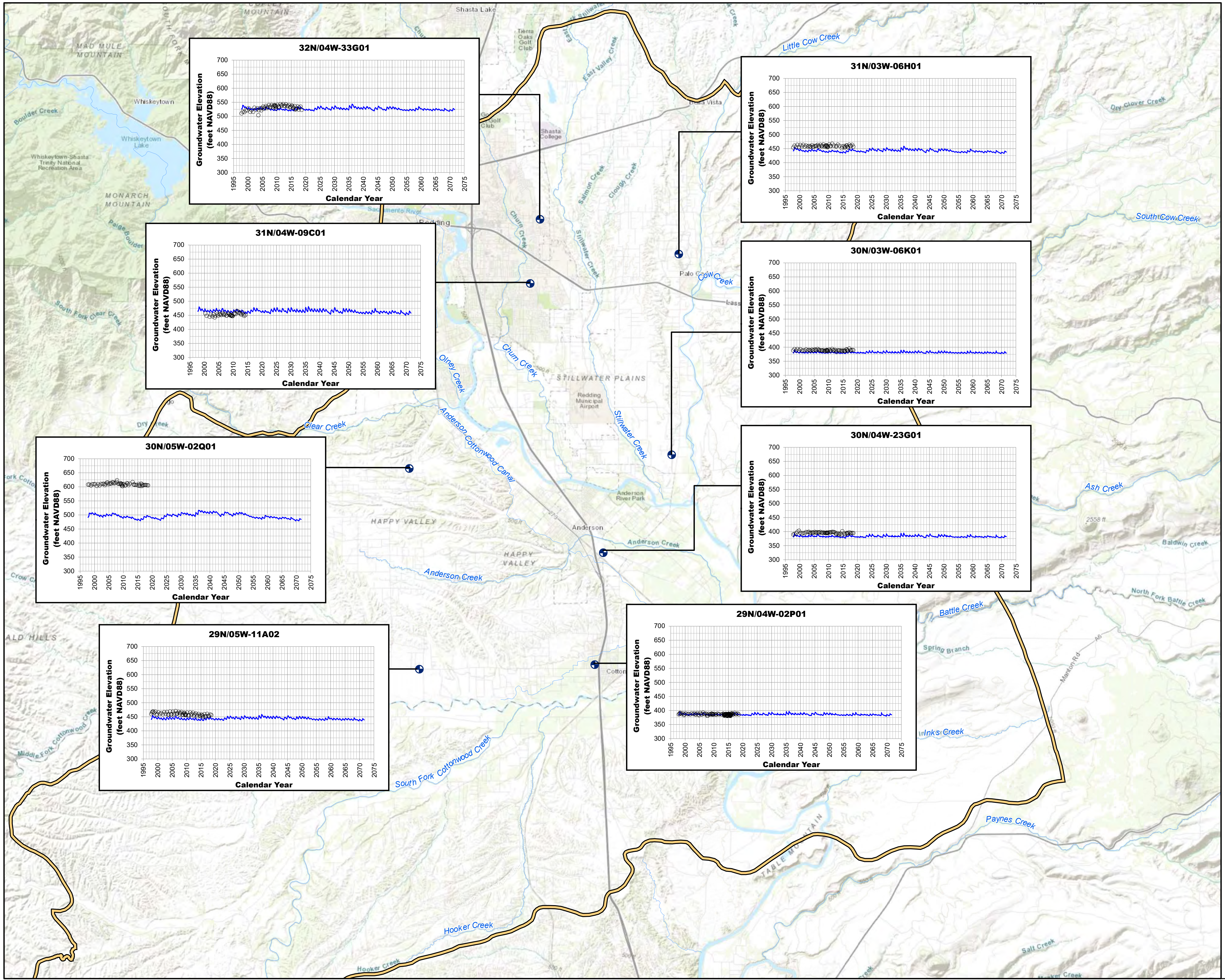
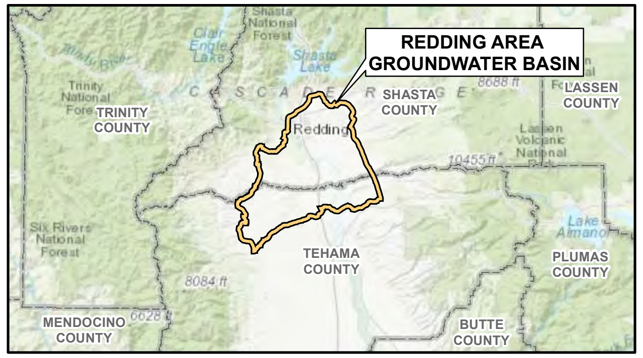


FIGURE 5-7
HISTORICAL AND PROJECTED ANNUAL WASTEWATER DISCHARGE TO STREAMS
Numerical Flow Model Documentation
Redding Area Groundwater Basin





MAP LEGEND

● GROUNDWATER ELEVATION LOCATION

SACRAMENTO RIVER

RIVER/STREAM

REDDING AREA GROUNDWATER BASIN

GRAPH LEGEND

○ TARGET GROUNDWATER ELEVATION (feet NAVD88)

MODELED GROUNDWATER ELEVATION (feet NAVD88)

NOTES:

PROJECTED GROUNDWATER ELEVATIONS ARE FROM THE FUTURE BASELINE SCENARIO.

NAVD88 = NORTH AMERICAN VERTICAL DATUM OF 1988

SERVICE LAYER CREDITS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY

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FIGURE 5-8
HISTORICAL AND PROJECTED GROUNDWATER ELEVATION HYDROGRAPHS

Numerical Flow Model Documentation
Redding Area Groundwater Basin

Jacobs

D:\REDDINGCACITYOF\EAGSA\FIGURES\ARCMAP\MAPFILES\MODEL\5.0\FIG05-08_GW_HYDROGRAPHS_HISTORICFUTURE_BASELINE.MXD 11/18/2021 3:45:50 PM FELHADID

DATUM: NAD 1983. DATA SOURCE: DWR, 2019; ESRI, 2019; SHASTA COUNTY 2019

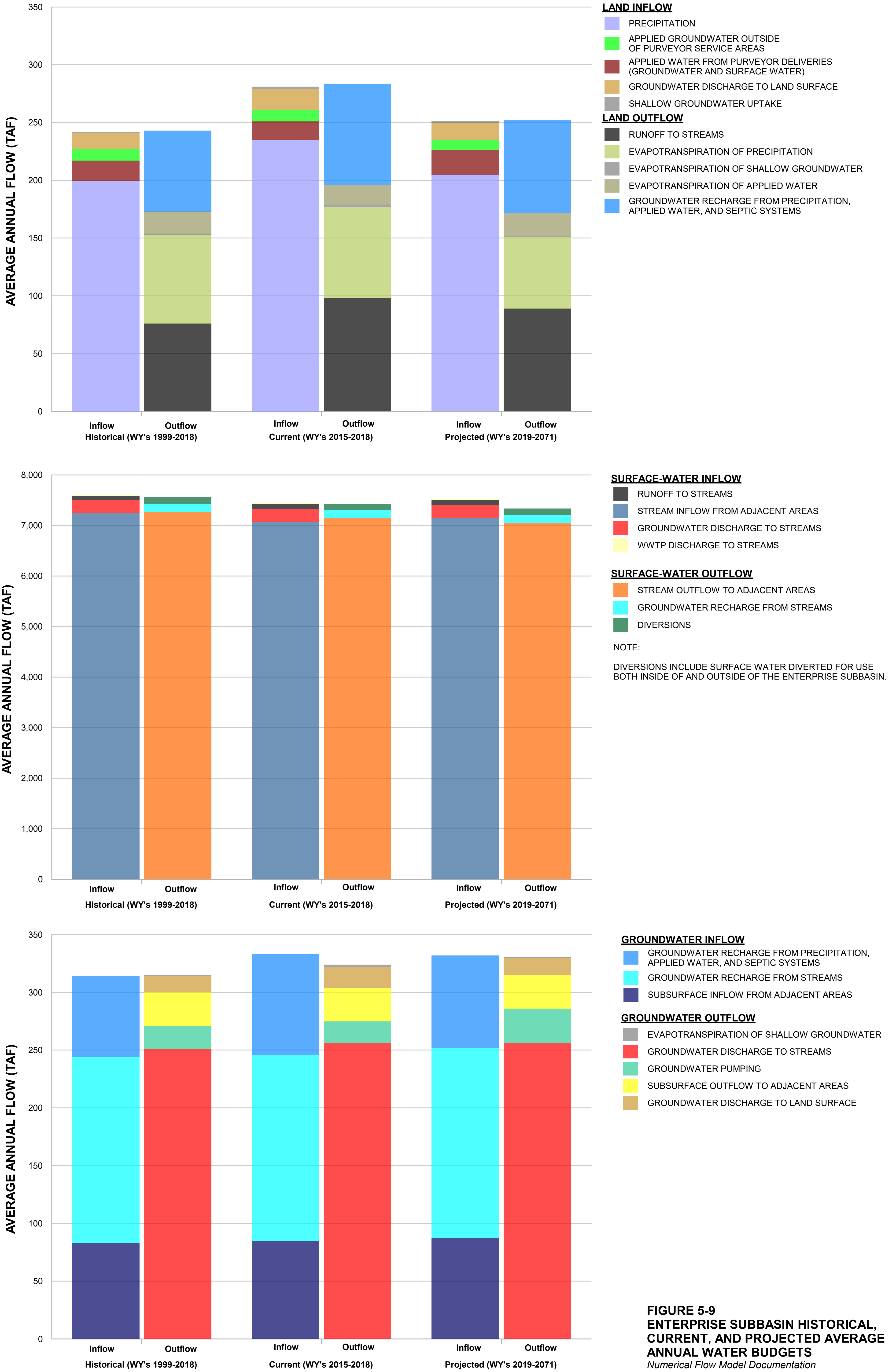


FIGURE 5-9
ENTERPRISE SUBBASIN HISTORICAL, CURRENT, AND PROJECTED AVERAGE ANNUAL WATER BUDGETS
Numerical Flow Model Documentation
Redding Area Groundwater Basin

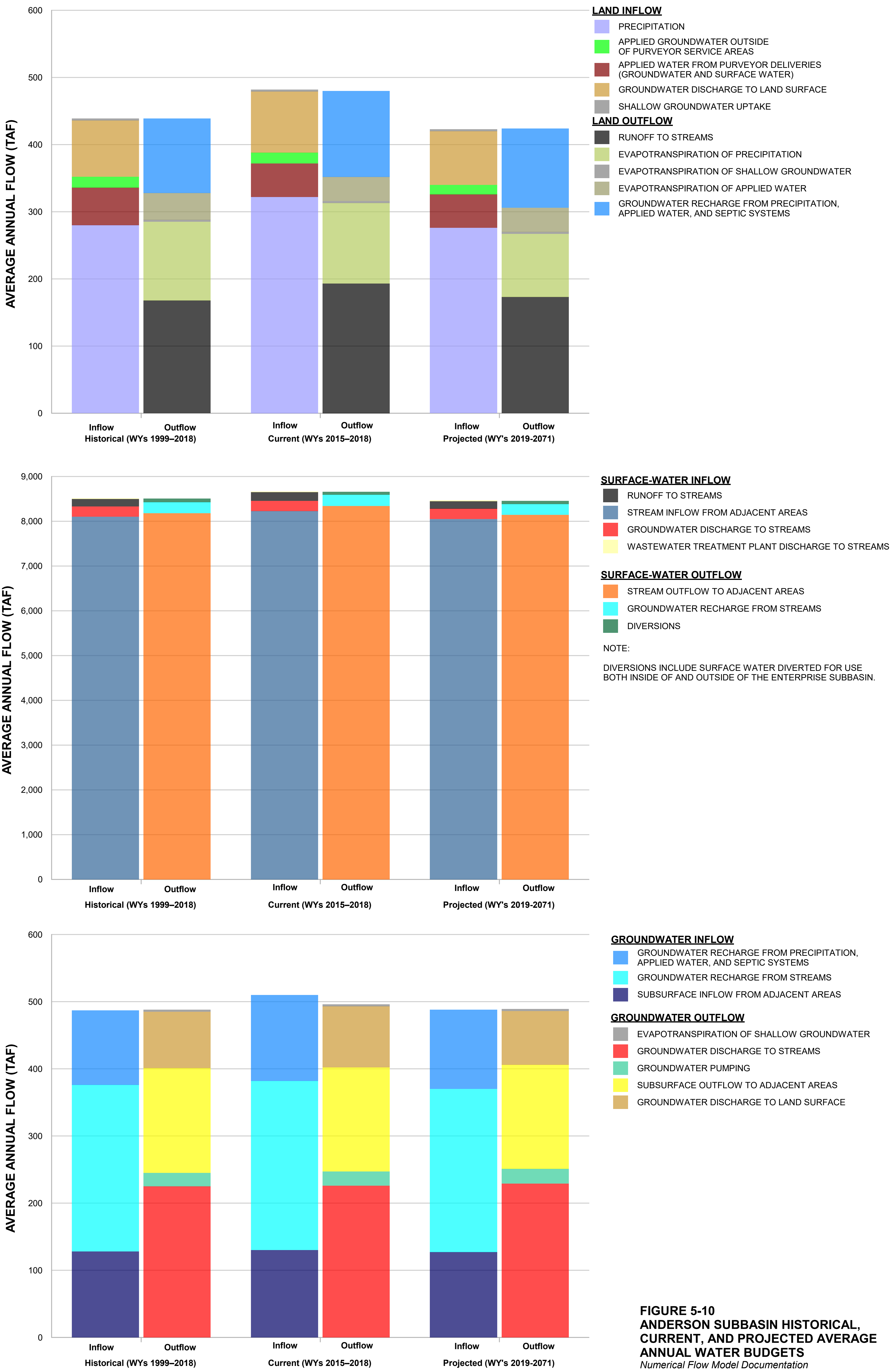
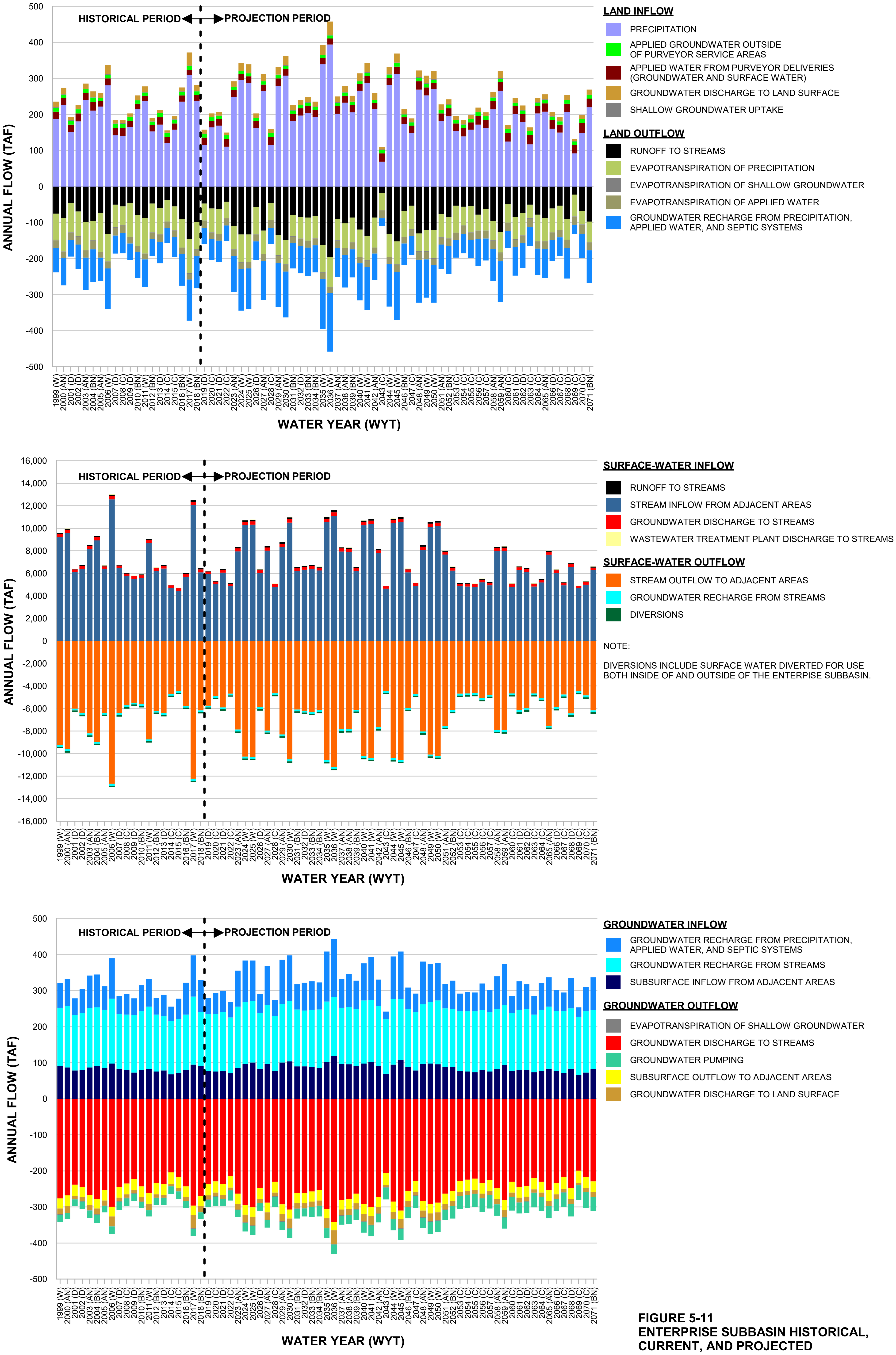


FIGURE 5-10
ANDERSON SUBBASIN HISTORICAL, CURRENT, AND PROJECTED AVERAGE ANNUAL WATER BUDGETS
Numerical Flow Model Documentation
Redding Area Groundwater Basin



NOTE:

DIVERSIONS INCLUDE SURFACE WATER DIVERTED FOR USE BOTH INSIDE OF AND OUTSIDE OF THE ENTERPRISE SUBBASIN.

FIGURE 5-11
ENTERPRISE SUBBASIN HISTORICAL, CURRENT, AND PROJECTED TIME-SERIES ANNUAL WATER BUDGETS
Numerical Flow Model Documentation
Redding Area Groundwater Basin

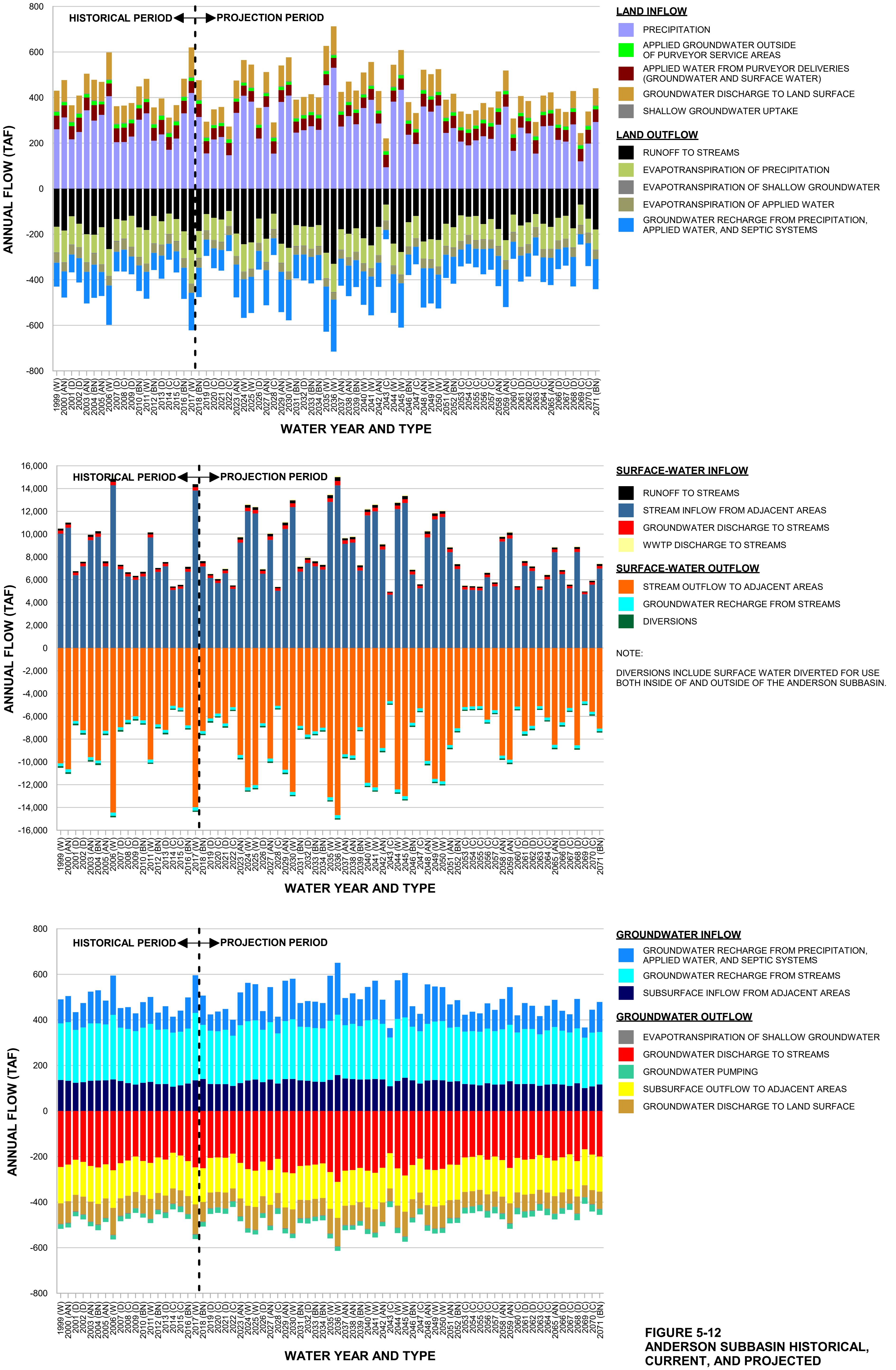
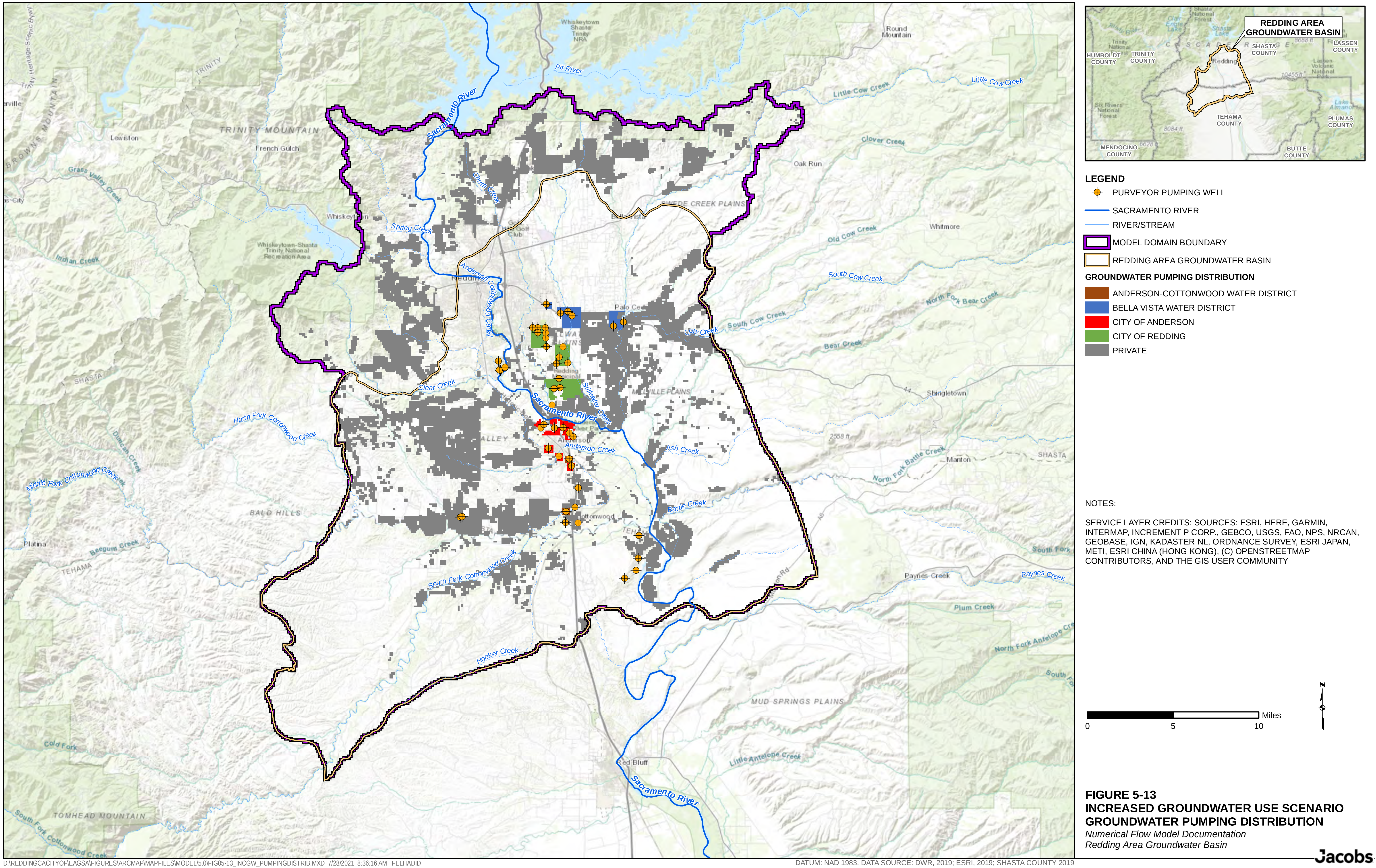


FIGURE 5-12
ANDERSON SUBBASIN HISTORICAL, CURRENT, AND PROJECTED TIME-SERIES ANNUAL WATER BUDGETS
Numerical Flow Model Documentation
Redding Area Groundwater Basin



LEGEND

- ✦ PURVEYOR PUMPING WELL
- — SACRAMENTO RIVER
- — RIVER/STREAM
- ▭ MODEL DOMAIN BOUNDARY
- ▭ REDDING AREA GROUNDWATER BASIN

GROUNDWATER PUMPING DISTRIBUTION

- 🟫 ANDERSON-COTTONWOOD WATER DISTRICT
- 🟦 BELLA VISTA WATER DISTRICT
- 🟥 CITY OF ANDERSON
- 🟩 CITY OF REDDING
- ▨ PRIVATE

NOTES:

SERVICE LAYER CREDITS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY

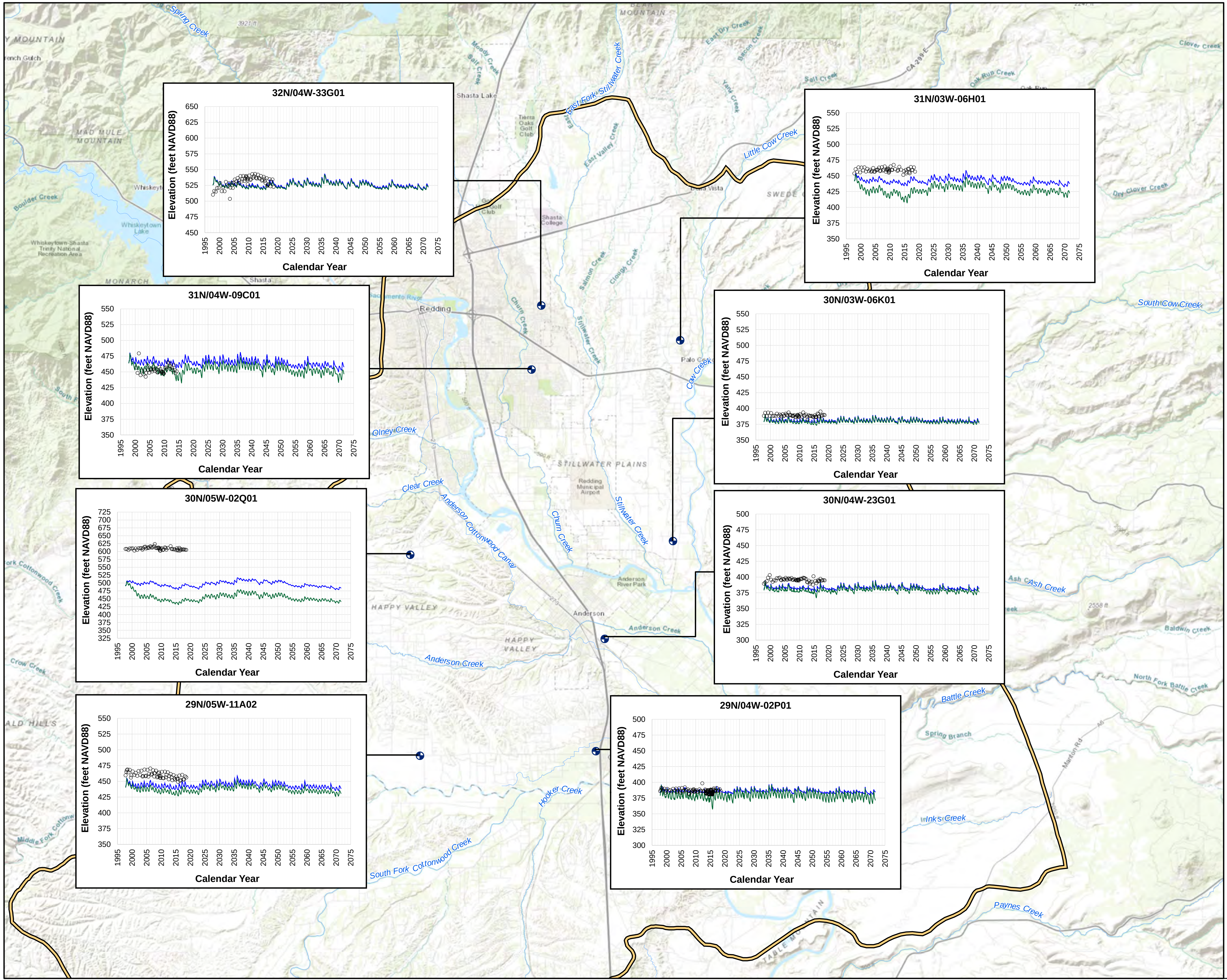
FIGURE 5-13
INCREASED GROUNDWATER USE SCENARIO
GROUNDWATER PUMPING DISTRIBUTION

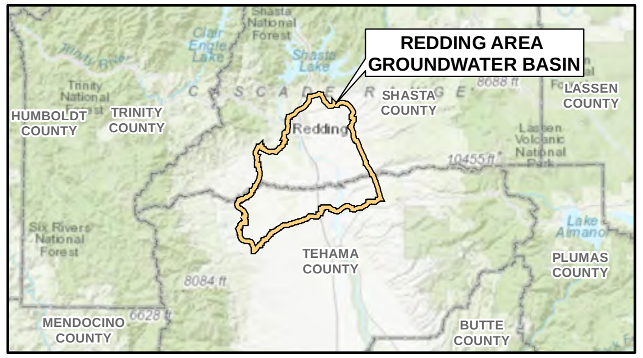
Numerical Flow Model Documentation
Redding Area Groundwater Basin

Jacobs

D:\REDDINGCACITYOFEAGSA\FIGURES\ARCMAP\MAPFILES\MODEL\5.0\FIG05-13_INCGW_PUMPINGDISTRIB.MXD 7/28/2021 8:36:16 AM FELHADID

DATUM: NAD 1983. DATA SOURCE: DWR, 2019; ESRI, 2019; SHASTA COUNTY 2019





MAP LEGEND

- ● REPRESENTATIVE MONITORING POINT
- SACRAMENTO RIVER
- RIVER/STREAM
- ▭ REDDING AREA GROUNDWATER BASIN

GRAPH LEGEND

- ○ TARGET GROUNDWATER ELEVATION (feet NAVD88)
- HISTORICAL AND FUTURE BASELINE SIMULATED GROUNDWATER ELEVATION
- INCREASED GROUNDWATER USE SCENARIO SIMULATED GROUNDWATER ELEVATION

NOTES:

DATA SOURCES: DWR, 2019a; DWR, 2019b

MEASURED GROUNDWATER LEVELS IDENTIFIED AS PUMPING OR RECENTLY PUMPED ARE OMITTED FROM HYDROGRAPHS.

MINIMUM HISTORICAL MEASURED GROUNDWATER ELEVATIONS COULD HAVE OCCURRED PRIOR TO 1998 IN SOME INSTANCES.

DWR = CALIFORNIA DEPARTMENT OF WATER RESOURCES

NAVD88 = NORTH AMERICAN VERTICAL DATUM OF 1988

SERVICE LAYER CREDITS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY

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FIGURE 5-14
COMPARISON OF PROJECTED GROUNDWATER-LEVEL HYDROGRAPHS

Numerical Flow Model Documentation
Redding Area Groundwater Basin

Jacobs

D:\REDDINGCACITYOF\EAGSA\FIGURES\ARCMAP\MAPFILES\MODEL\5.0\FIG05-14_GW_COMPARISONHYDROGRAPHS.MXD 7/28/2021 8:38:24 AM FELHADID

DATUM: NAD 1983. DATA SOURCE: DWR, 2019; ESRI, 2019; SHASTA COUNTY 2019

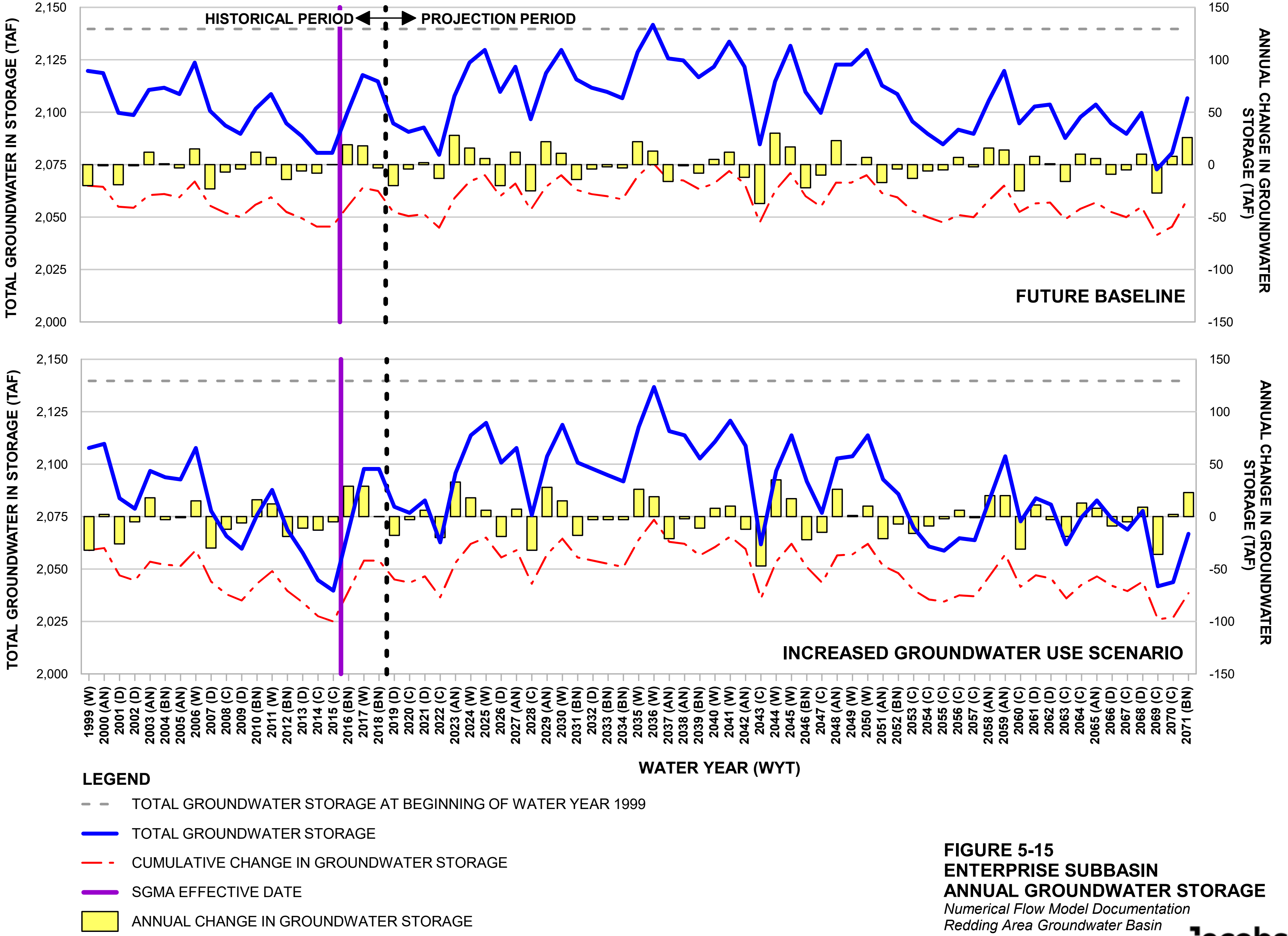
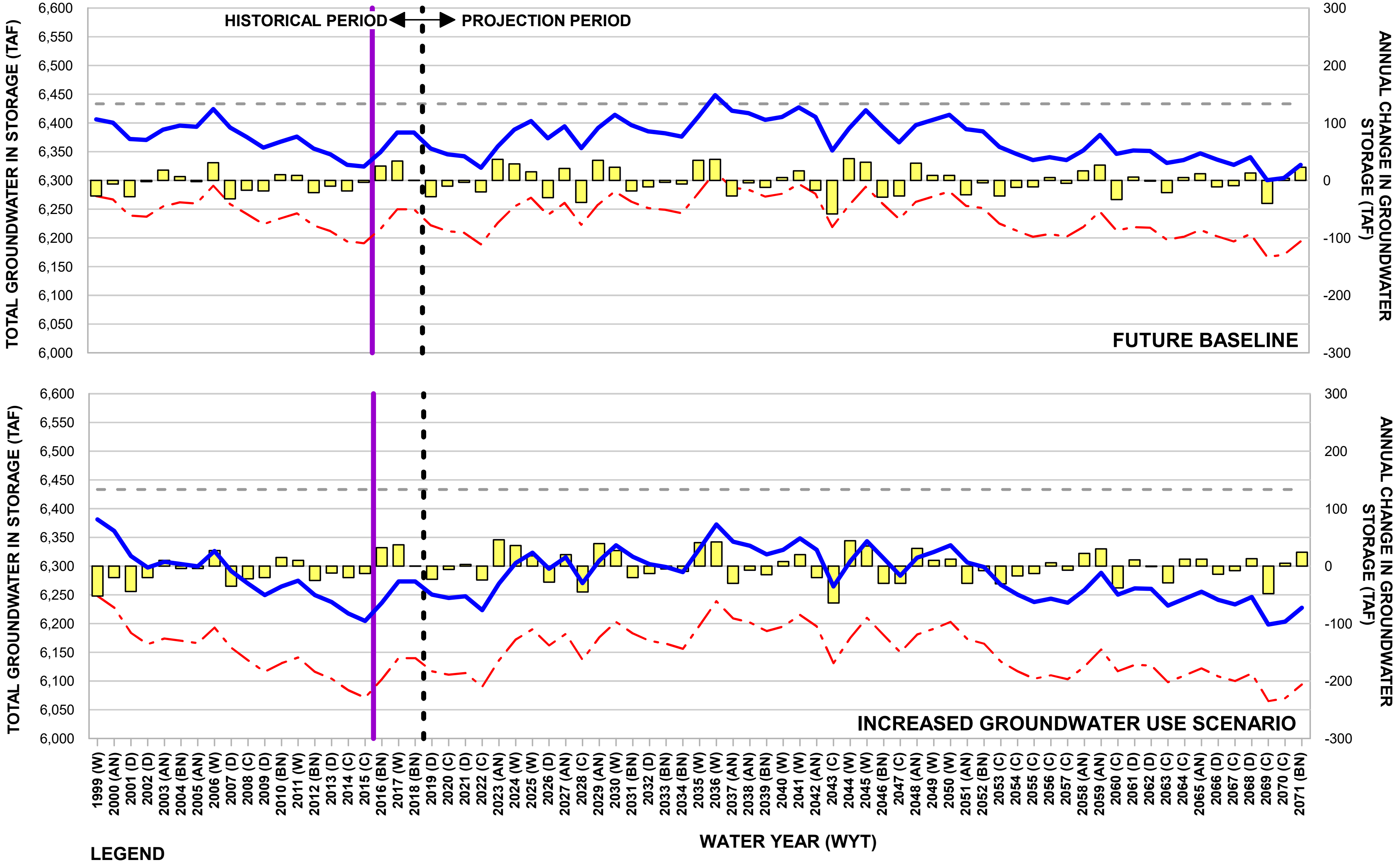


FIGURE 5-15
ENTERPRISE SUBBASIN
ANNUAL GROUNDWATER STORAGE
Numerical Flow Model Documentation
Redding Area Groundwater Basin



LEGEND

- - TOTAL GROUNDWATER STORAGE AT BEGINNING OF WATER YEAR 1999

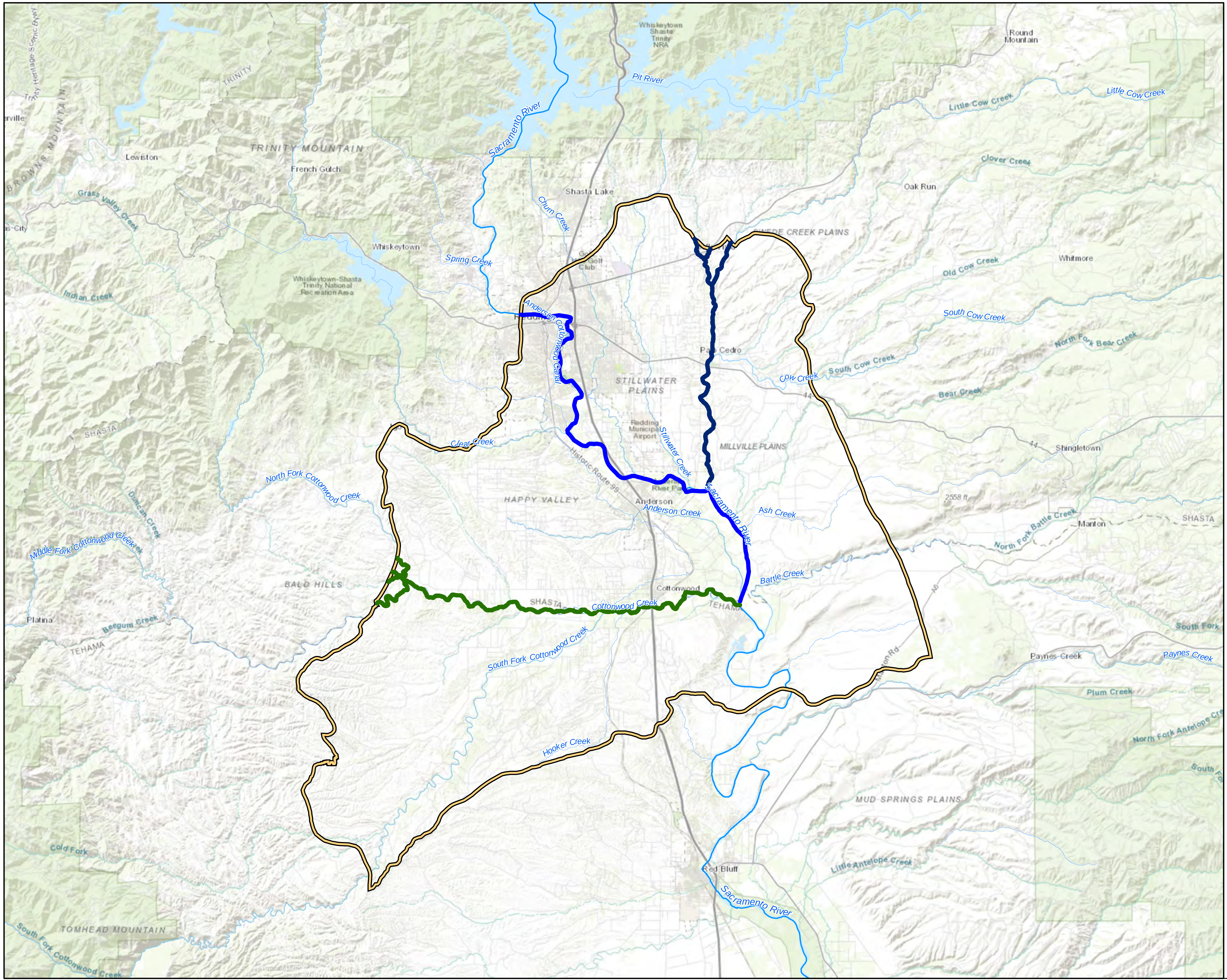
— TOTAL GROUNDWATER STORAGE

- - CUMULATIVE CHANGE IN GROUNDWATER STORAGE

— SGMA EFFECTIVE DATE

▭ ANNUAL CHANGE IN GROUNDWATER STORAGE

FIGURE 5-16
ANDERSON SUBBASIN
ANNUAL GROUNDWATER STORAGE
Numerical Flow Model Documentation
Redding Area Groundwater Basin



LEGEND

▬ COUNTY BOUNDARY LINE

STREAMFLOW DEPLETION REACH

▬ SACRAMENTO RIVER

▬ LITTLE COW/COW CREEK

▬ COTTONWOOD CREEK

▭ REDDING AREA GROUNDWATER BASIN

NOTE:

SERVICE LAYER CREDITS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY

FIGURE 5-17
STREAMFLOW DEPLETION REACHES

Numerical Flow Model Documentation
Redding Area Groundwater Basin

D:\REDDINGCACITYOF\EAGSA\FIGURES\ARCMAP\MAPFILES\MODEL\5.0\FIG05-17_STREAMFLOW_DEPLETION_REACHES.MXD 6/16/2021 5:21:22 PM FELHADID

DATUM: NAD 1983. DATA SOURCE: DWR, 2019; ESRI, 2019; SHASTA COUNTY 2019

6. Sustainable Management Criteria

Jacobs has developed an integrated groundwater/surface-water flow model called the EAGSA Model of an area encompassing the RAGB in Shasta and Tehama Counties, California. This appendix to the Enterprise and Anderson GSPs was prepared by Jacobs to support the EAGSA in the preparation of its GSP. This model integrates the 3D groundwater and surface-water systems, land surface processes, and water management operations and was built upon an existing numerical groundwater flow model (REDFEM) developed through California Proposition 50 Integrated Regional Water Management funds administered by DWR (Reclamation and ACID, 2011). The EAGSA Model was constructed and calibrated to simulate groundwater and surface-water flow conditions within a 816-mi^2 area encompassing the RAGB using the USGS OneWater code (Boyce et al., 2020) and the USGS BCM code (Flint et al., 2013; Flint and Flint, 2014). The calibration version of the EAGSA Model simulates historical hydrologic conditions from October 1997 through September 2018, whereas the projection version of the EAGSA Model simulates future hydrologic conditions from October 2018 through September 2071. Projections are based on the HadGEM2-ES GCM with the RCP 8.5 emissions scenario. All versions of the model include monthly stress periods to adequately simulate seasonal hydrologic processes.

As indicated on Figures 5-15 and 5-16, the annual groundwater storage for the Enterprise and Anderson Subbasins shows a roughly equal distribution of increases and decreases (positive and negative values) during the historical, current, and projection periods, indicating a long-term balance in groundwater storage for each subbasin. Although there is a decrease in the cumulative change in storage during the prolonged drought beginning approximately 2050, having groundwater outflows exceed groundwater inflows during droughts is normal and not itself an indicator of overdraft conditions. The estimated groundwater in storage in the Enterprise and Anderson Subbasins during WY 2015 (SGMA effective year) is approximately 2,100 and 6,300 TAF, respectively. At the end of the projection period (WY 2071), the estimated volume of groundwater in storage is also approximately 2,100 and 6,300 TAF for the Enterprise and Anderson Subbasins, respectively. This suggests that given the EAGSA's best estimate of future water supply and demand, there is essentially no projected change in groundwater storage beyond the SGMA effective year (WY 2015).

An analysis was performed to assess the sensitivity of groundwater levels and groundwater storage based on an Increased Groundwater Use Scenario. For this analysis, the Future Baseline Scenario was adapted to simulate an increase in water demand met through groundwater pumping. The intent with this sensitivity analysis was to help determine the degree of operational flexibility of the Enterprise and Anderson Subbasins to help inform the development of SMCs. Results from this sensitivity analysis indicate that the Enterprise and Anderson Subbasins could potentially use 75 and 89 TAF, respectively, of groundwater pumping on an annual basis while maintaining sustainability.

Simulated groundwater levels from the Future Baseline Scenario and Increased Groundwater Use Scenario were used to help develop SMCs for chronic lowering of groundwater levels. Given the EAGSA Model's bias in overestimating or underestimating measured groundwater levels at target well locations, a mean residual adjustment was applied to the simulated groundwater-level projections for use in development of SMCs. The mean residual adjustment adds or subtracts the mean residual determined during EAGSA Model calibration to each monthly simulated groundwater-level value to adjust for the EAGSA Model bias. Further discussion on the development of the SMCs for chronic lowering of groundwater levels can be found in Chapter 6 of the Enterprise and Anderson Subbasin GSPs.

Now that the EAGSA Model has been developed to support the EAGSA in the preparation of its GSPs, it could also be used during GSP implementation to aid in the following:

- Help prioritize and refine the monitoring well network used to demonstrate whether the subbasins are being managed sustainably
- Forecast potential outcomes to potential conditions or actions not evaluated herein
- Test hypotheses about interrelationships among different hydrologic processes of interest
- Support the EAGSA members with decisions related to managing their water supply portfolios resulting in capital investments for projects and management actions, if necessary
- Provide technical graphics to support public outreach efforts
- Aid in the development of annual SGMA-related reports to DWR, as needed
- Support constructive dispute resolution on the basis of objective scientific analyses, if necessary

7. References

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Attachment 1

Modeled Versus Target Groundwater Elevation Hydrographs

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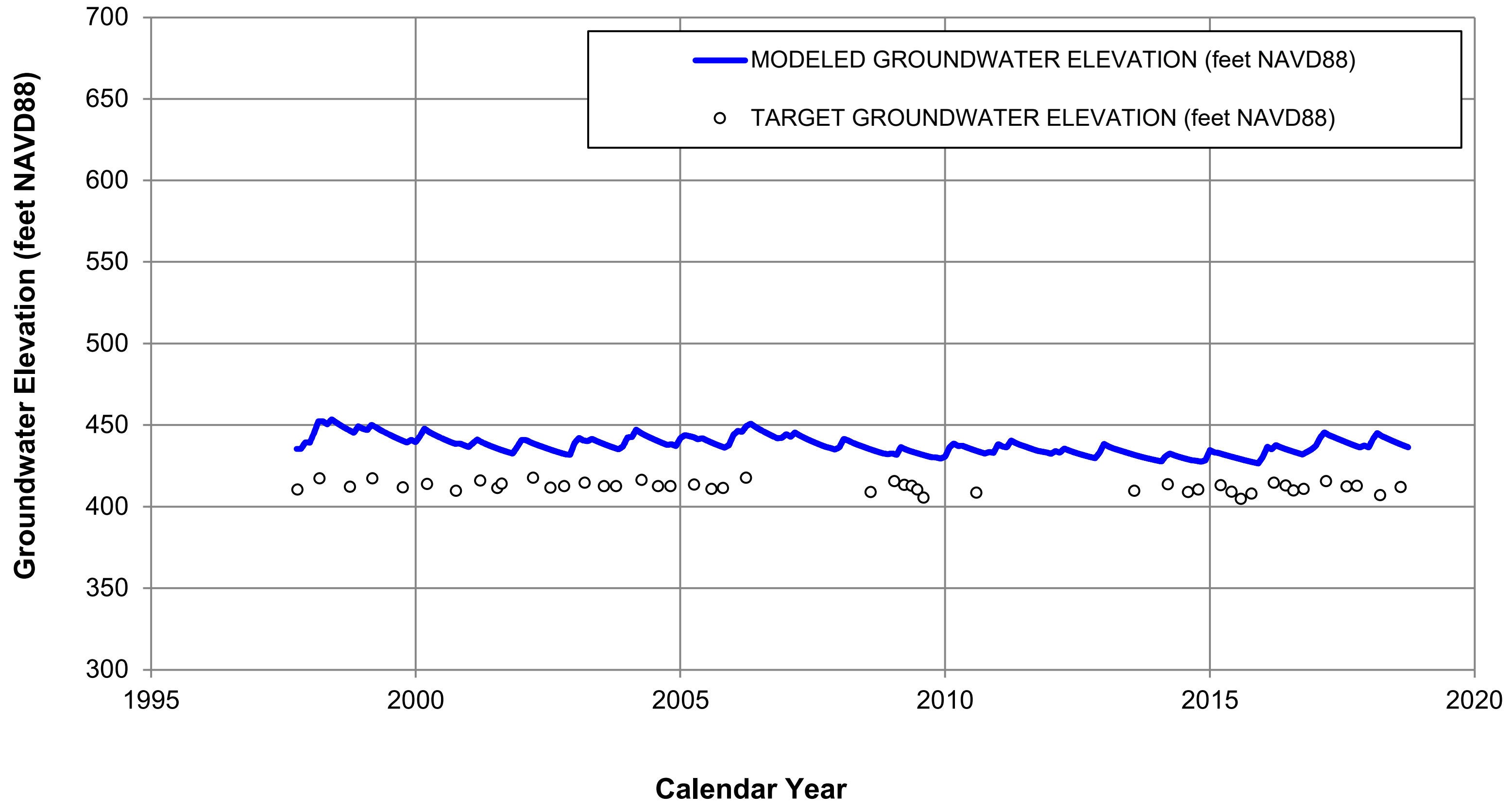

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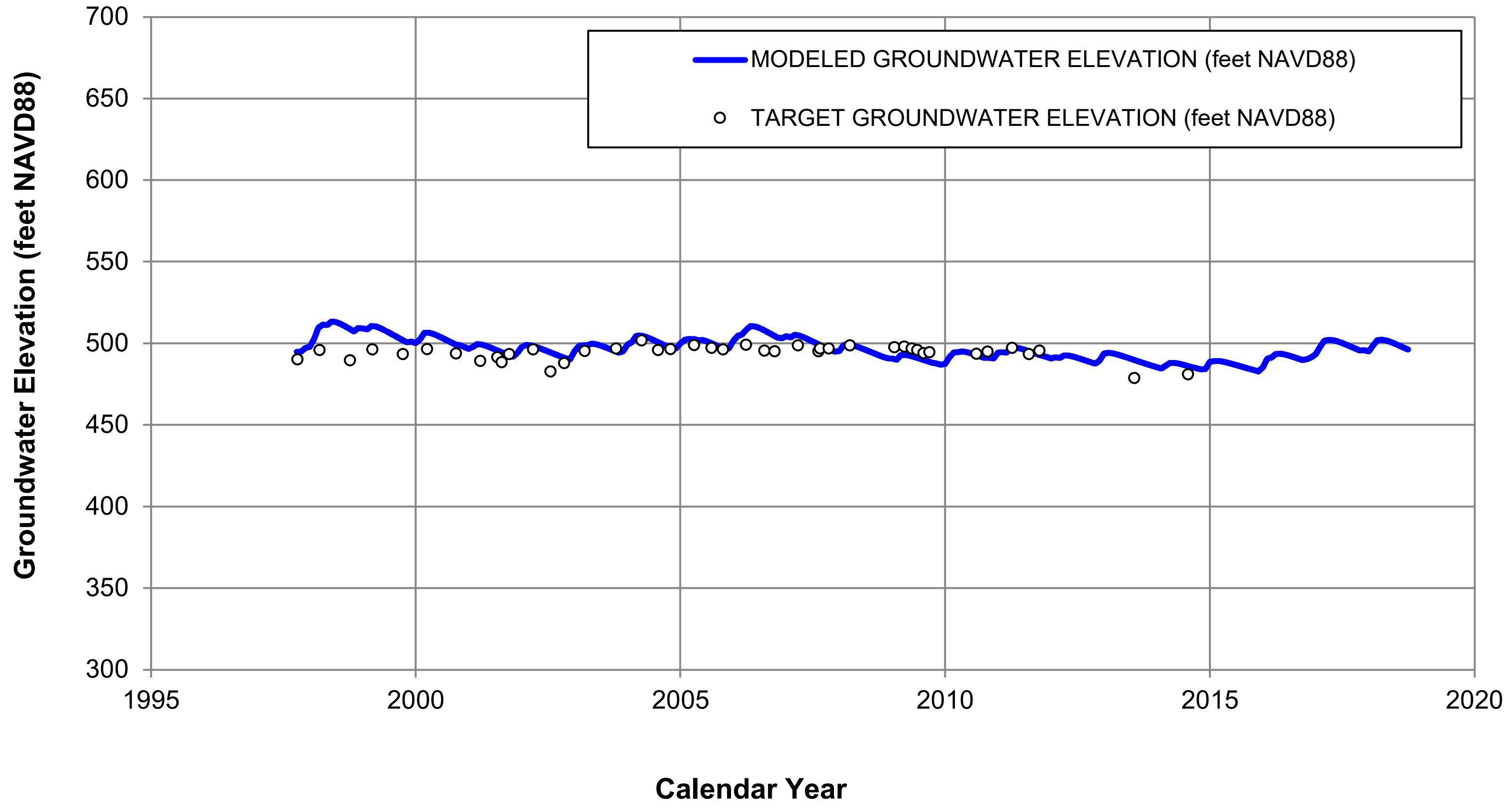

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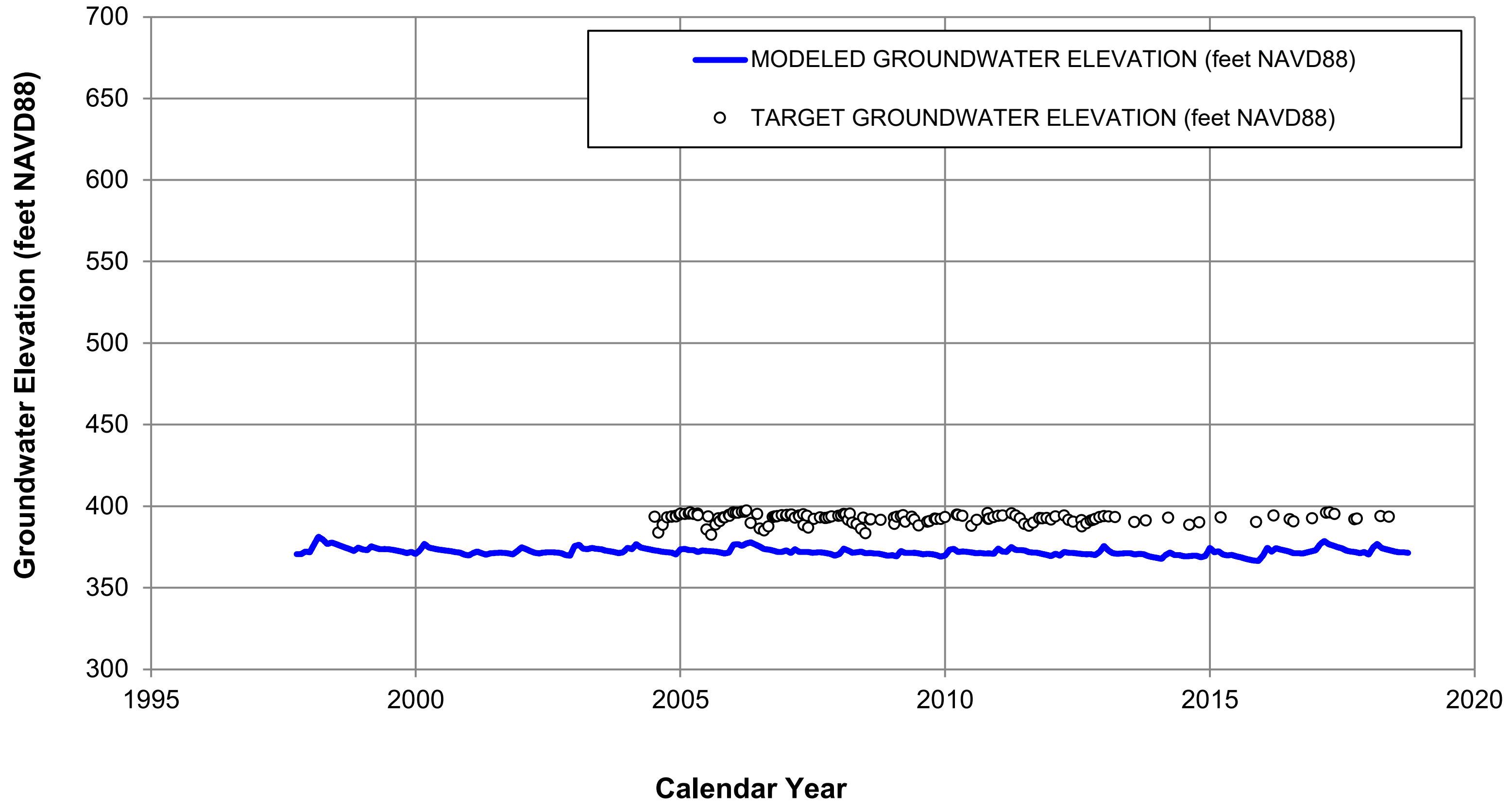

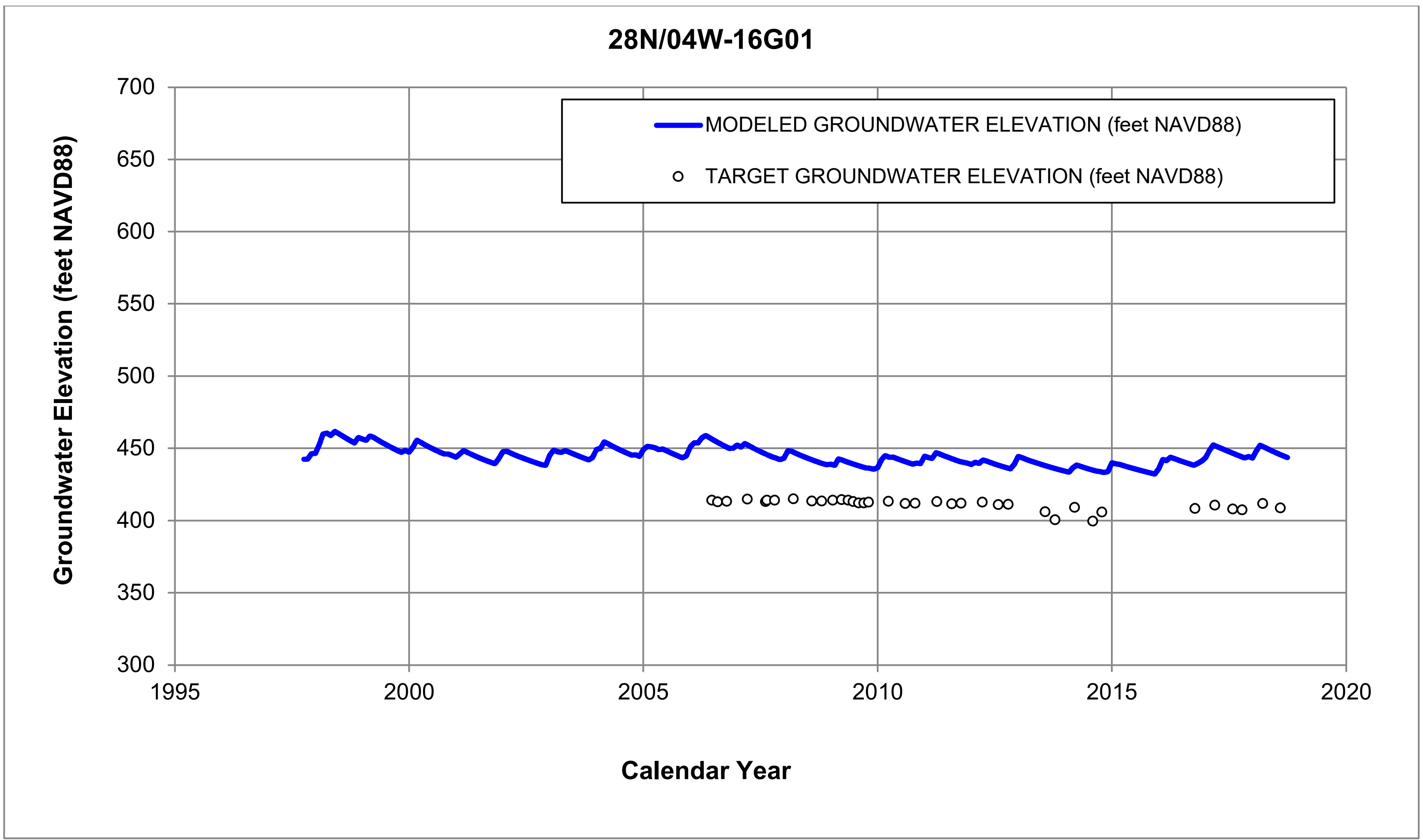
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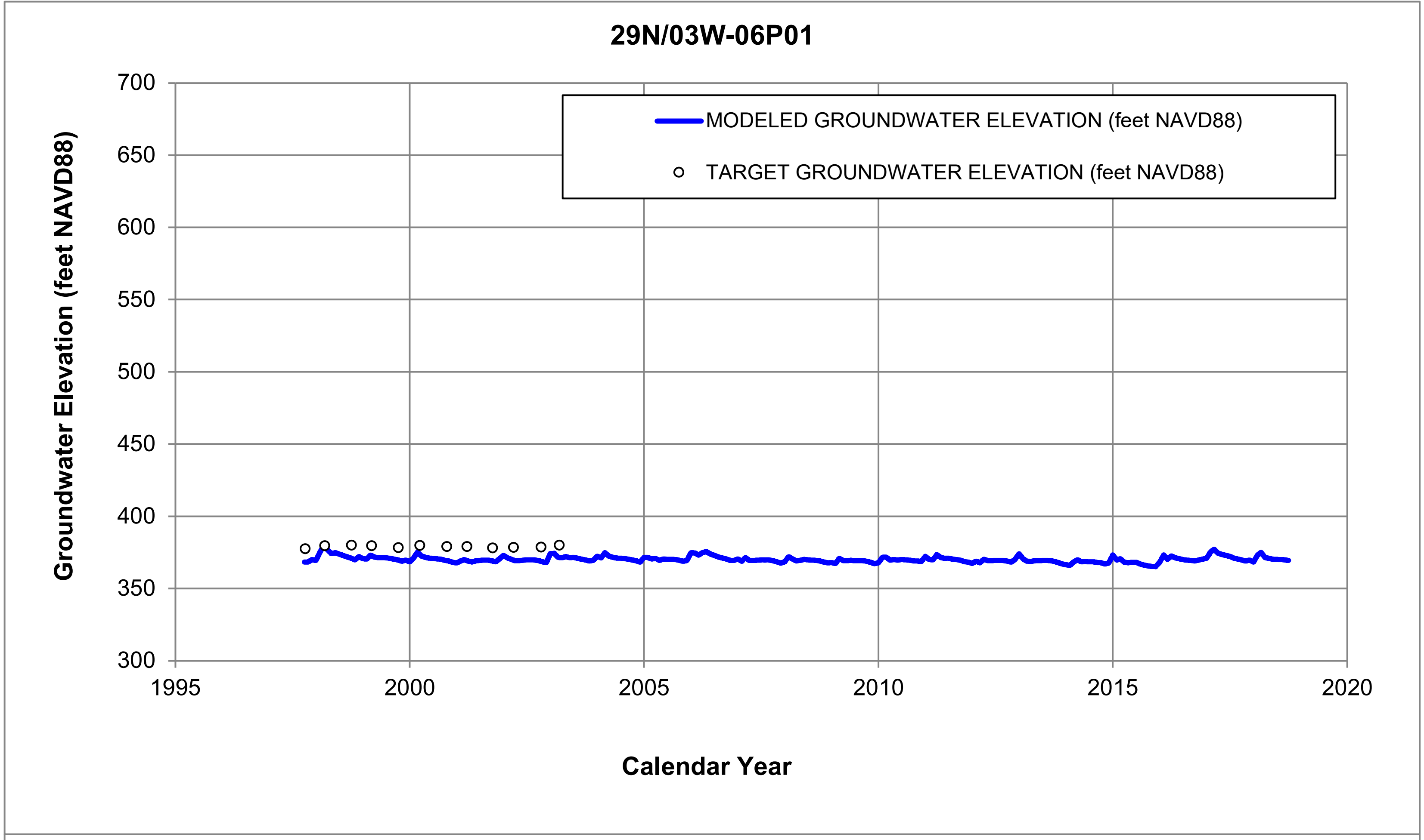
Calendar Year
MODELED GROUNDWATER ELEVATION (feet NAVD88)
TARGET GROUNDWATER ELEVATION (feet NAVD88)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Calendar Year
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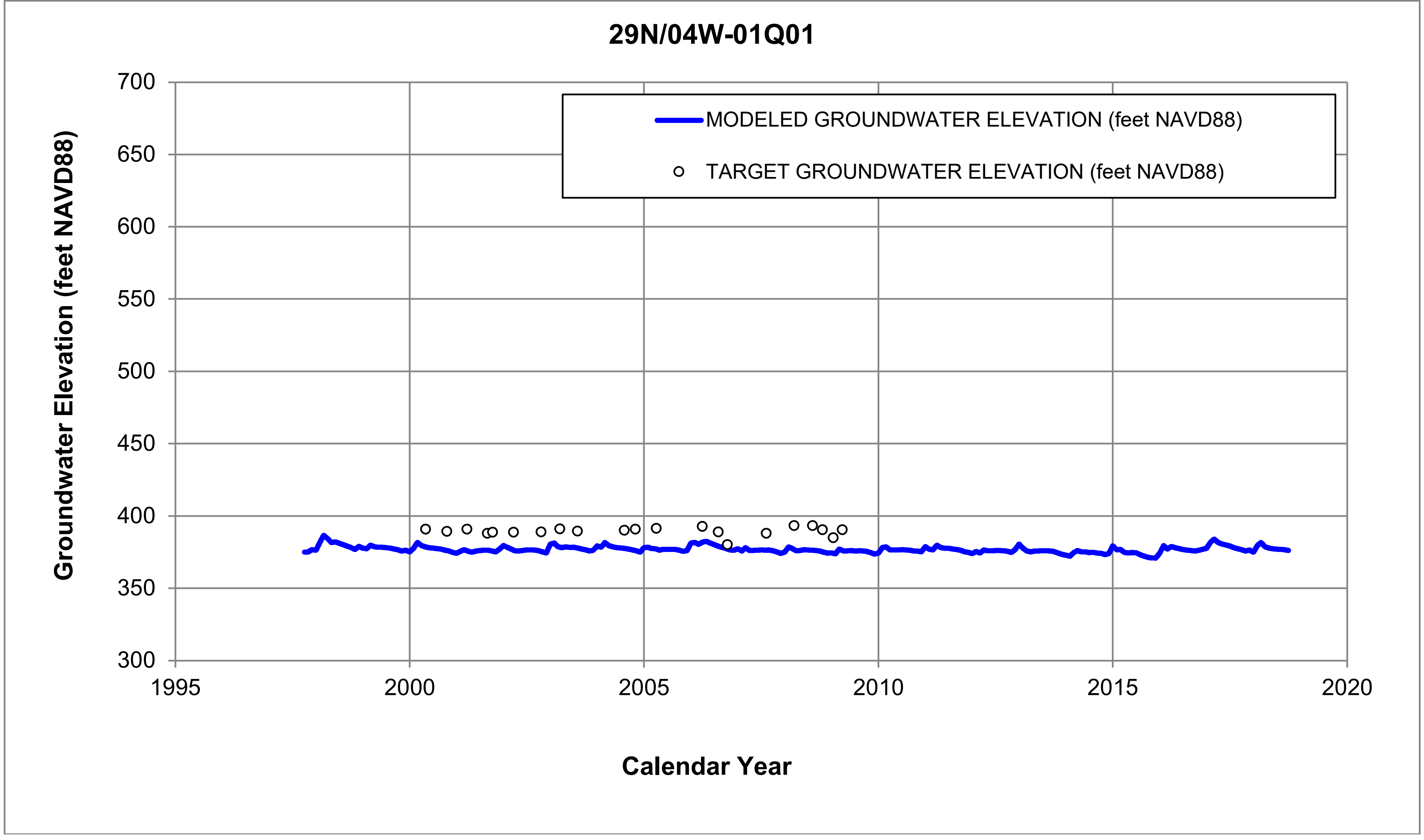
TARGET GROUNDWATER ELEVATION (feet NAVD88)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Calendar Year
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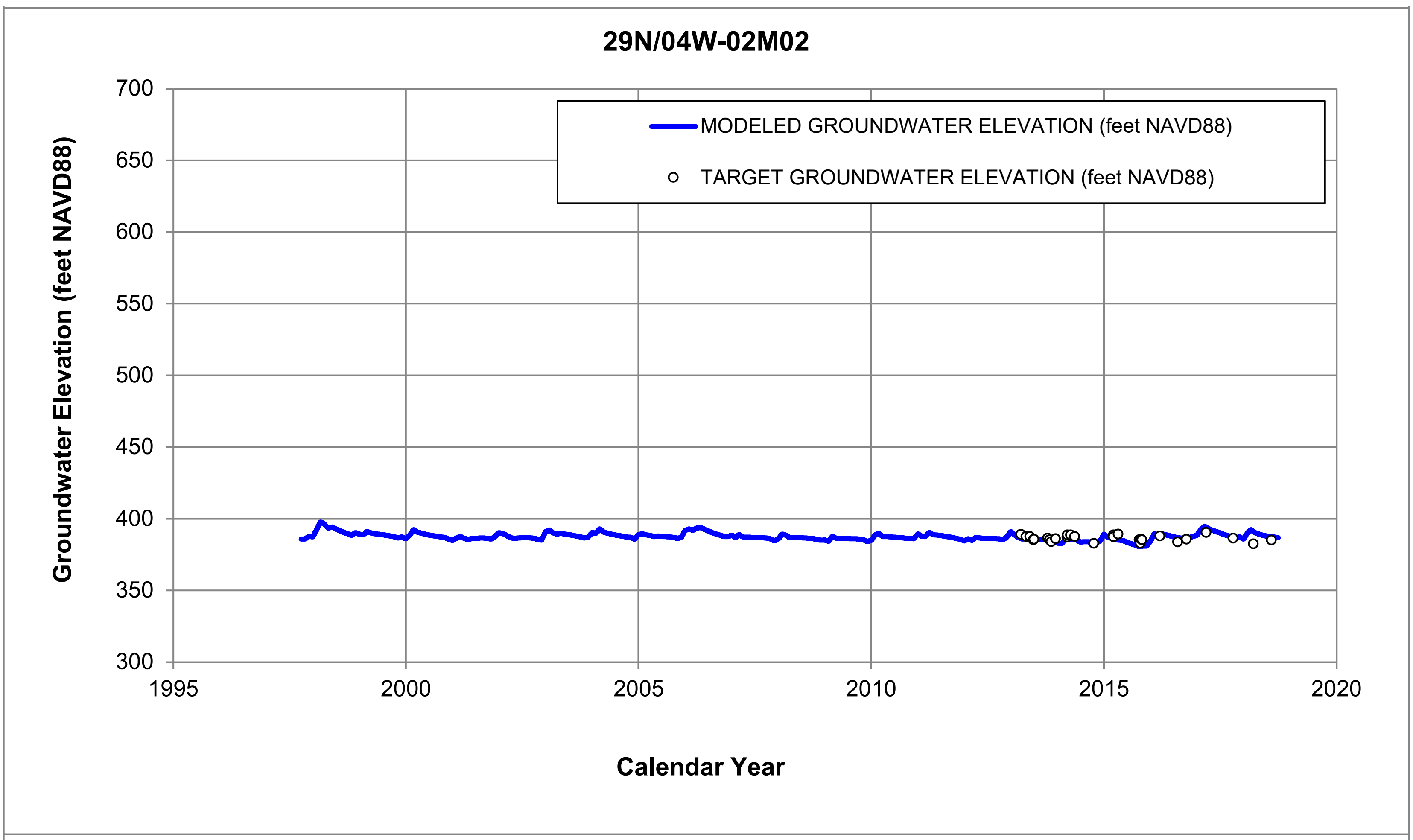
TARGET GROUNDWATER ELEVATION (feet NAVD88)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TARGET GROUNDWATER ELEVATION (feet NAVD88)
Groundwater Elevation (feet NAVD88)
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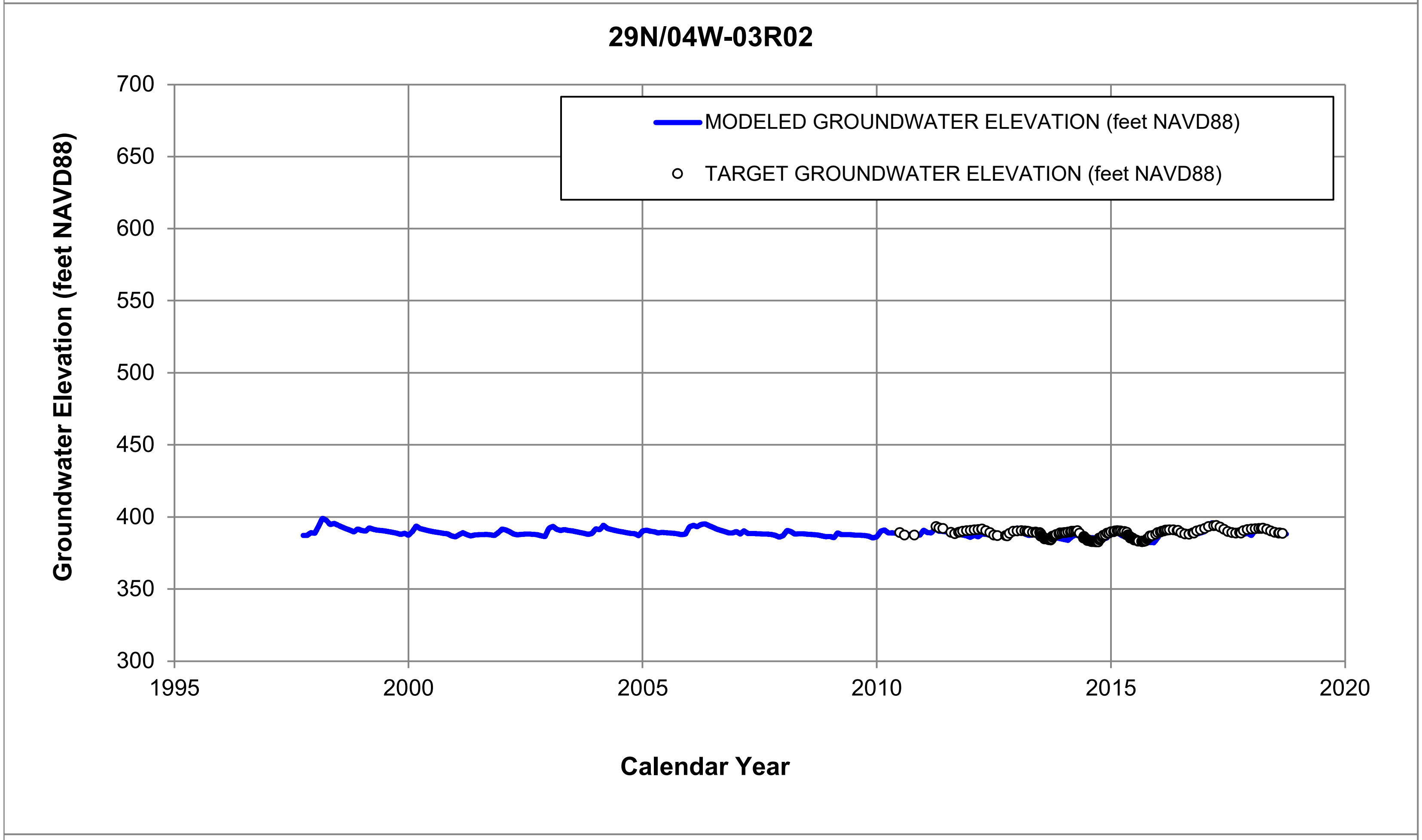
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TARGET GROUNDWATER ELEVATION (feet NAVD88)
Groundwater Elevation (feet NAVD88)
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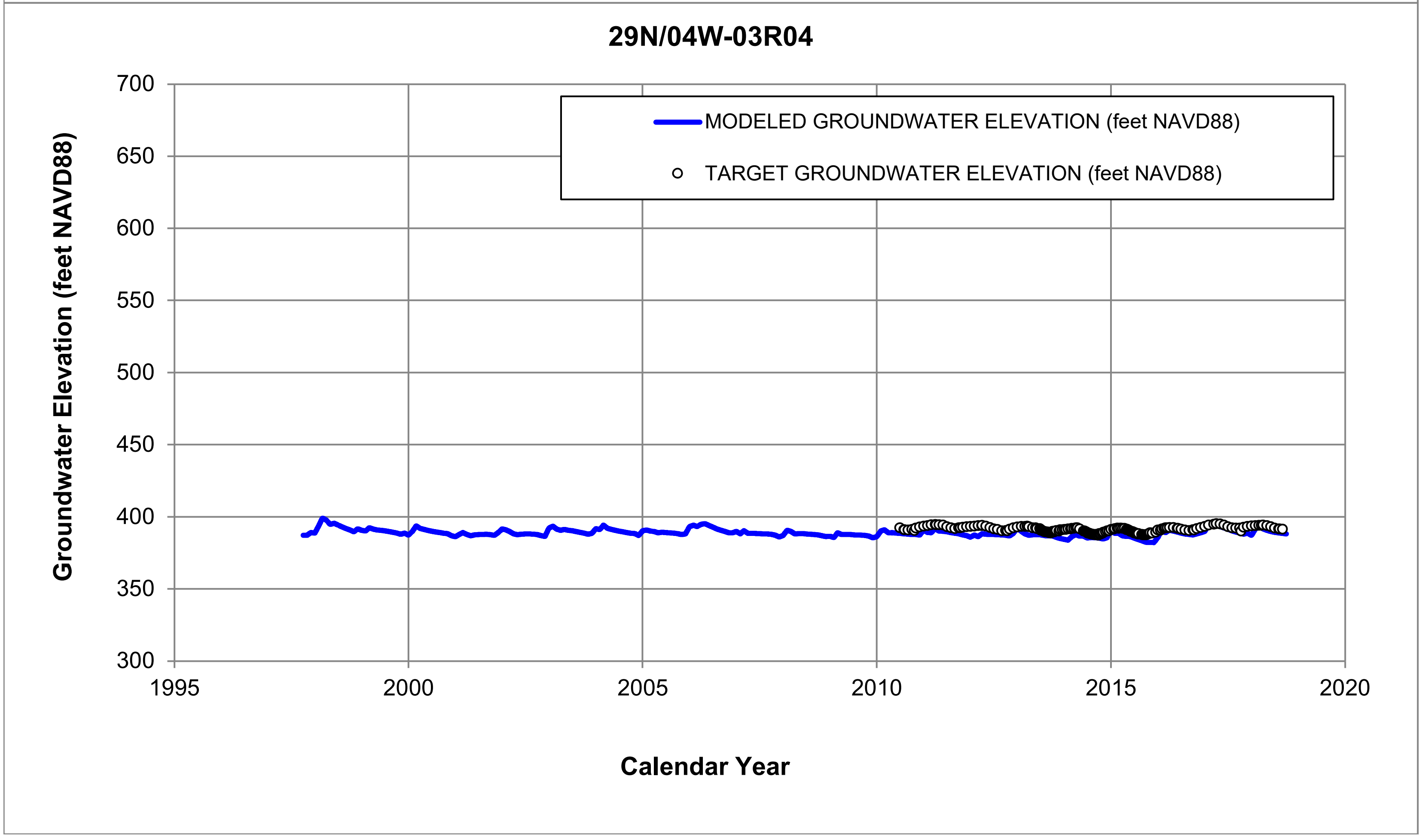
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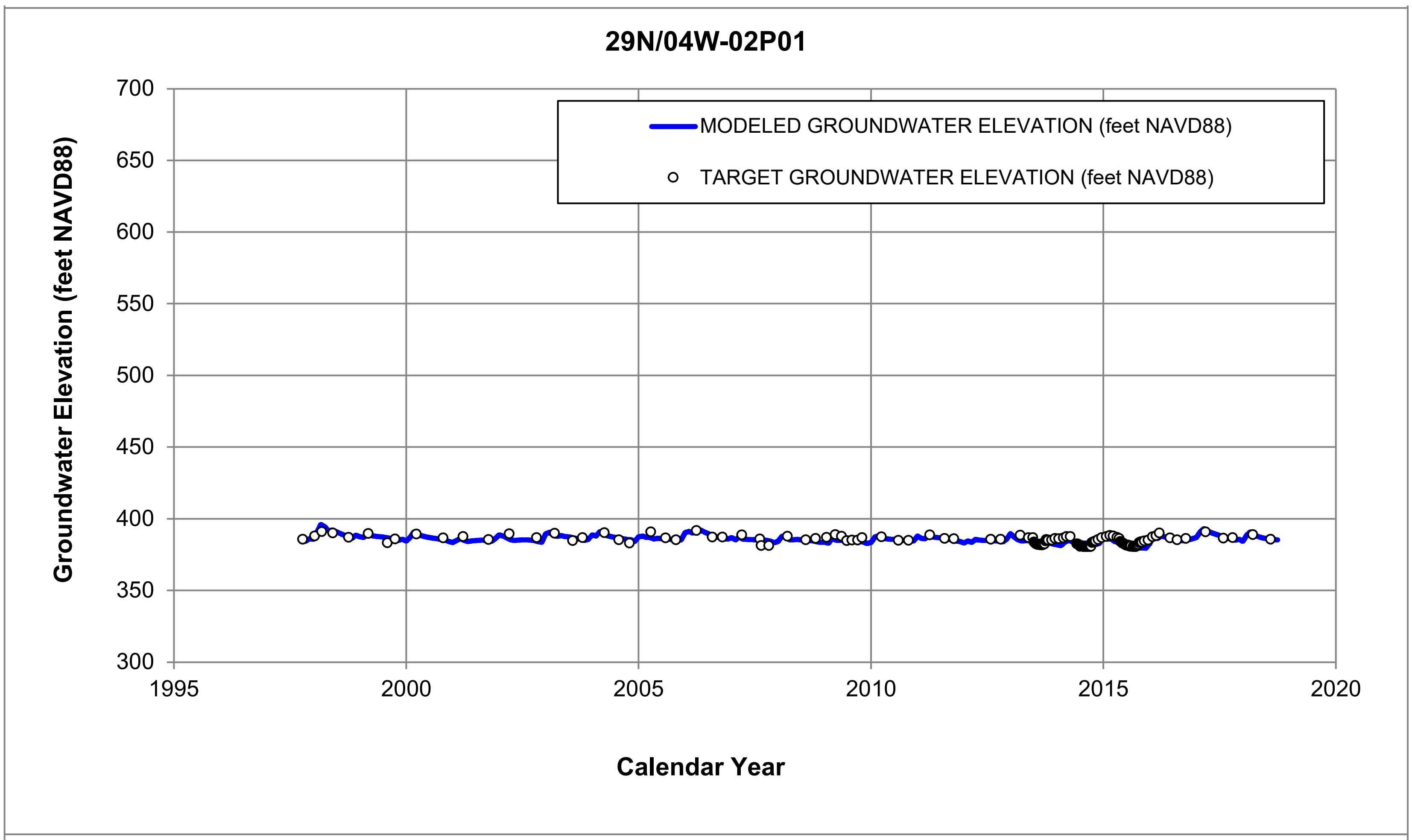

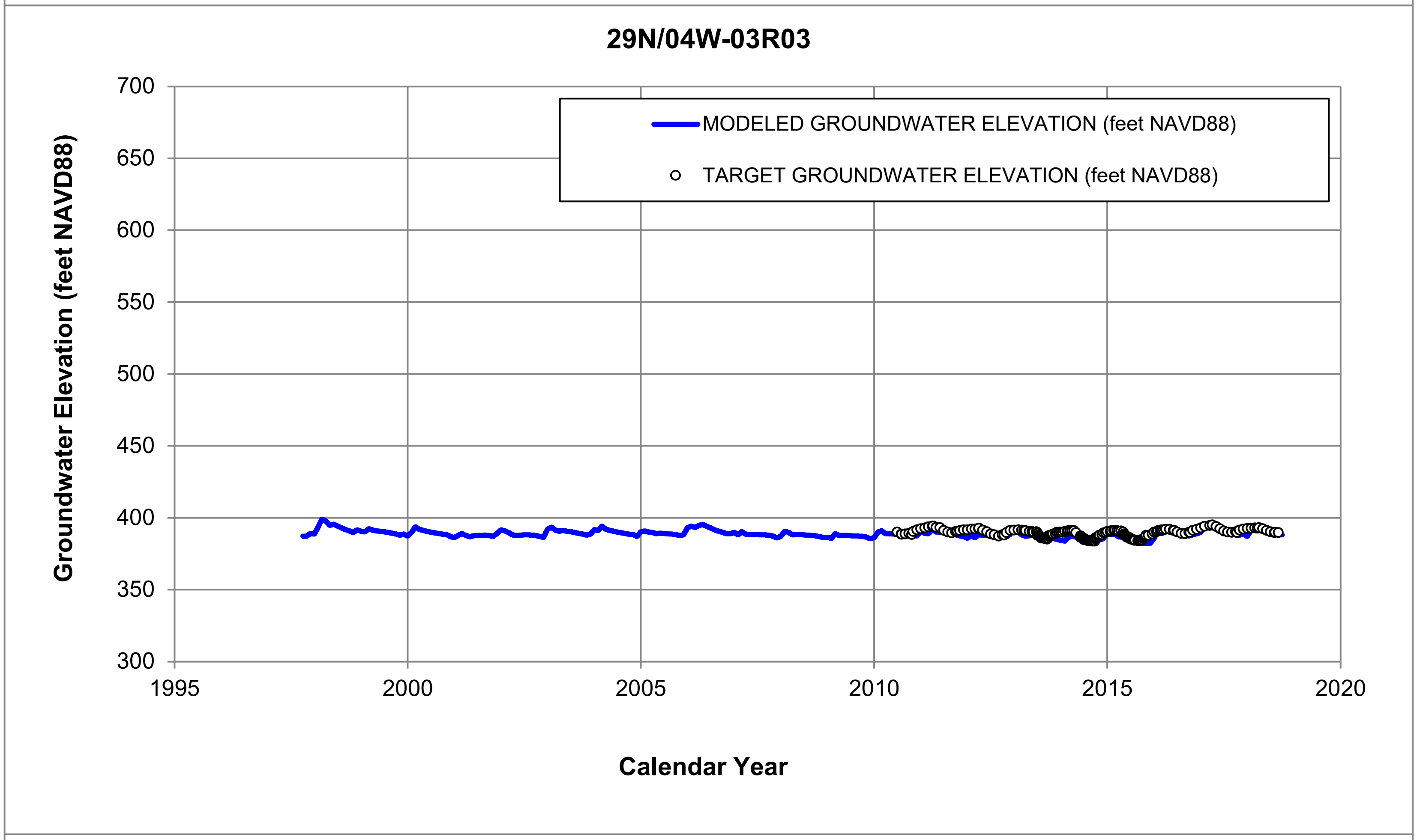

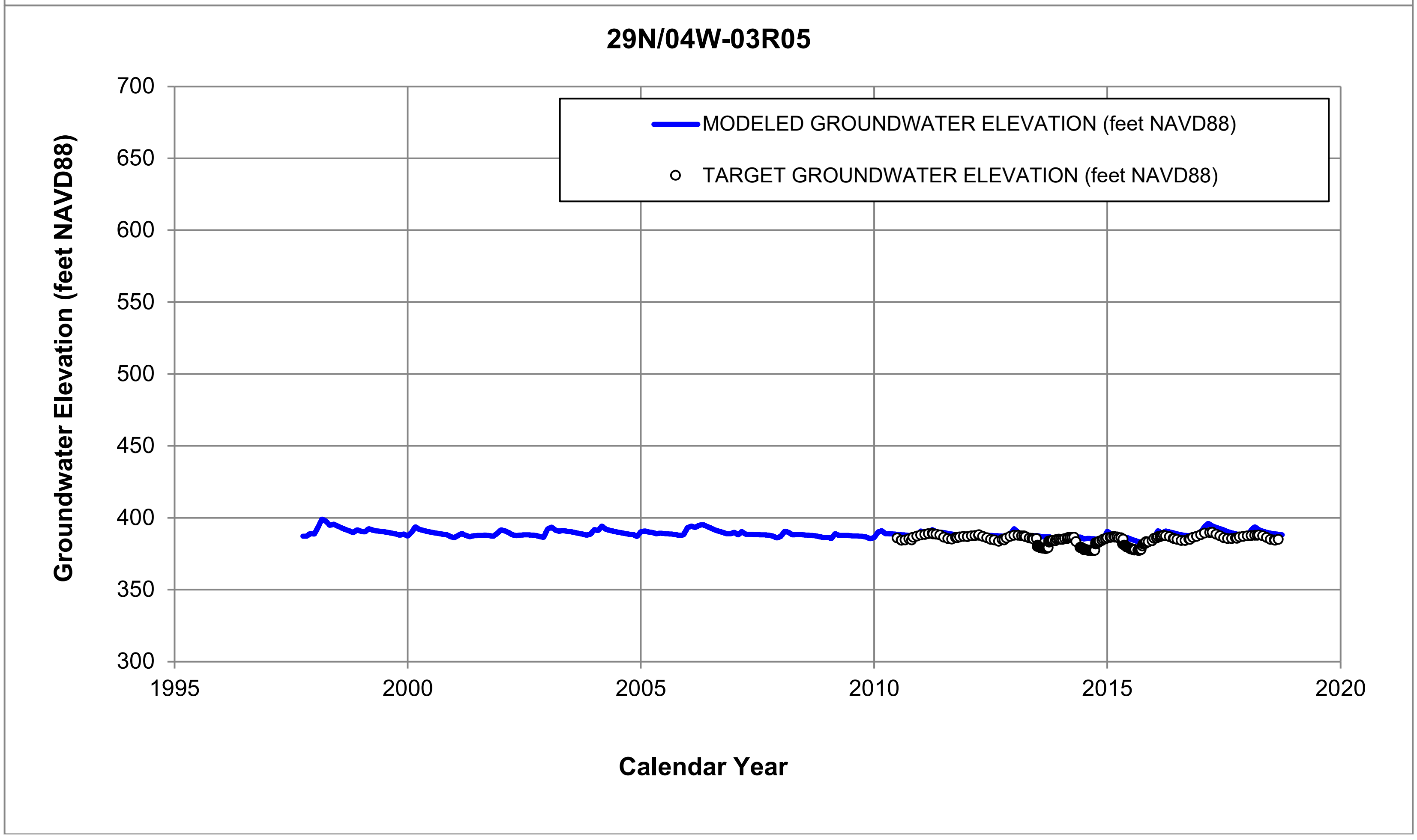

ATTACHMENT 1 (PAGE 4 OF 28)
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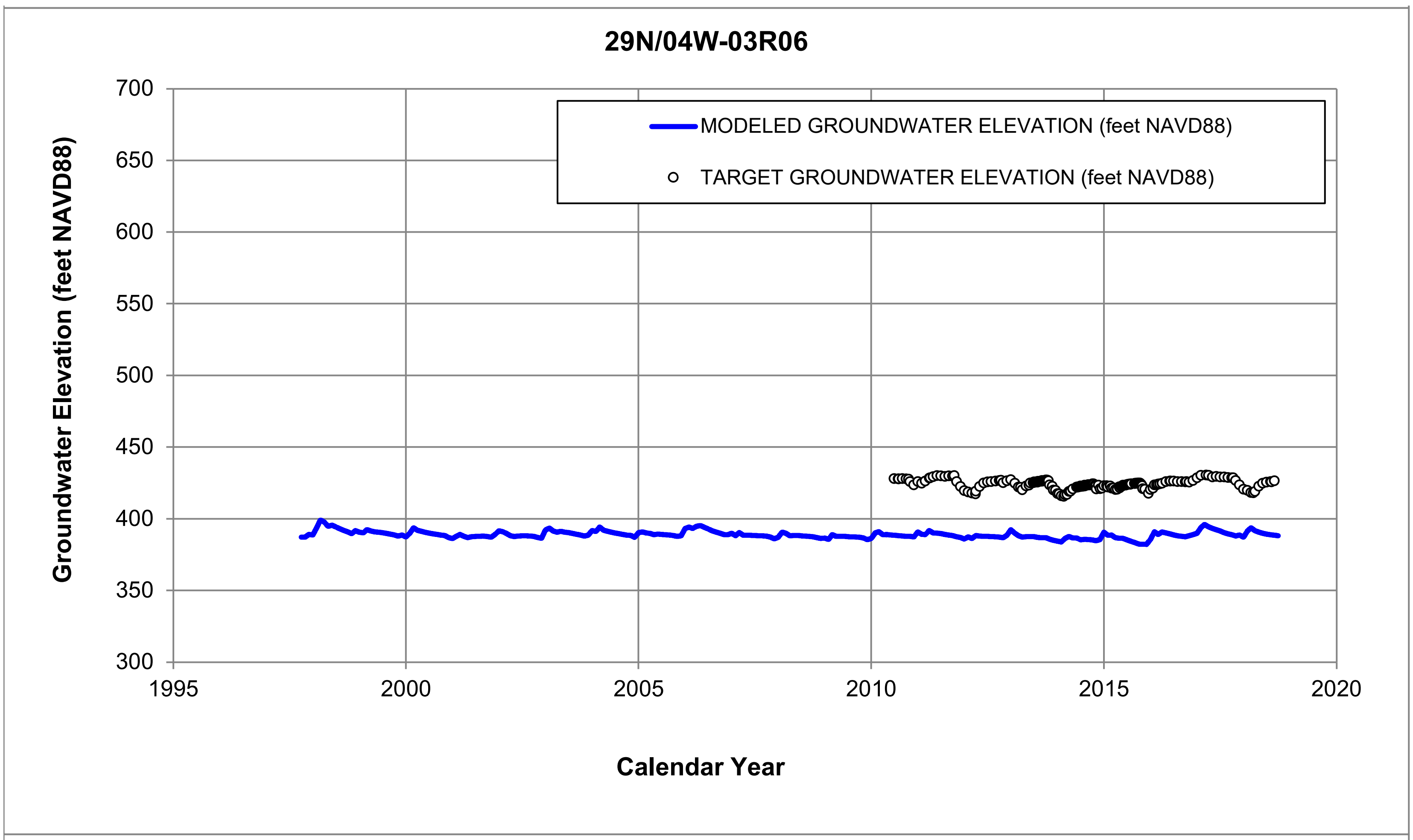
Numerical Flow Model Documentation
Redding Area Groundwater Basin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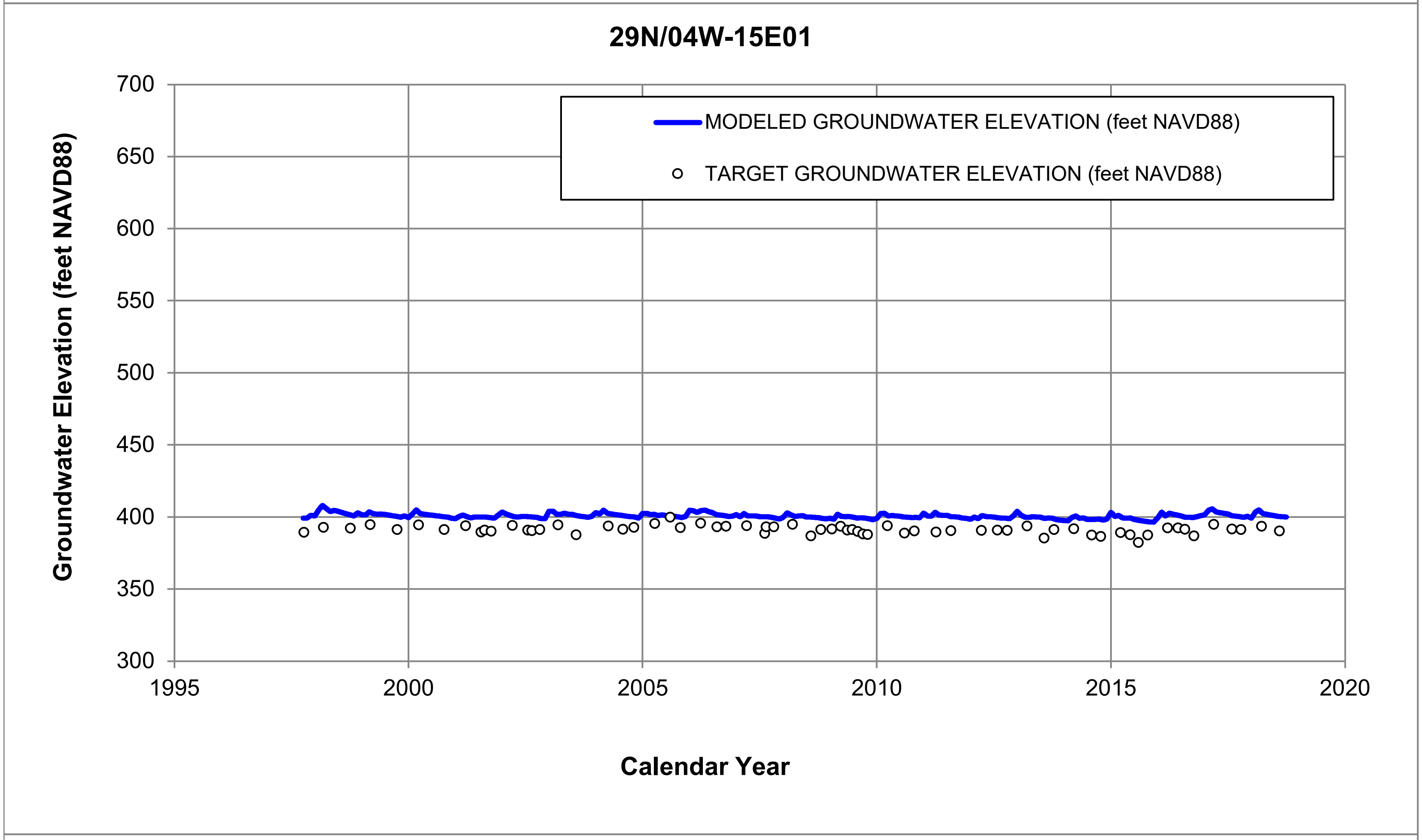
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Groundwater Elevation (feet NAVD88)
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MODELED GROUNDWATER ELEVATION (feet NAVD88)
TARGET GROUNDWATER ELEVATION (feet NAVD88)
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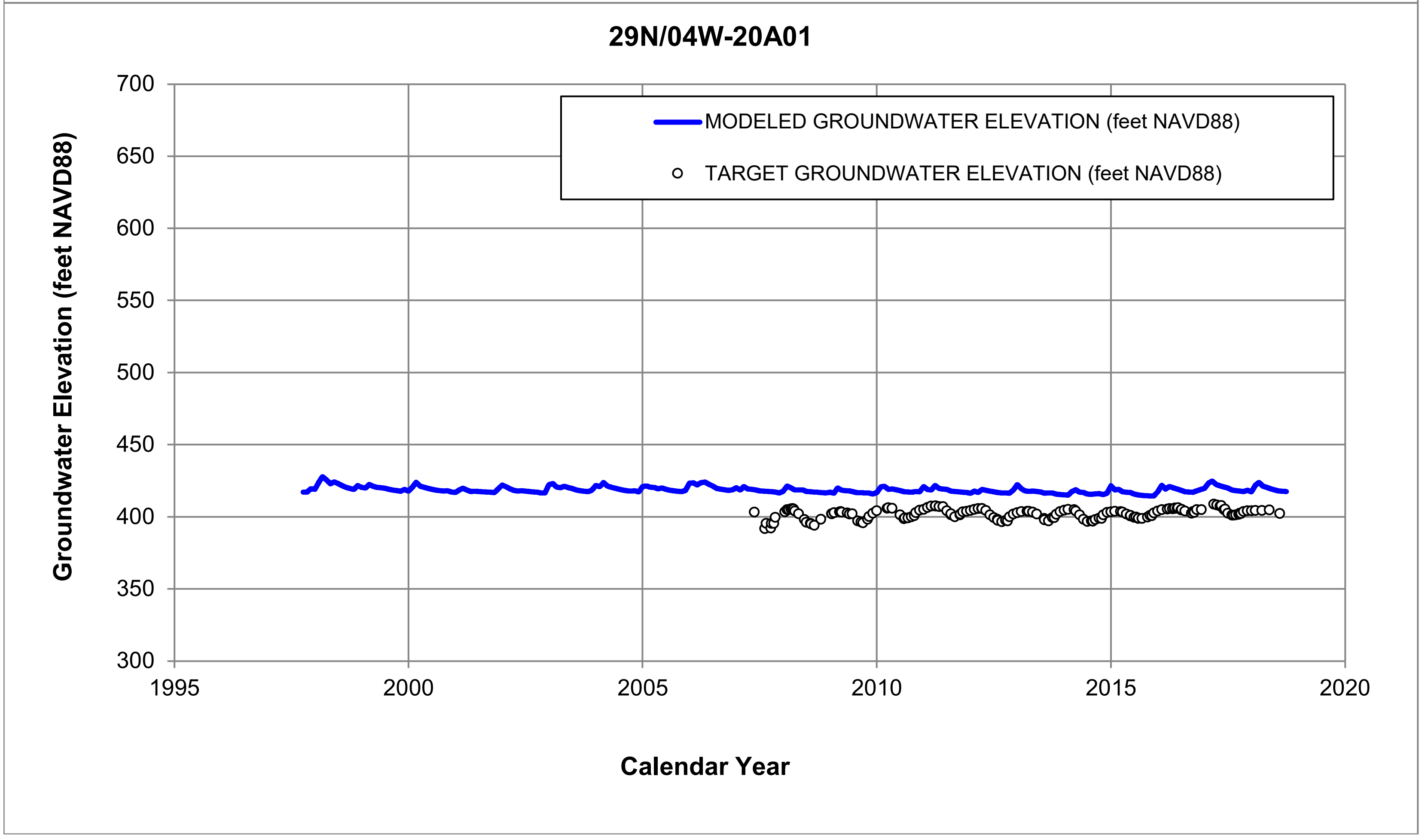
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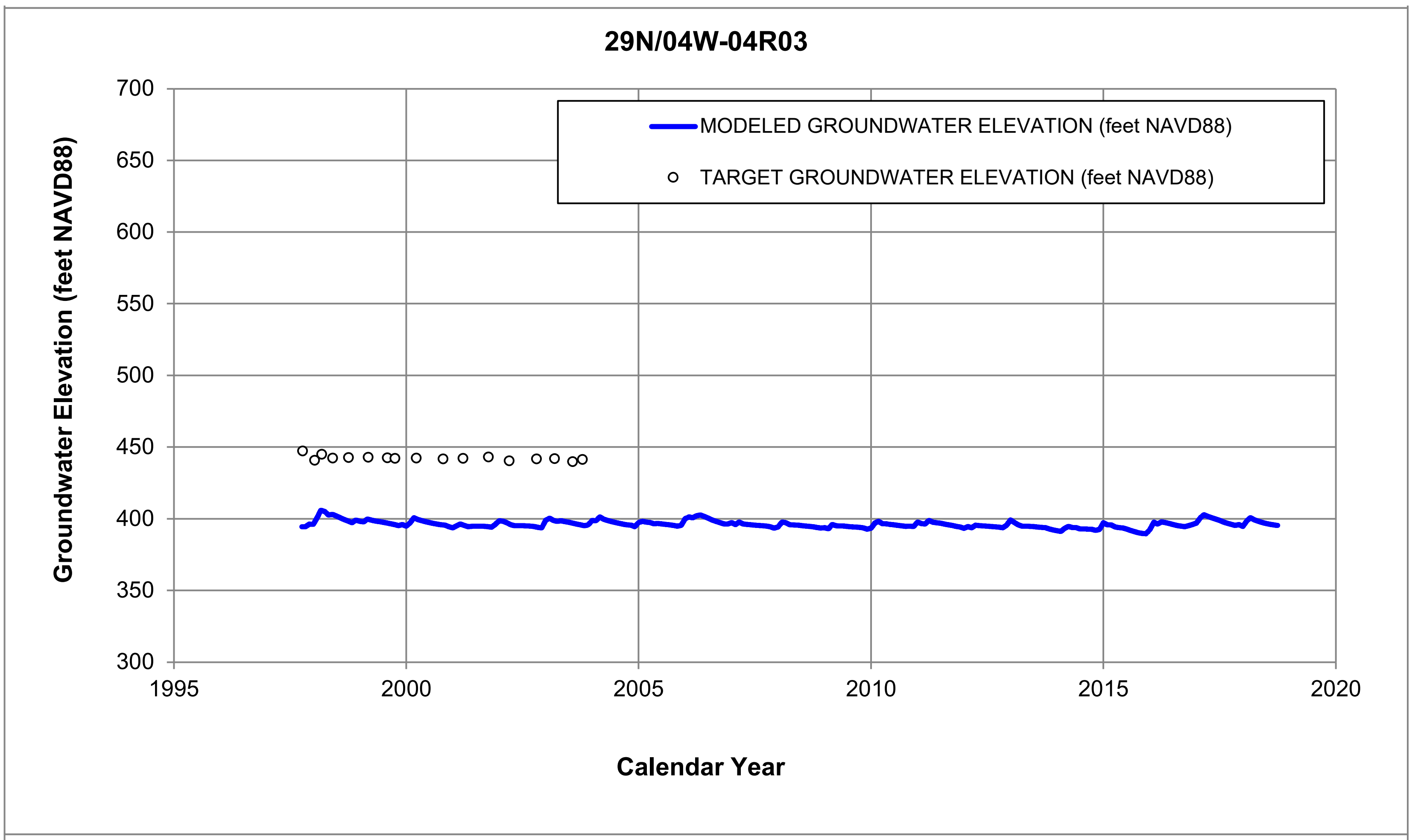
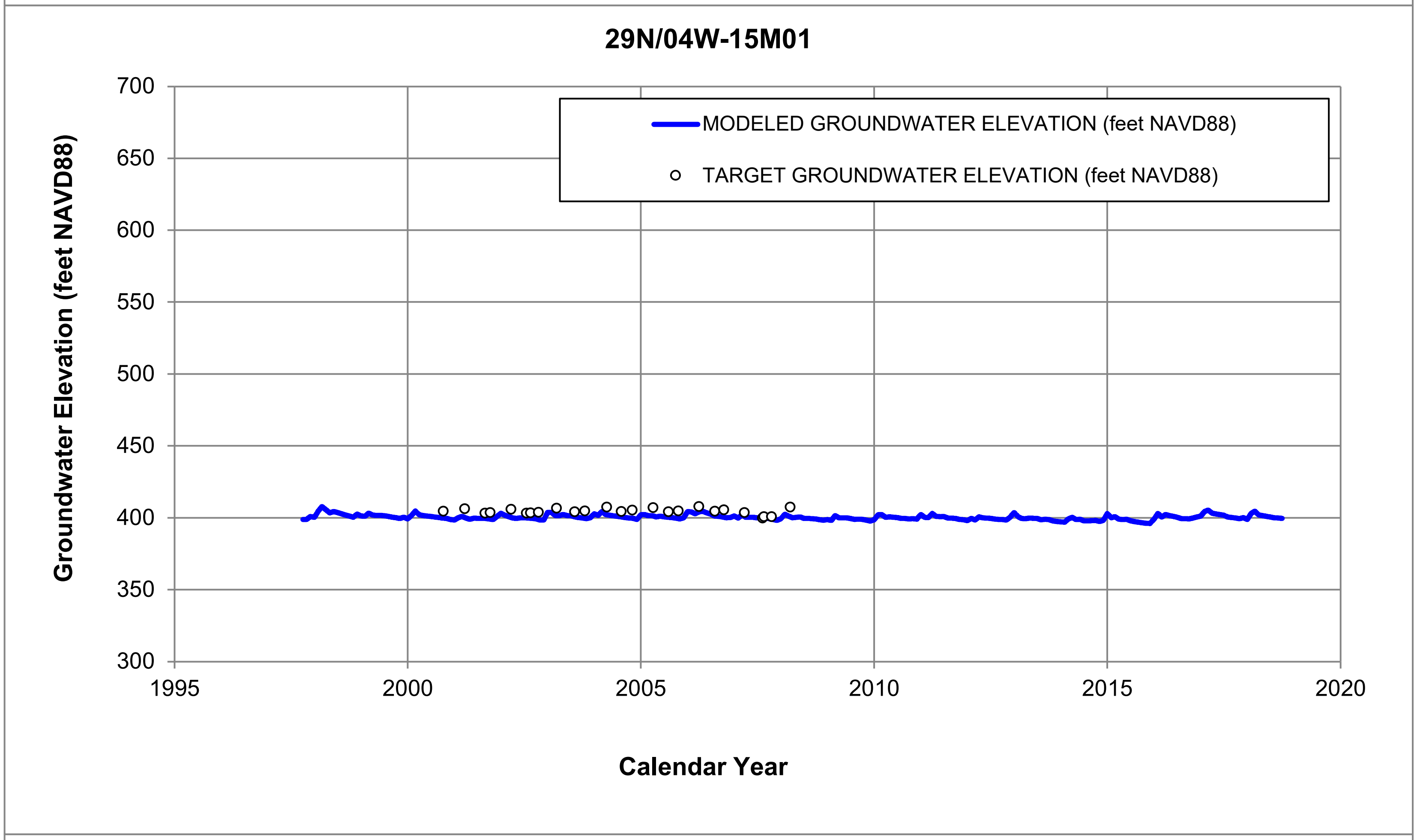
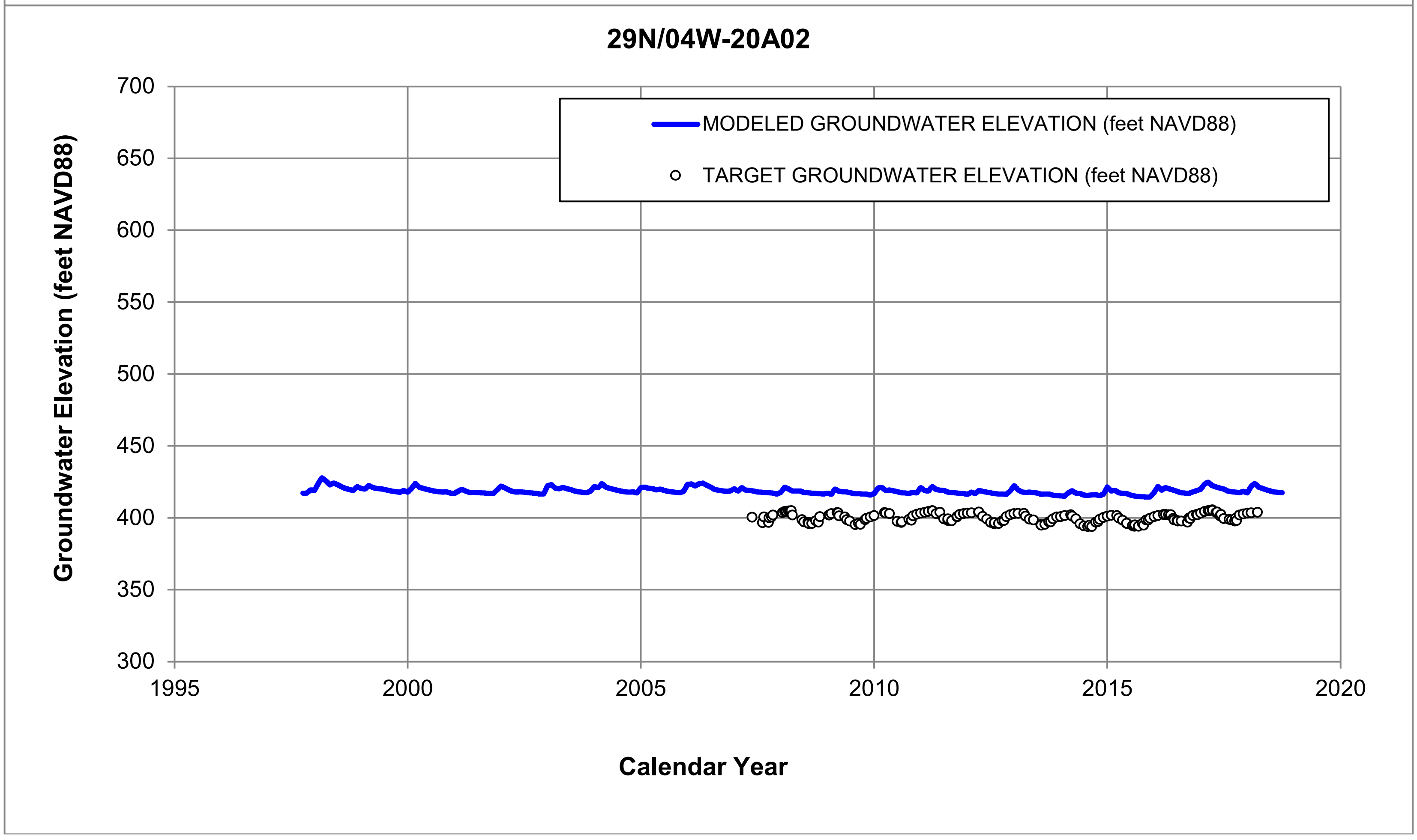




