\\ODI\PROJ\NORTHERNCALIFORNIA\WASACVALLEYPROP50\FIGURES\MXDS\MODELAPPLICATION\SACFEMFIG_18_CUMULATIVE_DRAWDOWNSHALLOW.MXD HPERRY 7/26/2011 11:26:35

Hydrograph 1
Hydrograph 2
GCID Well No. 7
Hydrograph 3
GCID Well No. 9
Hydrograph 4
GCID Well No. 10
Hydrograph 5
Hydrograph 6
Hydrograph 8
GCID Well No. 12
Hydrograph 7
WILLOWS
Hydrograph 10
MFWC Well
Hydrograph 9
COLUSA
FWD Well
Hydrograph 12
Hydrograph 11
Hydrograph 18
RD 108 Well No. 1
Hydrograph 17
Hydrograph 14
PMWC Well
Hydrograph 13
Hydrograph 20
RD 108 Well No. 2
Hydrograph 19
RD 108 Well No. 3
Hydrograph 21
Hydrograph 22
RGFC Well
Hydrograph 15
Hydrograph 16
OROVILLE
MARYSVILLE
YUBA CITY
Lake Oroville
Thermalito Reservoir
Butte County
Glenn County
Colusa County
Sutter County
Yuba County
Placer County
Yolo County
Sacramento River
Feather River
Bear River
Yuba River
Dry Creek
Willow Creek
Walker Creek
Wilson Creek
French Creek
South Fork Willow Creek
Funks Creek
Stone Corral Creek
Glenn Colusa Canal
Colusa Basin Drain
Butte Creek
99
162
70
45
20
5
65
113
16
505

LEGEND

- 0.25-MILE BUFFER
- CITY
- LOCATION OF FORECAST GROUNDWATER ELEVATION AND INCREMENTAL DRAWDOWN
- MAJOR WATERWAY
- COUNTY BOUNDARY
- SACRAMENTO VALLEY GROUNDWATER BASIN

INCREMENTAL DRAWDOWN (feet)

- 1 to 5
- 5 to 10
- 10 to 15
- 15 to 20
- 20 to 25
- 25 to 30

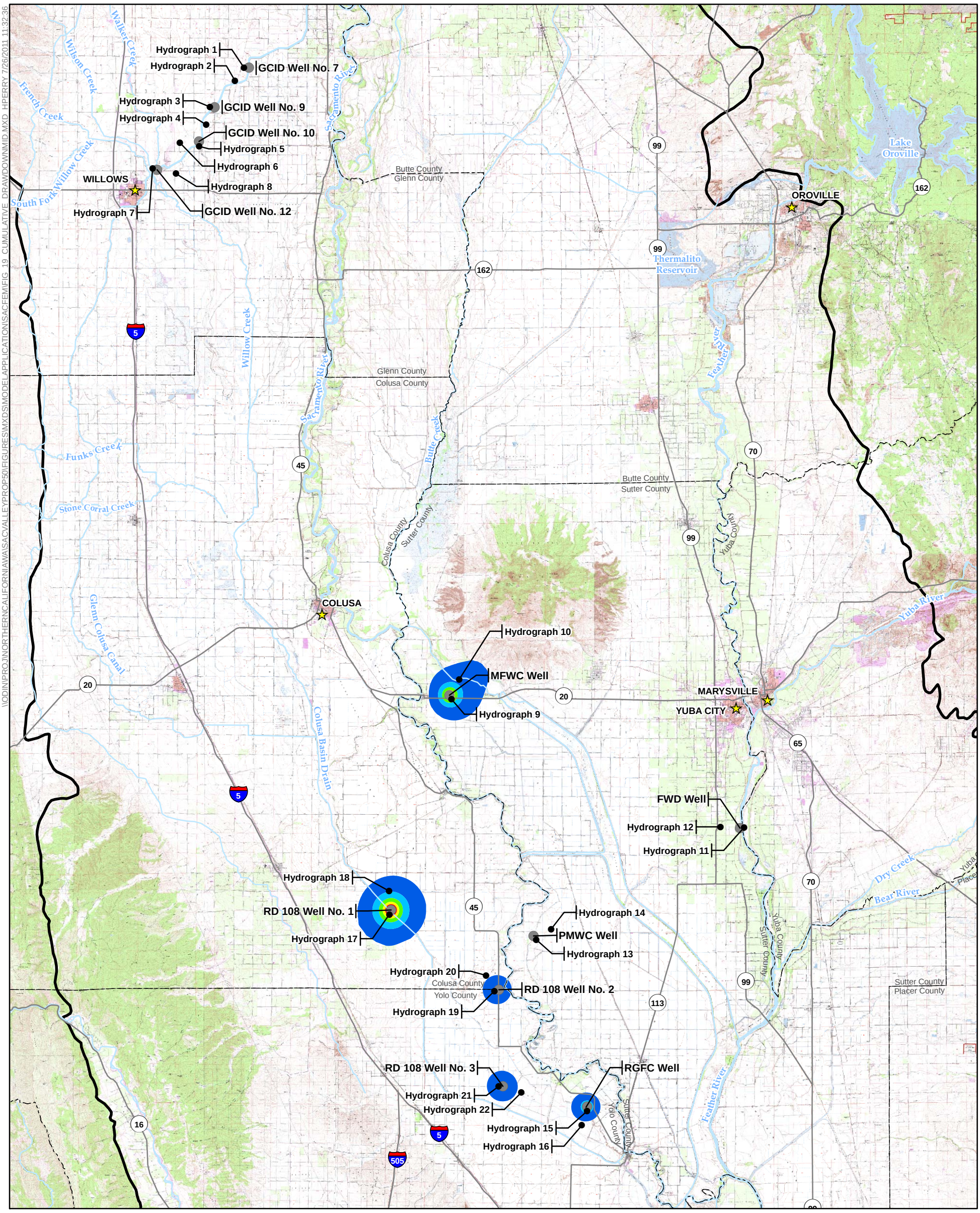
N

0 5
Miles

NOTES:
FWD = FEATHER WATER DISTRICT
GCID = GLENN-COLUSA IRRIGATION DISTRICT
MFWC = MERIDIAN FARMS WATER COMPANY
RD 108 = RECLAMATION DISTRICT 108
RGFC = RIVER GARDEN FARMS COMPANY
FORECAST HYDROGRAPHS SHOWN ON FIGURE C-21
INCREMENTAL DRAWDOWNS SHOWN OCCUR NEAR THE END OF PREDICTIVE SIMULATION YEAR 23 (OCTOBER 1992)

FIGURE C-18
CUMULATIVE IMPACTS
FORECAST SHALLOW AQUIFER DRAWDOWN
APPLICATION OF SACFEM TO THE PMWC
GROUNDWATER PRODUCTION ELEMENT PROJECT

CH2MHILL



\\ODINPROJ\NORTHERNCALIFORNIA\WAS\CVALLEYPROP50\FIGURES\MXDS\MODELAPPLICATIONSACFEMFIG_19_CUMULATIVE_DRAWDOWNMID.MXD HPERRY 7/26/2011 11:32:36

LEGEND

- 0.25-MILE BUFFER
- CITY
- LOCATION OF FORECAST GROUNDWATER ELEVATION AND INCREMENTAL DRAWDOWN
- MAJOR WATERWAY
- COUNTY BOUNDARY
- SACRAMENTO VALLEY GROUNDWATER BASIN

INCREMENTAL DRAWDOWN (feet)

- 5 to 10
- 10 to 15
- 15 to 20
- 20 to 25
- 25 to 30

N

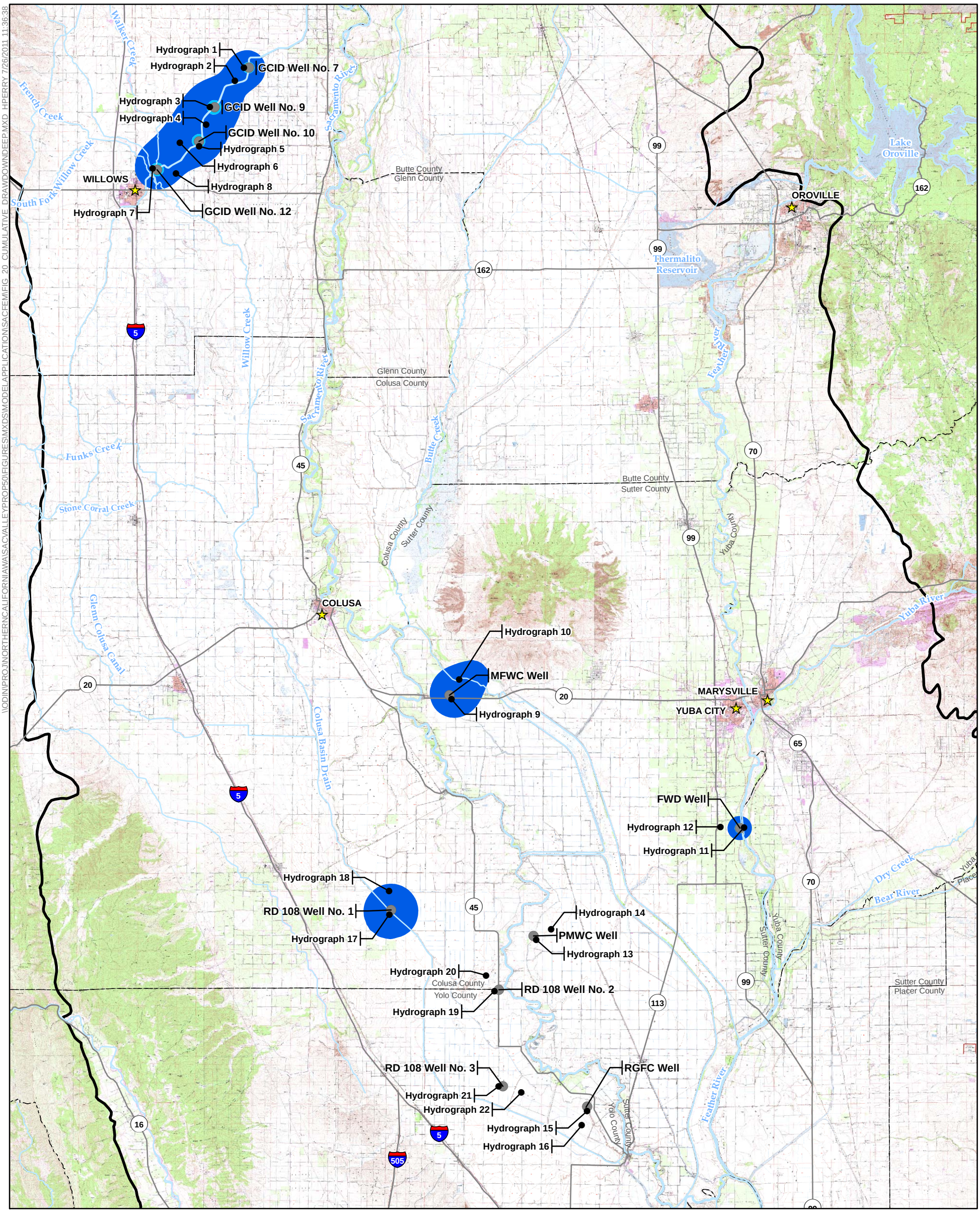
0 5

Miles

NOTES:
FWD = FEATHER WATER DISTRICT
GCID = GLENN-COLUSA IRRIGATION DISTRICT
MFWC = MERIDIAN FARMS WATER COMPANY
RD 108 = RECLAMATION DISTRICT 108
RGFC = RIVER GARDEN FARMS COMPANY
FORECAST HYDROGRAPHS SHOWN ON FIGURE C-21
INCREMENTAL DRAWDOWNS SHOWN OCCUR NEAR THE END OF PREDICTIVE SIMULATION YEAR 23 (OCTOBER 1992)