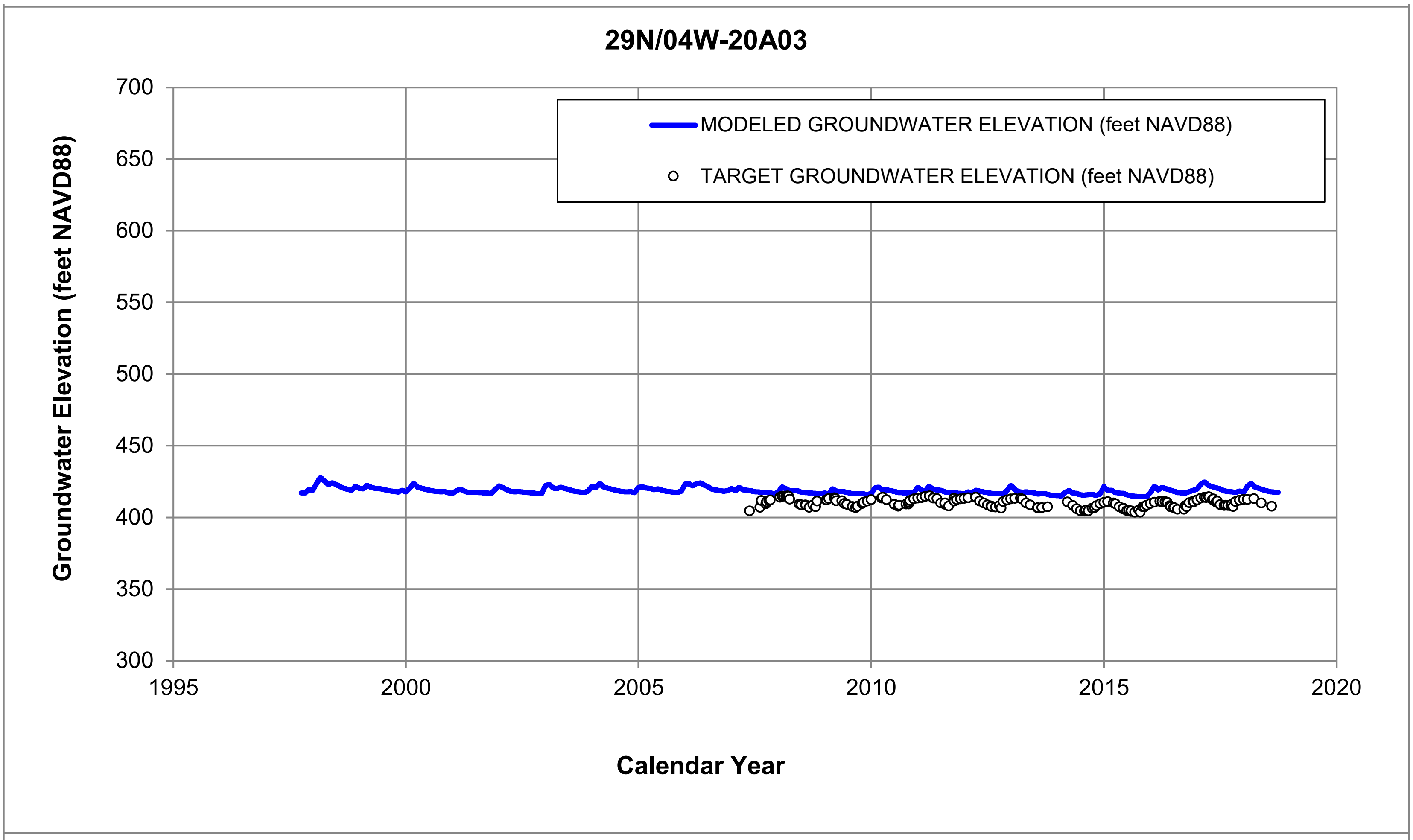


ATTACHMENT 1 (PAGE 6 OF 28)

MODELED VERSUS TARGET GROUNDWATER ELEVATION HYDROGRAPHS

Numerical Flow Model Documentation

Redding Area Groundwater Basin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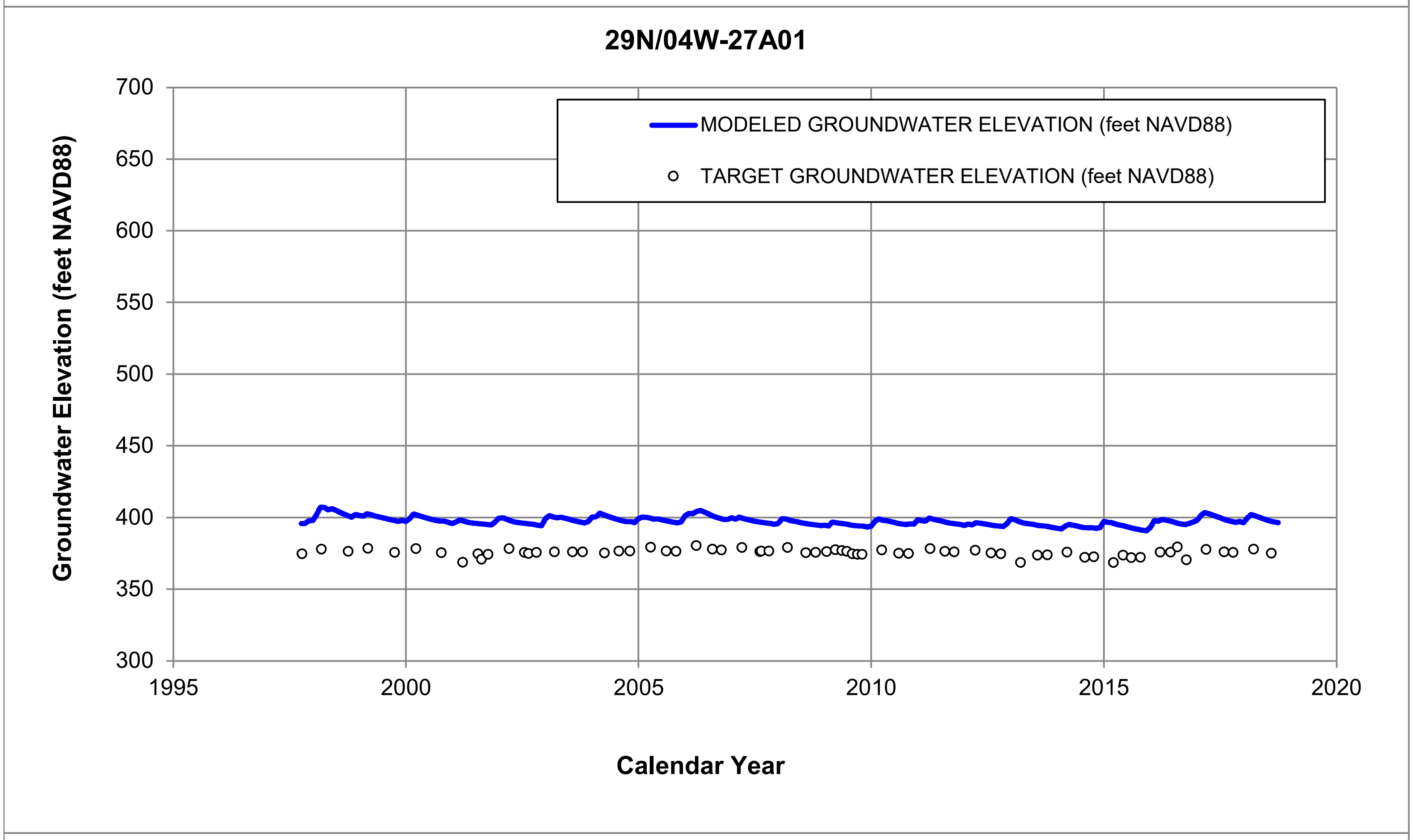
TARGET GROUNDWATER ELEVATION (feet NAVD88)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Groundwater Elevation (feet NAVD88)
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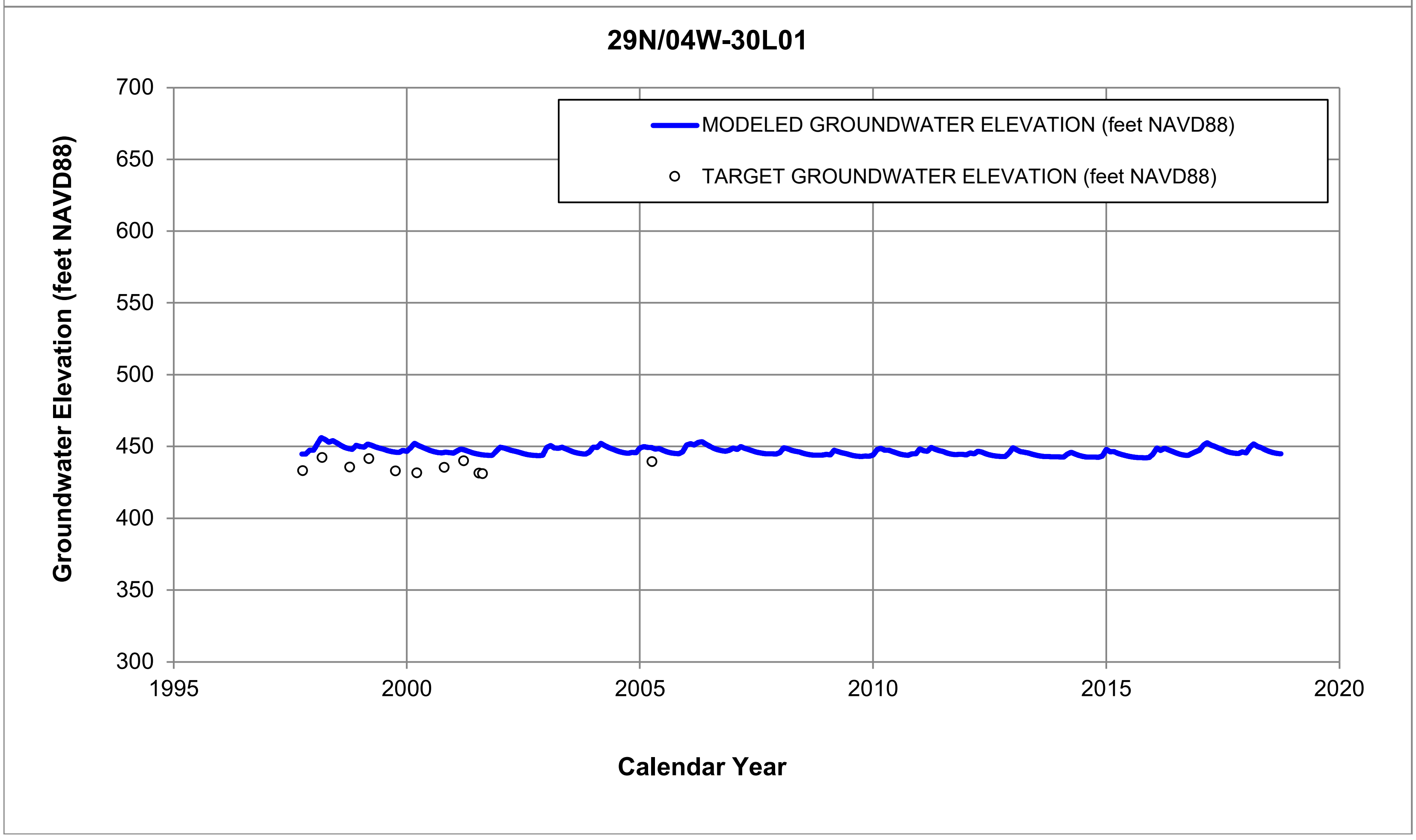
Calendar Year
MODELED GROUNDWATER ELEVATION (feet NAVD88)
TARGET GROUNDWATER ELEVATION (feet NAVD88)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Groundwater Elevation (feet NAVD88)
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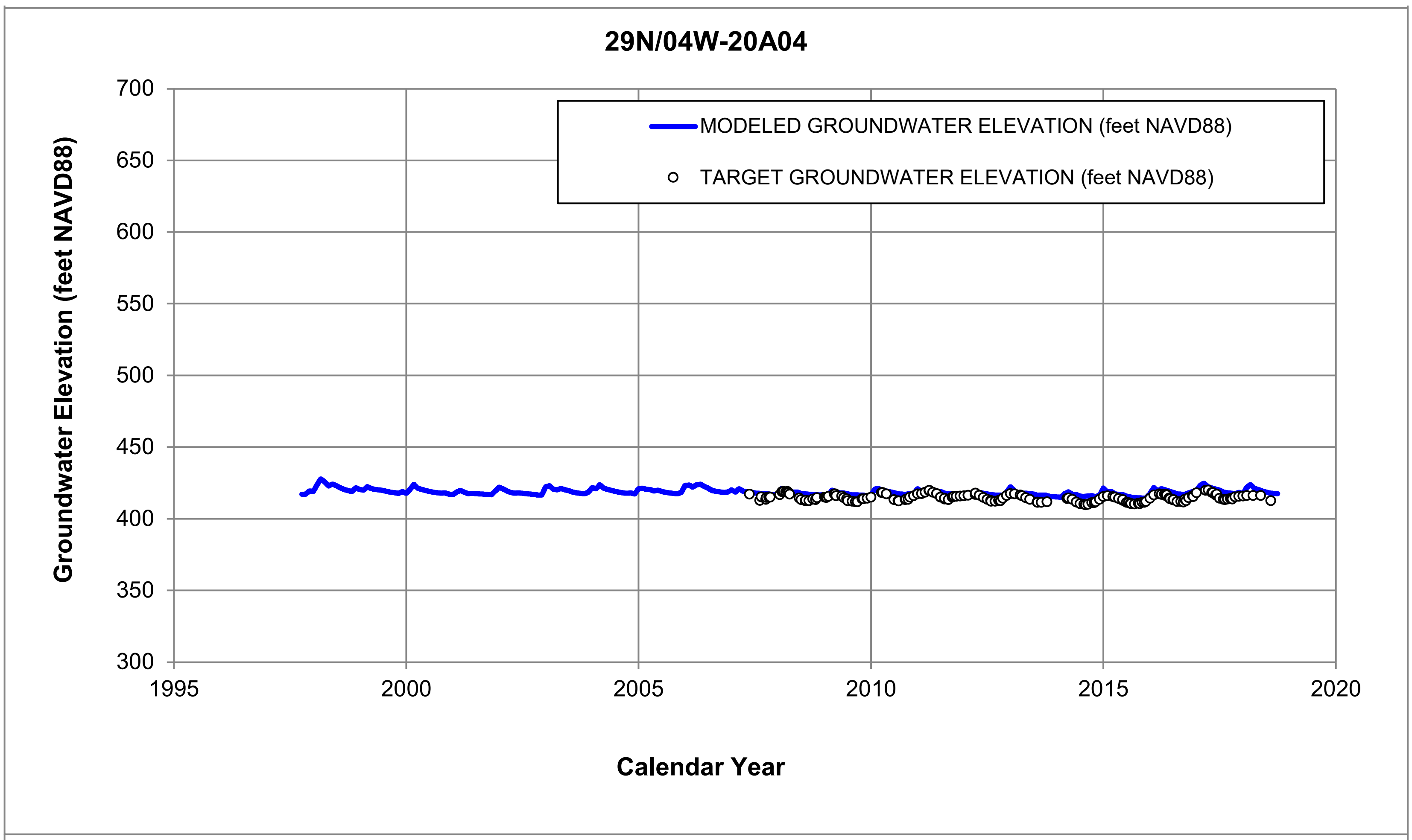
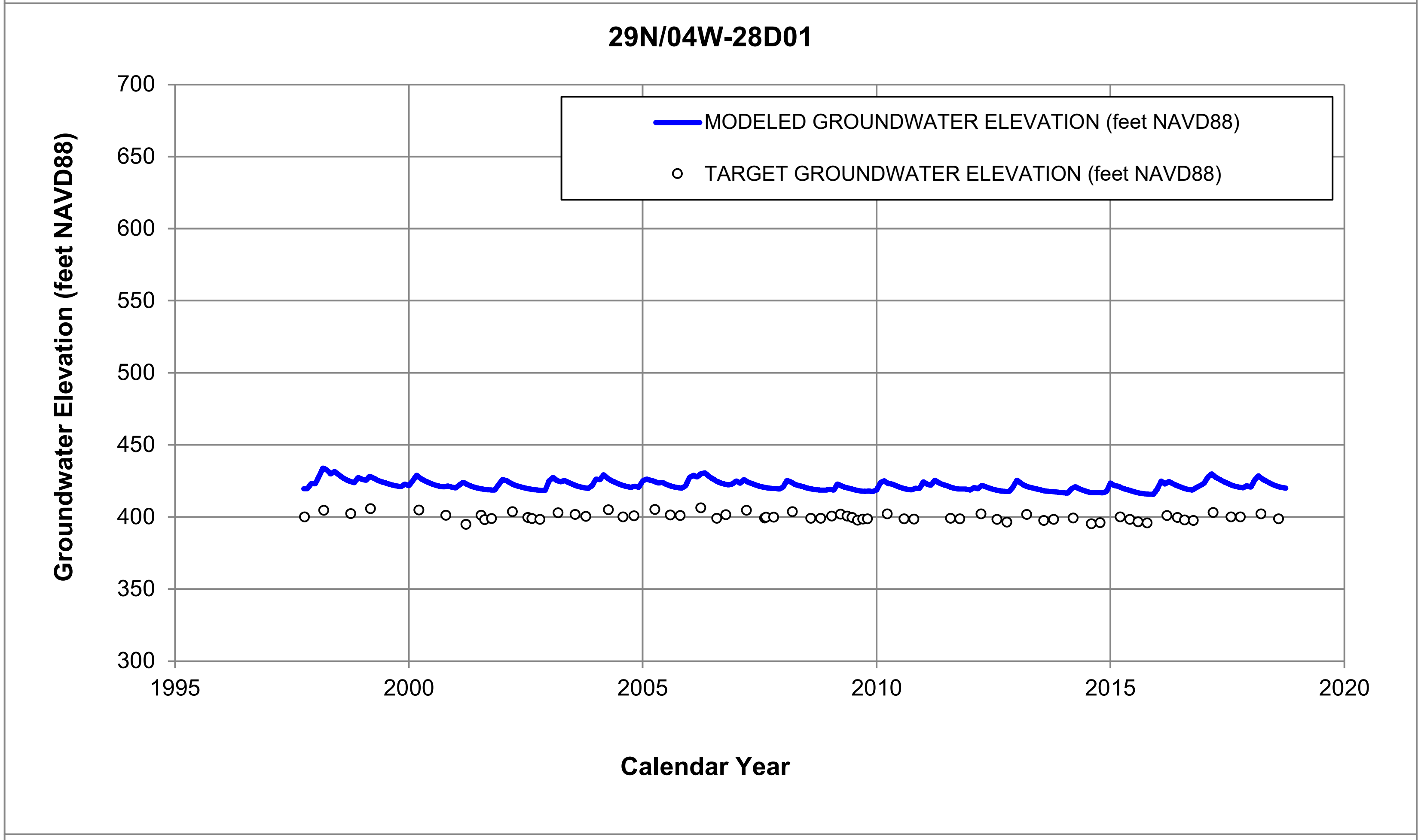
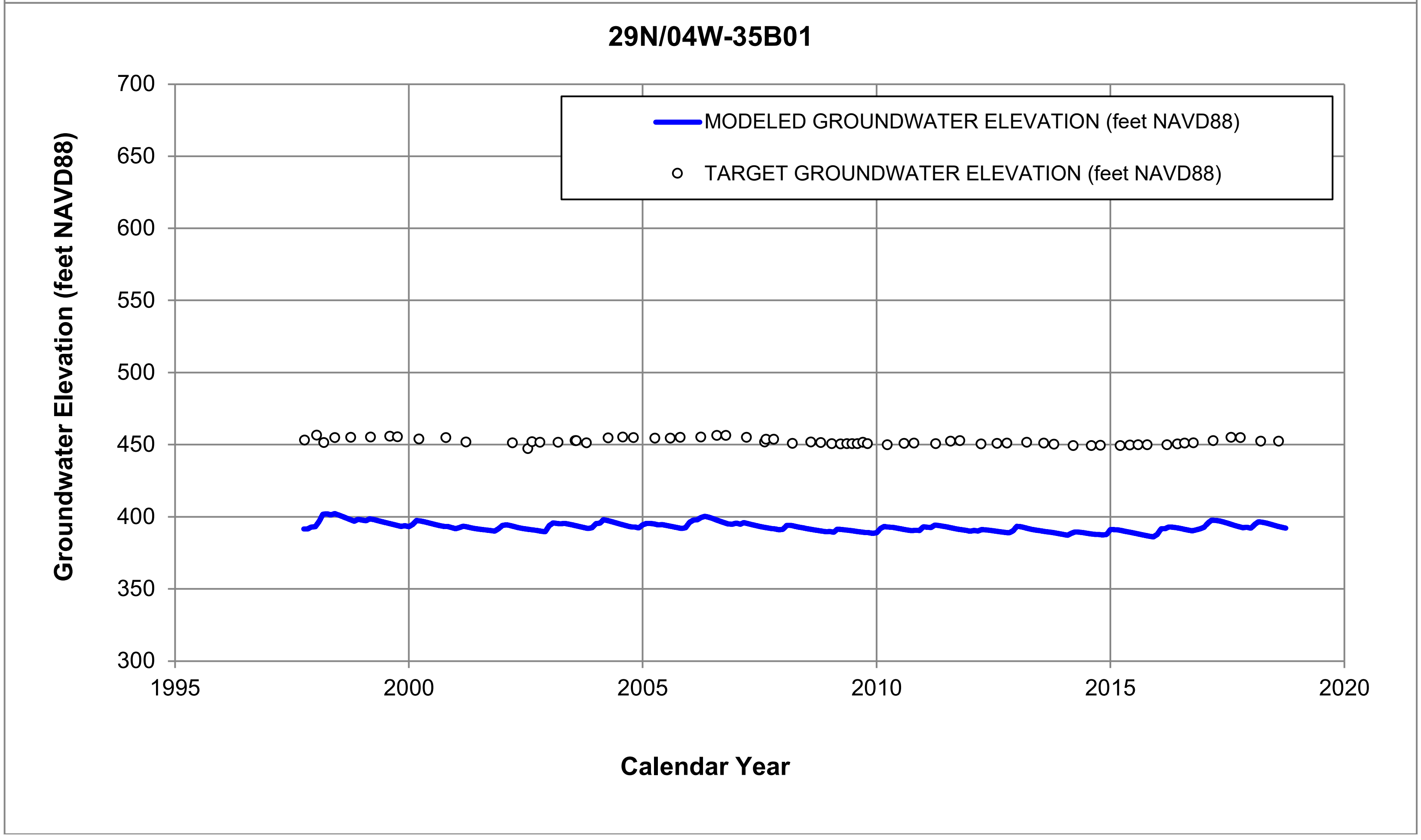
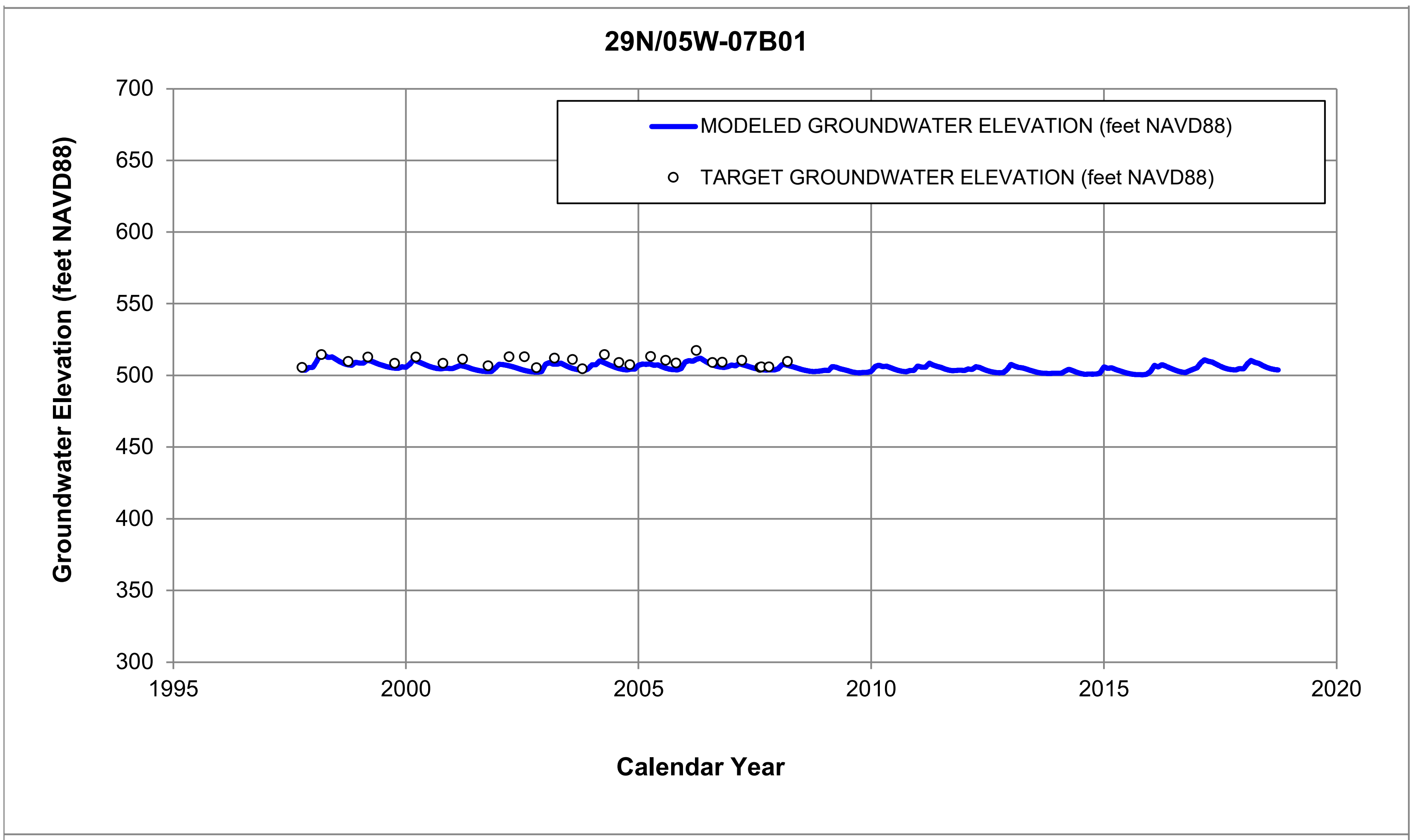
MODELED GROUNDWATER ELEVATION (feet NAVD88)
TARGET GROUNDWATER ELEVATION (feet NAVD88)

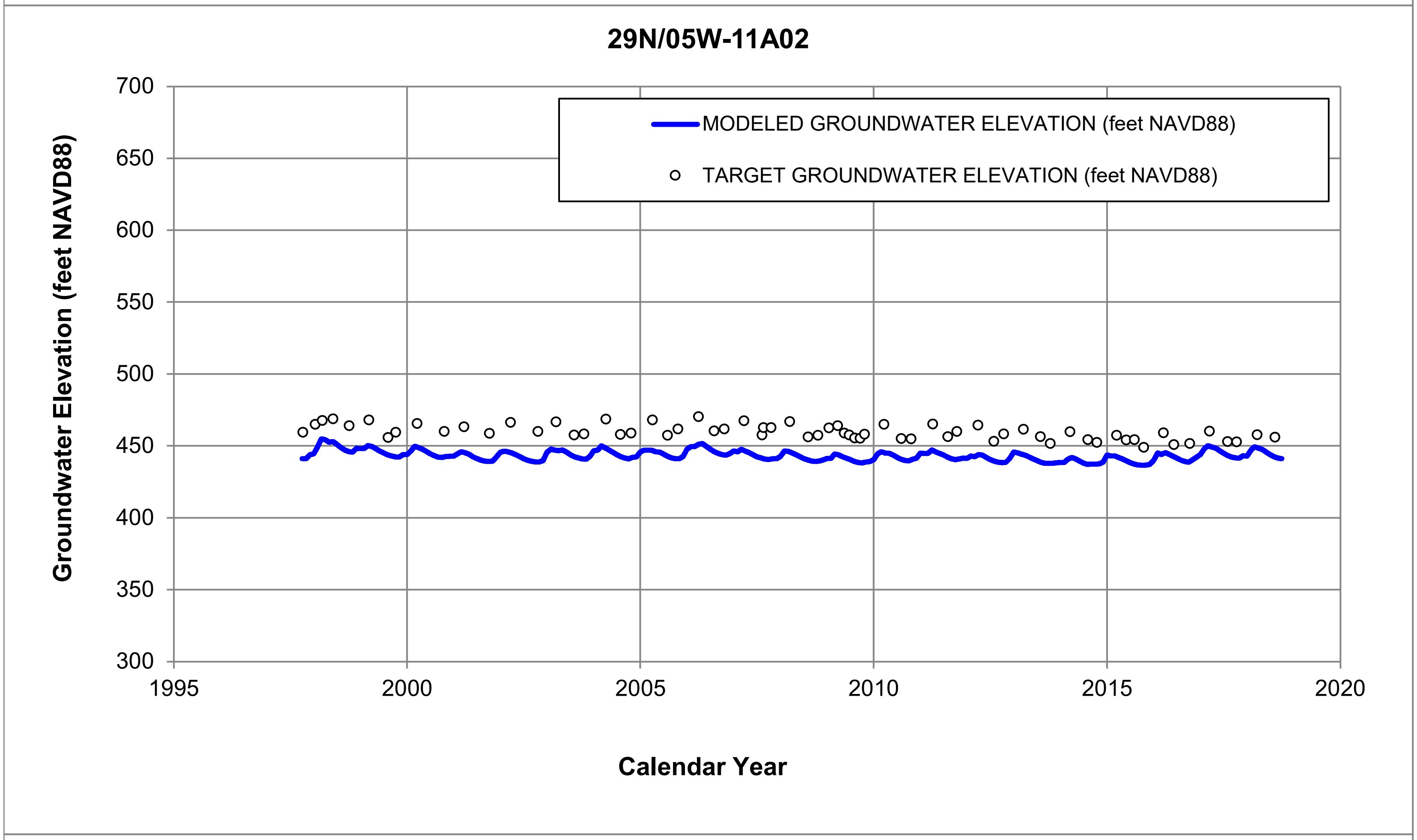


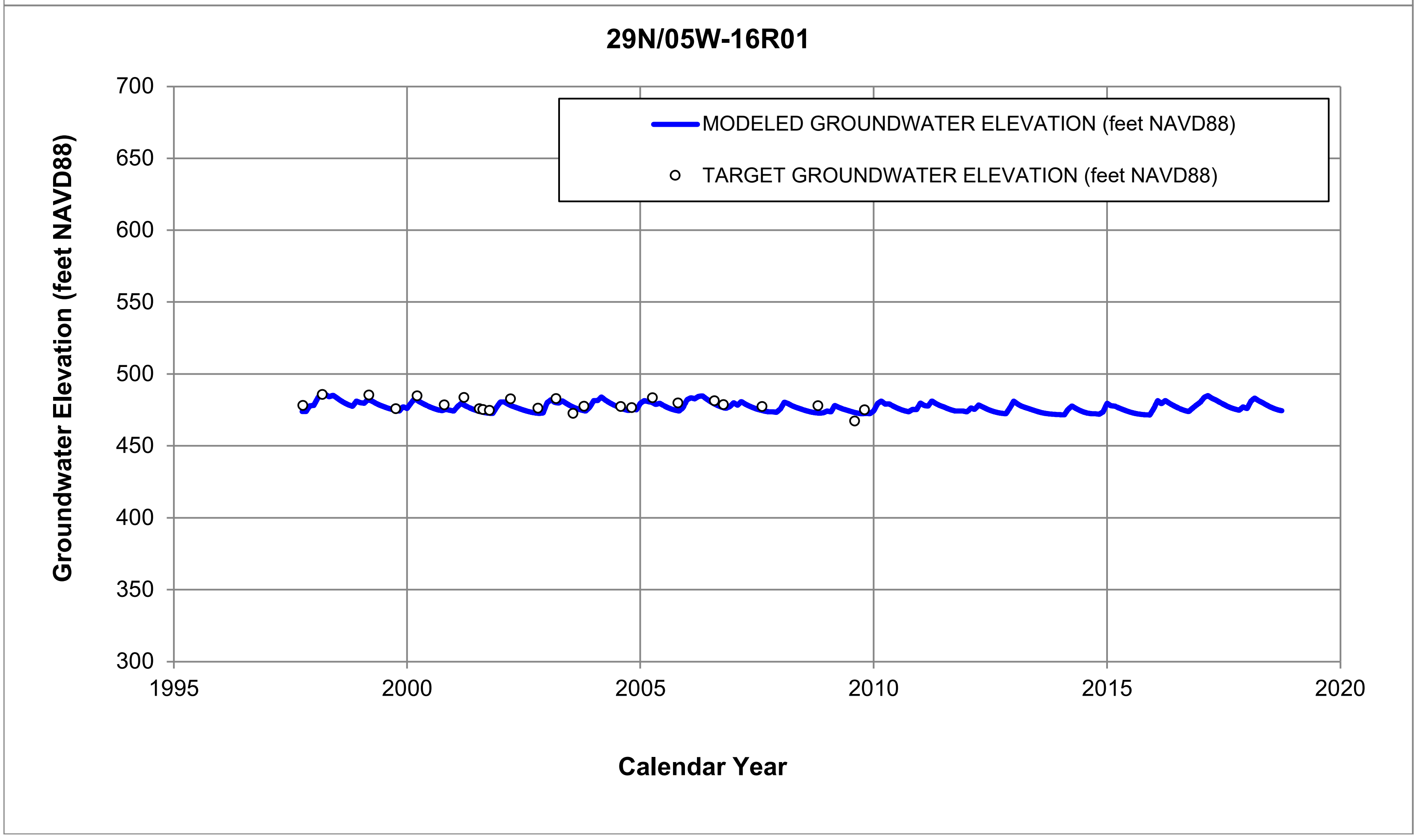




ATTACHMENT 1 (PAGE 8 OF 28)
MODELED VERSUS TARGET GROUNDWATER ELEVATION HYDROGRAPHS
Numerical Flow Model Documentation
Redding Area Groundwater Basin







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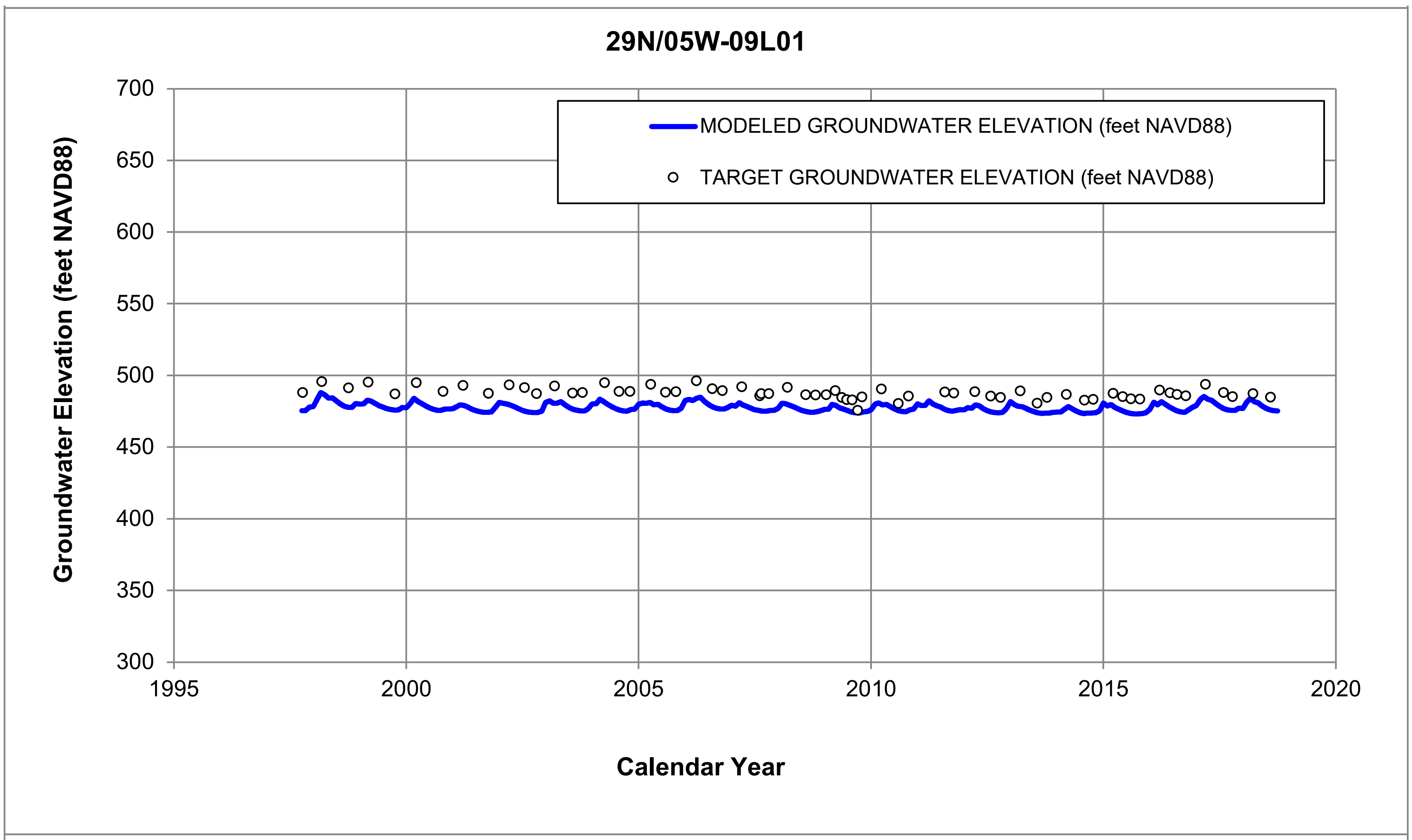
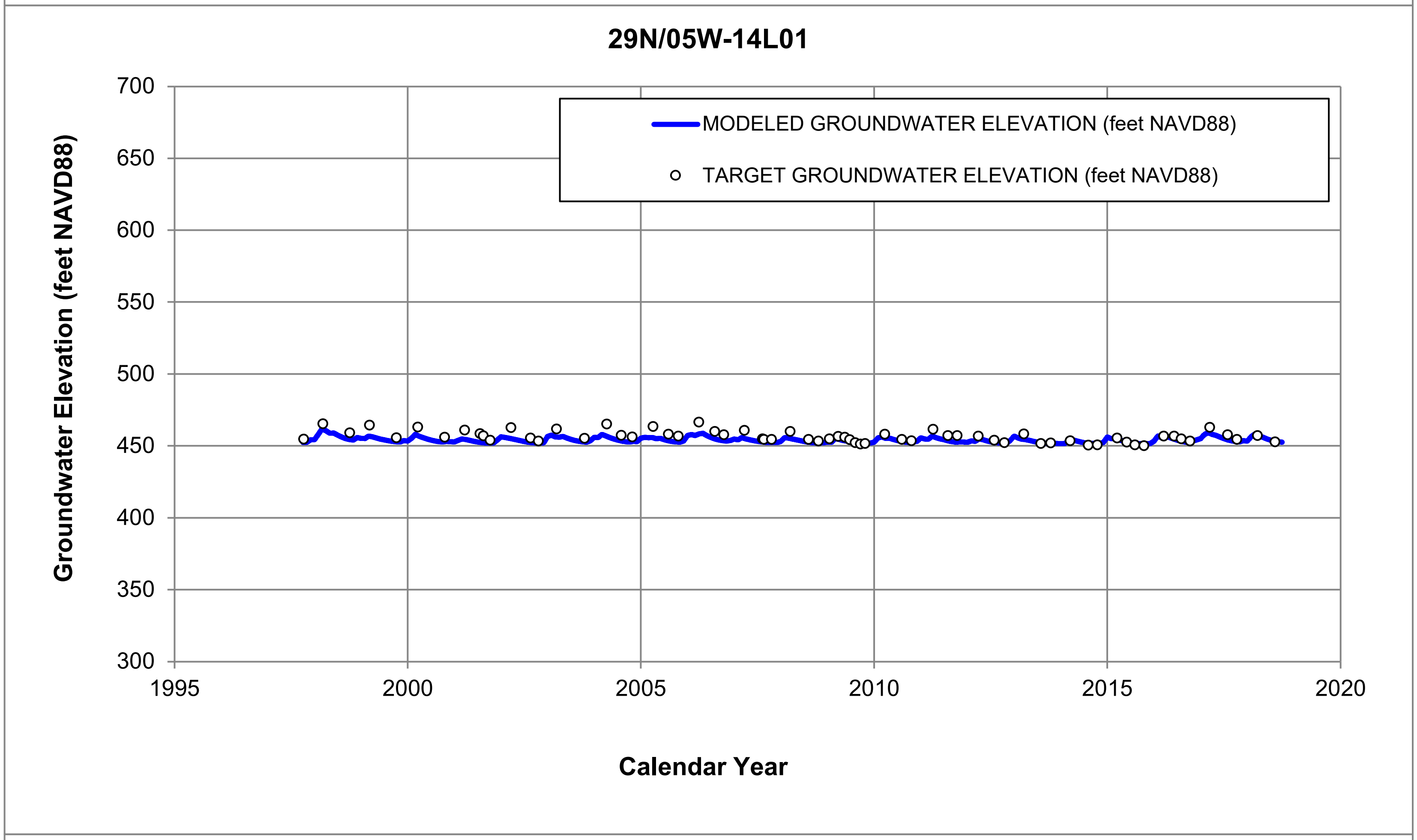
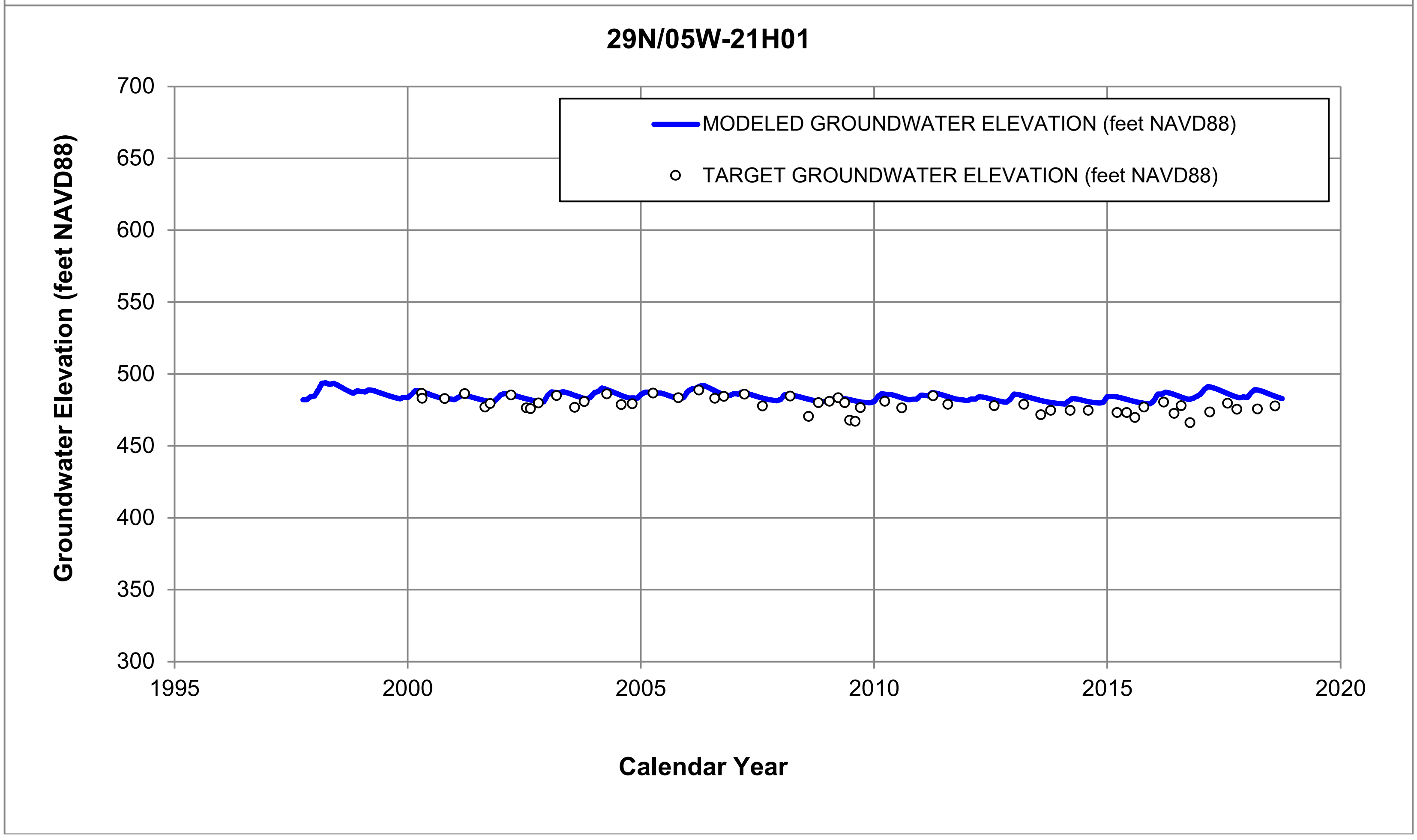
MODELED VERSUS TARGET GROUNDWATER ELEVATION HYDROGRAPHS







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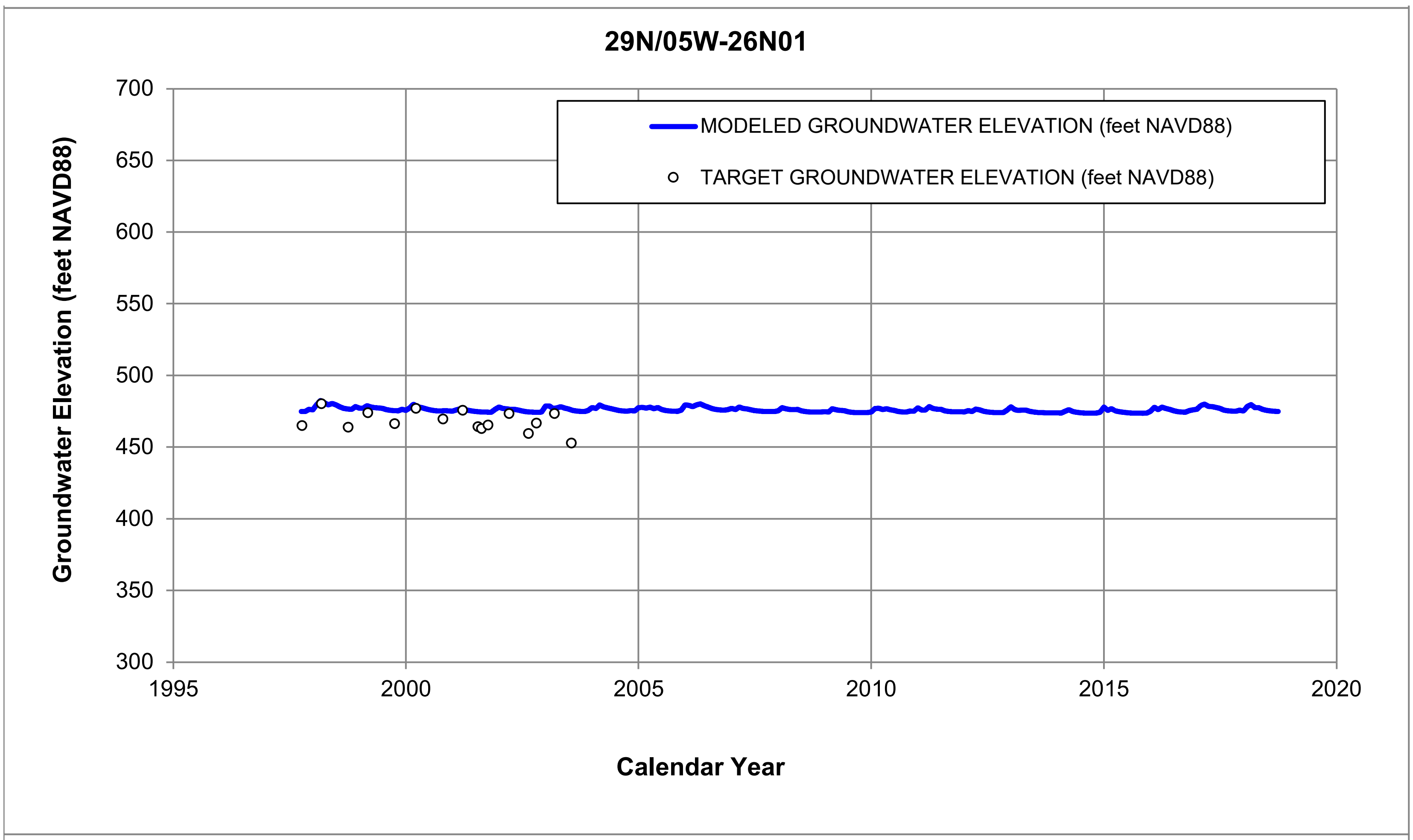
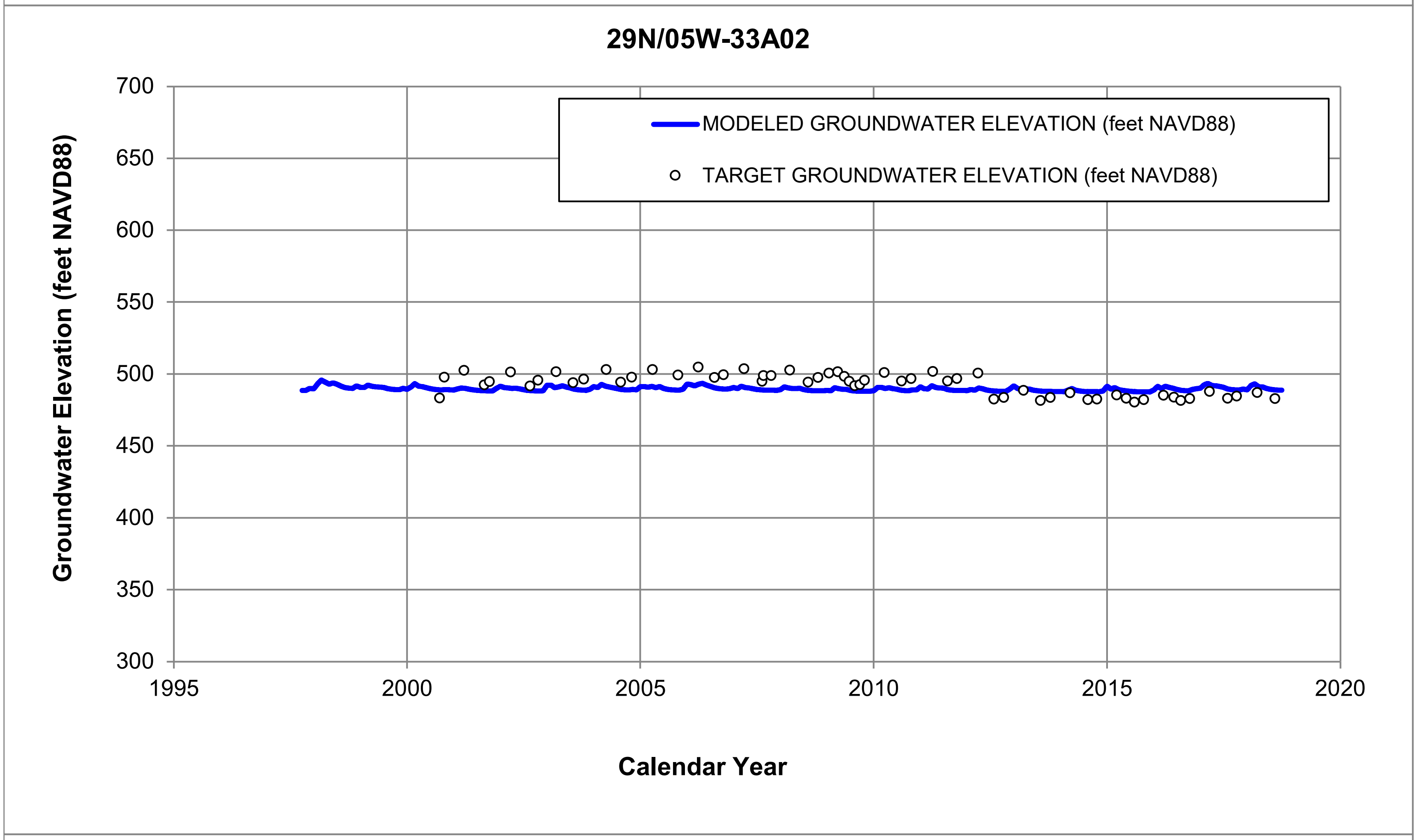
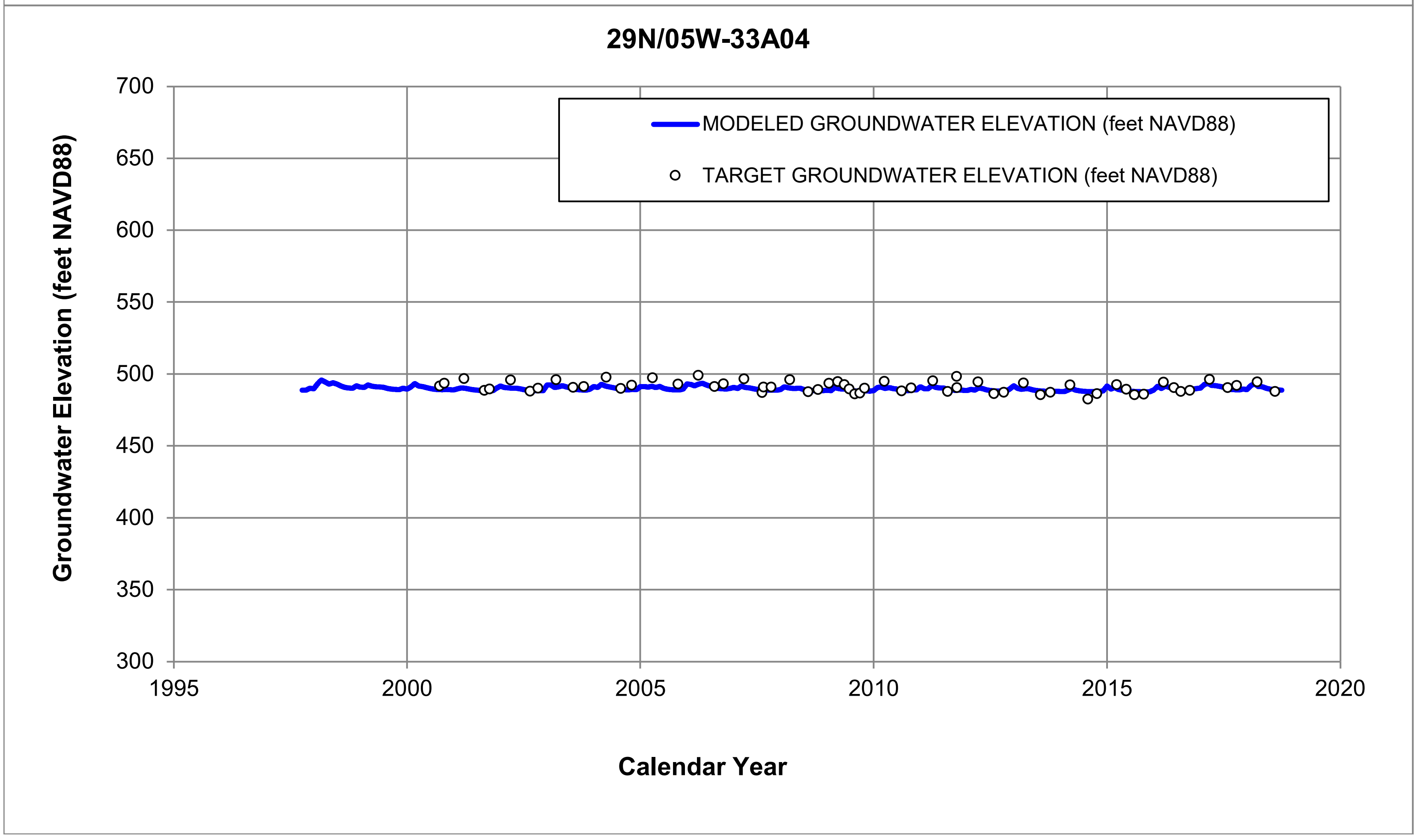
MODELED VERSUS TARGET GROUNDWATER ELEVATION HYDROGRAPHS







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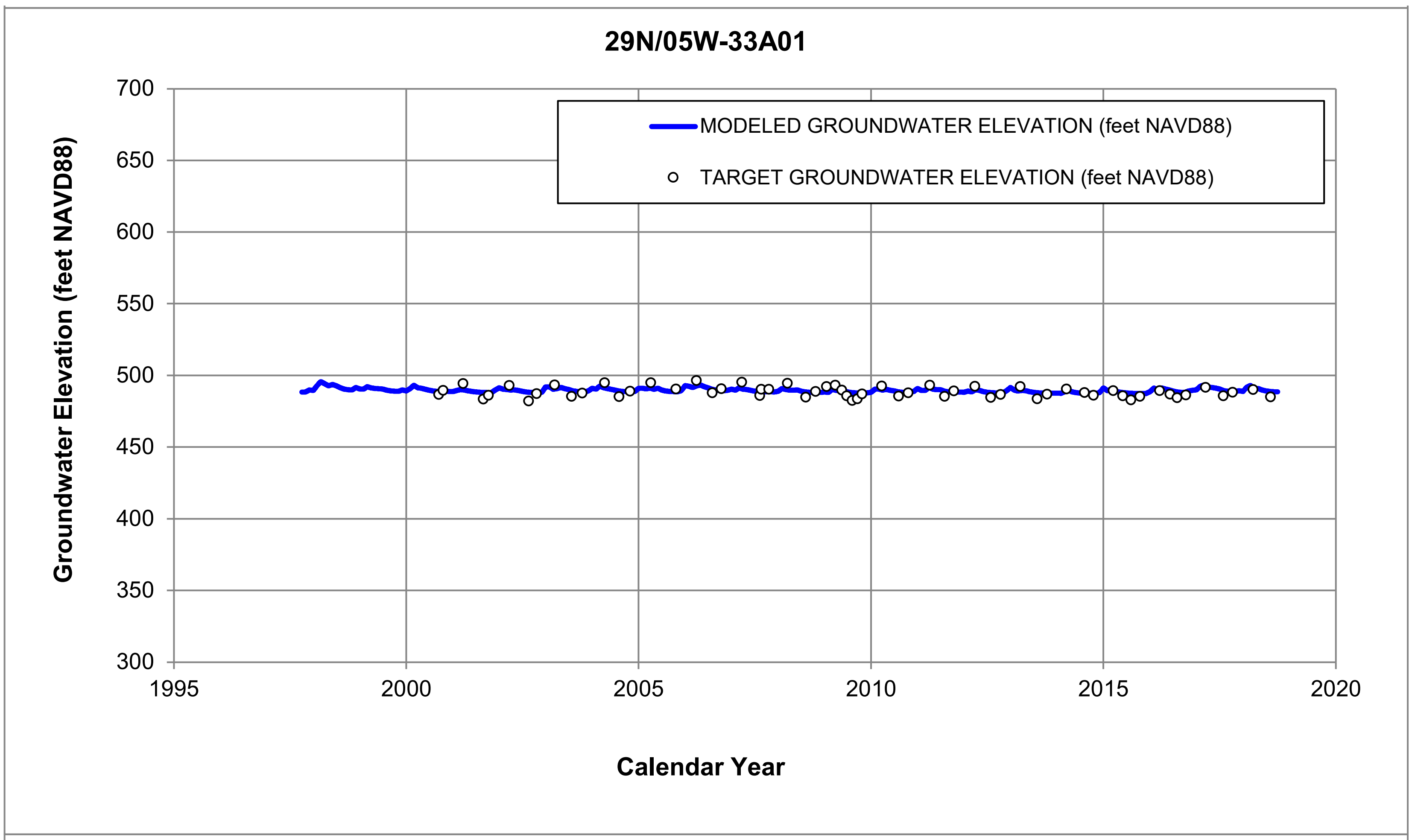
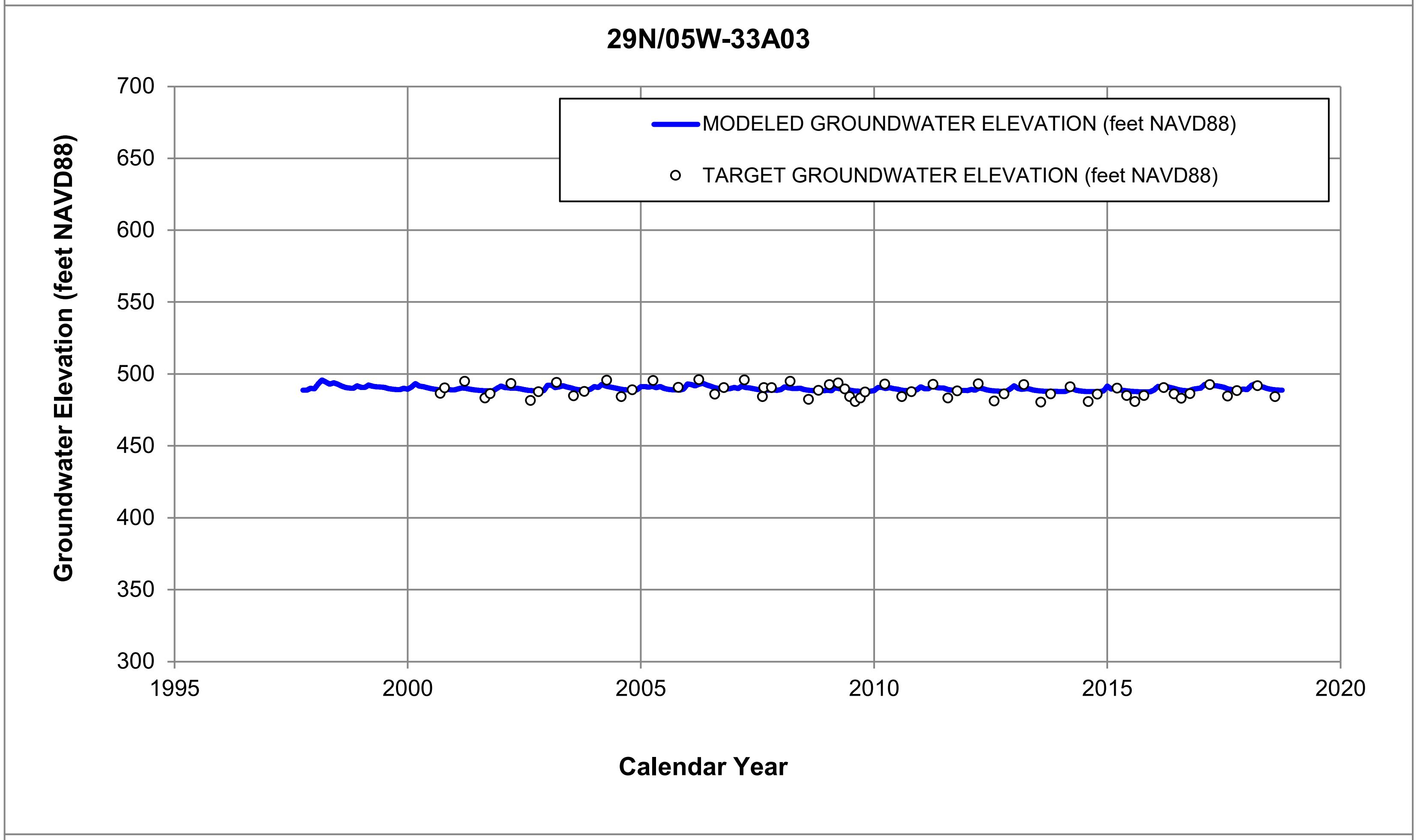
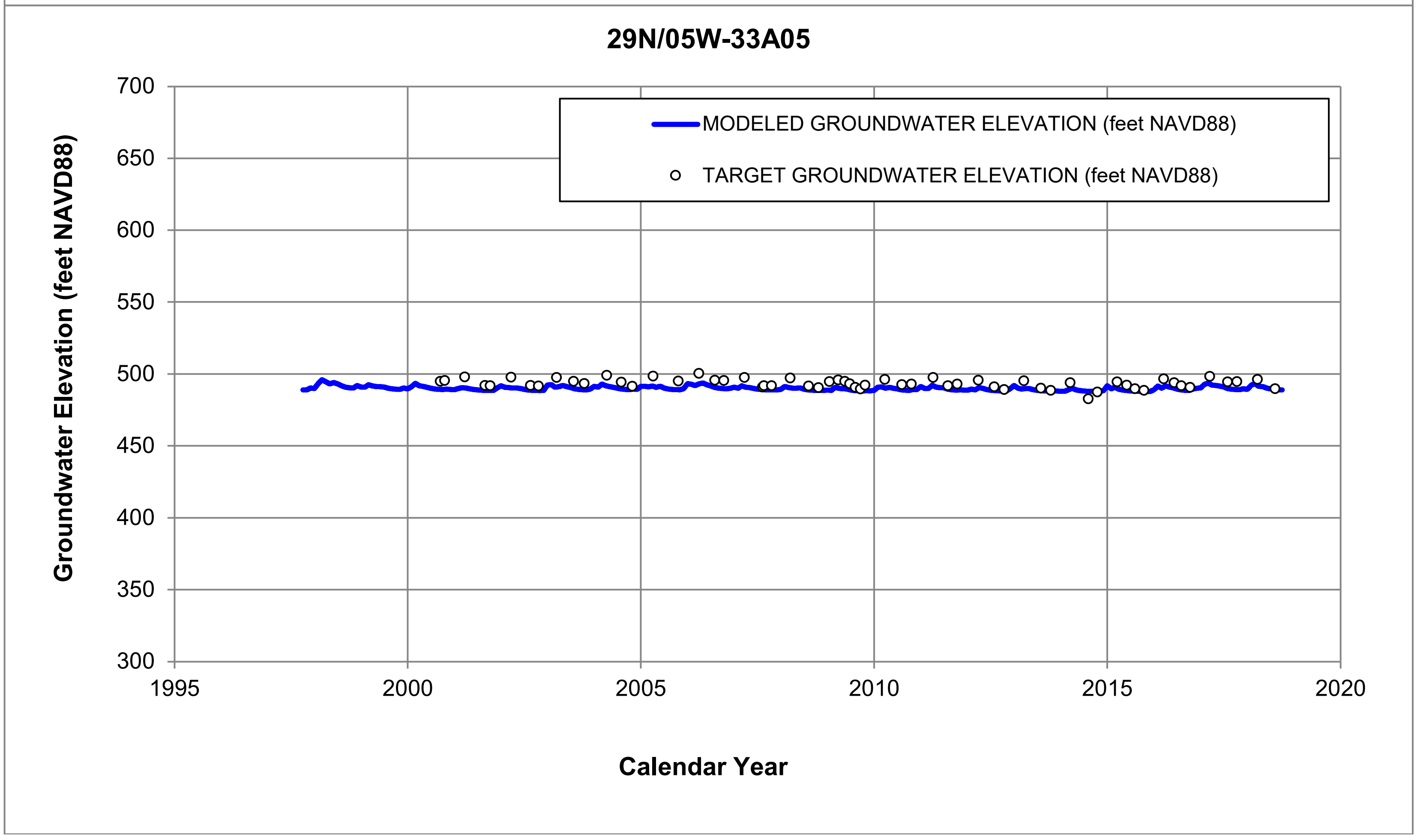
MODELED VERSUS TARGET GROUNDWATER ELEVATION HYDROGRAPHS







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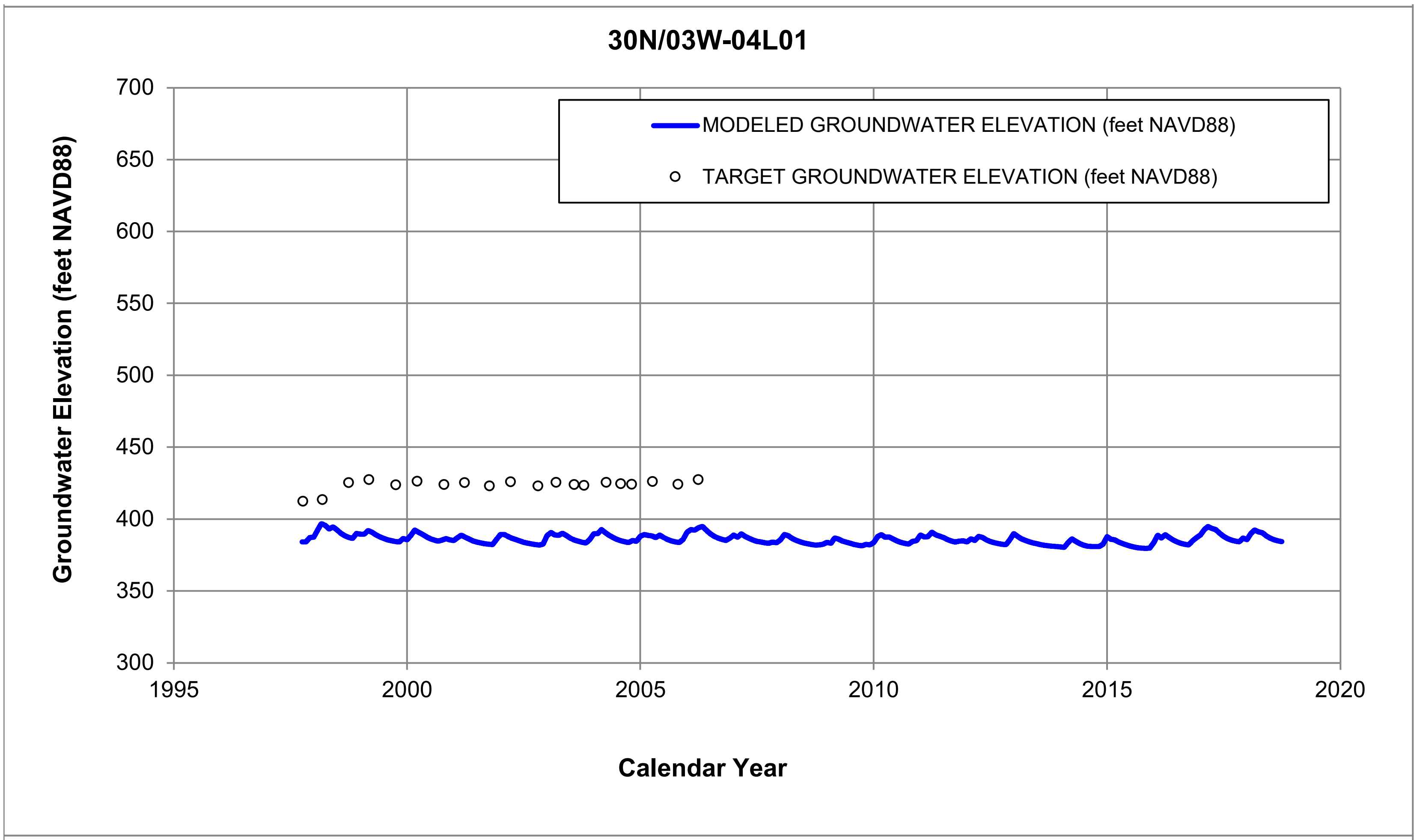
Numerical Flow Model Documentation
Redding Area Groundwater Basin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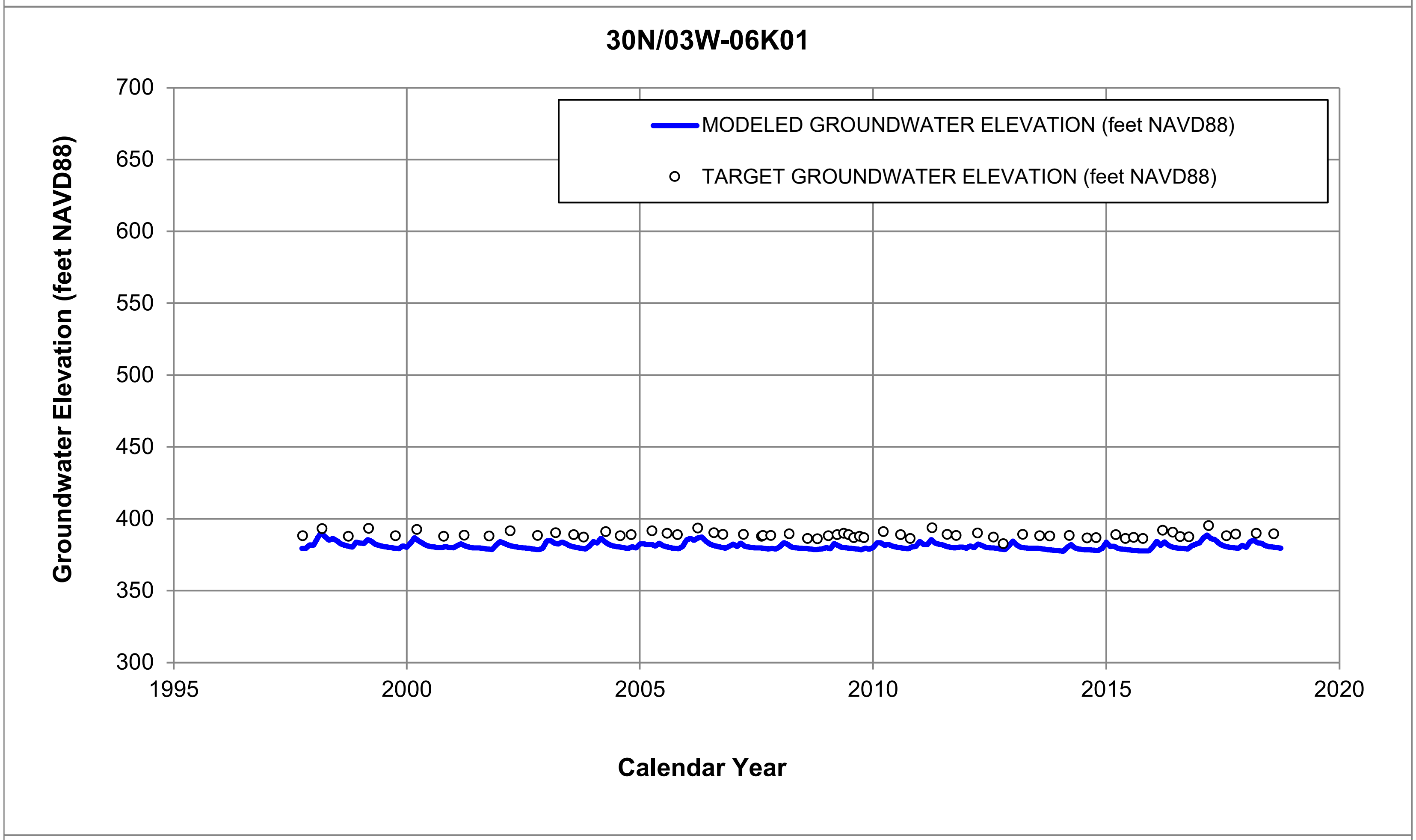
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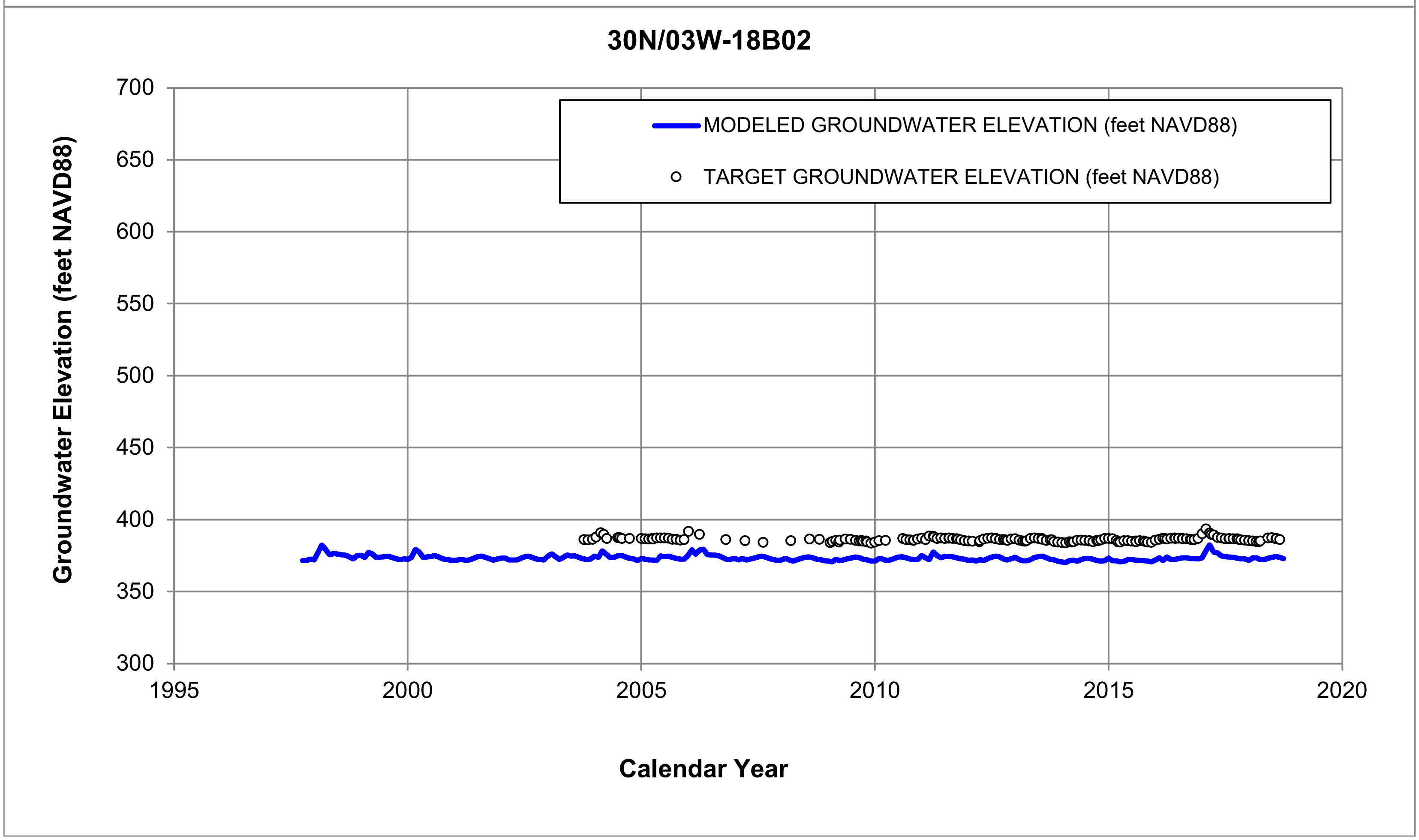
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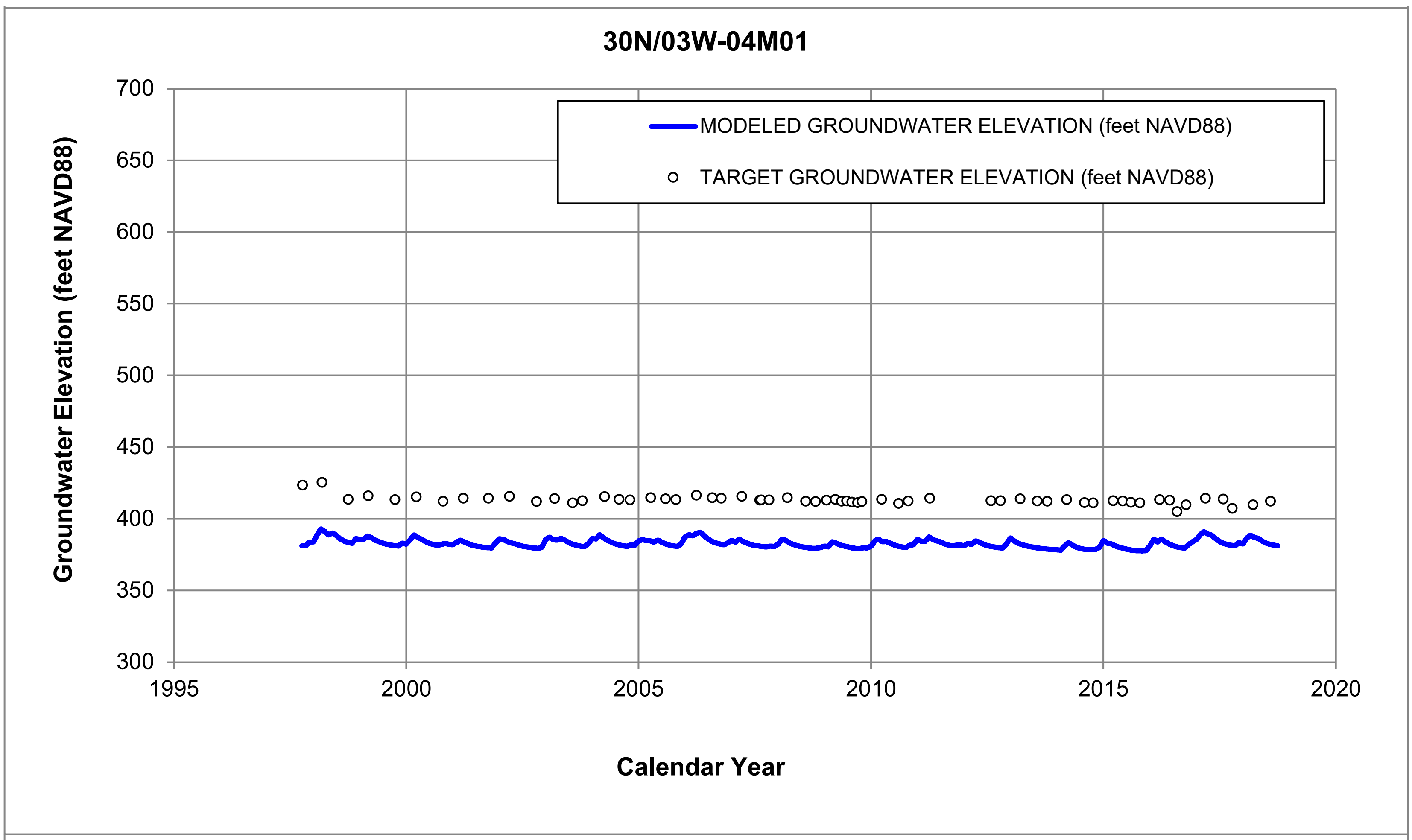
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Groundwater Elevation (feet NAVD88)
Calendar Year
MODELED GROUNDWATER ELEVATION (feet NAVD88)
TARGET GROUNDWATER ELEVATION (feet NAVD88)
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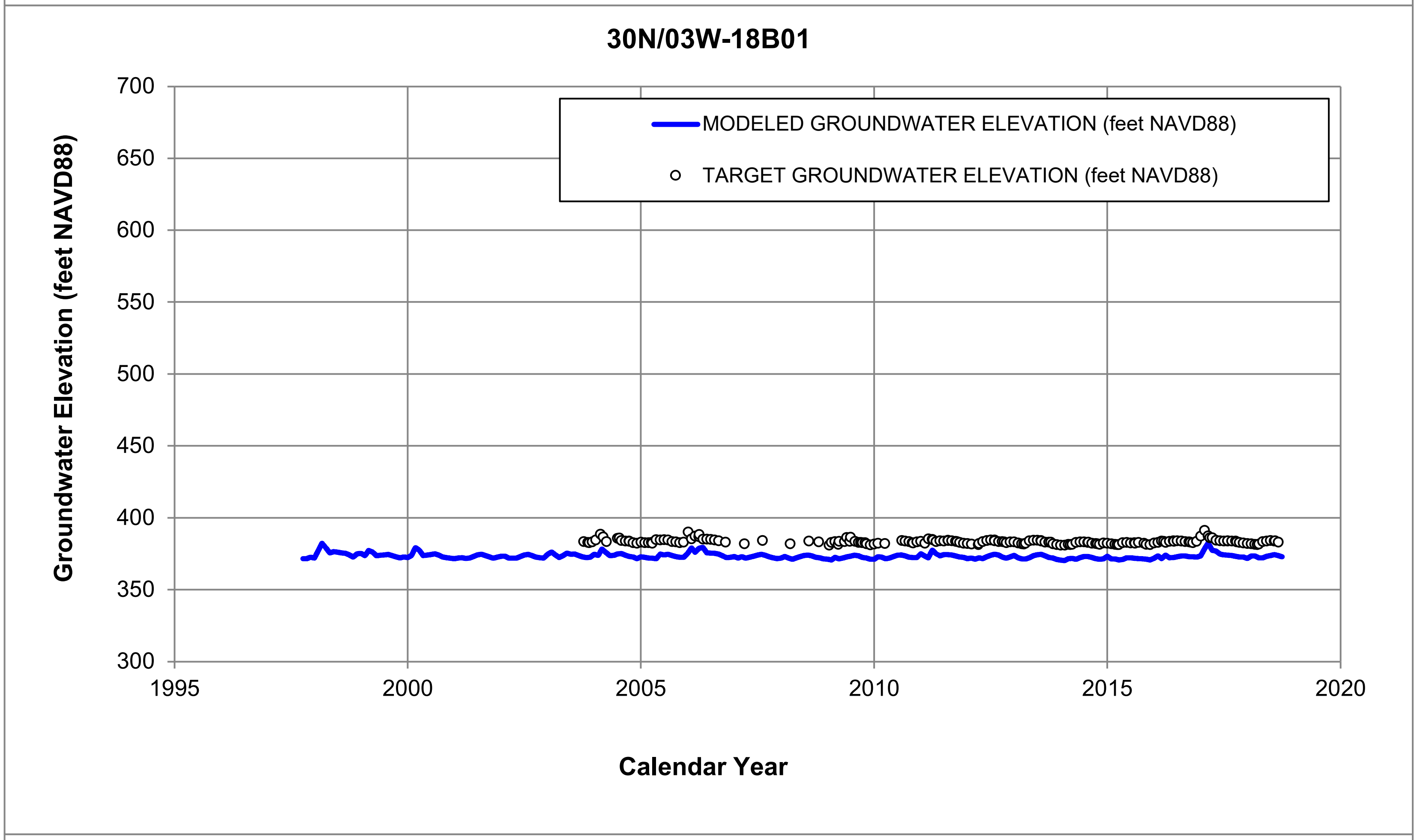
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Groundwater Elevation (feet NAVD88)
Calendar Year
MODELED GROUNDWATER ELEVATION (feet NAVD88)
TARGET GROUNDWATER ELEVATION (feet NAVD88)
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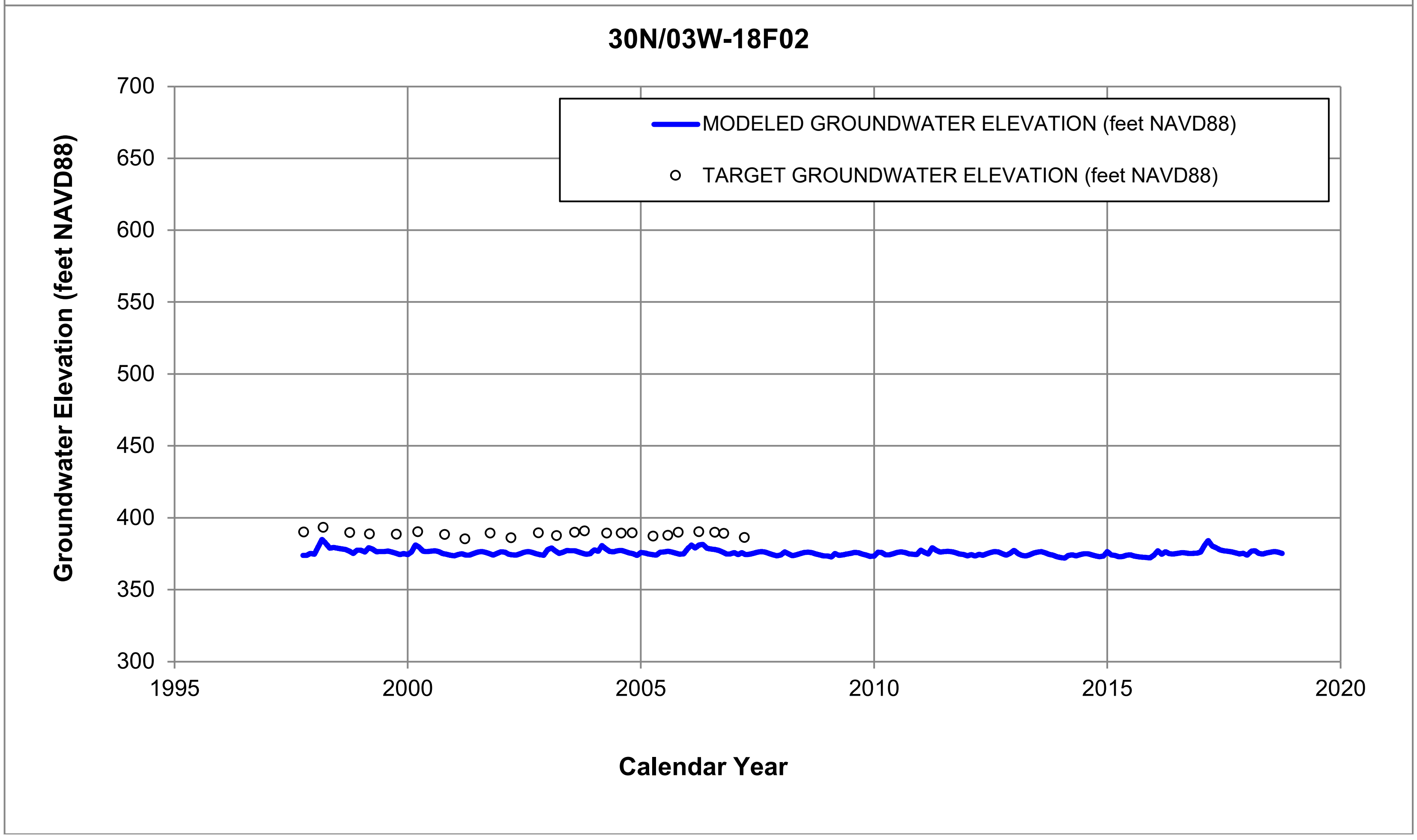
2010
2015
2020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Calendar Year
MODELED GROUNDWATER ELEVATION (feet NAVD88)
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700
650
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400
350
300
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2000
2005
2010
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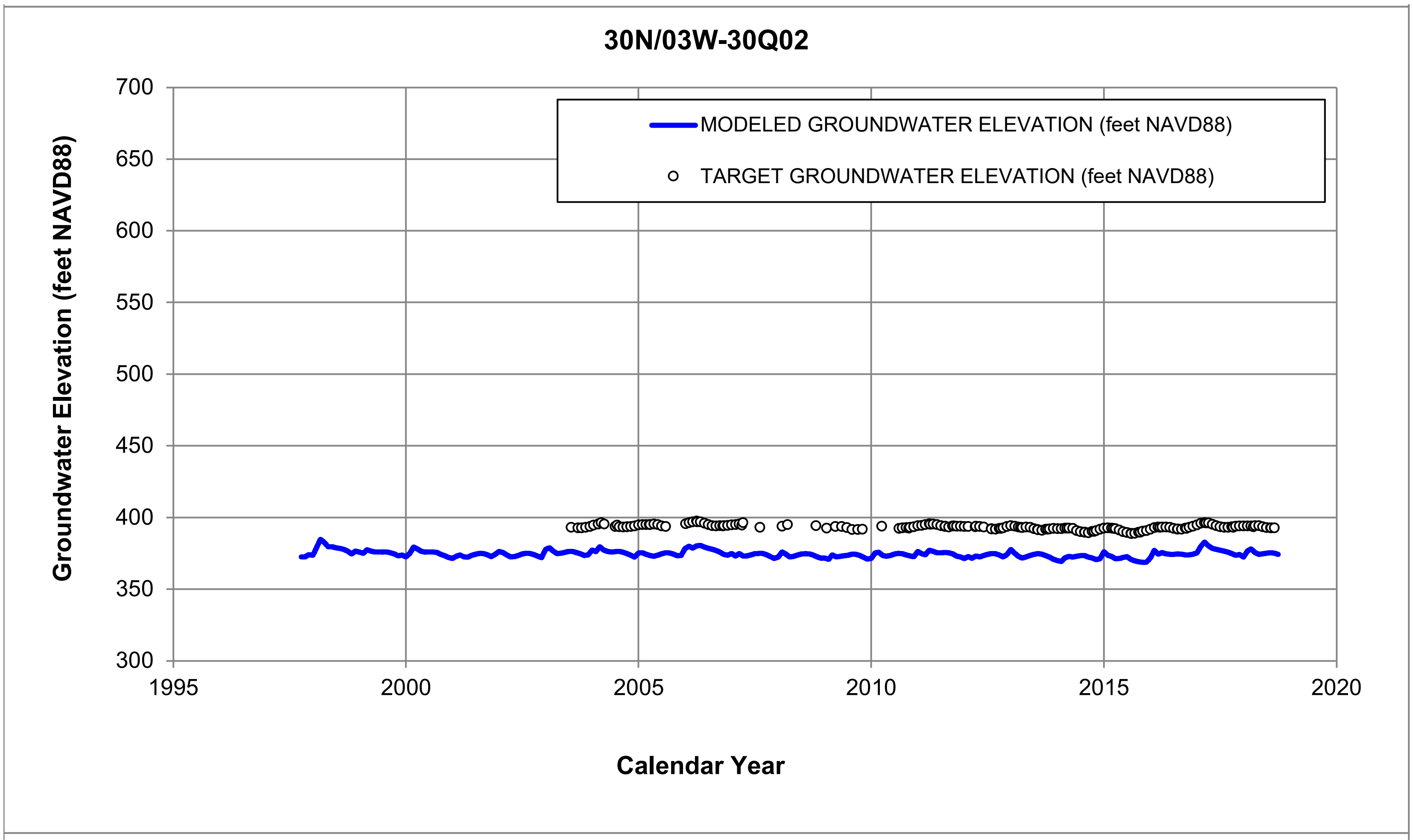
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2010
2015
2020
Calendar Year
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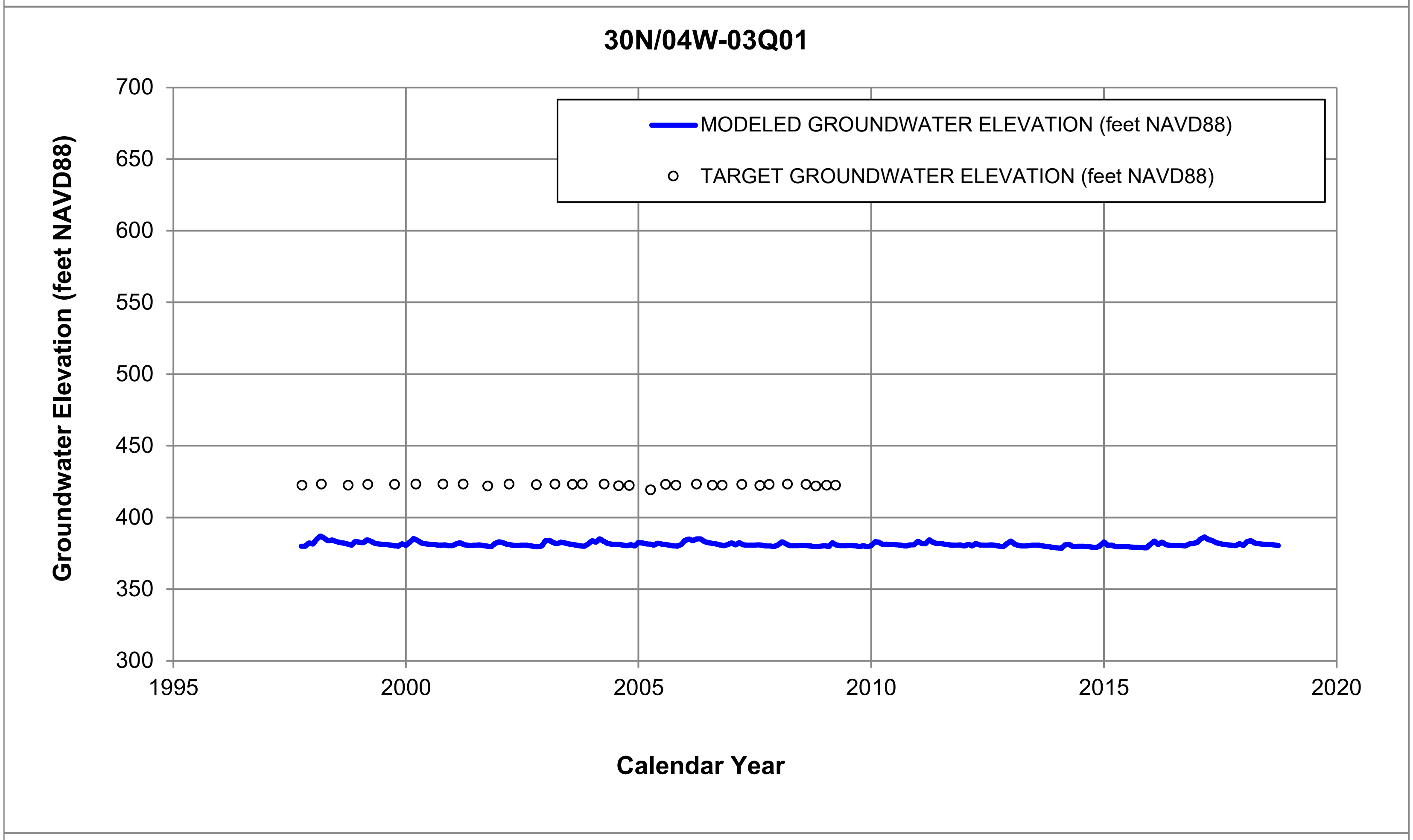
TARGET GROUNDWATER ELEVATION (feet NAVD88)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Calendar Year
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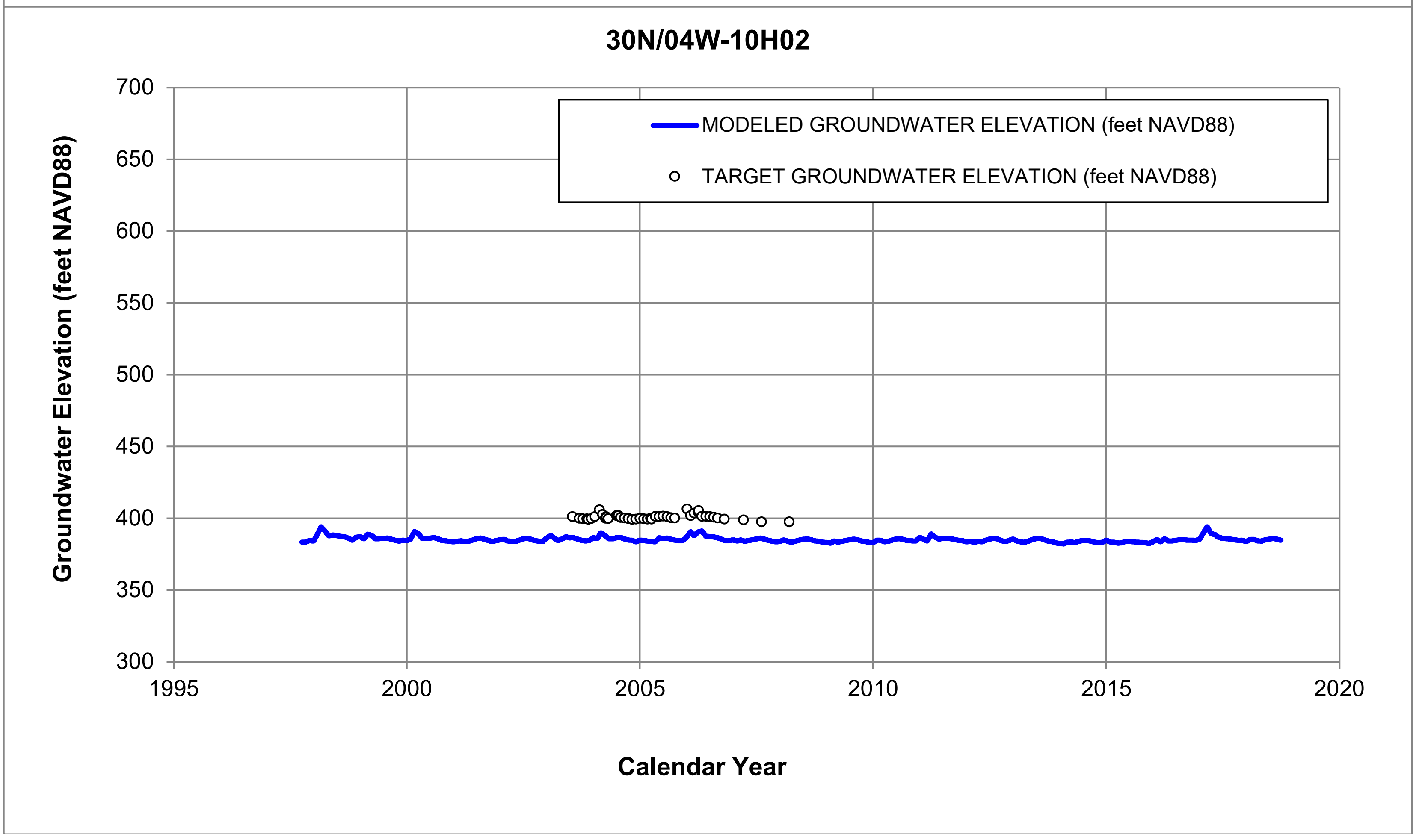
TARGET GROUNDWATER ELEVATION (feet NAVD88)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2010
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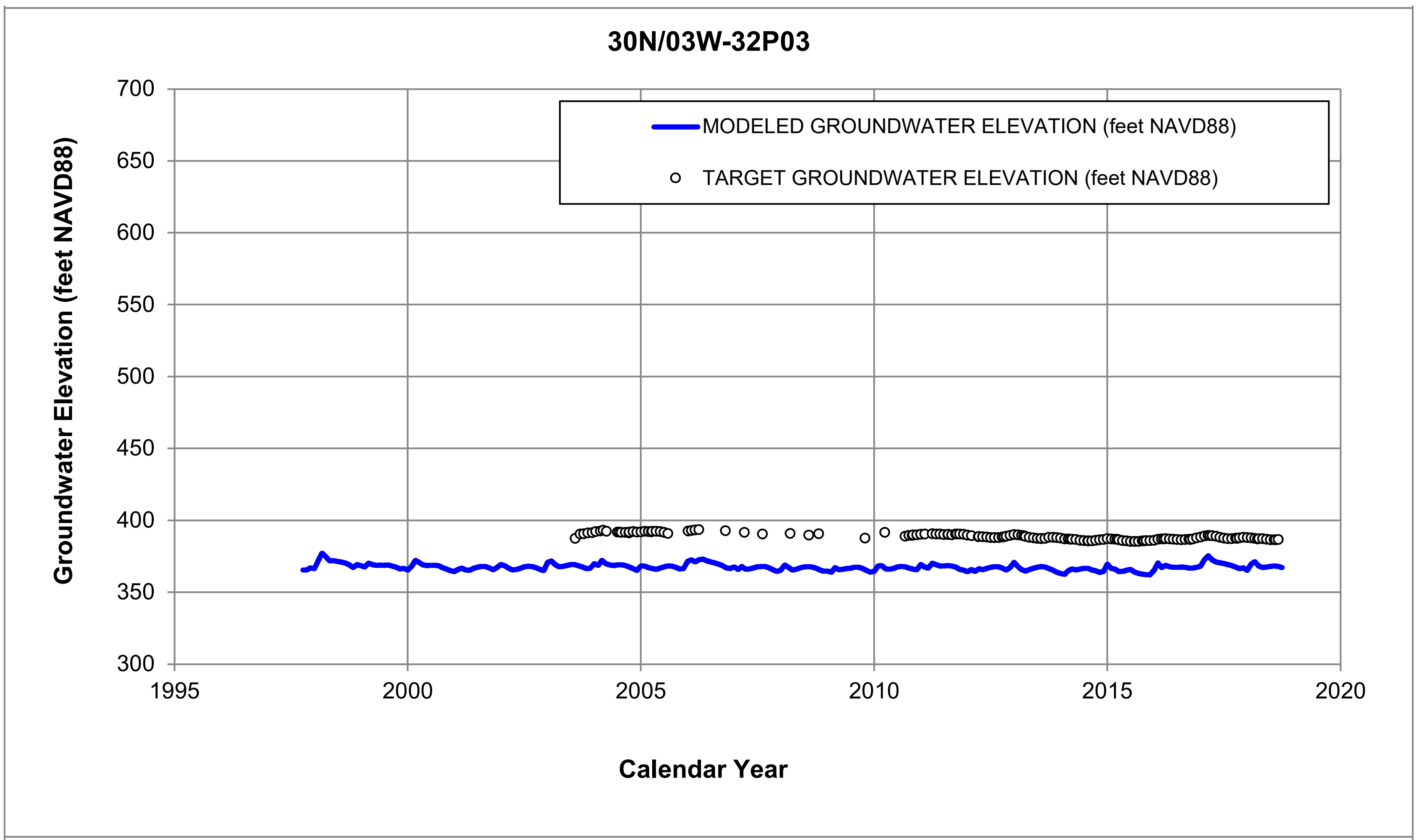
Calendar Year
MODELED GROUNDWATER ELEVATION (feet NAVD88)
TARGET GROUNDWATER ELEVATION (feet NAVD88)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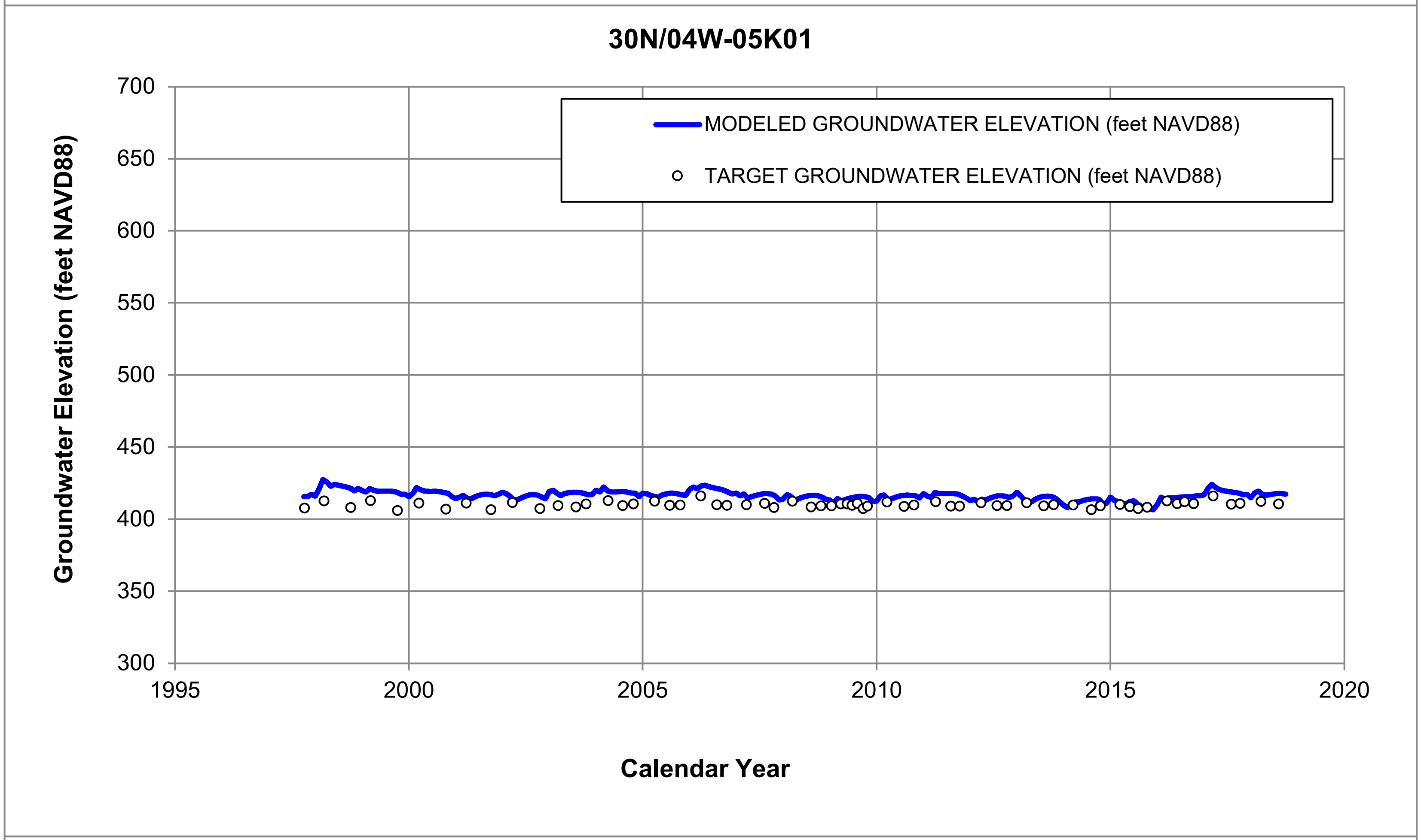
TARGET GROUNDWATER ELEVATION (feet NAVD88)
Groundwater Elevation (feet NAVD88)
Calendar Year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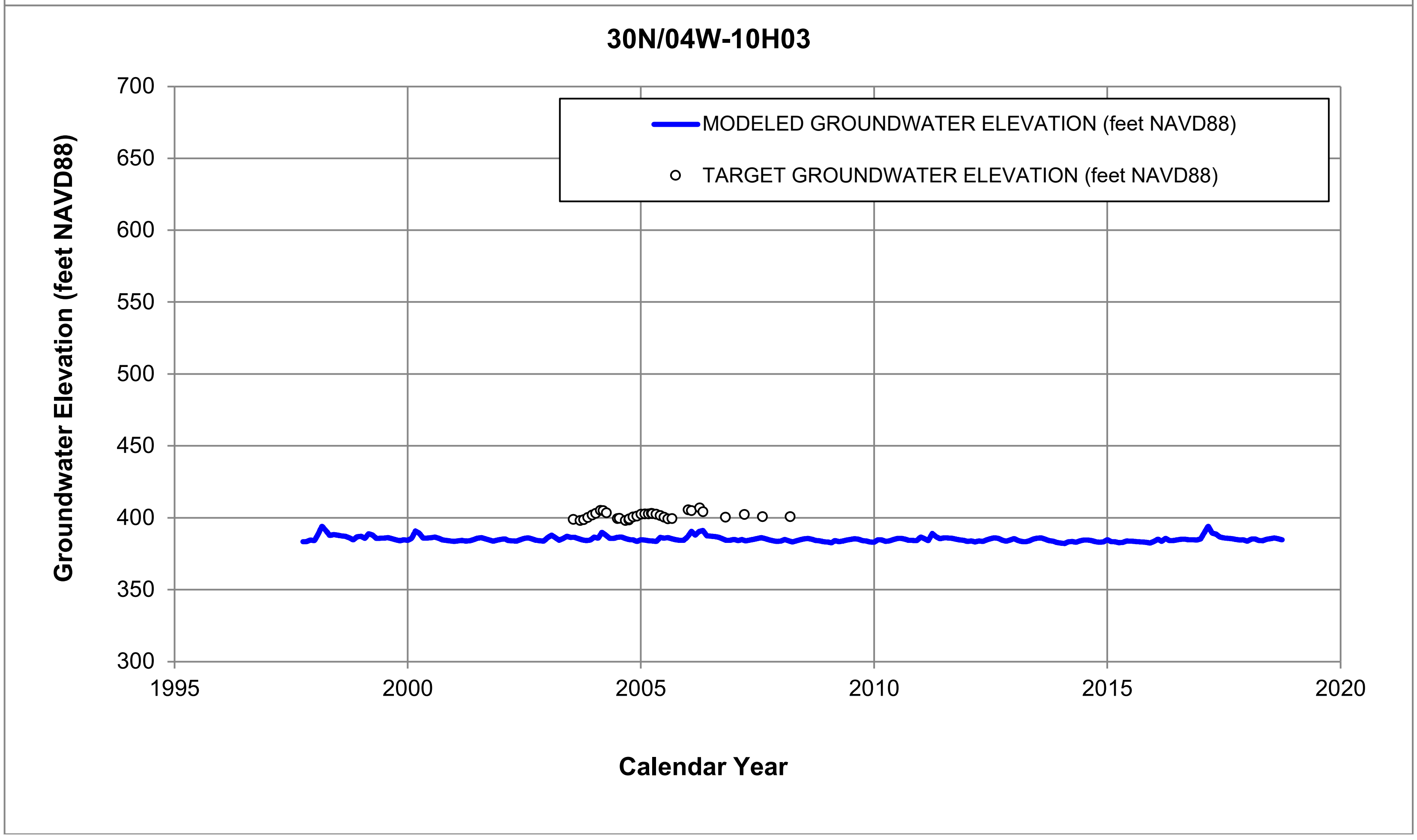
TARGET GROUNDWATER ELEVATION (feet NAVD88)
Groundwater Elevation (feet NAVD88)
Calendar Year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400
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300
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2010
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2020
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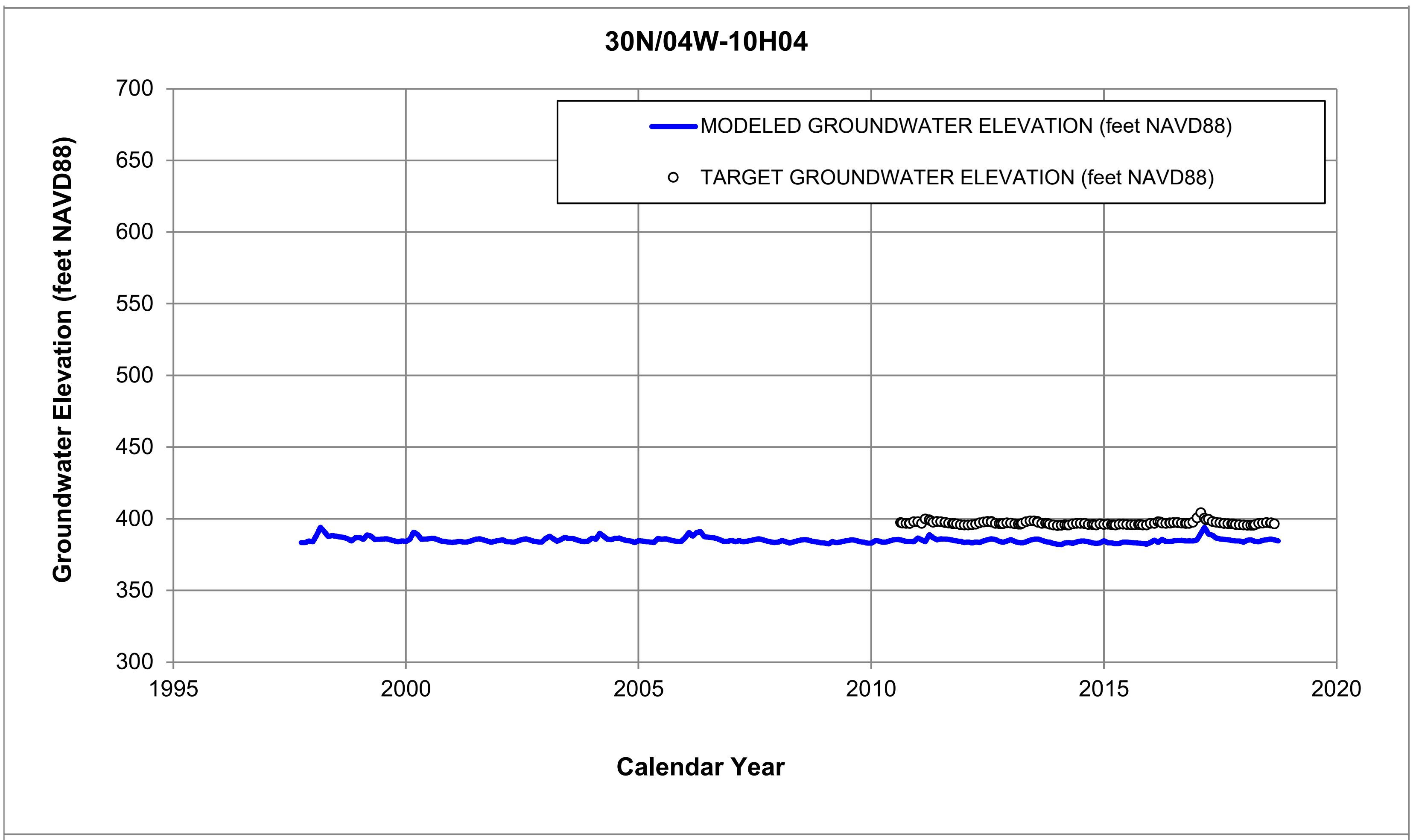
TARGET GROUNDWATER ELEVATION (feet NAVD88)
Groundwater Elevation (feet NAVD88)
Calendar Year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600
550
500
450
400
350
300
1995
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2005
2010
2015
2020
Calendar Year
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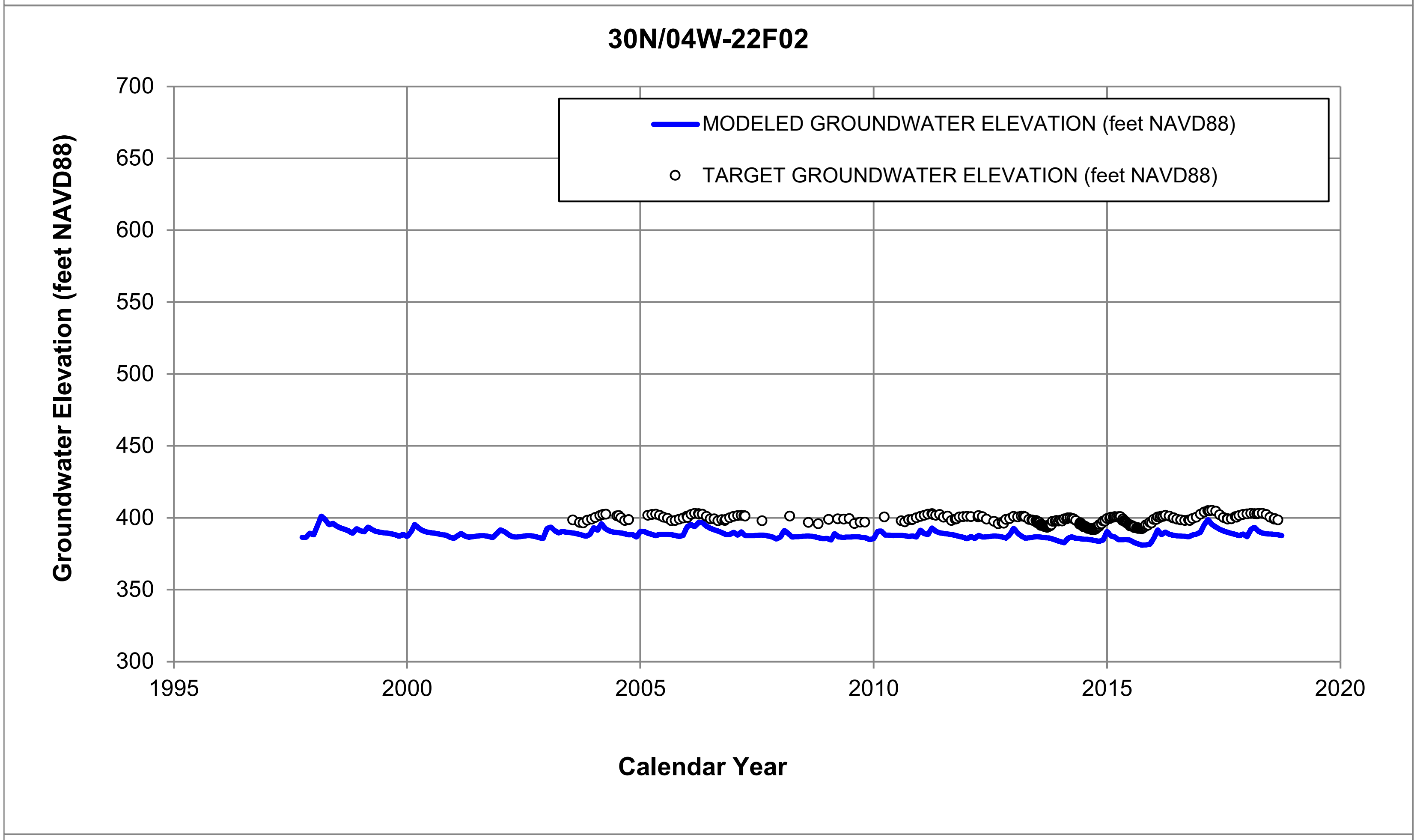
TARGET GROUNDWATER ELEVATION (feet NAVD88)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Groundwater Elevation (feet NAVD88)
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450
400
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1995
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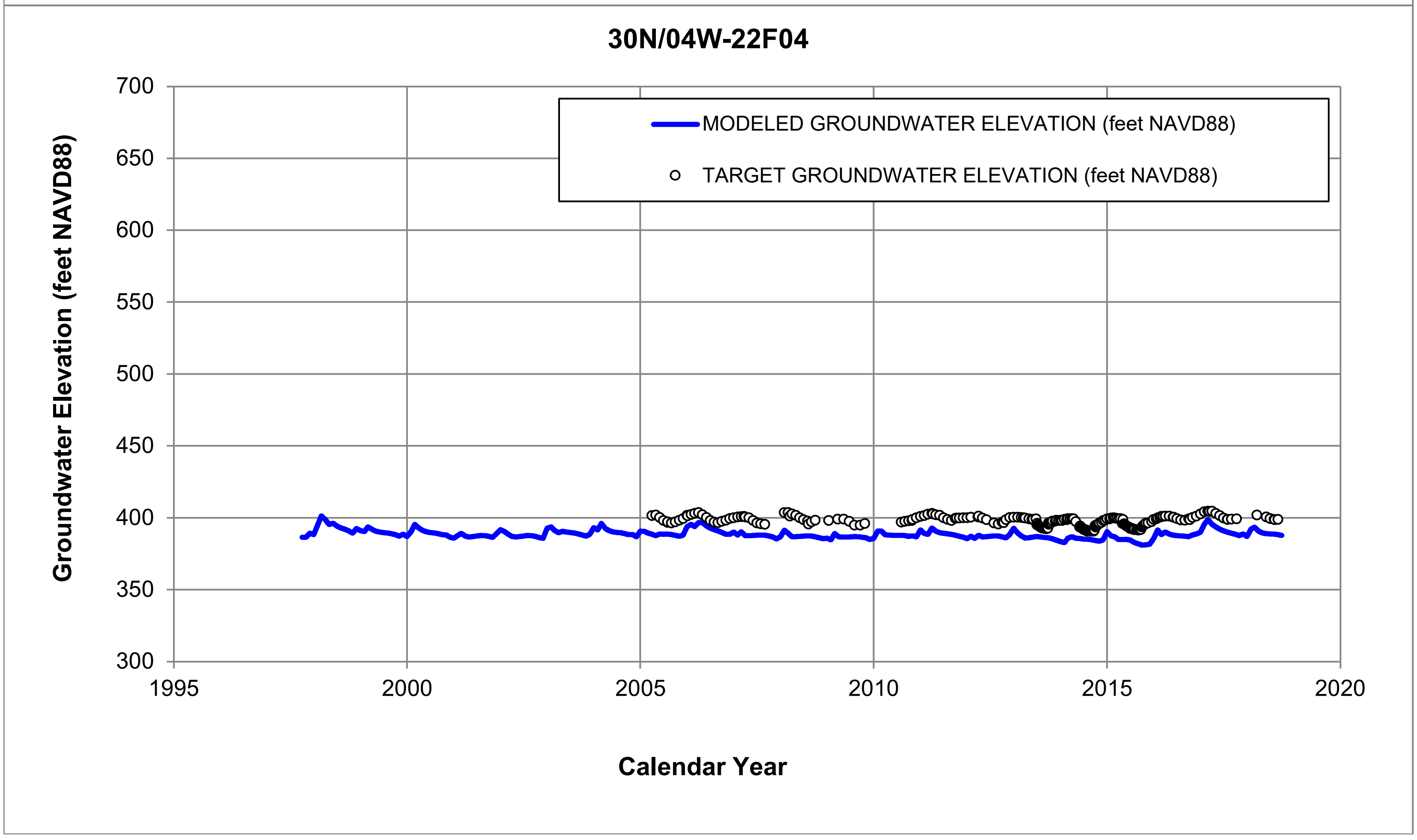
2005
2010
2015
2020
Calendar Year
MODELED GROUNDWATER ELEVATION (feet NAVD88)
TARGET GROUNDWATER ELEVATION (feet NAVD88)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Groundwater Elevation (feet NAVD88)
700
650
600
550
500
450
400
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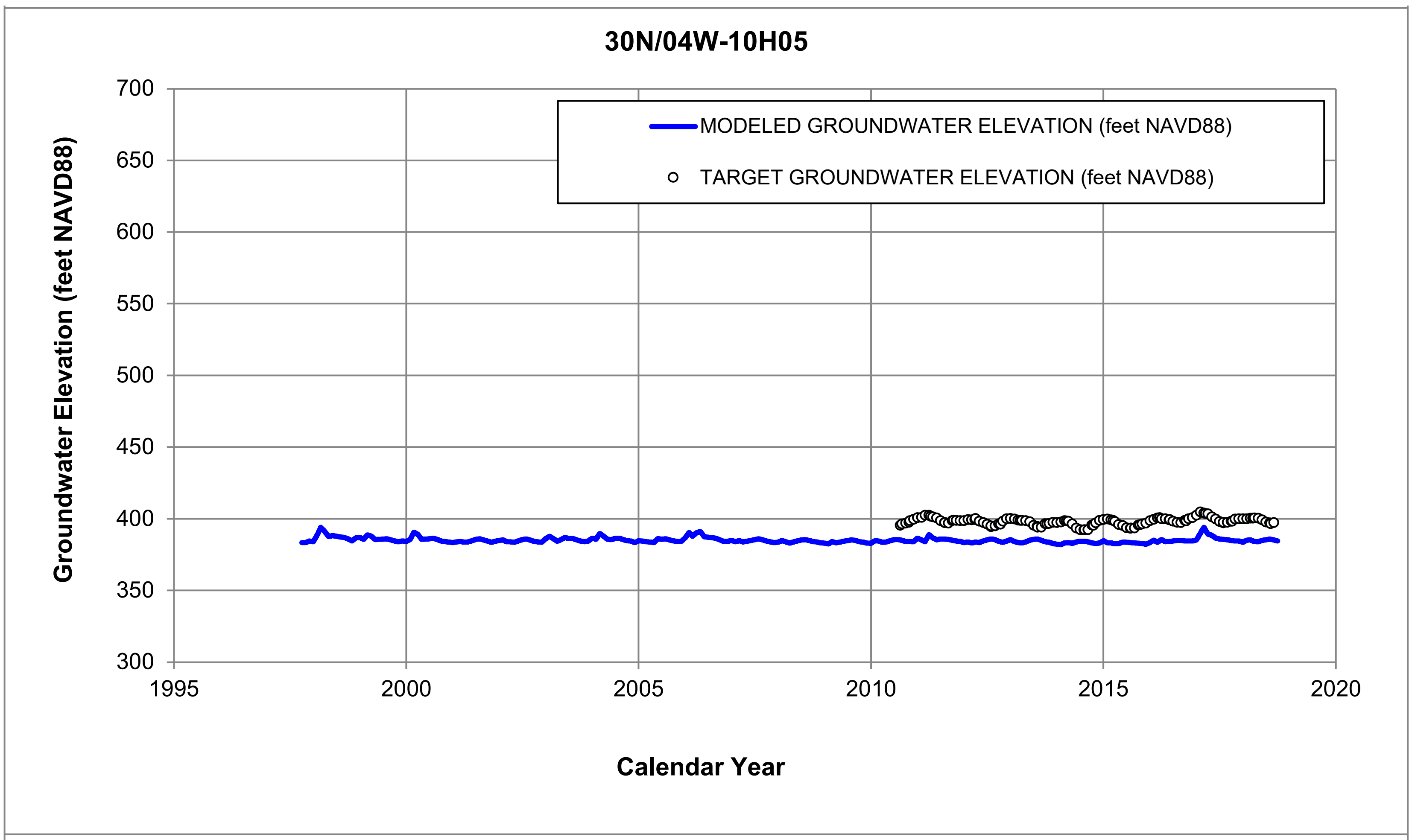
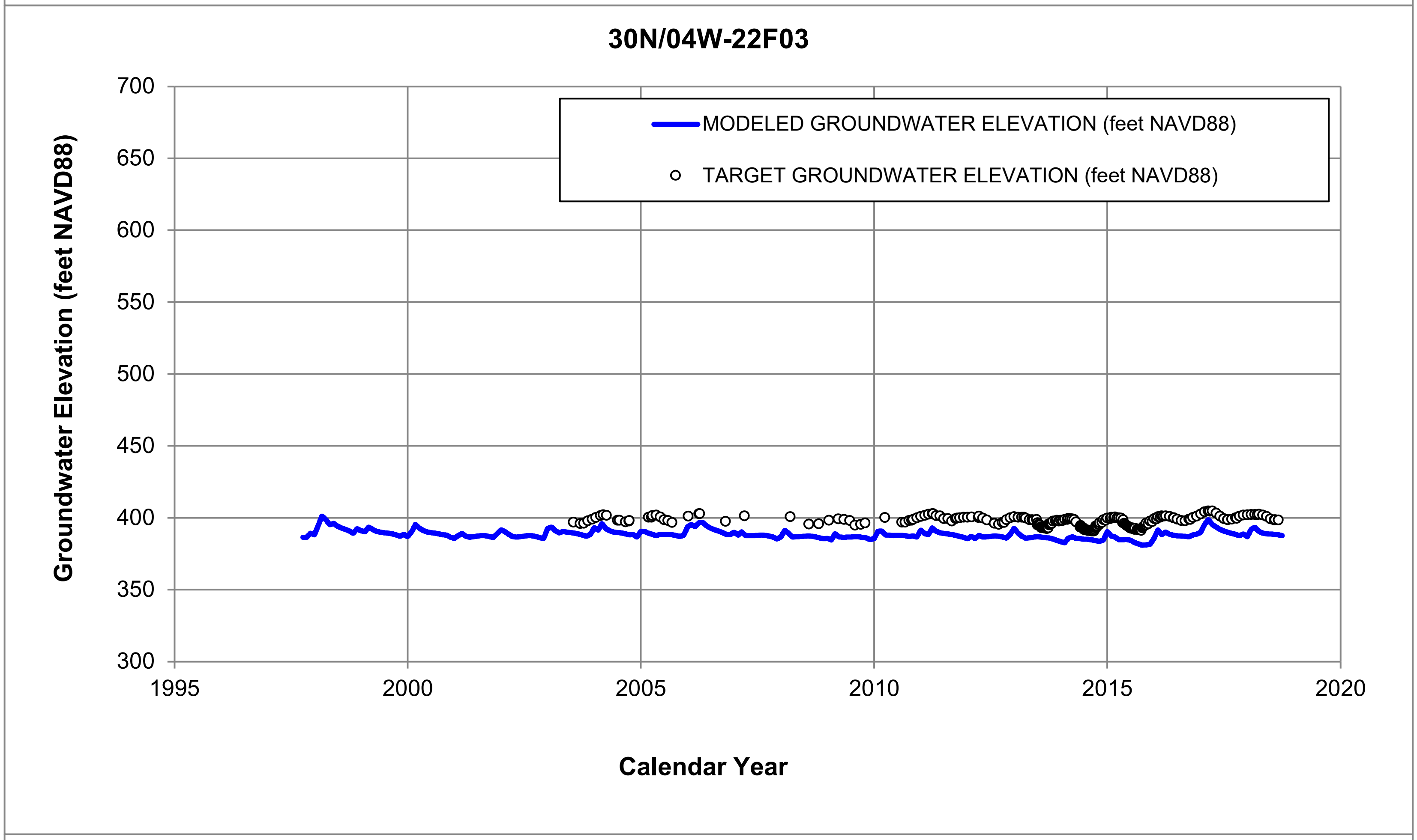
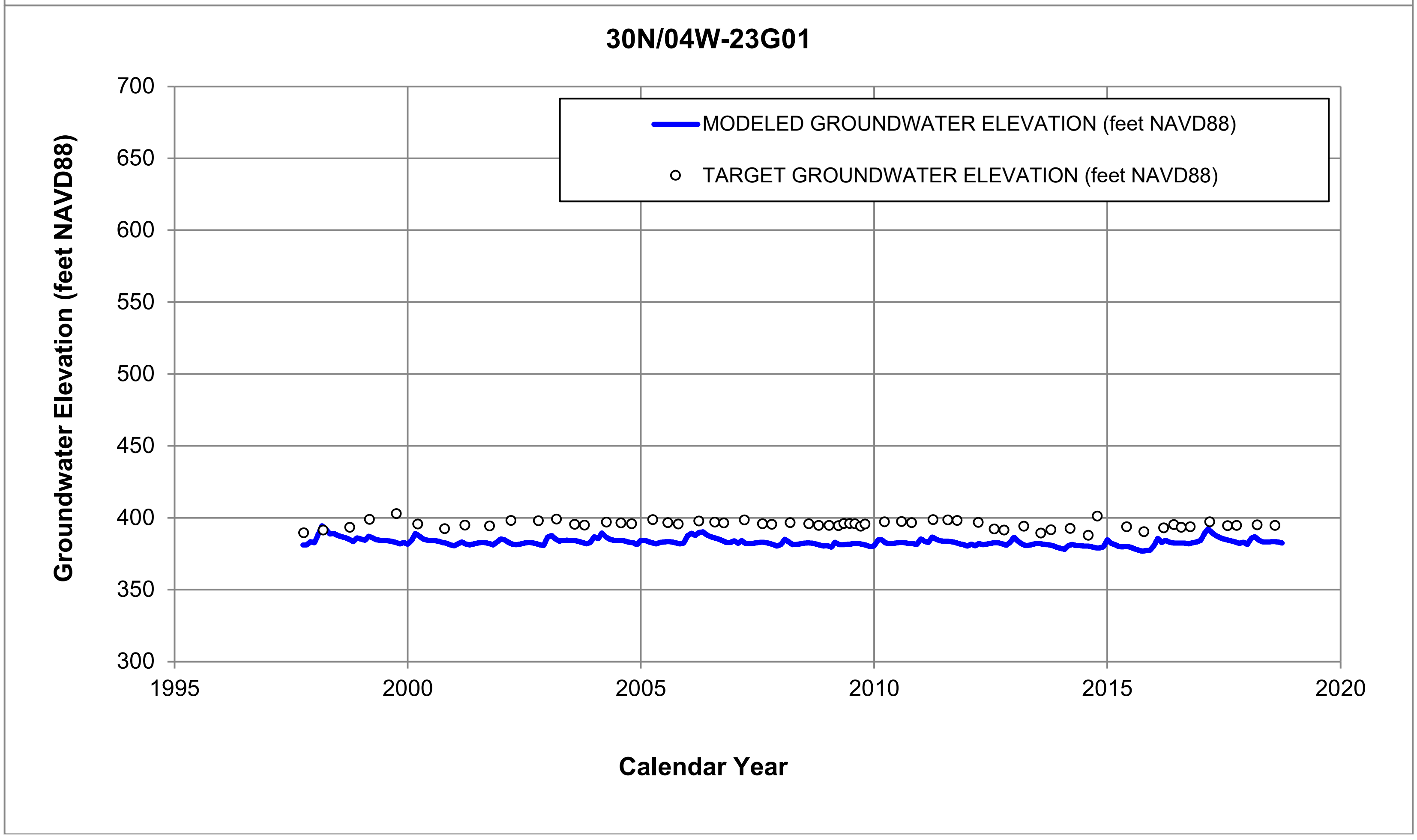
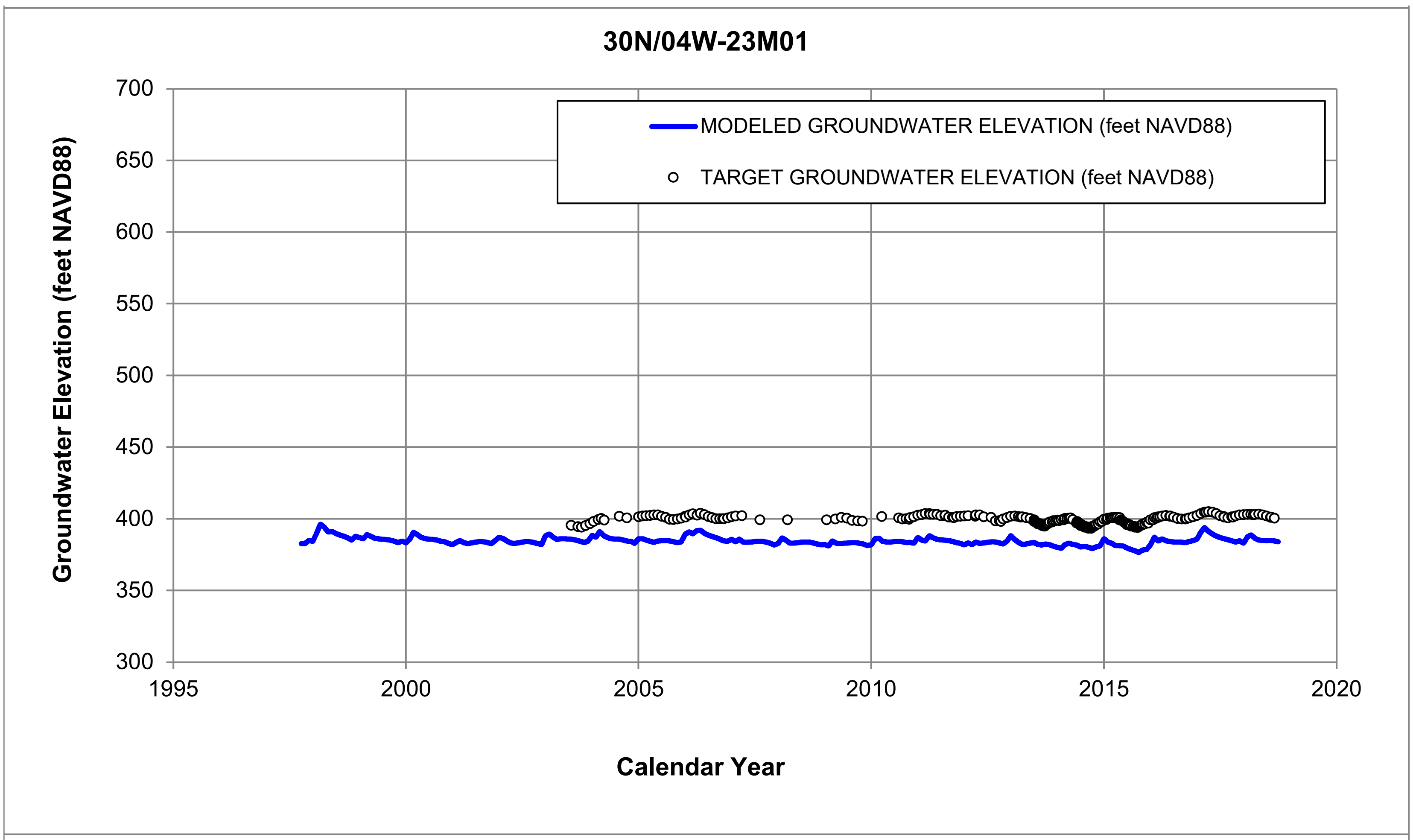
300
1995
2000
2005
2010
2015
2020
Calendar Year
MODELED GROUNDWATER ELEVATION (feet NAVD88)
TARGET GROUNDWATER ELEVATION (feet NAVD88)

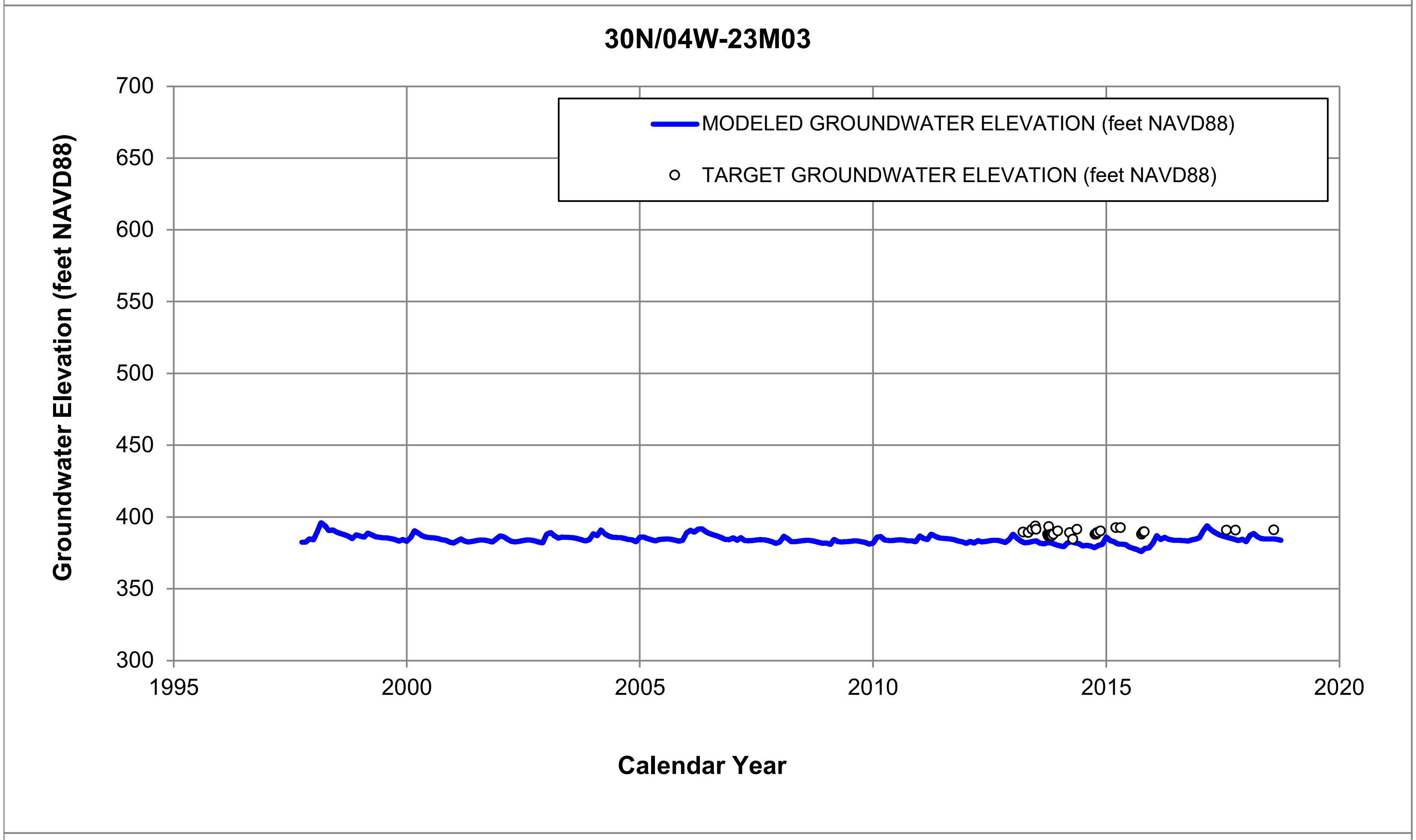


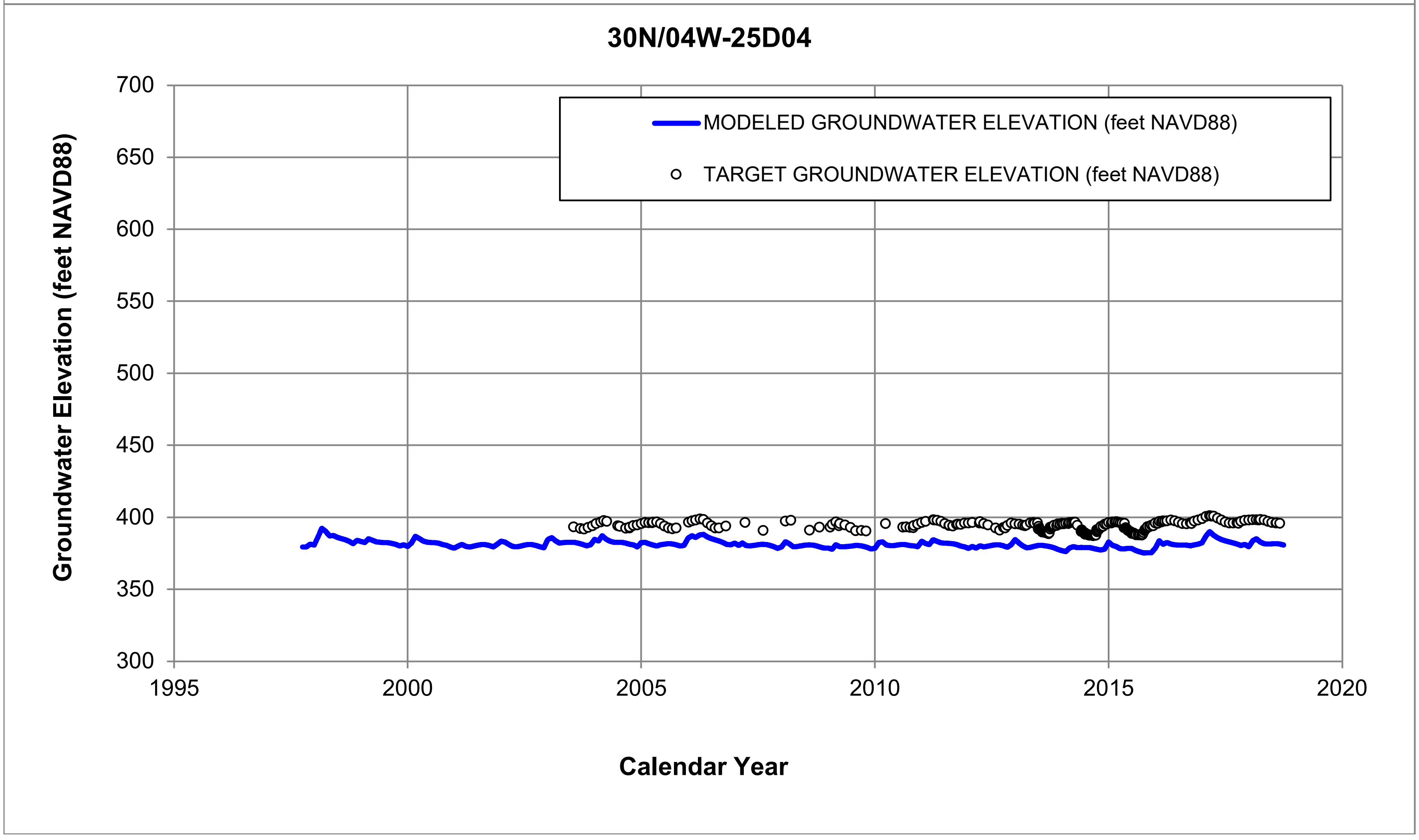




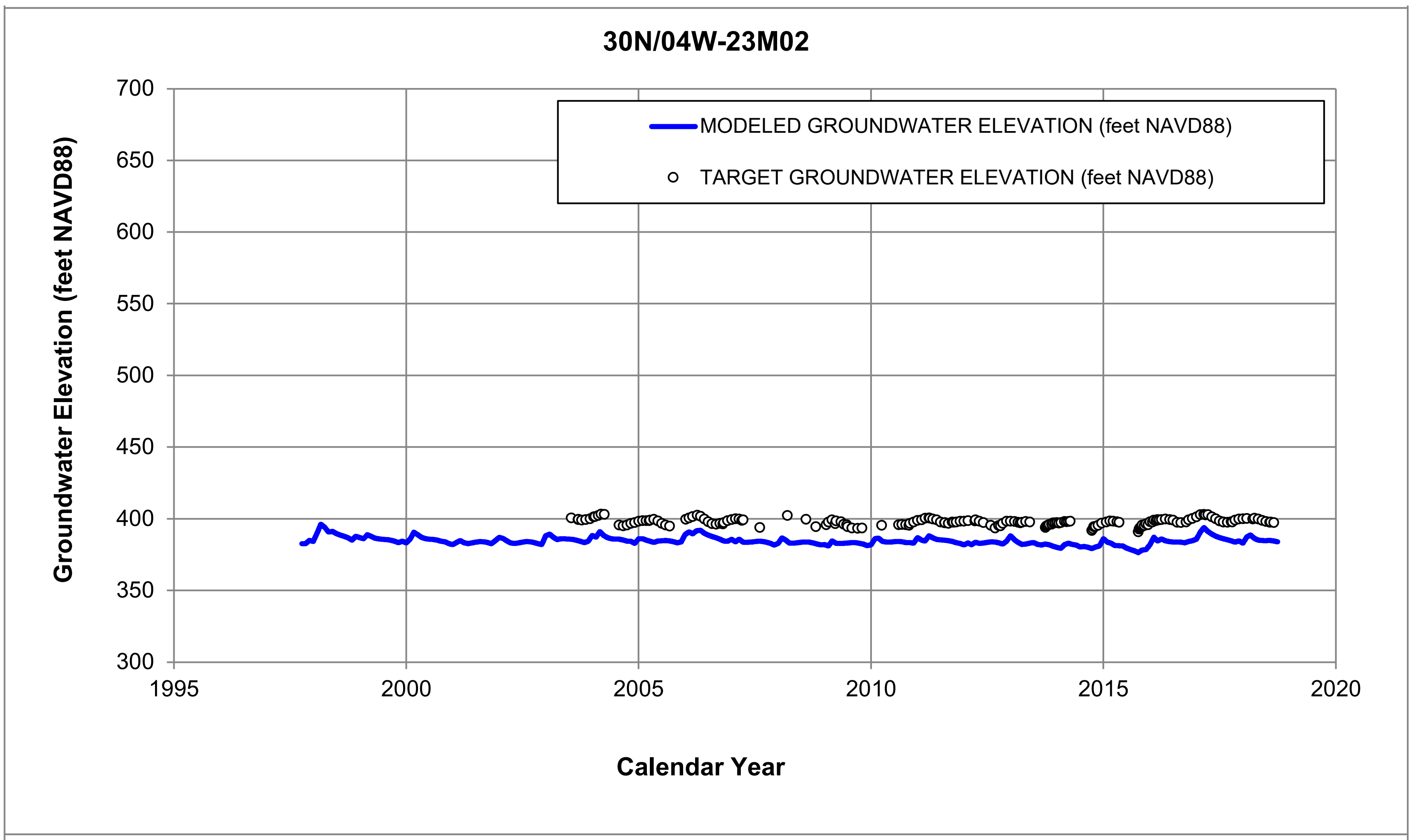
ATTACHMENT 1 (PAGE 18 OF 28)
MODELED VERSUS TARGET GROUNDWATER ELEVATION HYDROGRAPHS







ATTACHMENT 1 (PAGE 19 OF 28)
MODELED VERSUS TARGET GROUNDWATER ELEVATION HYDROGRAPHS
Numerical Flow Model Documentation
Redding Area Groundwater Basin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Groundwater Elevation (feet NAVD88)
700
650
600
550
500
450
400
350
300
1995
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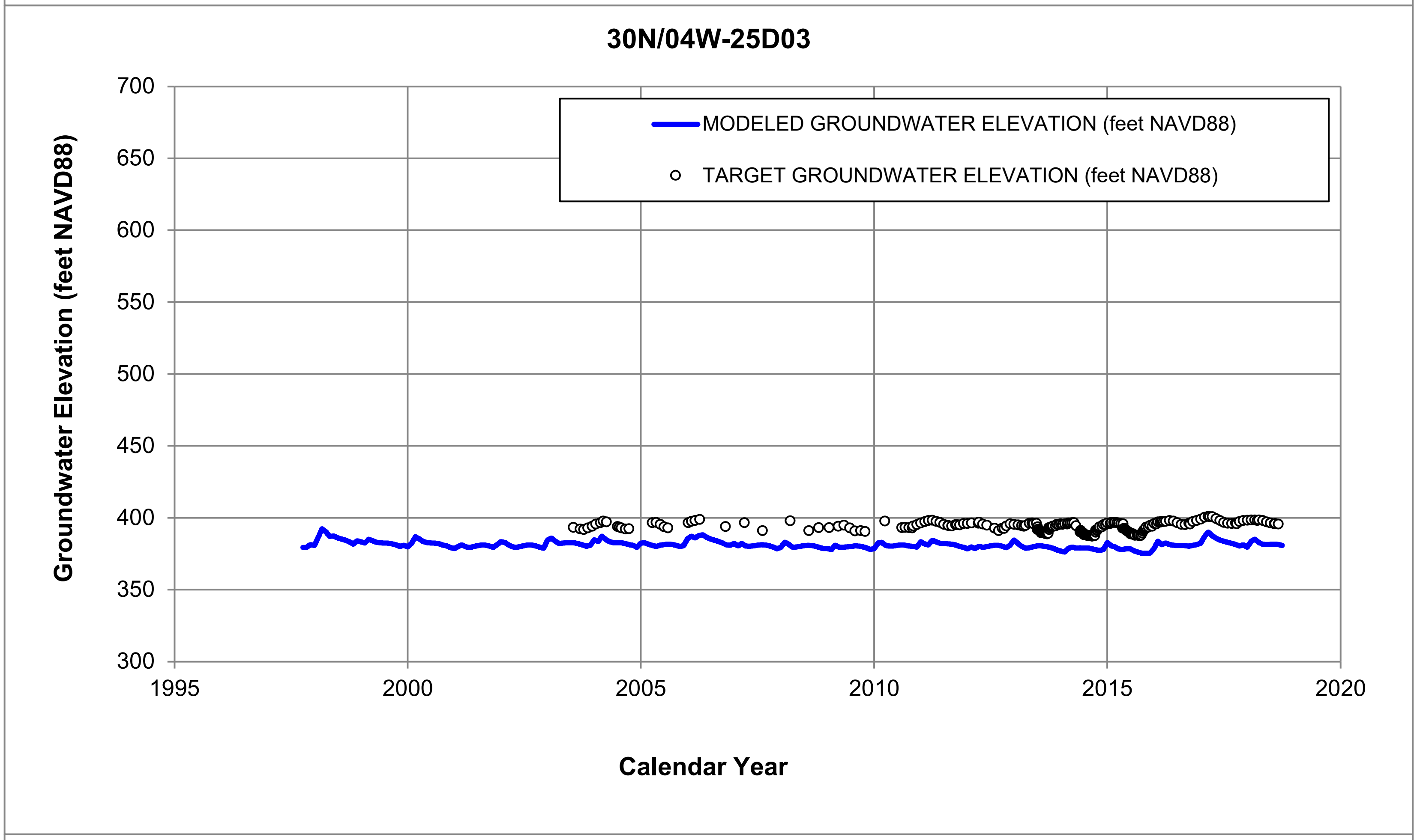
2005
2010
2015
2020
Calendar Year
MODELED GROUNDWATER ELEVATION (feet NAVD88)
TARGET GROUNDWATER ELEVATION (feet NAVD88)


30N/04W-25D03
Groundwater Elevation (feet NAVD88)
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650
600
550
500
450
400
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1995
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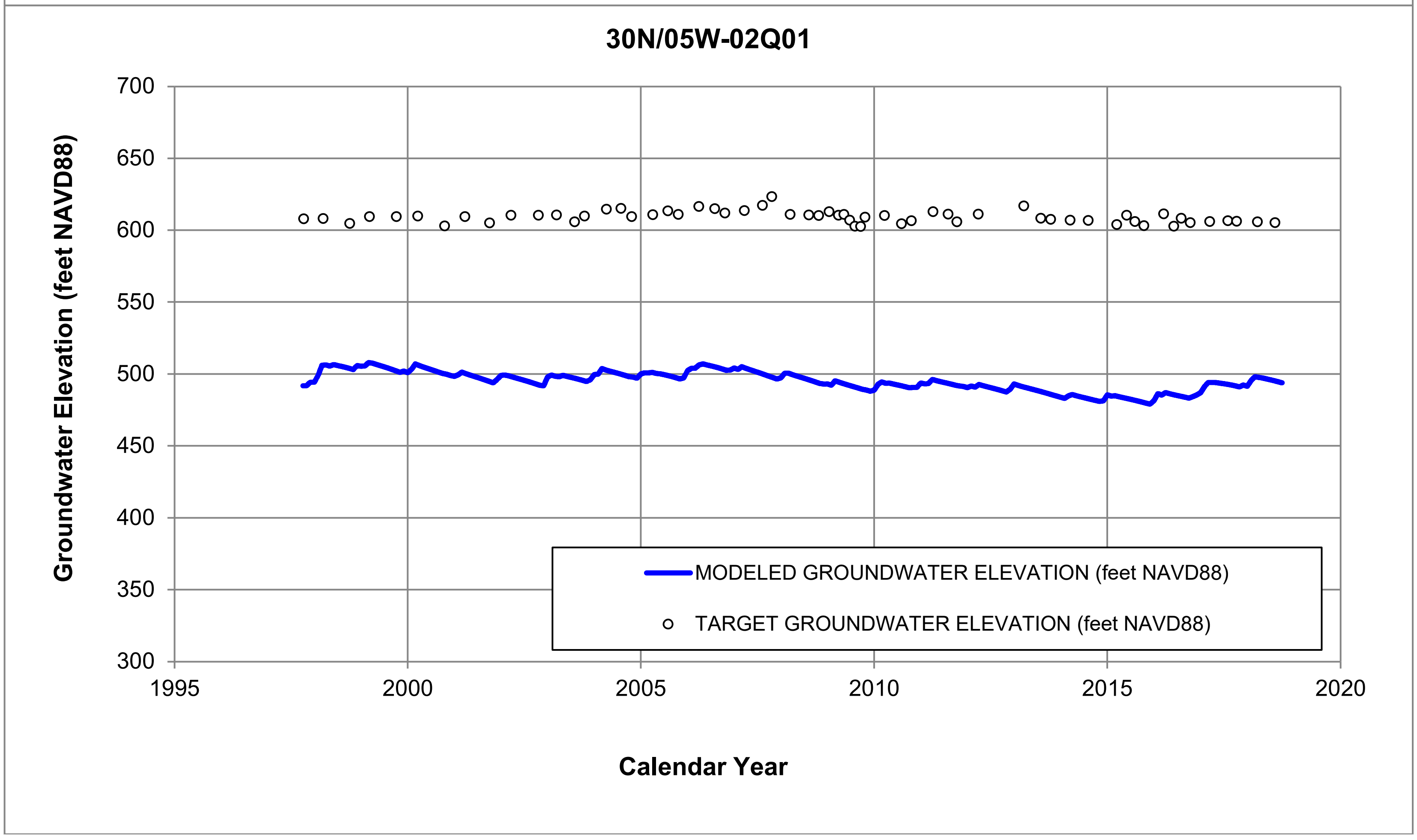
2005
2010
2015
2020
Calendar Year
MODELED GROUNDWATER ELEVATION (feet NAVD88)
TARGET GROUNDWATER ELEVATION (feet NAVD88)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Groundwater Elevation (feet NAVD88)
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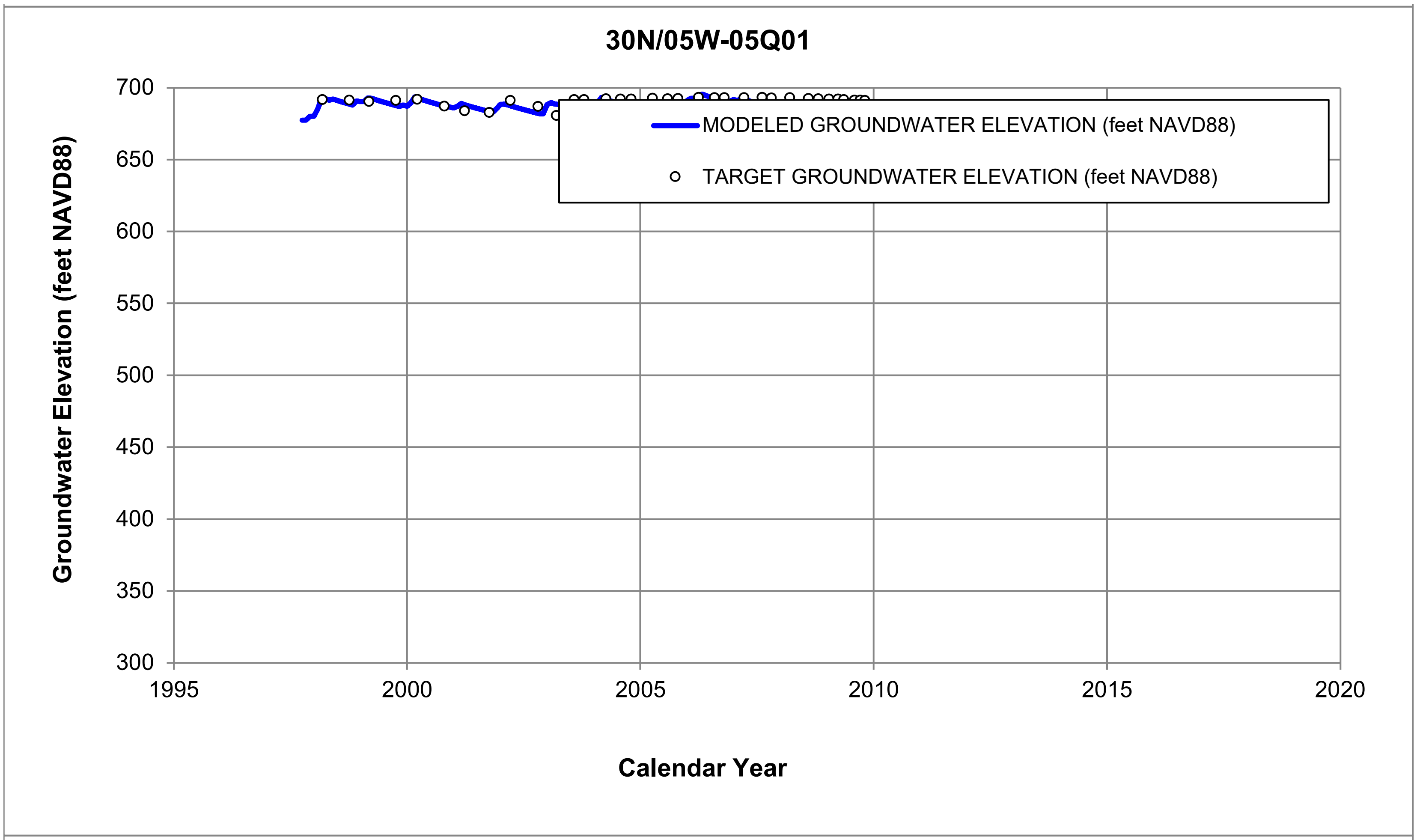
650
600
550
500
450
400
350
300
1995
2000
2005
2010
2015
2020
Calendar Year
MODELED GROUNDWATER ELEVATION (feet NAVD88)
TARGET GROUNDWATER ELEVATION (feet NAVD88)



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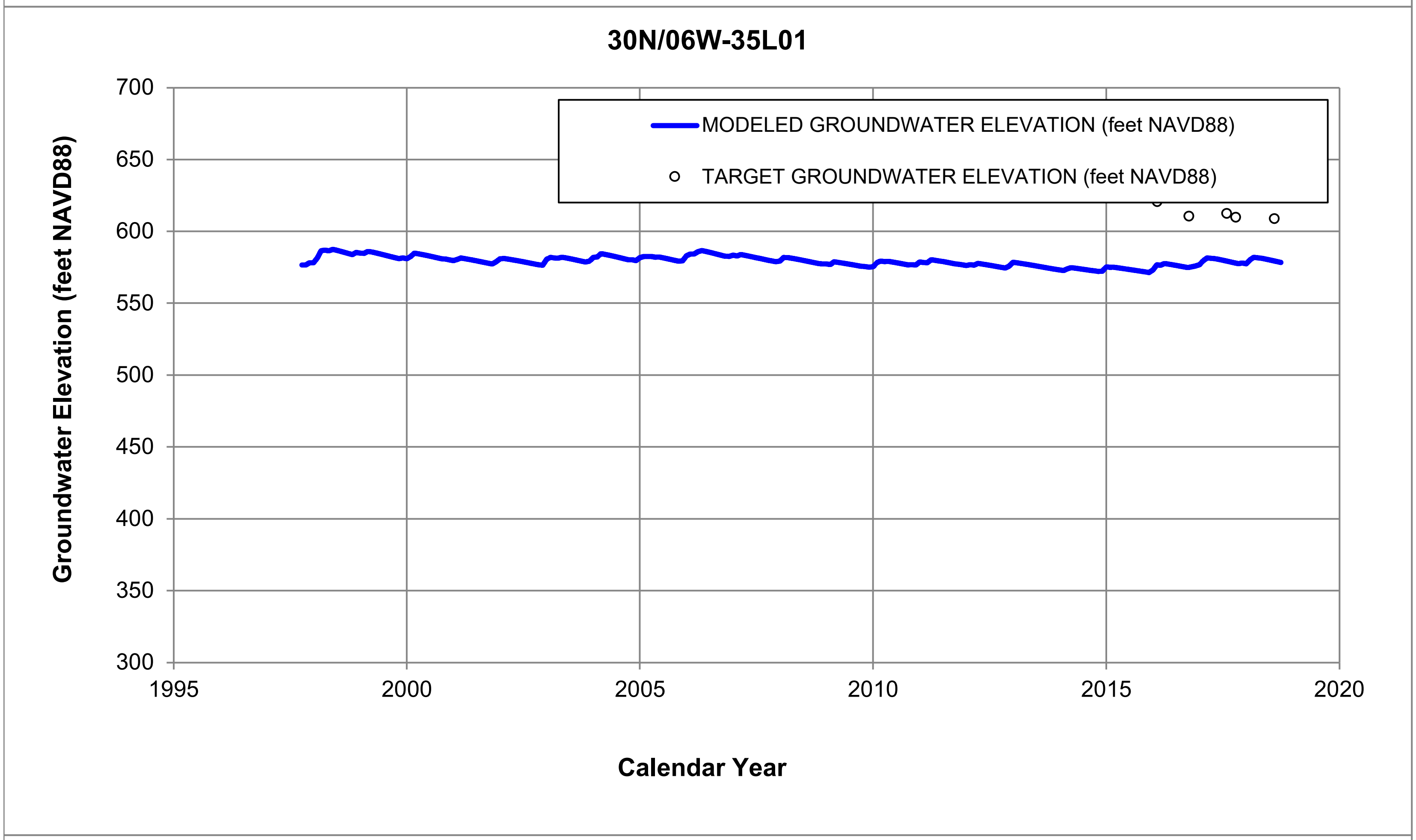

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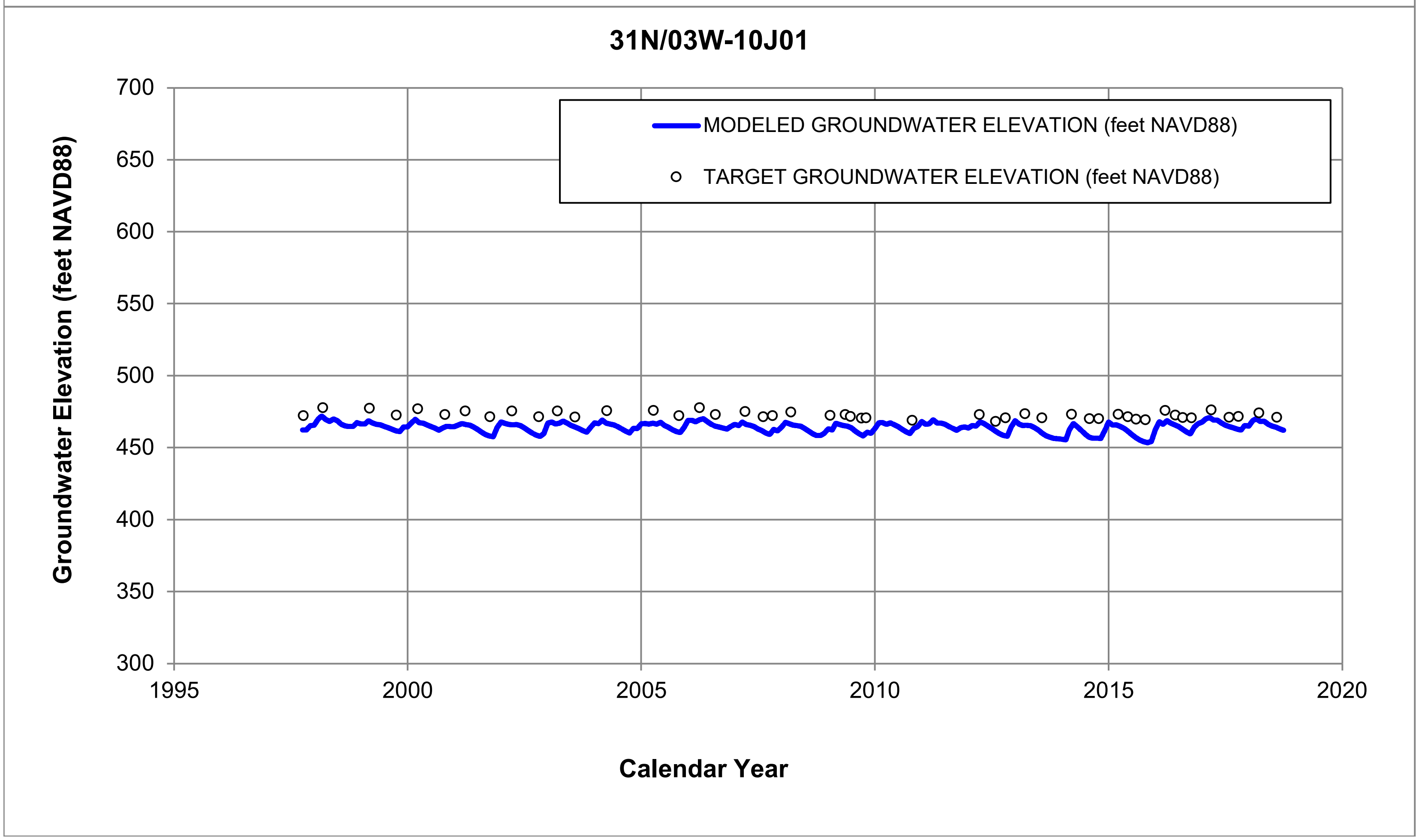
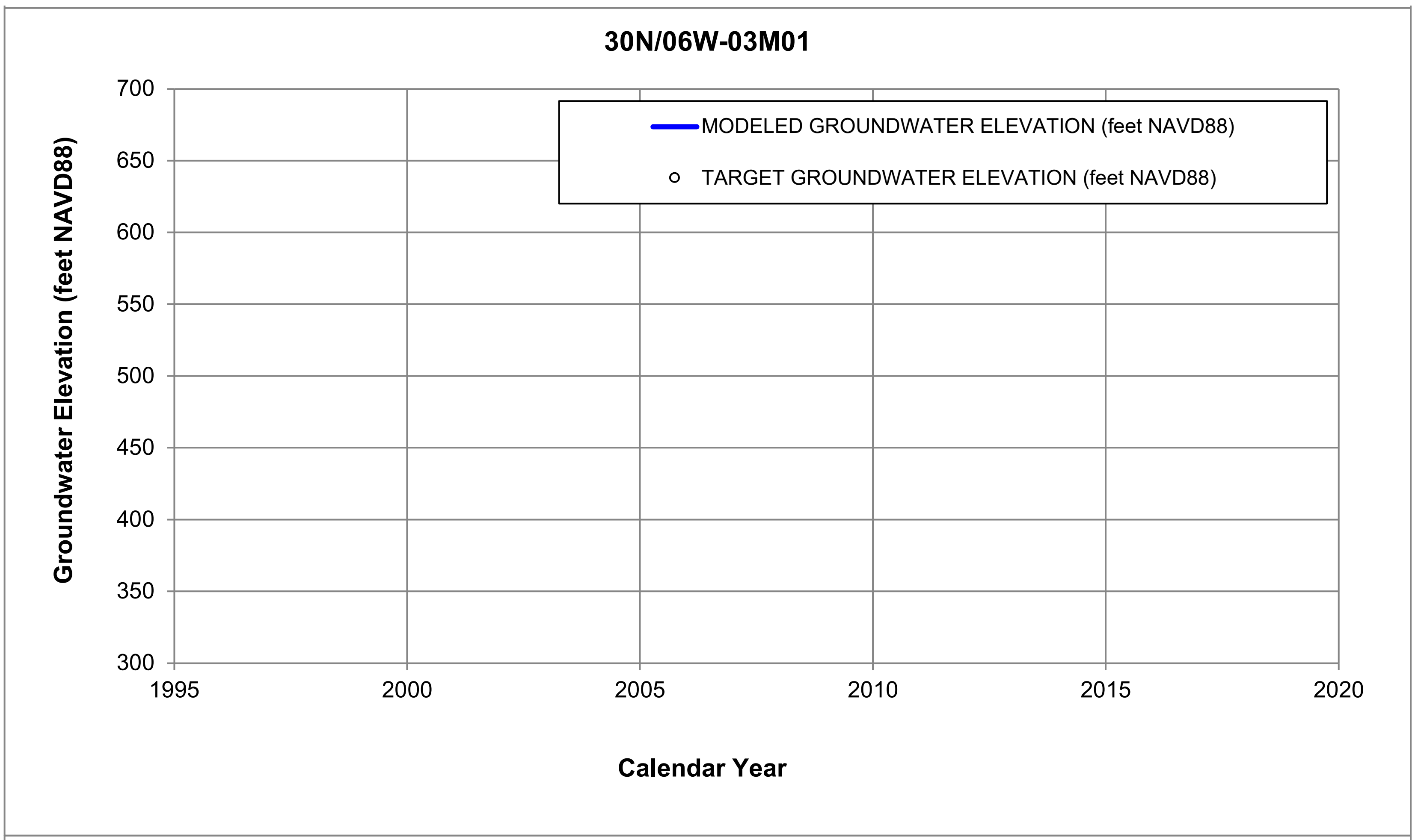
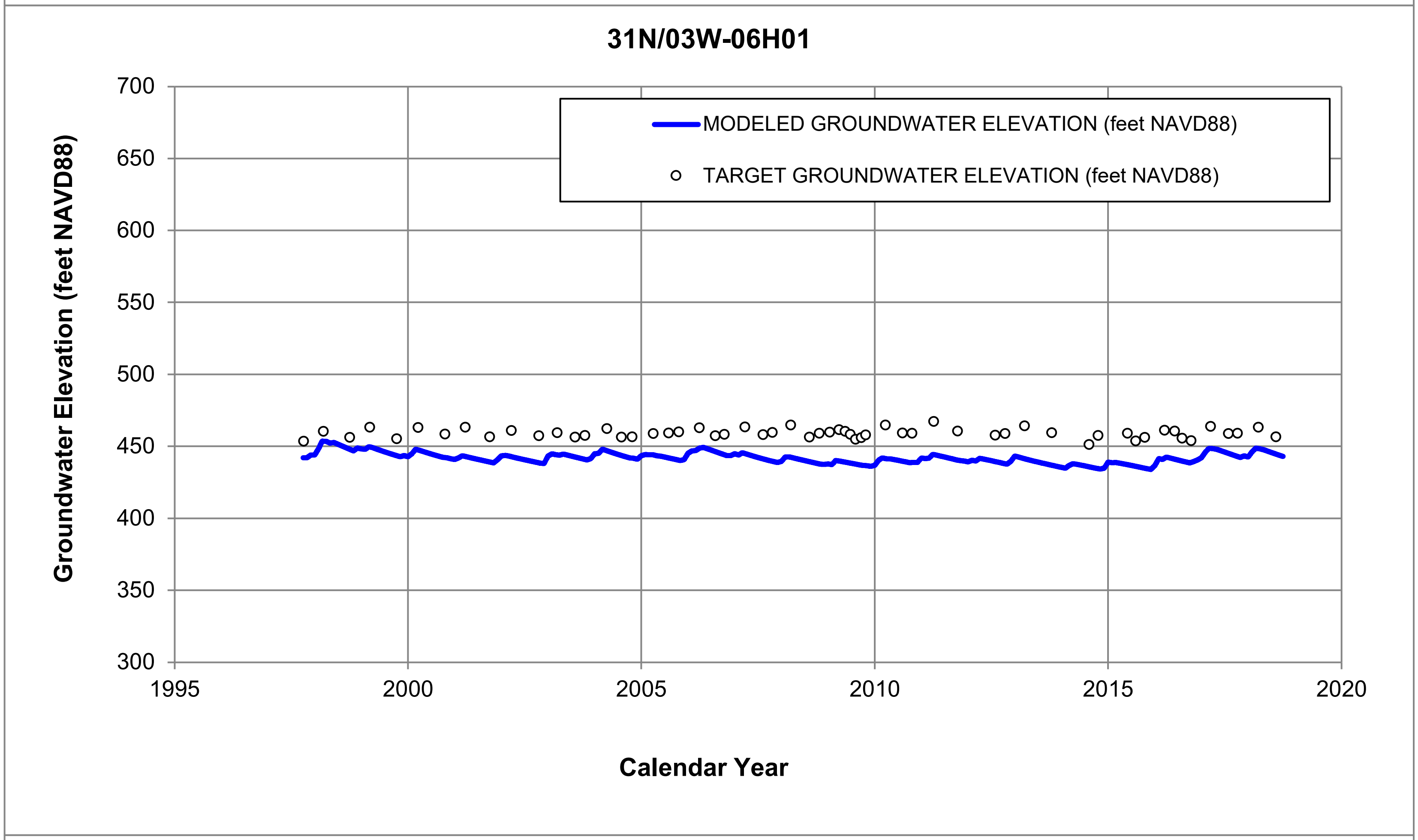
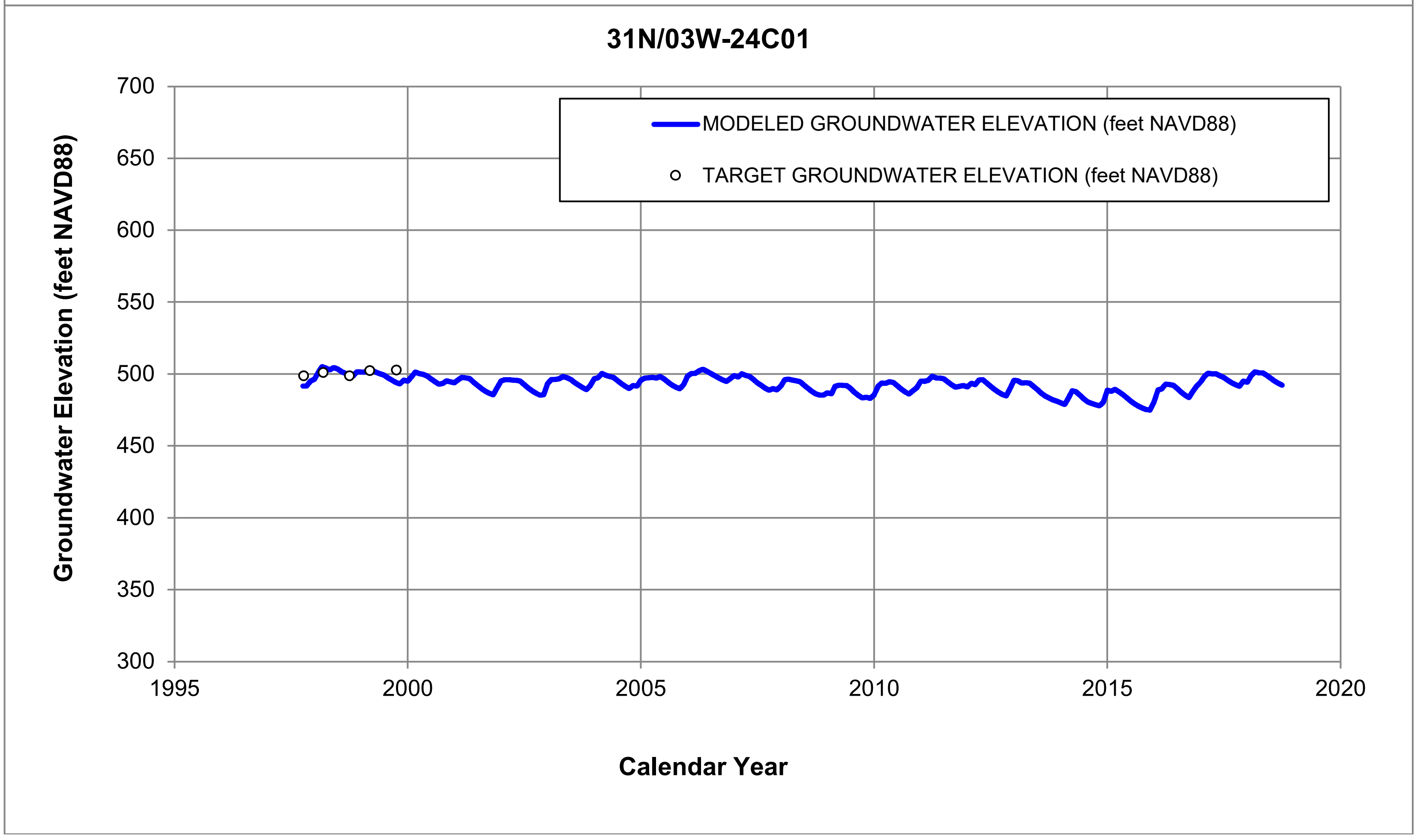


31N/03W-10J01





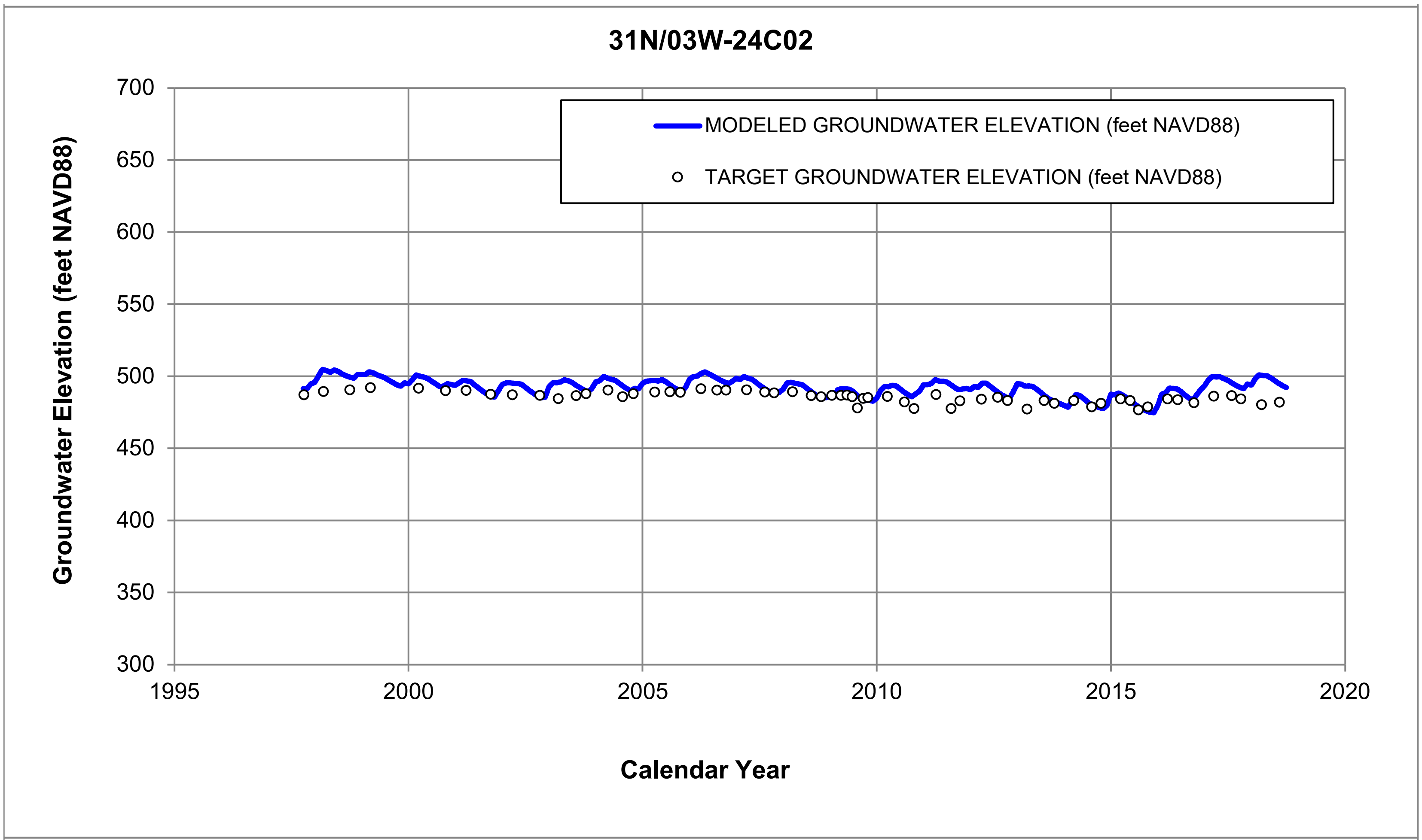


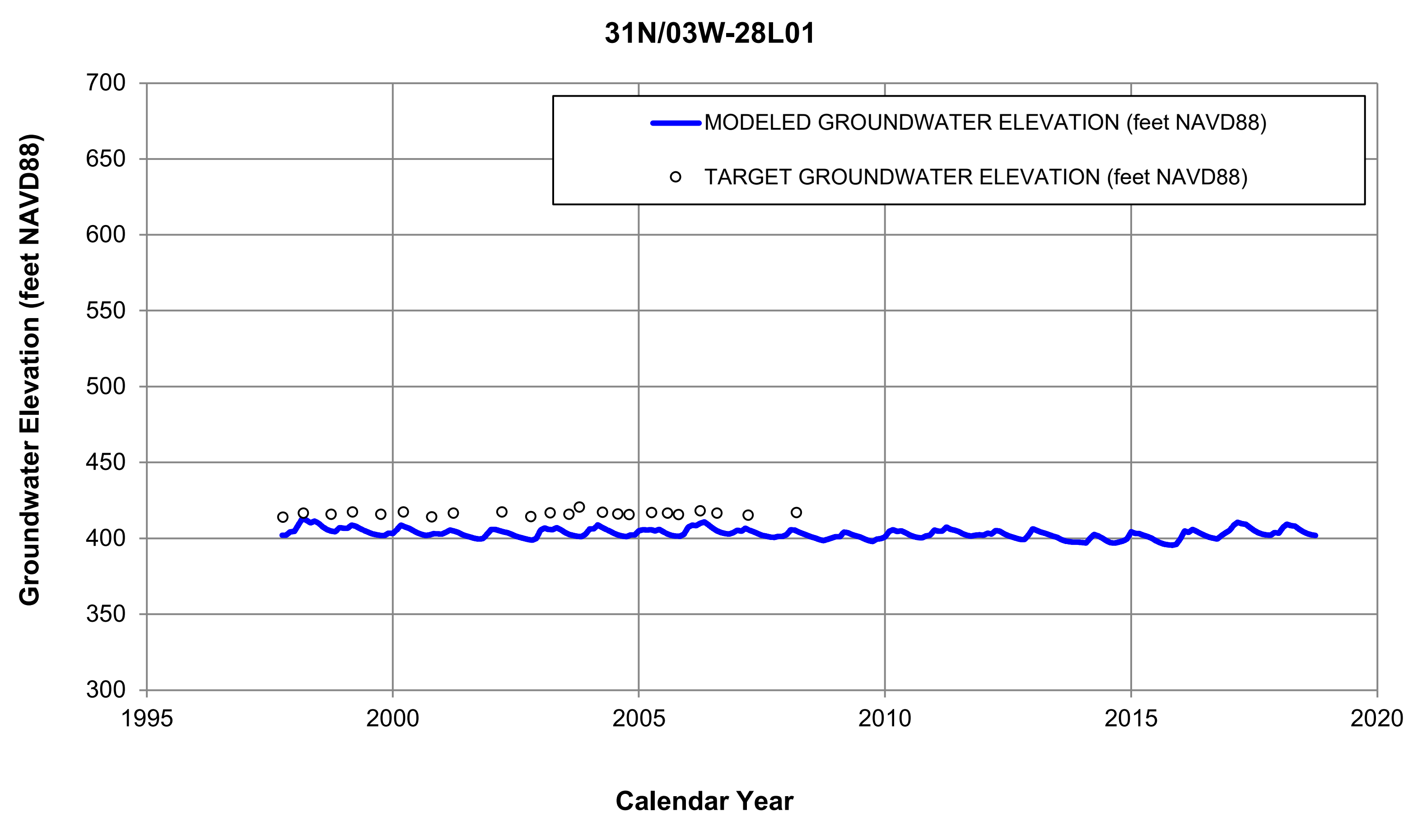
ATTACHMENT 1 (PAGE 22 OF 28)