FIGURE C-19
CUMULATIVE IMPACTS
FORECAST REGIONAL AQUIFER DRAWDOWN
MIDDLE PUMPING ZONE
APPLICATION OF SACFEM TO THE PMWC
GROUNDWATER PRODUCTION ELEMENT PROJECT

CH2MHILL



\\ODINPROJ\NORTHERNCALIFORNIAWAISACVALLEYPROPS0\FIGURES\MXDS\MODELAPPLICATIONSACFEMFIG_20_CUMULATIVE_DRAWDOWNDEEP.MXD HPERRY 7/26/2011 11:36:38

LEGEND

- 0.25-MILE BUFFER
- CITY
- LOCATION OF FORECAST GROUNDWATER ELEVATION AND INCREMENTAL DRAWDOWN
- MAJOR WATERWAY
- COUNTY BOUNDARY
- SACRAMENTO VALLEY GROUNDWATER BASIN

INCREMENTAL DRAWDOWN (feet)

- 5 to 10
- 10 to 15
- 15 to 20
- 20 to 25
- 25 to 30

NOTES:
FWD = FEATHER WATER DISTRICT
GCID = GLENN-COLUSA IRRIGATION DISTRICT
MFWC = MERIDIAN FARMS WATER COMPANY
RD 108 = RECLAMATION DISTRICT 108
RGFC = RIVER GARDEN FARMS COMPANY
FORECAST HYDROGRAPHS SHOWN ON FIGURE C-21
INCREMENTAL DRAWDOWNS SHOWN OCCUR NEAR THE END OF PREDICTIVE SIMULATION YEAR 23 (OCTOBER 1992)

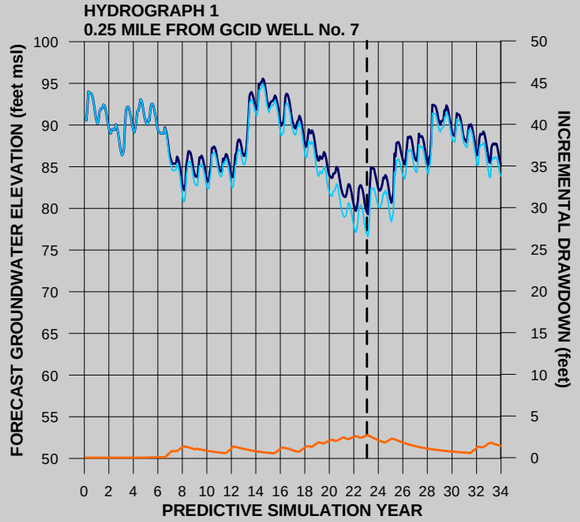
N

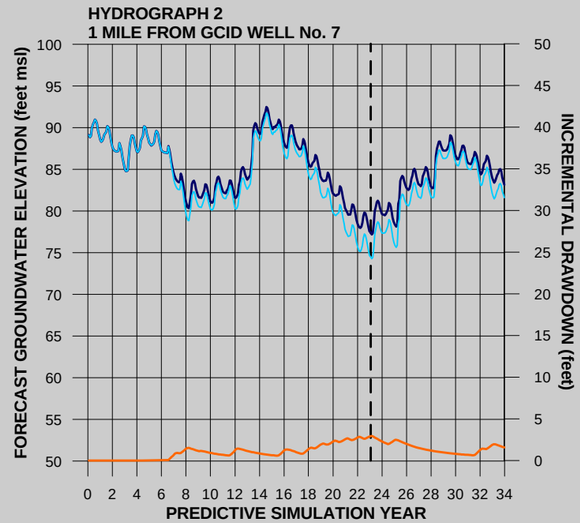
0 5
Miles

FIGURE C-20
CUMULATIVE IMPACTS
FORECAST REGIONAL AQUIFER DRAWDOWN
DEEP PUMPING ZONE
APPLICATION OF SACFEM TO THE PMWC
GROUNDWATER PRODUCTION ELEMENT PROJECT

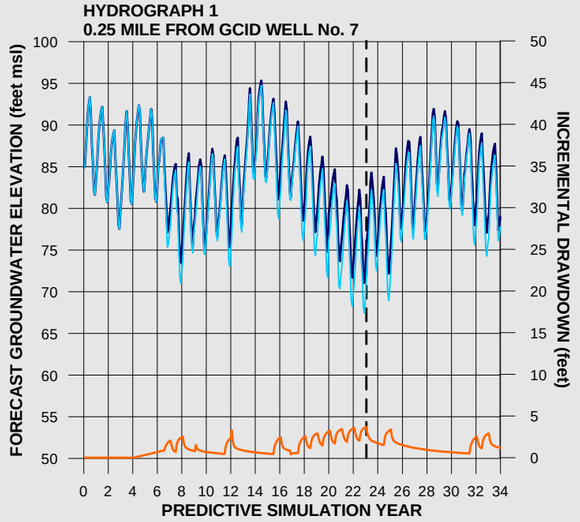
CH2MHILL

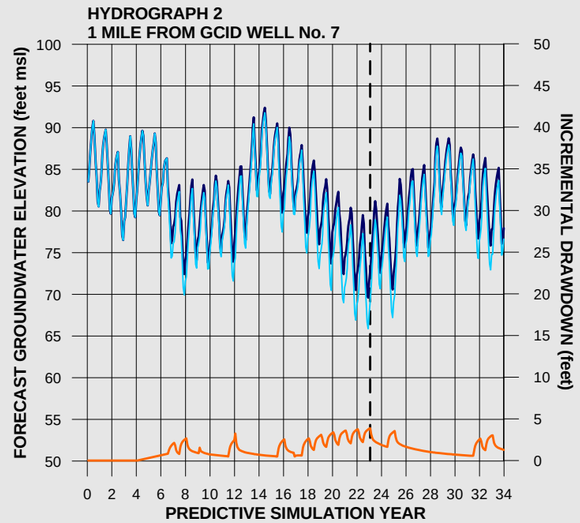
SHALLOW AQUIFER



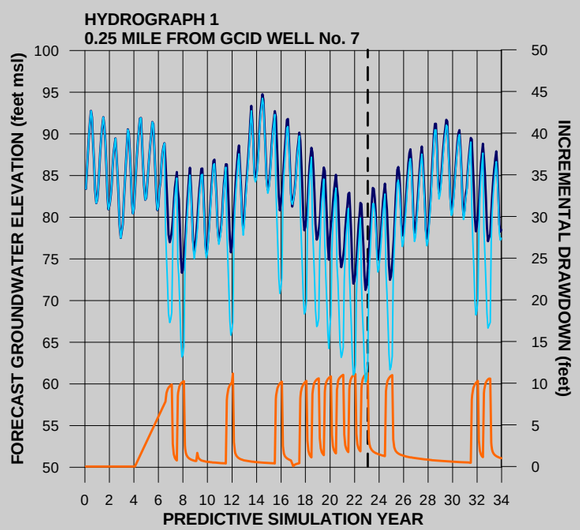


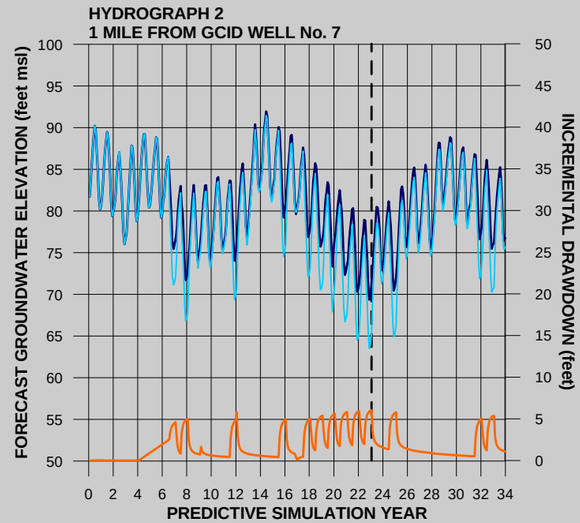
REGIONAL AQUIFER MIDDLE PUMPING ZONE





REGIONAL AQUIFER DEEP PUMPING ZONE





LEGEND

- BASELINE GROUNDWATER ELEVATION
- PROJECT GROUNDWATER ELEVATION
- INCREMENTAL DRAWDOWN
- TIME OF FORECAST RESULTS SHOWN ON FIGURES C-18 THROUGH C-20

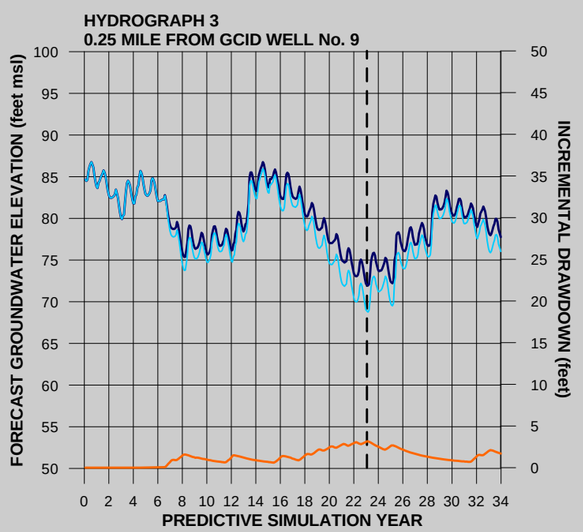
PREDICTIVE SIMULATION YEAR	WATER-YEAR HYDROLOGY	SVGB WATER-YEAR CLASSIFICATION
1	1970	W
2	1971	W
3	1972	BN
4	1973	AN
5	1974	W
6	1975	W
7	1976	C
8	1977	C
9	1978	AN
10	1979	BN
11	1980	AN
12	1981	D
13	1982	W
14	1983	W
15	1984	W
16	1985	D
17	1986	W
18	1987	D
19	1988	C
20	1989	D
21	1990	C
22	1991	C
23	1992	C
24	1993	AN
25	1994	C
26	1995	W
27	1996	W
28	1997	W
29	1998	W
30	1999	W
31	2000	AN
32	2001	D
33	2002	D
34	2003	AN