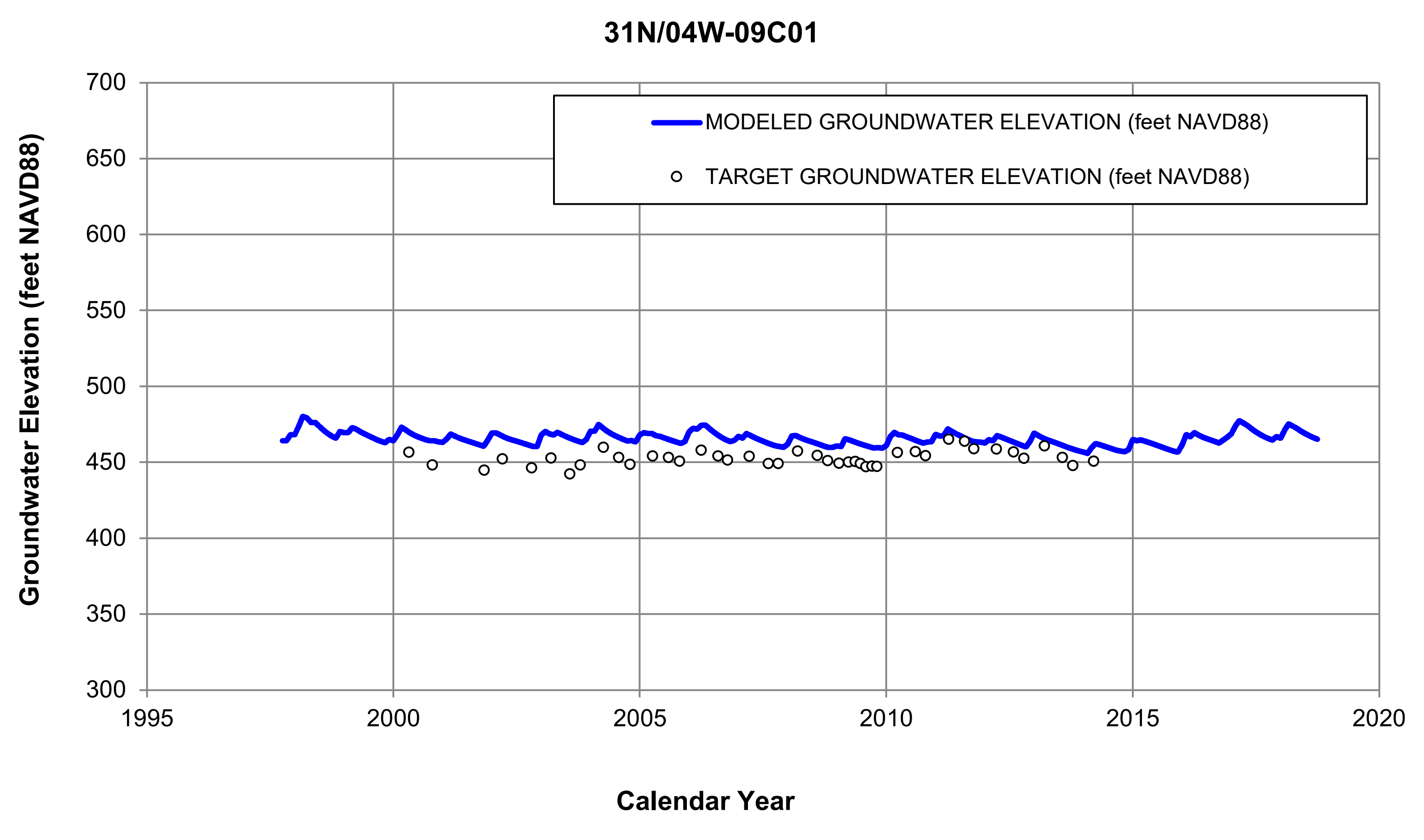
MODELED VERSUS TARGET GROUNDWATER ELEVATION HYDROGRAPHS

Numerical Flow Model Documentation

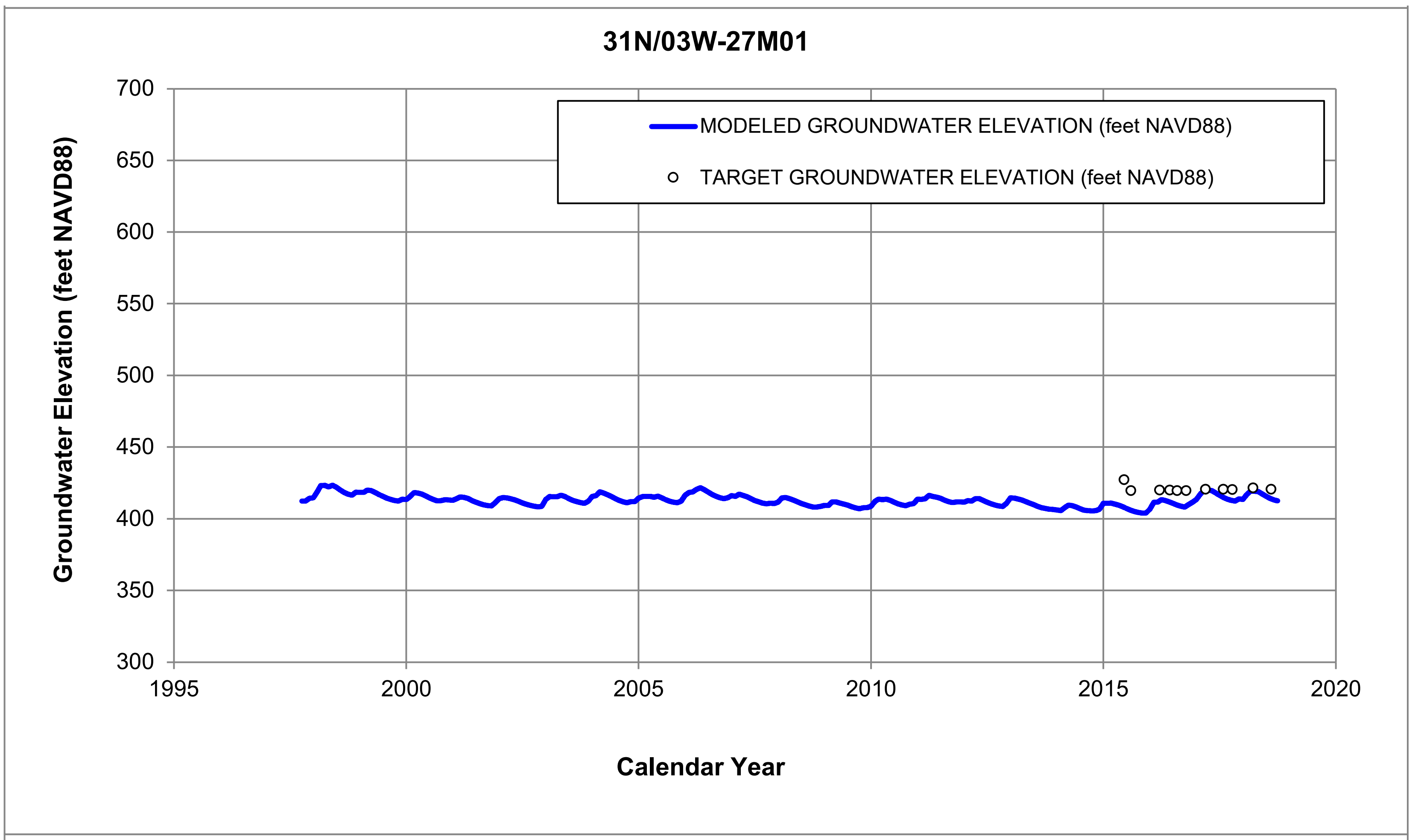
Redding Area Groundwater Basin

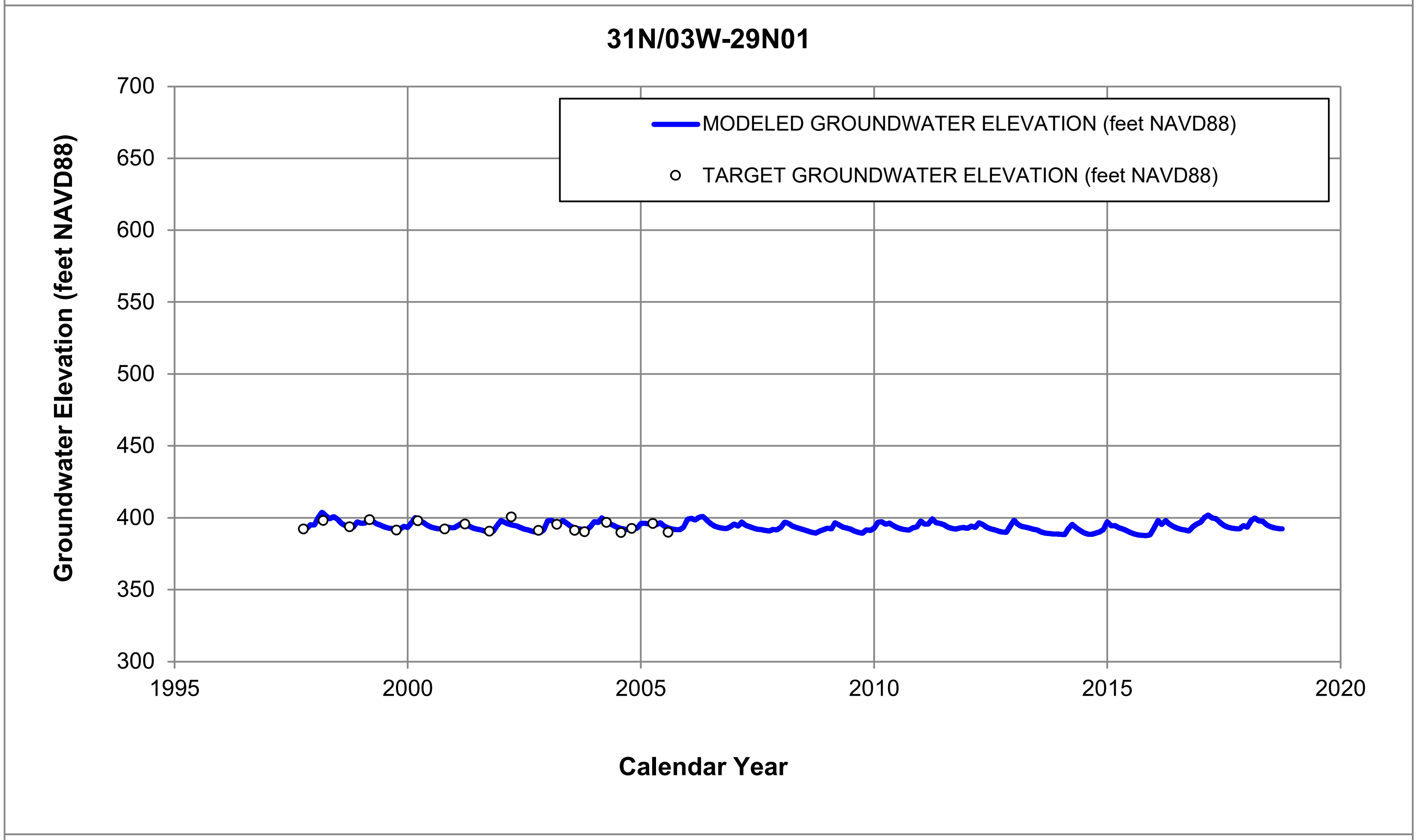


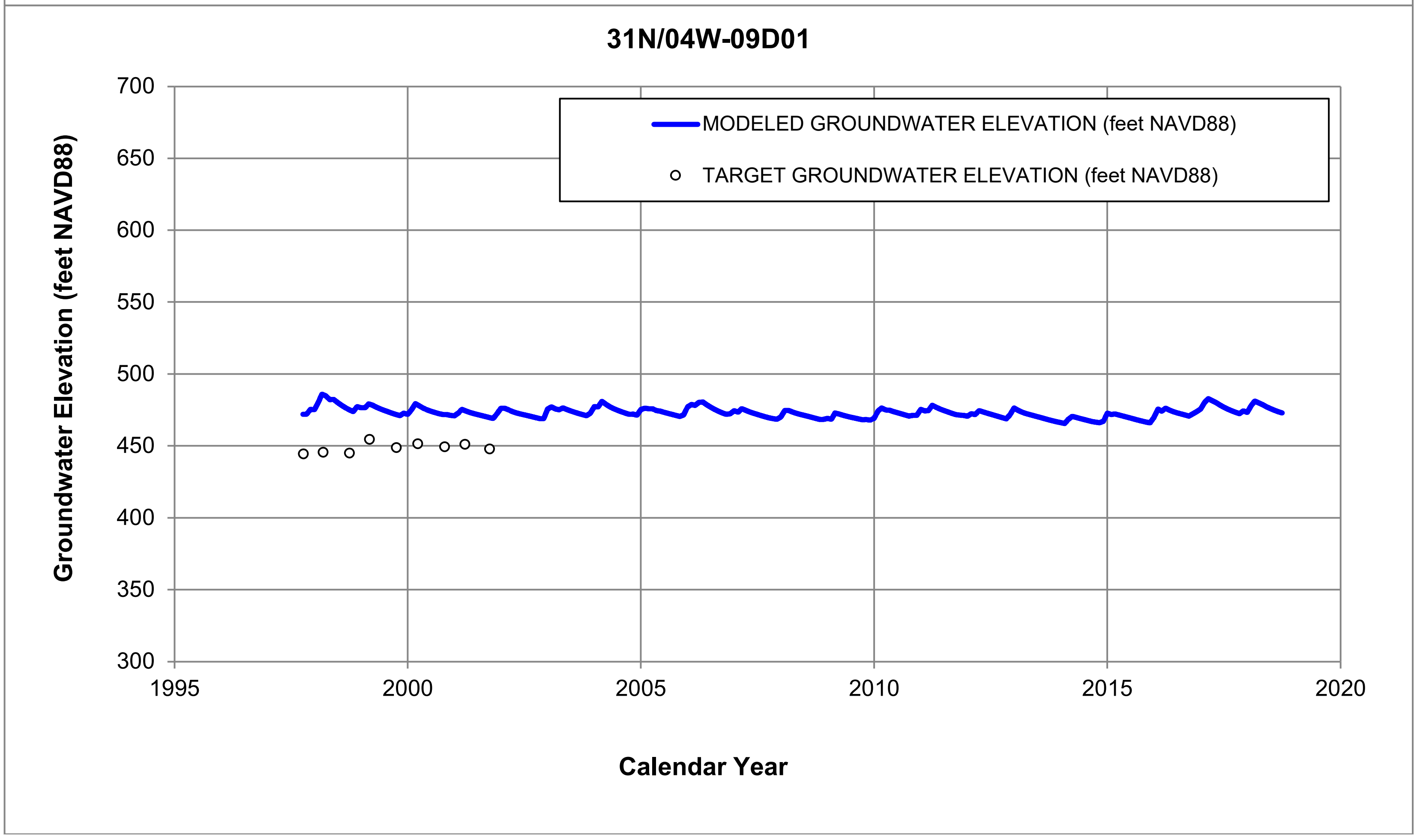




ATTACHMENT 1 (PAGE 23 OF 28)
MODELED VERSUS TARGET GROUNDWATER ELEVATION HYDROGRAPHS
Numerical Flow Model Documentation
Redding Area Groundwater Basin

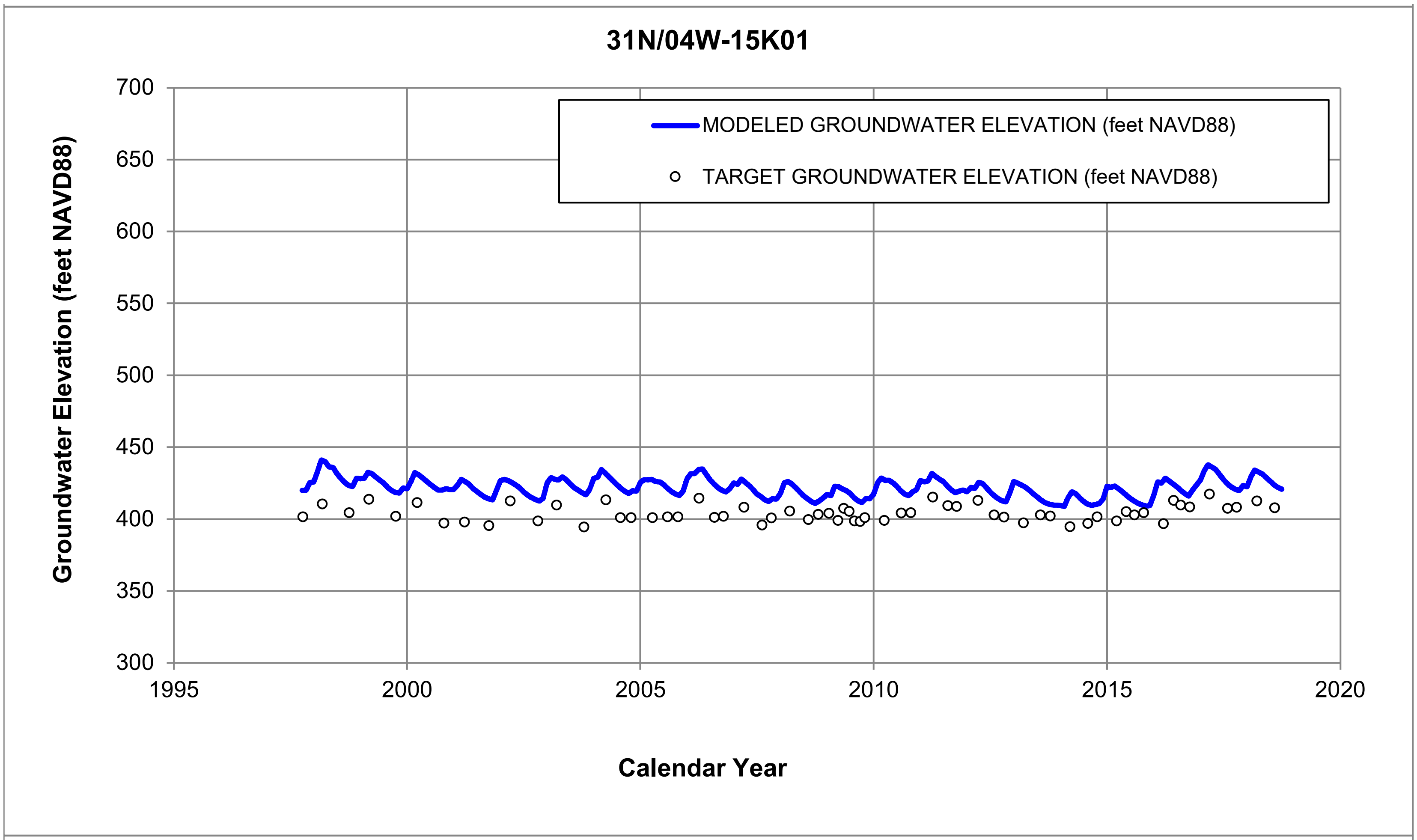






ATTACHMENT 1 (PAGE 24 OF 28)
MODELED VERSUS TARGET GROUNDWATER ELEVATION HYDROGRAPHS

31N/04W-15K01



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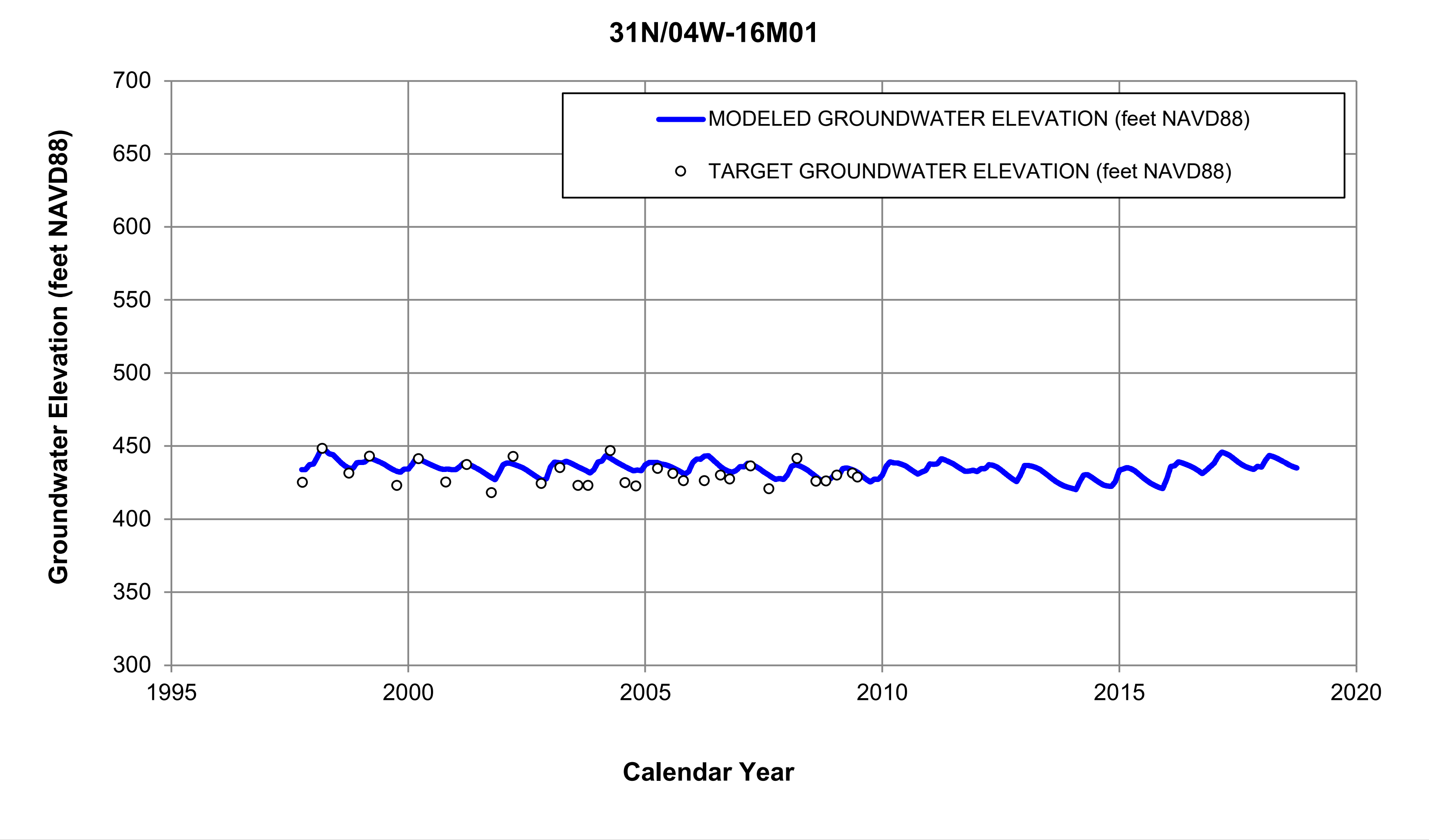
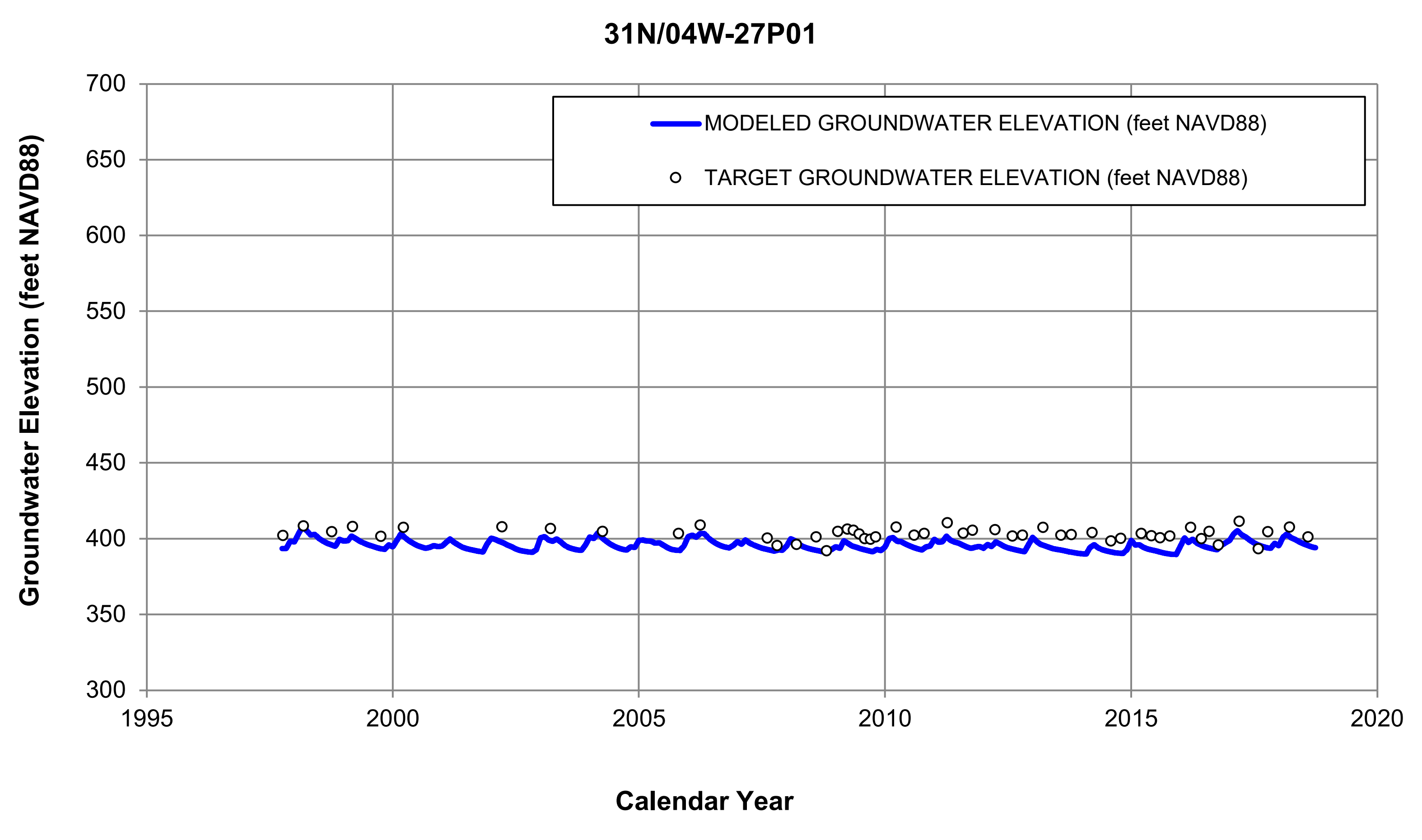
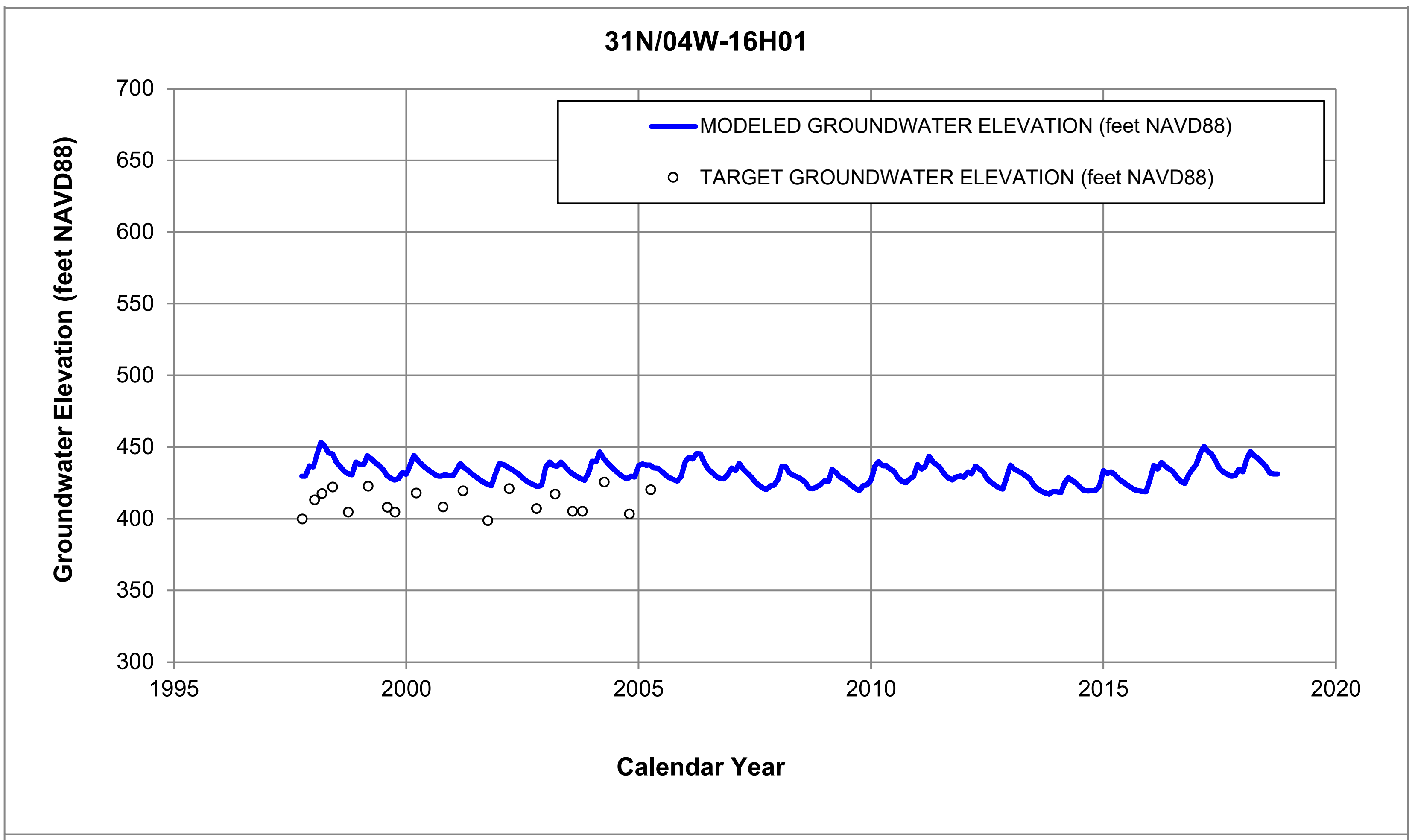
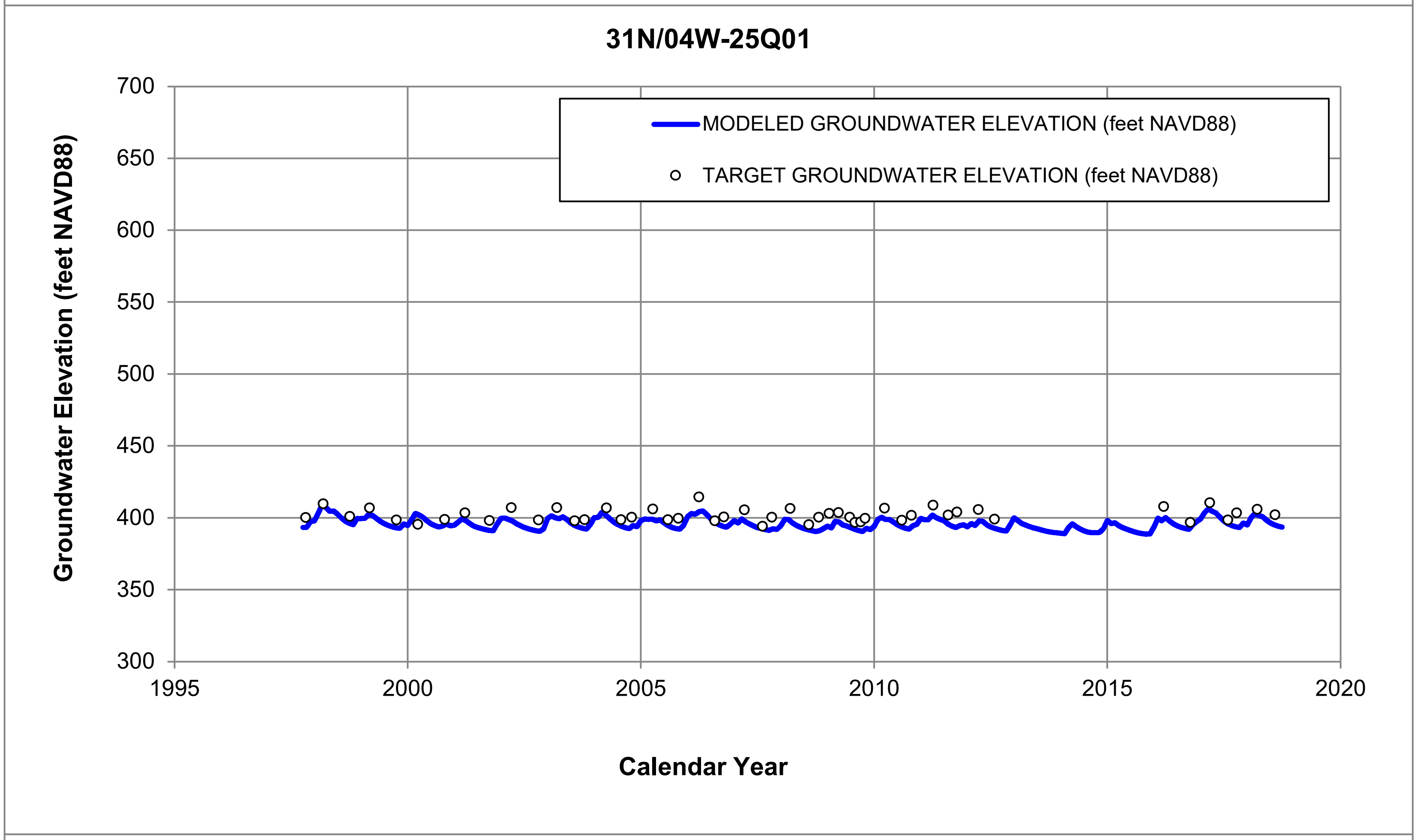


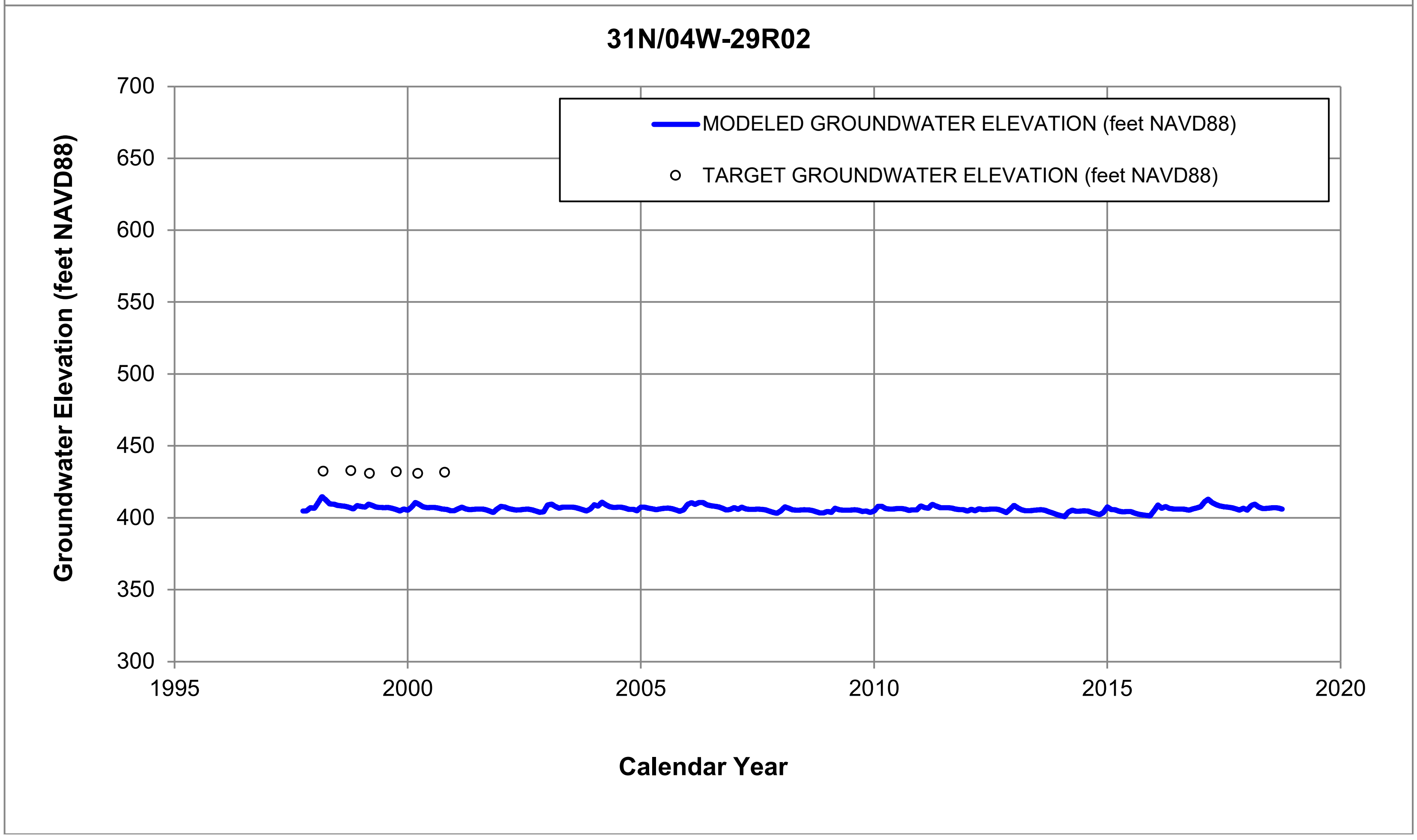
31N/04W-27P01



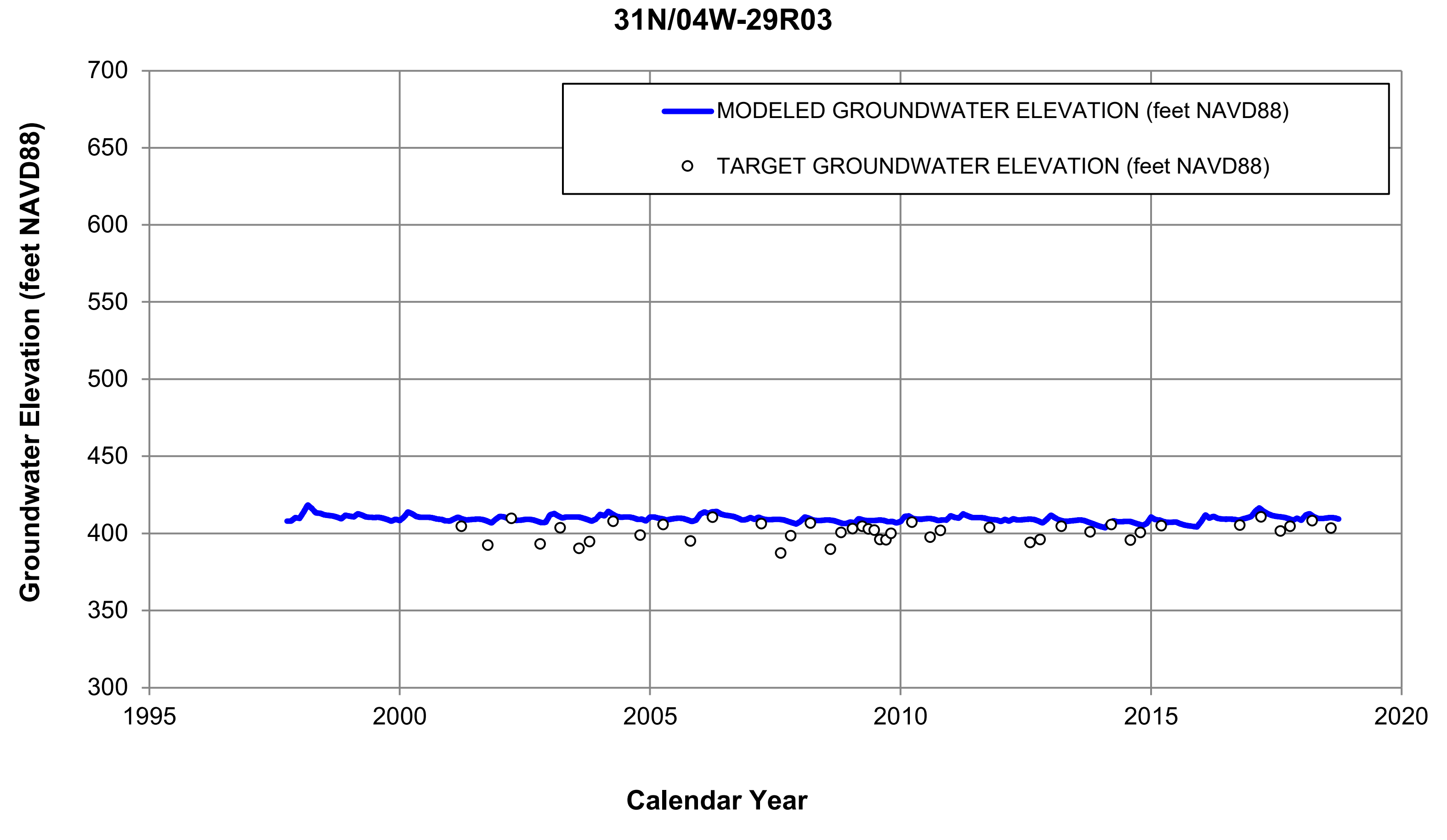
MODELED VERSUS TARGET GROUNDWATER ELEVATION HYDROGRAPHS







ATTACHMENT 1 (PAGE 26 OF 28)
MODELED VERSUS TARGET GROUNDWATER ELEVATION HYDROGRAPHS
Numerical Flow Model Documentation
Redding Area Groundwater Basin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Groundwater Elevation (feet NAVD88)
700
650
600
550
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450
400
350
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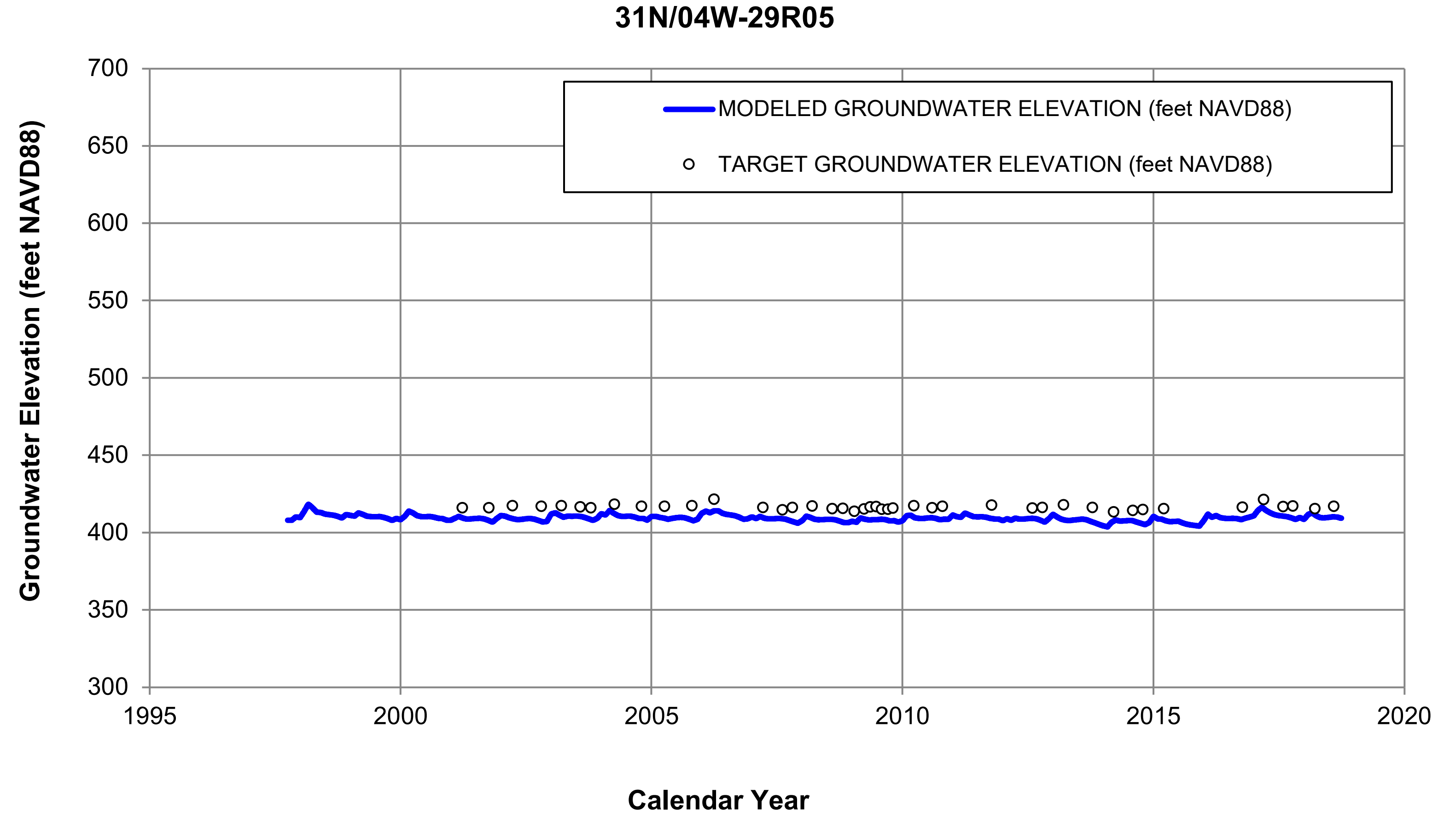
1995
2000
2005
2010
2015
2020
Calendar Year
MODELED GROUNDWATER ELEVATION (feet NAVD88)
TARGET GROUNDWATER ELEVATION (feet NAVD88)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Groundwater Elevation (feet NAVD88)
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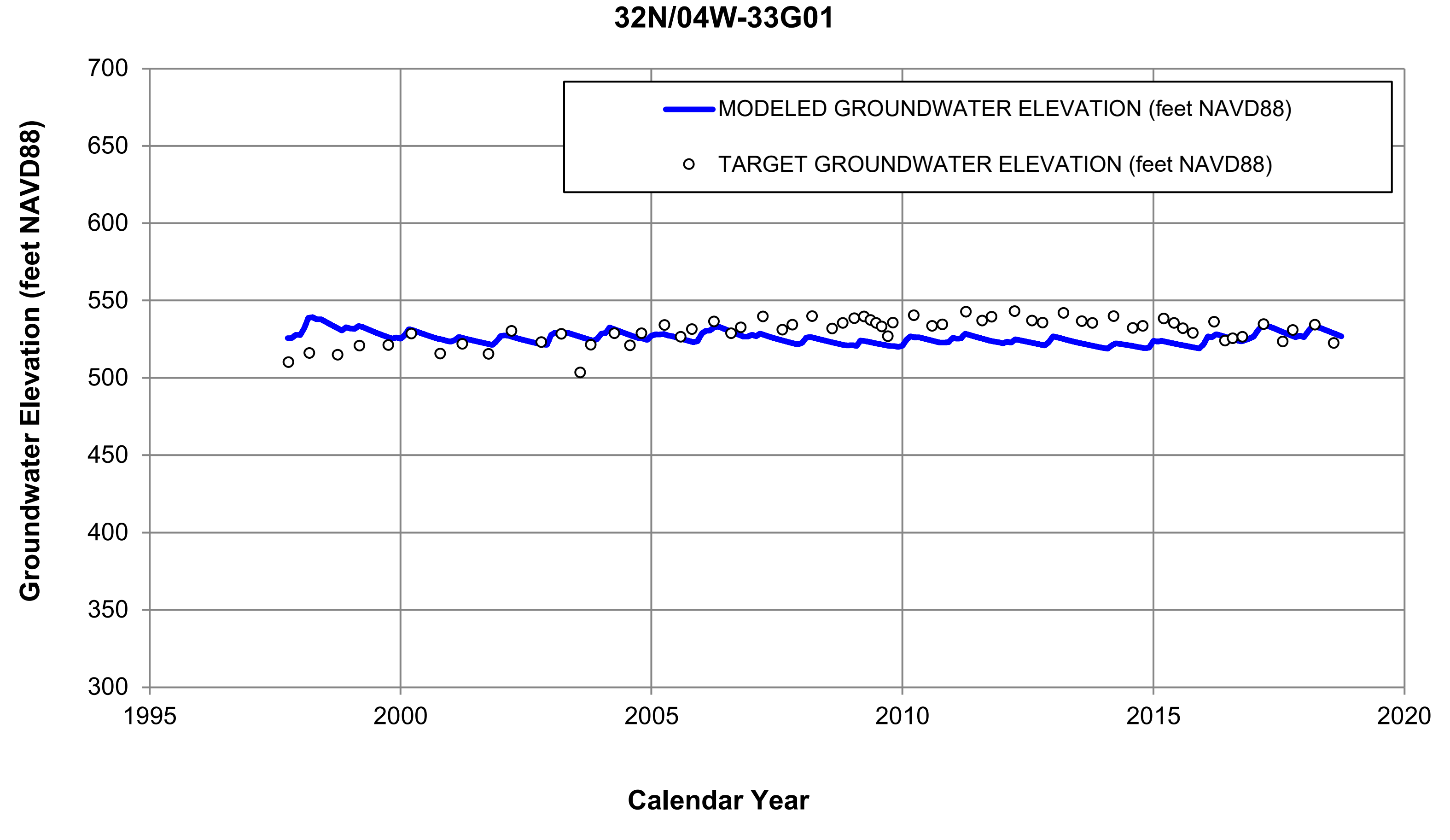
2010
2015
2020
Calendar Year
MODELED GROUNDWATER ELEVATION (feet NAVD88)
TARGET GROUNDWATER ELEVATION (feet NAVD88)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Groundwater Elevation (feet NAVD88)
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350
300
1995
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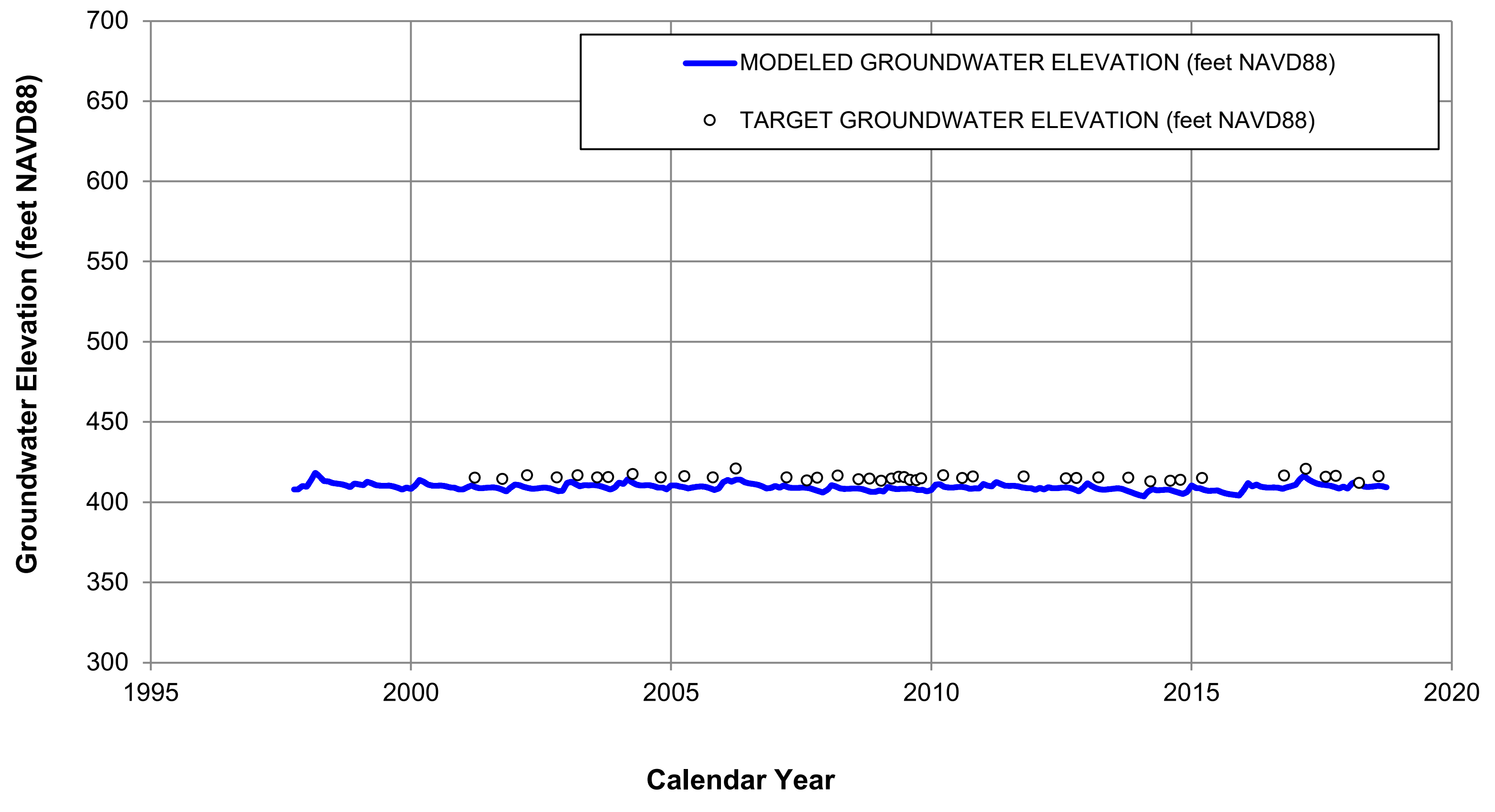
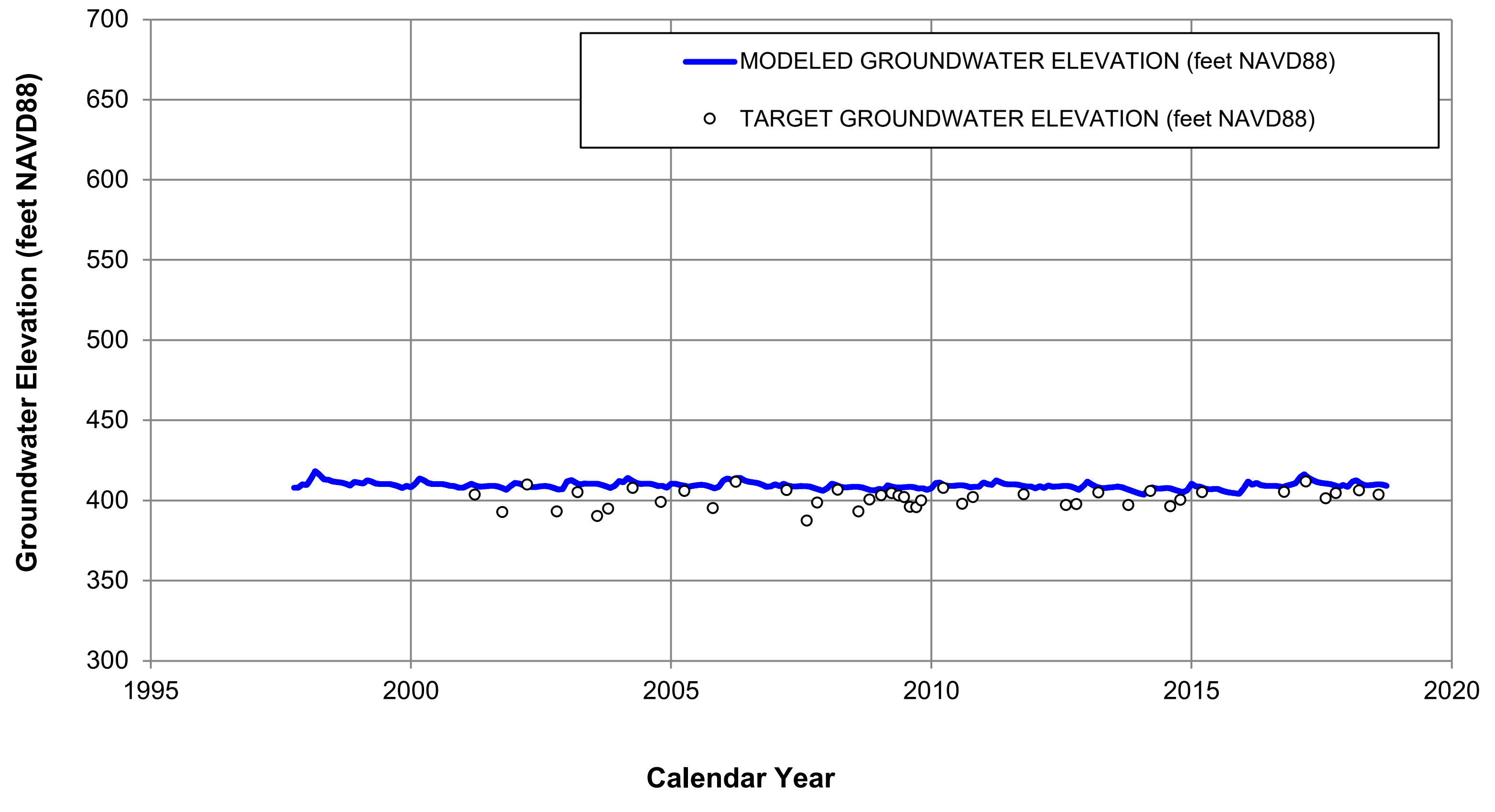
2005
2010
2015
2020
Calendar Year
MODELED GROUNDWATER ELEVATION (feet NAVD88)
TARGET GROUNDWATER ELEVATION (feet NAVD88)

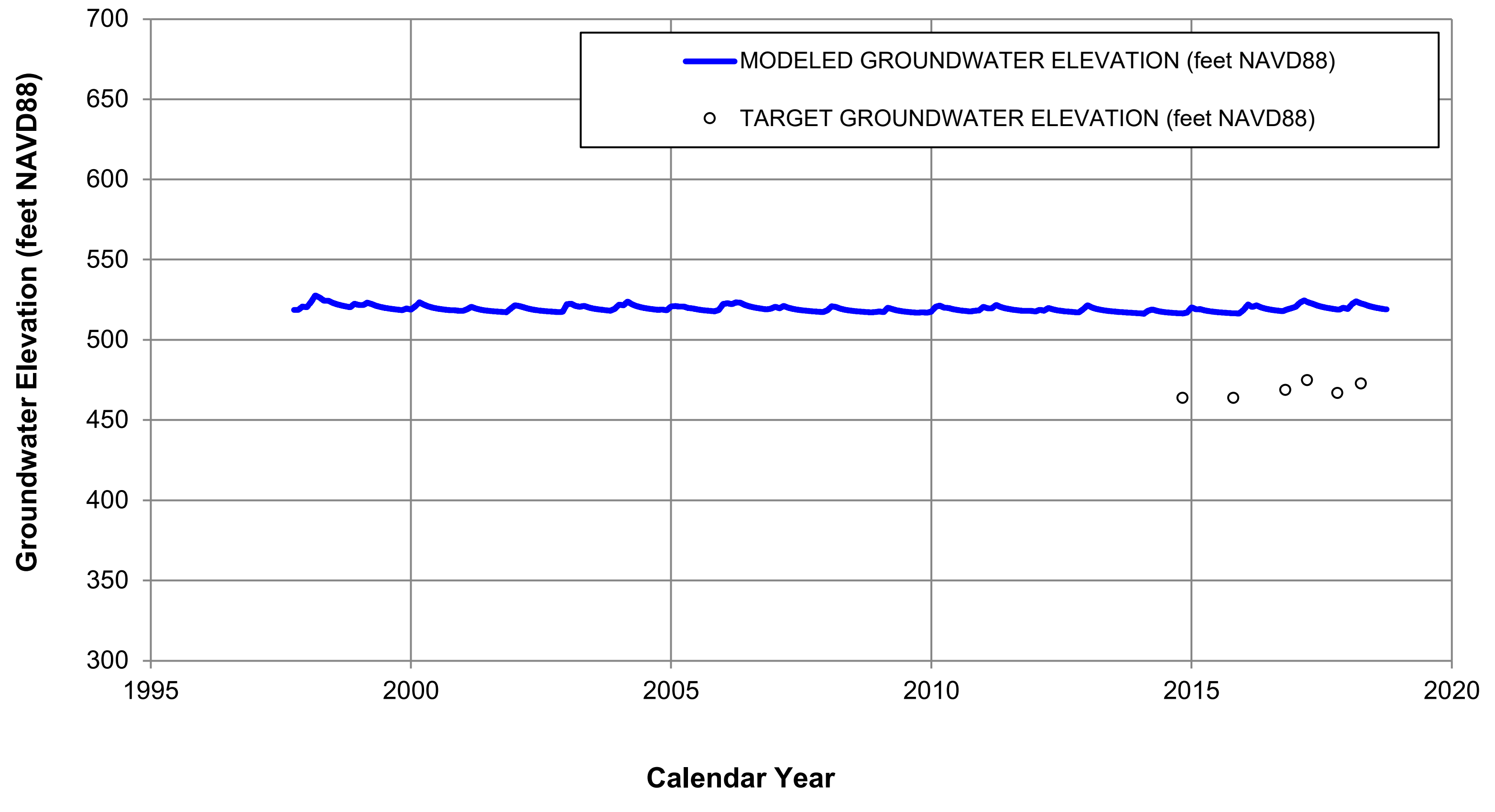
31N/04W-29R04



31N/04W-29R06



Columbia



Attachment 2
Enterprise Subbasin Land System Annual Water Budget (Historical and Future Baseline)

Attachment 2
Enterprise Subbasin Land System Annual Water Budget (Historical and Future Baseline)

	Land System Inflows (TAF)						Land System Outflows (TAF)							
Water Year[a]	Precipitation	Applied Water from Purveyor Deliveries (Groundwater and Surface Water)[b]	Applied Groundwater Outside of Purveyor Service Areas	Shallow Groundwater Uptake	Groundwater Discharge to Land Surface	Total Inflow	Runoff to Streams/Canals	ET of Precipitation from Non-Native Vegetation	ET of Precipitation from Native Vegetation	ET of Shallow Groundwater from Non-Native Vegetation	ET of Shallow Groundwater from Native Vegetation	ET of Applied Water	Groundwater Recharge from Precipitation, Applied Water, and Septic Systems	Total Outflow
1999 (W)	187	21	10	2	16	236	75	42	30	1	1	21	68	238
2000 (AN)	227	19	9	1	18	274	87	57	36	1	0	18	75	274
2001 (D)	152	20	11	1	9	193	46	49	33	1	0	20	46	195
2002 (D)	181	22	11	1	11	226	69	40	29	1	1	22	67	229
2003 (AN)	240	20	10	1	15	286	98	46	31	1	0	20	90	286
2004 (BN)	211	24	12	2	15	264	96	30	22	1	1	24	91	265
2005 (AN)	222	15	8	1	14	260	74	67	40	1	0	15	65	262
2006 (W)	281	19	10	2	26	338	132	44	30	1	1	19	112	339
2007 (D)	142	20	11	2	9	184	50	37	26	1	1	21	50	186
2008 (C)	141	21	12	2	9	185	55	30	21	1	1	21	56	185
2009 (D)	166	17	10	1	9	203	46	55	38	1	0	18	46	204
2010 (BN)	215	15	9	1	13	253	79	53	33	1	0	15	72	253
2011 (W)	238	14	9	1	16	278	87	61	38	1	0	15	77	279
2012 (BN)	153	17	10	1	9	190	47	49	31	1	1	18	46	193
2013 (D)	172	20	12	1	8	213	59	43	30	1	1	20	60	214
2014 (C)	121	17	11	1	6	156	38	36	23	1	1	18	40	157
2015 (C)	158	17	11	1	8	195	55	39	27	1	1	18	56	197
2016 (BN)	236	17	10	1	11	275	91	46	32	1	1	17	88	276
2017 (W)	309	15	10	2	36	372	146	58	37	1	1	16	114	373
2018 (BN)	237	17	10	2	16	282	98	46	30	1	1	17	89	282
2019 (D)	116	20	10	1	11	158	47	28	19	1	0	20	44	159
2020 (C)	164	19	9	1	10	203	61	39	27	1	0	18	58	204
2021 (D)	169	19	8	1	10	207	62	41	27	1	0	18	59	208
2022 (C)	111	21	10	1	7	150	42	27	18	1	0	20	43	151
2023 (AN)	249	18	9	1	15	292	109	39	26	1	0	18	100	293
2024 (W)	295	17	8	1	22	343	133	46	31	1	0	17	116	344
2025 (W)	288	18	8	1	24	339	133	46	30	1	0	17	113	340
2026 (D)	163	19	8	1	12	203	57	46	29	1	0	18	52	203
2027 (AN)	265	18	9	1	20	313	122	39	26	1	0	18	108	314
2028 (C)	116	22	10	1	10	159	45	28	19	1	0	21	45	159
2029 (AN)	280	20	9	2	20	331	135	32	22	1	1	20	122	333
2030 (W)	308	18	9	2	26	363	148	41	27	1	0	18	127	362
2031 (BN)	183	19	9	1	15	227	79	36	23	1	0	18	70	227
2032 (D)	197	20	9	1	14	241	84	36	24	1	0	19	77	241
2033 (BN)	205	19	9	1	14	248	86	39	25	1	0	18	79	248
2034 (BN)	193	19	9	1	14	236	82	37	24	1	0	19	75	238
2035 (W)	339	18	8	1	27	393	162	46	30	1	0	17	139	395
2036 (W)	394	17	8	2	37	458	196	51	31	1	0	16	162	457
2037 (AN)	202	21	9	2	16	250	90	36	23	1	1	20	80	251
2038 (AN)	233	19	9	1	17	279	102	41	27	1	0	18	91	280
2039 (BN)	206	20	9	1	16	252	86	40	27	1	0	19	78	251
2040 (W)	266	18	8	1	21	314	119	46	29	1	0	17	103	315
2041 (W)	288	19	9	2	24	342	137	41	25	1	1	18	119	342
2042 (AN)	215	17	8	1	18	259	86	52	31	1	0	16	73	259
2043 (C)	69	23	10	1	6	109	17	28	19	1	0	22	21	108
2044 (W)	282	20	9	1	20	332	132	38	25	1	0	19	118	333
2045 (W)	313	20	9	2	25	369	152	39	25	1	1	19	132	369
2046 (BN)	173	19	8	1	15	216	68	44	27	1	0	18	59	217
2047 (C)	148	21	9	1	10	189	53	39	25	1	0	19	51	188
2048 (AN)	269	23	10	2	18	322	130	29	21	1	1	22	119	323
2049 (W)	253	22	10	2	21	308	120	34	24	1	1	21	106	307
2050 (W)	270	18	8	2	22	320	121	49	29	1	0	17	104	321
2051 (AN)	183	20	9	1	15	228	76	39	26	1	0	19	68	229
2052 (BN)	195	22	10	1	14	242	84	34	24	1	0	21	78	242
2053 (C)	155	20	9	1	11	196	53	46	30	1	0	19	49	198
2054 (C)	139	23	10	1	11	184	56	31	21	1	0	22	54	185
2055 (C)	158	20	9	1	10	198	54	44	29	1	0	19	52	199
2056 (C)	172	24	10	1	12	219	78	26	18	1	1	23	74	221
2057 (C)	162	23	10	1	10	206	63	35	24	1	0	21	61	205
2058 (AN)	214	23	10	2	13	262	96	31	21	1	1	22	90	262
2059 (AN)	266	23	10	2	19	320	125	34	24	1	1	22	114	321
2060 (C)	125	24	10	1	11	171	49	30	21	1	0	22	47	170
2061 (D)	201	22	9	1	13	246	84	37	25	1	0	21	79	247

Attachment 2
Enterprise Subbasin Land System Annual Water Budget (Historical and Future Baseline)

	Land System Inflows (TAF)						Land System Outflows (TAF)							
Water Year[a]	Precipitation	Applied Water from Purveyor Deliveries (Groundwater and Surface Water)[b]	Applied Groundwater Outside of Purveyor Service Areas	Shallow Groundwater Uptake	Groundwater Discharge to Land Surface	Total Inflow	Runoff to Streams/Canals	ET of Precipitation from Non-Native Vegetation	ET of Precipitation from Native Vegetation	ET of Shallow Groundwater from Non-Native Vegetation	ET of Shallow Groundwater from Native Vegetation	ET of Applied Water	Groundwater Recharge from Precipitation, Applied Water, and Septic Systems	Total Outflow
2062 (D)	179	22	10	1	13	225	74	37	24	1	0	21	69	226
2063 (C)	117	26	11	1	9	164	50	22	16	1	1	24	51	165
2064 (C)	203	21	9	1	11	245	78	45	28	1	0	20	74	246
2065 (AN)	208	23	10	1	14	256	87	38	27	1	0	21	81	255
2066 (D)	161	23	10	1	12	207	61	39	27	1	0	21	58	207
2067 (C)	150	22	9	1	10	192	53	43	25	1	0	20	51	193
2068 (D)	207	23	10	1	13	254	90	34	23	1	0	22	85	255
2069 (C)	92	23	10	1	6	132	22	36	25	1	0	22	26	132
2070 (C)	149	27	11	1	10	198	67	22	16	1	1	25	67	199
2071 (BN)	220	24	10	1	14	269	97	34	23	1	0	22	91	268

Historical Average (1999–2018)	199	18	10	1	14	242	76	46	31	1	1	19	70	244
Current Average (2015–2018)	235	17	10	2	18	282	98	47	32	1	1	17	87	283
Projected Average (2019–2071)	205	21	9	1	15	251	89	38	25	1	0	20	80	253

[a] Water year types are shown in parentheses and defined as follows: W=Wet, AN=Above Normal, BN=Below Normal, D=Dry, and C=Critically Dry.

[b] Anderson-Cottonwood Irrigation District deliveries in the Enterprise Subbasin average approximately 8 TAF for the historical and current periods, and 7 TAF for the projection period.

Notes:
TAF = thousand acre-feet
ET = evapotranspiration

Attachment 3

Anderson Subbasin Land System Annual Water Budget (Historical and Future Baseline)

Attachment 3
Anderson Subbasin Land System Annual Water Budget (Historical and Future Baseline)

	Land System Inflows (TAF)						Land System Outflows (TAF)							
Water Year[a]	Precipitation	Applied Water from Purveyor Deliveries (Groundwater and Surface Water)[b]	Applied Groundwater Outside of Purveyor Service Areas	Shallow Groundwater Uptake	Groundwater Discharge to Land Surface	Total Inflow	Runoff to Streams/Canals	ET of Precipitation from Non-Native Vegetation	ET of Precipitation from Native Vegetation	ET of Shallow Groundwater from Non-Native Vegetation	ET of Shallow Groundwater from Native Vegetation	ET of Applied Water	Groundwater Recharge from Precipitation, Applied Water, and Septic Systems	Total Outflow
1999 (W)	261	60	16	3	90	430	167	46	67	2	1	42	105	430
2000 (AN)	313	53	14	3	94	477	184	60	79	2	1	37	115	478
2001 (D)	217	58	16	3	72	366	121	53	71	2	1	41	78	367
2002 (D)	249	63	17	3	77	409	154	41	61	2	1	45	107	411
2003 (AN)	344	56	15	3	87	505	200	53	70	2	1	39	139	504
2004 (BN)	299	68	18	4	89	478	202	32	48	3	2	48	145	480
2005 (AN)	324	46	12	2	85	469	169	75	88	1	1	32	105	471
2006 (W)	406	56	15	3	118	598	265	50	68	2	1	39	173	598
2007 (D)	204	61	17	4	76	362	133	40	56	2	2	44	86	363
2008 (C)	205	63	18	4	75	365	140	33	46	2	2	45	96	364
2009 (D)	229	58	16	2	71	376	119	56	80	2	1	41	78	377
2010 (BN)	303	50	14	2	80	449	170	57	73	2	1	35	112	450
2011 (W)	331	49	13	2	87	482	181	64	84	2	1	34	118	484
2012 (BN)	211	56	15	3	72	357	120	53	67	2	1	39	75	357
2013 (D)	238	64	18	3	73	396	143	43	60	2	1	45	101	395
2014 (C)	171	56	16	3	66	312	109	40	50	2	2	40	70	313
2015 (C)	220	58	17	3	69	367	133	40	57	2	1	42	93	368
2016 (BN)	331	55	16	3	78	483	187	50	68	2	1	39	137	484
2017 (W)	420	53	14	3	130	620	269	65	83	2	1	37	165	622
2018 (BN)	315	57	15	3	86	476	186	51	67	2	1	40	129	476
2019 (D)	155	54	14	3	68	294	111	30	42	2	1	38	71	295
2020 (C)	216	50	13	2	67	348	128	42	55	1	1	35	87	349
2021 (D)	227	48	13	2	69	359	135	42	57	1	1	34	91	361
2022 (C)	147	54	15	2	55	273	98	29	37	1	1	38	70	274
2023 (AN)	333	49	13	2	78	475	197	43	56	2	1	35	144	478
2024 (W)	408	45	12	2	98	565	244	51	68	2	1	32	169	567
2025 (W)	382	47	13	3	100	545	236	49	66	2	1	33	159	546
2026 (D)	220	47	13	2	73	355	131	47	60	1	1	33	82	355
2027 (AN)	359	47	13	3	90	512	220	45	57	2	1	33	154	512
2028 (C)	154	54	15	3	65	291	110	28	39	2	1	38	73	291
2029 (AN)	381	52	14	3	91	541	242	35	48	2	1	37	177	542
2030 (W)	409	47	13	3	105	577	260	46	58	2	1	33	178	578
2031 (BN)	246	49	13	3	80	391	160	40	52	2	1	35	104	394
2032 (D)	257	51	14	3	78	403	165	36	49	2	1	36	114	403
2033 (BN)	274	49	13	2	77	415	168	42	54	2	1	34	116	417
2034 (BN)	258	51	14	3	75	401	160	40	52	2	1	36	111	402
2035 (W)	454	49	13	3	108	627	281	48	64	2	1	34	198	628
2036 (W)	531	43	12	3	124	713	330	56	68	2	1	30	228	715
2037 (AN)	273	51	14	3	84	425	178	39	51	2	1	36	119	426
2038 (AN)	319	48	13	3	87	470	198	45	57	2	1	34	134	471
2039 (BN)	283	50	14	2	82	431	174	44	59	2	1	35	118	433
2040 (W)	354	46	13	3	94	510	218	49	61	2	1	32	147	510
2041 (W)	390	48	13	3	102	556	249	46	55	2	1	33	170	556
2042 (AN)	286	44	12	2	85	429	168	55	70	1	1	31	106	432
2043 (C)	94	55	15	2	55	221	70	30	40	1	1	39	41	222
2044 (W)	382	49	14	3	96	544	241	41	55	2	1	35	170	545
2045 (W)	434	50	14	3	108	609	278	44	55	2	1	35	195	610
2046 (BN)	237	48	13	2	80	380	147	48	58	1	1	33	90	378
2047 (C)	196	51	14	2	69	332	120	42	55	1	1	36	77	332
2048 (AN)	361	56	15	3	87	522	232	31	44	2	1	39	173	522
2049 (W)	338	53	14	3	95	503	222	36	52	2	1	37	154	504
2050 (W)	365	46	13	3	98	525	225	54	63	2	1	32	149	526
2051 (AN)	245	51	14	3	78	391	154	41	56	2	1	36	102	392
2052 (BN)	266	54	15	3	79	417	169	37	52	2	1	38	118	417
2053 (C)	207	49	13	2	68	339	117	49	63	1	1	35	74	340
2054 (C)	190	55	15	2	66	328	123	34	46	1	1	39	85	329
2055 (C)	212	51	14	2	65	344	120	45	61	1	1	36	81	345
2056 (C)	230	57	15	3	71	376	155	29	39	2	1	40	111	377
2057 (C)	219	54	15	2	67	357	133	38	53	1	1	38	93	357
2058 (AN)	281	56	15	3	72	427	177	32	43	2	1	40	133	428
2059 (AN)	360	54	15	3	87	519	226	37	51	2	1	38	165	520
2060 (C)	166	57	15	3	67	308	114	31	45	2	1	40	75	308
2061 (D)	268	50	14	2	73	407	162	41	53	2	1	36	114	409
2062 (D)	243	53	14	3	72	385	148	42	54	2	1	37	102	386
2063 (C)	154	59	16	3	61	293	111	23	35	2	1	42	80	294
2064 (C)	274	49	14	2	70	409	154	49	62	1	1	35	108	410

Attachment 3
Anderson Subbasin Land System Annual Water Budget (Historical and Future Baseline)

	Land System Inflows (TAF)						Land System Outflows (TAF)							
Water Year[a]	Precipitation	Applied Water from Purveyor Deliveries (Groundwater and Surface Water)[b]	Applied Groundwater Outside of Purveyor Service Areas	Shallow Groundwater Uptake	Groundwater Discharge to Land Surface	Total Inflow	Runoff to Streams/Canals	ET of Precipitation from Non-Native Vegetation	ET of Precipitation from Native Vegetation	ET of Shallow Groundwater from Non-Native Vegetation	ET of Shallow Groundwater from Native Vegetation	ET of Applied Water	Groundwater Recharge from Precipitation, Applied Water, and Septic Systems	Total Outflow
2065 (AN)	276	54	15	2	76	423	168	40	56	2	1	38	119	424
2066 (D)	214	53	14	2	68	351	128	41	57	1	1	37	87	352
2067 (C)	207	51	14	2	63	337	119	46	54	1	1	36	80	337
2068 (D)	282	55	15	3	74	429	174	35	49	2	1	39	129	429
2069 (C)	120	55	15	2	52	244	70	38	51	1	1	39	45	245
2070 (C)	198	61	16	3	61	339	132	24	36	1	1	43	101	338
2071 (BN)	293	55	15	3	75	441	179	38	52	2	1	38	132	442

Historical Average (1999–2018)	280	57	16	3	84	440	168	50	67	2	1	40	111	439
Current Average (2015–2018)	322	56	16	3	91	488	194	52	69	2	1	40	131	489
Projected Average (2019–2071)	276	51	14	3	79	423	172	40	53	2	1	36	119	423

[a] Water year types are shown in parentheses and defined as follows: W=Wet, AN=Above Normal, BN=Below Normal, D=Dry, and C=Critically Dry.

[b] Anderson-Cottonwood Irrigation District deliveries in the Anderson Subbasin average approximately 50 TAF for the historical and current periods, and 46 TAF for the projection period.

Notes:
TAF = thousand acre-feet
ET = evapotranspiration

Attachment 4

Enterprise Subbasin Surface Water System Annual Water Budget

(Historical and Future Baseline)

Attachment 4
Enterprise Subbasin Surface-water System Annual Water Budget (Historical and Future Baseline)

	Surface Water System Inflows (TAF)										Surface Water System Outflows (TAF)								
Water Year[a]	Sacramento River Inflow	Little Cow Creek Inflow	Clear Creek Inflow	Other Stream Inflows[b]	Groundwater Discharge to Internal Streams	Groundwater Discharge to Sacramento River	Groundwater Discharge to Cow Creek	Runoff from Precipitation	Wastewater Treatment Plant Discharge to Sacramento River	Total Inflow	Sacramento River Outflow	Groundwater Recharge from Internal Streams	Groundwater Recharge from Sacramento River	Groundwater Recharge from Cow Creek	City of Redding Sacramento River Diversion	Bella Vista Water District Sacramento River Diversion	ACID Sacramento River Diversion for Use Inside Enterprise Subbasin[c]	ACID Sacramento River Diversion for Use Outside Enterprise Subbasin[d]	Total Outflow
1999 (W)	8,421	191	181	417	181	50	45	75	16	9,577	9,228	59	95	7	14	15	17	96	9,530
2000 (AN)	8,721	197	178	506	178	48	43	87	15	9,973	9,598	61	100	9	13	14	17	96	9,908
2001 (D)	5,728	52	157	177	157	44	37	46	14	6,412	6,012	49	93	10	14	16	18	103	6,315
2002 (D)	5,656	186	160	419	160	48	36	69	14	6,748	6,384	54	90	12	15	18	18	102	6,692
2003 (AN)	7,157	203	174	604	174	51	40	98	15	8,516	8,210	63	92	10	14	17	15	87	8,508
2004 (BN)	8,184	138	180	423	180	52	44	96	14	9,311	8,949	59	94	8	16	18	17	97	9,258
2005 (AN)	5,640	151	164	416	164	50	39	74	15	6,713	6,376	64	87	9	14	14	15	86	6,665
2006 (W)	11,085	363	197	921	197	54	48	132	17	13,014	12,680	69	103	7	15	15	14	81	12,983
2007 (D)	5,970	80	160	244	160	46	39	50	14	6,763	6,409	48	92	10	15	16	18	100	6,708
2008 (C)	5,265	78	155	251	155	45	35	55	15	6,054	5,717	48	92	12	15	16	16	91	6,007
2009 (D)	4,997	100	149	275	149	42	32	46	14	5,804	5,471	51	94	15	14	11	16	92	5,764
2010 (BN)	4,919	122	158	391	158	49	36	79	16	5,928	5,620	64	86	12	11	11	15	85	5,904
2011 (W)	7,709	208	173	611	173	48	40	87	15	9,064	8,735	68	95	9	12	11	14	79	9,023
2012 (BN)	5,726	78	155	274	155	42	36	47	12	6,525	6,203	50	96	12	11	13	14	79	6,477
2013 (D)	5,824	97	156	353	156	45	35	59	13	6,738	6,412	43	95	12	14	13	17	97	6,704
2014 (C)	4,280	65	139	247	139	38	27	38	11	4,984	4,699	36	97	14	13	7	13	75	4,954
2015 (C)	3,904	92	144	315	144	42	30	55	13	4,739	4,461	45	91	13	9	6	13	71	4,709
2016 (BN)	4,861	150	159	524	159	50	35	91	14	6,043	5,759	53	88	12	11	7	15	83	6,029
2017 (W)	10,677	290	195	901	195	53	47	146	17	12,521	12,223	71	109	7	8	9	13	75	12,514
2018 (BN)	5,142	185	172	587	172	56	42	98	12	6,466	6,162	61	81	8	12	9	15	86	6,434
2019 (D)	5,541	48	156	187	156	43	37	47	14	6,229	5,736	55	93	11	15	15	17	99	6,041
2020 (C)	4,422	104	151	371	151	45	34	61	13	5,352	4,897	56	89	14	12	10	14	79	5,171
2021 (D)	5,543	72	156	306	156	44	36	62	14	6,389	5,896	57	93	13	15	15	17	99	6,205
2022 (C)	4,415	59	143	235	143	39	32	42	13	5,121	4,678	45	94	15	12	10	14	79	4,947
2023 (AN)	6,989	174	172	623	172	51	40	109	15	8,345	7,860	68	91	11	14	15	16	90	8,165
2024 (W)	9,141	204	191	753	191	55	49	133	16	10,733	10,267	69	93	8	12	12	15	83	10,559
2025 (W)	9,143	226	195	759	195	57	50	133	16	10,774	10,304	72	91	6	12	12	15	83	10,595
2026 (D)	5,545	78	160	267	160	47	39	57	14	6,367	5,884	55	89	10	15	15	17	99	6,184
2027 (AN)	6,997	196	183	637	183	58	47	122	15	8,438	7,959	72	84	7	14	15	16	90	8,257
2028 (C)	4,418	47	150	200	150	44	36	45	13	5,103	4,654	50	89	13	12	10	14	79	4,921
2029 (AN)	6,999	235	185	915	185	61	47	135	15	8,777	8,302	71	83	9	14	15	16	90	8,600
2030 (W)	9,146	250	197	913	197	59	51	148	16	10,977	10,520	70	90	7	12	12	15	83	10,809
2031 (BN)	5,594	94	167	351	167	52	42	79	14	6,560	6,087	65	84	8	12	12	15	86	6,369
2032 (D)	5,551	122	167	482	167	52	41	84	14	6,680	6,200	58	86	10	15	15	17	99	6,500
2033 (BN)	5,593	130	166	525	166	51	40	86	14	6,771	6,306	62	86	10	12	12	15	86	6,589
2034 (BN)	5,591	103	163	403	163	50	40	82	14	6,609	6,138	63	87	11	12	12	15	86	6,424
2035 (W)	9,149	261	197	944	197	59	50	162	16	11,035	10,589	68	90	8	12	12	15	83	10,877
2036 (W)	9,163	360	214	1,344	214	70	57	196	16	11,634	11,193	75	82	6	12	12	15	83	11,478
2037 (AN)	6,989	162	180	607	180	55	46	90	15	8,324	7,850	61	87	7	14	15	16	90	8,140
2038 (AN)	6,992	155	178	580	178	55	45	102	15	8,300	7,829	64	87	8	14	15	16	90	8,123
2039 (BN)	5,595	90	168	352	168	53	43	86	14	6,569	6,103	64	84	9	12	12	15	86	6,385
2040 (W)	9,137	198	188	748	188	55	48	119	16	10,697	10,220	71	94	8	12	12	15	83	10,515
2041 (W)	9,145	236	193	810	193	58	49	137	16	10,837	10,375	73	91	7	12	12	15	83	10,668
2042 (AN)	6,988	126	175	486	175	52	45	86	15	8,148	7,655	71	88	7	14	15	16	90	7,956
2043 (C)	4,410	15	139	82	139	36	31	17	13	4,882	4,445	37	98	16	12	10	14	79	4,711
2044 (W)	9,139	258	186	861	186	54	45	132	16	10,877	10,394	75	95	11	12	12	15	83	10,697
2045 (W)	9,148	254	198	936	198	61	51	152	16	11,014	10,555	74	87	7	12	12	15	83	10,845
2046 (BN)	5,591	71	164	265	164	50	41	68	14	6,428	5,953	65	87	10	12	12	15	86	6,240
2047 (C)	4,421	64	149	254	149	44	35	53	13	5,182	4,723	57	89	15	12	10	14	79	4,999
2048 (AN)	6,997	185	181	717	181	57	45	130	15	8,508	8,036	69	86	10	14	15	16	90	8,336
2049 (W)	9,138	177	189	624	189	55	48	120	16	10,556	10,084	68	94	8	12	12	15	83	10,376
2050 (W)	9,140	199	187	703	187	54	47	121	16	10,654	10,177	74	94	8	12	12	15	83	10,475
2051 (AN)	6,984	112	171	401	171	49	43	76	15	8,022	7,540	60	93	10	14	15	16	90	7,838
2052 (BN)	5,593	105	164	385	164	51	40	84	14	6,600	6,133	62	87	12	12	12	15	86	6,419
2053 (C)	4,421	54	149	234	149	44	35	53	13	5,152	4,681	61	89	14	12	10	14	79	4,960
2054 (C)	4,420	50	147	218	147	43	34	56	13	5,128	4,661	60	90	15	12	10	14	79	4,941
2055 (C)	4,420	46	146	200	146	42	33	54	13	5,100	4,630	61	92	16	12	10	14	79	4,914
2056 (C)	4,426	124	152	505	152	48	34	78	13	5,532	5,072	62	87	16	12	10	14	79	5,352
2057 (C)	4,423	72	148	296	148	44	33	63	13	5,240	4,782	58	90	16	12	10	14	79	5,061
2058 (AN)	6,986	181	165	671	165	47	37	96	15	8,363	7,892	56	97	14	14	15	16	90	8,194
2059 (AN)	6,998	166	180	639	180	56	45	125	15	8,404	7,930	69	87	10	14	15	16	90	8,231

Attachment 4
Enterprise Subbasin Surface-water System Annual Water Budget (Historical and Future Baseline)

	Surface Water System Inflows (TAF)										Surface Water System Outflows (TAF)								
Water Year[a]	Sacramento River Inflow	Little Cow Creek Inflow	Clear Creek Inflow	Other Stream Inflows[b]	Groundwater Discharge to Internal Streams	Groundwater Discharge to Sacramento River	Groundwater Discharge to Cow Creek	Runoff from Precipitation	Wastewater Treatment Plant Discharge to Sacramento River	Total Inflow	Sacramento River Outflow	Groundwater Recharge from Internal Streams	Groundwater Recharge from Sacramento River	Groundwater Recharge from Cow Creek	City of Redding Sacramento River Diversion	Bella Vista Water District Sacramento River Diversion	ACID Sacramento River Diversion for Use Inside Enterprise Subbasin[c]	ACID Sacramento River Diversion for Use Outside Enterprise Subbasin[d]	Total Outflow
2060 (C)	4,420	52	150	203	150	44	35	49	13	5,116	4,659	55	89	14	12	10	14	79	4,932
2061 (D)	5,550	123	159	463	159	48	37	84	14	6,637	6,148	61	91	14	15	15	17	99	6,460
2062 (D)	5,548	92	158	354	158	46	37	74	14	6,481	5,979	64	91	14	15	15	17	99	6,294
2063 (C)	4,418	53	146	209	146	42	33	50	13	5,110	4,657	51	93	16	12	10	14	79	4,932
2064 (C)	4,426	130	150	491	150	46	33	78	13	5,517	5,057	61	89	18	12	10	14	79	5,340
2065 (AN)	6,983	112	166	399	166	47	39	87	15	8,014	7,523	63	95	13	14	15	16	90	7,829
2066 (D)	5,543	72	155	269	155	44	36	61	14	6,349	5,852	58	94	14	15	15	17	99	6,164
2067 (C)	4,420	85	144	290	144	41	31	53	13	5,221	4,752	61	93	18	12	10	14	79	5,039
2068 (D)	5,550	174	161	681	161	50	37	90	14	6,918	6,435	60	90	15	15	15	17	99	6,746
2069 (C)	4,411	22	136	110	136	34	29	22	14	4,914	4,462	43	101	17	12	10	14	79	4,738
2070 (C)	4,422	89	145	342	145	43	30	67	14	5,297	4,839	57	93	18	12	10	14	79	5,122
2071 (BN)	5,594	117	148	423	148	45	34	97	14	6,620	6,172	65	82	15	12	12	15	86	6,459
Historical Average (1999–2018)	6,493	151	165	443	165	48	38	76	14	7,593	7,265	56	94	10	13	13	16	88	7,555
Current Average (2015–2018)	6,146	179	168	582	168	50	39	98	14	7,444	7,151	58	92	10	10	8	14	79	7,422
Projected Average (2019–2071)	6,259	132	167	491	167	50	40	89	14	7,409	6,938	62	90	12	13	12	15	86	7,228

[a] Water year types are shown in parentheses and defined as follows: W=Wet, AN=Above Normal, BN=Below Normal, D=Dry, and C=Critically Dry.

[b] Values represent the sum of stream inflows from Churn Creek, West Fork Stillwater Creek, East Fork Stillwater Creek, Dry Creek, Yank Creek, French Creek, Swede Creek, Cow Creek, Olney Creek, and Spring Gulch.

[c] Average annual diversion values represent the volume of water removed from streams for uses inside the Enterprise Subbasin. The 2010–2019 ACID Churn Creek diversion from the Sacramento River averaged 14.5 TAF annually (SWRCB, 2021).

[d] Average annual diversion values represent the volume of water removed from streams for uses outside of the Enterprise Subbasin.

Notes:
TAF = thousand acre-feet
ACID = Anderson-Cottonwood Irrigation District

Attachment 5
Anderson Subbasin Surface Water System Annual Water Budget (Historical and Future Baseline)

Attachment 5
Anderson Subbasin Surface-water System Annual Water Budget (Historical and Future Baseline)

	Surface Water System Inflows (TAF)												Surface Water System Outflows (TAF)										
Water Year[a]	Sacramento River Inflow	Cow Creek Inflow	Cottonwood Creek Inflow[b]	Clear Creek Inflow	Other Stream Inflows[c]	ACID Main Canal Discharge to Cottonwood Creek[d]	Groundwater Discharge to Internal Streams	Groundwater Discharge to Sacramento River	Groundwater Discharge to Cottonwood Creek	Runoff from Precipitation	Wastewater Treatment Plant Discharge to Sacramento River	Total Inflow	Sacramento River Outflow[e]	ACID Main Canal Outflow[f]	Groundwater Recharge from Internal Streams/ Canals[g]	Groundwater Recharge from Sacramento River	Groundwater Recharge from Cottonwood Creek	City of Redding Sacramento River Diversion	Bella Vista Water District Sacramento River Diversion	ACID Sacramento River Diversion for Use Inside Anderson Subbasin	ACID Sacramento River Diversion for Use Outside Anderson Subbasin[h]	ACID Sacramento River Export	Total Outflow
1999 (W)	8,421	498	497	246	353	28	19	157	70	167	16	10,472	10,078	44	146	99	5	14	15	96	17	0	10,514
2000 (AN)	8,721	580	602	225	399	39	19	151	65	184	15	11,000	10,597	52	144	106	7	13	14	96	17	0	11,046
2001 (D)	5,728	161	108	151	216	27	15	146	53	121	14	6,740	6,361	42	128	95	10	14	16	103	18	0	6,787
2002 (D)	5,656	499	474	205	317	29	16	153	53	154	14	7,570	7,176	44	137	92	11	15	18	102	18	0	7,613
2003 (AN)	7,157	670	862	278	469	37	19	161	61	200	15	9,929	9,534	46	148	94	10	14	17	87	15	0	9,965
2004 (BN)	8,184	441	481	234	397	34	20	160	69	202	14	10,236	9,824	46	149	97	5	16	18	97	17	0	10,269
2005 (AN)	5,639	454	500	228	327	35	16	159	58	169	15	7,600	7,224	46	147	89	9	14	14	86	15	0	7,644
2006 (W)	11,085	1,119	1,119	291	632	46	23	159	78	265	17	14,834	14,400	52	164	112	6	15	15	81	14	0	14,859
2007 (D)	5,970	251	227	198	250	26	16	153	60	133	14	7,298	6,919	40	133	93	7	15	16	100	18	0	7,341
2008 (C)	5,265	246	281	200	265	22	15	150	52	140	15	6,651	6,278	33	133	93	11	15	16	91	16	0	6,686
2009 (D)	4,997	287	250	205	242	17	14	140	47	119	14	6,332	5,970	31	126	95	14	14	11	92	16	0	6,369
2010 (BN)	4,919	391	369	246	322	33	15	153	51	170	16	6,685	6,318	43	143	87	12	11	11	85	15	0	6,725
2011 (W)	7,709	691	617	251	415	33	18	151	58	181	15	10,139	9,761	40	146	99	10	12	11	79	14	0	10,172
2012 (BN)	5,726	278	221	203	251	12	14	140	49	120	12	7,026	6,676	24	128	97	14	11	13	79	14	0	7,056
2013 (D)	5,824	373	426	210	315	27	15	146	51	143	13	7,543	7,160	39	130	97	13	14	13	97	17	2	7,582
2014 (C)	4,280	256	130	188	229	17	12	129	41	109	11	5,402	5,059	22	120	98	20	13	7	75	13	4	5,431
2015 (C)	3,904	328	484	200	282	13	13	139	43	133	13	5,552	5,215	18	124	92	20	9	6	71	13	4	5,572
2016 (BN)	4,861	565	581	242	422	32	16	153	52	187	14	7,125	6,758	41	139	89	13	11	7	83	15	0	7,156
2017 (W)	10,677	1,033	1,125	317	633	44	22	158	68	269	17	14,363	13,936	48	166	122	8	8	9	75	13	0	14,385
2018 (BN)	5,142	648	661	251	438	30	18	172	61	186	12	7,619	7,250	41	146	82	8	12	9	86	15	0	7,649
2019 (D)	5,541	164	121	60	271	23	14	141	50	111	14	6,510	6,140	40	128	94	12	12	10	99	17	2	6,554
2020 (C)	4,422	385	332	65	502	21	14	144	46	128	13	6,072	5,727	32	126	90	16	9	5	79	14	4	6,102
2021 (D)	5,543	292	207	66	452	38	15	141	50	135	14	6,953	6,569	52	131	95	13	12	10	99	17	2	7,000
2022 (C)	4,415	230	117	47	386	13	12	131	43	98	13	5,505	5,175	24	109	95	17	9	5	79	14	4	5,531
2023 (AN)	6,989	665	786	103	720	40	18	153	57	197	15	9,743	9,344	51	150	93	11	12	12	90	16	0	9,779
2024 (W)	9,141	808	1,039	132	893	52	21	159	75	244	16	12,580	12,177	59	155	98	7	7	7	83	15	0	12,608
2025 (W)	9,143	830	883	139	818	49	22	164	76	236	16	12,376	11,973	57	160	95	5	7	7	83	15	0	12,402
2026 (D)	5,545	263	274	72	368	38	15	149	58	131	14	6,927	6,551	52	131	91	9	12	10	99	17	2	6,974
2027 (AN)	6,997	694	954	119	738	48	20	170	69	220	15	10,044	9,642	58	159	86	8	12	12	90	16	0	10,083
2028 (C)	4,418	180	122	54	257	14	13	144	52	110	13	5,377	5,044	26	118	90	11	9	5	79	14	4	5,400
2029 (AN)	6,999	1,003	1,317	123	1,023	49	21	177	71	242	15	11,040	10,629	58	162	84	9	12	12	90	16	0	11,072
2030 (W)	9,146	1,003	1,125	145	962	53	23	170	80	260	16	12,983	12,573	61	162	94	6	7	7	83	15	0	13,008
2031 (BN)	5,593	340	318	88	370	28	17	160	64	160	14	7,152	6,790	41	143	85	7	8	7	86	15	0	7,182
2032 (D)	5,551	503	610	84	720	42	17	160	61	165	14	7,927	7,542	55	139	87	10	12	10	99	17	2	7,973
2033 (BN)	5,593	546	407	88	550	32	17	157	61	168	14	7,633	7,266	43	139	87	9	8	7	86	15	0	7,660
2034 (BN)	5,591	400	352	83	454	28	16	154	59	160	14	7,311	6,949	40	138	88	9	8	7	86	15	0	7,340
2035 (W)	9,149	1,033	1,455	152	1,039	59	23	166	78	281	16	13,451	13,039	64	156	96	8	7	7	83	15	0	13,475
2036 (W)	9,162	1,501	2,020	184	1,424	76	26	191	94	330	16	15,024	14,598	79	171	87	8	7	7	83	15	0	15,055
2037 (AN)	6,988	661	646	101	761	38	19	167	75	178	15	9,649	9,274	49	140	88	6	12	12	90	16	0	9,687
2038 (AN)	6,992	615	813	107	728	43	20	167	73	198	15	9,771	9,382	54	148	88	7	12	12	90	16	0	9,809
2039 (BN)	5,595	335	378	91	411	31	17	165	68	174	14	7,279	6,914	43	144	85	6	8	7	86	15	0	7,308
2040 (W)	9,137	808	789	123	782	47	21	163	77	218	16	12,181	11,783	55	154	98	6	7	7	83	15	0	12,208
2041 (W)	9,145	888	981	142	844	51	22	168	80	249	16	12,586	12,182	59	160	95	6	7	7	83	15	0	12,614
2042 (AN)	6,988	494	486	101	572	38	18	162	68	168	15	9,110	8,727	50	147	90	7	12	12	90	16	0	9,151
2043 (C)	4,410	52	37	36	151	7	12	127	46	70	13	4,961	4,642	18	99	99	16	9	5	79	14	4	4,985
2044 (W)	9,139	962	1,106	130	873	50	21	160	71	241	16	12,769	12,353	56	162	99	10	7	7	83	15	0	12,792
2045 (W)	9,148	1,026	1,364	148	1,047	55	24	176	84	278	16	13,366	12,948	61	168	91	6	7	7	83	15	0	13,386
2046 (BN)	5,591	235	261	85	289	29	16	157	64	147	14	6,888	6,531	40	140	88	7	8	7	86	15	0	6,922
2047 (C)	4,421	234	229	61	299	18	14	144	51	120	13	5,604	5,264	29	126	90	13	9	5	79	14	4	5,633
2048 (AN)	6,997	757	988	117	858	44	20	168	70	232	15	10,266	9,865	54	153	88	8	12	12	90	16	0	10,298
2049 (W)	9,137	662	671	124	703	40	21	161	77	222	16	11,834	11,439	49	154	98	5	7	7	83	15	0	11,857
2050 (W)	9,140	751	720	130	758	46	21	157	75	225	16	12,039	11,640	55	155	99	6	7	7	83	15	0	12,067
2051 (AN)	6,984	411	435	89	501	29	18	153	65	154	15	8,854	8,478	43	134	95	8	12	12	90	16	0	8,888
2052 (BN)	5,593	384	441	87	429	27	17	157	62	169	14	7,380	7,012	39	142	88	8	8	7	86	15	0	7,405
2053 (C)	4,421	201	176	60	280	19	13	141	49	117	13	5,490	5,149	30	126	90	14	9	5	79	14	4	5,520
2054 (C)	4,420	184	167	58	270	14	13	140	47	123	13	5,449	5,105	25	128	91	15	9	5	79	14	4	5,475

Attachment 5
Anderson Subbasin Surface-water System Annual Water Budget (Historical and Future Baseline)

	Surface Water System Inflows (TAF)												Surface Water System Outflows (TAF)										
Water Year[a]	Sacramento River Inflow	Cow Creek Inflow	Cottonwood Creek Inflow[b]	Clear Creek Inflow	Other Stream Inflows[c]	ACID Main Canal Discharge to Cottonwood Creek[d]	Groundwater Discharge to Internal Streams	Groundwater Discharge to Sacramento River	Groundwater Discharge to Cottonwood Creek	Runoff from Precipitation	Wastewater Treatment Plant Discharge to Sacramento River	Total Inflow	Sacramento River Outflow[e]	ACID Main Canal Outflow[f]	Groundwater Recharge from Internal Streams/ Canals[g]	Groundwater Recharge from Sacramento River	Groundwater Recharge from Cottonwood Creek	City of Redding Sacramento River Diversion	Bella Vista Water District Sacramento River Diversion	ACID Sacramento River Diversion for Use Inside Anderson Subbasin	ACID Sacramento River Diversion for Use Outside Anderson Subbasin[h]	ACID Sacramento River Export	Total Outflow
2055 (C)	4,420	157	179	58	250	19	13	136	45	120	13	5,410	5,066	29	126	92	17	9	5	79	14	4	5,441
2056 (C)	4,426	520	531	75	663	21	15	150	49	155	13	6,618	6,257	31	138	88	15	9	5	79	14	4	6,640
2057 (C)	4,423	272	318	65	339	18	14	140	47	133	13	5,782	5,432	29	128	91	15	9	5	79	14	4	5,806
2058 (AN)	6,986	733	605	93	929	33	17	141	57	177	15	9,786	9,400	45	130	100	12	12	12	90	16	0	9,817
2059 (AN)	6,998	659	1,003	117	848	43	20	162	68	226	15	10,159	9,759	54	150	89	9	12	12	90	16	0	10,191
2060 (C)	4,420	176	183	59	269	10	14	142	50	114	13	5,450	5,113	23	125	90	12	9	5	79	14	4	5,474
2061 (D)	5,550	475	447	82	662	42	16	145	53	162	14	7,648	7,261	56	135	93	13	12	10	99	17	2	7,698
2062 (D)	5,548	340	359	76	446	34	15	143	52	148	14	7,175	6,790	49	137	92	12	12	10	99	17	2	7,220
2063 (C)	4,418	187	186	54	247	11	13	134	46	111	13	5,420	5,081	22	118	93	15	9	5	79	14	4	5,440
2064 (C)	4,426	512	419	74	597	27	14	143	48	154	13	6,427	6,064	38	133	90	15	9	5	79	14	4	6,451
2065 (AN)	6,983	398	439	87	514	30	17	144	56	168	15	8,851	8,461	43	143	97	10	12	12	90	16	0	8,884
2066 (D)	5,543	250	227	67	397	30	15	138	50	128	14	6,859	6,482	46	129	95	12	12	10	99	17	2	6,904
2067 (C)	4,420	281	165	60	313	19	13	132	44	119	13	5,579	5,234	28	125	94	16	9	5	79	14	4	5,608
2068 (D)	5,550	741	1,013	86	1,048	41	16	150	54	174	14	8,887	8,495	53	135	92	15	12	10	99	17	2	8,930
2069 (C)	4,411	75	42	37	163	6	11	118	39	70	14	4,986	4,658	17	99	102	20	9	5	79	14	4	5,007
2070 (C)	4,422	330	309	65	444	13	13	135	43	132	14	5,920	5,570	22	124	94	18	9	5	79	14	4	5,939
2071 (BN)	5,594	415	407	89	470	28	15	136	48	179	14	7,395	7,029	41	135	84	11	8	7	86	15	0	7,416

Historical Average (1999–2018)	6,493	488	501	228	359	29	17	152	57	168	14	8,506	8,125	40	140	96	11	13	13	88	16	1	8,543
Current Average (2015–2018)	6,146	644	713	253	444	30	17	156	56	194	14	8,667	8,290	37	144	96	12	10	8	79	14	1	8,691
Projected Average (2019–2071)	6,259	510	565	91	587	33	17	152	60	172	14	8,460	8,086	44	139	92	11	10	8	86	15	2	8,493

[a] Water year types are shown in parentheses and defined as follows: W=Wet, AN=Above Normal, BN=Below Normal, D=Dry, and C=Critically Dry.

[b] Values represent the sum of stream inflows from the North, Middle, and South Forks of Cottonwood Creek.

[c] Values represent the sum of stream inflows from Olney Creek, Churn Creek, Clover Creek, Stillwater Creek, Bear Creek, Ash Creek, Crow Creek, Roaring River, Dry Creek, Little Dry Creek, and Hooker Creek.

[d] Values represent flow from the canal within the Bowman Subbasin that discharges to Cottonwood Creek.

[e] Includes approximately 2 to 4 TAF of exports during ACID water transfer years.

[f] Values represent flow leaving Anderson Subbasin into Bowman Subbasin.

[g] Leakage from the ACID main canal contributes approximately 29 to 37 TAF of groundwater recharge to the aquifer system under historical and projected conditions.

[h] Average annual diversion values represent the volume of water removed from streams for uses outside of the Anderson Subbasin. The 2010-2019 ACID Churn Creek diversion from the Sacramento River averaged 14.5 TAF annually (SWRCB, 2021).

Notes:
TAF = thousand acre-feet
ACID = Anderson-Cottonwood Irrigation District

Attachment 6

Enterprise Subbasin Groundwater System Annual Water Budget (Historical and Future Baseline)

Attachment 6
Enterprise Subbasin Groundwater System Annual Water Budget (Historical and Future Baseline)

	Groundwater System Inflows (TAF)						Groundwater System Outflows (TAF)										
Water Year[a]	Groundwater Recharge from Precipitation, Applied Water, and Septic Systems	Groundwater Recharge from Streams/Canals	Subsurface Inflow from Anderson Subbasin	Subsurface Inflow from Millville Subbasin	Subsurface Inflow from Northern Bedrock Area	Total Inflow	Shallow Groundwater Uptake (ET of Shallow Groundwater)	Groundwater Discharge to Streams/Canals	Municipal Groundwater Pumping	Private Agricultural Groundwater Pumping	Private Residential Groundwater Pumping	Subsurface Outflow to Anderson Subbasin	Subsurface Outflow to Millville Subbasin	Subsurface Outflow to Northern Bedrock Area	Groundwater Discharge to Land Surface	Total Outflow	Change in Groundwater Storage (TAF)
1999 (W)	68	162	60	29	2	321	2	276	8	10	1	18	9	1	16	341	-20
2000 (AN)	75	171	58	27	2	333	1	268	8	8	1	19	10	1	18	334	-1
2001 (D)	46	154	52	25	2	279	1	238	8	10	1	20	10	1	9	298	-19
2002 (D)	67	157	55	24	2	305	1	244	9	11	1	18	10	1	11	306	-1
2003 (AN)	90	165	59	26	2	342	1	266	9	9	1	17	10	1	15	329	13
2004 (BN)	91	162	62	28	2	345	2	277	9	12	1	17	9	1	15	343	2
2005 (AN)	65	161	57	27	2	312	1	253	10	7	1	18	10	1	14	315	-3
2006 (W)	112	180	66	30	2	390	2	299	11	9	1	17	9	1	26	375	15
2007 (D)	50	151	55	27	2	285	2	245	10	11	1	18	10	1	9	307	-22
2008 (C)	56	154	53	25	2	290	2	235	9	11	1	19	10	1	9	297	-7
2009 (D)	46	160	49	22	2	279	1	222	10	9	1	20	10	1	9	283	-4
2010 (BN)	72	163	54	24	2	315	1	243	8	8	1	18	10	1	13	303	12
2011 (W)	77	173	55	26	2	333	1	262	7	8	1	19	10	1	16	325	8
2012 (BN)	46	158	49	25	2	280	1	233	9	9	1	21	10	1	9	294	-14
2013 (D)	60	150	53	24	2	289	1	236	8	11	1	19	10	1	8	295	-6
2014 (C)	40	148	45	21	2	256	1	204	10	10	1	21	10	1	6	264	-8
2015 (C)	56	150	48	22	2	278	1	217	9	11	1	20	10	1	8	278	0
2016 (BN)	88	154	55	23	2	322	1	243	7	10	1	18	10	1	11	302	20
2017 (W)	114	189	64	29	2	398	2	296	9	9	1	17	9	1	36	380	18
2018 (BN)	89	150	61	28	2	330	2	270	6	10	1	16	10	1	16	332	-2
2019 (D)	44	159	49	26	2	280	1	237	10	9	1	20	10	1	11	300	-20
2020 (C)	58	159	49	25	2	293	1	229	17	8	1	20	10	1	10	297	-4
2021 (D)	59	163	50	25	2	299	1	236	10	8	1	20	10	1	10	297	2
2022 (C)	43	155	45	24	2	269	1	214	18	9	1	21	10	1	7	282	-13
2023 (AN)	100	170	57	27	2	356	1	263	11	8	1	18	10	1	15	328	28
2024 (W)	116	171	64	31	2	384	1	295	16	7	1	16	9	1	22	368	16
2025 (W)	113	170	66	32	3	384	1	301	17	8	1	16	9	1	24	378	6
2026 (D)	52	155	54	28	2	291	1	247	12	8	1	19	10	1	12	311	-20
2027 (AN)	108	164	64	31	2	369	1	288	12	8	1	16	10	1	20	357	12
2028 (C)	45	152	50	26	2	275	1	230	19	9	1	19	10	1	10	300	-25
2029 (AN)	122	163	68	31	2	386	2	293	13	9	1	15	10	1	20	364	22
2030 (W)	127	167	68	33	3	398	2	307	18	8	1	15	9	1	26	387	11
2031 (BN)	70	158	58	30	2	318	1	261	18	8	1	17	10	1	15	332	-14
2032 (D)	77	155	59	29	2	322	1	261	13	8	1	17	10	1	14	326	-4
2033 (BN)	79	159	57	29	2	326	1	257	19	8	1	17	10	1	14	328	-2
2034 (BN)	75	162	56	28	2	323	1	253	19	9	1	18	10	1	14	326	-3
2035 (W)	139	167	68	32	3	409	1	306	19	8	1	15	9	1	27	387	22
2036 (W)	162	163	79	37	3	444	2	341	19	7	1	13	9	2	37	431	13
2037 (AN)	80	156	63	32	2	333	2	280	15	8	1	16	10	1	16	349	-16
2038 (AN)	91	159	63	31	2	346	1	278	15	8	1	16	10	1	17	347	-1
2039 (BN)	78	158	60	30	2	328	1	263	20	8	1	16	10	1	16	336	-8
2040 (W)	103	175	64	32	2	376	1	292	20	8	1	17	9	1	21	370	6
2041 (W)	119	171	67	33	3	393	2	300	21	8	1	15	9	1	24	381	12
2042 (AN)	73	166	59	31	2	331	1	272	16	7	1	17	10	1	18	343	-12
2043 (C)	21	151	43	25	2	242	1	206	23	9	1	22	10	1	6	279	-37
2044 (W)	118	182	63	30	2	395	1	285	22	8	1	17	10	1	20	365	30
2045 (W)	132	169	72	33	3	409	2	310	22	8	1	14	9	1	25	392	17
2046 (BN)	59	161	57	30	2	309	1	255	22	8	1	18	10	1	15	331	-22
2047 (C)	51	162	50	27	2	292	1	228	24	8	1	19	10	1	10	302	-10
2048 (AN)	119	165	65	30	2	381	2	283	18	9	1	16	10	1	18	358	23
2049 (W)	106	170	65	31	2	374	2	292	23	9	1	16	9	1	21	374	0
2050 (W)	104	177	63	31	2	377	2	288	23	7	1	17	9	1	22	370	7
2051 (AN)	68	163	57	29	2	319	1	263	19	8	1	18	10	1	15	336	-17
2052 (BN)	78	161	58	29	2	328	1	255	24	9	1	17	10	1	14	332	-4
2053 (C)	49	166	49	26	2	292	1	227	26	8	1	20	10	1	11	305	-13
2054 (C)	54	167	48	26	2	297	1	224	26	9	1	20	10	1	11	303	-6
2055 (C)	52	169	47	25	2	295	1	221	27	8	1	21	10	1	10	300	-5
2056 (C)	74	165	53	26	2	320	1	234	27	9	1	18	10	1	12	313	7
2057 (C)	61	165	49	25	2	302	1	225	27	9	1	20	10	1	10	304	-2
2058 (AN)	90	168	54	26	2	340	2	248	21	9	1	19	10	1	13	324	16
2059 (AN)	114	166	63	29	2	374	2	281	21	9	1	16	10	1	19	360	14
2060 (C)	47	160	50	26	2	285	1	230	28	9	1	19	10	1	11	310	-25
2061 (D)	79	166	53	26	2	326	1	244	21	8	1	19	10	1	13	318	8

Attachment 6
Enterprise Subbasin Groundwater System Annual Water Budget (Historical and Future Baseline)

	Groundwater System Inflows (TAF)						Groundwater System Outflows (TAF)											
Water Year[a]	Groundwater Recharge from Precipitation, Applied Water, and Septic Systems	Groundwater Recharge from Streams/Canals	Subsurface Inflow from Anderson Subbasin	Subsurface Inflow from Millville Subbasin	Subsurface Inflow from Northern Bedrock Area	Total Inflow	Shallow Groundwater Uptake (ET of Shallow Groundwater)	Groundwater Discharge to Streams/Canals	Municipal Groundwater Pumping	Private Agricultural Groundwater Pumping	Private Residential Groundwater Pumping	Subsurface Outflow to Anderson Subbasin	Subsurface Outflow to Millville Subbasin	Subsurface Outflow to Northern Bedrock Area	Groundwater Discharge to Land Surface	Total Outflow	Change in Groundwater Storage (TAF)
2062 (D)	69	169	52	26	2	318	1	241	22	9	1	19	10	1	13	317	1
2063 (C)	51	160	48	24	2	285	1	220	29	10	1	20	10	1	9	301	-16
2064 (C)	74	169	51	25	2	321	1	230	29	8	1	19	10	1	11	310	11
2065 (AN)	81	172	55	27	2	337	1	253	23	9	1	19	10	1	14	331	6
2066 (D)	58	167	50	25	2	302	1	234	23	9	1	20	10	1	12	311	-9
2067 (C)	51	172	46	24	2	295	1	217	30	8	1	21	10	1	10	299	-4
2068 (D)	85	167	55	27	2	336	1	248	24	9	1	19	10	1	13	326	10
2069 (C)	26	162	41	23	2	254	1	199	31	9	1	23	10	1	6	281	-27
2070 (C)	67	170	48	23	2	310	1	217	31	10	1	20	10	1	10	301	9
2071 (BN)	91	163	55	26	2	337	1	229	29	8	1	18	10	1	14	311	26

Historical Average (1999–2018)	70	161	56	26	2	315	1	251	9	10	1	19	10	1	14	316	-1
Current Average (2015–2018)	87	161	57	26	2	333	2	257	8	10	1	18	10	1	18	325	8
Projected Average (2019–2071)	80	165	57	28	2	332	1	256	21	8	1	18	10	1	15	331	1

[a] Water year types are shown in parentheses and defined as follows: W=Wet, AN=Above Normal, BN=Below Normal, D=Dry, and C=Critically Dry.

Notes:
TAF = thousand acre-feet
ET = evapotranspiration

Attachment 7
Anderson Subbasin Groundwater System Annual Water Budget (Historical and Future Baseline)

Attachment 7
Anderson Subbasin Groundwater System Annual Water Budget (Historical and Future Baseline)

	Groundwater System Inflows (TAF)								Groundwater System Outflows (TAF)												
Water Year[a]	Groundwater Recharge from Precipitation, Applied Water, and Septic Systems	Groundwater Recharge from Streams/Canals[b]	Subsurface Inflow from Enterprise Subbasin	Subsurface Inflow from Bowman Subbasin	Subsurface Inflow from Millville Subbasin	Subsurface Inflow from South Battle Creek Subbasin	Subsurface Inflow from Northern Bedrock Area	Total Inflow	Shallow Groundwater Uptake (ET of Shallow Groundwater)	Groundwater Discharge to Streams/Canals[c]	Municipal Groundwater Pumping	Private Agricultural Groundwater Pumping	Private Residential Groundwater Pumping	Subsurface Outflow to Enterprise Subbasin	Subsurface Outflow to Bowman Subbasin	Subsurface Outflow to Millville Subbasin	Subsurface Outflow to South Battle Creek Subbasin	Subsurface Outflow to Northern Bedrock Area	Groundwater Discharge to Land Surface	Total Outflow	Change in Groundwater Storage
1999 (W)	105	249	19	63	45	6	3	490	3	246	3	14	2	112	39	4	3	1	90	517	-27
2000 (AN)	115	257	18	61	44	7	3	505	3	235	3	13	2	113	40	4	3	1	94	511	-6
2001 (D)	78	232	19	57	41	5	2	434	3	214	3	14	2	106	41	3	3	1	72	462	-28
2002 (D)	107	240	20	57	41	6	3	474	3	223	3	15	2	105	42	3	2	1	77	476	-2
2003 (AN)	139	252	20	59	44	7	3	524	3	241	3	13	2	109	42	3	2	1	87	506	18
2004 (BN)	145	251	19	63	43	6	3	530	4	248	4	17	2	112	40	4	3	1	89	524	6
2005 (AN)	105	245	22	60	44	6	3	485	2	234	3	11	2	103	41	3	2	1	85	487	-2
2006 (W)	173	283	19	64	46	7	3	595	3	260	4	13	2	118	40	4	2	1	118	565	30
2007 (D)	86	234	19	60	44	6	3	452	4	229	4	15	2	107	40	3	3	1	76	484	-32
2008 (C)	96	237	19	57	40	5	2	456	4	217	4	16	2	106	42	3	3	1	75	473	-17
2009 (D)	78	235	18	54	37	5	2	429	2	200	4	14	2	105	43	3	3	1	71	448	-19
2010 (BN)	112	242	22	56	39	5	2	478	2	219	4	12	2	101	42	3	3	1	80	469	9
2011 (W)	118	255	20	57	42	6	3	501	2	228	3	12	2	109	42	3	3	1	87	492	9
2012 (BN)	75	239	19	55	38	4	2	432	3	204	3	13	2	106	43	3	3	1	72	453	-21
2013 (D)	101	240	18	56	38	5	2	460	3	213	5	16	2	108	42	4	3	1	73	470	-10
2014 (C)	70	237	17	52	32	4	2	414	3	183	7	14	2	105	45	3	3	1	66	432	-18
2015 (C)	93	235	20	53	34	4	2	441	3	195	7	15	2	101	45	3	3	1	69	444	-3
2016 (BN)	137	241	21	57	36	5	2	499	3	220	4	14	2	103	43	3	3	1	78	474	25
2017 (W)	165	296	20	60	45	7	3	596	3	247	4	13	2	115	41	4	2	1	130	562	34
2018 (BN)	129	237	25	60	47	6	3	507	3	251	4	14	2	101	41	3	2	1	86	508	-1
2019 (D)	71	234	20	56	38	3	2	424	3	206	8	13	2	104	41	3	3	1	68	452	-28
2020 (C)	87	232	21	54	38	3	2	437	2	204	9	12	2	100	44	3	3	1	67	447	-10
2021 (D)	91	239	20	56	37	3	2	448	2	205	8	12	2	104	42	3	3	1	69	451	-3
2022 (C)	70	221	19	53	33	3	2	401	2	187	9	13	2	102	44	3	3	1	55	421	-20
2023 (AN)	144	254	21	58	38	4	2	521	2	228	6	12	2	107	42	3	3	1	78	484	37
2024 (W)	169	260	21	64	41	5	3	563	2	255	5	11	2	113	41	3	3	1	98	534	29
2025 (W)	159	260	22	64	44	5	3	557	3	262	5	11	2	112	40	3	3	1	100	542	15
2026 (D)	82	230	21	60	40	3	3	439	2	222	7	11	2	104	41	3	3	1	73	469	-30
2027 (AN)	154	252	24	62	44	5	3	544	3	259	5	11	2	105	41	3	3	1	90	523	21
2028 (C)	73	220	21	57	38	3	2	414	3	210	9	13	2	101	42	3	3	1	65	452	-38
2029 (AN)	177	255	24	63	45	5	3	572	3	269	7	12	2	106	41	3	3	1	91	538	34
2030 (W)	178	262	22	65	46	5	3	581	3	273	5	11	2	112	40	3	3	1	105	558	23
2031 (BN)	104	235	23	61	44	4	3	474	3	241	6	12	2	103	40	2	3	1	80	493	-19
2032 (D)	114	236	23	60	43	4	3	483	3	239	8	12	2	104	41	3	3	1	78	494	-11
2033 (BN)	116	235	22	59	41	4	3	480	2	235	5	11	2	103	41	3	3	1	77	483	-3
2034 (BN)	111	235	22	59	40	4	3	474	3	230	6	12	2	104	41	3	3	1	75	480	-6
2035 (W)	198	259	21	64	44	5	3	594	3	268	6	11	2	113	41	3	3	1	108	559	35
2036 (W)	228	265	26	70	53	6	3	651	3	311	6	10	2	111	41	3	2	1	124	614	37
2037 (AN)	119	234	22	65	48	5	3	496	3	262	6	12	2	107	40	3	3	1	84	523	-27
2038 (AN)	134	243	22	64	46	5	3	517	3	259	5	11	2	107	40	3	3	1	87	521	-4
2039 (BN)	118	235	23	63	45	4	3	491	2	250	6	12	2	104	40	2	3	1	82	504	-13
2040 (W)	147	259	21	65	45	5	3	545	3	262	7	11	2	114	40	3	3	1	94	540	5
2041 (W)	170	261	21	66	46	5	3	572	3	271	6	11	2	113	40	3	3	1	102	555	17
2042 (AN)	106	244	22	62	47	5	3	489	2	249	6	10	2	106	40	2	3	1	85	506	-17
2043 (C)	41	214	17	54	34	2	2	364	2	185	10	13	2	105	43	3	3	1	55	422	-58
2044 (W)	170	272	20	62	42	5	3	574	3	252	8	12	2	114	42	3	3	1	96	536	38
2045 (W)	195	265	22	67	48	6	3	606	3	283	7	12	2	112	40	3	3	1	108	574	32
2046 (BN)	90	235	22	62	44	4	3	460	2	237	7	11	2	104	40	2	3	1	80	489	-29
2047 (C)	77	229	21	57	38	3	2	427	2	209	11	12	2	101	42	2	3	1	69	454	-27
2048 (AN)	173	249	22	63	42	4	3	556	3	257	8	13	2	108	41	3	3	1	87	526	30
2049 (W)	154	257	20	65	43	5	3	547	3	259	6	12	2	114	40	3	3	1	95	538	9
2050 (W)	149	260	20	65	42	5	3	544	3	254	7	11	2	113	40	3	3	1	98	535	9
2051 (AN)	102	237	20	61	41	4	3	468	3	235	7	12	2	109	40	3	3	1	78	493	-25
2052 (BN)	118	238	22	61	41	4	3	487	3	236	6	12	2	105	41	3	3	1	79	491	-4
2053 (C)	74	230	21	56	37	3	2	423	2	204	12	11	2	101	43	3	3	1	68	450	-27
2054 (C)	85	234	21	55	36	3	2	436	2	201	13	13	2	101	43	3	3	1	66	448	-12
2055 (C)	81	235	20	54	34	3	2	429	2	194	13	12	2	101	44	3	3	1	65	440	-11
2056 (C)	111	240	22	57	38	3	2	473	3	214	13	13	2	101	44	3	3	1	71	468	5
2057 (C)	93	235	21	56	34	3	2	444	2	200	13	12	2	102	44	3	3	1	67	449	-5
2058 (AN)	133	242	19	59	34	3	2	492	3	215	9	13	2	111	42	4	3	1	72	475	17
2059 (AN)	165	248	22	63	39	4	3	544	3	250	7	13	2	107	41	3	3	1	87	517	27
2060 (C)	75	227	21	57	35	3	2	420	3	206	11	13	2	102	42	3	3	1	67	453	-33
2061 (D)	114	241	21	58	35	3	2	474	2	214	12	12	2	104	42	3	3	1	73	468	6

Attachment 7
Anderson Subbasin Groundwater System Annual Water Budget (Historical and Future Baseline)

	Groundwater System Inflows (TAF)								Groundwater System Outflows (TAF)												
Water Year[a]	Groundwater Recharge from Precipitation, Applied Water, and Septic Systems	Groundwater Recharge from Streams/Canals[b]	Subsurface Inflow from Enterprise Subbasin	Subsurface Inflow from Bowman Subbasin	Subsurface Inflow from Millville Subbasin	Subsurface Inflow from South Battle Creek Subbasin	Subsurface Inflow from Northern Bedrock Area	Total Inflow	Shallow Groundwater Uptake (ET of Shallow Groundwater)	Groundwater Discharge to Streams/Canals[c]	Municipal Groundwater Pumping	Private Agricultural Groundwater Pumping	Private Residential Groundwater Pumping	Subsurface Outflow to Enterprise Subbasin	Subsurface Outflow to Bowman Subbasin	Subsurface Outflow to Millville Subbasin	Subsurface Outflow to South Battle Creek Subbasin	Subsurface Outflow to Northern Bedrock Area	Groundwater Discharge to Land Surface	Total Outflow	Change in Groundwater Storage
2062 (D)	102	241	21	58	35	3	2	462	3	211	10	12	2	104	42	3	3	1	72	463	-1
2063 (C)	80	226	20	55	32	2	2	417	3	193	12	14	2	103	43	3	3	1	61	438	-21
2064 (C)	108	238	21	56	34	3	2	462	2	206	14	11	2	102	43	3	3	1	70	457	5
2065 (AN)	119	251	19	59	35	3	2	488	2	217	10	12	2	109	41	3	3	1	76	476	12
2066 (D)	87	237	20	57	34	3	2	440	2	203	10	12	2	105	42	3	3	1	68	451	-11
2067 (C)	80	235	20	54	32	2	2	425	2	190	12	12	2	102	44	3	3	1	63	434	-9
2068 (D)	129	241	22	59	36	3	2	492	3	220	12	13	2	104	44	3	3	1	74	479	13
2069 (C)	45	221	17	52	28	2	2	367	2	168	12	13	2	105	44	4	4	1	52	407	-40
2070 (C)	101	236	20	53	31	2	2	445	3	191	14	14	2	103	45	4	3	1	61	441	4
2071 (BN)	132	230	21	57	34	3	2	479	3	200	11	11	2	105	42	3	3	1	75	456	23

Historical Average (1999–2018)	111	247	20	58	41	6	3	486	3	225	4	14	2	107	42	3	3	1	84	488	-2
Current Average (2015–2018)	131	252	22	58	41	6	3	513	3	228	5	14	2	105	43	3	3	1	91	498	15
Projected Average (2019–2071)	119	242	21	60	39	4	3	488	3	229	9	12	2	106	42	3	3	1	79	489	-1

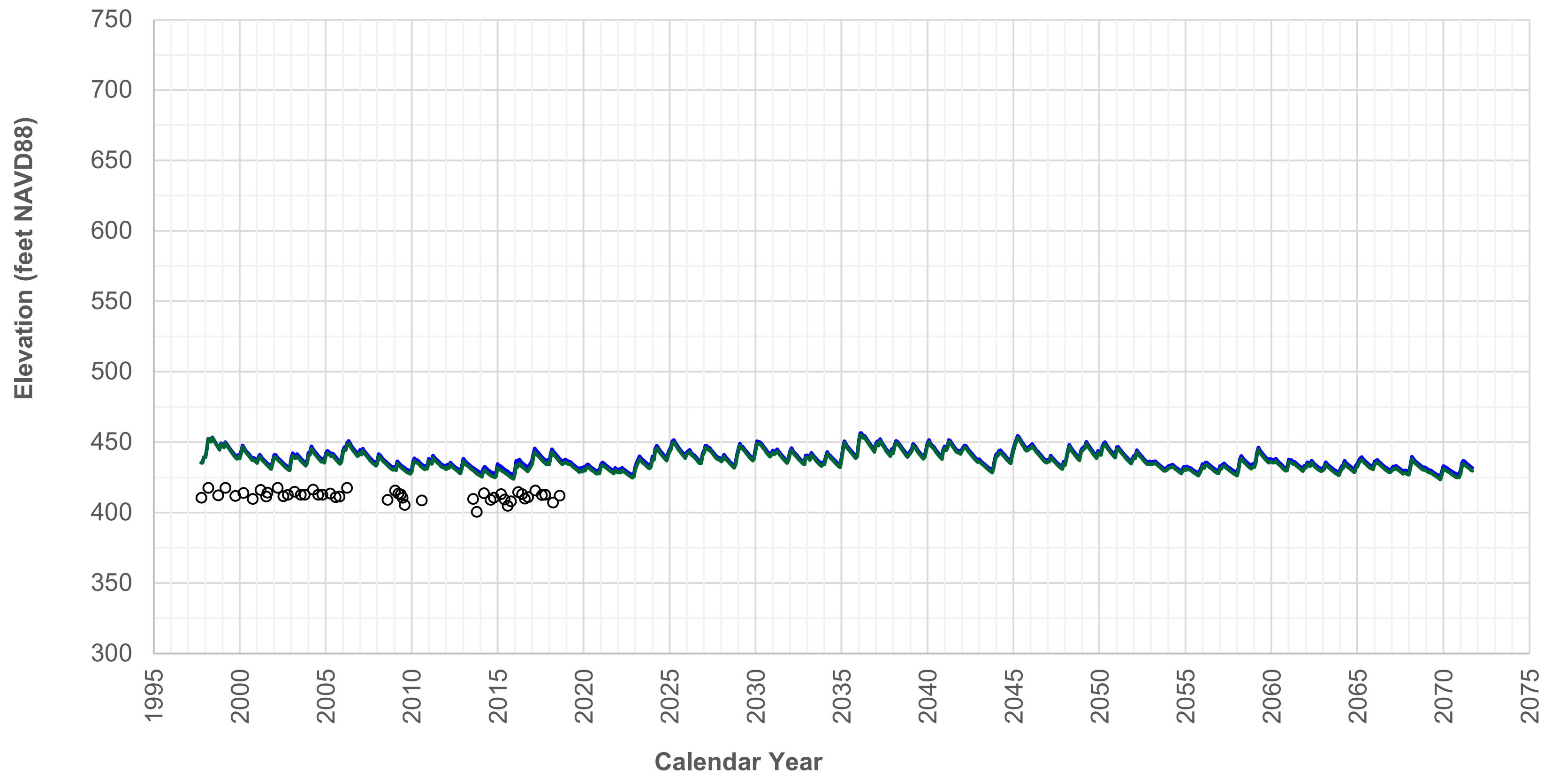
[a] Water year types are shown in parentheses and defined as follows: W=Wet, AN=Above Normal, BN=Below Normal, D=Dry, and C=Critically Dry.

[b] Leakage from the Anderson-Cottonwood Irrigation District annually contributes approximately 29 to 37 TAF of groundwater recharge to the aquifer system in the Anderson Subbasin under historical and projected conditions.

Notes:
TAF = thousand acre-feet
ET = evapotranspiration

Attachment 8
Comparison of Projected Groundwater Hydrographs

28N/04W-04P01



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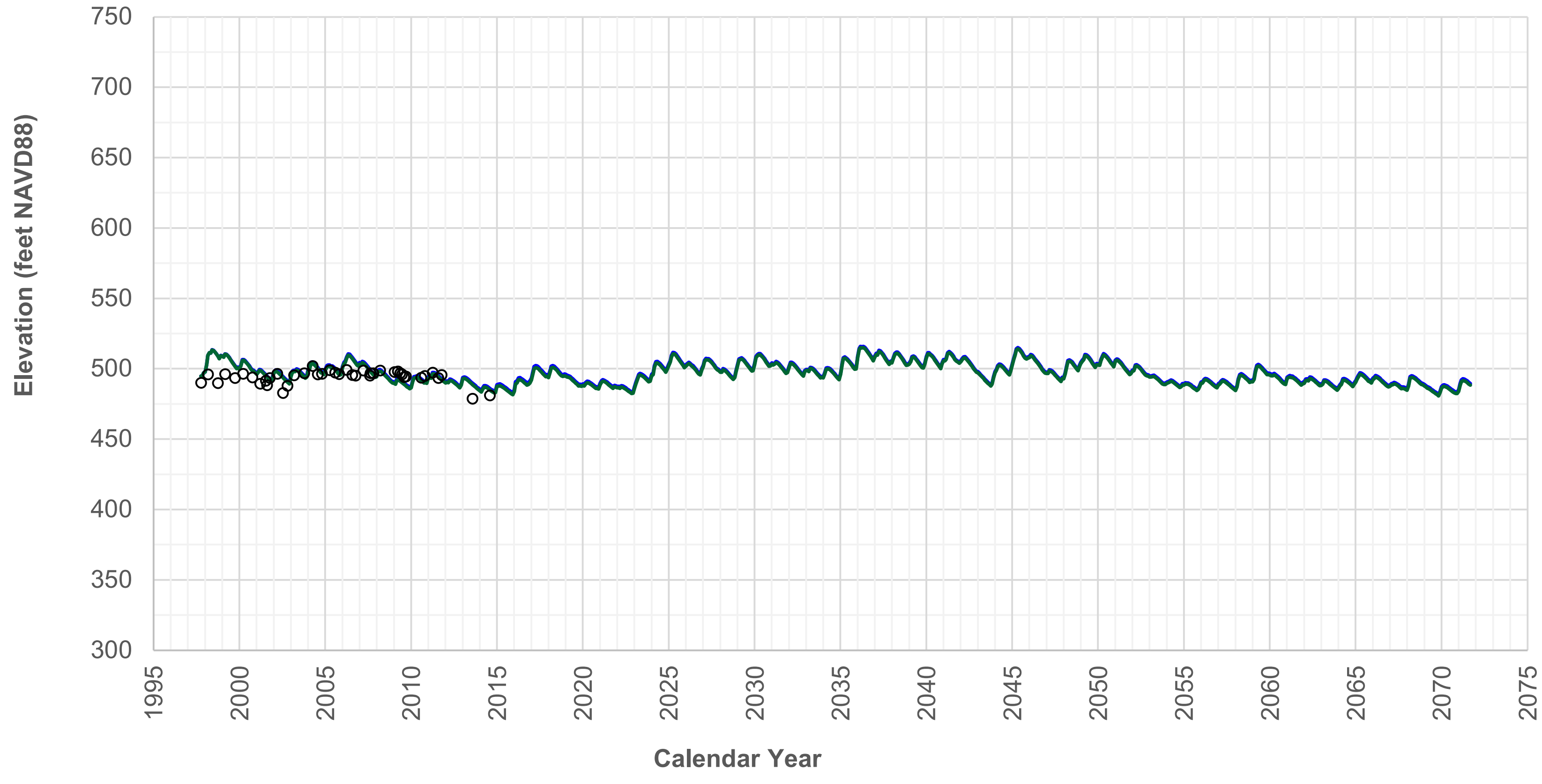
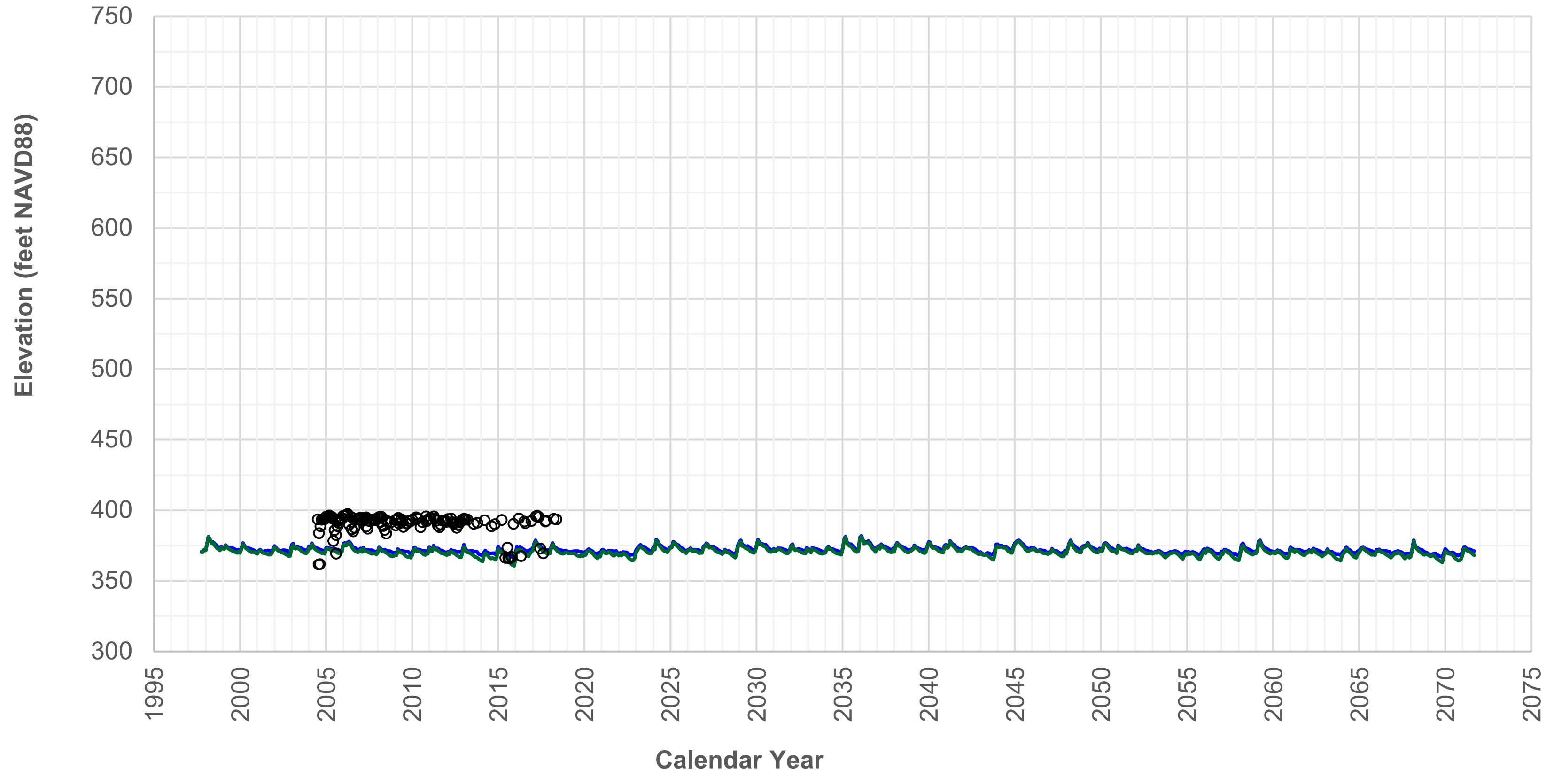


29N/03W-18M01



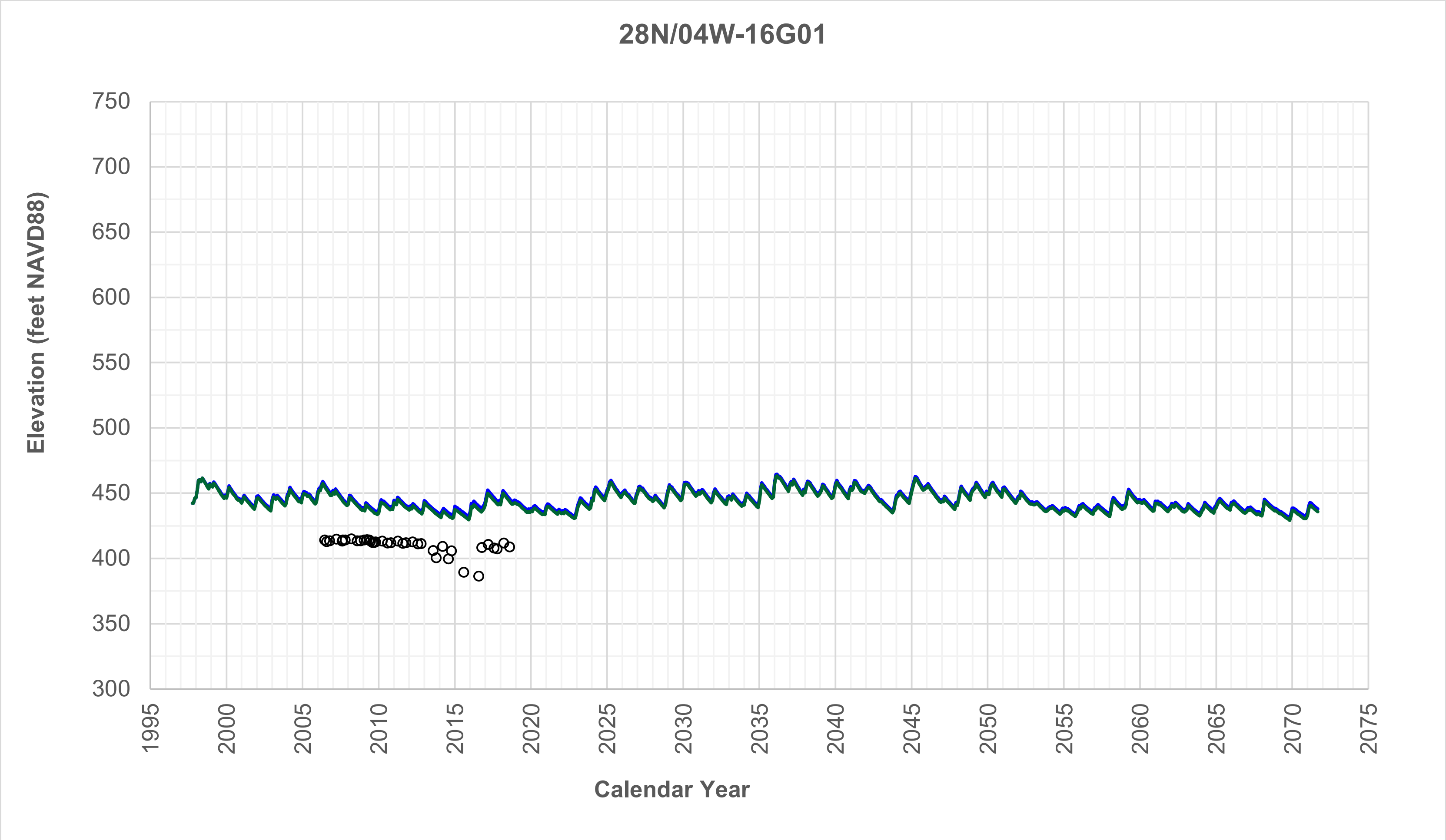
GRAPH LEGEND

○ TARGET GROUNDWATER ELEVATION (feet NAVD88)

— HISTORIC AND FUTURE BASELINE SIMULATED GROUNDWATER ELEVATION

— INCREASED GROUNDWATER USE SCENARIO SIMULATED GROUNDWATER ELEVATION

ATTACHMENT 8 (PAGE 1 OF 28)
COMPARISON OF PROJECTED GROUNDWATER HYDROGRAPHS
Numerical Flow Model Documentation
Redding Area Groundwater Basin



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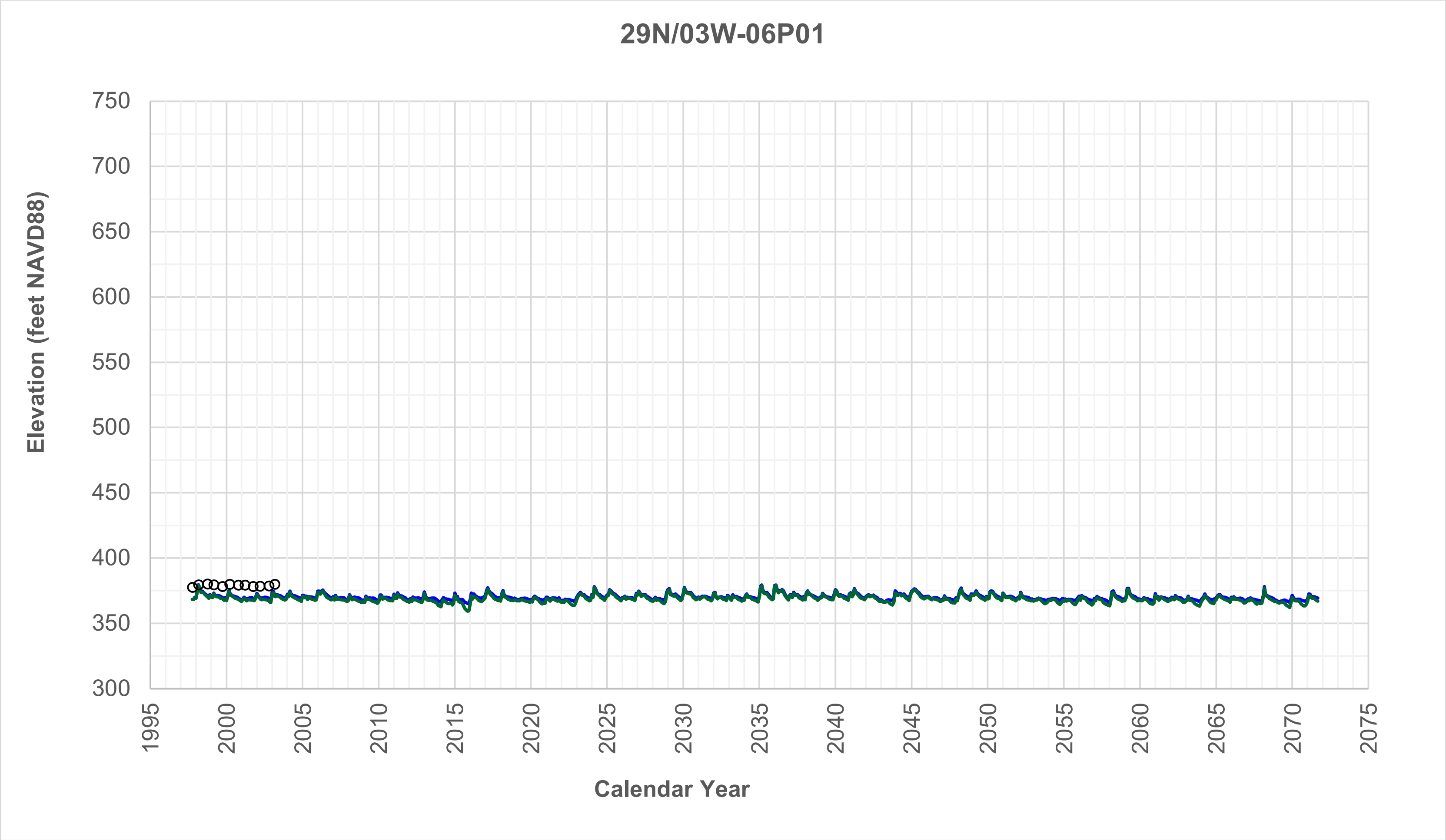

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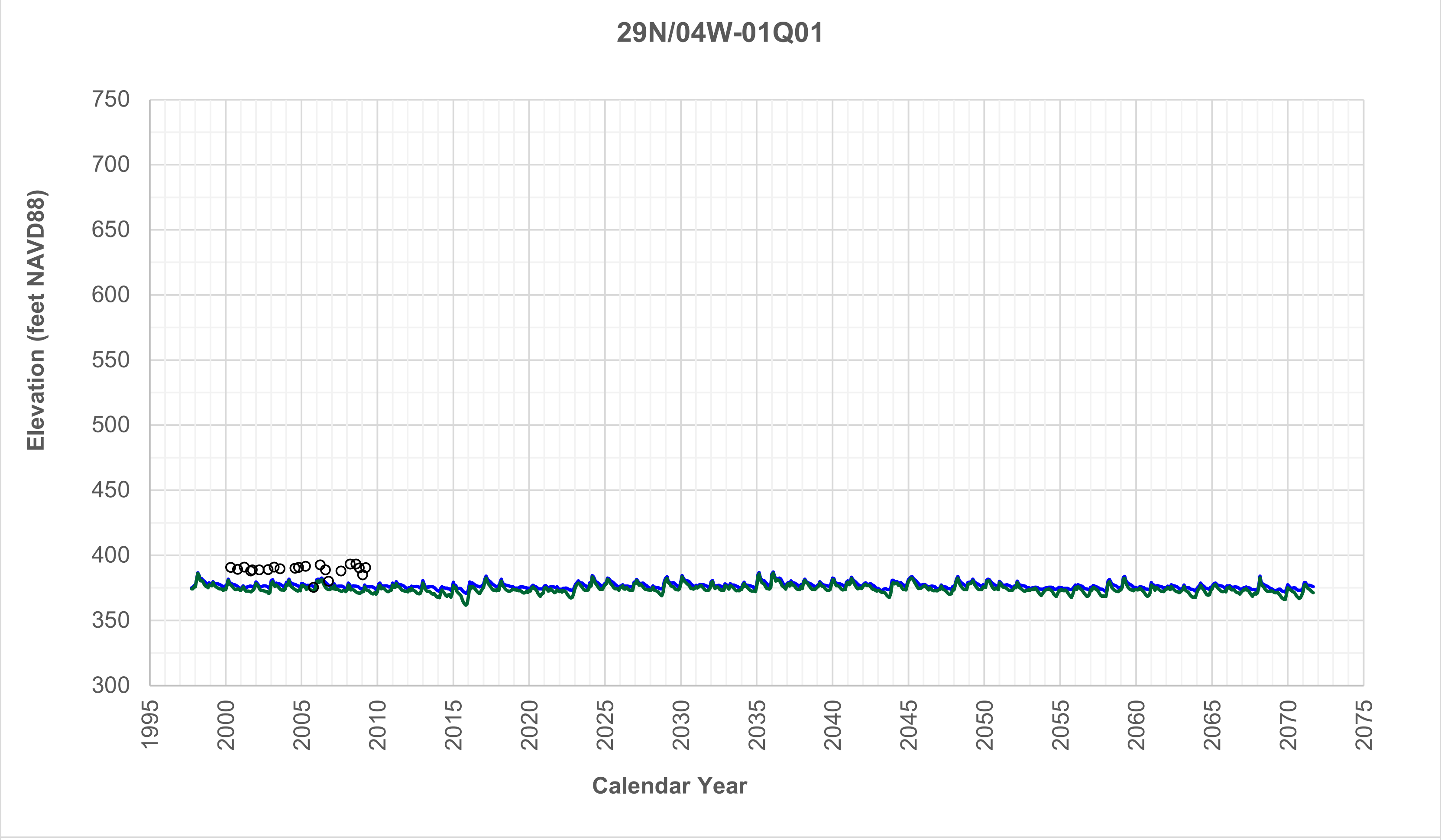


29N/04W-01Q01

GRAPH LEGEND

○ TARGET GROUNDWATER ELEVATION (feet NAVD88)

— HISTORIC AND FUTURE BASELINE SIMULATED GROUNDWATER ELEVATION

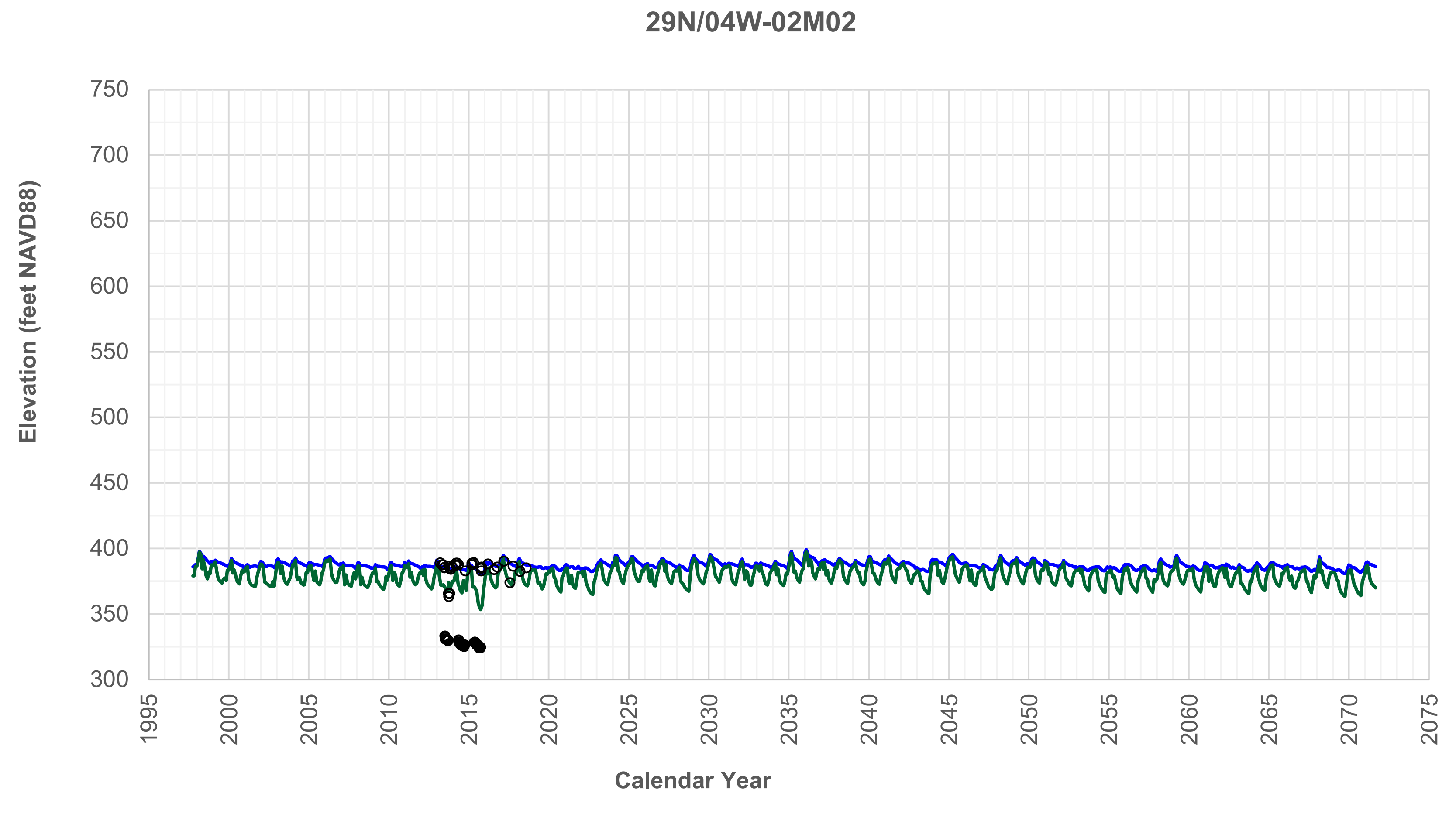
— INCREASED GROUNDWATER USE SCENARIO SIMULATED GROUNDWATER ELEVATION

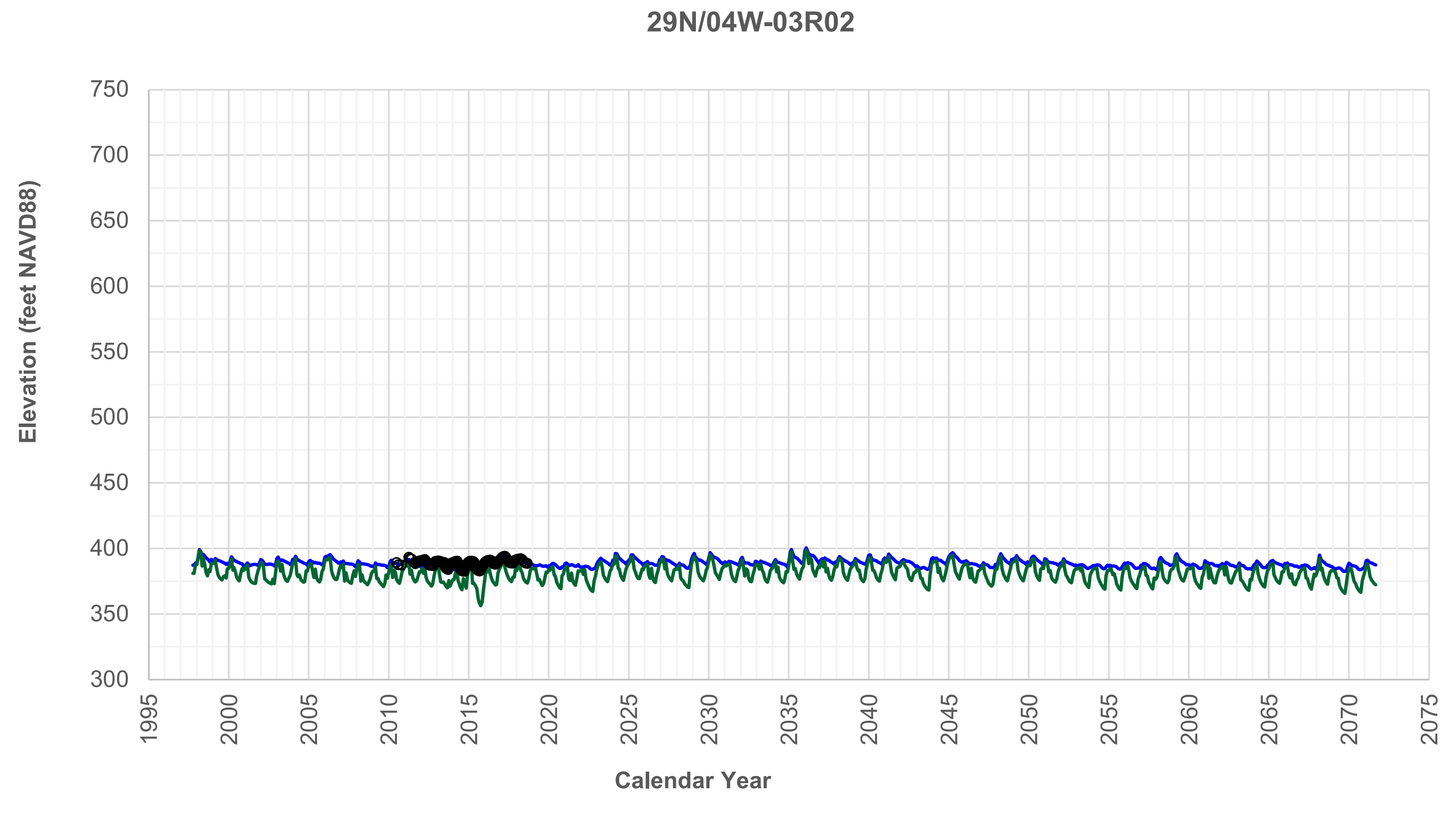
ATTACHMENT 8 (PAGE 2 OF 28)

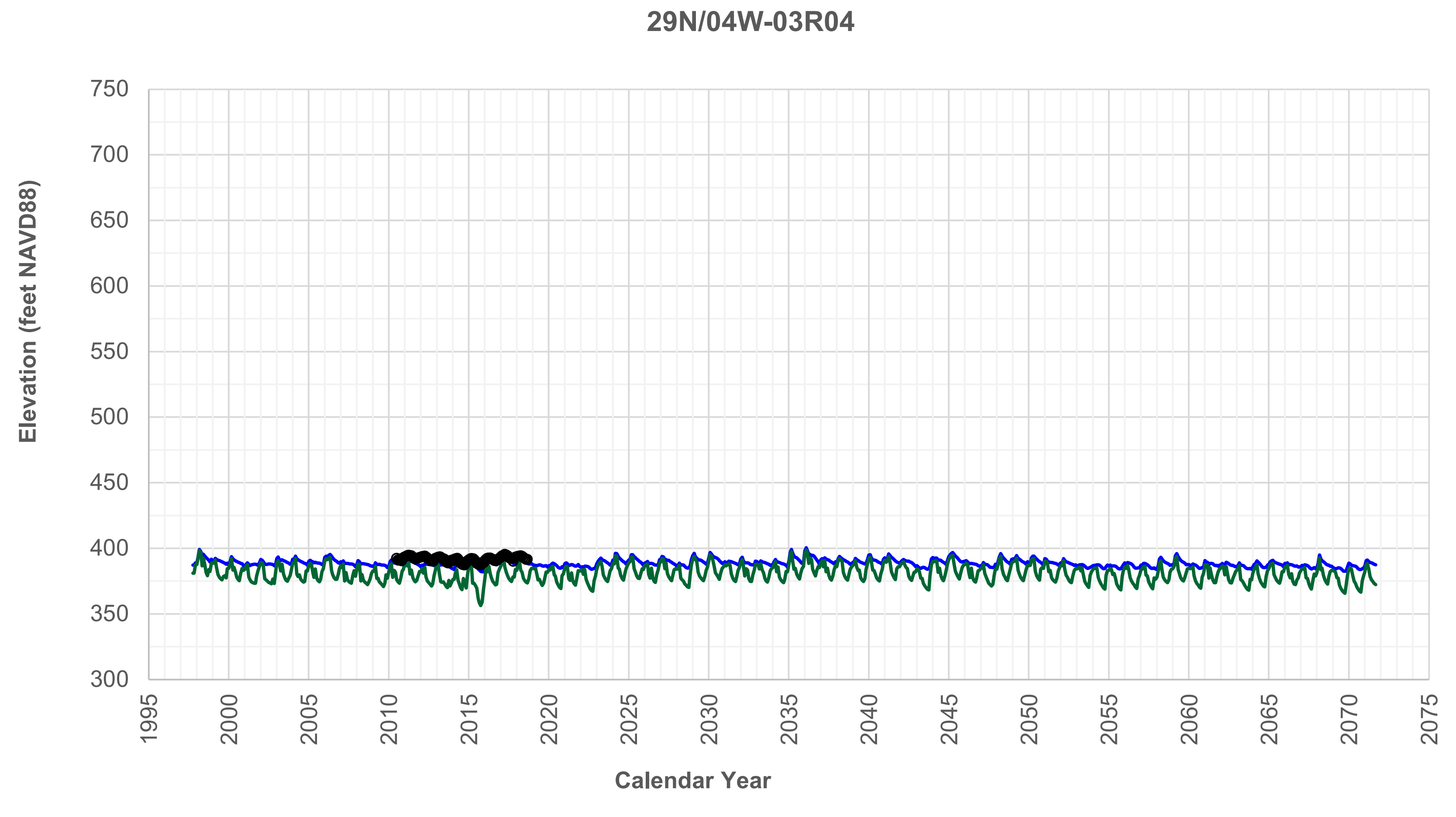
COMPARISON OF PROJECTED GROUNDWATER HYDROGRAPHS

Numerical Flow Model Documentation

Redding Area Groundwater Basin

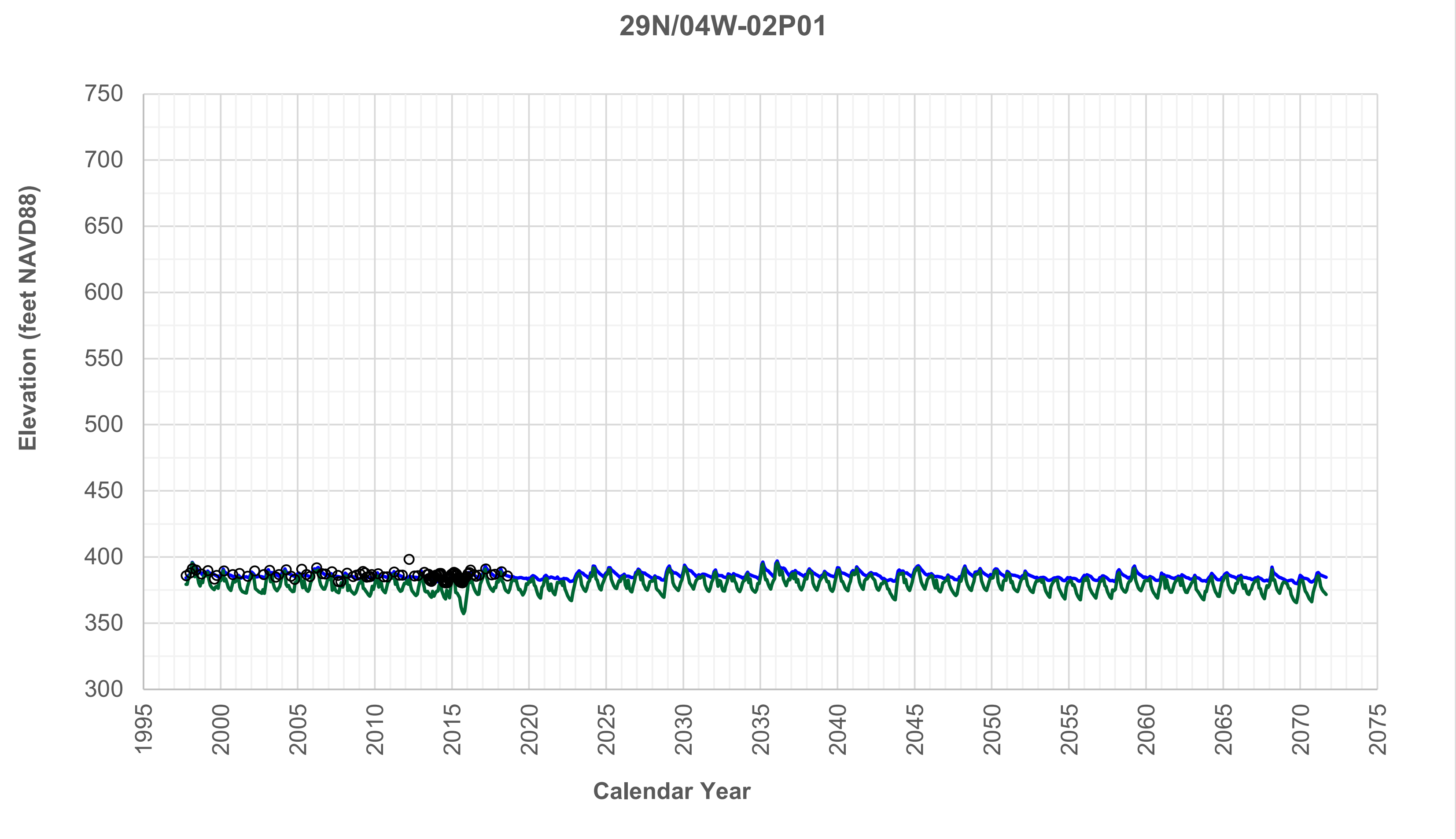






GRAPH LEGEND

- ○ TARGET GROUNDWATER ELEVATION (feet NAVD88)
- HISTORIC AND FUTURE BASELINE SIMULATED GROUNDWATER ELEVATION
- INCREASED GROUNDWATER USE SCENARIO SIMULATED GROUNDWATER ELEVATION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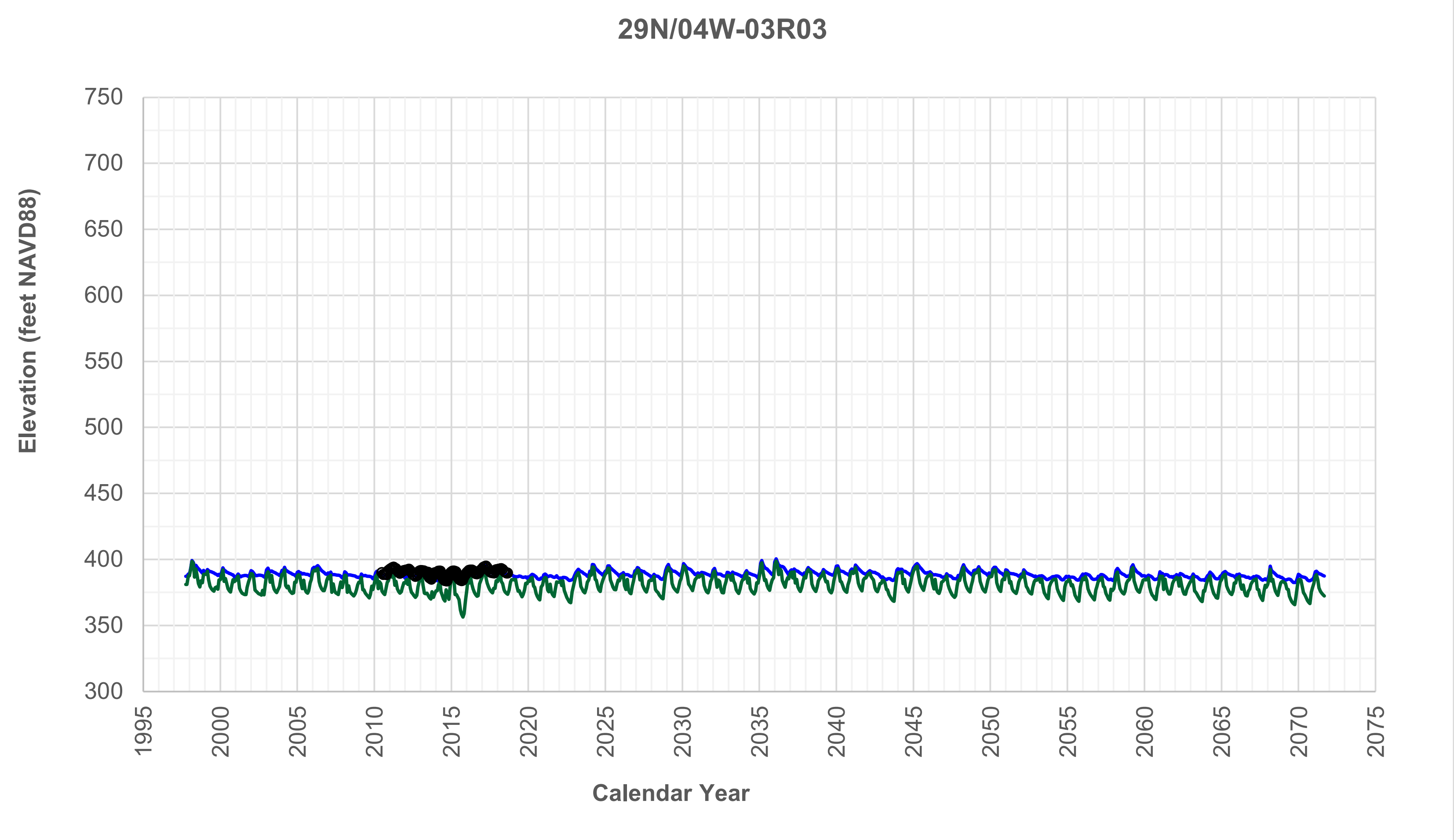
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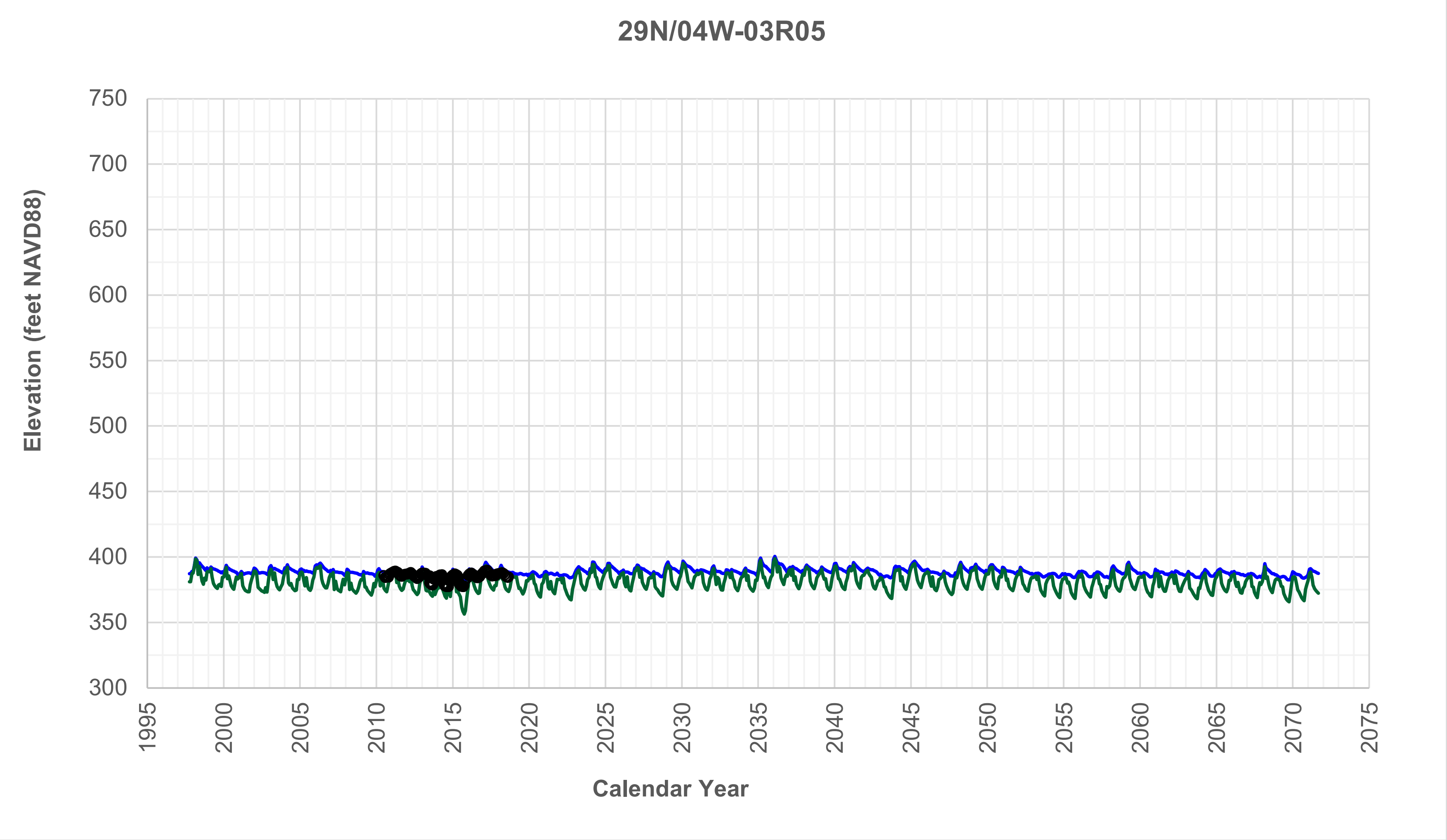
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GRAPH LEGEND

○ TARGET GROUNDWATER ELEVATION (feet NAVD88)

— HISTORIC AND FUTURE BASELINE SIMULATED GROUNDWATER ELEVATION

— INCREASED GROUNDWATER USE SCENARIO SIMULATED GROUNDWATER ELEVATION

ATTACHMENT 8 (PAGE 4 OF 28)
COMPARISON OF PROJECTED GROUNDWATER HYDROGRAPHS
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Redding Area Groundwater Basin

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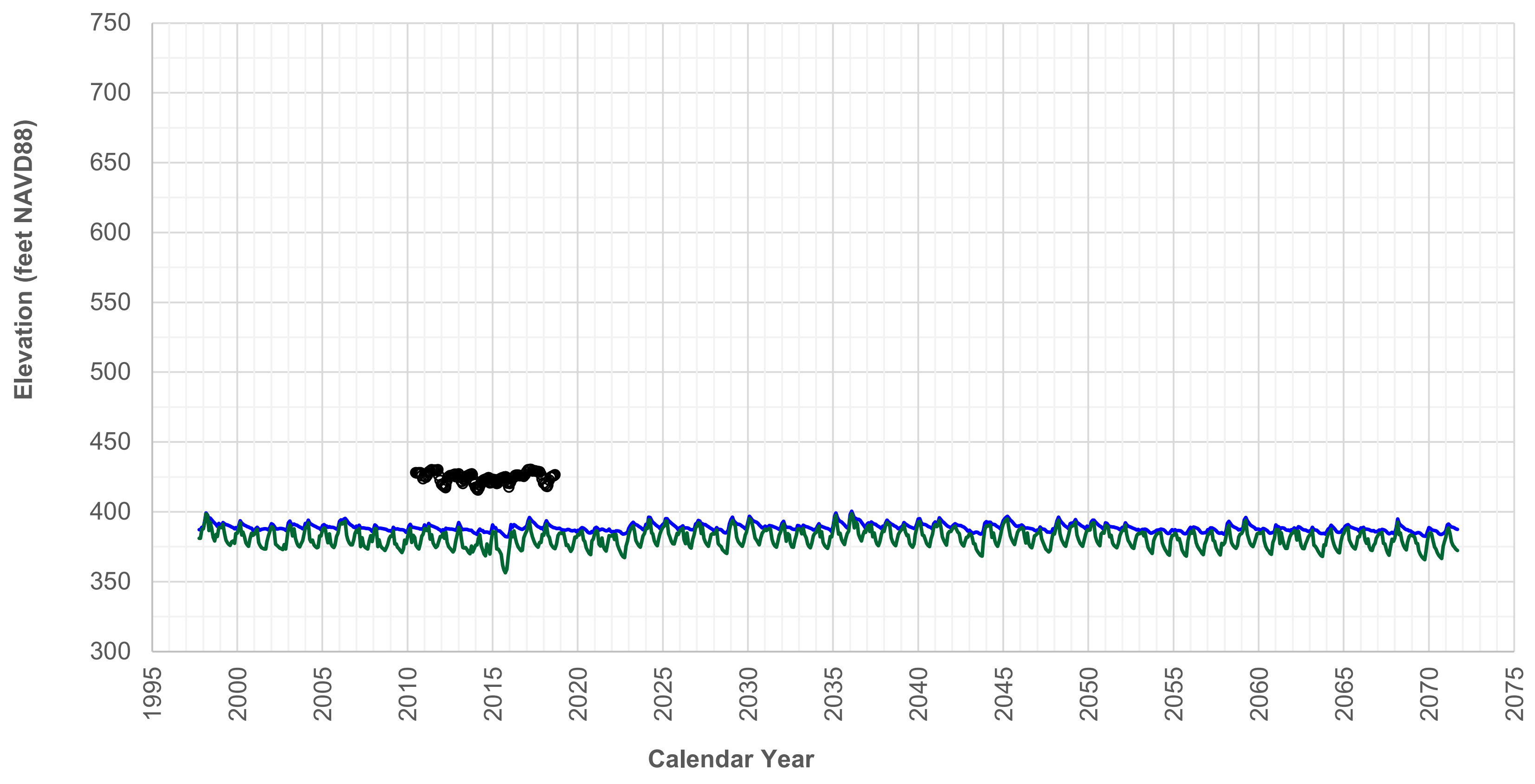

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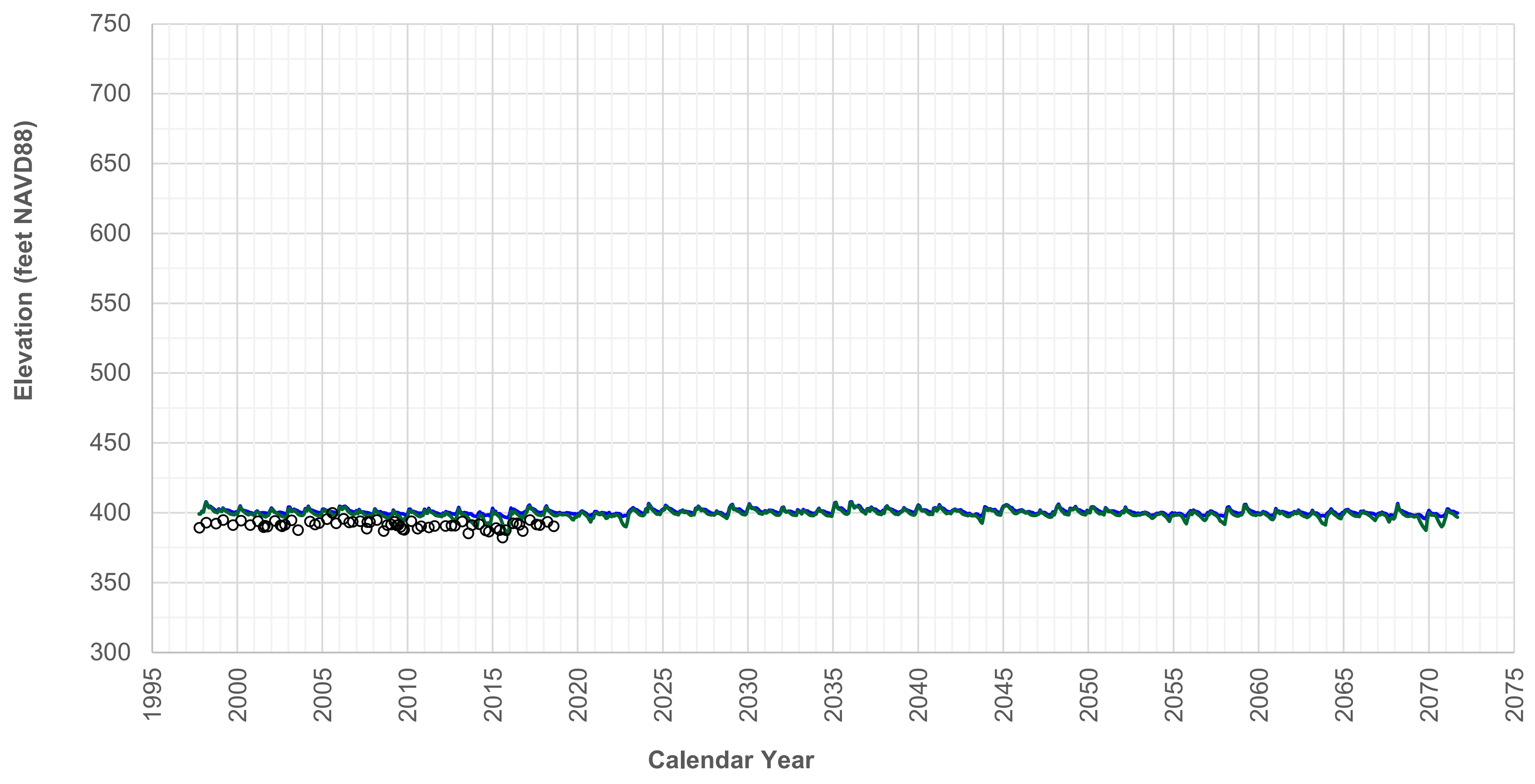

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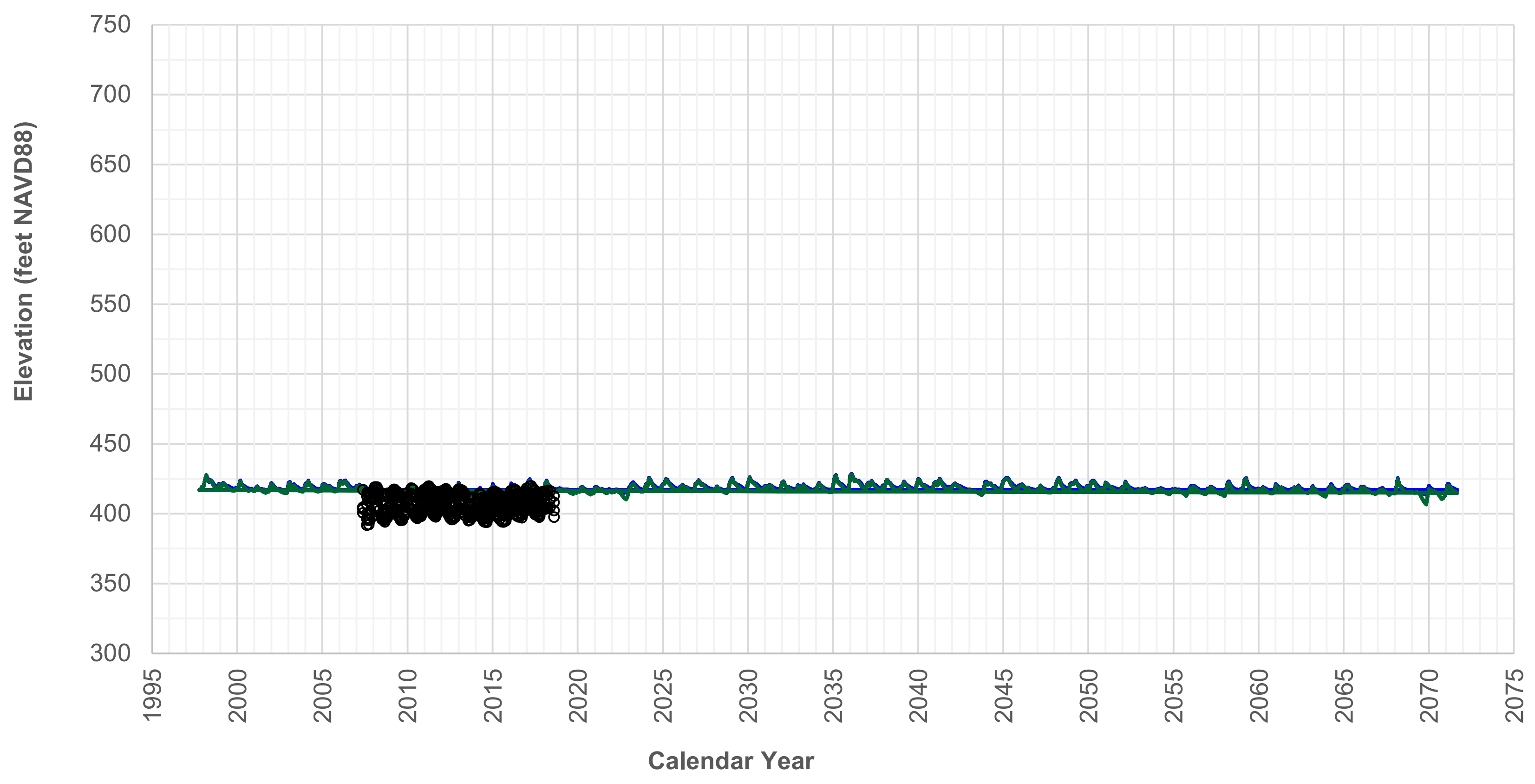

GRAPH LEGEND

○ TARGET GROUNDWATER ELEVATION (feet NAVD88)

— HISTORIC AND FUTURE BASELINE SIMULATED GROUNDWATER ELEVATION

— INCREASED GROUNDWATER USE SCENARIO SIMULATED GROUNDWATER ELEVATION

ATTACHMENT 8 (PAGE 5 OF 28)

COMPARISON OF PROJECTED GROUNDWATER HYDROGRAPHS

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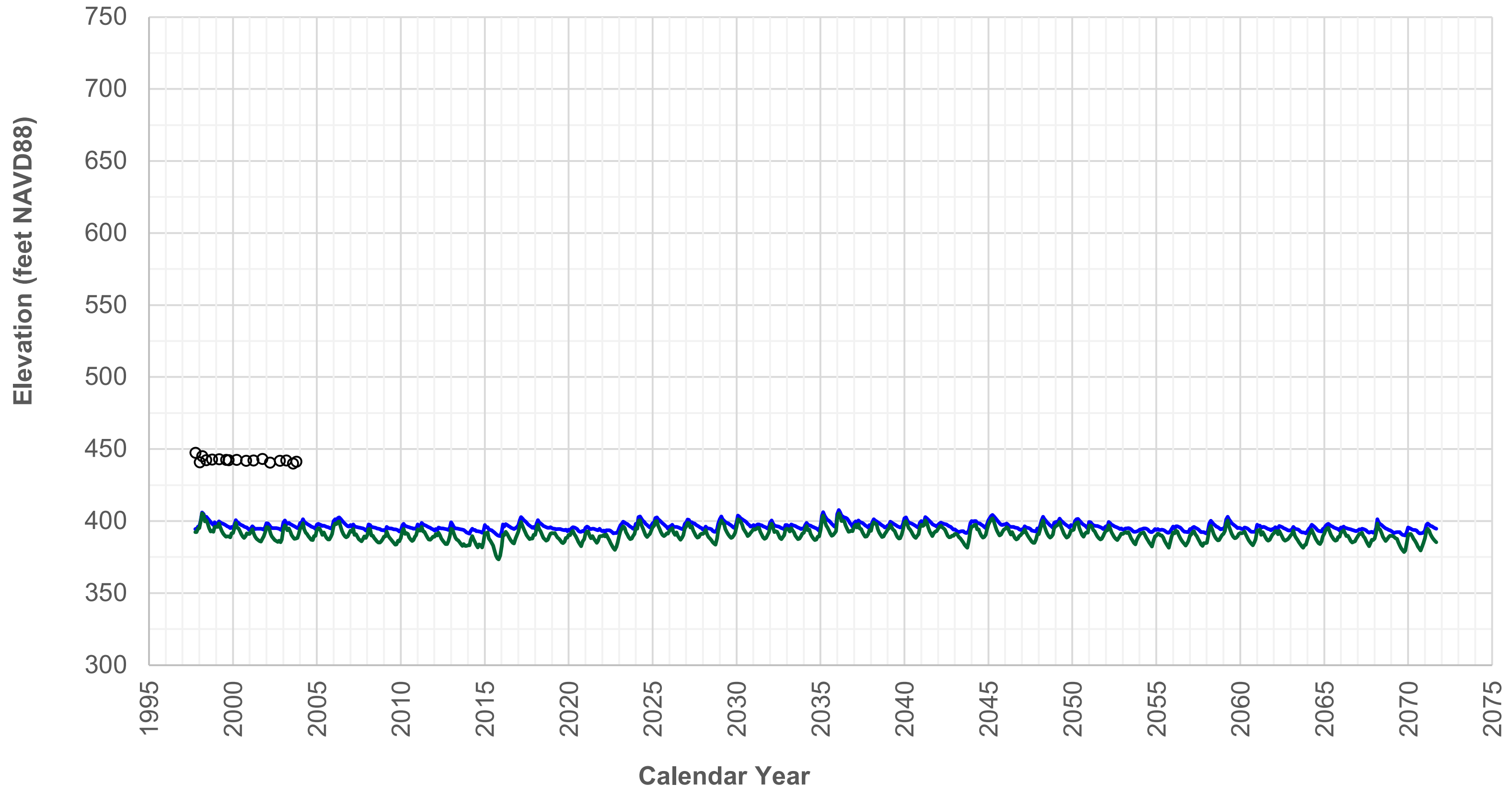

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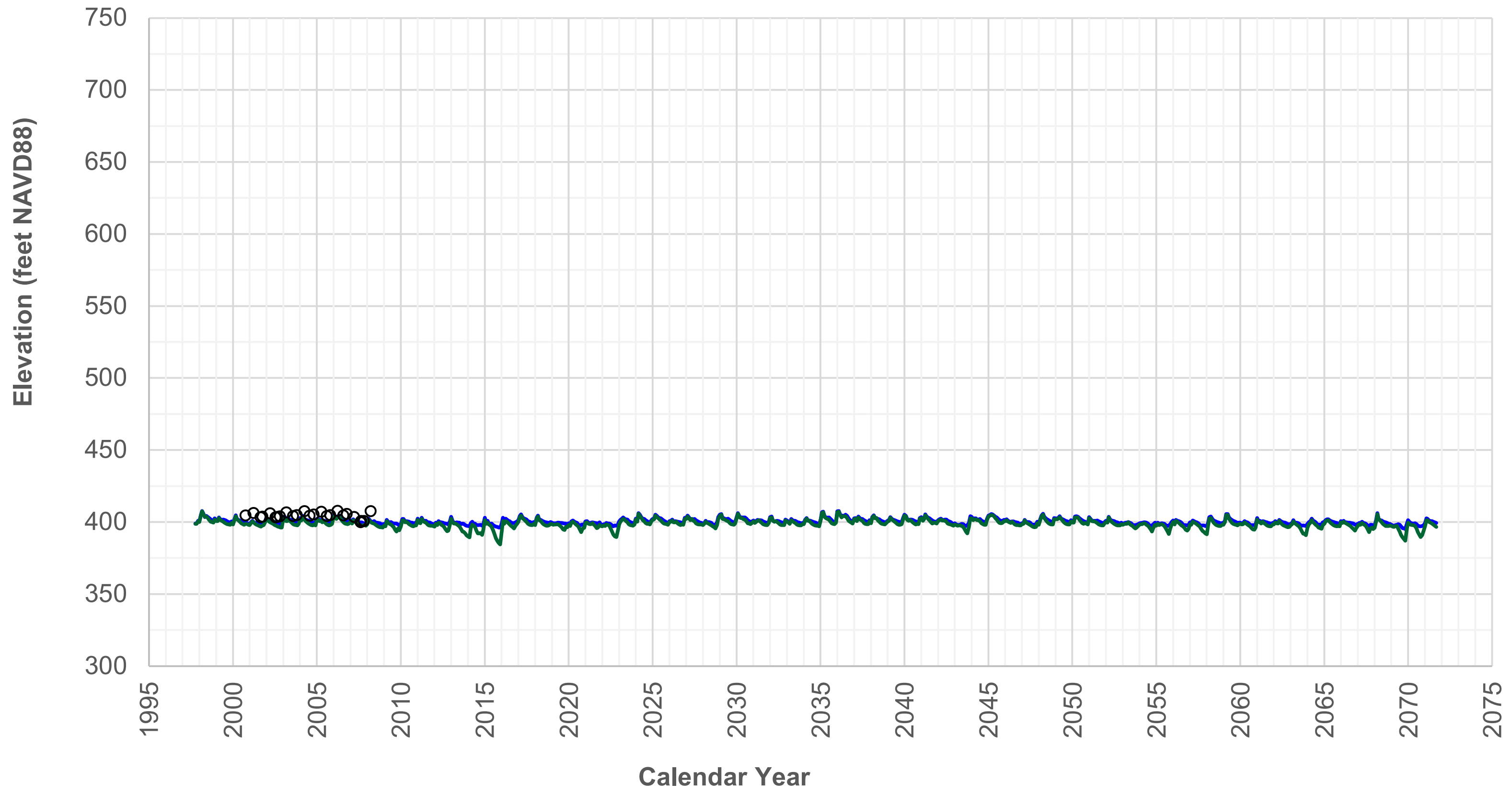

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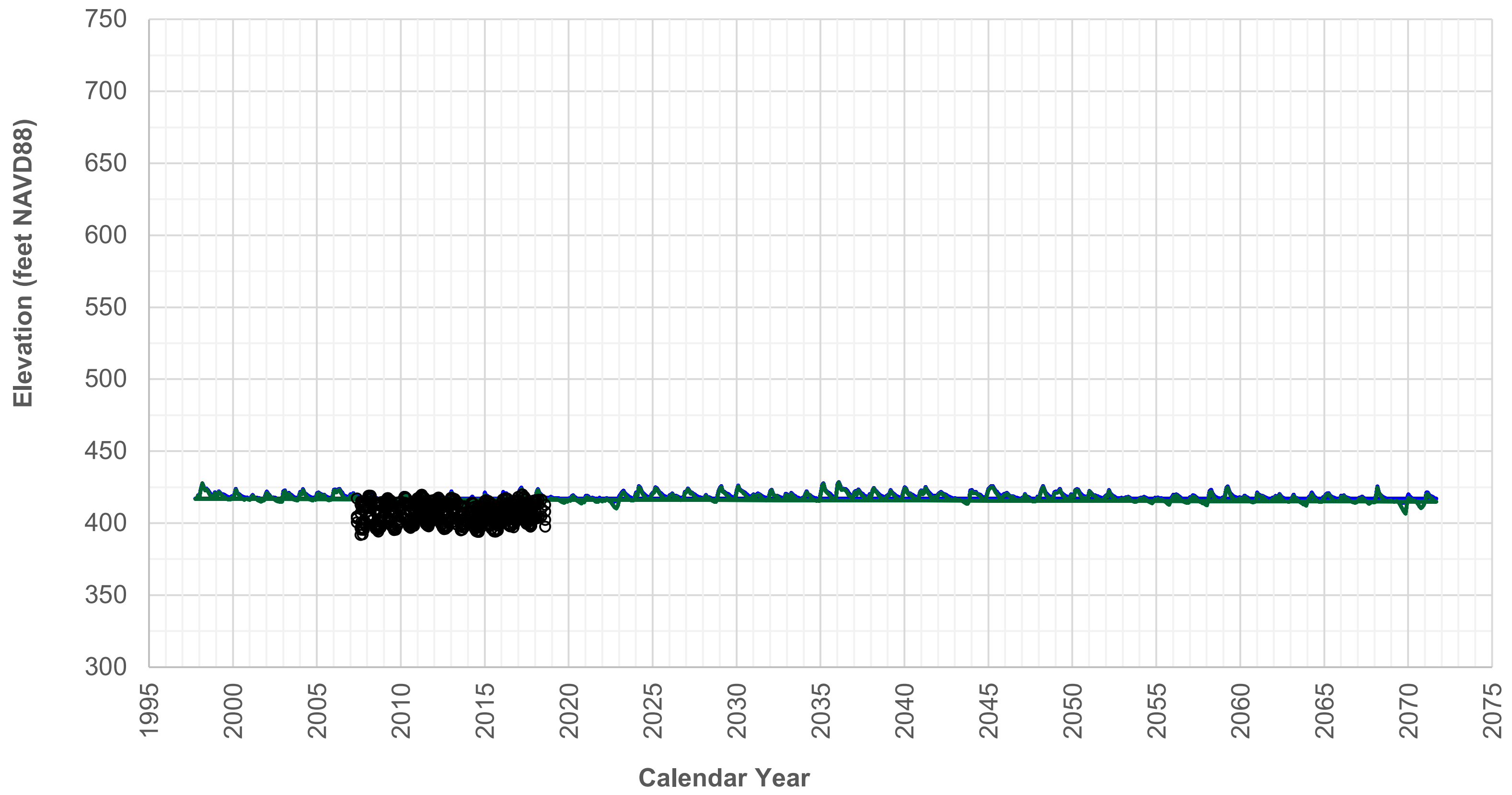


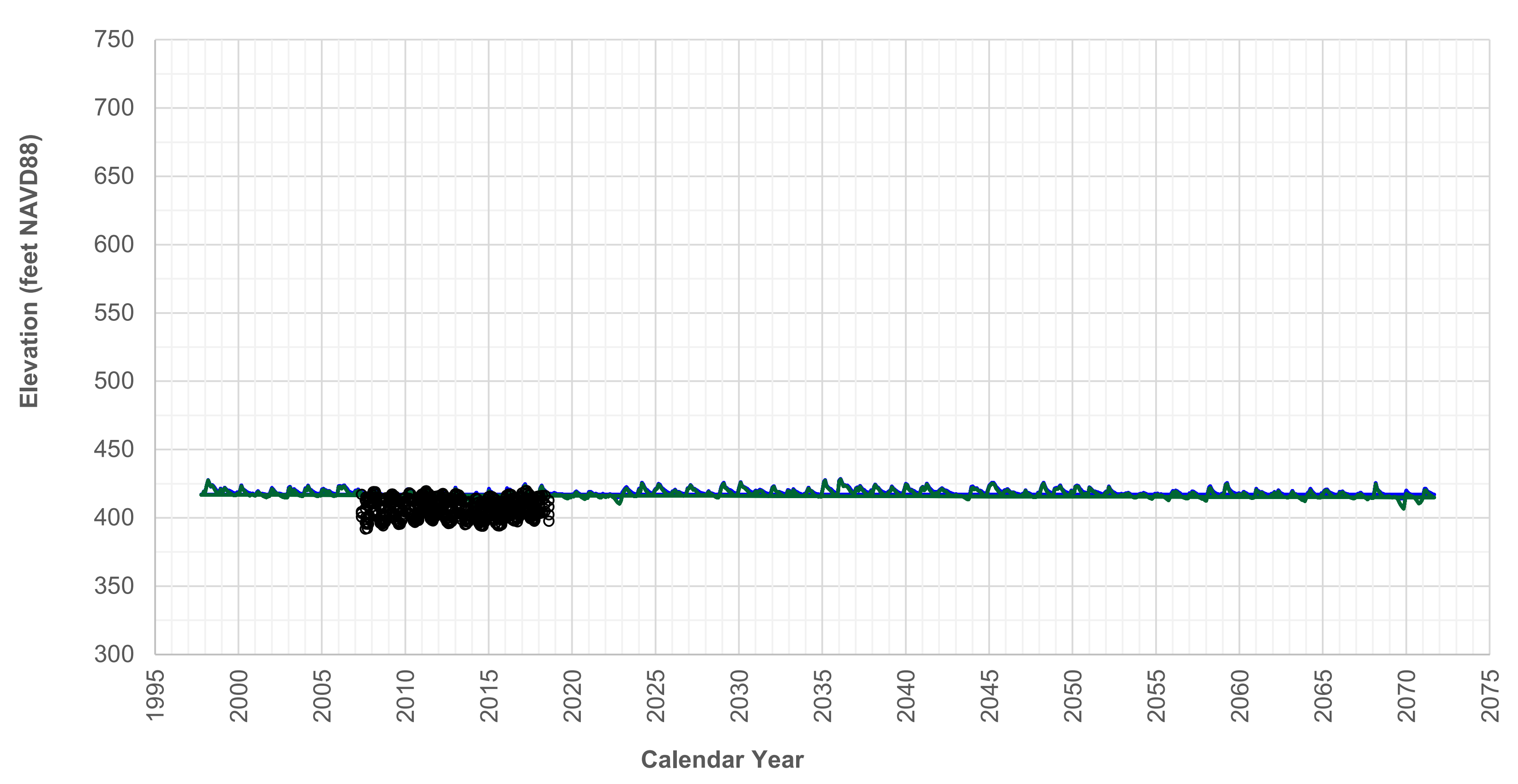
GRAPH LEGEND

○ TARGET GROUNDWATER ELEVATION (feet NAVD88)

— HISTORIC AND FUTURE BASELINE SIMULATED GROUNDWATER ELEVATION

— INCREASED GROUNDWATER USE SCENARIO SIMULATED GROUNDWATER ELEVATION

ATTACHMENT 8 (PAGE 6 OF 28)
COMPARISON OF PROJECTED GROUNDWATER HYDROGRAPHS
Numerical Flow Model Documentation
Redding Area Groundwater Basin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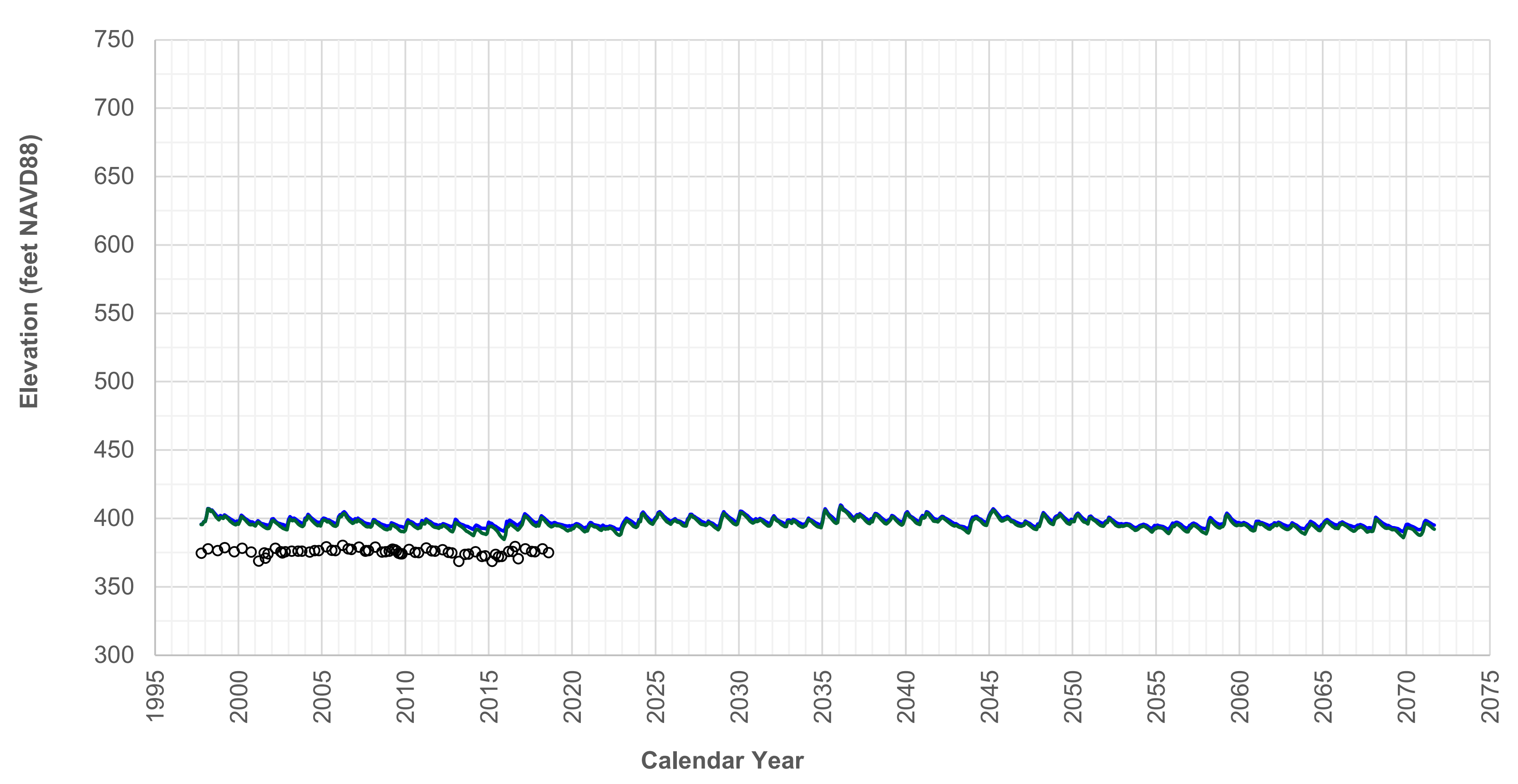
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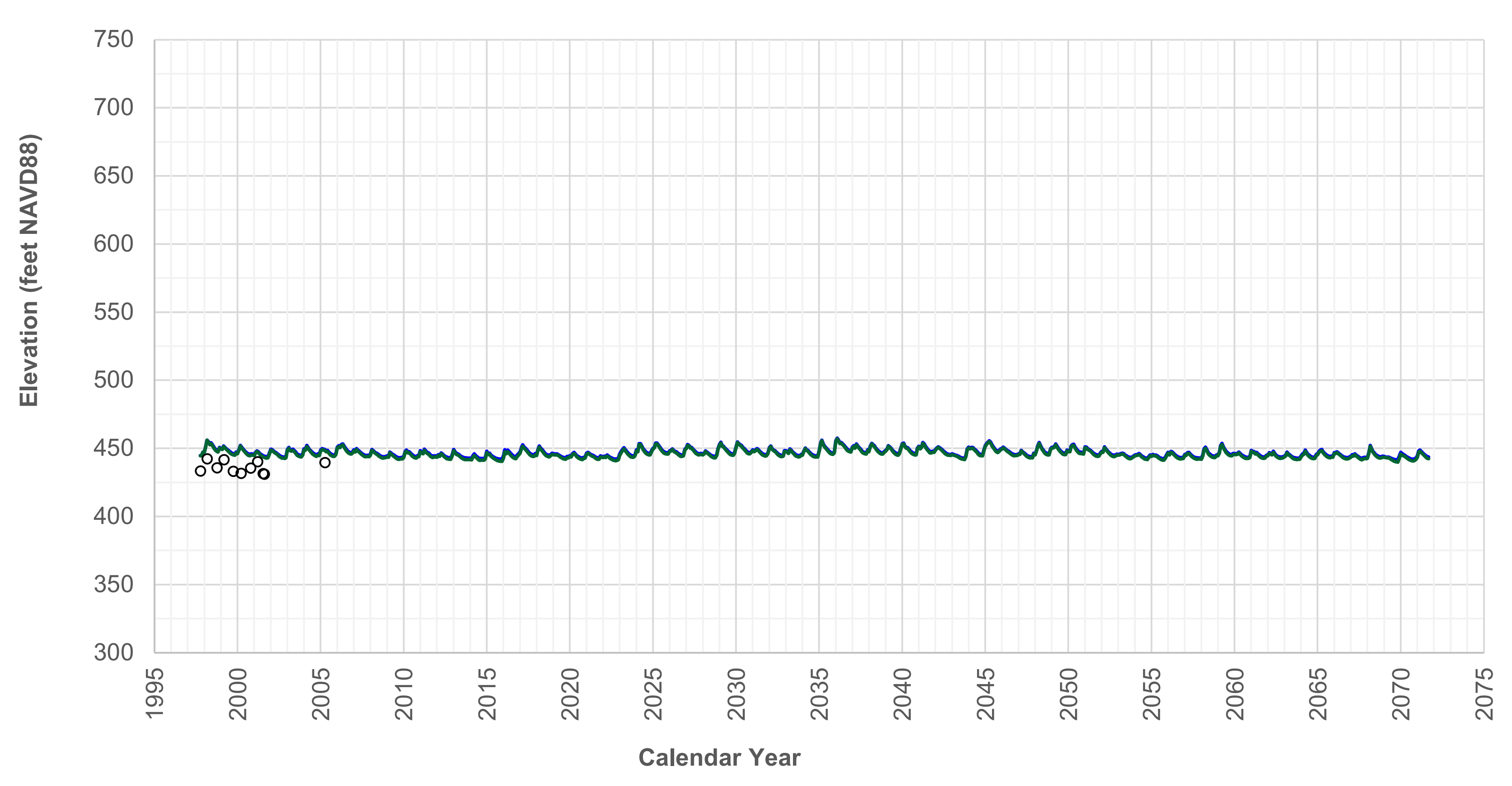
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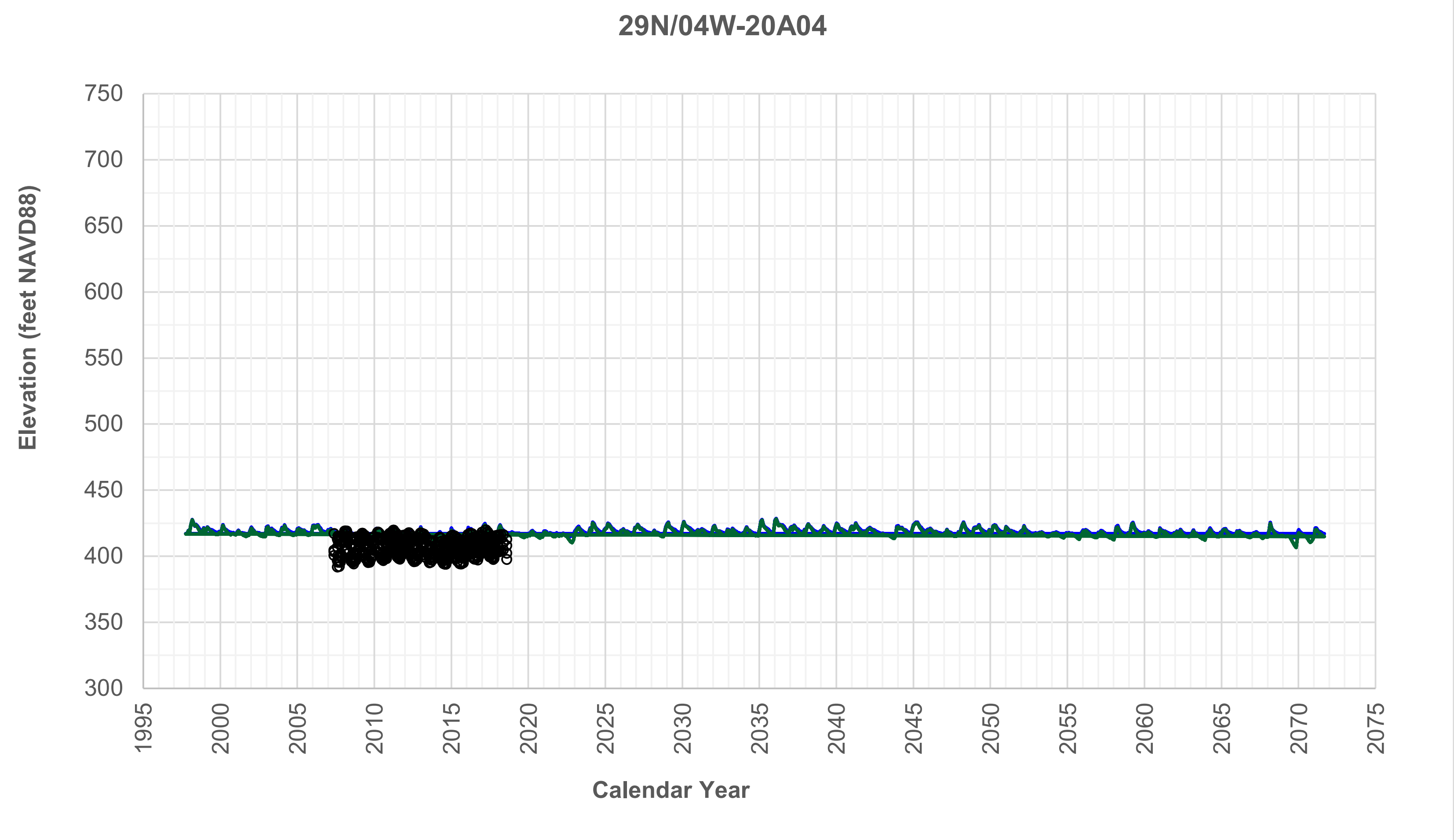
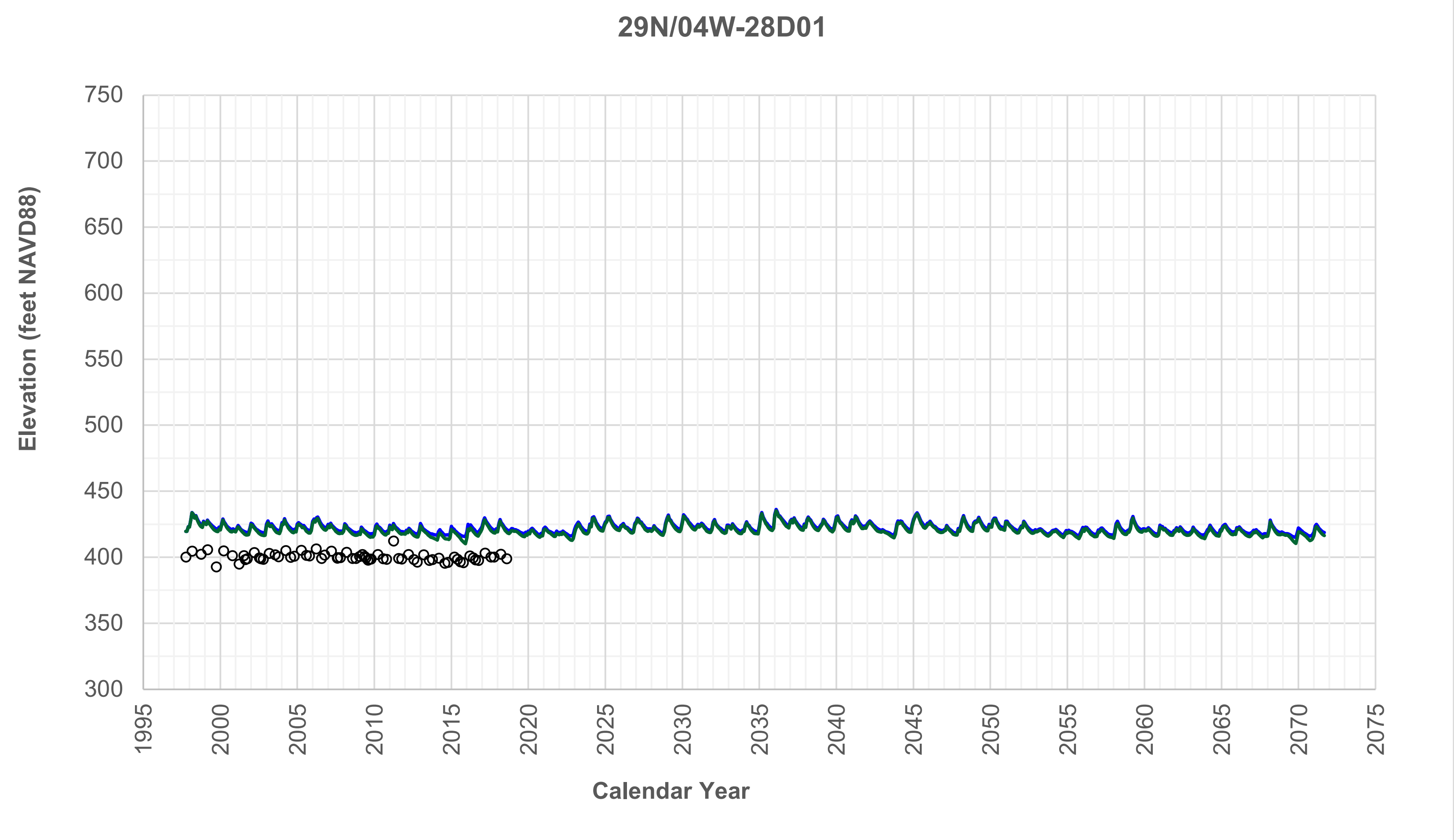
GRAPH LEGEND