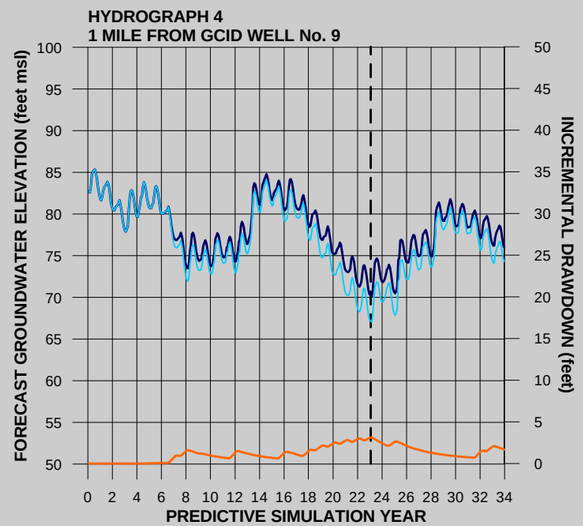
NOTE:

1. HYDROGRAPH LOCATIONS SHOWN ON FIGURES C-18 THROUGH C-20
2. SVGB = SACRAMENTO VALLEY GROUNDWATER BASIN
3. GCID = GLENN-COLUSA IRRIGATION DISTRICT
4. AN = ABOVE NORMAL WATER-YEAR HYDROLOGY
5. BN = BELOW NORMAL WATER-YEAR HYDROLOGY
6. C = CRITICAL WATER-YEAR HYDROLOGY
7. D= DRY WATER-YEAR HYDROLOGY
8. W = WET WATER-YEAR HYDROLOGY

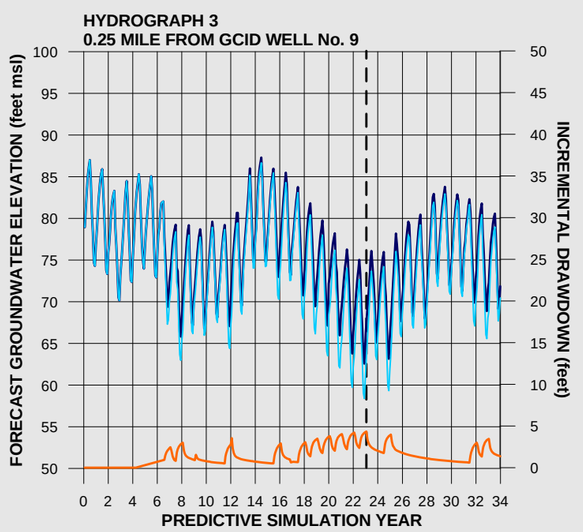
FIGURE C-21 (PAGE 1 OF 11)
CUMULATIVE IMPACTS
FORECAST GROUNDWATER ELEVATIONS AND INCREMENTAL DRAWDOWN
APPLICATION OF SACFEM TO THE PMWC
GROUNDWATER PRODUCTION ELEMENT PROJECT

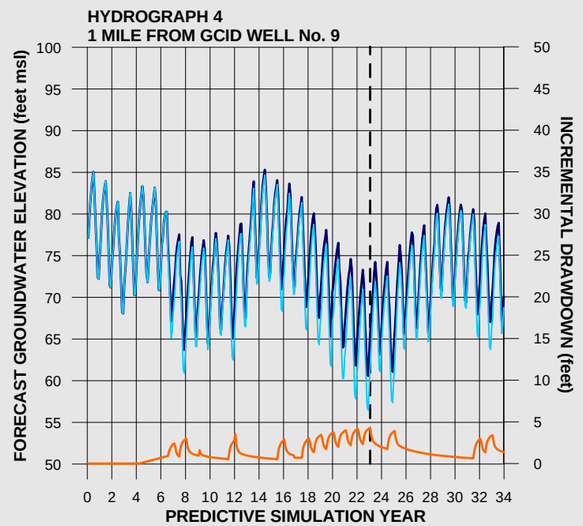
SHALLOW AQUIFER



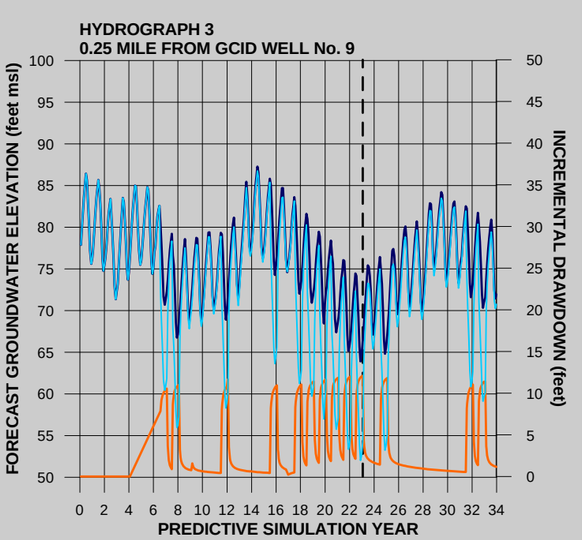


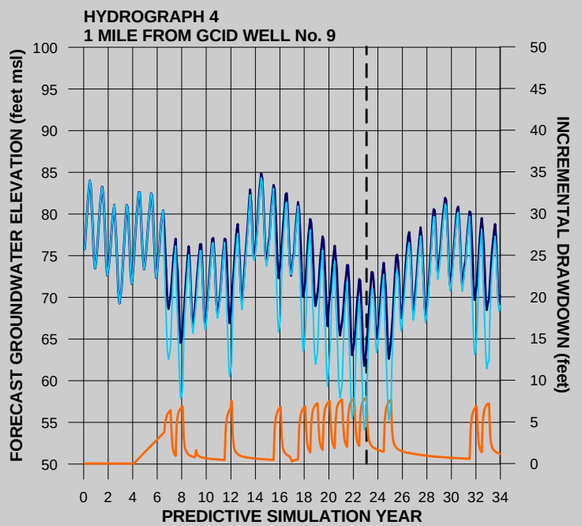
REGIONAL AQUIFER MIDDLE PUMPING ZONE





REGIONAL AQUIFER DEEP PUMPING ZONE





LEGEND

- BASELINE GROUNDWATER ELEVATION
- PROJECT GROUNDWATER ELEVATION
- INCREMENTAL DRAWDOWN
- TIME OF FORECAST RESULTS SHOWN ON FIGURES C-18 THROUGH C-20

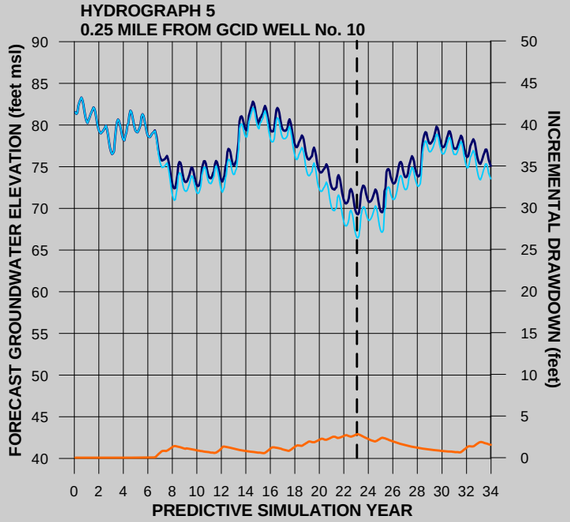
PREDICTIVE SIMULATION YEAR	WATER-YEAR HYDROLOGY	SVGB WATER-YEAR CLASSIFICATION
1	1970	W
2	1971	W
3	1972	BN
4	1973	AN
5	1974	W
6	1975	W
7	1976	C
8	1977	C
9	1978	AN
10	1979	BN
11	1980	AN
12	1981	D
13	1982	W
14	1983	W
15	1984	W
16	1985	D
17	1986	W
18	1987	D
19	1988	C
20	1989	D
21	1990	C
22	1991	C
23	1992	C
24	1993	AN
25	1994	C
26	1995	W
27	1996	W
28	1997	W
29	1998	W
30	1999	W
31	2000	AN
32	2001	D
33	2002	D
34	2003	AN

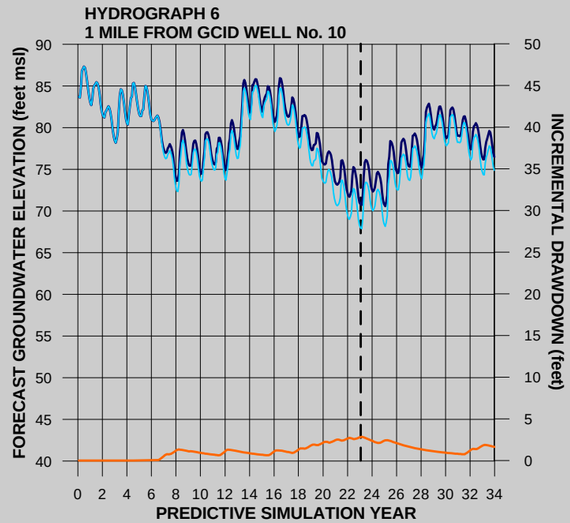
NOTE:

1. HYDROGRAPH LOCATIONS SHOWN ON FIGURES C-18 THROUGH C-20
2. SVGB = SACRAMENTO VALLEY GROUNDWATER BASIN
3. GCID = GLENN-COLUSA IRRIGATION DISTRICT
4. AN = ABOVE NORMAL WATER-YEAR HYDROLOGY
5. BN = BELOW NORMAL WATER-YEAR HYDROLOGY
6. C = CRITICAL WATER-YEAR HYDROLOGY
7. D= DRY WATER-YEAR HYDROLOGY
8. W = WET WATER-YEAR HYDROLOGY