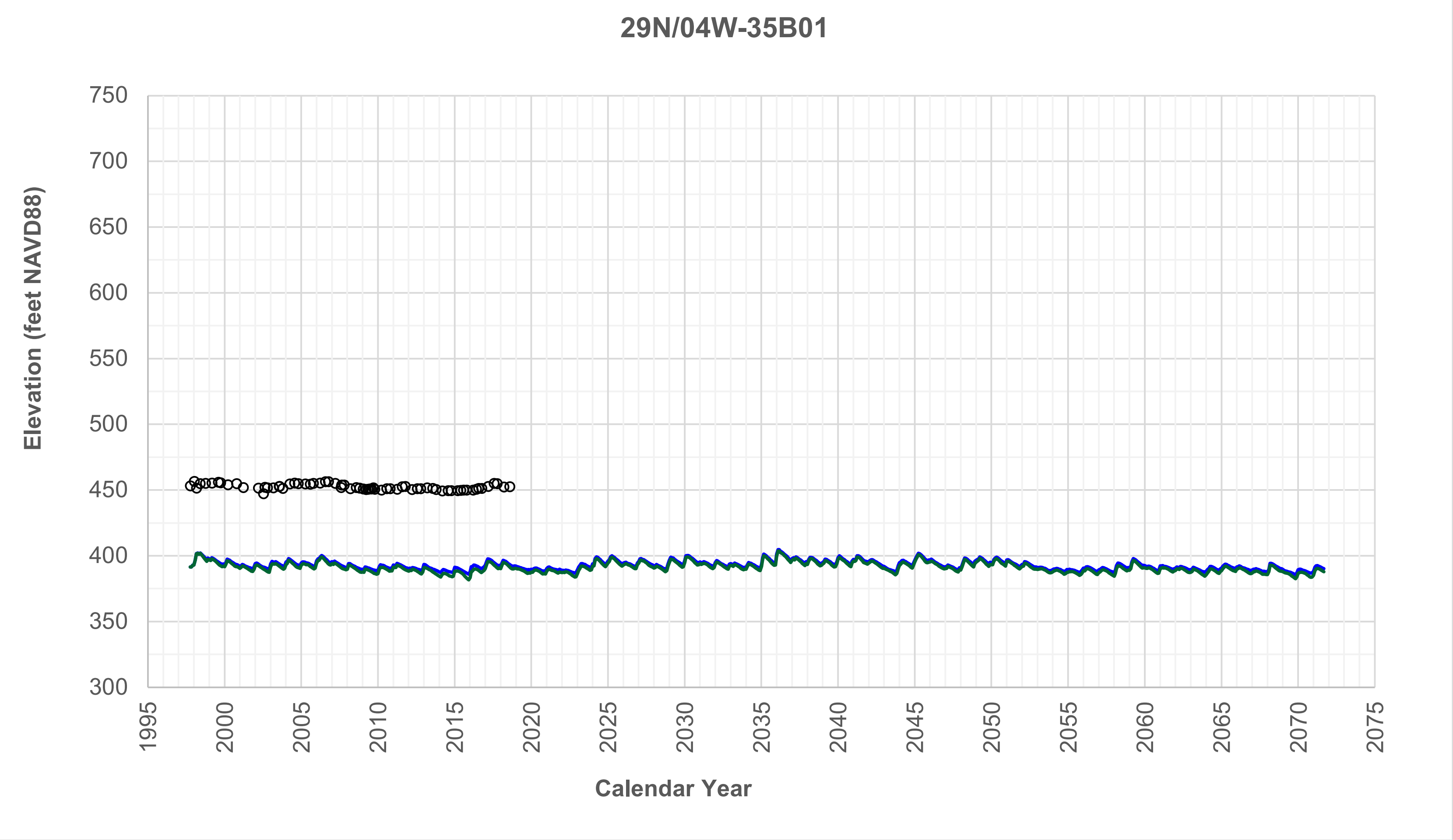
○ TARGET GROUNDWATER ELEVATION (feet NAVD88)

— HISTORIC AND FUTURE BASELINE SIMULATED GROUNDWATER ELEVATION

— INCREASED GROUNDWATER USE SCENARIO SIMULATED GROUNDWATER ELEVATION







GRAPH LEGEND

○ TARGET GROUNDWATER ELEVATION (feet NAVD88)

— HISTORIC AND FUTURE BASELINE SIMULATED GROUNDWATER ELEVATION

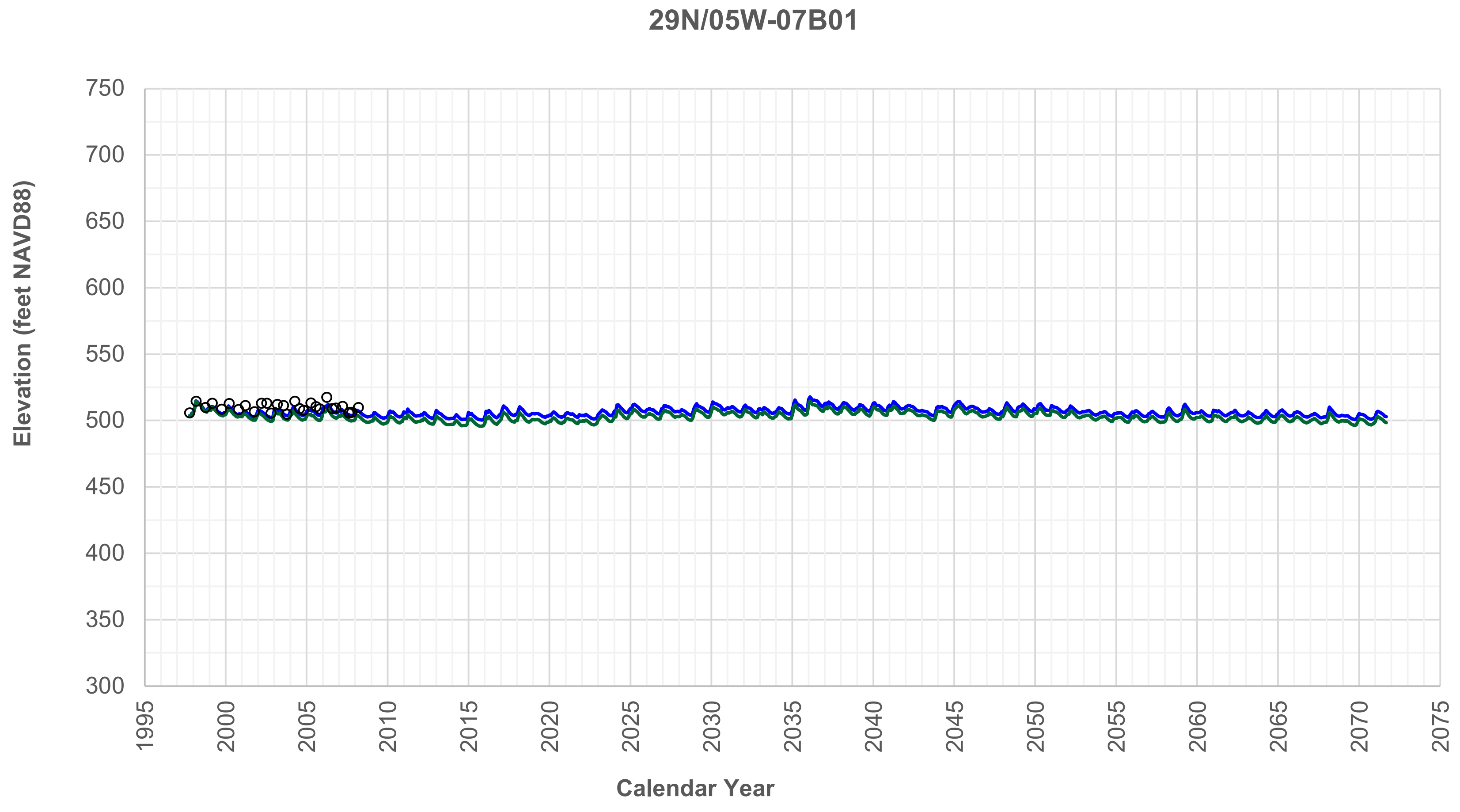
— INCREASED GROUNDWATER USE SCENARIO SIMULATED GROUNDWATER ELEVATION

ATTACHMENT 8 (PAGE 8 OF 28)

COMPARISON OF PROJECTED GROUNDWATER HYDROGRAPHS

Numerical Flow Model Documentation

Redding Area Groundwater Basin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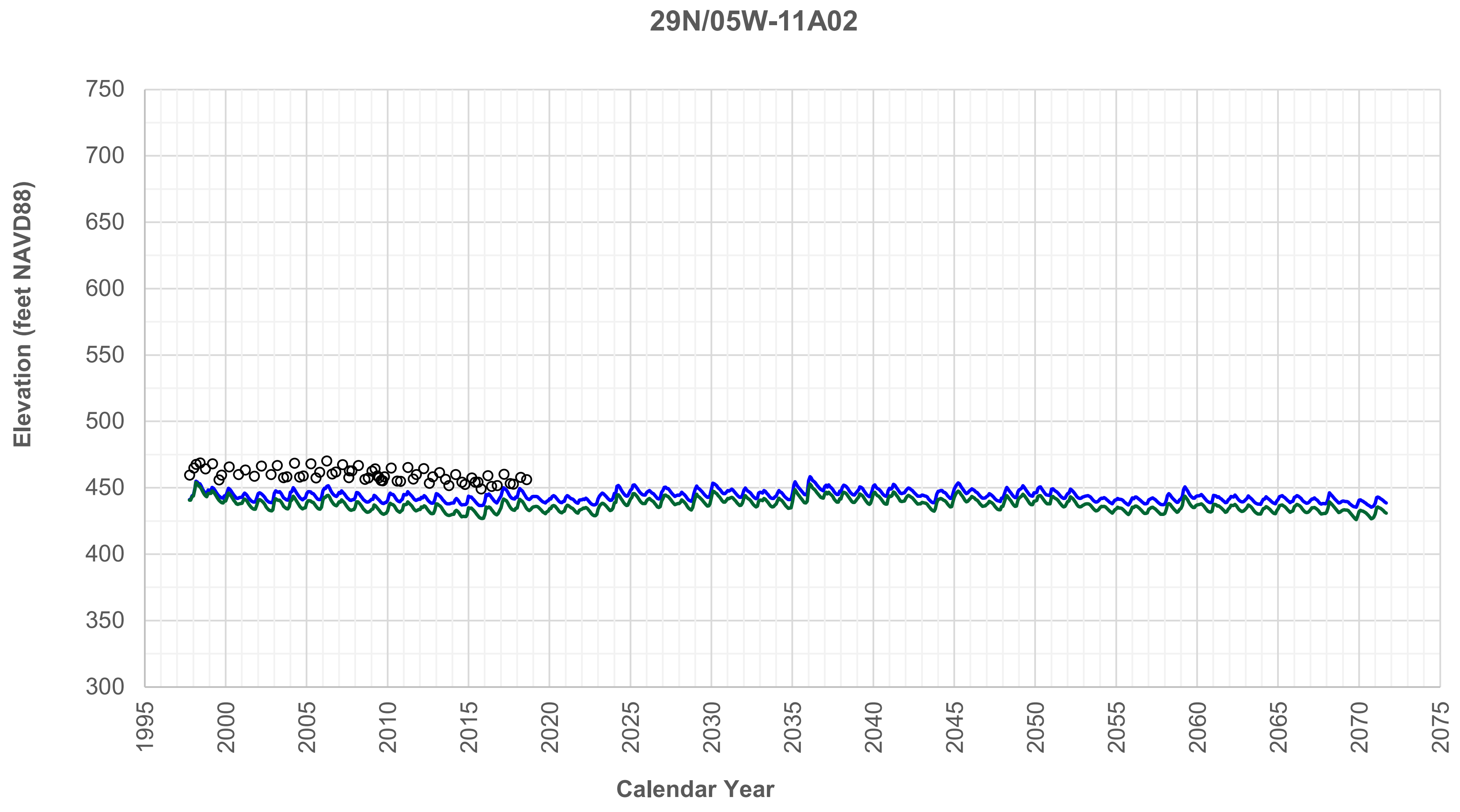
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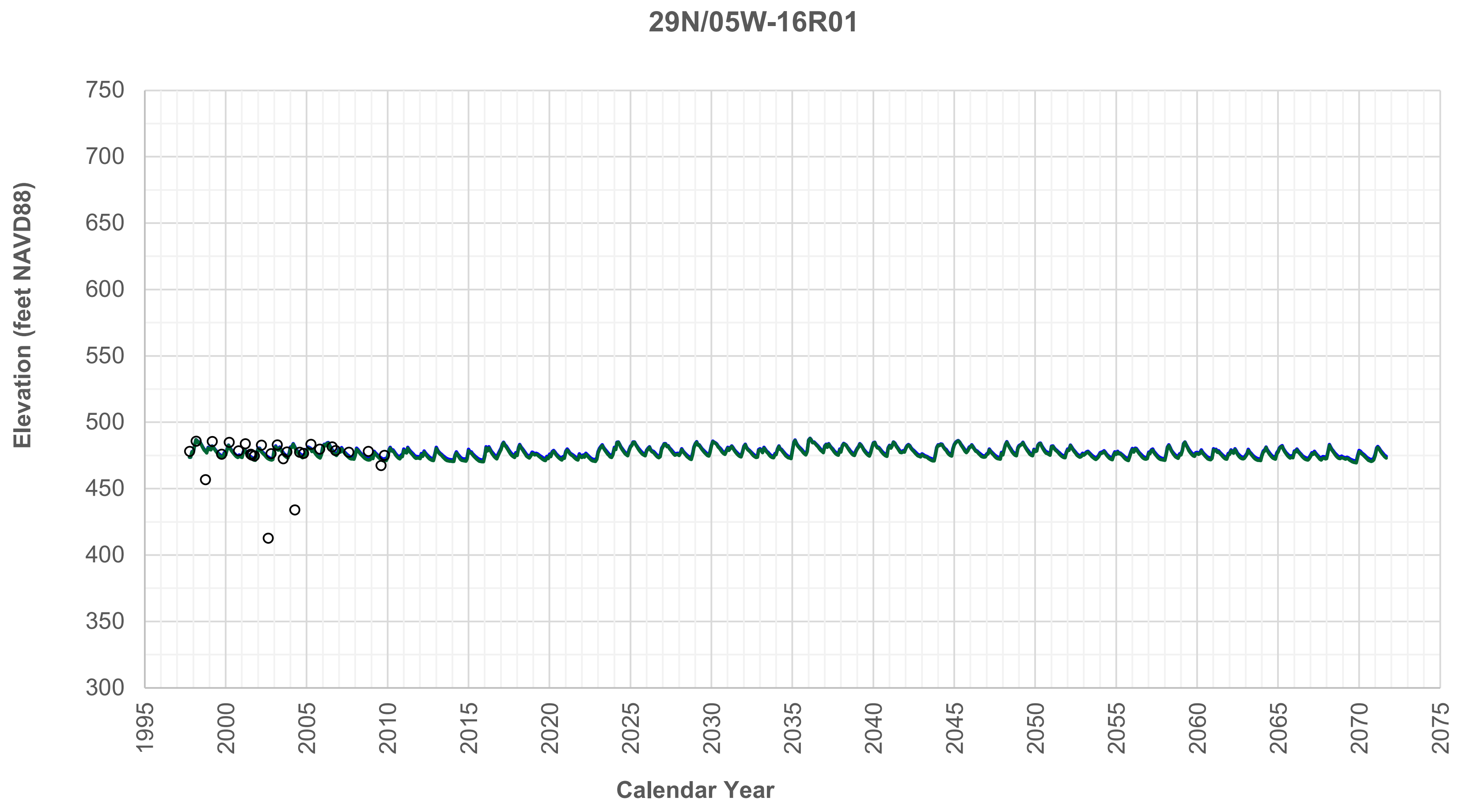
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GRAPH LEGEND

- ○ TARGET GROUNDWATER ELEVATION (feet NAVD88)
- ─ HISTORIC AND FUTURE BASELINE SIMULATED GROUNDWATER ELEVATION
- ─ INCREASED GROUNDWATER USE SCENARIO SIMULATED GROUNDWATER ELEVATION

ATTACHMENT 8 (PAGE 9 OF 28)
COMPARISON OF PROJECTED GROUNDWATER HYDROGRAPHS
Numerical Flow Model Documentation
Redding Area Groundwater Basin

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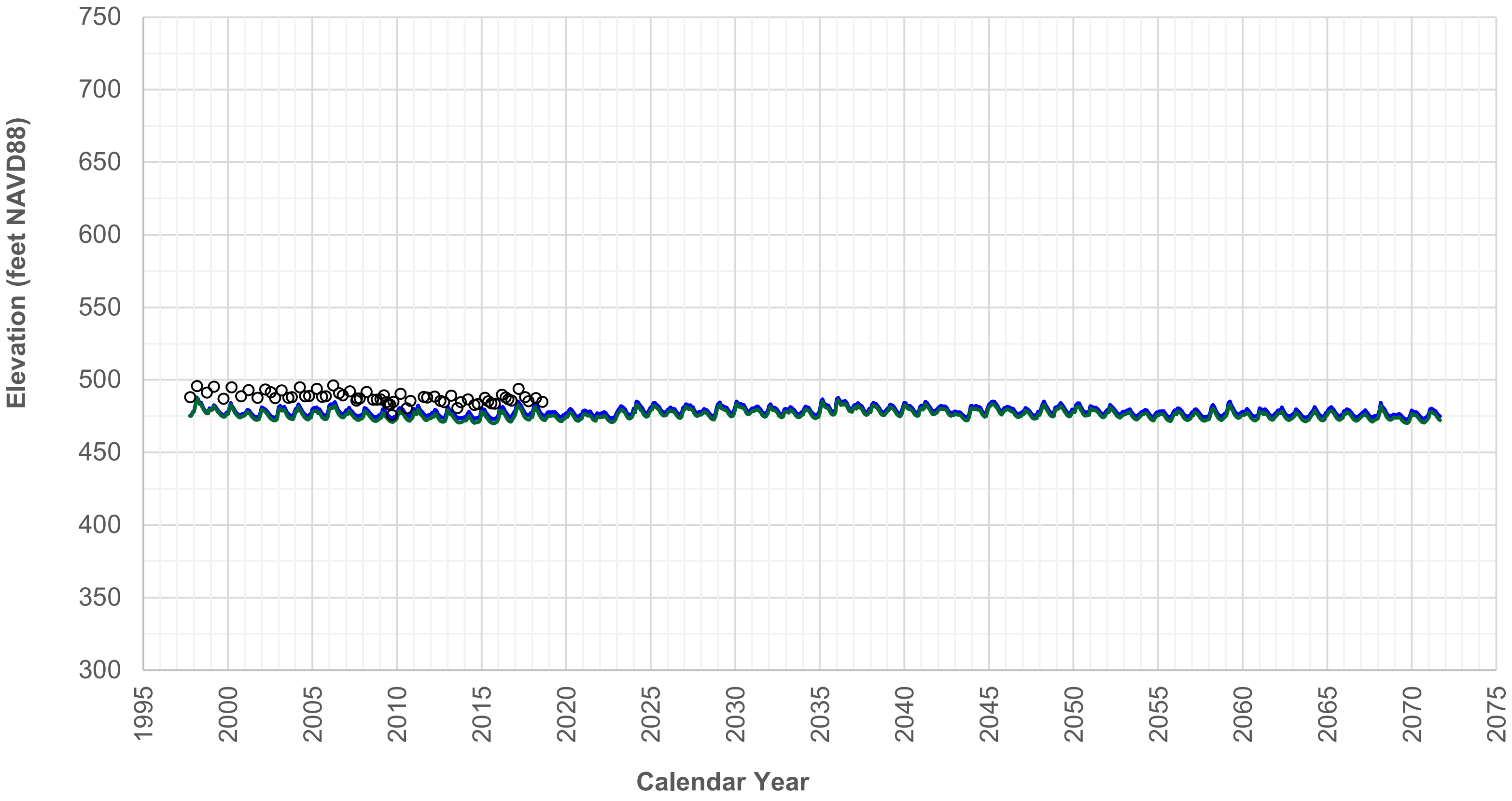

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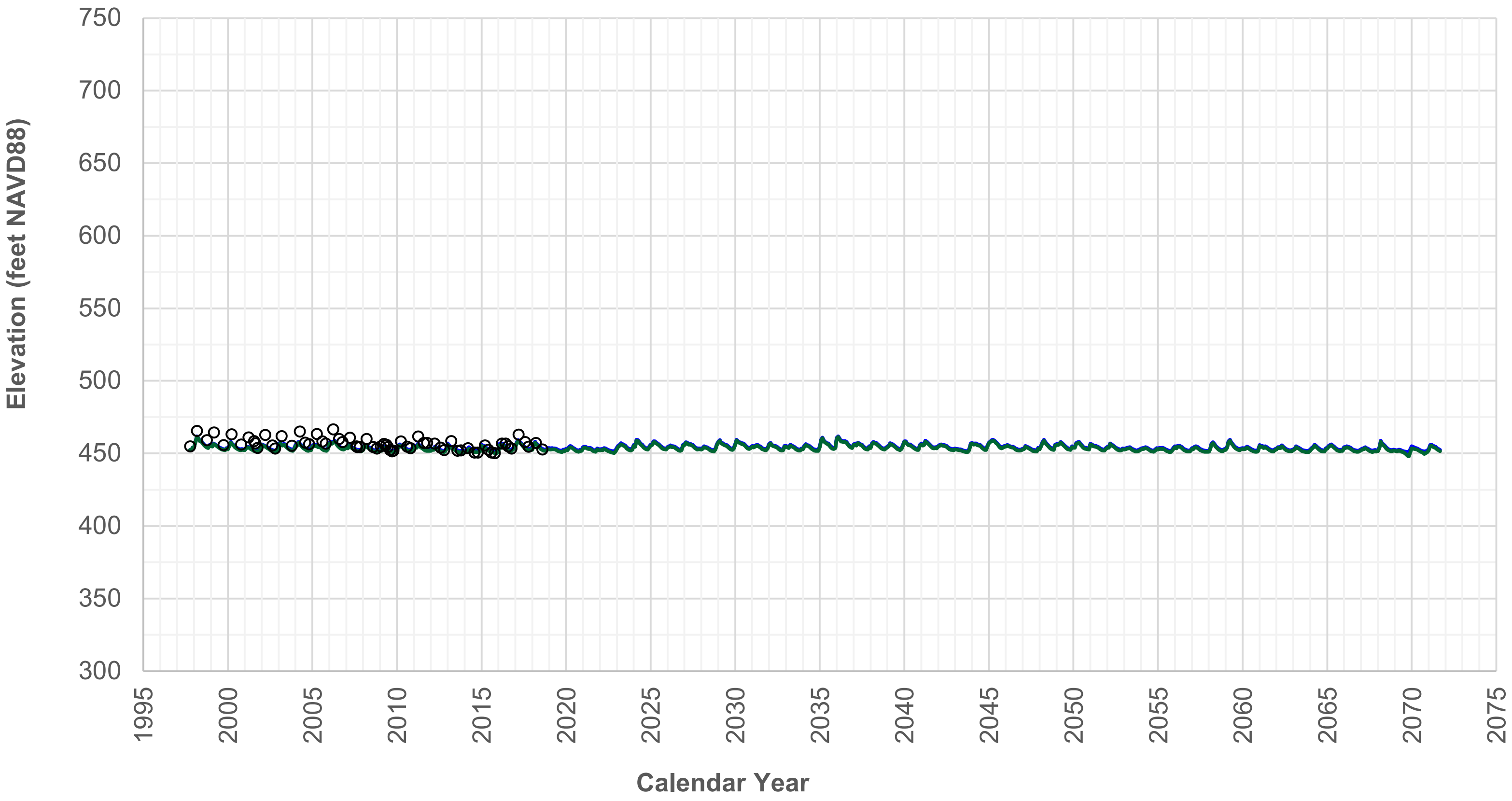

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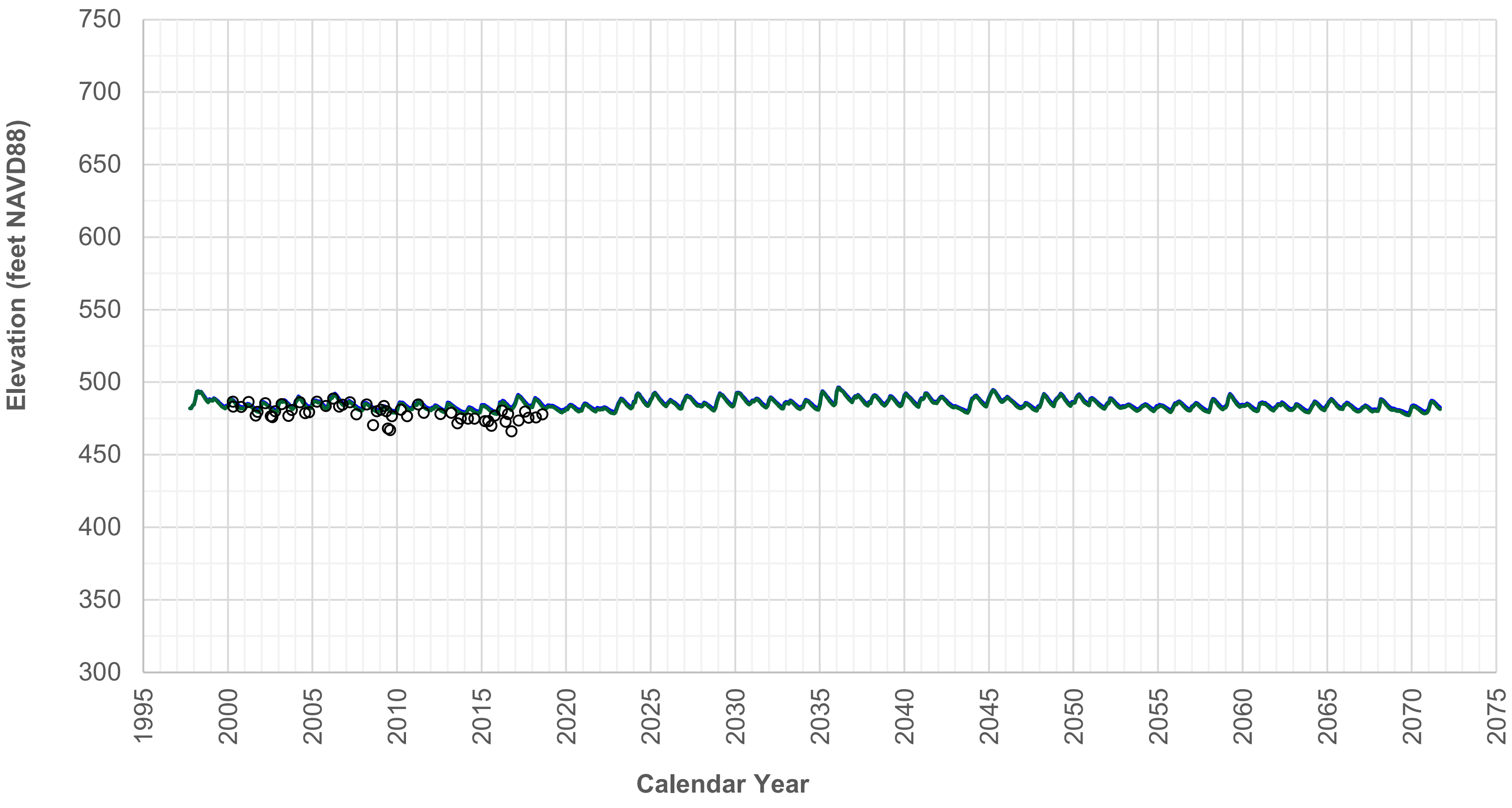

GRAPH LEGEND

- ○ TARGET GROUNDWATER ELEVATION (feet NAVD88)
- ━ HISTORIC AND FUTURE BASELINE SIMULATED GROUNDWATER ELEVATION
- ━ INCREASED GROUNDWATER USE SCENARIO SIMULATED GROUNDWATER ELEVATION

ATTACHMENT 8 (PAGE 10 OF 28)

COMPARISON OF PROJECTED GROUNDWATER HYDROGRAPHS

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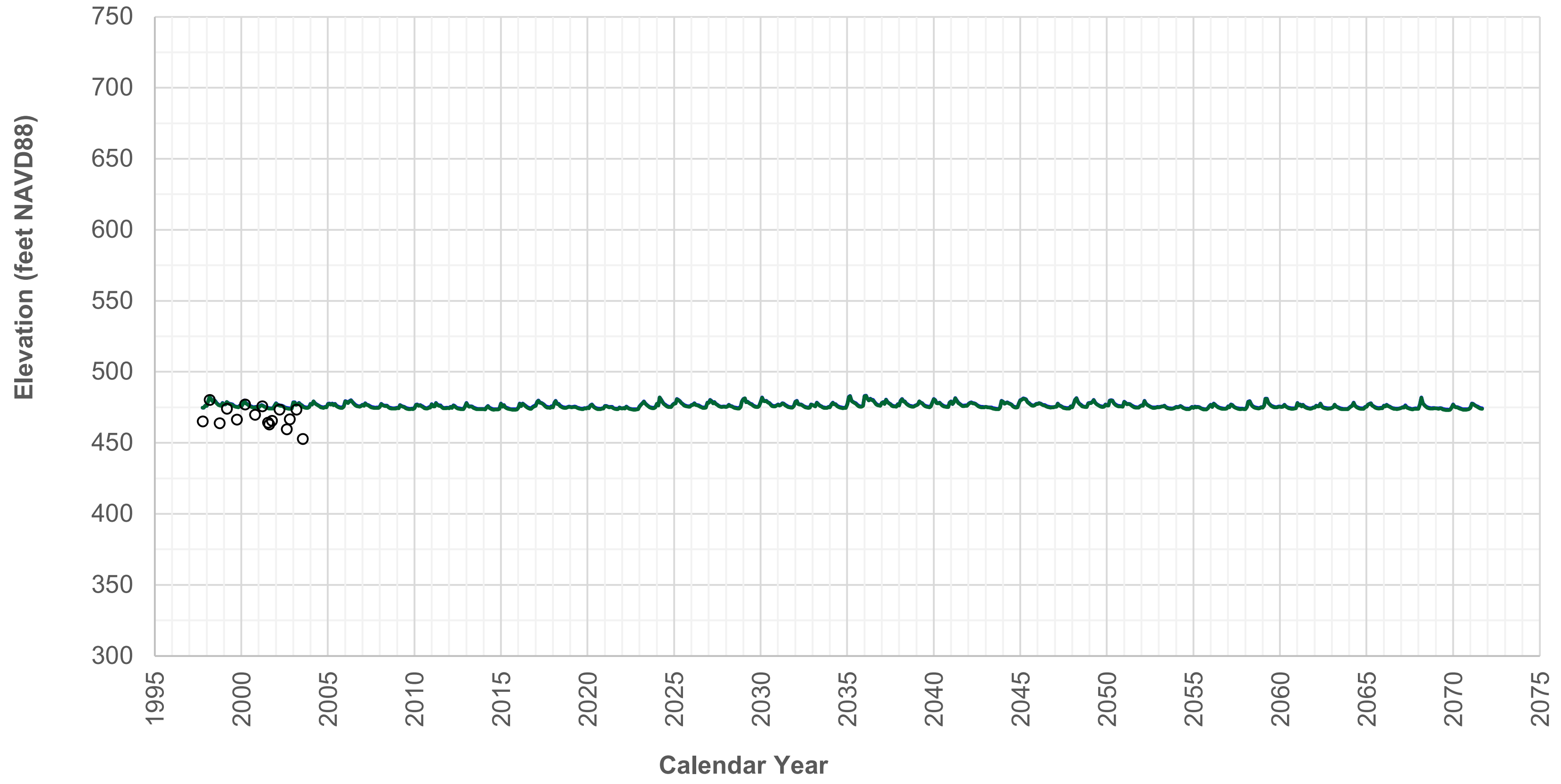
Redding Area Groundwater Basin

29N/05W-26N01



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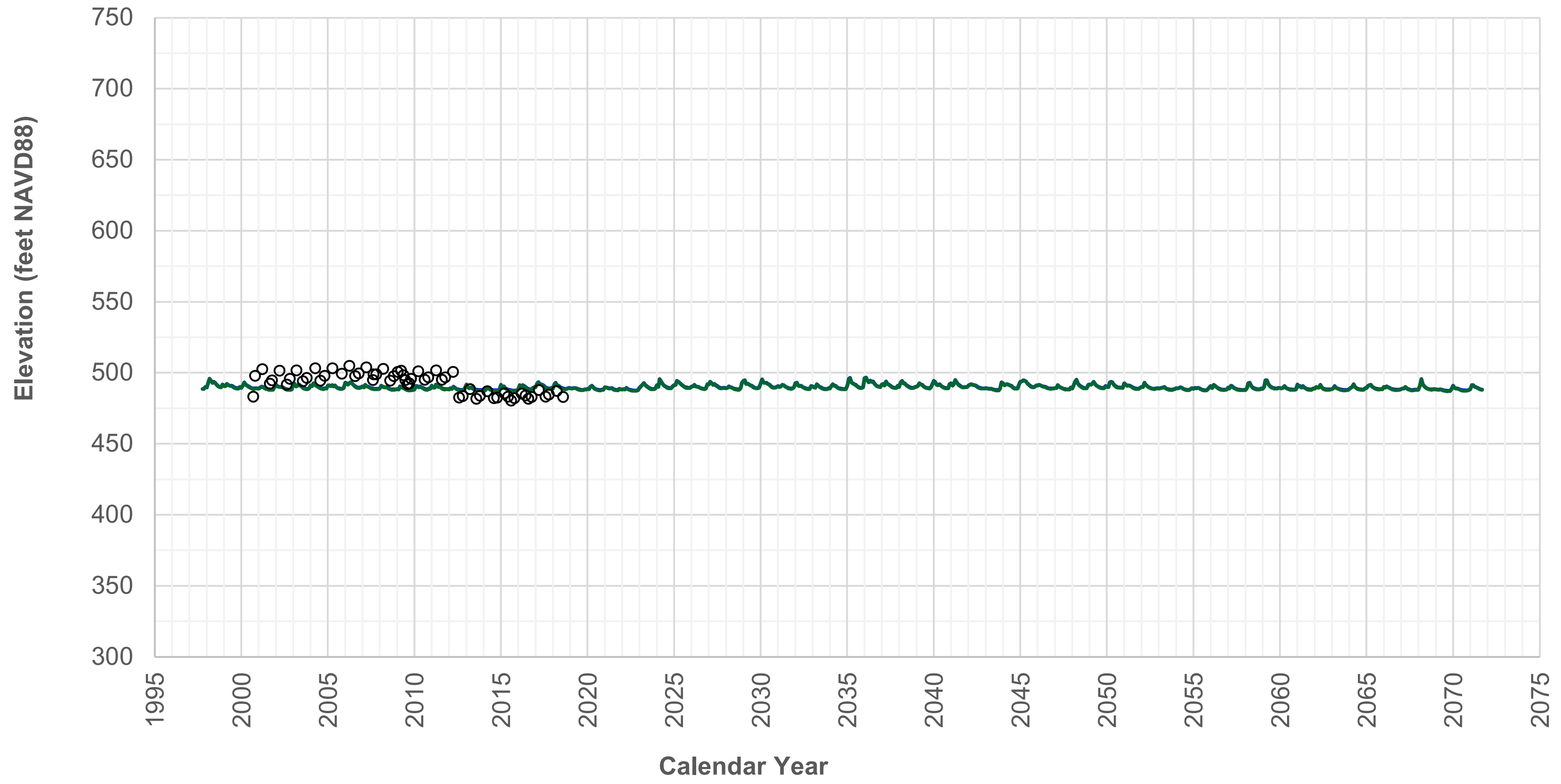

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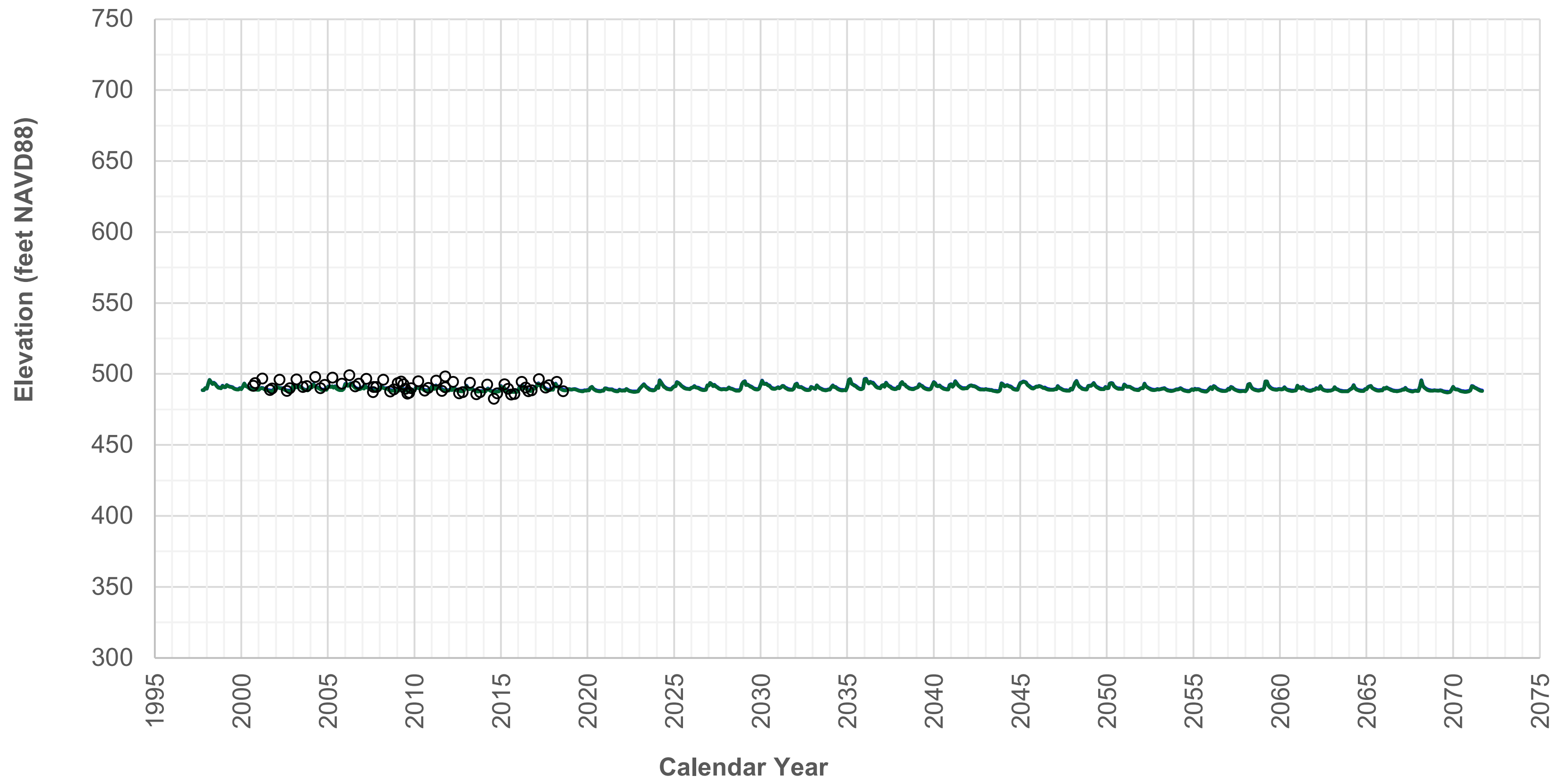


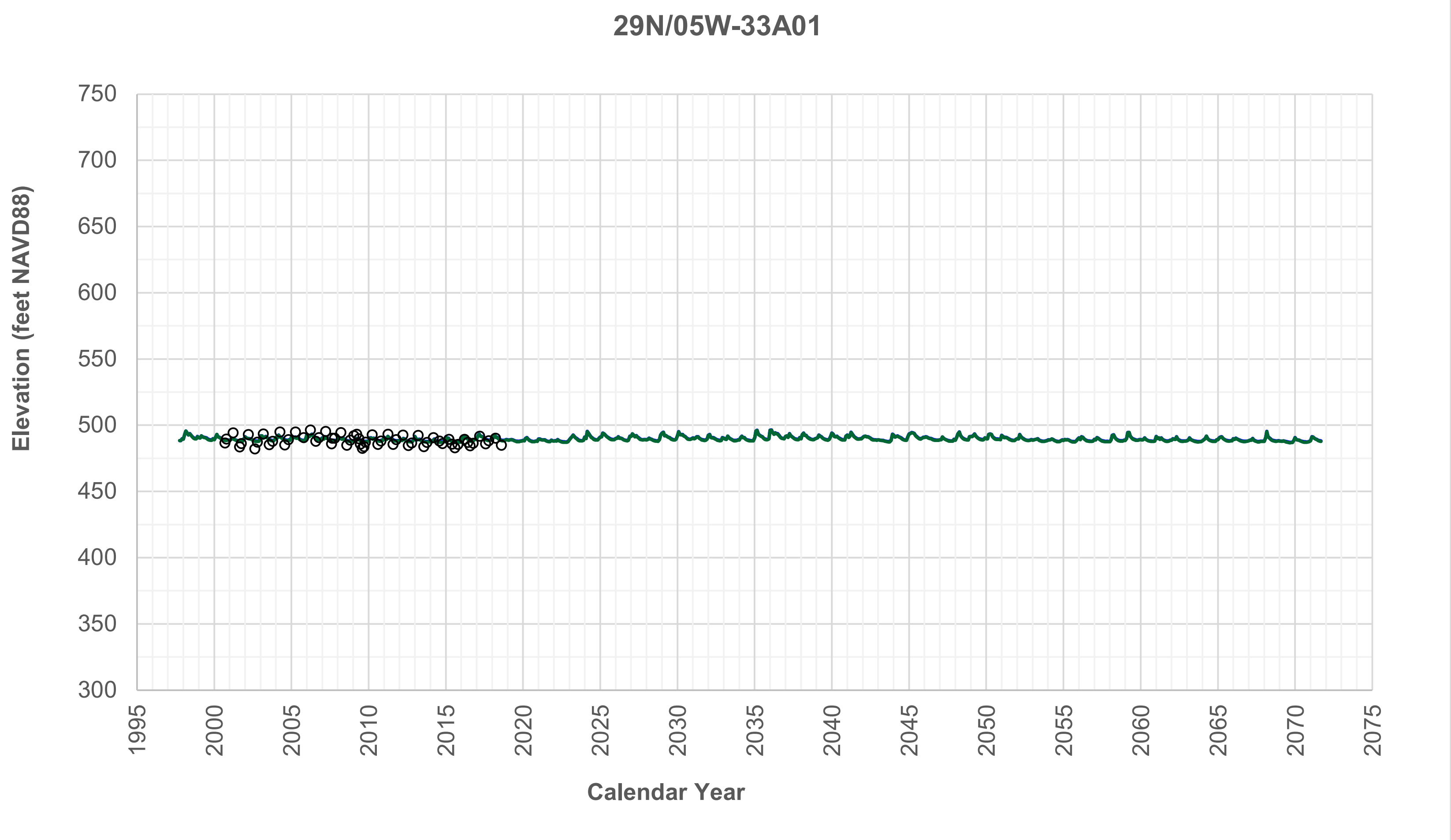
GRAPH LEGEND

○ TARGET GROUNDWATER ELEVATION (feet NAVD88)

— HISTORIC AND FUTURE BASELINE SIMULATED GROUNDWATER ELEVATION

— INCREASED GROUNDWATER USE SCENARIO SIMULATED GROUNDWATER ELEVATION

ATTACHMENT 8 (PAGE 11 OF 28)
COMPARISON OF PROJECTED GROUNDWATER HYDROGRAPHS
Numerical Flow Model Documentation
Redding Area Groundwater Basin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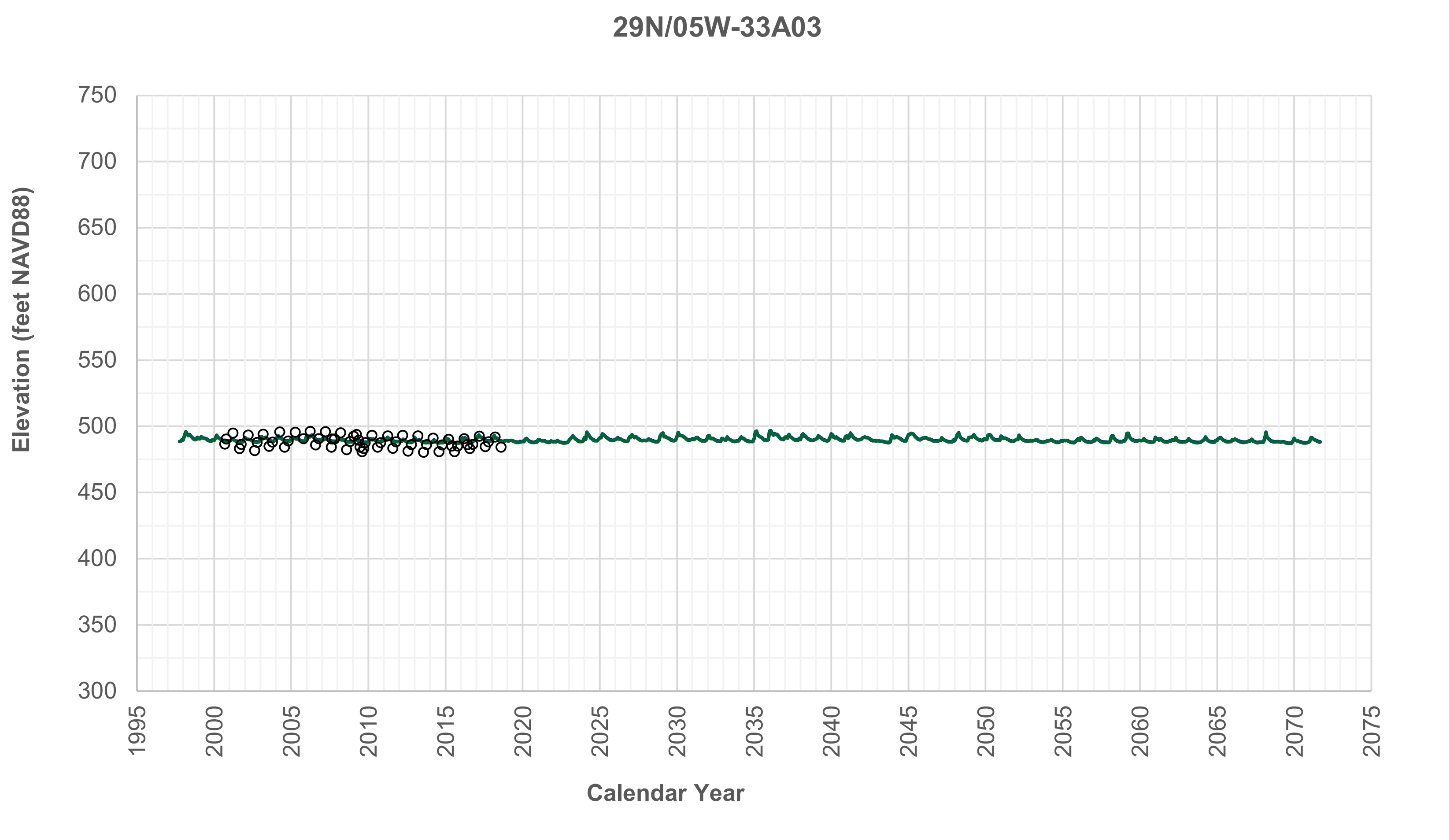
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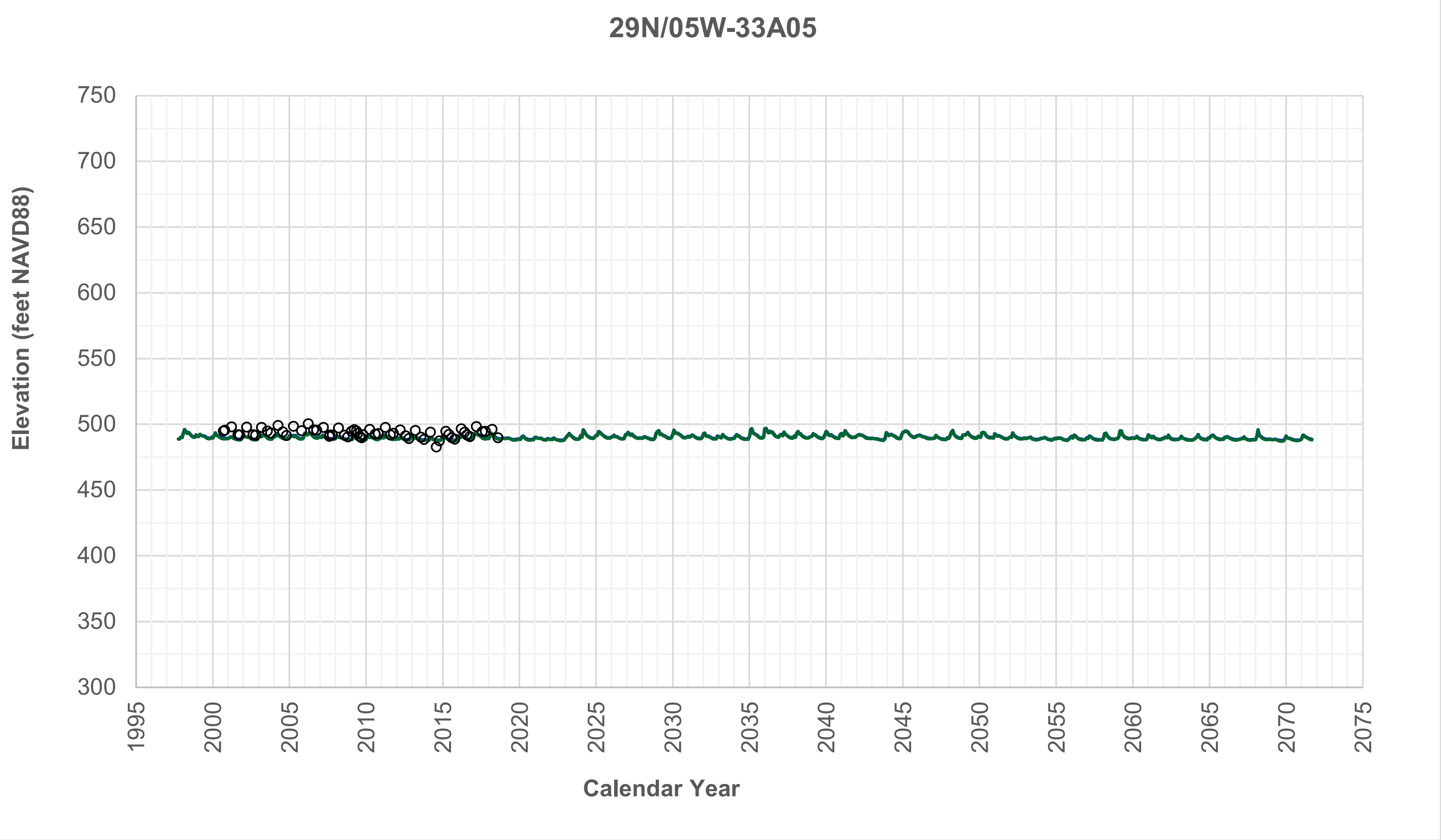
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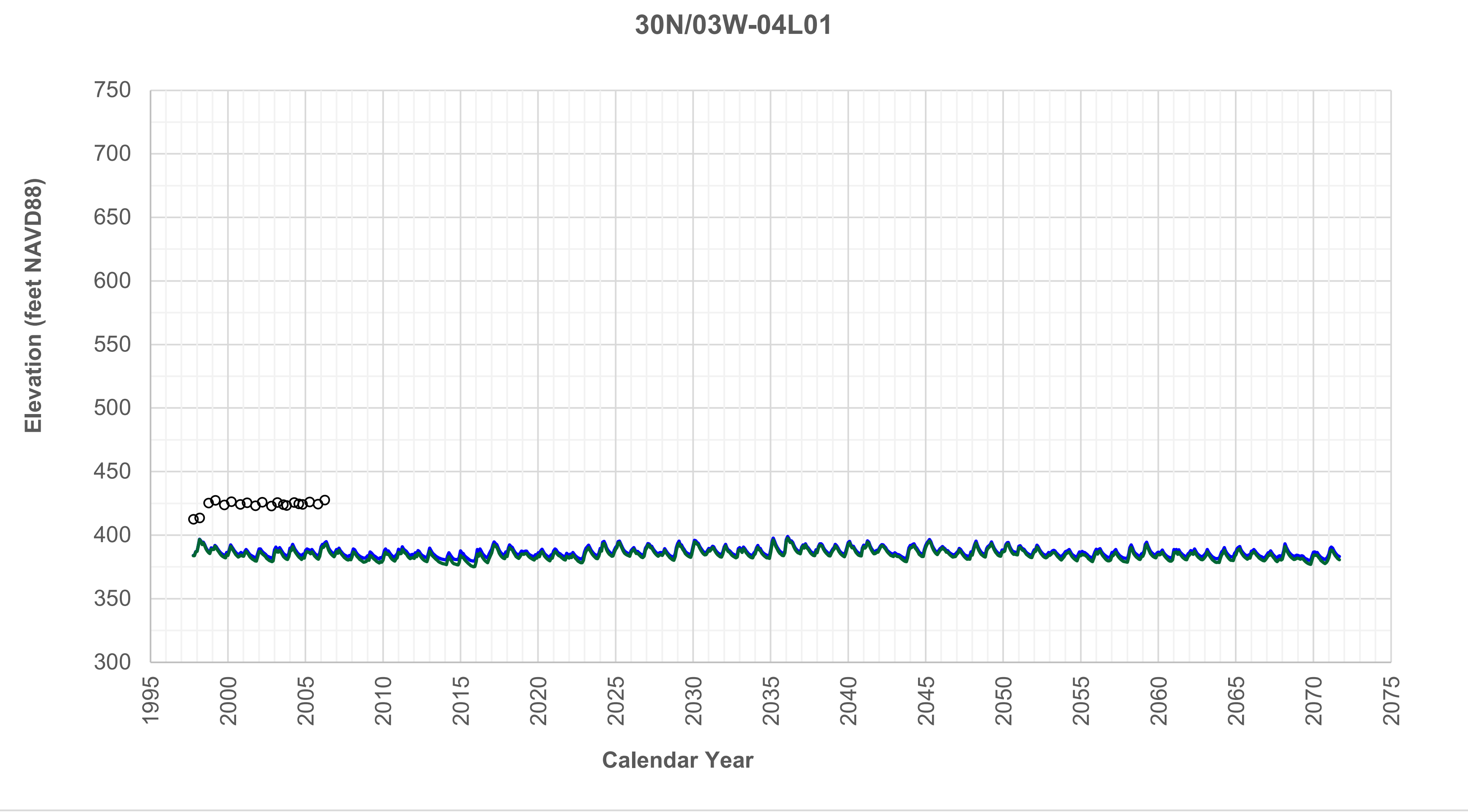
GRAPH LEGEND

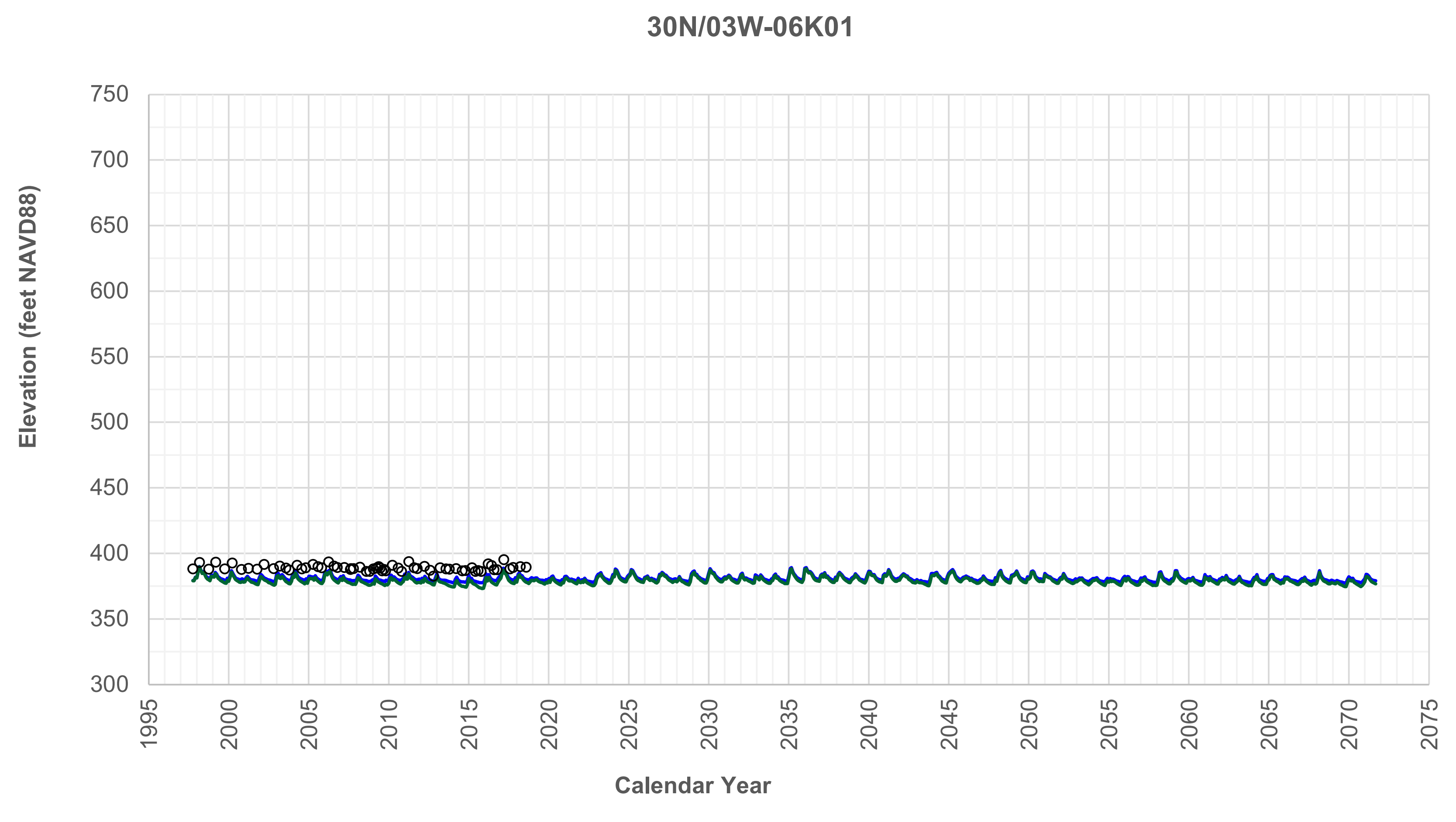
○ TARGET GROUNDWATER ELEVATION (feet NAVD88)

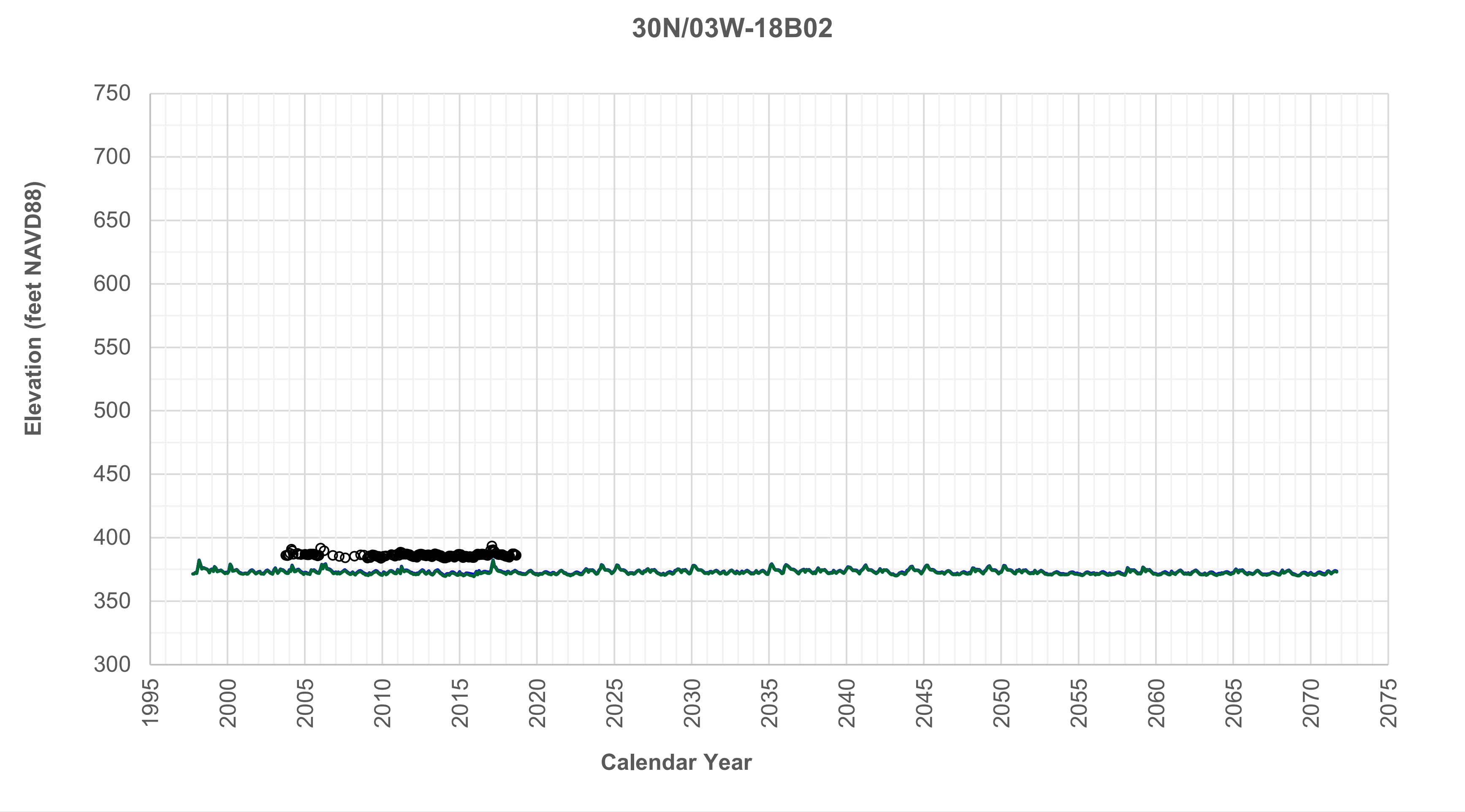
— HISTORIC AND FUTURE BASELINE SIMULATED GROUNDWATER ELEVATION

— INCREASED GROUNDWATER USE SCENARIO SIMULATED GROUNDWATER ELEVATION

ATTACHMENT 8 (PAGE 12 OF 28)
COMPARISON OF PROJECTED GROUNDWATER HYDROGRAPHS
Numerical Flow Model Documentation
Redding Area Groundwater Basin





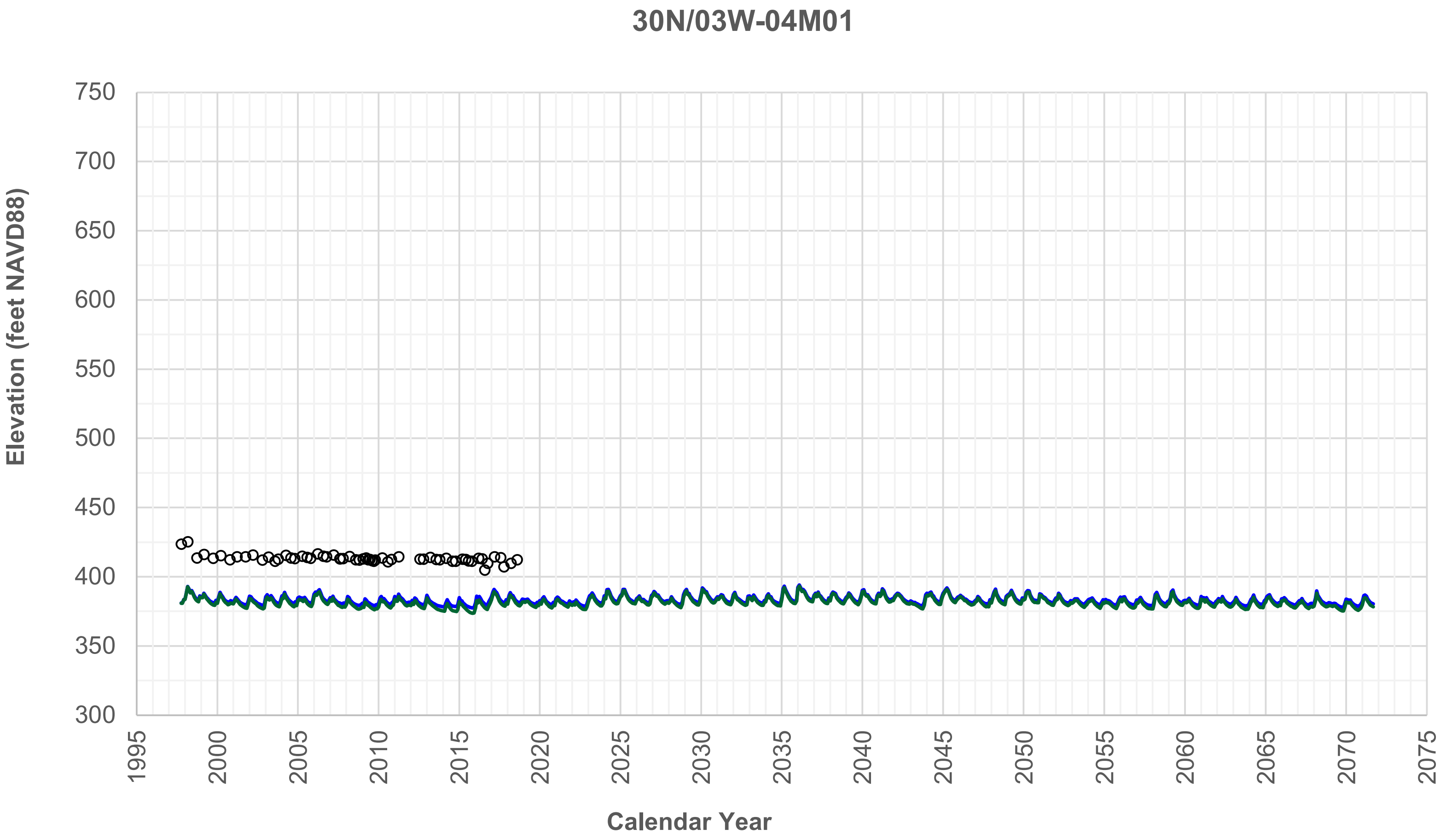


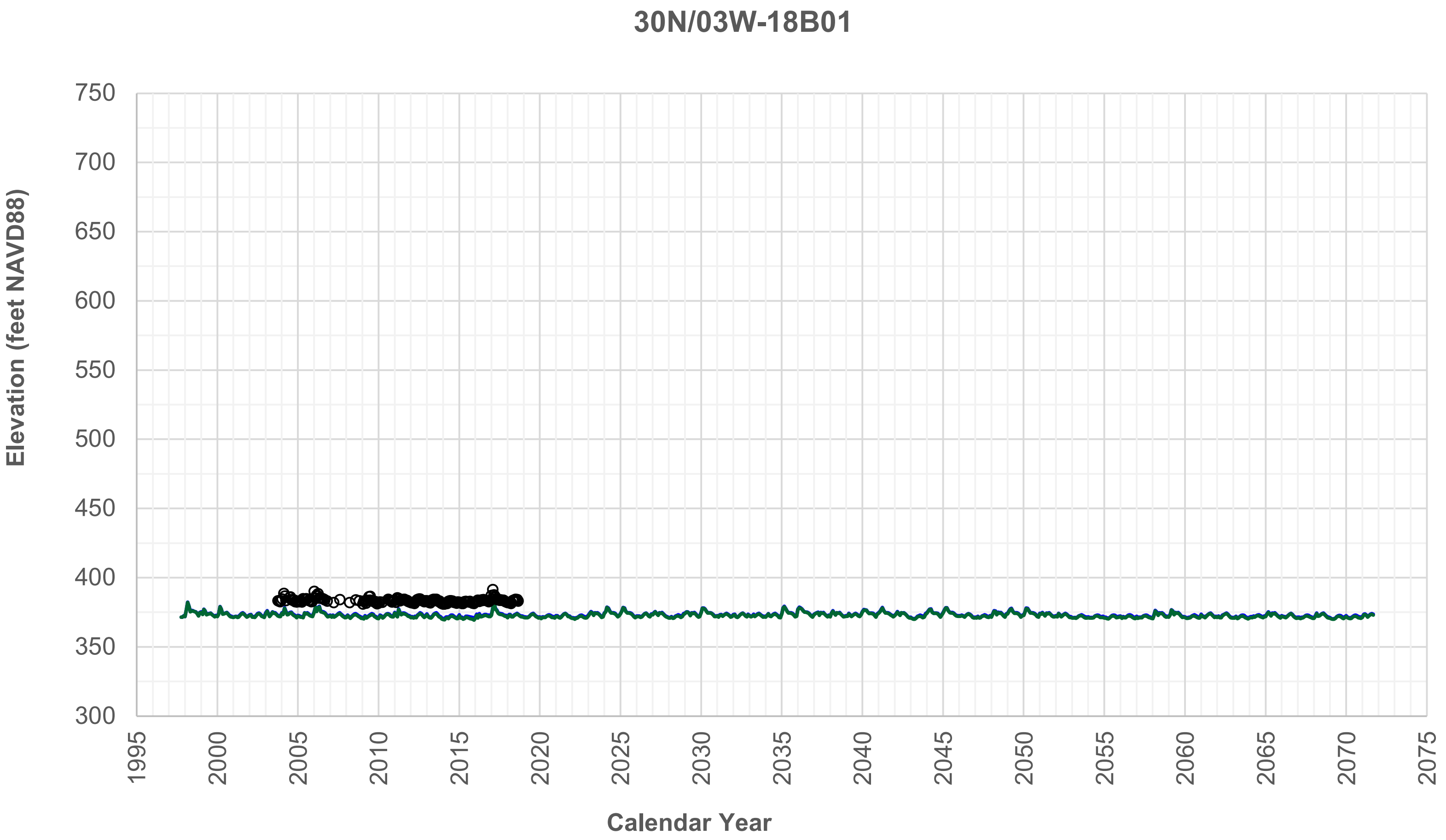
GRAPH LEGEND

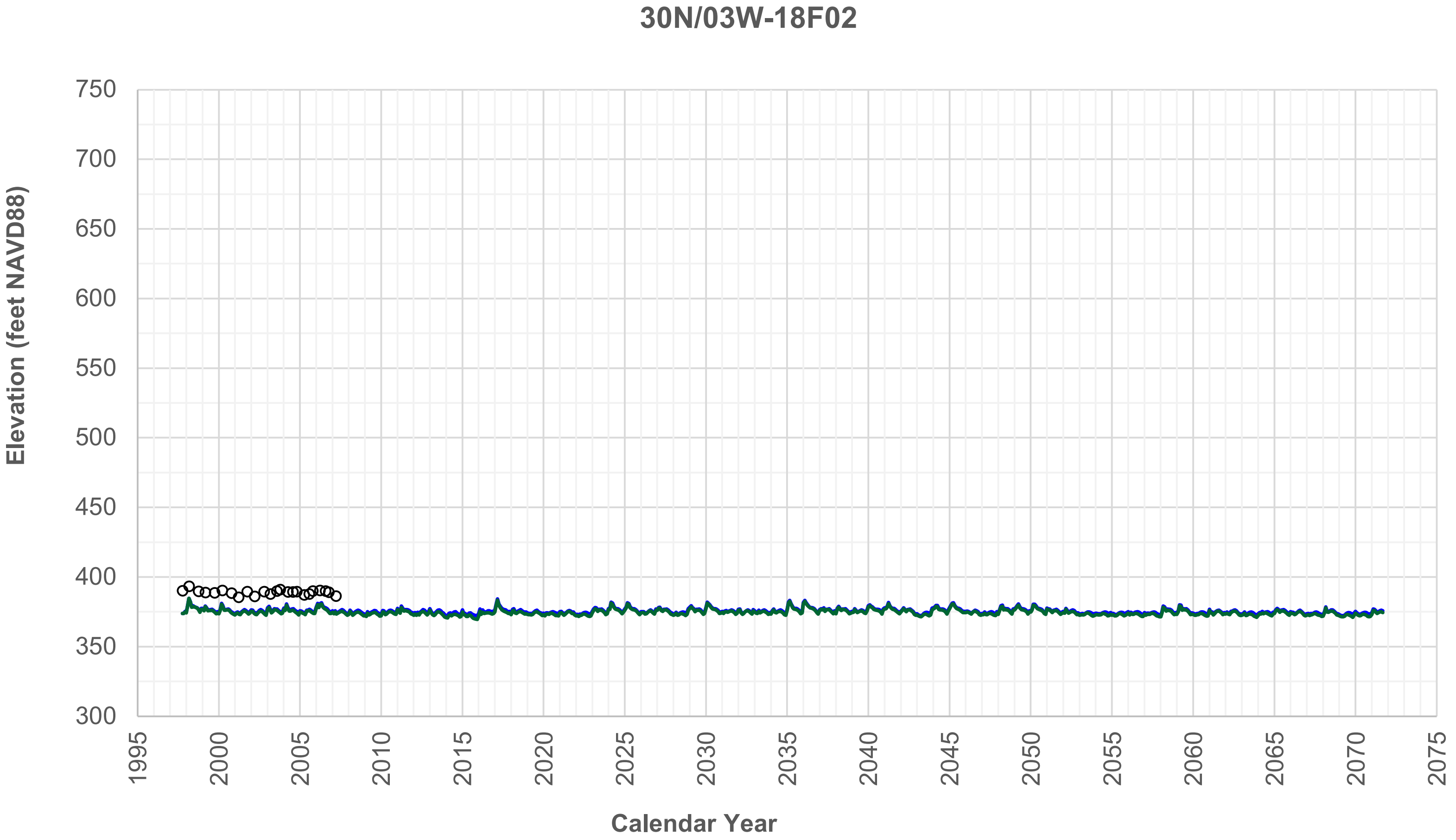
○ TARGET GROUNDWATER ELEVATION (feet NAVD88)

— HISTORIC AND FUTURE BASELINE SIMULATED GROUNDWATER ELEVATION

— INCREASED GROUNDWATER USE SCENARIO SIMULATED GROUNDWATER ELEVATION







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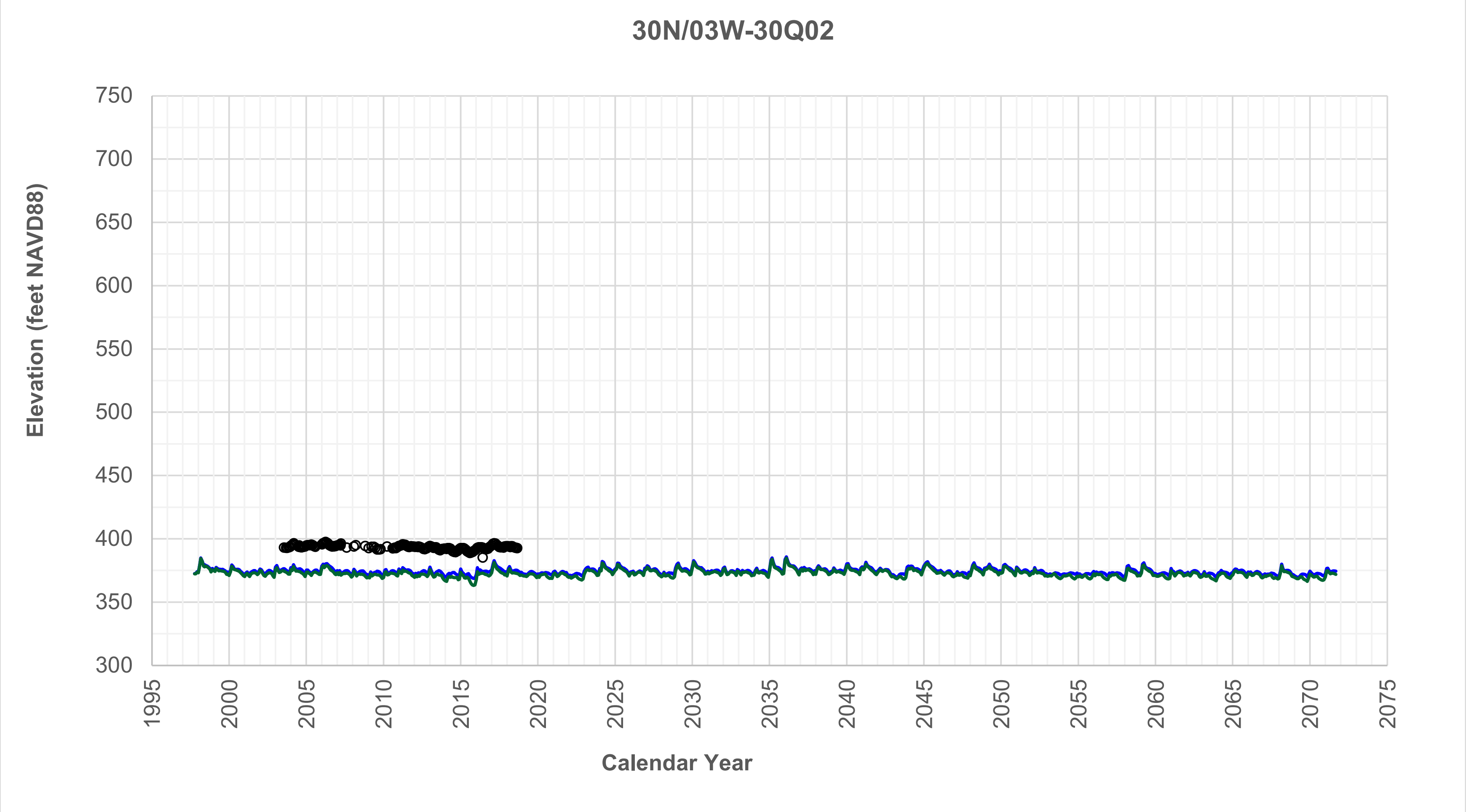
- ○ TARGET GROUNDWATER ELEVATION (feet NAVD88)
- — HISTORIC AND FUTURE BASELINE SIMULATED GROUNDWATER ELEVATION
- — INCREASED GROUNDWATER USE SCENARIO SIMULATED GROUNDWATER ELEVATION

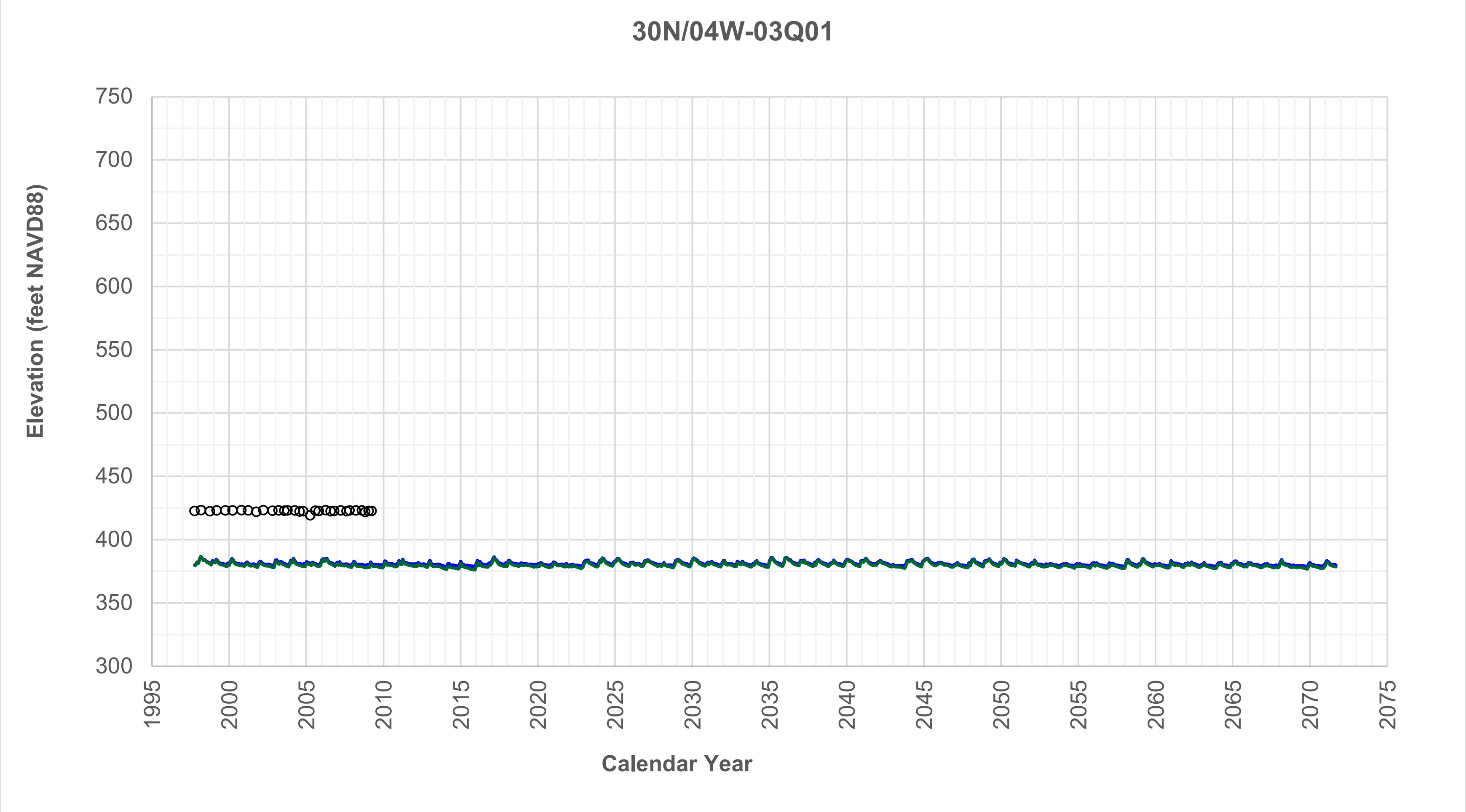
ATTACHMENT 8 (PAGE 14 OF 28)

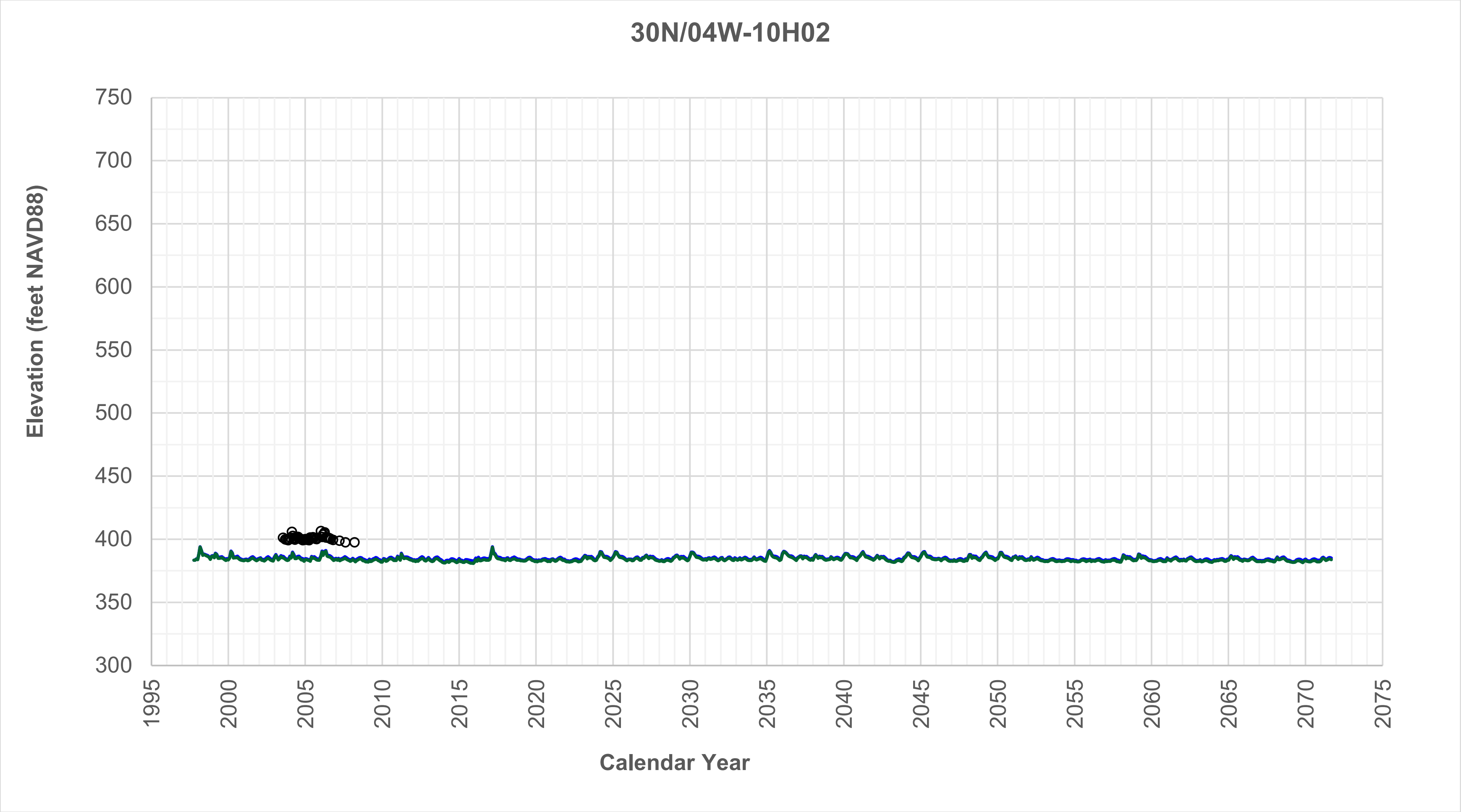
COMPARISON OF PROJECTED GROUNDWATER HYDROGRAPHS

Numerical Flow Model Documentation

Redding Area Groundwater Basin





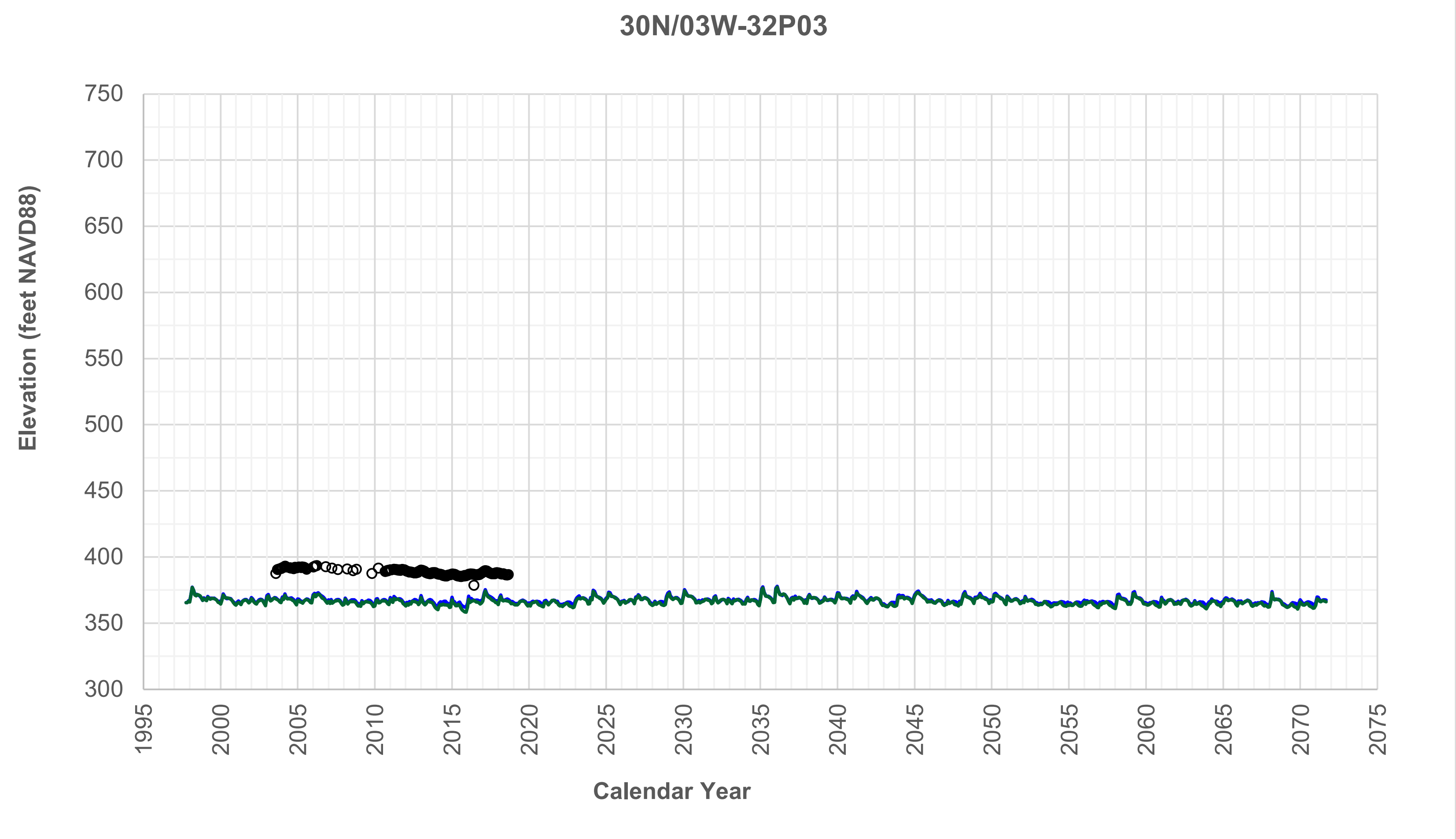


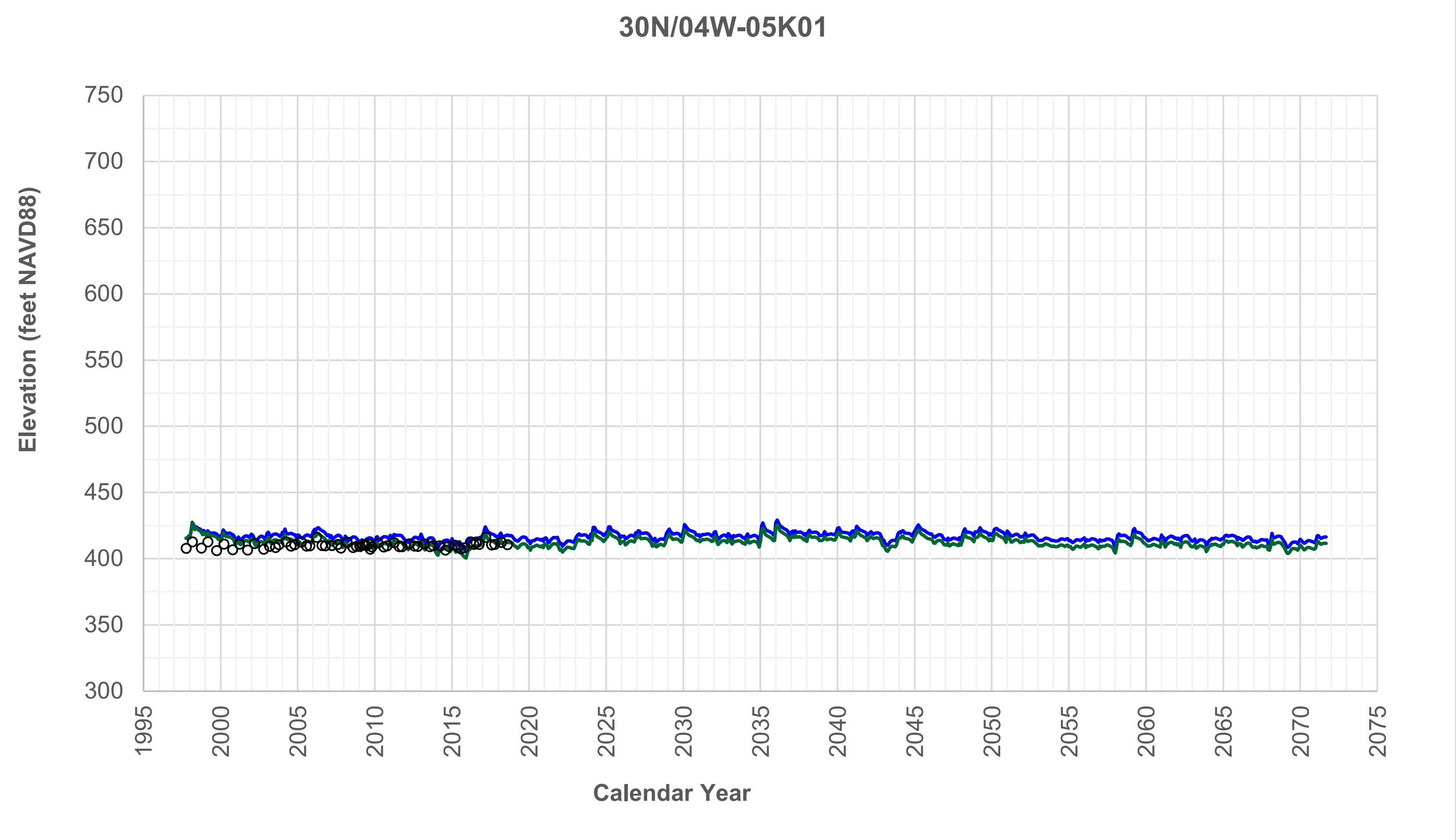
GRAPH LEGEND

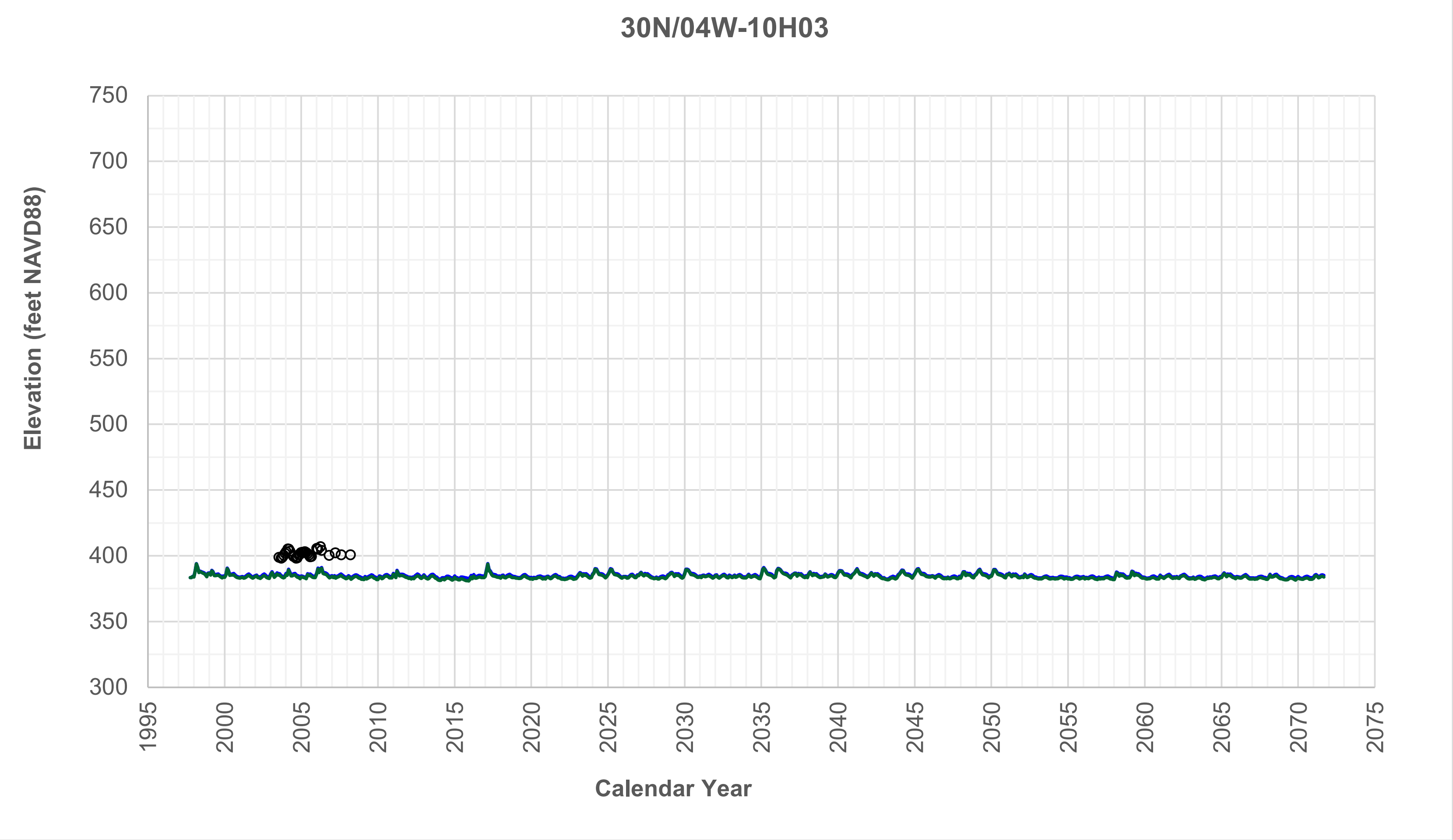
○ TARGET GROUNDWATER ELEVATION (feet NAVD88)

HISTORIC AND FUTURE BASELINE SIMULATED GROUNDWATER ELEVATION

INCREASED GROUNDWATER USE SCENARIO SIMULATED GROUNDWATER ELEVATION







GRAPH LEGEND

○ TARGET GROUNDWATER ELEVATION (feet NAVD88)

— HISTORIC AND FUTURE BASELINE SIMULATED GROUNDWATER ELEVATION

— INCREASED GROUNDWATER USE SCENARIO SIMULATED GROUNDWATER ELEVATION

ATTACHMENT 8 (PAGE 16 OF 28)