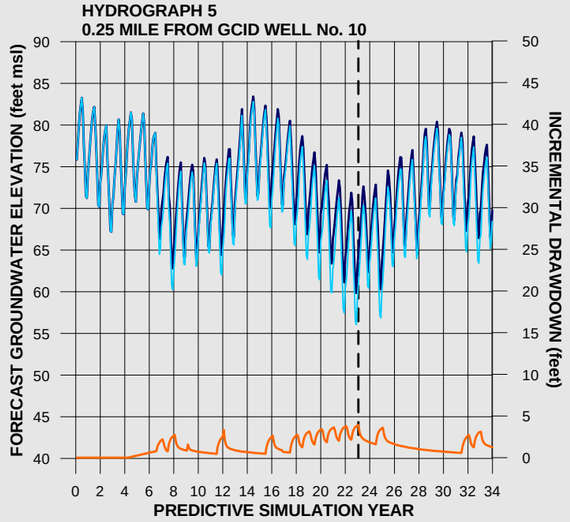
FIGURE C-21 (PAGE 2 OF 11)
CUMULATIVE IMPACTS
FORECAST GROUNDWATER ELEVATIONS AND INCREMENTAL DRAWDOWN
APPLICATION OF SACFEM TO THE PMWC
GROUNDWATER PRODUCTION ELEMENT PROJECT

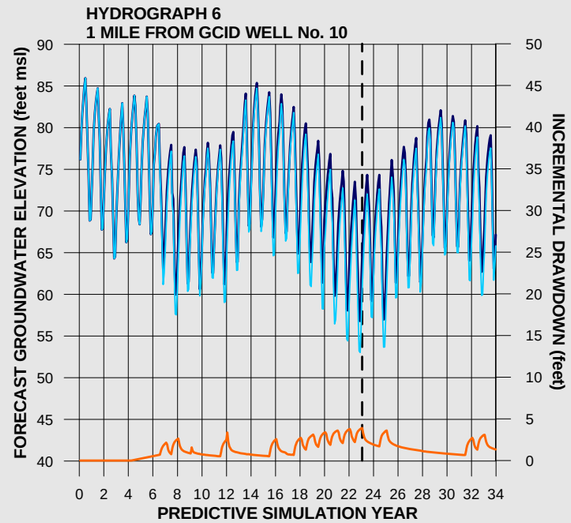
SHALLOW AQUIFER



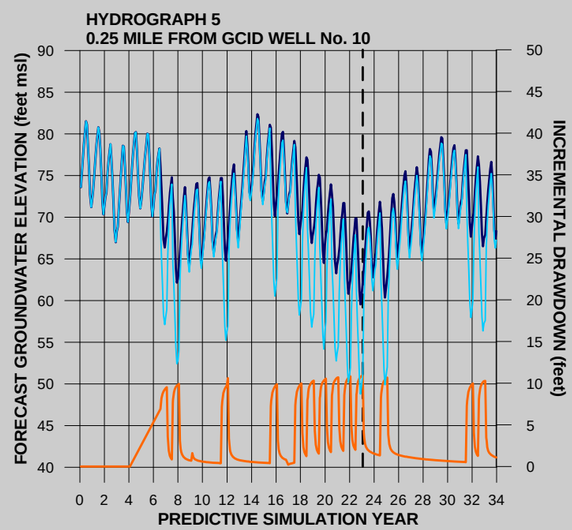


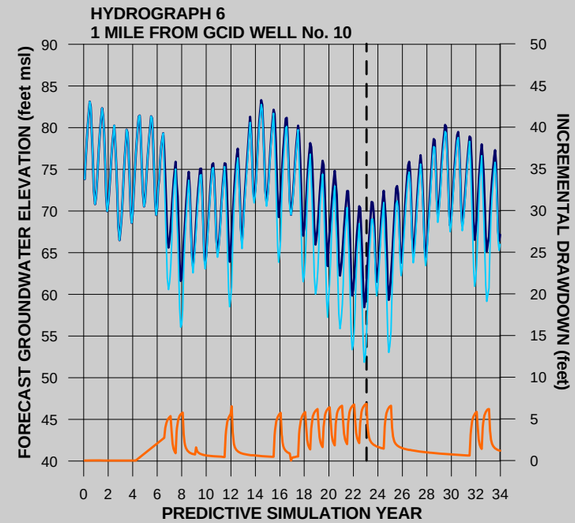
REGIONAL AQUIFER MIDDLE PUMPING ZONE





REGIONAL AQUIFER DEEP PUMPING ZONE





LEGEND

- BASELINE GROUNDWATER ELEVATION
- PROJECT GROUNDWATER ELEVATION
- INCREMENTAL DRAWDOWN
- TIME OF FORECAST RESULTS SHOWN ON FIGURES C-18 THROUGH C-20

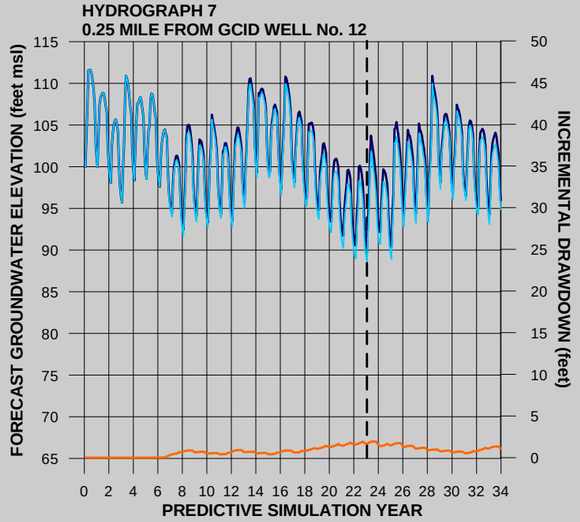
PREDICTIVE SIMULATION YEAR	WATER-YEAR HYDROLOGY	SVGB WATER-YEAR CLASSIFICATION
1	1970	W
2	1971	W
3	1972	BN
4	1973	AN
5	1974	W
6	1975	W
7	1976	C
8	1977	C
9	1978	AN
10	1979	BN
11	1980	AN
12	1981	D
13	1982	W
14	1983	W
15	1984	W
16	1985	D
17	1986	W
18	1987	D
19	1988	C
20	1989	D
21	1990	C
22	1991	C
23	1992	C
24	1993	AN
25	1994	C
26	1995	W
27	1996	W
28	1997	W
29	1998	W
30	1999	W
31	2000	AN
32	2001	D
33	2002	D
34	2003	AN

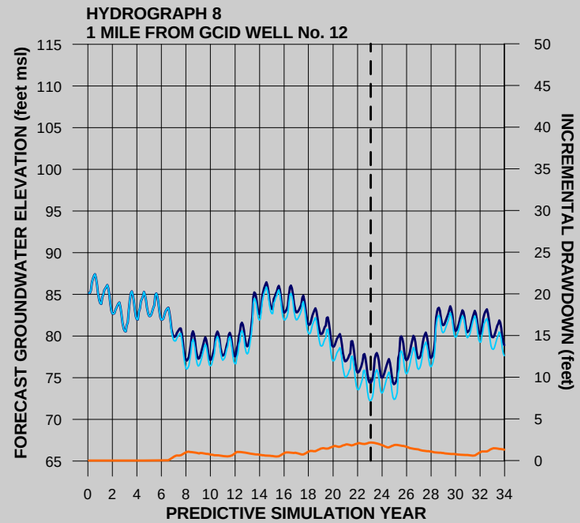
NOTE:

1. HYDROGRAPH LOCATIONS SHOWN ON FIGURES C-18 THROUGH C-20
2. SVGB = SACRAMENTO VALLEY GROUNDWATER BASIN
3. GCID = GLENN-COLUSA IRRIGATION DISTRICT
4. AN = ABOVE NORMAL WATER-YEAR HYDROLOGY
5. BN = BELOW NORMAL WATER-YEAR HYDROLOGY
6. C = CRITICAL WATER-YEAR HYDROLOGY
7. D= DRY WATER-YEAR HYDROLOGY
8. W = WET WATER-YEAR HYDROLOGY

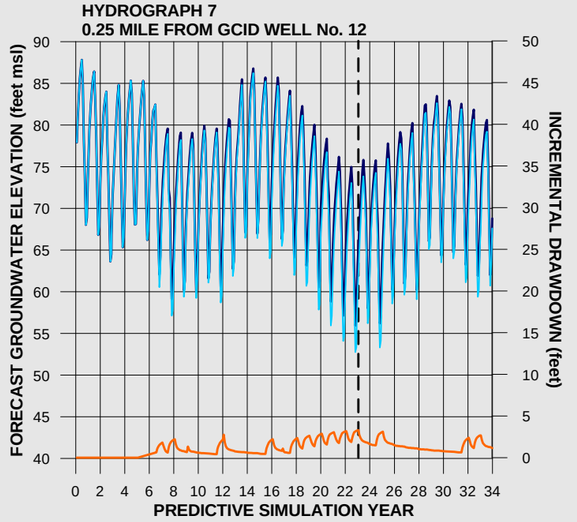
FIGURE C-21 (PAGE 3 OF 11)
CUMULATIVE IMPACTS
FORECAST GROUNDWATER ELEVATIONS AND INCREMENTAL DRAWDOWN
APPLICATION OF SACFEM TO THE PMWC
GROUNDWATER PRODUCTION ELEMENT PROJECT

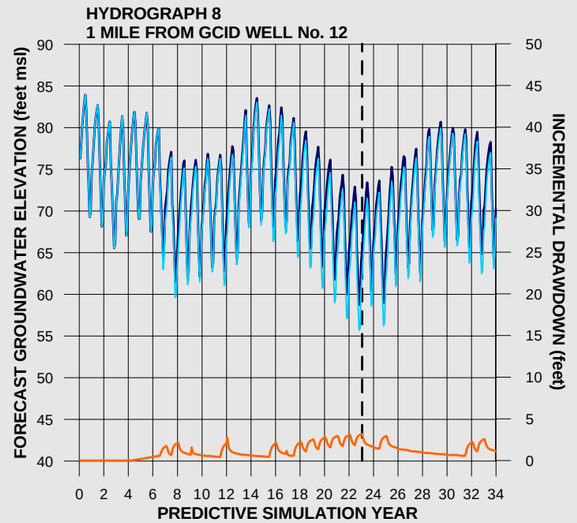
SHALLOW AQUIFER



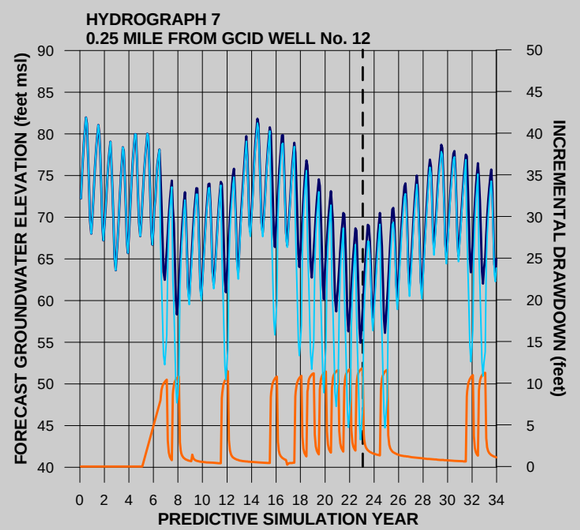


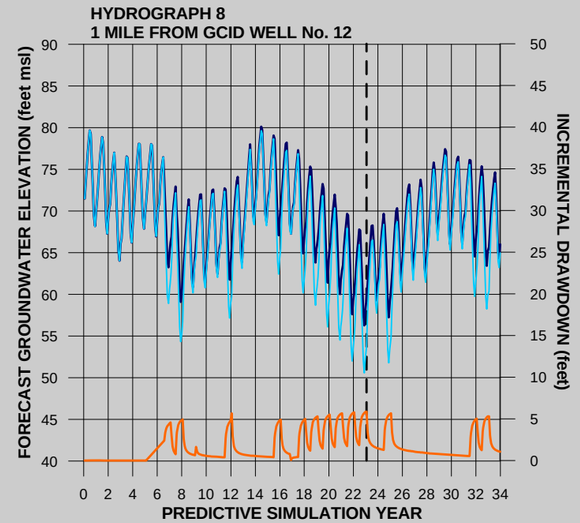
REGIONAL AQUIFER MIDDLE PUMPING ZONE





REGIONAL AQUIFER DEEP PUMPING ZONE





LEGEND

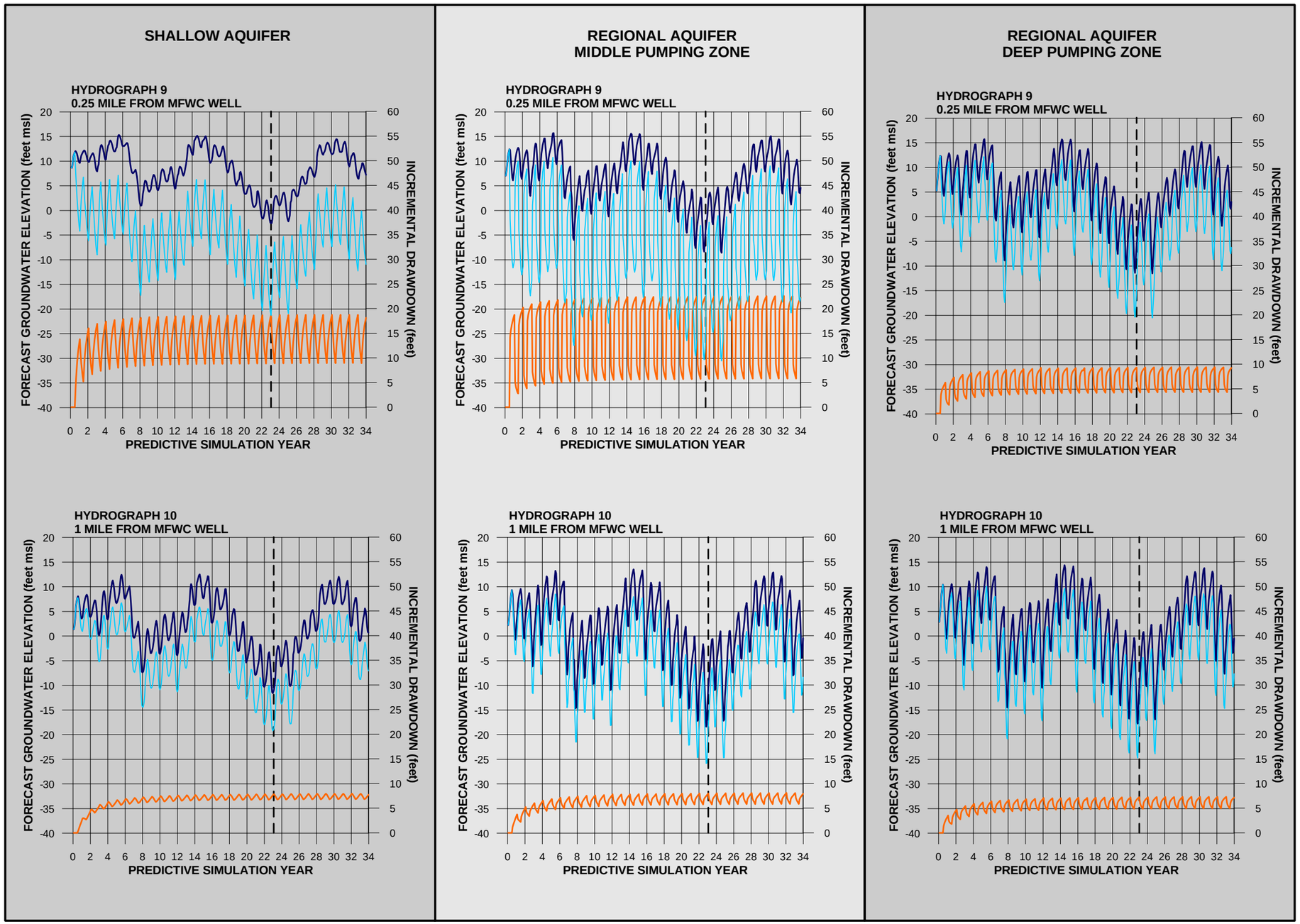
- BASELINE GROUNDWATER ELEVATION
- PROJECT GROUNDWATER ELEVATION
- INCREMENTAL DRAWDOWN
- TIME OF FORECAST RESULTS SHOWN ON FIGURES C-18 THROUGH C-20

PREDICTIVE SIMULATION YEAR	WATER-YEAR HYDROLOGY	SVGB WATER-YEAR CLASSIFICATION
1	1970	W
2	1971	W
3	1972	BN
4	1973	AN
5	1974	W
6	1975	W
7	1976	C
8	1977	C
9	1978	AN
10	1979	BN
11	1980	AN
12	1981	D
13	1982	W
14	1983	W
15	1984	W
16	1985	D
17	1986	W
18	1987	D
19	1988	C
20	1989	D
21	1990	C
22	1991	C
23	1992	C
24	1993	AN
25	1994	C
26	1995	W
27	1996	W
28	1997	W
29	1998	W
30	1999	W
31	2000	AN
32	2001	D
33	2002	D
34	2003	AN

NOTE:

1. HYDROGRAPH LOCATIONS SHOWN ON FIGURES C-18 THROUGH C-20
2. SVGB = SACRAMENTO VALLEY GROUNDWATER BASIN
3. GCID = GLENN-COLUSA IRRIGATION DISTRICT
4. AN = ABOVE NORMAL WATER-YEAR HYDROLOGY
5. BN = BELOW NORMAL WATER-YEAR HYDROLOGY
6. C = CRITICAL WATER-YEAR HYDROLOGY
7. D= DRY WATER-YEAR HYDROLOGY
8. W = WET WATER-YEAR HYDROLOGY

FIGURE C-21 (PAGE 4 OF 11)
CUMULATIVE IMPACTS
FORECAST GROUNDWATER ELEVATIONS AND INCREMENTAL DRAWDOWN
APPLICATION OF SACFEM TO THE PMWC
GROUNDWATER PRODUCTION ELEMENT PROJECT



LEGEND

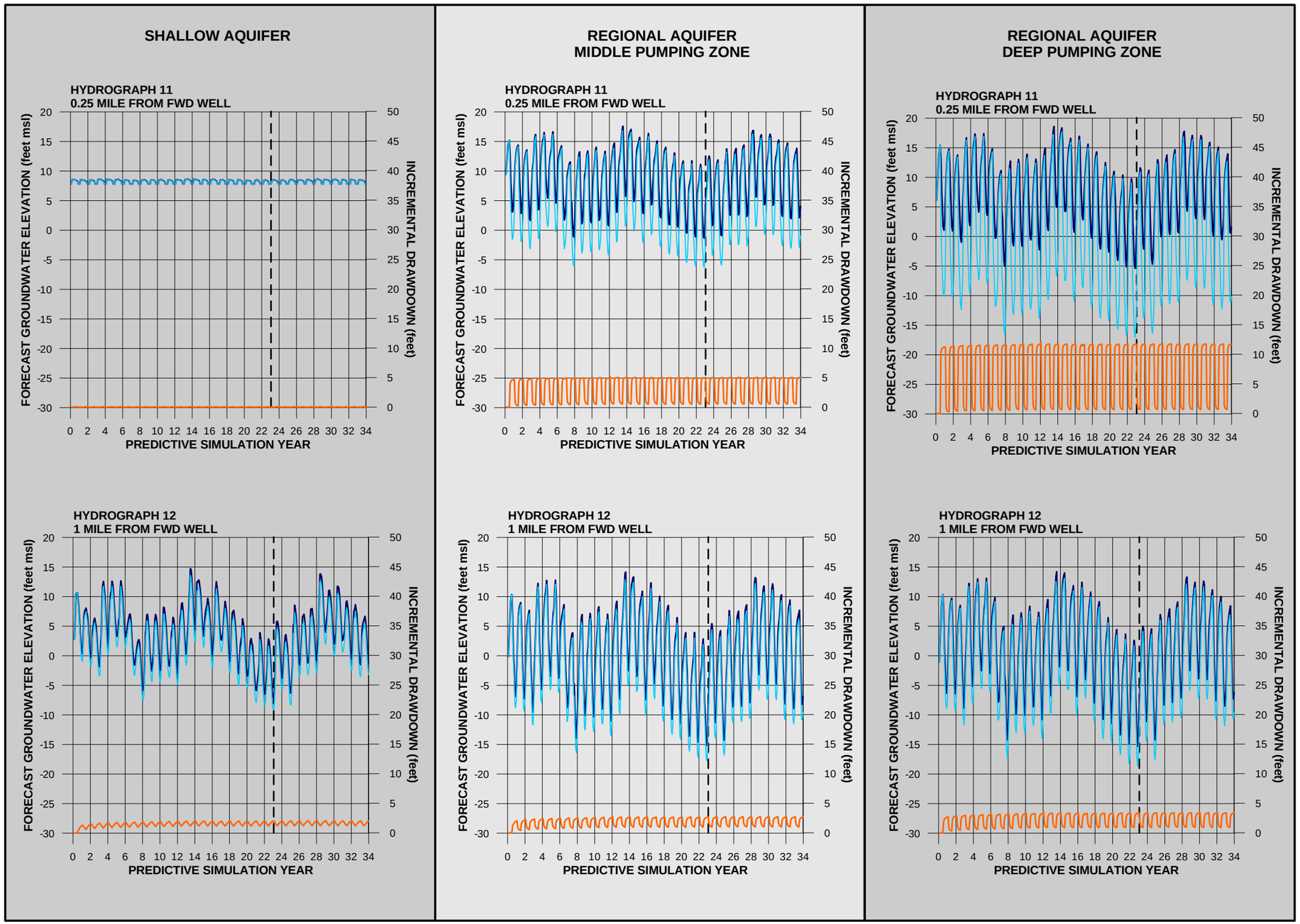
- BASELINE GROUNDWATER ELEVATION
- PROJECT GROUNDWATER ELEVATION
- INCREMENTAL DRAWDOWN
- TIME OF FORECAST RESULTS SHOWN ON FIGURES C-18 THROUGH C-20