COMPARISON OF PROJECTED GROUNDWATER HYDROGRAPHS

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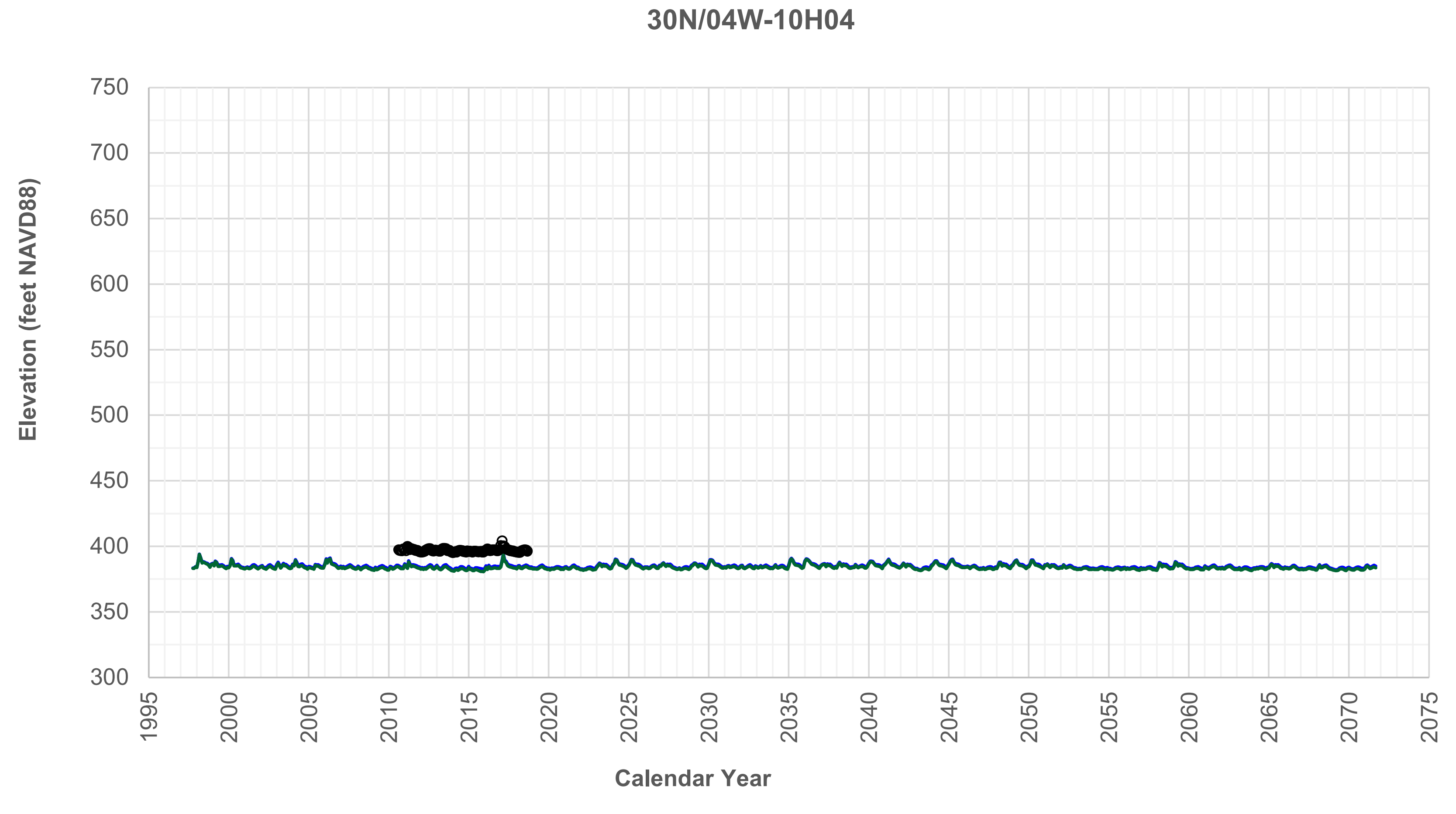
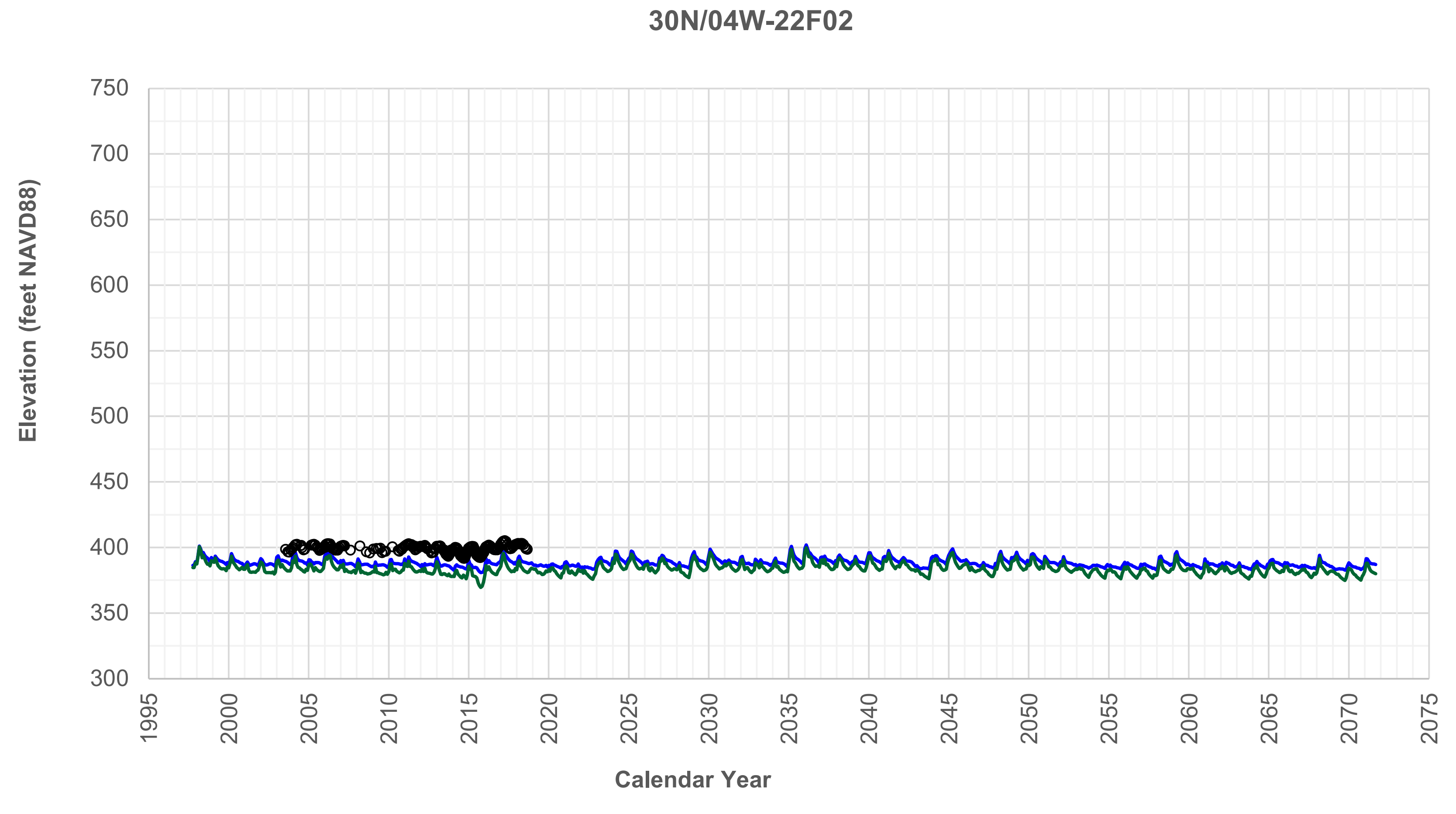
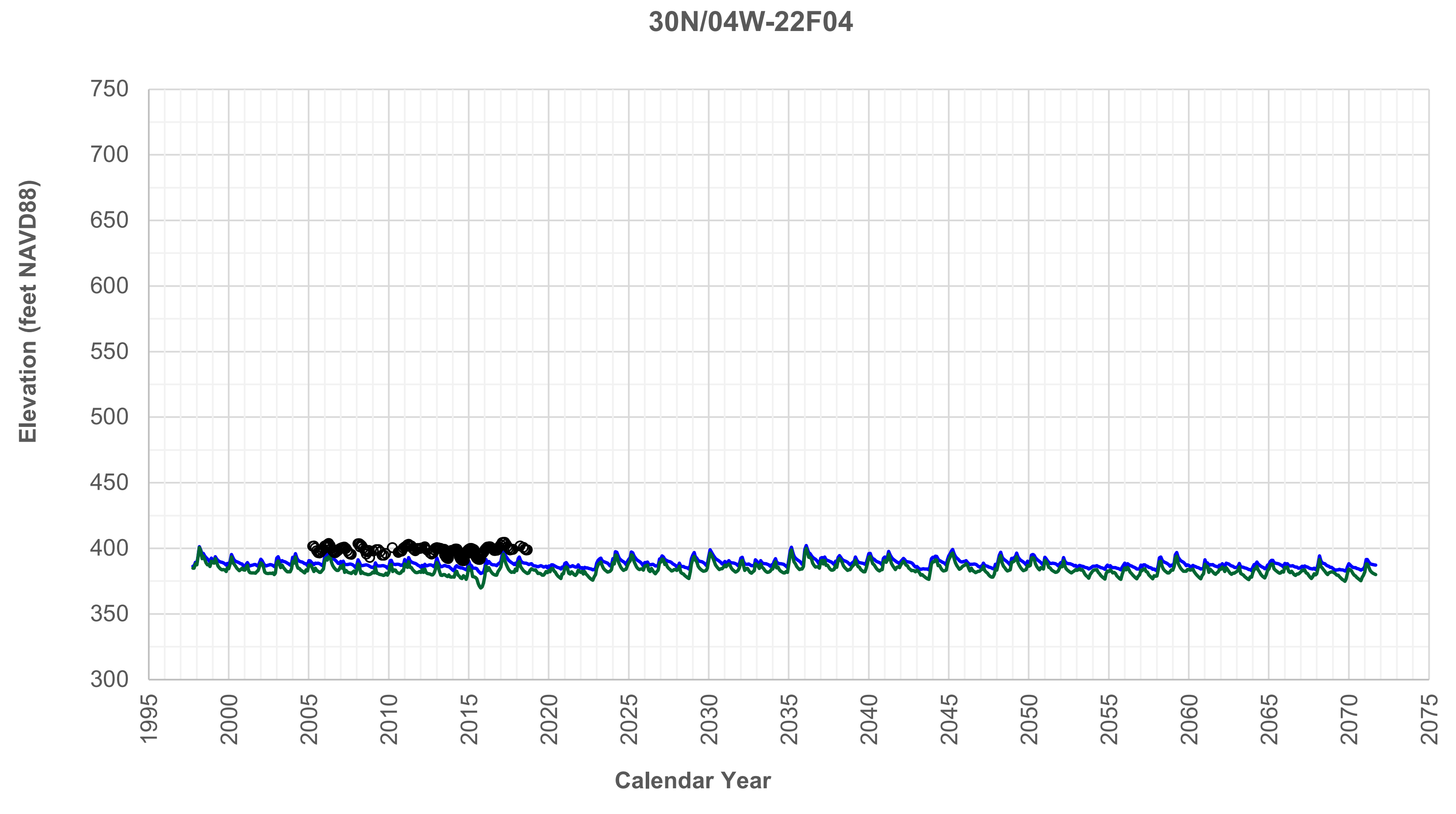
Redding Area Groundwater Basin







GRAPH LEGEND

○ TARGET GROUNDWATER ELEVATION (feet NAVD88)

HISTORIC AND FUTURE BASELINE SIMULATED GROUNDWATER ELEVATION

INCREASED GROUNDWATER USE SCENARIO SIMULATED GROUNDWATER ELEVATION

ATTACHMENT 8 (PAGE 17 OF 28)

COMPARISON OF PROJECTED GROUNDWATER HYDROGRAPHS

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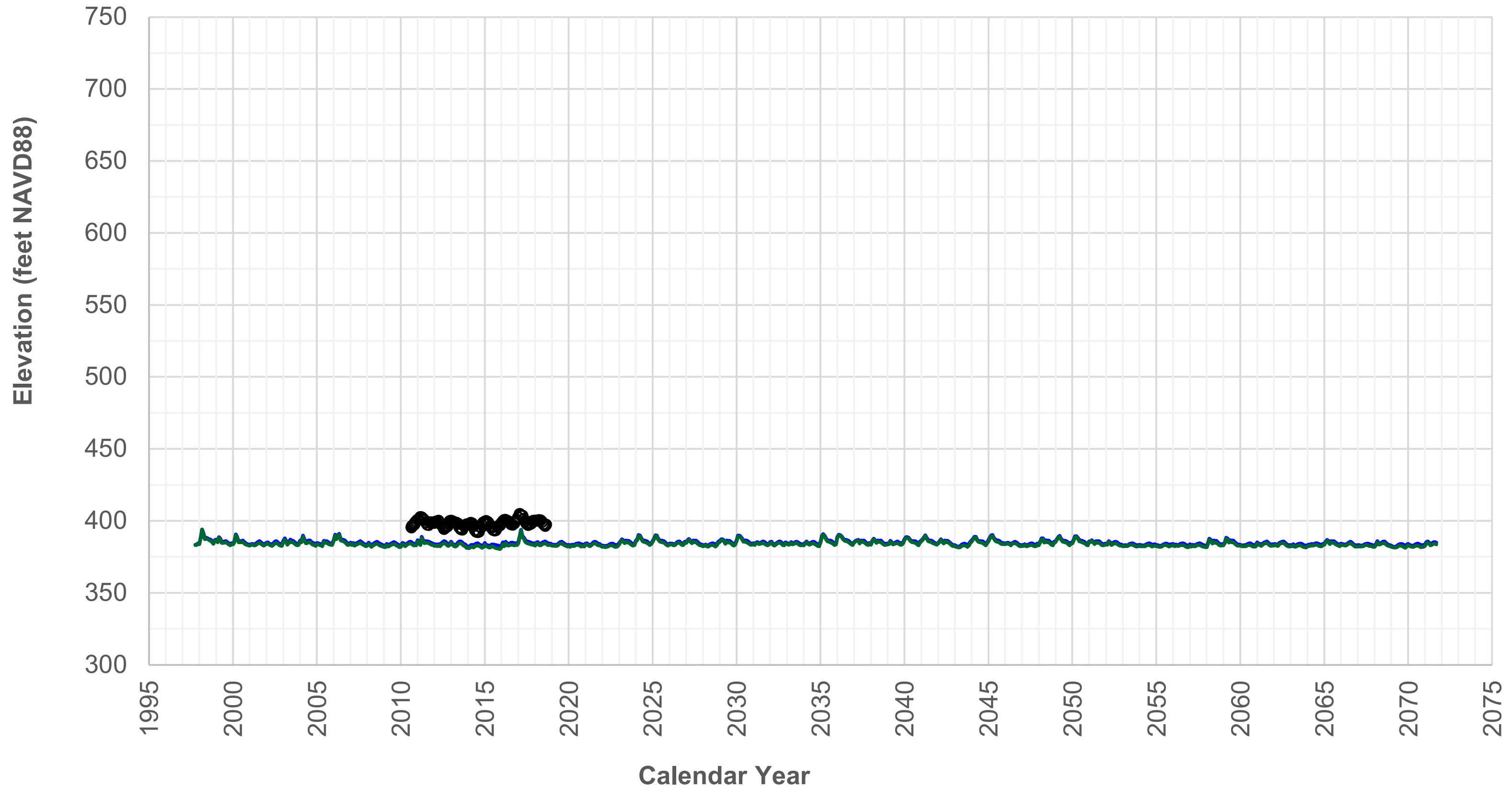
Redding Area Groundwater Basin

30N/04W-10H05



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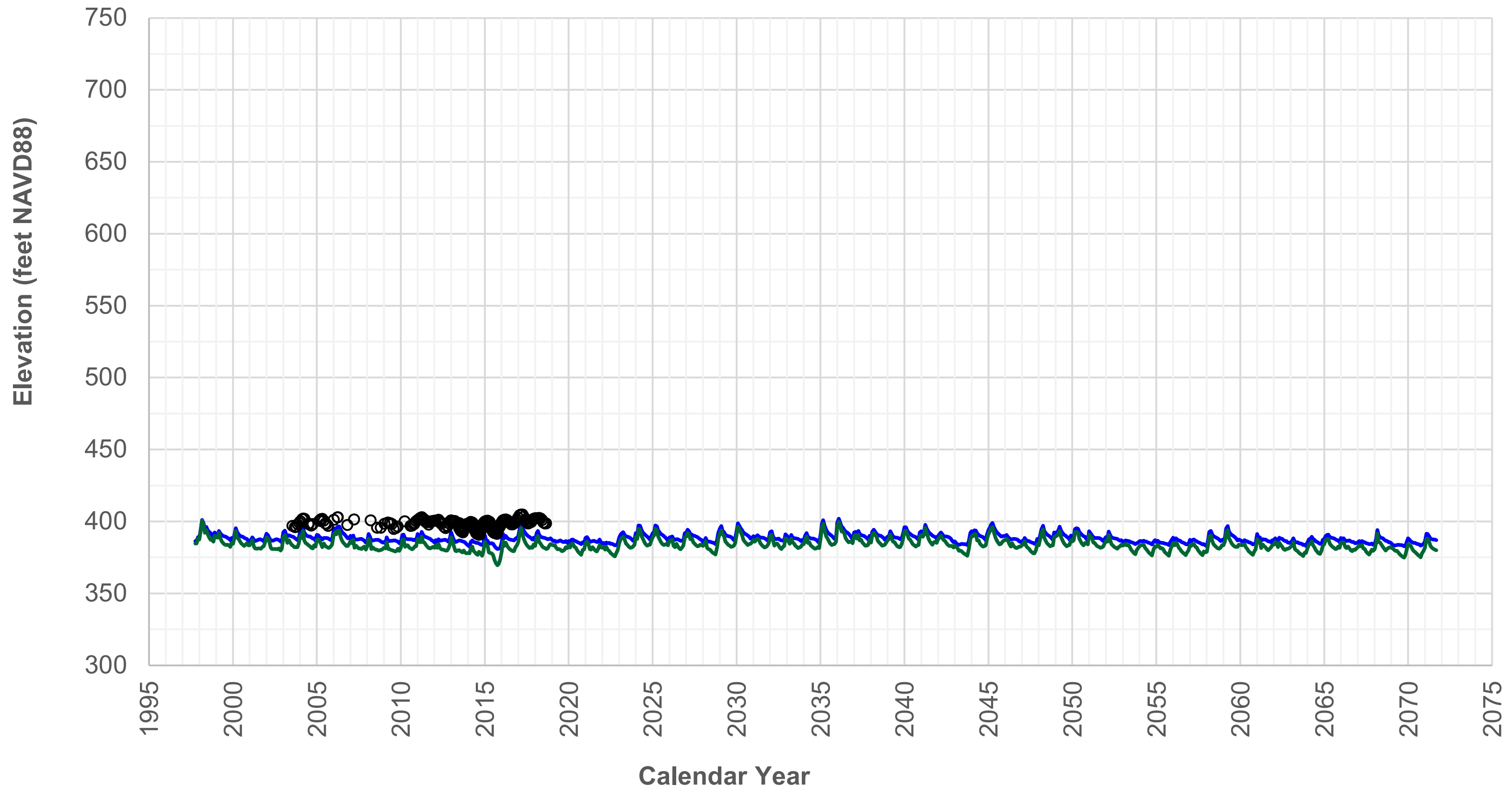

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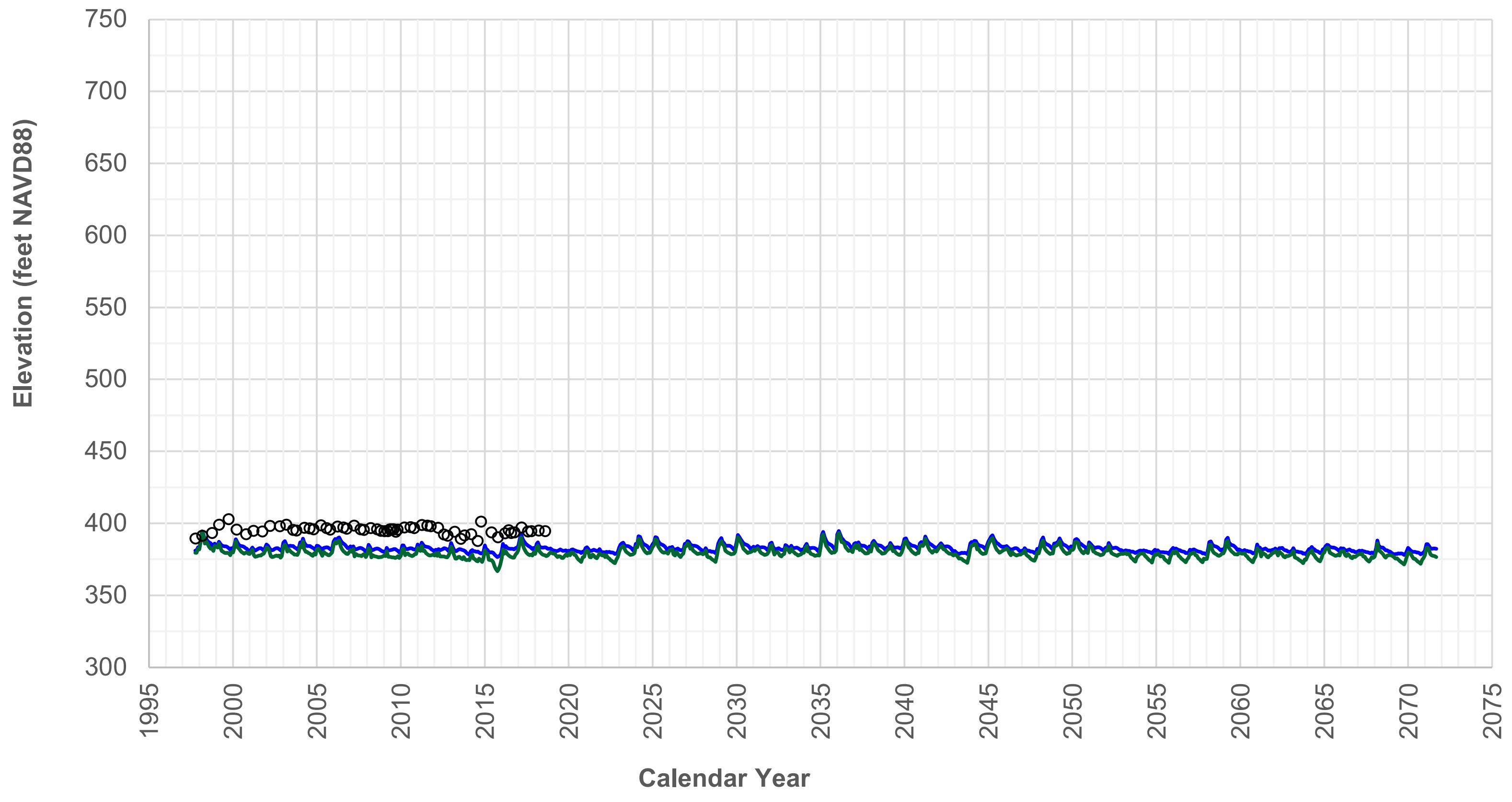


GRAPH LEGEND

○ TARGET GROUNDWATER ELEVATION (feet NAVD88)

— HISTORIC AND FUTURE BASELINE SIMULATED GROUNDWATER ELEVATION

— INCREASED GROUNDWATER USE SCENARIO SIMULATED GROUNDWATER ELEVATION

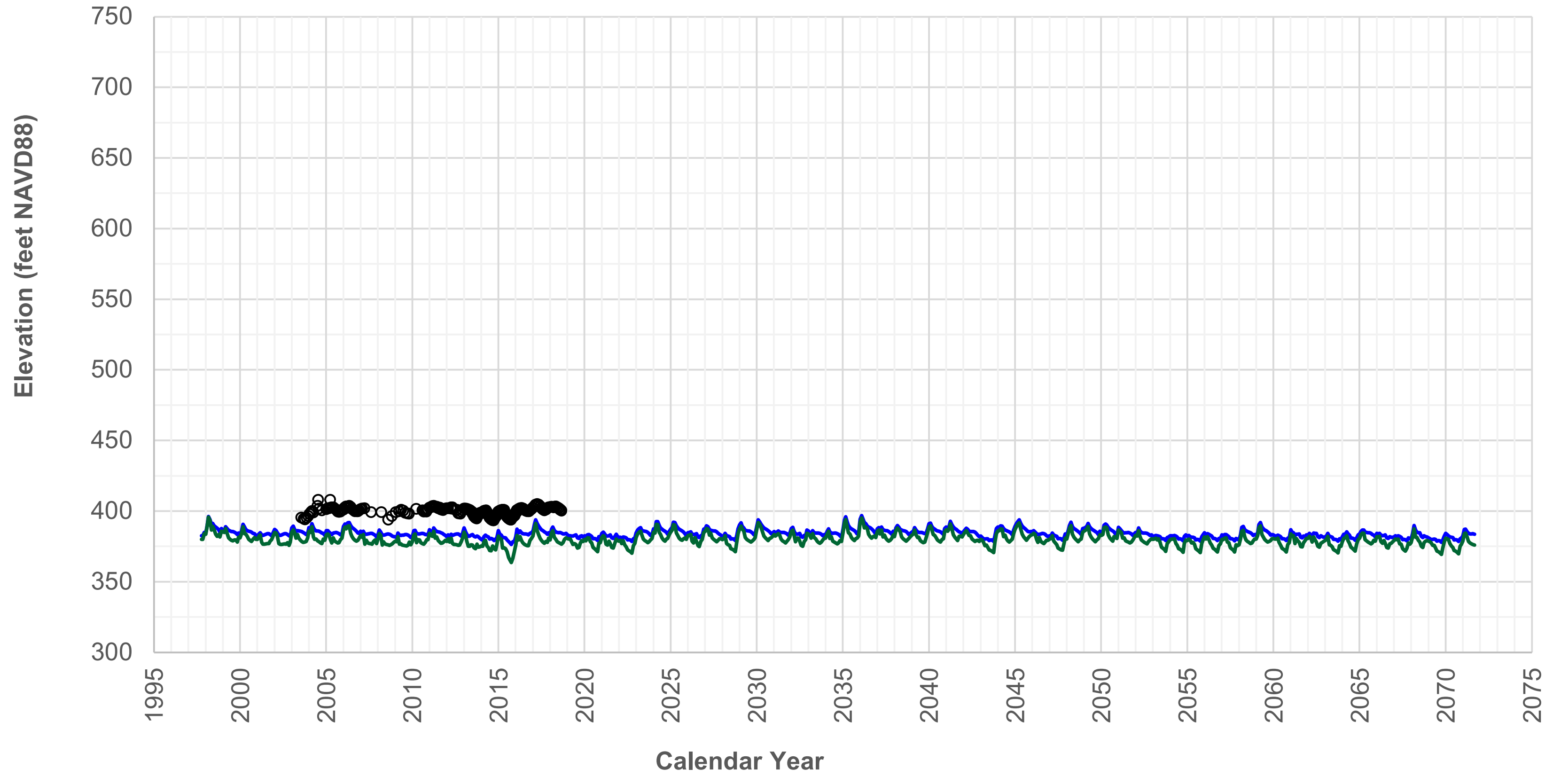
ATTACHMENT 8 (PAGE 18 OF 28)

COMPARISON OF PROJECTED GROUNDWATER HYDROGRAPHS

Numerical Flow Model Documentation

Redding Area Groundwater Basin

30N/04W-23M01



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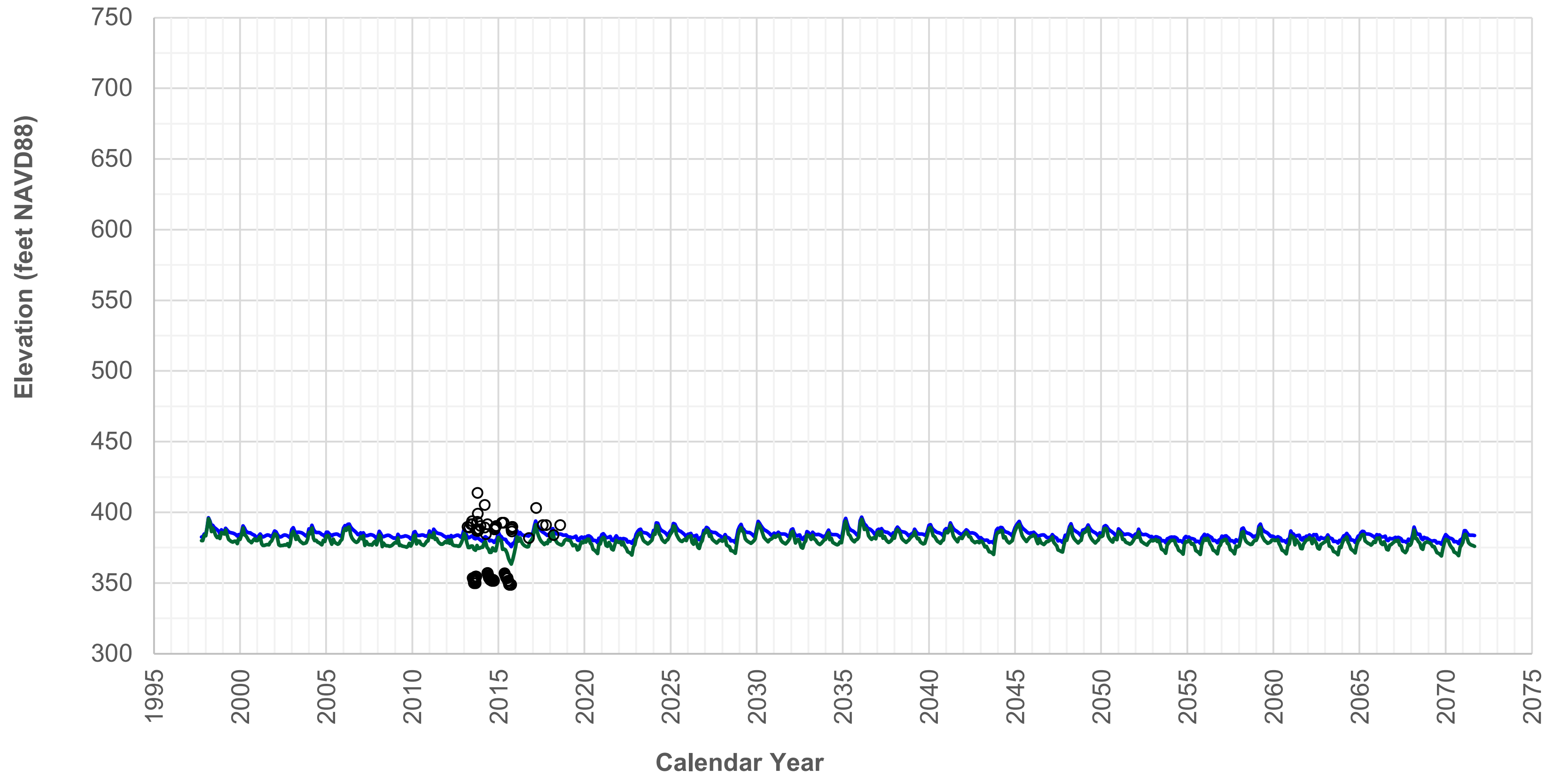

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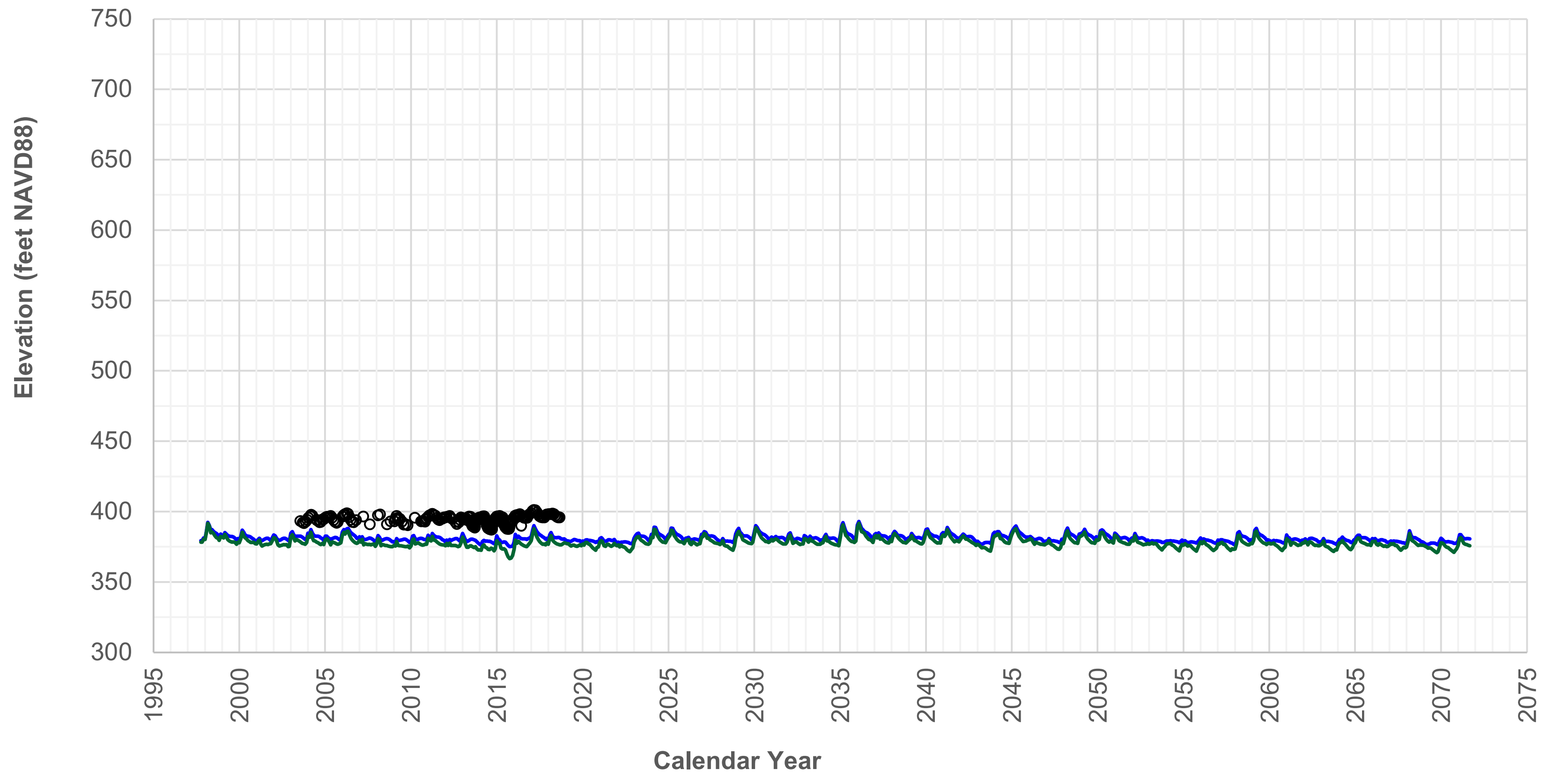


GRAPH LEGEND

○ TARGET GROUNDWATER ELEVATION (feet NAVD88)

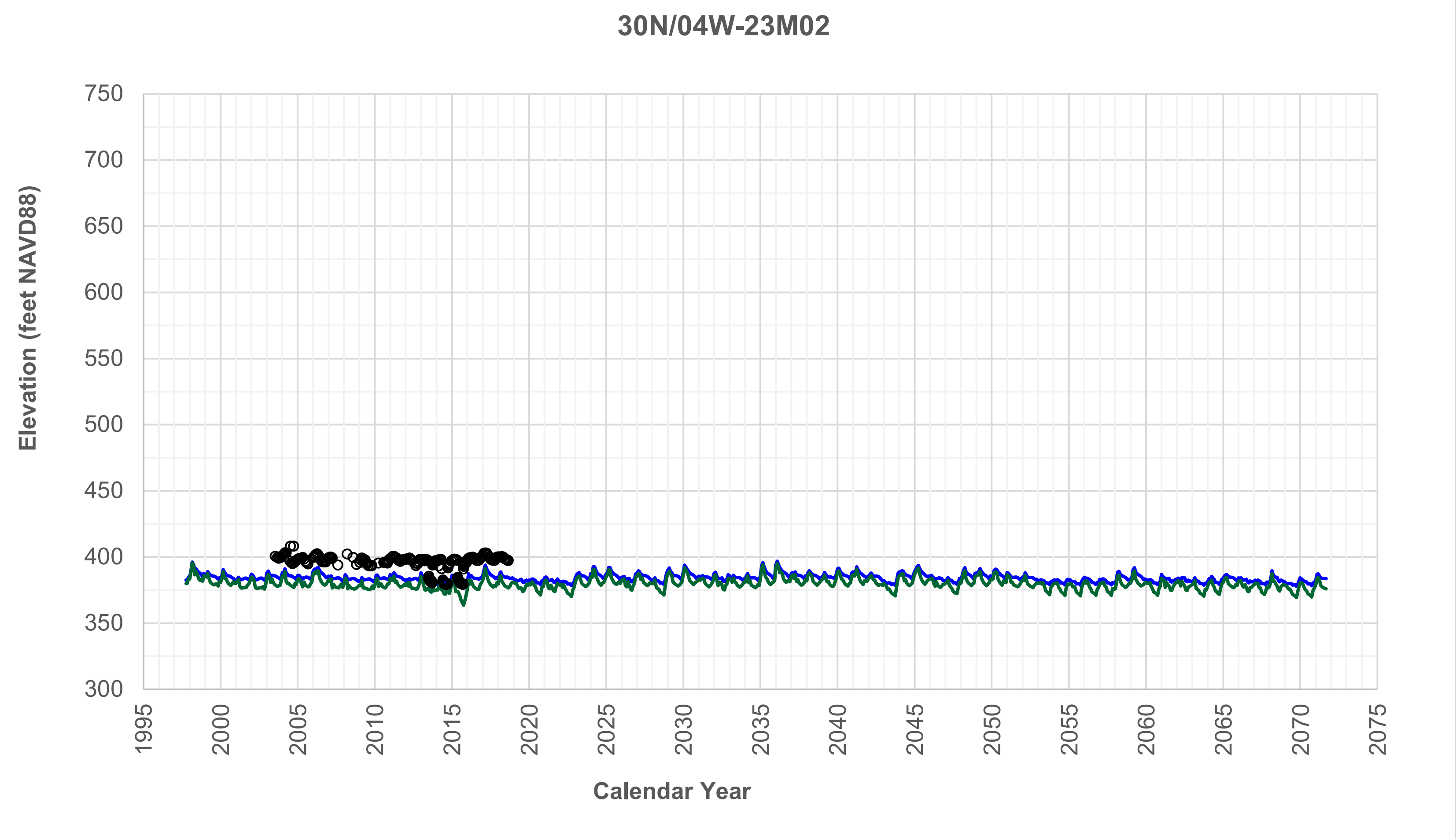
— HISTORIC AND FUTURE BASELINE SIMULATED GROUNDWATER ELEVATION

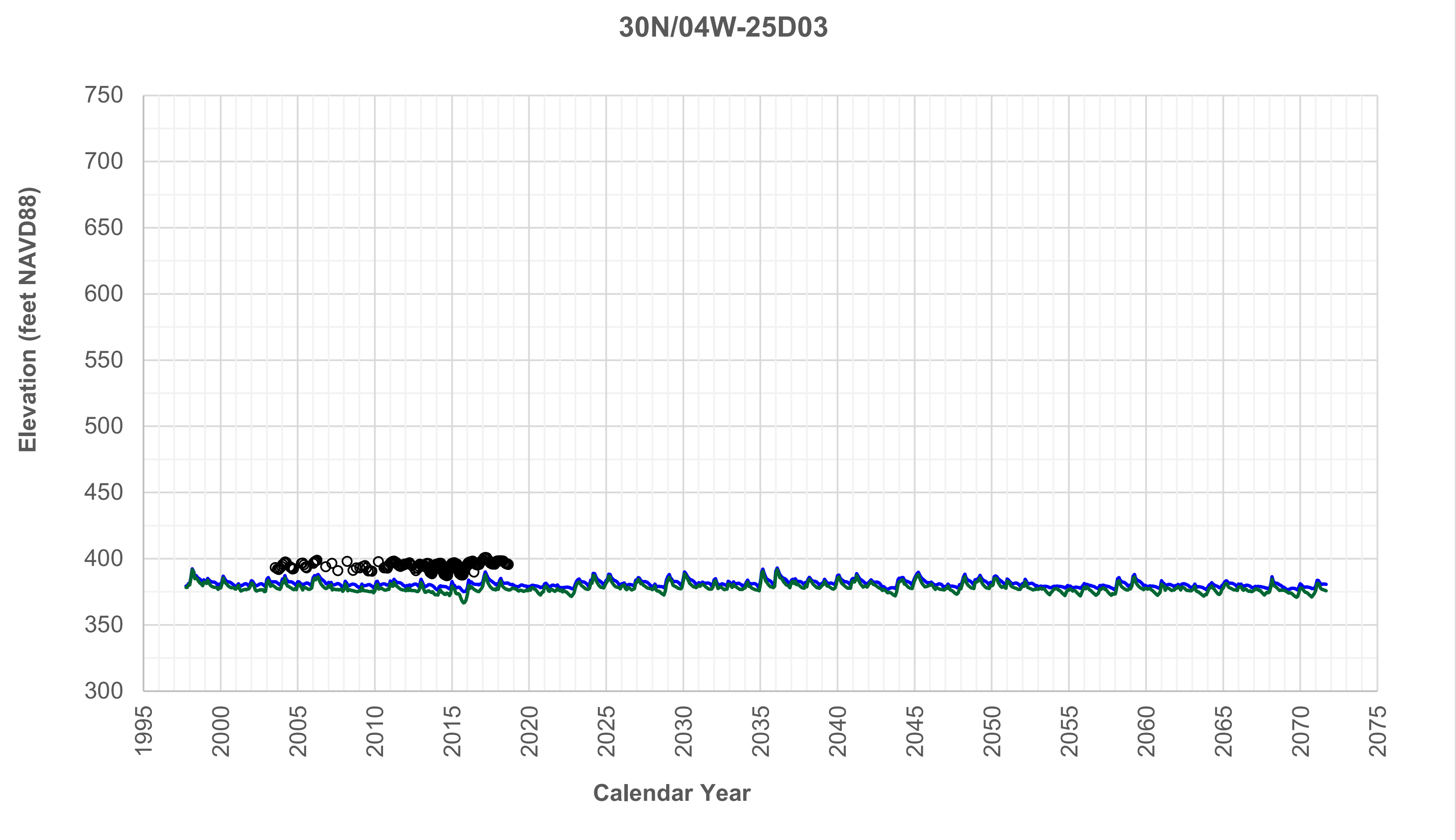
— INCREASED GROUNDWATER USE SCENARIO SIMULATED GROUNDWATER ELEVATION

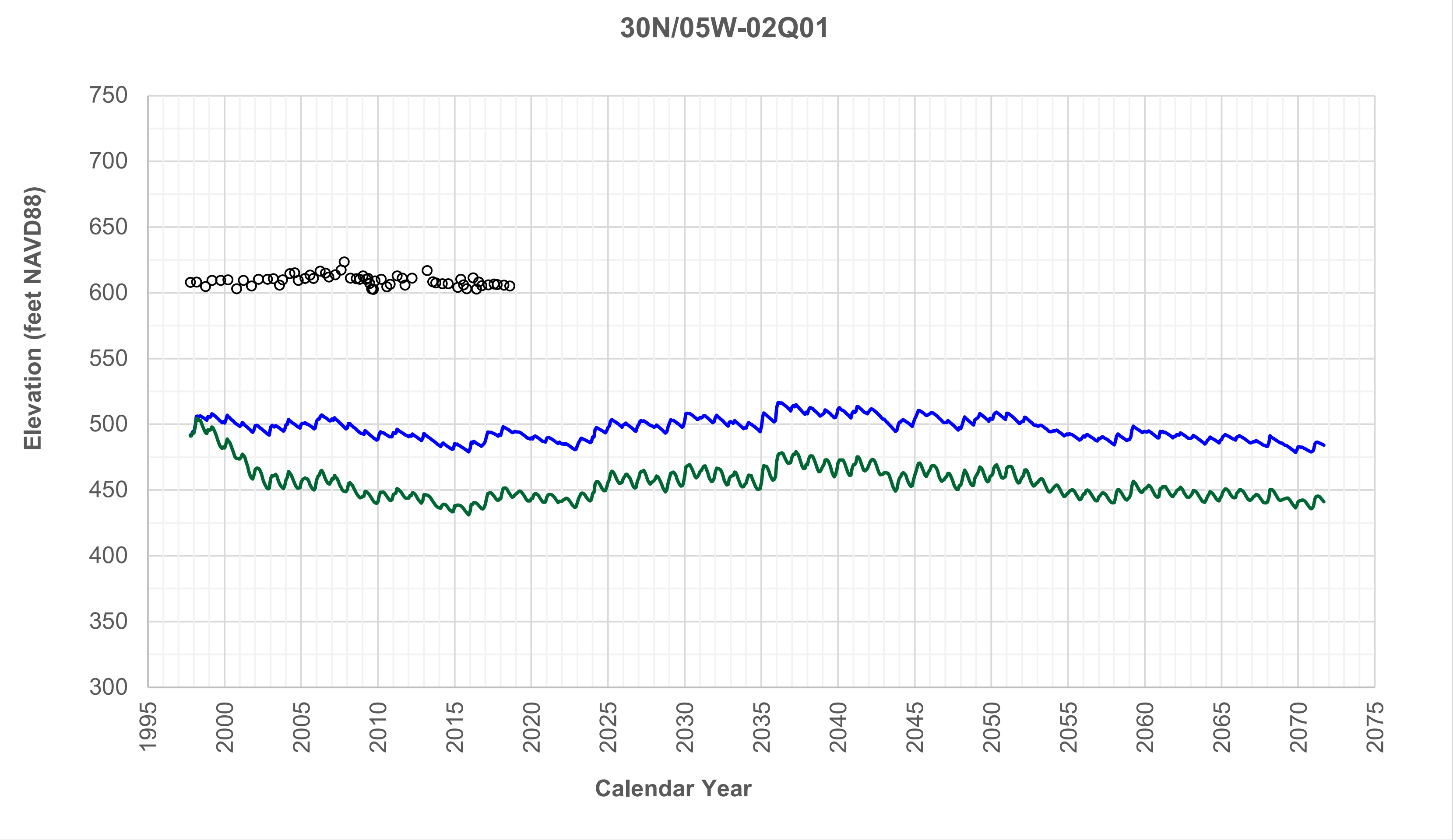
ATTACHMENT 8 (PAGE 19 OF 28)

COMPARISON OF PROJECTED GROUNDWATER HYDROGRAPHS

Numerical Flow Model Documentation
Redding Area Groundwater Basin







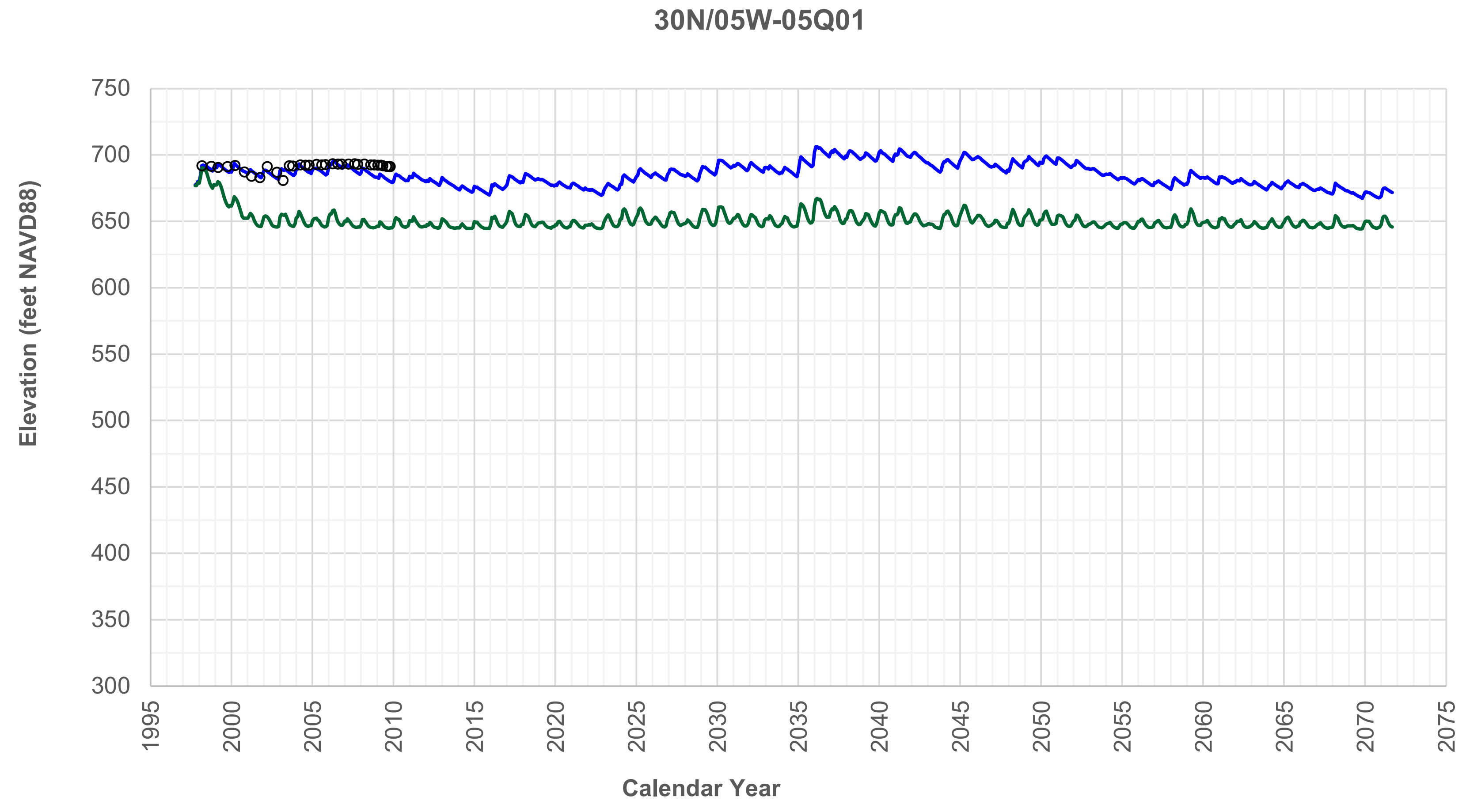
GRAPH LEGEND

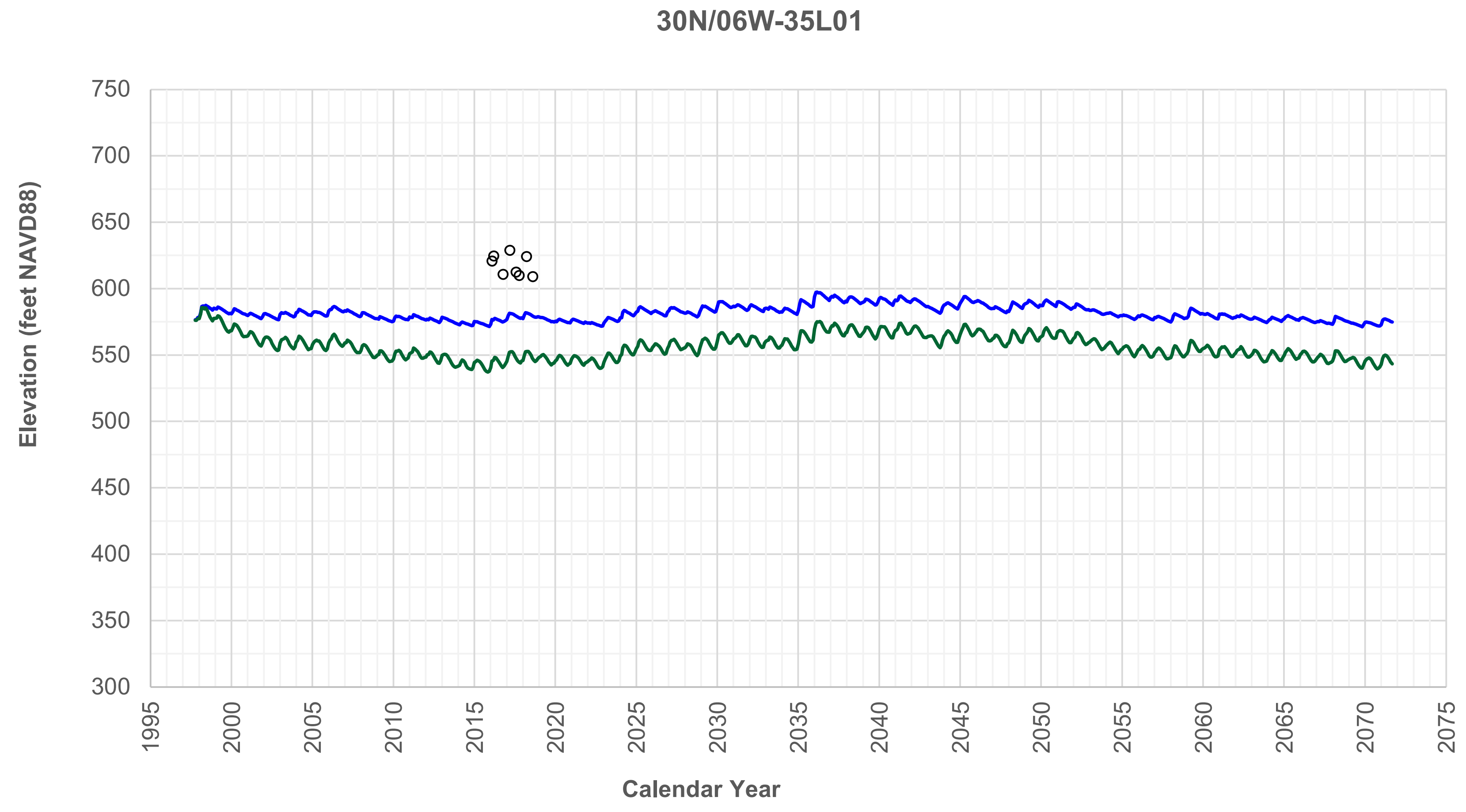
○ TARGET GROUNDWATER ELEVATION (feet NAVD88)

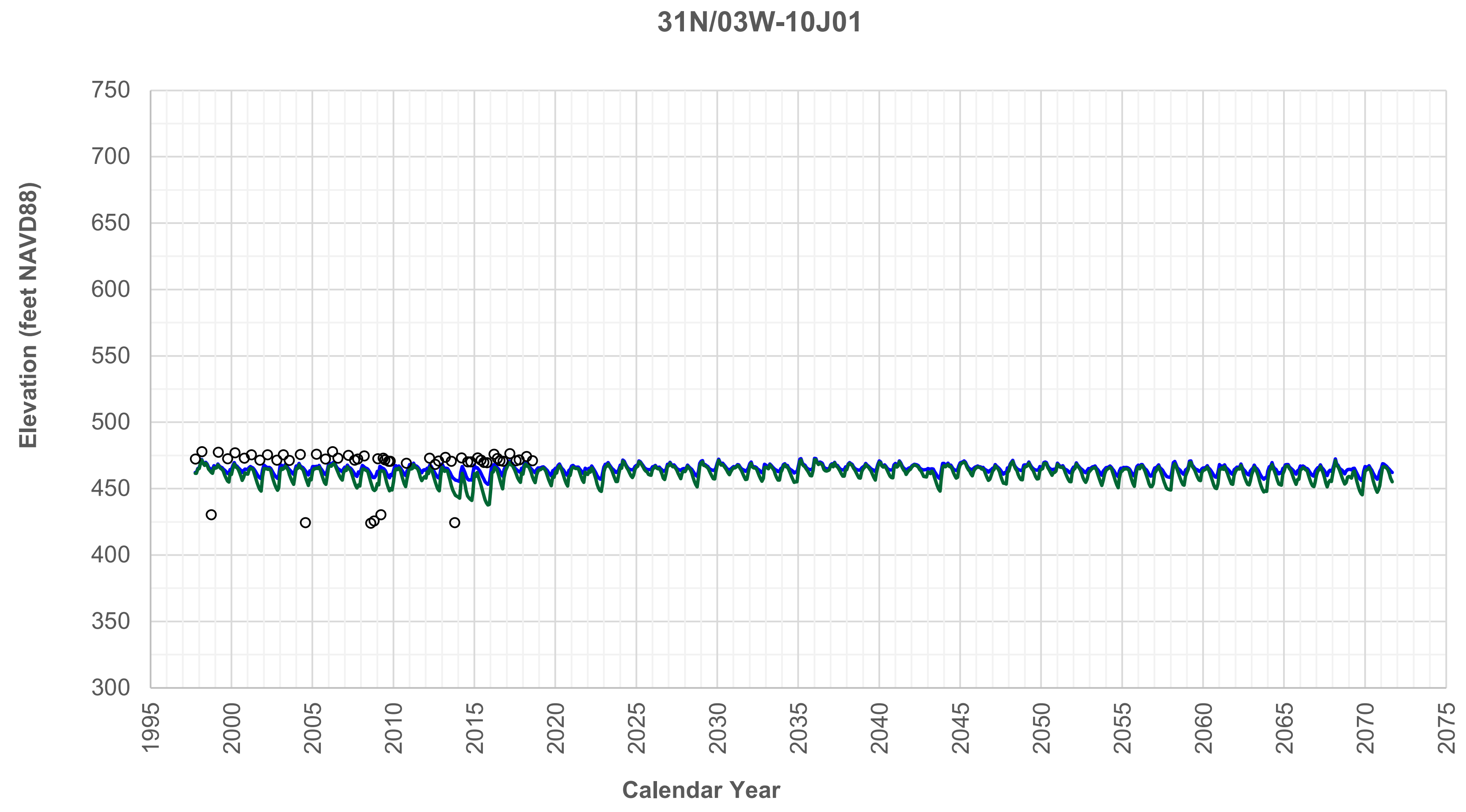
— HISTORIC AND FUTURE BASELINE SIMULATED GROUNDWATER ELEVATION

— INCREASED GROUNDWATER USE SCENARIO SIMULATED GROUNDWATER ELEVATION

ATTACHMENT 8 (PAGE 20 OF 28)
COMPARISON OF PROJECTED GROUNDWATER HYDROGRAPHS
Numerical Flow Model Documentation
Redding Area Groundwater Basin







GRAPH LEGEND

○ TARGET GROUNDWATER ELEVATION (feet NAVD88)

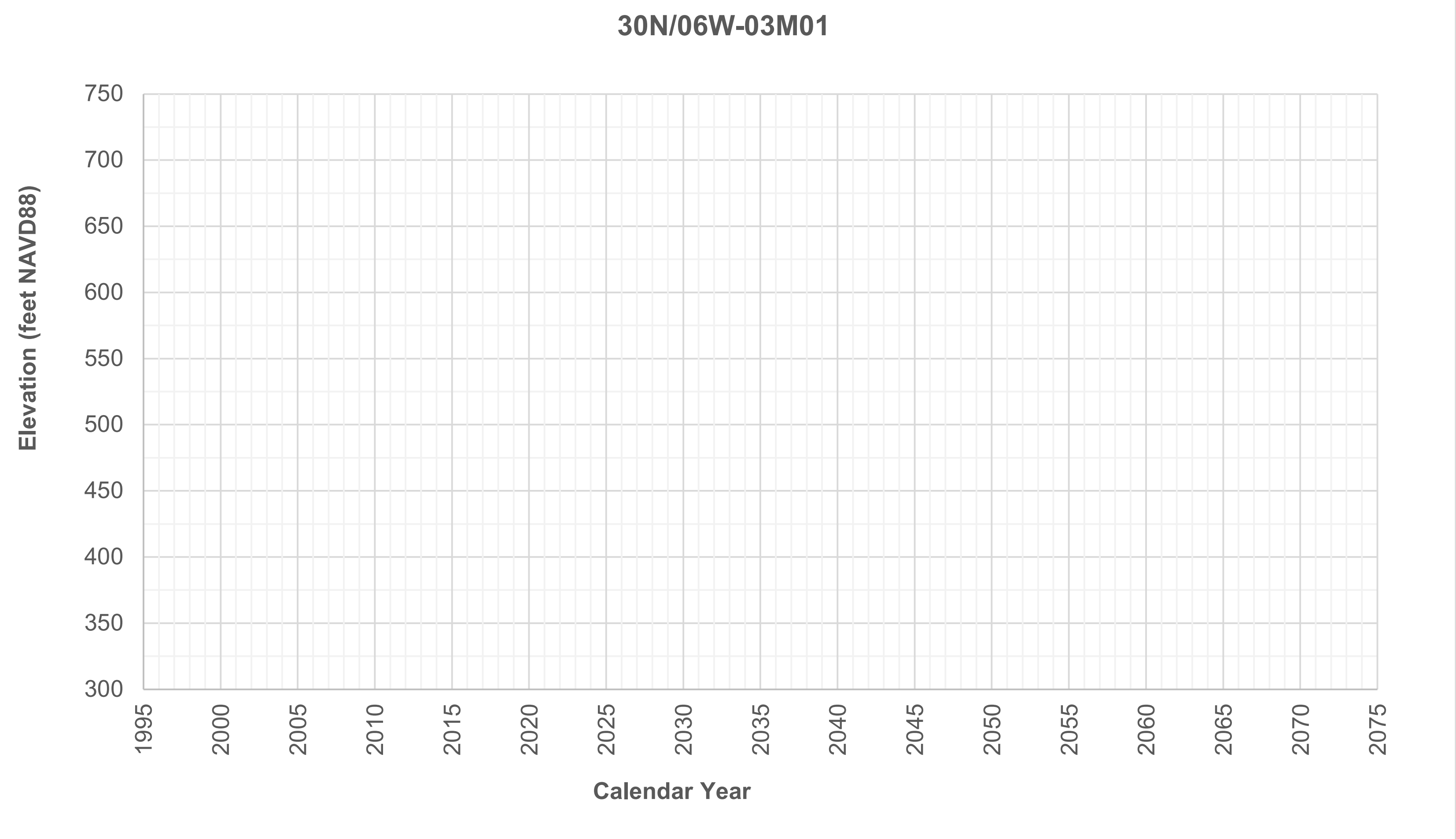
HISTORIC AND FUTURE BASELINE SIMULATED GROUNDWATER ELEVATION

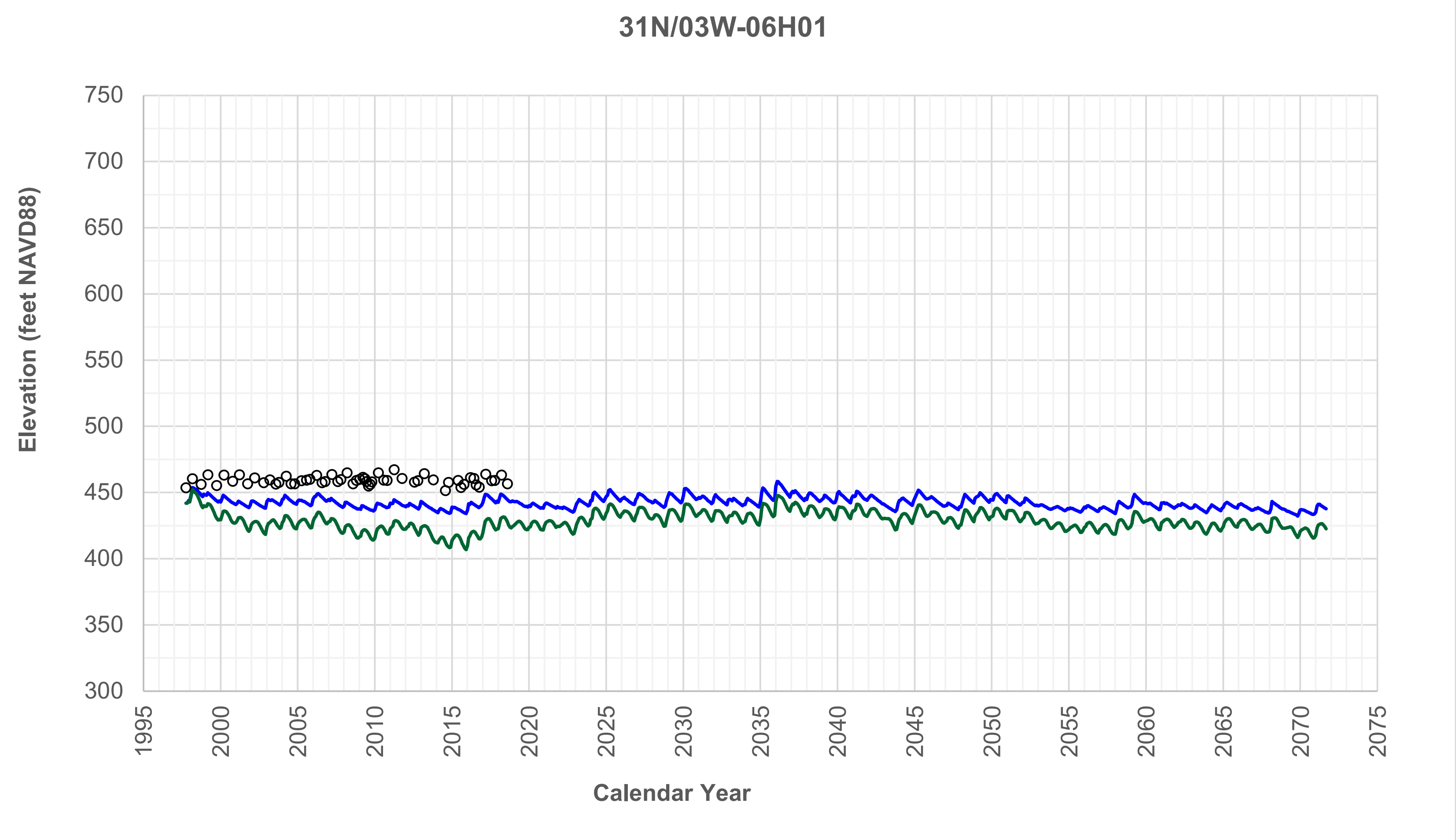
INCREASED GROUNDWATER USE SCENARIO SIMULATED GROUNDWATER ELEVATION

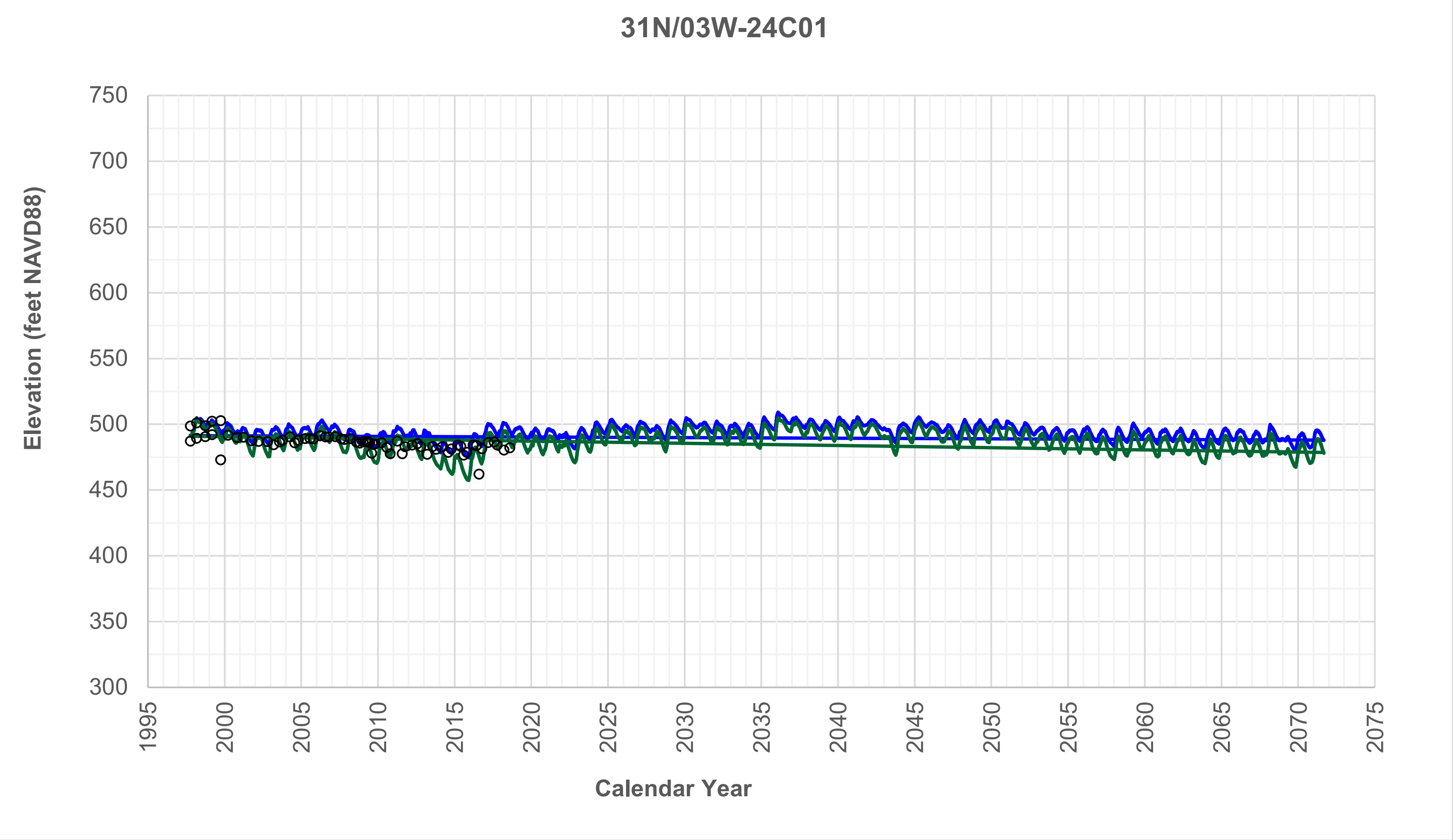
ATTACHMENT 8 (PAGE 21 OF 28)

COMPARISON OF PROJECTED GROUNDWATER HYDROGRAPHS

Numerical Flow Model Documentation
Redding Area Groundwater Basin







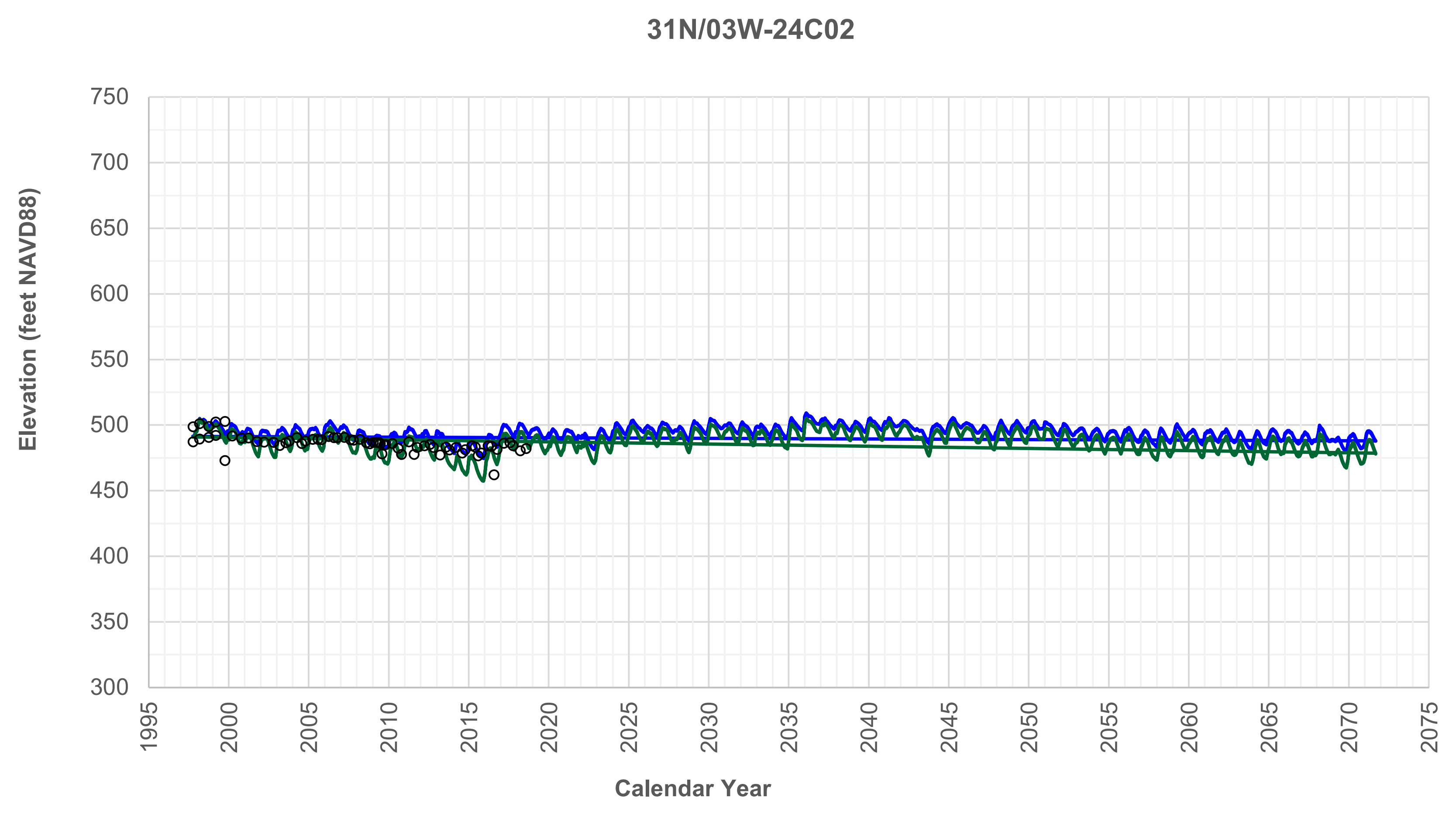
GRAPH LEGEND

○ TARGET GROUNDWATER ELEVATION (feet NAVD88)

HISTORIC AND FUTURE BASELINE SIMULATED GROUNDWATER ELEVATION

INCREASED GROUNDWATER USE SCENARIO SIMULATED GROUNDWATER ELEVATION

ATTACHMENT 8 (PAGE 22 OF 28)
COMPARISON OF PROJECTED GROUNDWATER HYDROGRAPHS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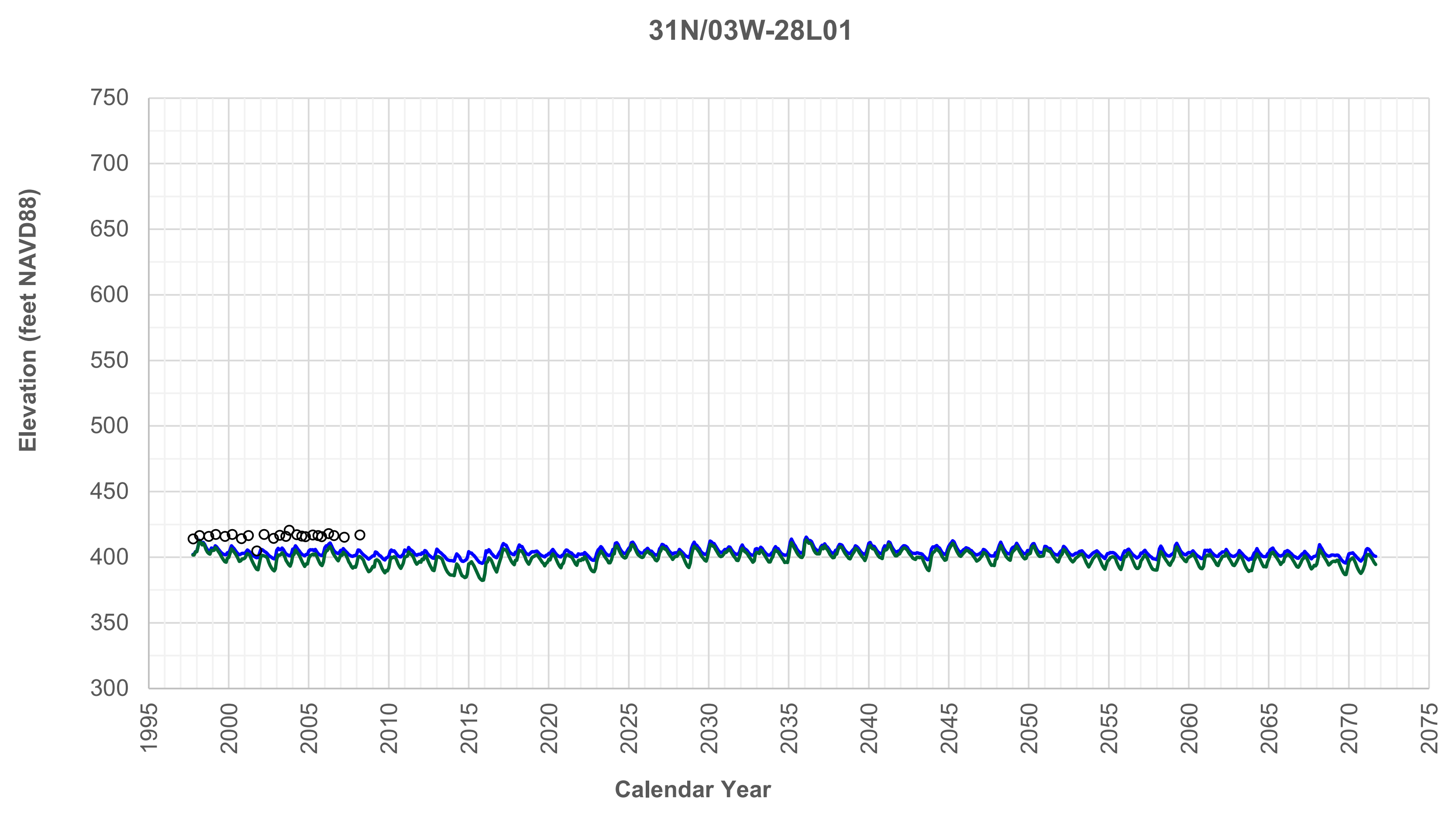
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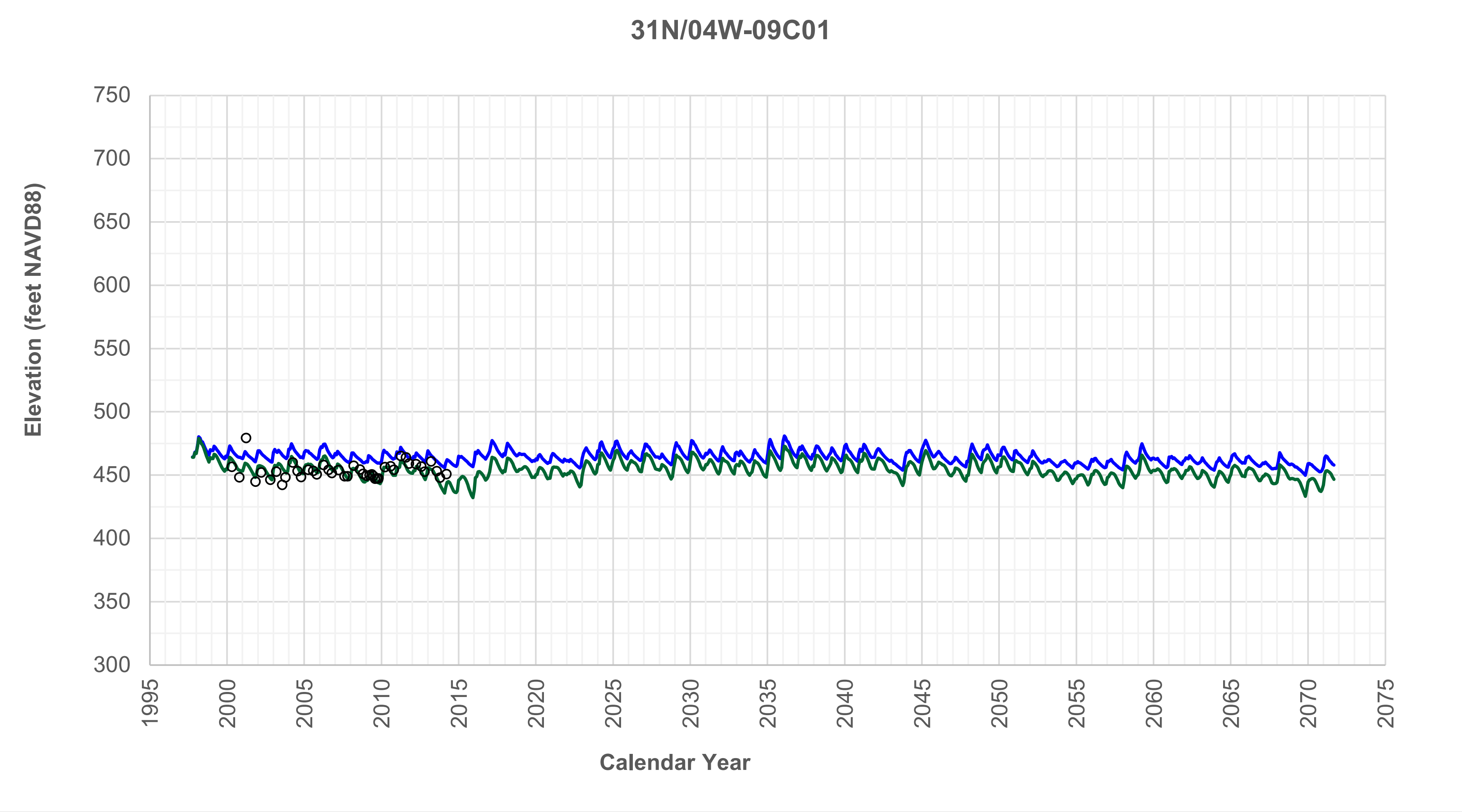
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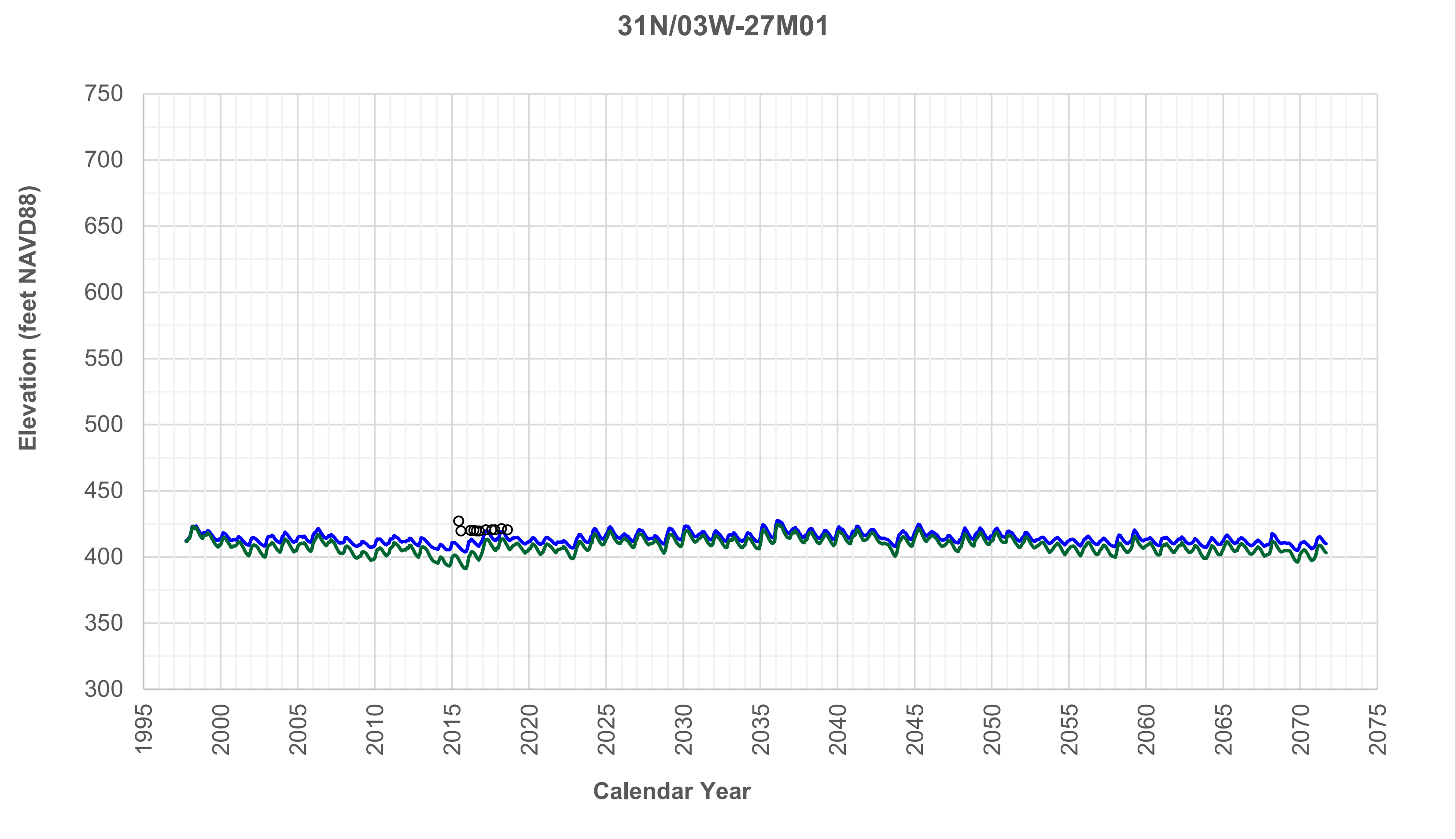
GRAPH LEGEND

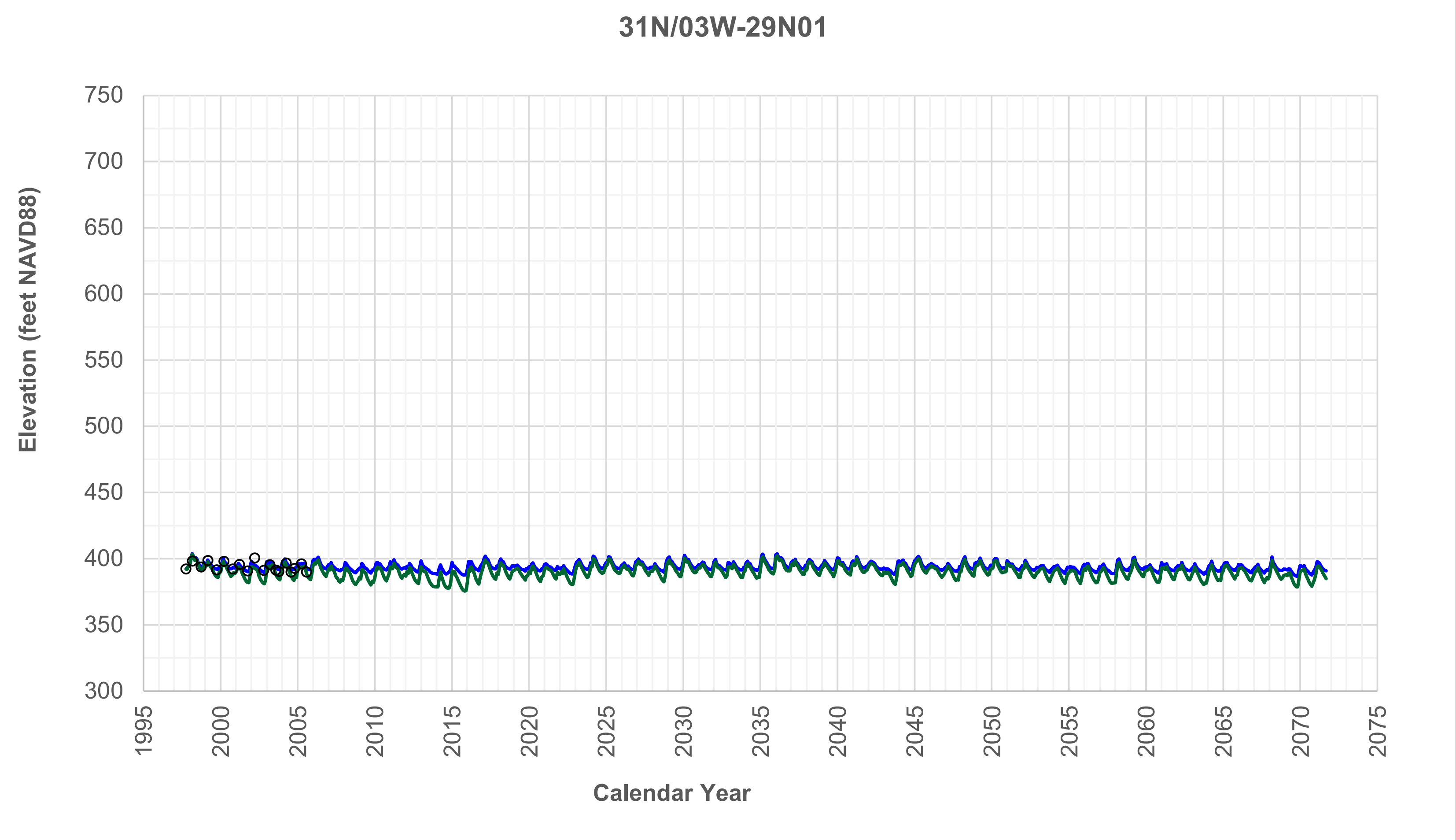
○ TARGET GROUNDWATER ELEVATION (feet NAVD88)

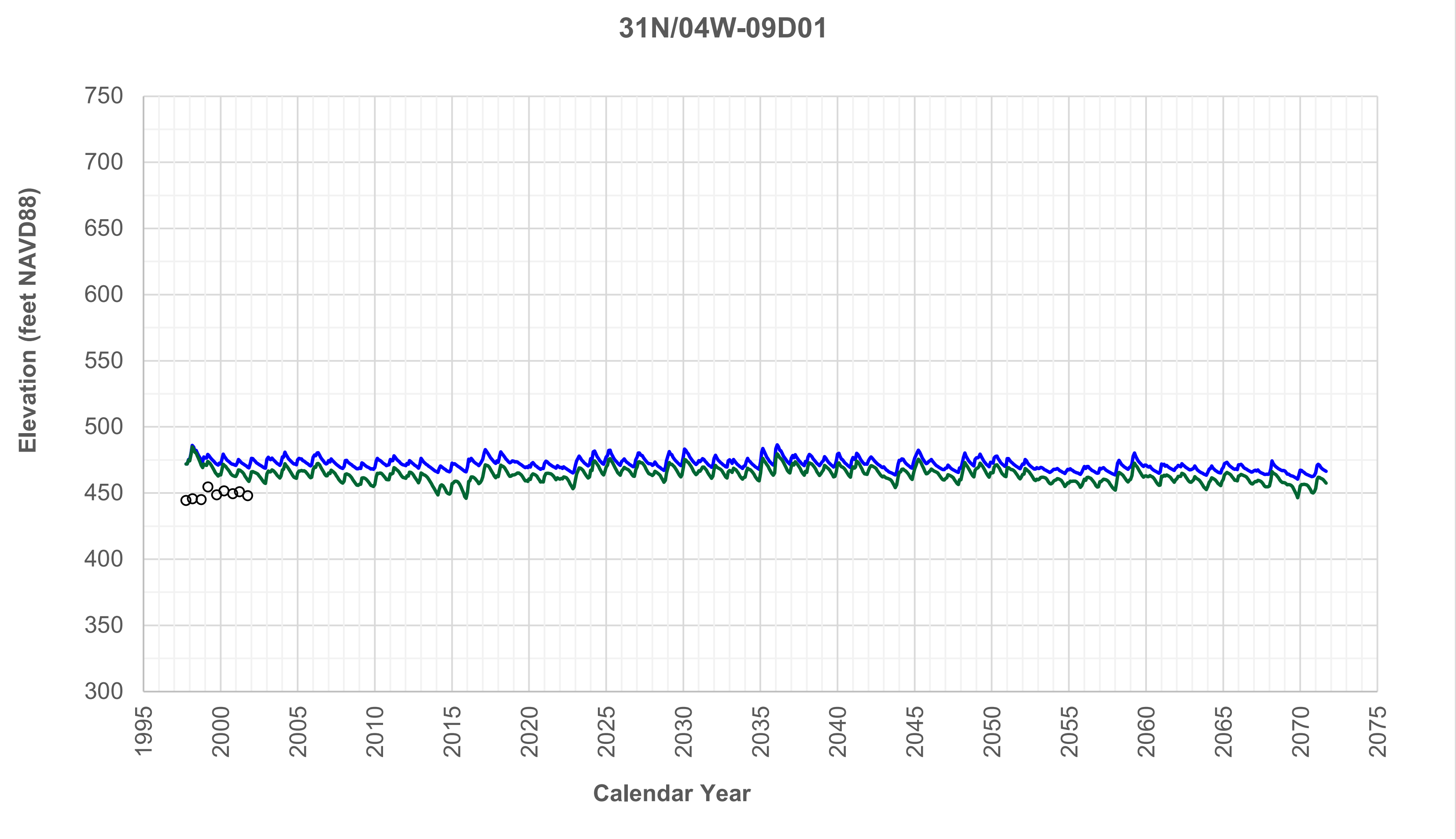
— HISTORIC AND FUTURE BASELINE SIMULATED GROUNDWATER ELEVATION

— INCREASED GROUNDWATER USE SCENARIO SIMULATED GROUNDWATER ELEVATION

ATTACHMENT 8 (PAGE 23 OF 28)
COMPARISON OF PROJECTED GROUNDWATER HYDROGRAPHS
Numerical Flow Model Documentation
Redding Area Groundwater Basin







GRAPH LEGEND

○ TARGET GROUNDWATER ELEVATION (feet NAVD88)

— HISTORIC AND FUTURE BASELINE SIMULATED GROUNDWATER ELEVATION

— INCREASED GROUNDWATER USE SCENARIO SIMULATED GROUNDWATER ELEVATION

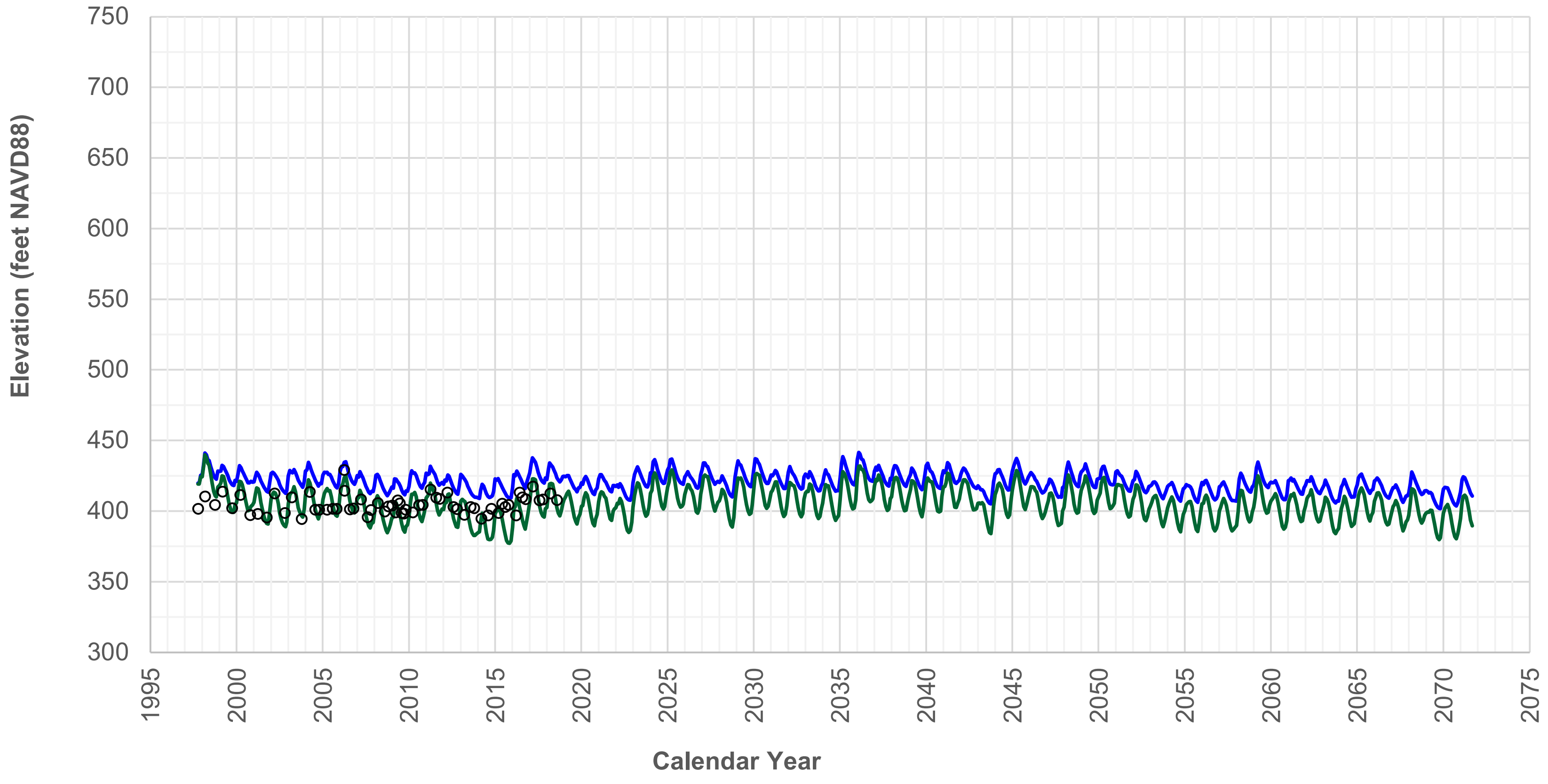
ATTACHMENT 8 (PAGE 24 OF 28)

COMPARISON OF PROJECTED GROUNDWATER HYDROGRAPHS

Numerical Flow Model Documentation

Redding Area Groundwater Basin

31N/04W-15K01



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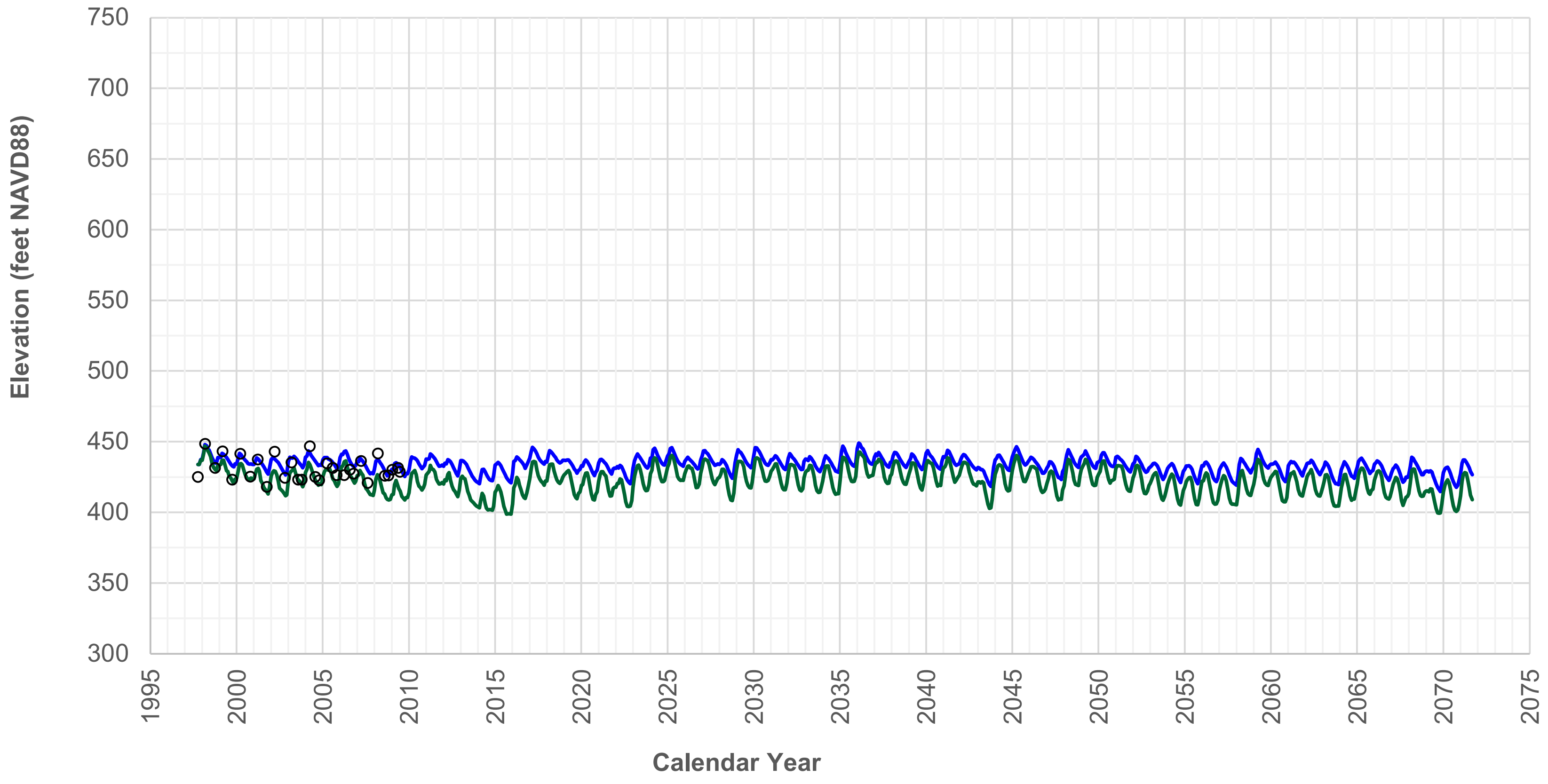

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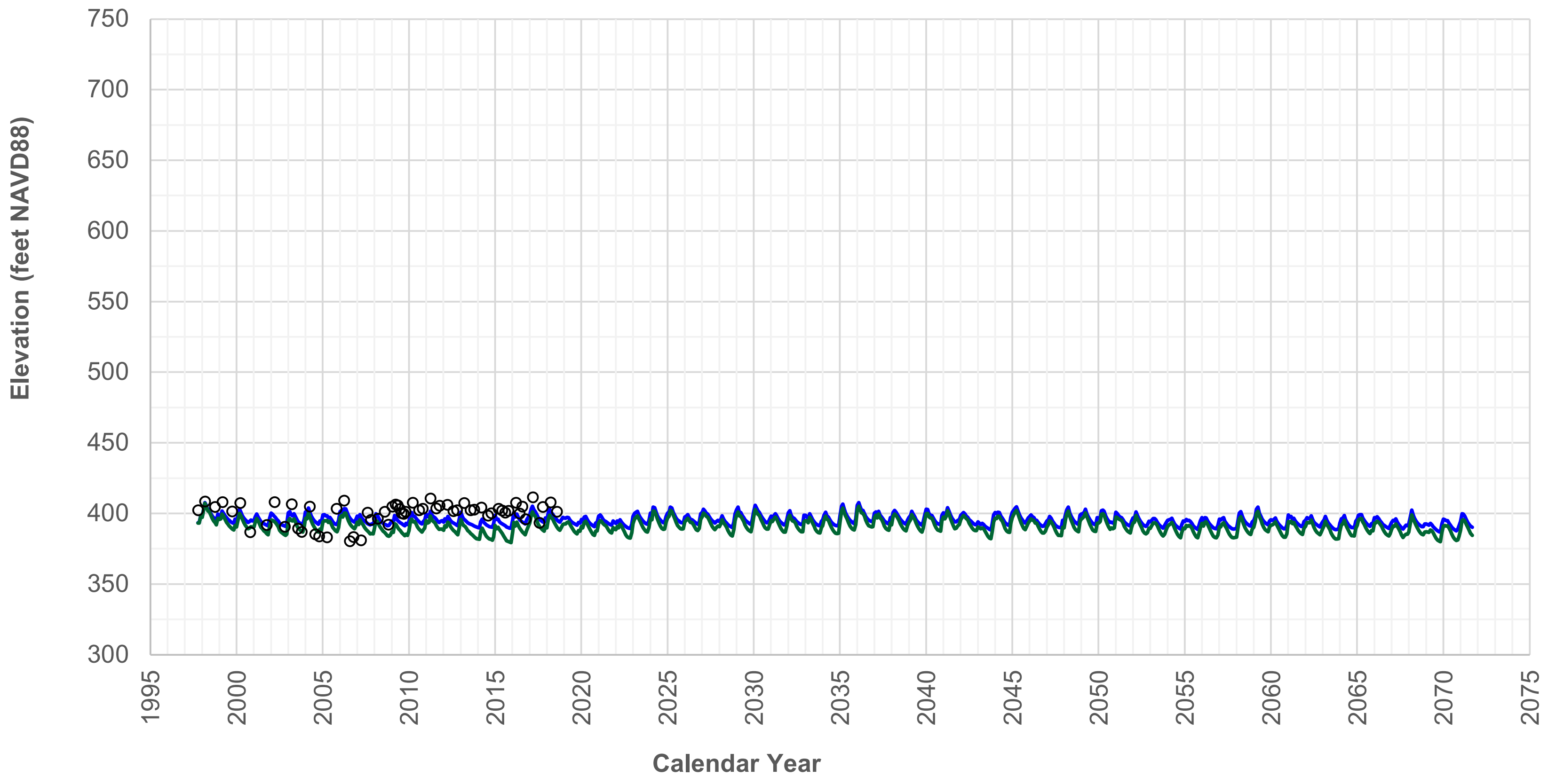
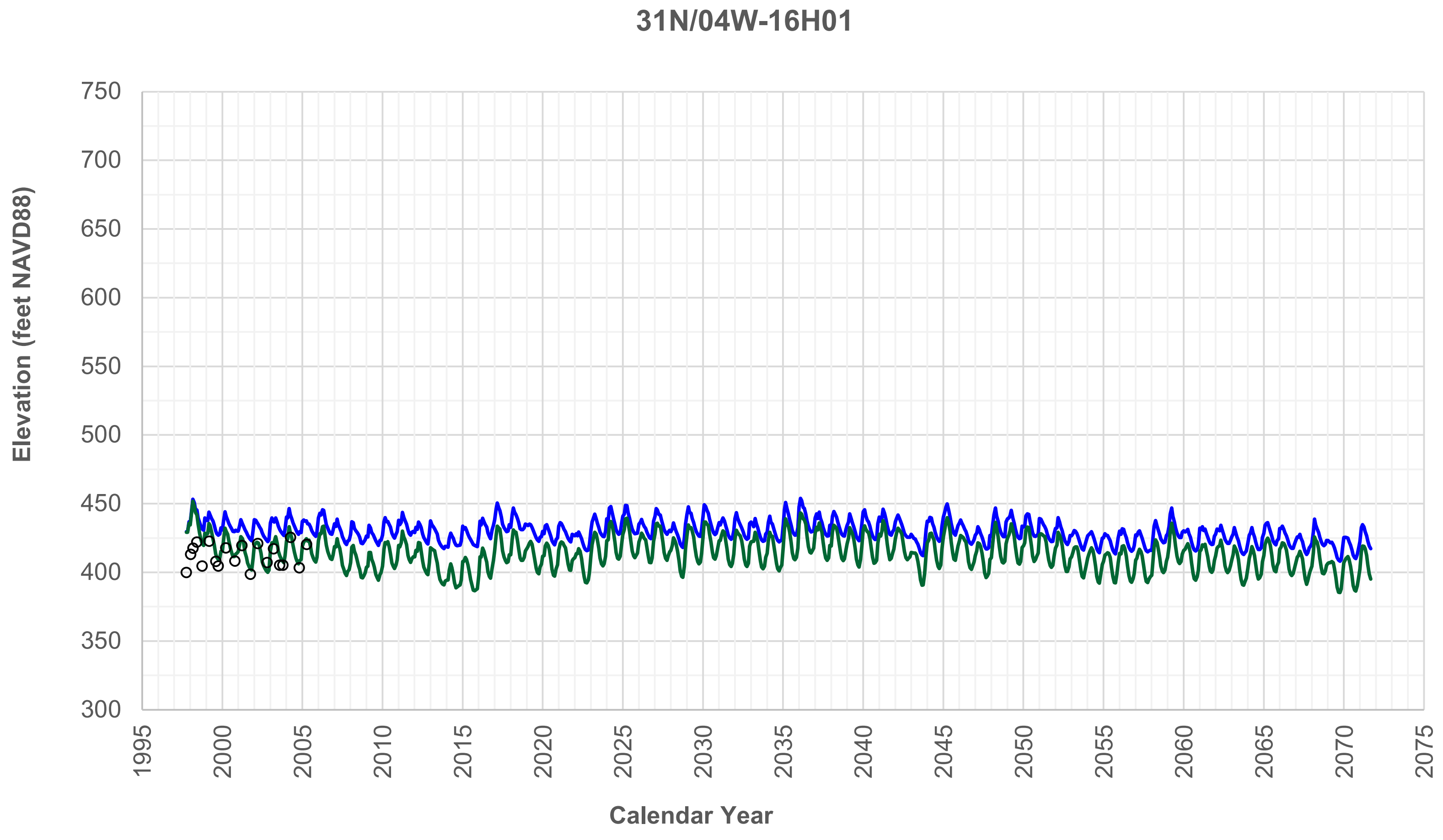


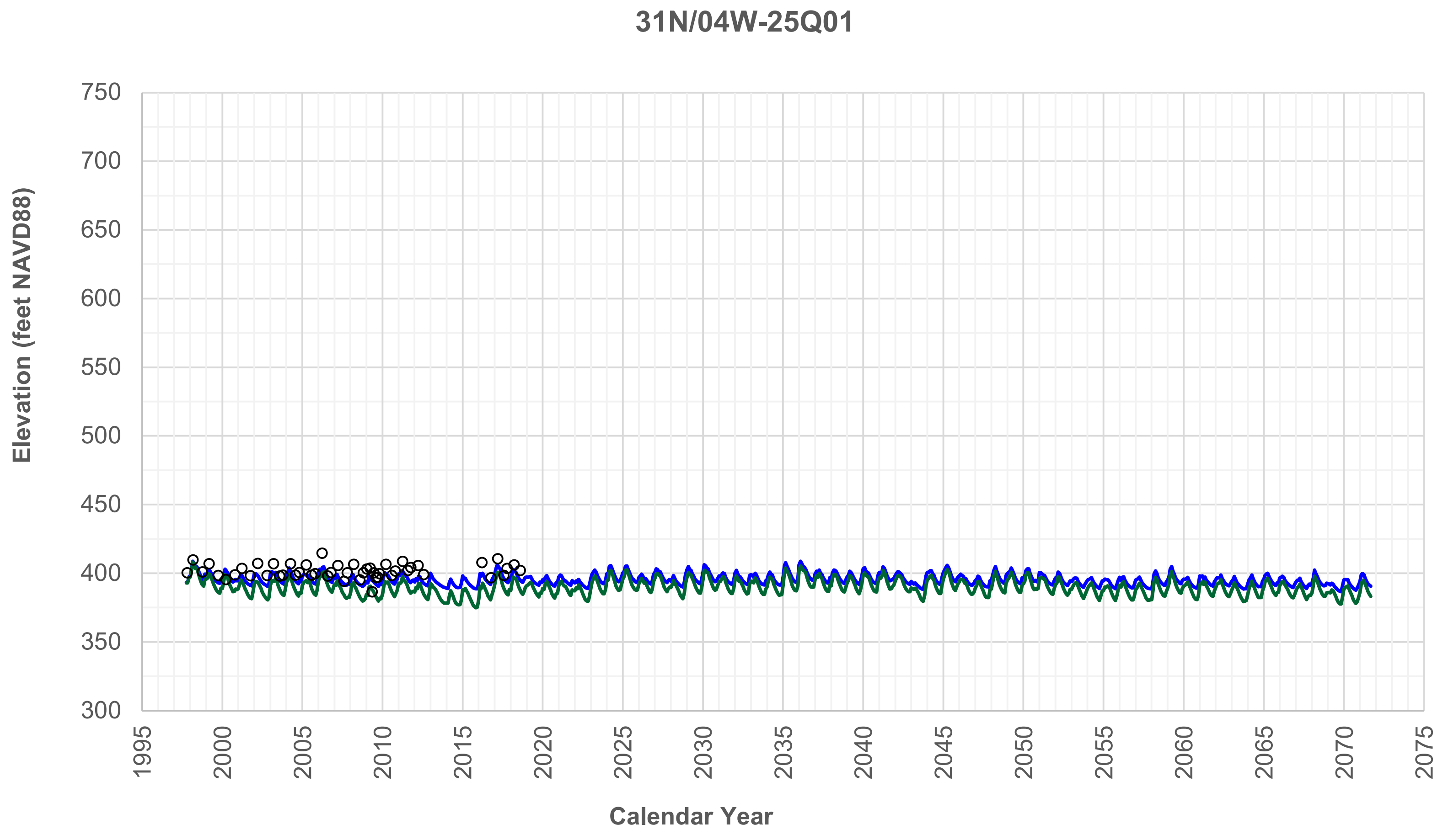
GRAPH LEGEND

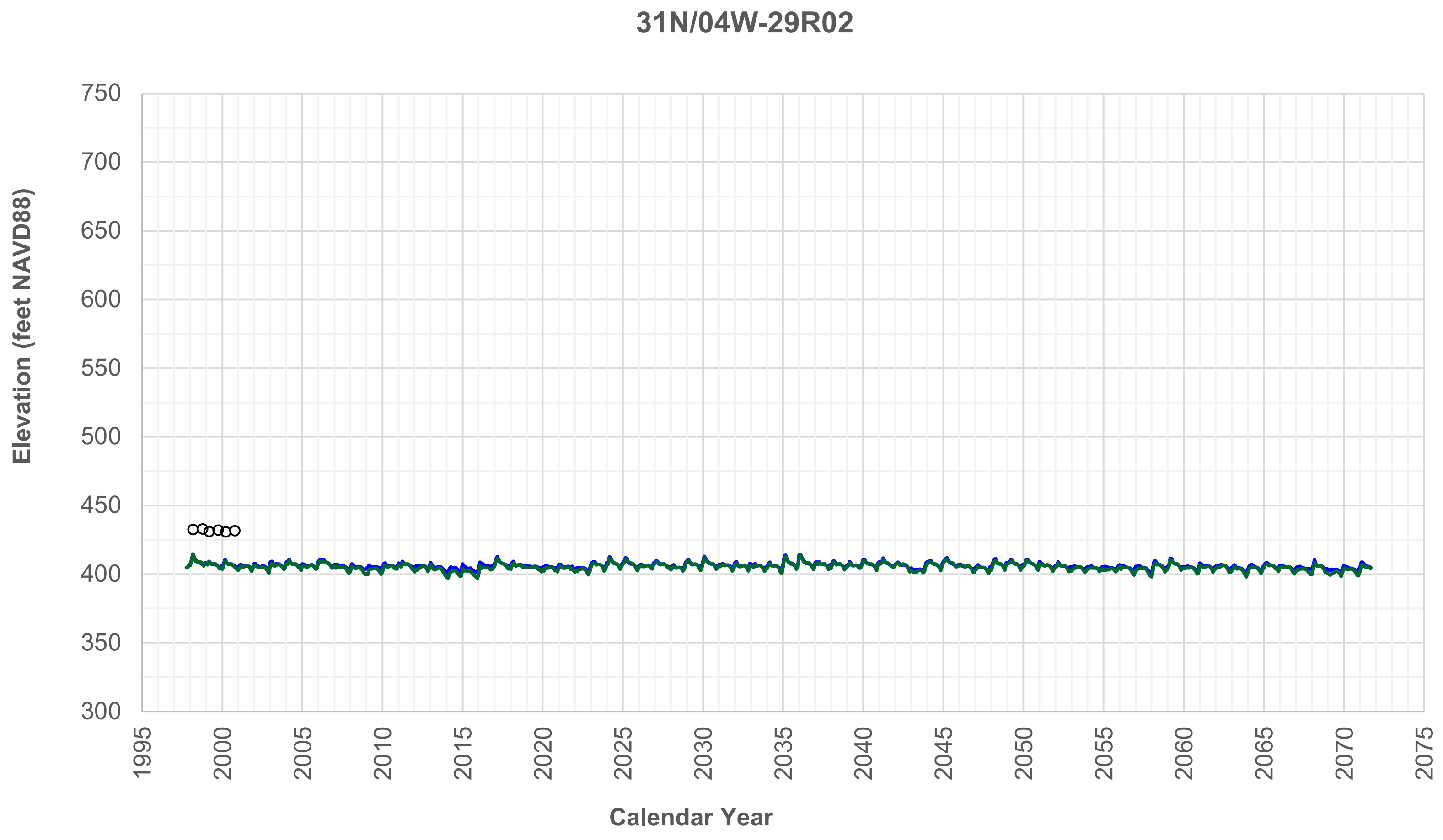
○ TARGET GROUNDWATER ELEVATION (feet NAVD88)

HISTORIC AND FUTURE BASELINE SIMULATED GROUNDWATER ELEVATION

INCREASED GROUNDWATER USE SCENARIO SIMULATED GROUNDWATER ELEVATION





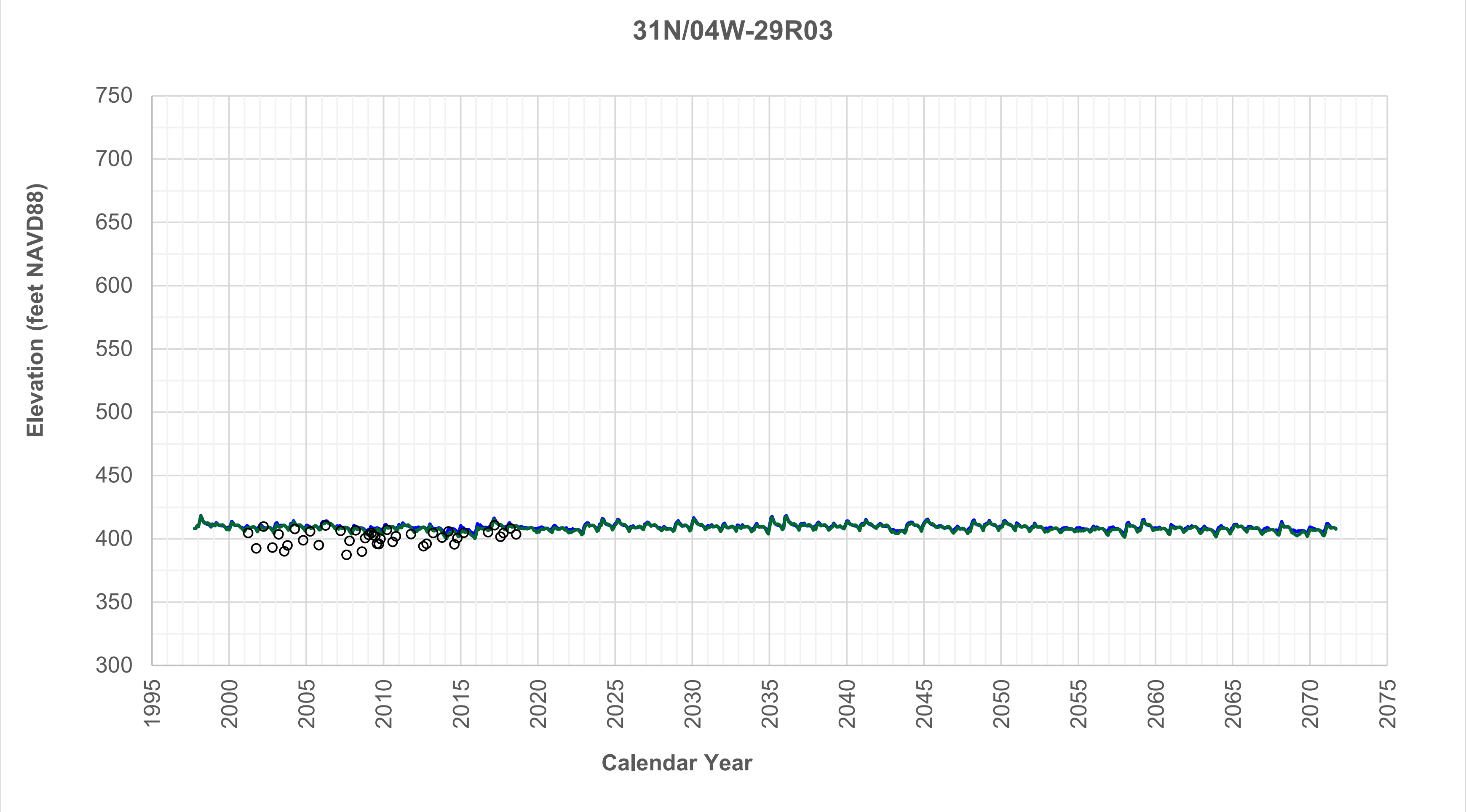


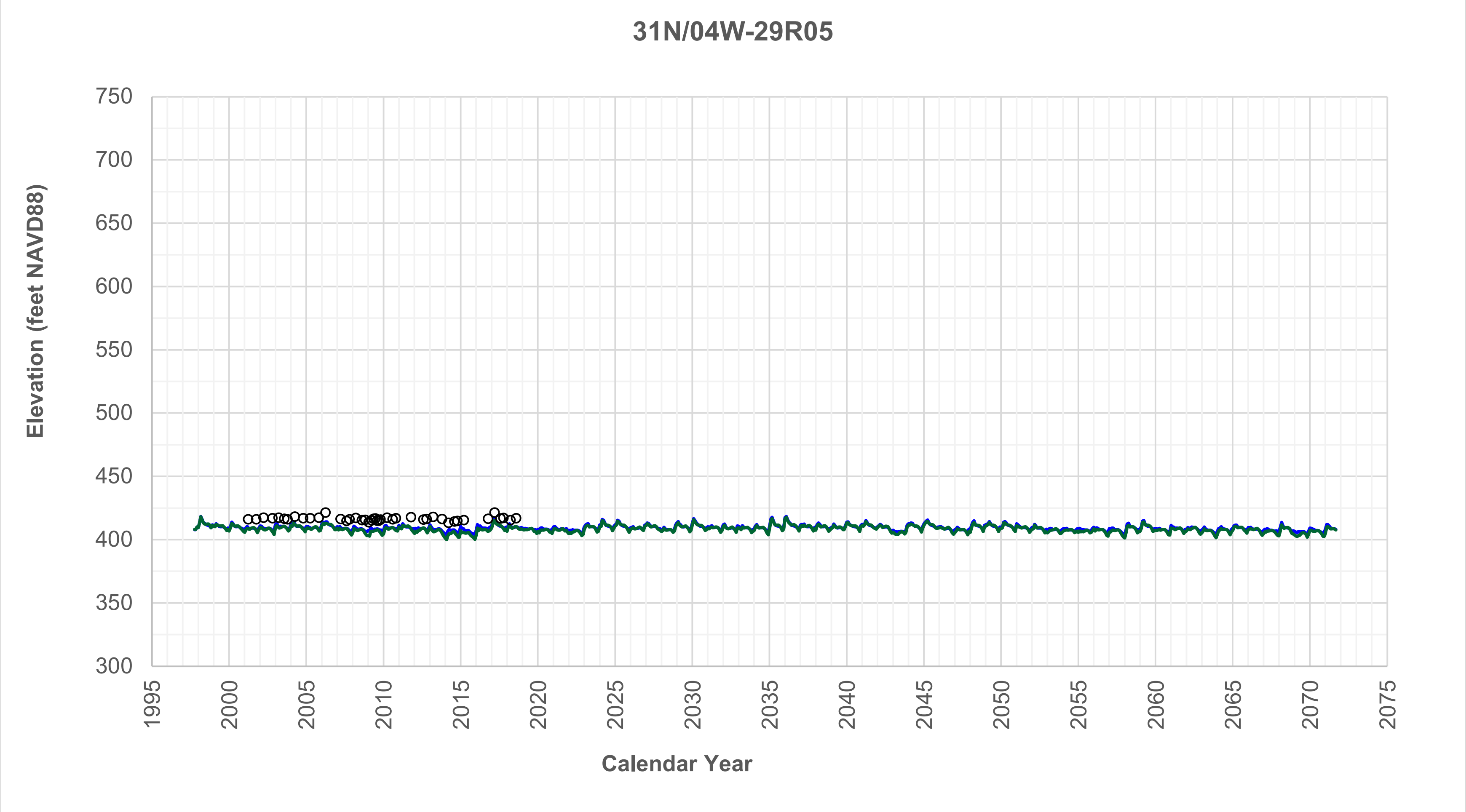
GRAPH LEGEND

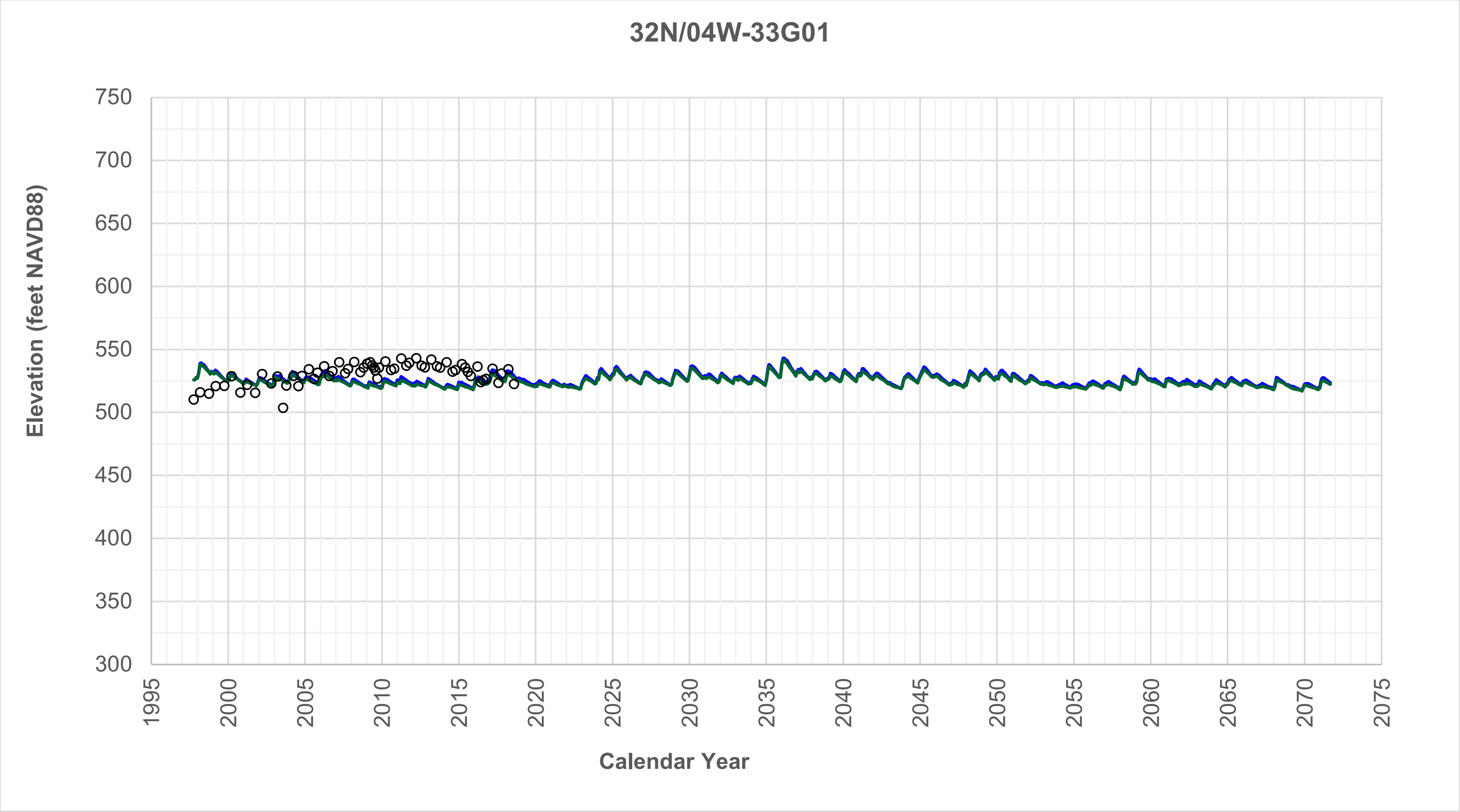
○ TARGET GROUNDWATER ELEVATION (feet NAVD88)

— HISTORIC AND FUTURE BASELINE SIMULATED GROUNDWATER ELEVATION

— INCREASED GROUNDWATER USE SCENARIO SIMULATED GROUNDWATER ELEVATION







GRAPH LEGEND

○ TARGET GROUNDWATER ELEVATION (feet NAVD88)

HISTORIC AND FUTURE BASELINE SIMULATED GROUNDWATER ELEVATION

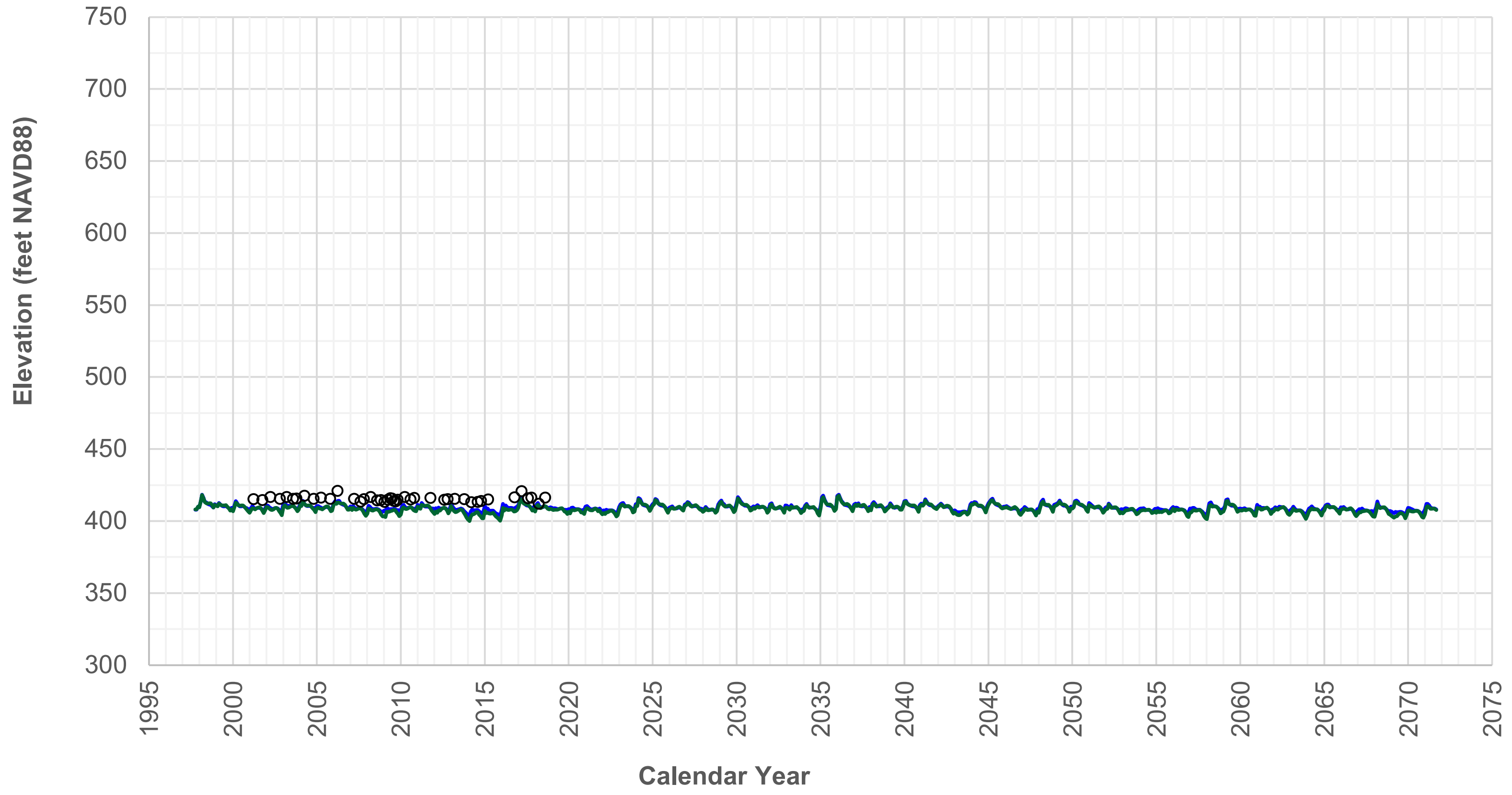
INCREASED GROUNDWATER USE SCENARIO SIMULATED GROUNDWATER ELEVATION

ATTACHMENT 8 (PAGE 27 OF 28)

COMPARISON OF PROJECTED GROUNDWATER HYDROGRAPHS

Numerical Flow Model Documentation

Redding Area Groundwater Basin



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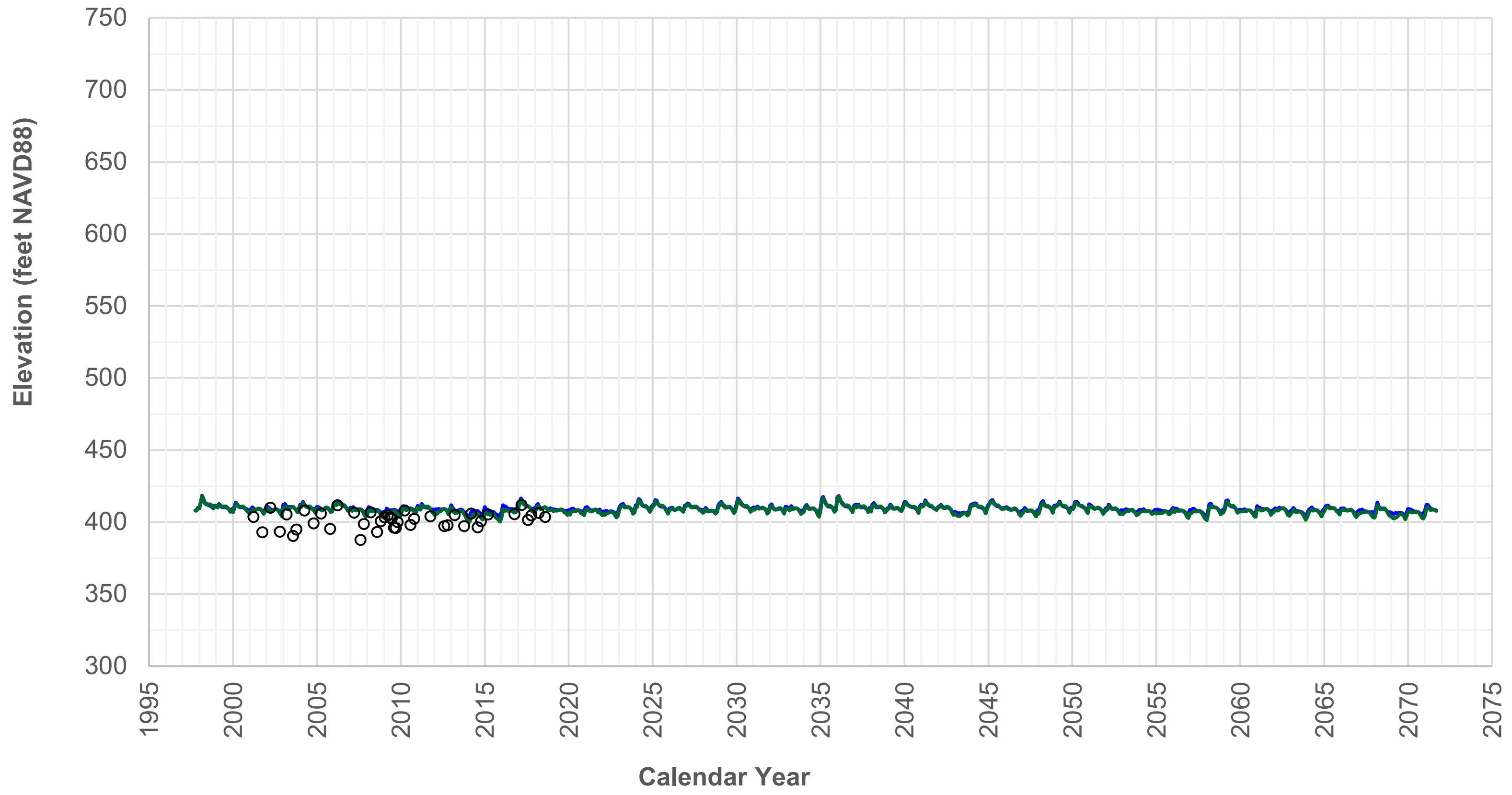

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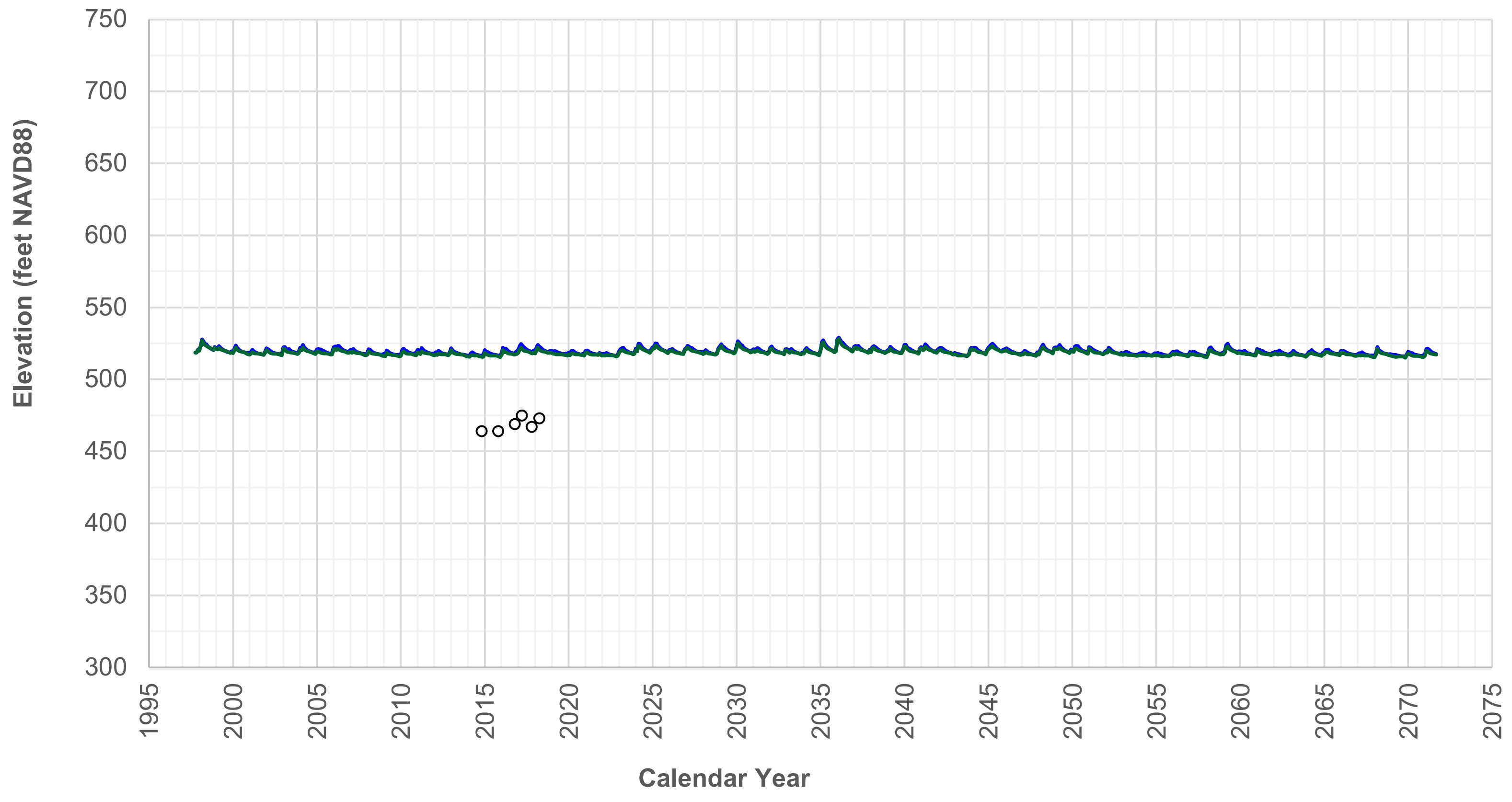

Columbia

GRAPH LEGEND

- ○ TARGET GROUNDWATER ELEVATION (feet NAVD88)
- HISTORIC AND FUTURE BASELINE SIMULATED GROUNDWATER ELEVATION
- INCREASED GROUNDWATER USE SCENARIO SIMULATED GROUNDWATER ELEVATION

ATTACHMENT 8 (PAGE 28 OF 28)

COMPARISON OF PROJECTED GROUNDWATER HYDROGRAPHS

Numerical Flow Model Documentation

Redding Area Groundwater Basin

Attachment 9

Enterprise Subbasin Land System Annual Water Budget

(Increased Groundwater Use Scenario)

Attachment 9
Enterprise Subbasin Land System Annual Water Budget (Increased Groundwater Use Scenario)

	Land System Inflows (TAF)						Land System Outflows (TAF)							
Water Year[a]	Precipitation	Applied Water from Purveyor Deliveries (Groundwater and Surface Water)[b]	Applied Groundwater Outside of Purveyor Service Areas	Shallow Groundwater Uptake	Groundwater Discharge to Land Surface	Total Inflow	Runoff to Streams/Canals	ET of Precipitation from Non-Native Vegetation	ET of Precipitation from Native Vegetation	ET of Shallow Groundwater from Non-Native Vegetation	ET of Shallow Groundwater from Native Vegetation	ET of Applied Water	Groundwater Recharge from Precipitation, Applied Water, and Septic Systems	Total Outflow
1999 (W)	187	18	73	3	15	296	67	57	30	2	1	64	75	296
2000 (AN)	227	17	70	2	17	333	82	67	36	2	0	61	85	333
2001 (D)	152	18	74	2	9	255	40	61	33	1	0	65	55	255
2002 (D)	181	18	79	2	11	291	64	51	29	2	1	69	77	293
2003 (AN)	240	17	68	2	14	341	89	65	31	2	0	60	94	341
2004 (BN)	211	20	84	3	15	333	91	42	22	2	1	73	102	333
2005 (AN)	222	15	61	2	14	314	63	88	40	1	0	54	68	314
2006 (W)	281	15	66	3	24	389	116	72	30	2	1	57	111	389
2007 (D)	142	17	83	3	9	254	46	47	26	2	1	71	62	255
2008 (C)	141	17	83	2	9	252	51	41	21	2	1	71	67	254
2009 (D)	166	15	78	2	8	269	42	65	38	1	0	65	57	268
2010 (BN)	215	13	69	2	12	311	72	68	33	1	0	58	79	311
2011 (W)	238	11	65	2	15	331	75	83	38	1	0	54	79	330
2012 (BN)	153	15	73	2	8	251	40	64	31	1	1	62	53	252
2013 (D)	172	16	87	2	8	285	58	49	30	2	1	72	74	286
2014 (C)	121	13	81	2	5	222	33	48	23	1	1	67	50	223
2015 (C)	158	10	87	2	8	265	51	50	27	1	1	69	67	266
2016 (BN)	236	12	80	2	11	341	85	61	32	2	1	64	96	341
2017 (W)	309	10	70	2	34	425	129	87	37	2	1	57	114	427
2018 (BN)	237	12	76	3	15	343	89	64	30	2	1	63	95	344
2019 (D)	116	14	65	2	10	207	39	42	19	1	0	56	50	207
2020 (C)	164	14	61	1	10	250	54	54	27	1	0	53	63	252
2021 (D)	169	16	60	1	10	256	57	52	27	1	0	53	66	256
2022 (C)	111	16	65	1	7	200	37	37	18	1	0	57	50	200
2023 (AN)	249	14	60	2	15	340	101	55	26	1	0	52	104	339
2024 (W)	295	14	57	2	21	389	125	62	31	2	0	50	120	390
2025 (W)	288	14	58	2	23	385	124	62	30	2	0	50	117	385
2026 (D)	163	18	59	2	11	253	54	54	29	1	0	54	61	253
2027 (AN)	265	13	58	2	19	357	111	60	26	2	0	50	109	358
2028 (C)	116	17	66	2	9	210	41	37	19	1	0	58	53	209
2029 (AN)	280	15	62	2	19	378	127	47	22	2	1	54	126	379
2030 (W)	308	15	57	2	24	406	138	60	27	2	0	51	130	408
2031 (BN)	183	14	59	2	14	272	68	55	23	1	0	51	72	270
2032 (D)	197	18	62	2	13	292	81	44	24	2	0	56	86	293
2033 (BN)	205	15	59	2	13	294	79	53	25	1	0	52	83	293
2034 (BN)	193	16	62	2	13	286	75	50	24	1	0	55	81	286
2035 (W)	339	16	58	2	26	441	155	58	30	2	0	52	145	442
2036 (W)	394	15	53	2	35	499	184	71	31	2	0	48	164	500
2037 (AN)	202	18	60	3	16	299	85	46	23	2	1	55	87	299
2038 (AN)	233	16	57	2	17	325	94	58	27	2	0	51	94	326
2039 (BN)	206	17	60	2	15	300	79	55	27	1	0	54	83	299
2040 (W)	266	17	56	2	20	361	112	60	29	2	0	51	108	362
2041 (W)	288	15	57	3	22	385	126	61	25	2	1	51	120	386
2042 (AN)	215	15	53	2	17	302	76	70	31	1	0	48	76	302
2043 (C)	69	20	64	1	6	160	16	33	19	1	0	60	31	160
2044 (W)	282	16	59	2	19	378	123	55	25	2	0	53	121	379
2045 (W)	313	16	59	3	24	415	141	58	25	2	1	52	134	413
2046 (BN)	173	17	57	2	14	263	61	57	27	1	0	52	65	263
2047 (C)	148	17	60	1	10	236	47	52	25	1	0	54	57	236
2048 (AN)	269	18	63	3	17	370	122	44	21	2	1	57	124	371
2049 (W)	253	17	60	3	20	353	112	50	24	2	1	55	110	354
2050 (W)	270	14	54	2	21	361	108	73	29	2	0	48	102	362
2051 (AN)	183	18	59	2	14	276	70	51	26	1	0	54	74	276
2052 (BN)	195	18	62	2	14	291	77	48	24	1	0	56	83	289
2053 (C)	155	16	57	1	10	239	43	64	30	1	0	52	52	242
2054 (C)	139	17	62	1	10	229	47	48	21	1	0	56	57	230
2055 (C)	158	17	58	1	9	243	46	59	29	1	0	53	56	244
2056 (C)	172	18	64	2	11	267	70	41	18	1	1	58	79	268
2057 (C)	162	18	60	1	10	251	55	51	24	1	0	55	65	251
2058 (AN)	214	20	62	2	12	310	90	43	21	2	1	58	96	311
2059 (AN)	266	19	60	3	18	366	117	49	24	2	1	55	118	366
2060 (C)	125	19	62	2	10	218	41	45	21	1	0	57	52	217
2061 (D)	201	19	58	2	12	292	76	54	25	1	0	54	83	293

Attachment 9
Enterprise Subbasin Land System Annual Water Budget (Increased Groundwater Use Scenario)

	Land System Inflows (TAF)						Land System Outflows (TAF)							
Water Year[a]	Precipitation	Applied Water from Purveyor Deliveries (Groundwater and Surface Water)[b]	Applied Groundwater Outside of Purveyor Service Areas	Shallow Groundwater Uptake	Groundwater Discharge to Land Surface	Total Inflow	Runoff to Streams/Canals	ET of Precipitation from Non-Native Vegetation	ET of Precipitation from Native Vegetation	ET of Shallow Groundwater from Non-Native Vegetation	ET of Shallow Groundwater from Native Vegetation	ET of Applied Water	Groundwater Recharge from Precipitation, Applied Water, and Septic Systems	Total Outflow
2062 (D)	179	17	59	2	12	269	62	59	24	1	0	53	69	268
2063 (C)	117	21	66	2	9	215	46	31	16	1	1	61	59	215
2064 (C)	203	19	58	2	11	293	71	59	28	1	0	54	79	292
2065 (AN)	208	19	59	2	13	301	79	54	27	1	0	55	85	301
2066 (D)	161	20	60	1	11	253	55	51	27	1	0	56	64	254
2067 (C)	150	19	57	1	9	236	45	59	25	1	0	53	54	237
2068 (D)	207	20	62	2	12	303	84	44	23	1	0	58	92	302
2069 (C)	92	20	61	1	6	180	17	47	25	1	0	57	32	179
2070 (C)	149	21	66	2	10	248	61	35	16	1	1	61	72	247
2071 (BN)	220	19	60	2	13	314	88	51	23	1	0	56	95	314

Historical Average (1999–2018)	199	15	75	2	13	304	69	62	31	2	1	64	78	307
Current Average (2015–2018)	235	11	78	2	17	343	89	66	32	2	1	63	93	346
Projected Average (2019–2071)	205	17	60	2	14	298	81	52	25	1	0	54	85	298

[a] Water year types are shown in parentheses and defined as follows: W=Wet, AN=Above Normal, BN=Below Normal, D=Dry, and C=Critically Dry.

[b] Anderson-Cottonwood Irrigation District deliveries in the Enterprise Subbasin average approximately 16 TAF for the historical and current periods, and 7 TAF for the projection period.

Notes:
TAF = thousand acre-feet
ET = evapotranspiration

Attachment 10
Anderson Subbasin Land System Annual Water Budget
(Increased Groundwater Use Scenario)

Attachment 10
Anderson Subbasin Land System Annual Water Budget (Increased Groundwater Use Scenario)

	Land System Inflows (TAF)						Land System Outflows (TAF)							
Water Year[a]	Precipitation	Applied Water from Purveyor Deliveries (Groundwater and Surface Water)[b]	Applied Groundwater Outside of Purveyor Service Areas	Shallow Groundwater Uptake	Groundwater Discharge to Land Surface	Total Inflow	Runoff to Streams/Canals	ET of Precipitation from Non-Native Vegetation	ET of Precipitation from Native Vegetation	ET of Shallow Groundwater from Non-Native Vegetation	ET of Shallow Groundwater from Native Vegetation	ET of Applied Water	Groundwater Recharge from Precipitation, Applied Water, and Septic Systems	Total Outflow
1999 (W)	261	96	82	4	86	529	160	59	67	3	1	105	135	530
2000 (AN)	313	93	77	3	89	575	179	69	79	2	1	100	146	576
2001 (D)	217	93	84	3	68	465	116	63	71	2	1	105	107	465
2002 (D)	249	97	89	3	73	511	148	51	61	2	1	111	138	512
2003 (AN)	344	86	78	3	81	592	190	69	70	2	1	97	163	592
2004 (BN)	299	98	93	4	83	577	194	43	48	3	2	114	175	579
2005 (AN)	324	79	71	2	77	553	156	91	88	2	1	89	128	555
2006 (W)	406	81	72	4	109	672	245	77	68	2	1	91	187	671
2007 (D)	204	97	86	4	70	461	125	50	56	2	1	109	117	460
2008 (C)	205	91	91	4	69	460	134	42	46	2	1	109	126	460
2009 (D)	229	91	86	3	65	474	113	65	80	2	1	105	108	474
2010 (BN)	303	84	74	2	74	537	162	68	73	2	1	94	140	540
2011 (W)	331	75	70	2	79	557	167	84	84	2	1	86	135	559
2012 (BN)	211	80	82	3	67	443	112	67	67	2	1	97	98	444
2013 (D)	238	96	93	3	68	498	139	49	60	2	1	113	135	499
2014 (C)	171	74	84	3	62	394	102	53	50	2	1	96	91	395
2015 (C)	220	71	97	3	64	455	125	50	57	2	1	101	118	454
2016 (BN)	331	82	86	3	73	575	178	65	68	2	1	100	162	576
2017 (W)	420	74	78	3	120	695	249	90	83	2	1	90	180	695
2018 (BN)	315	86	83	3	78	565	175	65	67	2	1	101	155	566
2019 (D)	155	86	71	2	61	375	101	43	42	2	1	93	95	377
2020 (C)	216	76	68	2	59	421	118	55	55	1	1	86	107	423
2021 (D)	227	84	68	2	62	443	127	51	57	1	1	89	118	444
2022 (C)	147	75	76	2	48	348	89	39	37	1	1	90	91	348
2023 (AN)	333	81	66	2	72	554	186	59	56	2	1	87	165	556
2024 (W)	408	75	63	2	90	638	231	67	68	2	1	82	189	640
2025 (W)	382	76	65	3	93	619	223	65	66	2	1	83	180	620
2026 (D)	220	85	68	2	67	442	125	54	60	2	1	90	111	443
2027 (AN)	359	78	67	3	82	589	208	61	57	2	1	85	176	590
2028 (C)	154	76	78	3	58	369	102	37	39	2	1	92	97	370
2029 (AN)	381	81	71	3	84	620	231	49	48	2	1	89	200	620
2030 (W)	409	80	66	3	96	654	246	61	58	2	1	86	201	655
2031 (BN)	246	78	66	3	73	466	148	57	52	2	1	85	123	468
2032 (D)	257	90	69	3	72	491	160	43	49	2	1	94	143	492
2033 (BN)	274	78	66	2	70	490	158	55	54	2	1	85	137	492
2034 (BN)	258	80	73	3	69	483	151	50	52	2	1	90	136	482
2035 (W)	454	80	69	3	98	704	270	56	64	2	1	88	224	705
2036 (W)	531	78	60	3	114	786	315	71	68	2	1	81	249	787
2037 (AN)	273	83	68	3	77	504	170	49	51	2	1	89	144	506
2038 (AN)	319	83	65	3	80	550	187	59	57	2	1	86	157	549
2039 (BN)	283	82	68	3	74	510	164	56	59	2	1	89	142	513
2040 (W)	354	77	68	3	86	588	208	60	61	2	1	85	172	589
2041 (W)	390	76	65	3	93	627	235	64	55	2	1	83	189	629
2042 (AN)	286	81	60	2	77	506	156	69	70	2	0	83	128	508
2043 (C)	94	80	78	2	48	302	64	33	40	1	1	94	69	302
2044 (W)	382	75	67	3	88	615	228	58	55	2	1	84	188	616
2045 (W)	434	78	68	3	99	682	264	61	55	2	1	86	214	683
2046 (BN)	237	75	68	2	73	455	138	59	58	2	1	85	114	457
2047 (C)	196	77	72	2	62	409	111	51	55	2	1	88	102	410
2048 (AN)	361	83	72	3	80	599	220	45	44	2	1	92	195	599
2049 (W)	338	78	70	3	87	576	209	51	52	2	1	88	174	577
2050 (W)	365	74	62	3	89	593	208	76	63	2	1	80	163	593
2051 (AN)	245	83	71	3	71	473	146	49	56	2	1	91	129	474
2052 (BN)	266	81	73	3	72	495	159	48	52	2	1	91	142	495
2053 (C)	207	76	67	2	60	412	105	64	63	1	1	85	94	413
2054 (C)	190	76	73	2	58	399	110	50	46	1	1	89	104	401
2055 (C)	212	76	70	2	58	418	111	57	61	1	1	87	102	420
2056 (C)	230	78	77	3	64	452	144	42	39	2	1	92	132	452
2057 (C)	219	79	70	2	60	430	121	52	53	1	1	88	113	429
2058 (AN)	281	84	74	3	65	507	167	44	43	2	1	93	156	506
2059 (AN)	360	83	71	3	80	597	214	52	51	2	1	91	187	598
2060 (C)	166	80	74	2	60	382	102	46	45	2	1	91	96	383
2061 (D)	268	87	68	2	66	491	152	54	53	2	1	91	139	492
2062 (D)	243	85	68	3	65	464	135	61	54	2	1	90	122	465
2063 (C)	154	79	82	3	53	371	102	31	35	2	1	96	105	372
2064 (C)	274	79	68	2	63	486	143	63	62	2	1	87	130	488

Attachment 10
Anderson Subbasin Land System Annual Water Budget (Increased Groundwater Use Scenario)

	Land System Inflows (TAF)						Land System Outflows (TAF)							
Water Year[a]	Precipitation	Applied Water from Purveyor Deliveries (Groundwater and Surface Water)[b]	Applied Groundwater Outside of Purveyor Service Areas	Shallow Groundwater Uptake	Groundwater Discharge to Land Surface	Total Inflow	Runoff to Streams/Canals	ET of Precipitation from Non-Native Vegetation	ET of Precipitation from Native Vegetation	ET of Shallow Groundwater from Non-Native Vegetation	ET of Shallow Groundwater from Native Vegetation	ET of Applied Water	Groundwater Recharge from Precipitation, Applied Water, and Septic Systems	Total Outflow
2065 (AN)	276	83	70	2	70	501	157	55	56	2	1	90	141	502
2066 (D)	214	89	70	2	62	437	120	51	57	2	1	93	113	437
2067 (C)	207	77	67	2	56	409	107	61	54	1	1	85	100	409
2068 (D)	282	90	73	3	67	515	167	44	49	2	1	96	157	516
2069 (C)	120	78	76	2	46	322	63	45	51	1	1	92	70	323
2070 (C)	198	79	82	2	54	415	123	34	36	1	1	96	124	415
2071 (BN)	293	81	74	3	68	519	169	51	52	2	1	91	154	520

Historical Average (1999–2018)	280	86	83	3	78	530	158	64	67	2	1	101	137	530
Current Average (2015–2018)	322	78	86	3	84	573	182	68	69	2	1	98	154	574
Projected Average (2019–2071)	276	80	70	3	72	501	162	53	53	2	1	89	142	502

[a] Water year types are shown in parentheses and defined as follows: W=Wet, AN=Above Normal, BN=Below Normal, D=Dry, and C=Critically Dry.

[b] Anderson-Cottonwood Irrigation District deliveries in the Anderson Subbasin average approximately 98 TAF for the historical period, 94 TAF for the current period, and 90 TAF for the projection period.

Notes:
TAF = thousand acre-feet
ET = evapotranspiration

Attachment 11
Enterprise Subbasin Surface Water System Annual Water Budget
(Increased Groundwater Use Scenario)

Attachment 11
Enterprise Subbasin Surface-water System Annual Water Budget (Increased Groundwater Use Scenario)

	Surface Water System Inflows (TAF)										Surface Water System Outflows (TAF)									
Water Year[a]	Sacramento River Inflow	Little Cow Creek Inflow	Clear Creek Inflow	Other Stream Inflows[b]	Groundwater Discharge to Internal Streams	Groundwater Discharge to Sacramento River	Groundwater Discharge to Cow Creek	Runoff from Precipitation	Wastewater Treatment Plant Discharge to Sacramento River	Total Inflow	Sacramento River Outflow	Groundwater Recharge from Internal Streams	Groundwater Recharge from Sacramento River	Groundwater Recharge from Cow Creek	City of Redding Sacramento River Diversion	Bella Vista Water District Sacramento River Diversion	ACID Sacramento River Diversion for Use Inside Enterprise Subbasin[c]	ACID Sacramento River Diversion for Use Outside Enterprise Subbasin[d]	Total Outflow
1999 (W)	8,416	189	170	393	170	44	37	67	16	9,502	9,135	60	108	19	14	15	17	96	9,463
2000 (AN)	8,716	196	166	485	166	41	33	82	15	9,900	9,497	64	115	25	13	14	17	96	9,841
2001 (D)	5,724	51	144	158	144	36	28	40	14	6,339	5,919	49	112	20	14	16	18	103	6,251
2002 (D)	5,652	185	146	395	146	39	25	64	14	6,666	6,273	57	110	27	15	18	18	102	6,619
2003 (AN)	7,151	200	158	573	158	41	29	89	15	8,414	8,077	64	112	27	14	17	15	87	8,413
2004 (BN)	8,179	136	165	398	165	42	32	91	14	9,222	8,830	63	114	23	16	18	17	97	9,178
2005 (AN)	5,633	149	150	389	150	41	29	63	15	6,619	6,247	67	105	26	14	14	15	86	6,574
2006 (W)	11,079	360	180	885	180	45	36	116	17	12,898	12,534	72	121	24	15	15	14	81	12,875
2007 (D)	5,966	79	147	224	147	37	28	46	14	6,688	6,305	50	113	23	15	16	18	100	6,640
2008 (C)	5,261	76	140	231	140	35	24	51	15	5,973	5,605	51	115	25	15	16	16	91	5,934
2009 (D)	4,992	98	133	250	133	31	20	42	14	5,713	5,355	50	120	27	14	11	16	92	5,685
2010 (BN)	4,913	120	143	361	143	38	24	72	16	5,830	5,491	66	109	28	11	11	15	85	5,816
2011 (W)	7,703	205	158	579	158	38	30	75	15	8,961	8,596	72	115	28	12	11	14	79	8,927
2012 (BN)	5,721	76	140	249	140	32	25	40	12	6,435	6,093	49	119	22	11	13	14	79	6,399
2013 (D)	5,820	96	141	332	141	35	23	58	13	6,659	6,303	45	120	24	14	13	17	97	6,634
2014 (C)	4,276	64	122	230	122	26	14	33	11	4,898	4,587	37	128	19	13	7	13	75	4,879
2015 (C)	3,900	90	126	294	126	30	17	51	13	4,647	4,336	47	121	24	9	6	13	71	4,627
2016 (BN)	4,856	148	139	496	139	36	21	85	14	5,934	5,611	58	117	29	11	7	15	83	5,932
2017 (W)	10,669	287	175	863	175	42	33	129	17	12,390	12,047	79	131	29	8	9	13	75	12,390
2018 (BN)	5,136	183	155	556	155	45	29	89	12	6,360	6,023	64	102	24	12	9	15	86	6,335
2019 (D)	5,536	46	142	164	142	34	28	39	14	6,145	5,623	57	113	26	12	10	17	99	5,957
2020 (C)	4,418	102	137	348	137	35	25	54	13	5,269	4,791	57	109	26	9	5	14	79	5,090
2021 (D)	5,539	70	143	284	143	35	27	57	14	6,312	5,792	58	113	28	12	10	17	99	6,129
2022 (C)	4,412	57	131	218	131	30	23	37	13	5,052	4,589	46	116	22	9	5	14	79	4,880
2023 (AN)	6,984	172	157	595	157	41	30	101	15	8,252	7,737	72	110	27	12	12	16	90	8,076
2024 (W)	9,135	201	177	727	177	47	39	125	16	10,644	10,147	73	109	22	7	7	15	83	10,463
2025 (W)	9,137	224	181	733	181	49	40	124	16	10,685	10,188	75	106	20	7	7	15	83	10,501
2026 (D)	5,542	76	150	249	150	40	32	54	14	6,307	5,799	56	105	23	12	10	17	99	6,121
2027 (AN)	6,992	193	170	611	170	50	38	111	15	8,350	7,846	74	99	20	12	12	16	90	8,169
2028 (C)	4,414	46	139	183	139	36	28	41	13	5,039	4,569	51	108	21	9	5	14	79	4,856
2029 (AN)	6,994	233	171	890	171	51	36	127	15	8,688	8,182	75	99	25	12	12	16	90	8,511
2030 (W)	9,141	248	183	885	183	51	40	138	16	10,885	10,400	73	105	21	7	7	15	83	10,711
2031 (BN)	5,589	91	155	325	155	44	34	68	14	6,475	5,980	66	100	22	8	7	15	86	6,285
2032 (D)	5,547	121	155	463	155	45	33	81	14	6,614	6,108	60	101	23	12	10	17	99	6,430
2033 (BN)	5,589	128	153	500	153	43	32	79	14	6,691	6,204	63	102	24	8	7	15	86	6,510
2034 (BN)	5,587	101	151	381	151	41	32	75	14	6,533	6,037	64	104	24	8	7	15	86	6,346
2035 (W)	9,144	259	183	917	183	51	40	155	16	10,948	10,477	70	106	22	7	7	15	83	10,787
2036 (W)	9,157	357	200	1,314	200	62	46	184	16	11,536	11,075	78	95	17	7	7	15	83	11,377
2037 (AN)	6,985	160	168	584	168	47	38	85	15	8,250	7,761	61	101	19	12	12	16	90	8,072
2038 (AN)	6,987	153	166	556	166	47	37	94	15	8,221	7,727	66	101	21	12	12	16	90	8,045
2039 (BN)	5,591	88	156	331	156	45	35	79	14	6,495	6,005	66	99	21	8	7	15	86	6,308
2040 (W)	9,132	196	176	726	176	47	40	112	16	10,621	10,114	74	110	22	7	7	15	83	10,432
2041 (W)	9,140	234	179	785	179	50	40	126	16	10,749	10,258	76	105	20	7	7	15	83	10,571
2042 (AN)	6,984	124	164	457	164	45	37	76	15	8,066	7,553	72	102	20	12	12	16	90	7,877
2043 (C)	4,407	14	128	67	128	29	24	16	13	4,826	4,380	34	118	19	9	5	14	79	4,658
2044 (W)	9,134	256	172	834	172	45	35	123	16	10,787	10,273	79	112	28	7	7	15	83	10,604
2045 (W)	9,142	252	183	909	183	53	41	141	16	10,920	10,433	77	102	21	7	7	15	83	10,745
2046 (BN)	5,587	69	153	243	153	42	34	61	14	6,356	5,857	67	102	22	8	7	15	86	6,165
2047 (C)	4,417	62	137	234	137	36	27	47	13	5,110	4,632	57	108	25	9	5	14	79	4,929
2048 (AN)	6,993	183	167	693	167	48	35	122	15	8,423	7,921	70	103	25	12	12	16	90	8,249
2049 (W)	9,133	175	175	599	175	46	39	112	16	10,470	9,973	71	109	21	7	7	15	83	10,286
2050 (W)	9,135	197	174	675	174	45	38	108	16	10,562	10,052	77	110	23	7	7	15	83	10,374
2051 (AN)	6,980	110	159	377	159	42	35	70	15	7,947	7,448	59	108	21	12	12	16	90	7,766
2052 (BN)	5,588	104	152	364	152	42	32	77	14	6,525	6,033	64	104	25	8	7	15	86	6,343

Attachment 11
Enterprise Subbasin Surface-water System Annual Water Budget (Increased Groundwater Use Scenario)

	Surface Water System Inflows (TAF)										Surface Water System Outflows (TAF)								
Water Year[a]	Sacramento River Inflow	Little Cow Creek Inflow	Clear Creek Inflow	Other Stream Inflows[b]	Groundwater Discharge to Internal Streams	Groundwater Discharge to Sacramento River	Groundwater Discharge to Cow Creek	Runoff from Precipitation	Wastewater Treatment Plant Discharge to Sacramento River	Total Inflow	Sacramento River Outflow	Groundwater Recharge from Internal Streams	Groundwater Recharge from Sacramento River	Groundwater Recharge from Cow Creek	City of Redding Sacramento River Diversion	Bella Vista Water District Sacramento River Diversion	ACID Sacramento River Diversion for Use Inside Enterprise Subbasin[c]	ACID Sacramento River Diversion for Use Outside Enterprise Subbasin[d]	Total Outflow
2053 (C)	4,416	52	137	210	137	35	27	43	13	5,070	4,583	61	107	24	9	5	14	79	4,882
2054 (C)	4,416	48	134	197	134	34	25	47	13	5,048	4,558	62	111	25	9	5	14	79	4,863
2055 (C)	4,416	44	132	174	132	32	24	46	13	5,013	4,525	60	113	27	9	5	14	79	4,832
2056 (C)	4,422	122	139	481	139	38	25	70	13	5,449	4,963	65	107	28	9	5	14	79	5,270
2057 (C)	4,419	71	134	273	134	34	24	55	13	5,157	4,676	58	112	26	9	5	14	79	4,979
2058 (AN)	6,981	179	151	647	151	37	27	90	15	8,278	7,782	58	119	26	12	12	16	90	8,115
2059 (AN)	6,993	164	166	613	166	47	35	117	15	8,316	7,810	72	104	24	12	12	16	90	8,140
2060 (C)	4,416	51	138	184	138	36	27	41	13	5,044	4,563	57	109	23	9	5	14	79	4,859
2061 (D)	5,545	121	146	437	146	39	28	76	14	6,552	6,038	62	110	27	12	10	17	99	6,375
2062 (D)	5,543	90	145	326	145	37	28	62	14	6,390	5,863	66	109	26	12	10	17	99	6,202
2063 (C)	4,414	52	133	192	133	33	23	46	13	5,039	4,567	52	114	22	9	5	14	79	4,862
2064 (C)	4,421	128	137	467	137	36	23	71	13	5,433	4,947	63	110	29	9	5	14	79	5,256
2065 (AN)	6,979	110	153	373	153	38	31	79	15	7,931	7,412	66	114	26	12	12	16	90	7,748
2066 (D)	5,539	70	143	247	143	36	28	55	14	6,275	5,754	59	112	26	12	10	17	99	6,089
2067 (C)	4,415	83	132	263	132	32	22	45	13	5,137	4,652	60	114	27	9	5	14	79	4,960
2068 (D)	5,546	172	148	654	148	41	28	84	14	6,835	6,334	59	109	27	12	10	17	99	6,667
2069 (C)	4,407	21	124	87	124	26	20	17	14	4,840	4,379	38	125	22	9	5	14	79	4,671
2070 (C)	4,418	87	131	319	131	32	20	61	14	5,213	4,732	59	117	27	9	5	14	79	5,042
2071 (BN)	5,589	114	134	395	134	36	25	88	14	6,529	6,049	66	103	30	8	7	15	86	6,365
Historical Average (1999–2018)	6,488	149	150	417	150	38	27	69	14	7,502	7,143	58	115	25	13	13	16	88	7,471
Current Average (2015–2018)	6,140	177	149	552	149	38	25	89	14	7,333	7,004	62	118	27	10	8	14	79	7,322
Projected Average (2019–2071)	6,254	130	154	467	154	41	31	81	14	7,326	6,833	64	108	24	10	8	15	86	7,148

[a] Water year types are shown in parentheses and defined as follows: W=Wet, AN=Above Normal, BN=Below Normal, D=Dry, and C=Critically Dry.

[b] Values represent the sum of stream inflows from Churn Creek, West Fork Stillwater Creek, East Fork Stillwater Creek, Dry Creek, Yank Creek, French Creek, Swede Creek, Cow Creek, Olney Creek, and Spring Gulch.

[c] Average annual diversion values represent the volume of water removed from streams for uses inside the Enterprise Subbasin. The 2010–2019 ACID Churn Creek diversion from the Sacramento River averaged 14.5 TAF annually (SWRCB, 2021).

[d] Average annual diversion values represent the volume of water removed from streams for uses outside of the Enterprise Subbasin.

Notes:
TAF = thousand acre-feet
ACID = Anderson-Cottonwood Irrigation District

Attachment 12

Anderson Subbasin Surface Water System Annual Water Budget (Increased Groundwater Use Scenario)

Attachment 12
Anderson Subbasin Surface-water System Annual Water Budget (Increased Groundwater Use Scenario)

	Surface Water System Inflows (TAF)												Surface Water System Outflows (TAF)										
Water Year[a]	Sacramento River Inflow	Cow Creek Inflow	Cottonwood Creek Inflow[b]	Clear Creek Inflow	Other Stream Inflows[c]	ACID Main Canal Discharge to Cottonwood Creek[d]	Groundwater Discharge to Internal Streams	Groundwater Discharge to Sacramento River	Groundwater Discharge to Cottonwood Creek	Runoff from Precipitation	Wastewater Treatment Plant Discharge to Sacramento River	Total Inflow	Sacramento River Outflow[e]	ACID Main Canal Outflow[f]	Groundwater Recharge from Internal Streams/ Canals[g]	Groundwater Recharge from Sacramento River	Groundwater Recharge from Cottonwood Creek	City of Redding Sacramento River Diversion	Bella Vista Water District Sacramento River Diversion	ACID Sacramento River Diversion for Use Inside Anderson Subbasin	ACID Sacramento River Diversion for Use Outside Anderson Subbasin[h]	ACID Sacramento River Export	Total Outflow
1999 (W)	8,416	463	493	241	322	16	19	149	57	160	16	10,352	9,933	14	139	112	19	14	15	96	17	0	10,359
2000 (AN)	8,716	540	598	220	370	21	18	141	52	179	15	10,870	10,435	20	139	121	23	13	14	96	17	0	10,878
2001 (D)	5,724	129	104	146	187	14	14	134	42	116	14	6,624	6,213	14	123	113	24	14	16	103	18	0	6,638
2002 (D)	5,651	458	469	200	283	15	15	140	40	148	14	7,433	7,005	16	132	112	28	15	18	102	18	0	7,446
2003 (AN)	7,151	621	857	272	427	25	17	145	45	190	15	9,765	9,334	21	141	114	28	14	17	87	15	0	9,771
2004 (BN)	8,179	399	475	229	359	26	18	145	51	194	14	10,089	9,640	22	144	118	23	16	18	97	17	0	10,095
2005 (AN)	5,633	407	495	222	285	18	15	144	43	156	15	7,433	7,025	18	139	107	27	14	14	86	15	0	7,445
2006 (W)	11,078	1,066	1,113	283	578	33	21	145	58	245	17	14,637	14,181	29	157	131	20	15	15	81	14	0	14,643
2007 (D)	5,966	215	221	193	219	10	14	138	44	125	14	7,159	6,745	10	128	114	26	15	16	100	18	0	7,172
2008 (C)	5,261	208	276	195	232	12	13	133	38	134	15	6,517	6,105	11	127	117	29	15	16	91	16	0	6,527
2009 (D)	4,992	248	245	200	212	8	12	121	32	113	14	6,197	5,793	6	120	121	31	14	11	92	16	0	6,204
2010 (BN)	4,913	345	364	240	282	16	14	135	36	162	16	6,523	6,118	14	136	110	30	11	11	85	15	0	6,530
2011 (W)	7,703	638	612	245	369	20	16	135	43	167	15	9,963	9,552	18	137	119	29	12	11	79	14	0	9,971
2012 (BN)	5,721	242	216	197	218	7	13	123	34	112	12	6,895	6,508	6	121	120	30	11	13	79	14	0	6,902
2013 (D)	5,820	336	420	205	285	15	14	128	35	139	13	7,410	6,988	14	126	122	28	14	13	97	17	2	7,421
2014 (C)	4,276	227	124	184	196	6	10	105	26	102	11	5,267	4,888	8	115	130	25	13	7	75	13	4	5,278
2015 (C)	3,900	290	479	195	246	11	11	115	28	125	13	5,413	5,038	9	118	122	30	9	6	71	13	4	5,420
2016 (BN)	4,855	514	574	236	375	23	14	129	33	178	14	6,945	6,534	19	134	118	32	11	7	83	15	0	6,953
2017 (W)	10,669	968	1,119	309	567	35	20	139	48	249	17	14,140	13,681	30	158	144	28	8	9	75	13	0	14,146
2018 (BN)	5,136	598	656	244	390	20	16	154	43	175	12	7,444	7,041	17	139	103	28	12	9	86	15	0	7,450
2019 (D)	5,536	123	116	55	237	12	13	126	35	101	14	6,368	5,966	12	119	115	27	12	10	99	17	2	6,379
2020 (C)	4,418	349	327	60	469	10	12	127	32	118	13	5,935	5,561	10	118	110	30	9	5	79	14	4	5,940
2021 (D)	5,539	253	201	61	421	19	13	127	36	127	14	6,811	6,398	20	124	114	29	12	10	99	17	2	6,825
2022 (C)	4,411	203	113	44	360	8	11	115	30	89	13	5,397	5,039	7	100	117	27	9	5	79	14	4	5,401
2023 (AN)	6,984	620	779	97	678	26	16	137	40	186	15	9,578	9,148	23	144	112	30	12	12	90	16	0	9,587
2024 (W)	9,135	765	1,034	125	851	37	20	146	56	231	16	12,416	11,987	32	149	115	20	7	7	83	15	0	12,415
2025 (W)	9,137	788	878	132	780	35	20	152	59	223	16	12,220	11,793	31	155	111	18	7	7	83	15	0	12,220
2026 (D)	5,541	231	270	67	344	15	14	138	45	125	14	6,804	6,400	19	127	106	24	12	10	99	17	2	6,816
2027 (AN)	6,992	653	949	112	696	33	18	158	54	208	15	9,888	9,465	31	152	101	22	12	12	90	16	0	9,901
2028 (C)	4,414	152	118	50	230	8	12	130	39	102	13	5,268	4,908	7	110	109	25	9	5	79	14	4	5,270
2029 (AN)	6,994	957	1,311	117	980	39	19	162	54	231	15	10,879	10,443	34	156	101	26	12	12	90	16	0	10,890
2030 (W)	9,140	959	1,120	138	919	37	21	158	63	246	16	12,817	12,386	31	155	110	19	7	7	83	15	0	12,813
2031 (BN)	5,589	302	313	83	334	15	15	147	50	148	14	7,010	6,622	15	137	101	21	8	7	86	15	0	7,012
2032 (D)	5,547	470	606	80	692	23	16	149	48	160	14	7,805	7,387	22	135	103	25	12	10	99	17	2	7,812
2033 (BN)	5,589	508	402	83	518	20	15	144	47	158	14	7,498	7,105	18	133	103	24	8	7	86	15	0	7,499
2034 (BN)	5,587	364	348	78	421	17	15	141	45	151	14	7,181	6,790	16	132	106	25	8	7	86	15	0	7,185
2035 (W)	9,144	991	1,450	146	1,001	47	21	154	61	270	16	13,301	12,865	39	150	112	22	7	7	83	15	0	13,300
2036 (W)	9,157	1,458	2,016	177	1,381	53	25	180	77	315	16	14,855	14,410	47	166	100	17	7	7	83	15	0	14,852
2037 (AN)	6,985	628	641	96	732	24	18	157	59	170	15	9,525	9,125	21	136	102	18	12	12	90	16	0	9,532
2038 (AN)	6,987	578	809	101	693	25	18	156	57	187	15	9,626	9,216	23	142	103	19	12	12	90	16	0	9,633
2039 (BN)	5,590	300	373	86	377	18	16	153	53	164	14	7,144	6,755	16	138	100	20	8	7	86	15	0	7,145
2040 (W)	9,132	769	785	117	743	33	20	152	62	208	16	12,037	11,615	29	148	114	20	7	7	83	15	0	12,038
2041 (W)	9,140	846	977	136	801	34	21	157	63	235	16	12,426	11,999	32	154	110	17	7	7	83	15	0	12,424
2042 (AN)	6,983	457	481	95	536	20	17	152	54	156	15	8,966	8,563	18	140	103	20	12	12	90	16	0	8,974
2043 (C)	4,407	34	33	33	136	1	10	114	34	64	13	4,879	4,534	1	90	119	26	9	5	79	14	4	4,881
2044 (W)	9,134	915	1,101	124	831	37	20	146	55	228	16	12,607	12,162	33	158	116	27	7	7	83	15	0	12,608
2045 (W)	9,142	982	1,359	142	1,001	43	22	163	65	264	16	13,199	12,761	36	163	107	18	7	7	83	15	0	13,197
2046 (BN)	5,587	201	257	80	259	15	15	144	50	138	14	6,760	6,375	17	134	103	21	8	7	86	15	0	6,766
2047 (C)	4,417	203	225	57	271	7	12	130	38	111	13	5,484	5,117	7	118	109	28	9	5	79	14	4	5,490
2048 (AN)	6,992	715	983	112	820	35	18	153	52	220	15	10,115	9,688	30	148	105	23	12	12	90	16	0	10,124
2049 (W)	9,133	622	666	118	665	31	20	148	59	209	16	11,687	11,266	27	149	114	18	7	7	83	15	0	11,686
2050 (W)	9,135	707	715	124	713	28	19	144	58	208	16	11,867	11,446	29	149	115	18	7	7	83	15	0	11,869
2051 (AN)	6,980	378	431	83	472	19	16	142	51	146	15	8,733	8,331	17	128	110	23	12	12	90	16	0	8,739
2052 (BN)	5,588	348	436	82	398	18	15	144	48	159	14	7,250	6,853	16	136	105	24	8	7	86	15	0	7,250
2053 (C)	4,416	167	171	55	249	5	12	127	37	105	13	5,357	4,993	7	116	108	27	9	5	79	14	4	5,362
2054 (C)	4,416	150	162	53	237	6	12	124	34	110	13	5,317	4,945	6	118	112	29	9	5	79	14	4	5,321
2055 (C)	4,415	121	174	54	219	10	11	120	32	111	13	5,280	4,905	9	117	114	30	9	5	79	14	4	5,286
2056 (C)	4,422	483	526	70	627	16	13	133	35	144	13	6,482	6,088	14	129	108	33	9	5	79	14	4	6,483
2057 (C)	4,418	237	313	60	307	8	12	122	33	121	13	5,644	5,266	7	119	113	29	9	5	79	14	4	5,645
2058 (AN)	6,981	695	598	88	893	25	15	124	40	167	15	9,641	9,228	22	123	121	26	12	12	90	16	0	9,650
2059 (AN)	6,993	616	998	111	807	32	18	147	50	214	15	10,001	9,572	28	144	107	25	12	12	90	16	0	10,006

Attachment 12
Anderson Subbasin Surface-water System Annual Water Budget (Increased Groundwater Use Scenario)

	Surface Water System Inflows (TAF)												Surface Water System Outflows (TAF)										
Water Year[a]	Sacramento River Inflow	Cow Creek Inflow	Cottonwood Creek Inflow[b]	Clear Creek Inflow	Other Stream Inflows[c]	ACID Main Canal Discharge to Cottonwood Creek[d]	Groundwater Discharge to Internal Streams	Groundwater Discharge to Sacramento River	Groundwater Discharge to Cottonwood Creek	Runoff from Precipitation	Wastewater Treatment Plant Discharge to Sacramento River	Total Inflow	Sacramento River Outflow[e]	ACID Main Canal Outflow[f]	Groundwater Recharge from Internal Streams/ Canals[g]	Groundwater Recharge from Sacramento River	Groundwater Recharge from Cottonwood Creek	City of Redding Sacramento River Diversion	Bella Vista Water District Sacramento River Diversion	ACID Sacramento River Diversion for Use Inside Anderson Subbasin	ACID Sacramento River Diversion for Use Outside Anderson Subbasin[h]	ACID Sacramento River Export	Total Outflow
2060 (C)	4,416	145	178	55	237	4	12	126	37	102	13	5,325	4,961	4	115	110	26	9	5	79	14	4	5,327
2061 (D)	5,545	435	442	77	628	22	14	131	39	152	14	7,499	7,082	23	128	111	28	12	10	99	17	2	7,512
2062 (D)	5,543	301	353	70	405	20	14	129	39	135	14	7,023	6,610	20	129	110	28	12	10	99	17	2	7,037
2063 (C)	4,414	159	181	50	218	7	11	118	32	102	13	5,305	4,941	6	108	115	27	9	5	79	14	4	5,308
2064 (C)	4,421	474	413	69	560	14	13	126	33	143	13	6,279	5,889	13	127	112	30	9	5	79	14	4	6,282
2065 (AN)	6,979	359	433	82	477	19	15	129	41	157	15	8,706	8,287	18	137	116	26	12	12	90	16	0	8,714
2066 (D)	5,539	215	222	62	366	17	13	125	37	120	14	6,730	6,324	16	123	114	27	12	10	99	17	2	6,744
2067 (C)	4,415	248	160	55	282	4	11	116	31	107	13	5,442	5,071	6	115	115	30	9	5	79	14	4	5,448
2068 (D)	5,546	704	1,008	81	1,019	28	15	136	40	167	14	8,758	8,333	24	129	111	31	12	10	99	17	2	8,768
2069 (C)	4,406	50	39	33	142	0	9	102	27	63	14	4,885	4,535	1	91	126	25	9	5	79	14	4	4,889
2070 (C)	4,418	296	303	61	411	11	12	115	29	123	14	5,793	5,409	10	115	118	32	9	5	79	14	4	5,795
2071 (BN)	5,588	371	400	84	430	22	13	119	33	169	14	7,243	6,841	19	128	104	29	8	7	86	15	0	7,237

Historical Average (1999–2018)	6,488	446	496	223	320	18	15	135	41	158	14	8,354	7,938	16	134	118	27	13	13	88	16	1	8,364
Current Average (2015–2018)	6,140	593	707	246	395	22	15	134	38	182	14	8,486	8,074	19	137	122	30	10	8	79	14	1	8,494
Projected Average (2019–2071)	6,254	473	560	86	552	21	15	138	45	162	14	8,320	7,920	19	132	110	25	10	8	86	15	2	8,327

[a] Water year types are shown in parentheses and defined as follows: W=Wet, AN=Above Normal, BN=Below Normal, D=Dry, and C=Critically Dry.

[b] Values represent the sum of stream inflows from the North, Middle, and South Forks of Cottonwood Creek.

[c] Values represent the sum of stream inflows from Olney Creek, Churn Creek, Clover Creek, Stillwater Creek, Bear Creek, Ash Creek, Crow Creek, Roaring River, Dry Creek, Little Dry Creek, and Hooker Creek.

[d] Values represent flow from the canal within the Bowman Subbasin that discharges to Cottonwood Creek.

[e] Includes approximately 2 to 4 TAF of exports during ACID water transfer years.

[f] Values represent flow leaving Anderson Subbasin into Bowman Subbasin.

[g] Leakage from the ACID main canal contributes approximately 29 to 37 TAF of groundwater recharge to the aquifer system under historical and projected conditions.

[h] Average annual diversion values represent the volume of water removed from streams for uses outside of the Anderson Subbasin. The 2010-2019 ACID Churn Creek diversion from the Sacramento River averaged 14.5 TAF annually (SWRCB, 2021).

Notes:
TAF = thousand acre-feet
ACID = Anderson-Cottonwood Irrigation District

Attachment 13

Enterprise Subbasin Groundwater System Annual Water Budget (Increased Groundwater Use Scenario)

Attachment 13
Enterprise Subbasin Groundwater System Annual Water Budget (Increased Groundwater Use Scenario)

	Groundwater System Inflows (TAF)						Groundwater System Outflows (TAF)										
Water Year[a]	Groundwater Recharge from Precipitation, Applied Water, and Septic Systems	Groundwater Recharge from Streams/Canals	Subsurface Inflow from Anderson Subbasin	Subsurface Inflow from Millville Subbasin	Subsurface Inflow from Northern Bedrock Area	Total Inflow	Shallow Groundwater Uptake (ET of Shallow Groundwater)	Groundwater Discharge to Streams/Canals	Municipal Groundwater Pumping	Private Agricultural Groundwater Pumping	Private Residential Groundwater Pumping	Subsurface Outflow to Anderson Subbasin	Subsurface Outflow to Millville Subbasin	Subsurface Outflow to Northern Bedrock Area	Groundwater Discharge to Land Surface	Total Outflow	Change in Groundwater Storage (TAF)
1999 (W)	75	188	52	29	2	346	3	251	8	67	1	23	9	1	15	378	-32
2000 (AN)	85	205	49	26	2	367	2	240	8	63	1	24	9	1	17	365	2
2001 (D)	55	181	42	25	2	305	2	208	8	68	1	26	8	1	9	331	-26
2002 (D)	77	194	43	23	2	339	2	211	9	73	1	26	10	1	11	344	-5
2003 (AN)	94	204	46	24	2	370	2	228	9	61	1	25	10	1	14	351	19
2004 (BN)	102	200	48	26	2	378	3	240	9	77	1	25	9	1	15	380	-2
2005 (AN)	68	199	44	24	2	337	2	220	10	55	1	25	10	1	14	338	-1
2006 (W)	111	218	52	27	2	410	3	261	11	61	1	24	9	1	24	395	15
2007 (D)	62	185	42	26	2	317	3	212	10	76	1	26	8	1	9	346	-29
2008 (C)	67	191	39	23	2	322	2	199	9	78	1	27	8	1	9	334	-12
2009 (D)	57	198	35	20	2	312	2	185	10	72	1	30	9	1	8	318	-6
2010 (BN)	79	204	40	21	2	346	2	205	8	64	1	27	10	1	12	330	16
2011 (W)	79	216	42	23	2	362	2	226	7	60	1	27	10	1	15	349	13
2012 (BN)	53	190	36	24	2	305	2	197	9	68	1	30	8	1	8	324	-19
2013 (D)	74	190	38	23	2	327	2	199	8	81	1	29	9	1	8	338	-11
2014 (C)	50	185	30	20	2	287	2	163	10	77	1	34	7	1	5	300	-13
2015 (C)	67	193	33	20	2	315	2	173	9	84	1	33	9	1	8	320	-5
2016 (BN)	96	204	39	21	2	362	2	196	7	75	1	29	10	1	11	332	30
2017 (W)	114	239	47	26	2	428	2	250	9	66	1	26	10	1	34	399	29
2018 (BN)	95	191	46	27	2	361	3	229	6	72	1	24	9	1	15	360	1
2019 (D)	50	198	36	23	2	309	2	205	10	60	1	29	9	1	10	327	-18
2020 (C)	63	193	36	23	2	317	1	197	17	56	1	28	9	1	10	320	-3
2021 (D)	66	199	37	22	2	326	1	205	10	53	1	29	10	1	10	320	6
2022 (C)	50	184	33	23	2	292	1	184	18	60	1	31	9	1	7	312	-20
2023 (AN)	104	210	44	23	2	383	2	229	11	55	1	26	10	1	15	350	33
2024 (W)	120	205	51	27	2	405	2	262	16	52	1	23	9	1	21	387	18
2025 (W)	117	201	54	29	2	403	2	270	17	52	1	22	9	1	23	397	6
2026 (D)	61	184	43	26	2	316	2	222	12	52	1	25	9	1	11	335	-19
2027 (AN)	109	193	52	29	2	385	2	258	12	54	1	22	9	1	19	378	7
2028 (C)	53	181	38	26	2	300	2	203	19	60	1	28	9	1	9	332	-32
2029 (AN)	126	200	54	28	2	410	2	258	13	57	1	21	10	1	19	382	28
2030 (W)	130	199	56	30	2	417	2	274	18	52	1	21	9	1	24	402	15
2031 (BN)	72	188	47	28	2	337	2	233	18	54	1	23	9	1	14	355	-18
2032 (D)	86	185	48	27	2	348	2	233	13	56	1	23	9	1	13	351	-3
2033 (BN)	83	190	46	27	2	348	2	228	19	54	1	23	10	1	13	351	-3
2034 (BN)	81	194	44	26	2	347	2	224	19	57	1	24	9	1	13	350	-3
2035 (W)	145	199	56	29	2	431	2	274	19	52	1	21	9	1	26	405	26
2036 (W)	164	191	67	34	3	459	2	309	19	47	1	17	9	1	35	440	19
2037 (AN)	87	182	52	30	2	353	3	253	15	54	1	22	9	1	16	374	-21
2038 (AN)	94	188	52	29	2	365	2	250	15	51	1	21	9	1	17	367	-2
2039 (BN)	83	187	49	28	2	349	2	236	20	54	1	22	9	1	15	360	-11
2040 (W)	108	206	52	30	2	398	2	263	20	50	1	23	9	1	20	389	9
2041 (W)	120	202	56	30	2	410	3	270	21	52	1	21	9	1	22	400	10
2042 (AN)	76	194	49	29	2	350	2	246	16	47	1	23	9	1	17	362	-12
2043 (C)	31	172	33	24	2	262	1	181	23	57	1	31	8	1	6	309	-47
2044 (W)	121	220	50	27	2	420	2	252	22	54	1	24	10	1	19	385	35
2045 (W)	134	201	59	31	2	427	3	277	22	54	1	19	9	1	24	410	17
2046 (BN)	65	191	45	28	2	331	2	229	22	51	1	24	9	1	14	353	-22
2047 (C)	57	190	38	25	2	312	1	200	24	54	1	27	9	1	10	327	-15
2048 (AN)	124	199	52	27	2	404	3	249	18	57	1	22	10	1	17	378	26
2049 (W)	110	202	52	29	2	395	3	260	23	54	1	23	9	1	20	394	1

Attachment 13
Enterprise Subbasin Groundwater System Annual Water Budget (Increased Groundwater Use Scenario)

	Groundwater System Inflows (TAF)						Groundwater System Outflows (TAF)										
Water Year[a]	Groundwater Recharge from Precipitation, Applied Water, and Septic Systems	Groundwater Recharge from Streams/Canals	Subsurface Inflow from Anderson Subbasin	Subsurface Inflow from Millville Subbasin	Subsurface Inflow from Northern Bedrock Area	Total Inflow	Shallow Groundwater Uptake (ET of Shallow Groundwater)	Groundwater Discharge to Streams/Canals	Municipal Groundwater Pumping	Private Agricultural Groundwater Pumping	Private Residential Groundwater Pumping	Subsurface Outflow to Anderson Subbasin	Subsurface Outflow to Millville Subbasin	Subsurface Outflow to Northern Bedrock Area	Groundwater Discharge to Land Surface	Total Outflow	Change in Groundwater Storage (TAF)
2050 (W)	102	212	51	29	2	396	2	257	23	49	1	23	9	1	21	386	10
2051 (AN)	74	189	46	28	2	339	2	236	19	53	1	25	9	1	14	360	-21
2052 (BN)	83	193	46	26	2	350	2	227	24	55	1	24	9	1	14	357	-7
2053 (C)	52	193	38	25	2	310	1	199	26	52	1	27	9	1	10	326	-16
2054 (C)	57	198	36	24	2	317	1	193	26	56	1	29	9	1	10	326	-9
2055 (C)	56	200	35	23	2	316	1	189	27	52	1	29	9	1	9	318	-2
2056 (C)	79	201	39	24	2	345	2	202	27	58	1	27	10	1	11	339	6
2057 (C)	65	197	36	23	2	323	1	192	27	54	1	29	9	1	10	324	-1
2058 (AN)	96	203	41	23	2	365	2	214	21	56	1	28	10	1	12	345	20
2059 (AN)	118	201	50	26	2	397	3	247	21	54	1	23	9	1	18	377	20
2060 (C)	52	189	37	24	2	304	2	200	28	56	1	28	9	1	10	335	-31
2061 (D)	83	200	41	23	2	349	2	213	21	51	1	27	10	1	12	338	11
2062 (D)	69	201	40	23	2	335	2	211	22	53	1	26	10	1	12	338	-3
2063 (C)	59	189	35	23	2	308	2	189	29	58	1	30	8	1	9	327	-19
2064 (C)	79	203	38	21	2	343	2	196	29	51	1	28	10	1	11	329	14
2065 (AN)	85	206	42	24	2	359	2	222	23	52	1	27	10	1	13	351	8
2066 (D)	64	198	38	23	2	325	1	207	23	53	1	28	9	1	11	334	-9
2067 (C)	54	201	34	22	2	313	1	186	30	50	1	30	9	1	9	317	-4
2068 (D)	92	195	43	24	2	356	2	216	24	55	1	26	10	1	12	347	9
2069 (C)	32	185	30	21	2	270	1	170	31	55	1	33	8	1	6	306	-36
2070 (C)	72	204	34	21	2	333	2	184	31	60	1	31	10	1	10	330	3
2071 (BN)	95	198	40	22	2	357	2	197	34	48	1	28	10	1	13	334	23

Historical Average (1999–2018)	78	199	42	24	2	345	2	215	9	70	1	27	9	1	13	347.0	-2.0
Current Average (2015–2018)	93	207	41	24	2	367	2	212	8	74	1	28	10	1	17	353.0	14.0
Projected Average (2019–2071)	85	196	44	26	2	353	2	226	21	54	1	25	9	1	14	353.0	0.0

[a] Water year types are shown in parentheses and defined as follows: W=Wet, AN=Above Normal, BN=Below Normal, D=Dry, and C=Critically Dry.

Notes:

TAF = thousand acre-feet

ET = evapotranspiration

Attachment 14

Anderson Subbasin Groundwater System Annual Water Budget (Increased Groundwater Use Scenario)

Attachment 14
Anderson Subbasin Groundwater System Annual Water Budget (Increased Groundwater Use Scenario)

	Groundwater System Inflows (TAF)								Groundwater System Outflows (TAF)												
Water Year[a]	Groundwater Recharge from Precipitation, Applied Water, and Septic Systems	Groundwater Recharge from Streams/ Canals[b]	Subsurface Inflow from Enterprise Subbasin	Subsurface Inflow from Bowman Subbasin	Subsurface Inflow from Millville Subbasin	Subsurface Inflow from South Battle Creek Subbasin	Subsurface Inflow from Northern Bedrock Area	Total Inflow	Shallow Groundwater Uptake (ET of Shallow Groundwater)	Groundwater Discharge to Streams/ Canals[c]	Municipal Groundwater Pumping	Private Agricultural Groundwater Pumping	Private Residential Groundwater Pumping	Subsurface Outflow to Enterprise Subbasin	Subsurface Outflow to Bowman Subbasin	Subsurface Outflow to Millville Subbasin	Subsurface Outflow to South Battle Creek Subbasin	Subsurface Outflow to Northern Bedrock Area	Groundwater Discharge to Land Surface	Total Outflow	Change in Groundwater Storage
1999 (W)	135	270	17	64	43	6	3	538	4	225	3	107	2	115	40	4	3	1	86	590	-52
2000 (AN)	146	283	16	62	41	6	2	556	3	212	3	100	2	118	41	4	3	1	89	576	-20
2001 (D)	107	261	16	60	38	4	2	488	3	189	3	107	2	112	41	3	3	1	68	532	-44
2002 (D)	138	271	17	59	38	5	2	530	3	195	3	113	2	111	42	4	3	1	73	550	-20
2003 (AN)	163	283	17	60	41	6	2	572	3	208	3	100	2	115	42	4	3	1	81	562	10
2004 (BN)	175	285	16	64	40	5	2	587	4	214	4	120	2	117	40	4	3	1	83	592	-5
2005 (AN)	128	273	19	61	41	5	2	529	2	202	3	92	2	107	41	3	3	1	77	533	-4
2006 (W)	187	308	16	65	44	7	2	629	4	224	4	90	2	122	40	4	3	1	109	603	26
2007 (D)	117	268	16	63	41	5	2	512	4	196	4	113	2	112	40	3	3	1	70	548	-36
2008 (C)	126	272	16	60	37	4	2	517	4	184	4	116	2	113	41	3	3	1	69	540	-23
2009 (D)	108	272	15	59	33	4	2	493	3	166	4	111	2	113	42	4	3	1	65	514	-21
2010 (BN)	140	276	18	59	36	4	2	535	2	185	4	97	2	108	42	3	3	1	74	521	14
2011 (W)	135	285	17	59	39	6	2	543	2	194	3	90	2	113	42	4	3	1	79	533	10
2012 (BN)	98	271	16	59	35	4	2	485	3	170	3	103	2	112	42	4	3	1	67	510	-25
2013 (D)	135	276	15	61	34	4	2	527	3	178	5	119	2	115	41	4	3	1	68	539	-12
2014 (C)	91	269	13	59	29	3	2	466	3	142	7	105	2	117	40	4	3	1	62	486	-20
2015 (C)	118	271	15	61	30	3	2	500	3	154	7	122	2	111	42	4	3	1	64	513	-13
2016 (BN)	162	284	17	60	33	4	2	562	3	176	4	109	2	112	43	4	3	1	73	530	32
2017 (W)	180	330	17	62	42	7	2	640	3	206	4	98	2	120	42	4	3	1	120	603	37
2018 (BN)	155	269	21	62	44	6	2	559	3	213	4	107	2	105	41	3	3	1	78	560	-1
2019 (D)	95	261	17	59	35	3	2	472	2	174	8	91	2	108	42	3	3	1	61	495	-23
2020 (C)	107	258	18	58	35	3	2	481	2	172	9	87	2	106	44	3	3	1	59	488	-7
2021 (D)	118	268	17	58	34	3	2	500	2	176	8	90	2	108	42	3	3	1	62	497	3
2022 (C)	91	243	16	58	31	2	2	443	2	155	9	95	2	107	43	3	3	1	48	468	-25
2023 (AN)	165	286	18	58	35	4	2	568	2	193	6	85	2	112	43	3	3	1	72	522	46
2024 (W)	189	285	18	65	39	4	2	602	2	221	5	82	2	116	41	3	3	1	90	566	36
2025 (W)	180	284	19	65	42	5	2	597	3	231	5	84	2	114	40	3	3	1	93	579	18
2026 (D)	111	257	19	61	37	3	2	490	2	197	7	88	2	107	41	3	3	1	67	518	-28
2027 (AN)	176	274	21	63	42	4	2	582	3	230	5	84	2	108	41	3	3	1	82	562	20
2028 (C)	97	244	18	61	36	3	2	461	3	181	9	100	2	105	41	3	3	1	58	506	-45
2029 (AN)	200	283	21	64	43	5	2	618	3	236	7	90	2	109	42	3	3	1	84	580	38
2030 (W)	201	284	20	66	44	5	2	622	3	243	5	84	2	115	40	3	3	1	96	595	27
2031 (BN)	123	259	20	62	41	4	2	511	3	212	6	83	2	106	41	2	3	1	73	532	-21
2032 (D)	143	262	20	61	40	4	2	532	3	213	8	91	2	107	42	3	3	1	72	545	-13
2033 (BN)	137	260	20	60	39	3	2	521	2	206	5	85	2	107	42	3	3	1	70	526	-5
2034 (BN)	136	262	19	61	38	3	2	521	3	201	6	93	2	108	41	3	3	1	69	530	-9
2035 (W)	224	283	19	65	42	5	2	640	3	237	6	89	2	116	41	3	3	1	98	599	41
2036 (W)	249	283	24	71	51	6	3	687	3	282	6	77	2	113	41	3	3	1	114	645	42
2037 (AN)	144	256	20	66	45	4	3	538	3	234	6	89	2	110	40	3	3	1	77	568	-30
2038 (AN)	157	264	20	64	44	4	2	555	3	232	5	82	2	110	41	3	3	1	80	562	-7
2039 (BN)	142	257	20	64	43	4	2	532	3	222	6	88	2	107	40	2	3	1	74	548	-16
2040 (W)	172	282	19	66	43	5	3	590	3	233	7	88	2	116	40	3	3	1	86	582	8
2041 (W)	189	281	19	67	44	5	3	608	3	240	6	81	2	116	40	3	3	1	93	588	20
2042 (AN)	128	263	20	63	44	4	2	524	2	223	6	79	2	109	40	2	3	1	77	544	-20
2043 (C)	69	235	15	59	32	2	2	414	2	158	10	100	2	110	42	3	3	1	48	479	-65
2044 (W)	188	302	18	63	40	5	2	618	3	220	8	86	2	117	43	3	3	1	88	574	44
2045 (W)	214	288	20	68	46	5	3	644	3	250	7	86	2	115	40	3	3	1	99	609	35
2046 (BN)	114	259	20	63	41	3	2	502	2	209	7	87	2	106	40	2	3	1	73	532	-30
2047 (C)	102	255	18	59	36	3	2	475	2	181	11	92	2	106	42	3	3	1	62	505	-30
2048 (AN)	195	276	19	64	40	4	2	600	3	224	8	91	2	112	42	3	3	1	80	569	31
2049 (W)	174	281	18	66	40	4	2	585	3	226	6	89	2	116	39	3	3	1	87	575	10
2050 (W)	163	282	18	65	40	4	2	574	3	222	7	76	2	116	40	3	3	1	89	562	12
2051 (AN)	129	261	18	62	38	4	2	514	3	209	7	92	2	112	41	3	3	1	71	544	-30
2052 (BN)	142	265	19	62	38	3	2	531	3	207	6	93	2	108	41	3	3	1	72	539	-8
2053 (C)	94	251	18	59	34	2	2	460	2	176	12	85	2	105	42	3	3	1	60	491	-31
2054 (C)	104	258	18	59	33	2	2	476	2	170	13	92	2	106	43	3	3	1	58	493	-17
2055 (C)	102	260	17	58	31	2	2	472	2	163	13	89	2	107	43	3	4	1	58	485	-13
2056 (C)	132	271	19	59	36	3	2	522	3	181	13	97	2	105	44	3	3	1	64	516	6

Attachment 14
Anderson Subbasin Groundwater System Annual Water Budget (Increased Groundwater Use Scenario)

	Groundwater System Inflows (TAF)								Groundwater System Outflows (TAF)												
Water Year[a]	Groundwater Recharge from Precipitation, Applied Water, and Septic Systems	Groundwater Recharge from Streams/ Canals[b]	Subsurface Inflow from Enterprise Subbasin	Subsurface Inflow from Bowman Subbasin	Subsurface Inflow from Millville Subbasin	Subsurface Inflow from South Battle Creek Subbasin	Subsurface Inflow from Northern Bedrock Area	Total Inflow	Shallow Groundwater Uptake (ET of Shallow Groundwater)	Groundwater Discharge to Streams/ Canals[c]	Municipal Groundwater Pumping	Private Agricultural Groundwater Pumping	Private Residential Groundwater Pumping	Subsurface Outflow to Enterprise Subbasin	Subsurface Outflow to Bowman Subbasin	Subsurface Outflow to Millville Subbasin	Subsurface Outflow to South Battle Creek Subbasin	Subsurface Outflow to Northern Bedrock Area	Groundwater Discharge to Land Surface	Total Outflow	Change in Groundwater Storage
2057 (C)	113	261	17	59	31	2	2	485	2	167	13	90	2	108	43	3	3	1	60	492	-7
2058 (AN)	156	271	16	61	31	3	2	540	3	180	9	94	2	116	41	4	3	1	65	518	22
2059 (AN)	187	276	20	63	36	3	2	587	3	215	7	90	2	111	42	3	3	1	80	557	30
2060 (C)	96	251	18	60	33	2	2	462	2	175	11	94	2	106	42	3	4	1	60	500	-38
2061 (D)	139	268	18	60	32	3	2	522	2	184	12	87	2	109	42	3	3	1	66	511	11
2062 (D)	122	267	18	59	32	3	2	503	3	181	10	85	2	108	43	3	3	1	65	504	-1
2063 (C)	105	250	17	60	29	2	2	465	3	161	12	104	2	108	42	4	4	1	53	494	-29
2064 (C)	130	268	18	59	31	2	2	510	2	172	14	87	2	108	43	3	3	1	63	498	12
2065 (AN)	141	279	17	60	32	3	2	534	2	186	10	89	2	113	42	4	3	1	70	522	12
2066 (D)	113	263	17	59	31	2	2	487	2	174	10	91	2	109	42	4	4	1	62	501	-14
2067 (C)	100	259	17	58	29	2	2	467	2	158	12	85	2	108	43	4	4	1	56	475	-8
2068 (D)	157	270	18	60	33	3	2	543	3	191	12	93	2	110	44	4	3	1	67	530	13
2069 (C)	70	242	14	58	26	2	2	414	2	139	12	96	2	113	42	5	4	1	46	462	-48
2070 (C)	124	265	17	59	29	2	2	498	2	156	14	104	2	109	43	4	4	1	54	493	5
2071 (BN)	154	262	17	59	31	3	2	528	3	167	21	82	2	111	42	4	3	1	68	504	24
Historical Average (1999–2018)	137	279	17	61	38	5	2	539	3	192	4	106	2	113	41	4	3	1	78	547	-8
Current Average (2015–2018)	154	289	18	61	37	5	2	566	3	187	5	109	2	112	42	4	3	1	84	552	14
Projected Average (2019–2071)	142	267	18	62	37	3	2	531	3	199	9	89	2	110	42	3	3	1	72	533	-2

[a] Water year types are shown in parentheses and defined as follows: W=Wet, AN=Above Normal, BN=Below Normal, D=Dry, and C=Critically Dry.

[b] Leakage from the Anderson-Cottonwood Irrigation District annually contributes approximately 29 to 37 TAF of groundwater recharge to the aquifer system in the Anderson Subbasin under historical and projected conditions.

Notes:
TAF = thousand acre-feet
ET = evapotranspiration

EAGSA

Managing groundwater sustainably for generations to come. Anderson Subbasin

Transmittal

Date: January 20, 2022

To: California Department of Water Resources

From: Joshua Watkins, City of Redding, EAGSA Plan Manager

Subject: Enterprise Anderson Groundwater Sustainability Agency – Anderson Subbasin Groundwater Management Plan Submittal

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The Enterprise Anderson Groundwater Sustainability Agency (EAGSA) is pleased to provide the Anderson Subbasin Groundwater Management Plan.

The EAGSA unanimously voted to adopt the Groundwater Sustainability Plan during a public hearing held on January 19, 2022.

Please let us know if you have any questions.

Thank you,

Josh Watkins

Joshua Watkins

Enterprise Anderson Groundwater Sustainability Agency

Plan Manager