PREDICTIVE SIMULATION YEAR	WATER-YEAR HYDROLOGY	SVGB WATER-YEAR CLASSIFICATION
1	1970	W
2	1971	W
3	1972	BN
4	1973	AN
5	1974	W
6	1975	W
7	1976	C
8	1977	C
9	1978	AN
10	1979	BN
11	1980	AN
12	1981	D
13	1982	W
14	1983	W
15	1984	W
16	1985	D
17	1986	W
18	1987	D
19	1988	C
20	1989	D
21	1990	C
22	1991	C
23	1992	C
24	1993	AN
25	1994	C
26	1995	W
27	1996	W
28	1997	W
29	1998	W
30	1999	W
31	2000	AN
32	2001	D
33	2002	D
34	2003	AN

NOTE:

1. HYDROGRAPH LOCATIONS SHOWN ON FIGURES C-18 THROUGH C-20
2. SVGB = SACRAMENTO VALLEY GROUNDWATER BASIN
3. MFWC = MERIDIAN FARMS WATER COMPANY
4. AN = ABOVE NORMAL WATER-YEAR HYDROLOGY
5. BN = BELOW NORMAL WATER-YEAR HYDROLOGY
6. C = CRITICAL WATER-YEAR HYDROLOGY
7. D= DRY WATER-YEAR HYDROLOGY
8. W = WET WATER-YEAR HYDROLOGY

FIGURE C-21 (PAGE 5 OF 11)
CUMULATIVE IMPACTS
FORECAST GROUNDWATER ELEVATIONS AND INCREMENTAL DRAWDOWN
APPLICATION OF SACFEM TO THE PMWC GROUNDWATER PRODUCTION ELEMENT PROJECT



LEGEND

- BASELINE GROUNDWATER ELEVATION
- PROJECT GROUNDWATER ELEVATION
- INCREMENTAL DRAWDOWN
- TIME OF FORECAST RESULTS SHOWN ON FIGURES C-18 THROUGH C-20

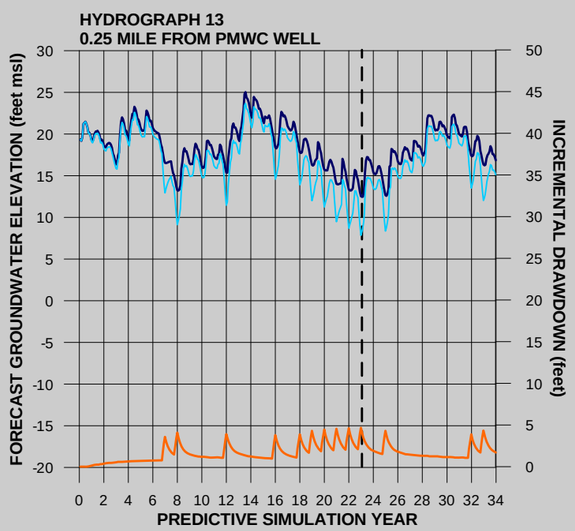
PREDICTIVE SIMULATION YEAR	WATER-YEAR HYDROLOGY	SVGB WATER-YEAR CLASSIFICATION
1	1970	W
2	1971	W
3	1972	BN
4	1973	AN
5	1974	W
6	1975	W
7	1976	C
8	1977	C
9	1978	AN
10	1979	BN
11	1980	AN
12	1981	D
13	1982	W
14	1983	W
15	1984	W
16	1985	D
17	1986	W
18	1987	D
19	1988	C
20	1989	D
21	1990	C
22	1991	C
23	1992	C
24	1993	AN
25	1994	C
26	1995	W
27	1996	W
28	1997	W
29	1998	W
30	1999	W
31	2000	AN
32	2001	D
33	2002	D
34	2003	AN

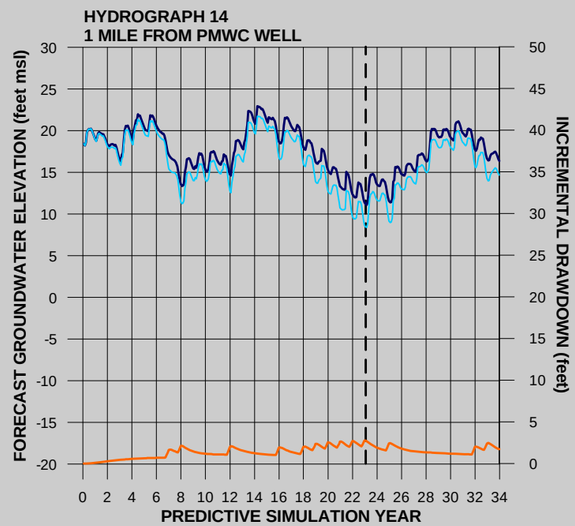
NOTE:

1. HYDROGRAPH LOCATIONS SHOWN ON FIGURES C-18 THROUGH C-20
2. SVGB = SACRAMENTO VALLEY GROUNDWATER BASIN
3. FWD = FEATHER WATER DISTRICT
4. AN = ABOVE NORMAL WATER-YEAR HYDROLOGY
5. BN = BELOW NORMAL WATER-YEAR HYDROLOGY
6. C = CRITICAL WATER-YEAR HYDROLOGY
7. D= DRY WATER-YEAR HYDROLOGY
8. W = WET WATER-YEAR HYDROLOGY

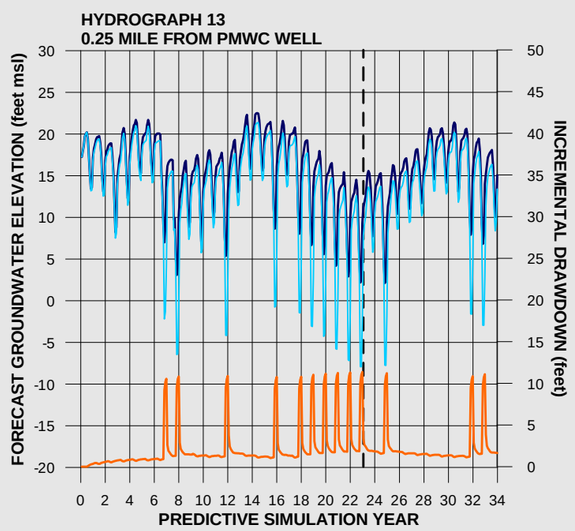
FIGURE C-21 (PAGE 6 OF 11)
CUMULATIVE IMPACTS
FORECAST GROUNDWATER ELEVATIONS AND INCREMENTAL DRAWDOWN
APPLICATION OF SACFEM TO THE PMWC
GROUNDWATER PRODUCTION ELEMENT PROJECT

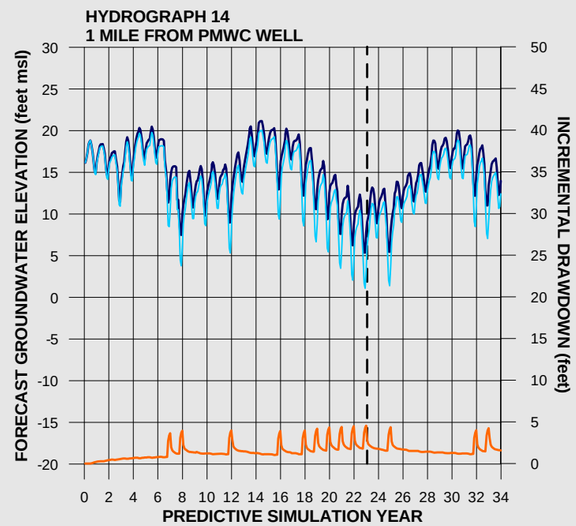
SHALLOW AQUIFER



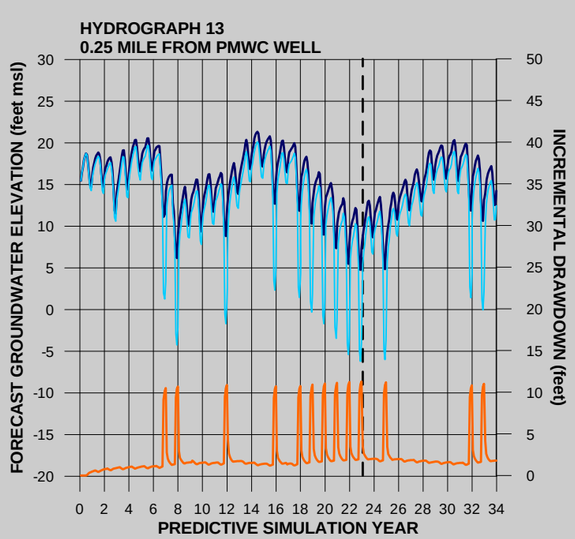


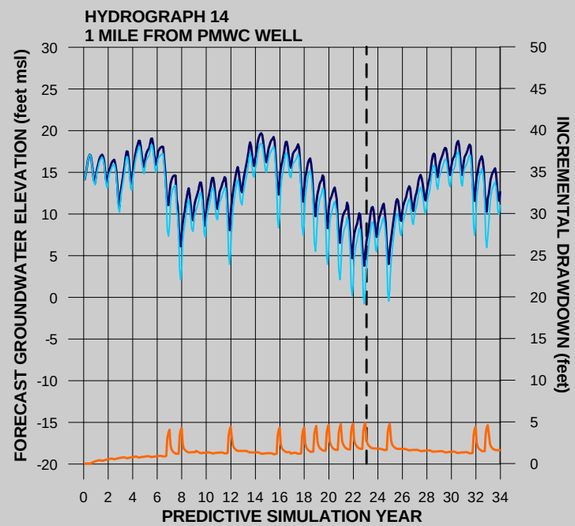
REGIONAL AQUIFER MIDDLE PUMPING ZONE





REGIONAL AQUIFER DEEP PUMPING ZONE





LEGEND

- BASELINE GROUNDWATER ELEVATION
- PROJECT GROUNDWATER ELEVATION
- INCREMENTAL DRAWDOWN
- TIME OF FORECAST RESULTS SHOWN ON FIGURES C-18 THROUGH C-20

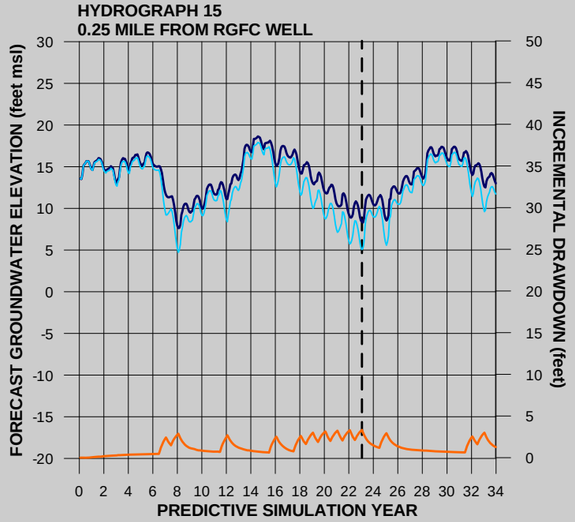
PREDICTIVE SIMULATION YEAR	WATER-YEAR HYDROLOGY	SVGB WATER-YEAR CLASSIFICATION
1	1970	W
2	1971	W
3	1972	BN
4	1973	AN
5	1974	W
6	1975	W
7	1976	C
8	1977	C
9	1978	AN
10	1979	BN
11	1980	AN
12	1981	D
13	1982	W
14	1983	W
15	1984	W
16	1985	D
17	1986	W
18	1987	D
19	1988	C
20	1989	D
21	1990	C
22	1991	C
23	1992	C
24	1993	AN
25	1994	C
26	1995	W
27	1996	W
28	1997	W
29	1998	W
30	1999	W
31	2000	AN
32	2001	D
33	2002	D
34	2003	AN

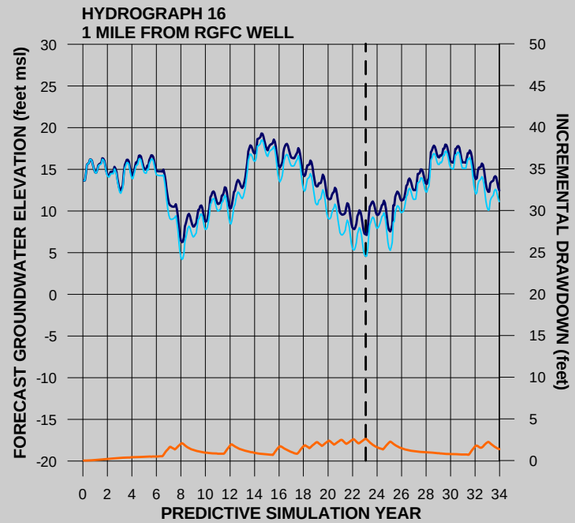
NOTE:

1. HYDROGRAPH LOCATIONS SHOWN ON FIGURES C-18 THROUGH C-20
2. SVGB = SACRAMENTO VALLEY GROUNDWATER BASIN
3. PMWC = PELGER MUTUAL WATER COMPANY
4. AN = ABOVE NORMAL WATER-YEAR HYDROLOGY
5. BN = BELOW NORMAL WATER-YEAR HYDROLOGY
6. C = CRITICAL WATER-YEAR HYDROLOGY
7. D= DRY WATER-YEAR HYDROLOGY
8. W = WET WATER-YEAR HYDROLOGY

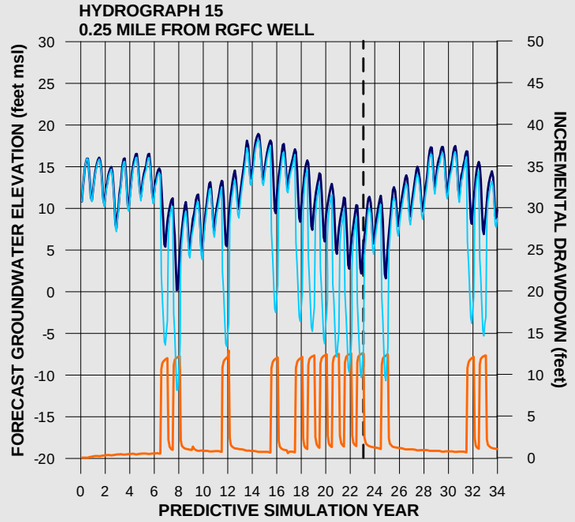
FIGURE C-21 (PAGE 7 OF 11)
CUMULATIVE IMPACTS
FORECAST GROUNDWATER ELEVATIONS AND INCREMENTAL DRAWDOWN
APPLICATION OF SACFEM TO THE PMWC GROUNDWATER PRODUCTION ELEMENT PROJECT

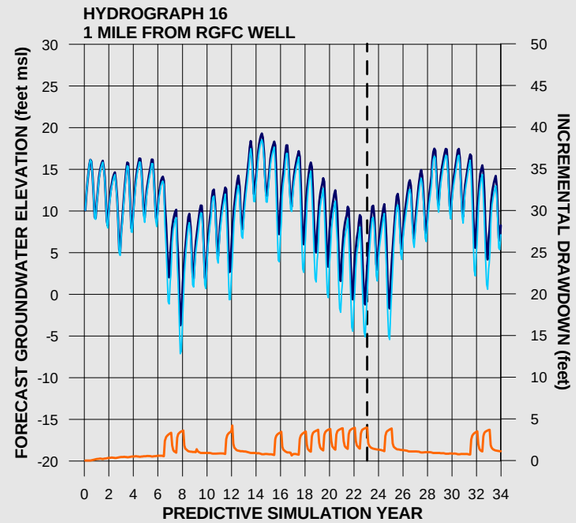
SHALLOW AQUIFER



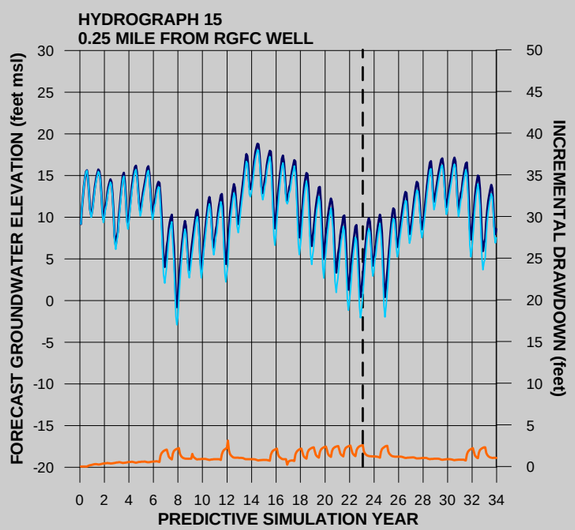


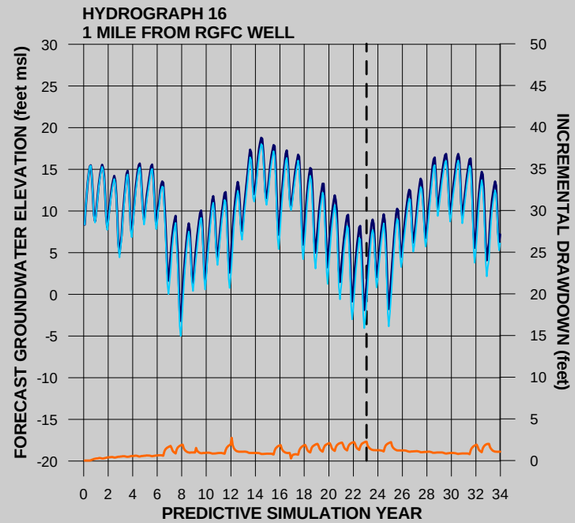
REGIONAL AQUIFER MIDDLE PUMPING ZONE





REGIONAL AQUIFER DEEP PUMPING ZONE





LEGEND

- BASELINE GROUNDWATER ELEVATION
- PROJECT GROUNDWATER ELEVATION
- INCREMENTAL DRAWDOWN
- TIME OF FORECAST RESULTS SHOWN ON FIGURES C-18 THROUGH C-20

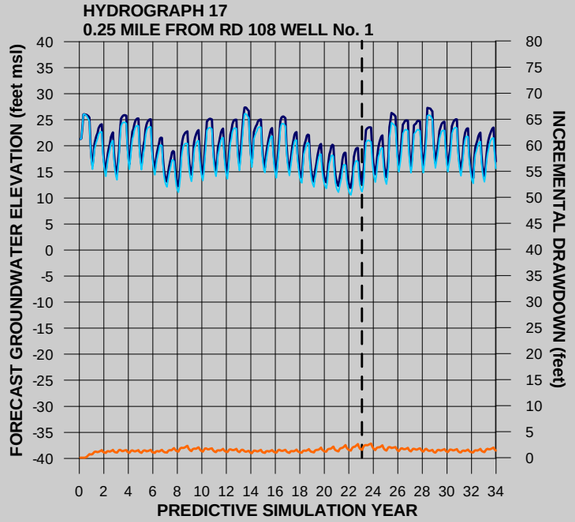
PREDICTIVE SIMULATION YEAR	WATER-YEAR HYDROLOGY	SVGB WATER-YEAR CLASSIFICATION
1	1970	W
2	1971	W
3	1972	BN
4	1973	AN
5	1974	W
6	1975	W
7	1976	C
8	1977	C
9	1978	AN
10	1979	BN
11	1980	AN
12	1981	D
13	1982	W
14	1983	W
15	1984	W
16	1985	D
17	1986	W
18	1987	D
19	1988	C
20	1989	D
21	1990	C
22	1991	C
23	1992	C
24	1993	AN
25	1994	C
26	1995	W
27	1996	W
28	1997	W
29	1998	W
30	1999	W
31	2000	AN
32	2001	D
33	2002	D
34	2003	AN

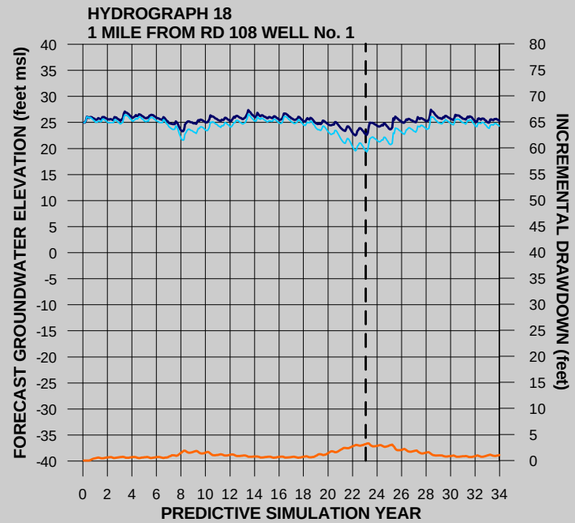
NOTE:

1. HYDROGRAPH LOCATIONS SHOWN ON FIGURES C-18 THROUGH C-20
2. SVGB = SACRAMENTO VALLEY GROUNDWATER BASIN
3. RGFC = RIVER GARDEN FARMS COMPANY
4. AN = ABOVE NORMAL WATER-YEAR HYDROLOGY
5. BN = BELOW NORMAL WATER-YEAR HYDROLOGY
6. C = CRITICAL WATER-YEAR HYDROLOGY
7. D= DRY WATER-YEAR HYDROLOGY
8. W = WET WATER-YEAR HYDROLOGY

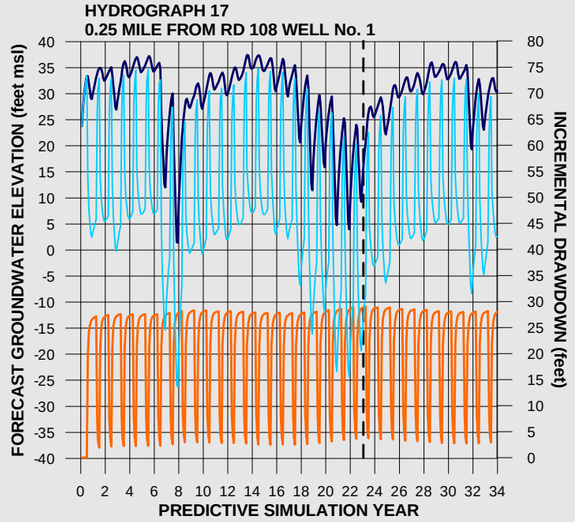
FIGURE C-21 (PAGE 8 OF 11)
CUMULATIVE IMPACTS
FORECAST GROUNDWATER ELEVATIONS AND INCREMENTAL DRAWDOWN
APPLICATION OF SACFEM TO THE PMWC
GROUNDWATER PRODUCTION ELEMENT PROJECT

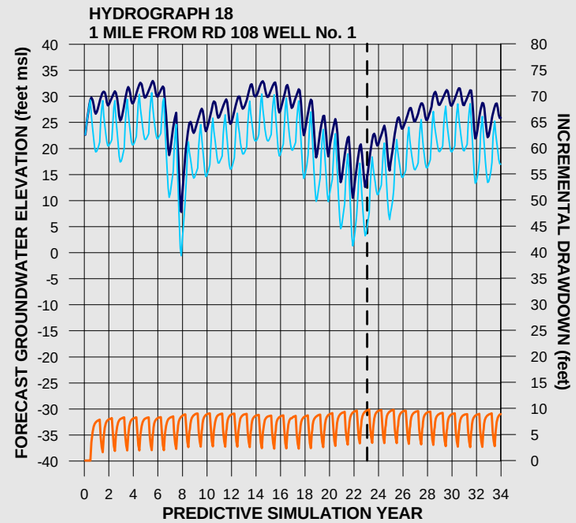
SHALLOW AQUIFER



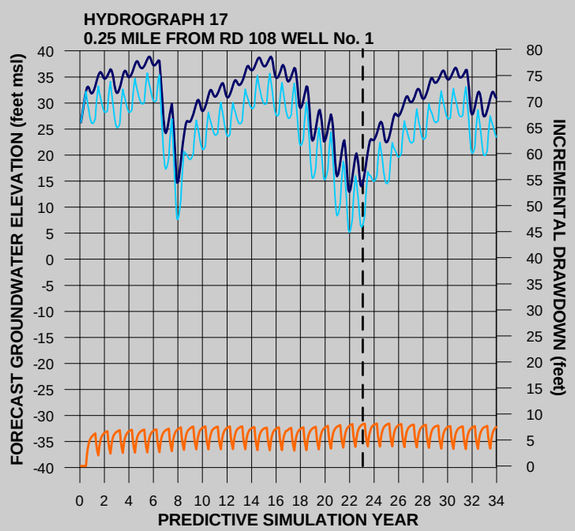


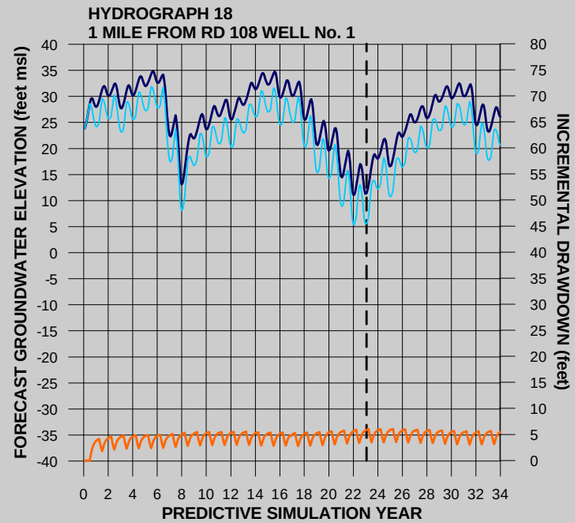
REGIONAL AQUIFER MIDDLE PUMPING ZONE





REGIONAL AQUIFER DEEP PUMPING ZONE





LEGEND

- BASELINE GROUNDWATER ELEVATION
- PROJECT GROUNDWATER ELEVATION
- INCREMENTAL DRAWDOWN
- TIME OF FORECAST RESULTS SHOWN ON FIGURES C-18 THROUGH C-20

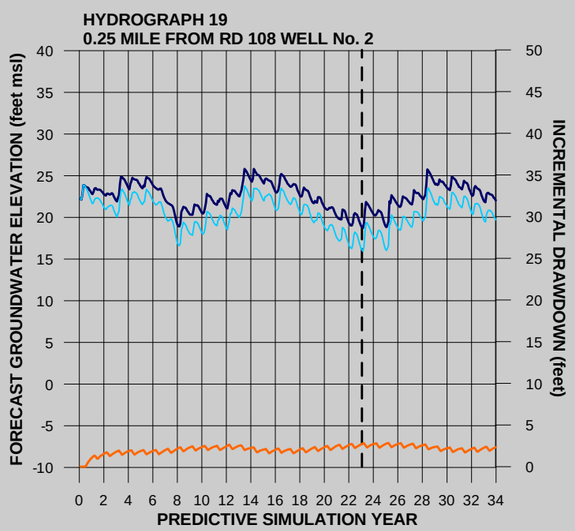
PREDICTIVE SIMULATION YEAR	WATER-YEAR HYDROLOGY	SVGB WATER-YEAR CLASSIFICATION
1	1970	W
2	1971	W
3	1972	BN
4	1973	AN
5	1974	W
6	1975	W
7	1976	C
8	1977	C
9	1978	AN
10	1979	BN
11	1980	AN
12	1981	D
13	1982	W
14	1983	W
15	1984	W
16	1985	D
17	1986	W
18	1987	D
19	1988	C
20	1989	D
21	1990	C
22	1991	C
23	1992	C
24	1993	AN
25	1994	C
26	1995	W
27	1996	W
28	1997	W
29	1998	W
30	1999	W
31	2000	AN
32	2001	D
33	2002	D
34	2003	AN

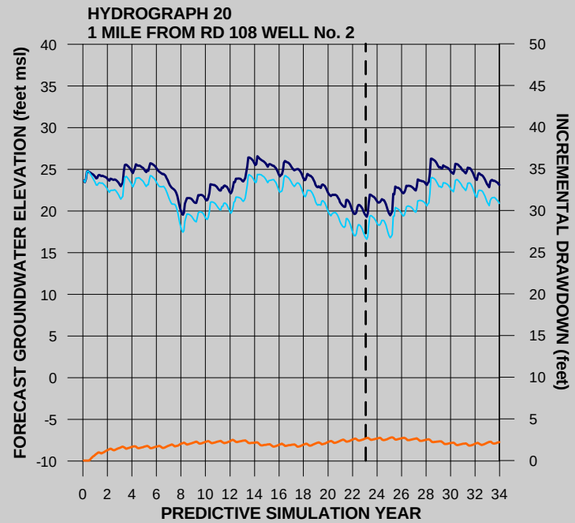
NOTE:

1. HYDROGRAPH LOCATIONS SHOWN ON FIGURES C-18 THROUGH C-20
2. SVGB = SACRAMENTO VALLEY GROUNDWATER BASIN
3. RD 108 = RECLAMATION DISTRICT 108
4. AN = ABOVE NORMAL WATER-YEAR HYDROLOGY
5. BN = BELOW NORMAL WATER-YEAR HYDROLOGY
6. C = CRITICAL WATER-YEAR HYDROLOGY
7. D= DRY WATER-YEAR HYDROLOGY
8. W = WET WATER-YEAR HYDROLOGY

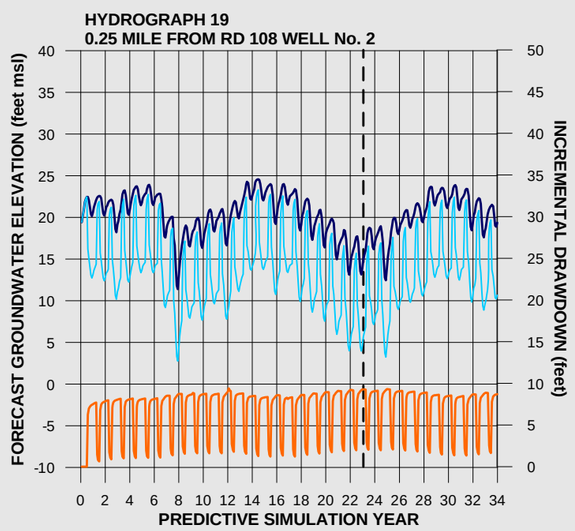
FIGURE C-21 (PAGE 9 OF 11)
CUMULATIVE IMPACTS
FORECAST GROUNDWATER ELEVATIONS AND INCREMENTAL DRAWDOWN
APPLICATION OF SACFEM TO THE PMWC
GROUNDWATER PRODUCTION ELEMENT PROJECT

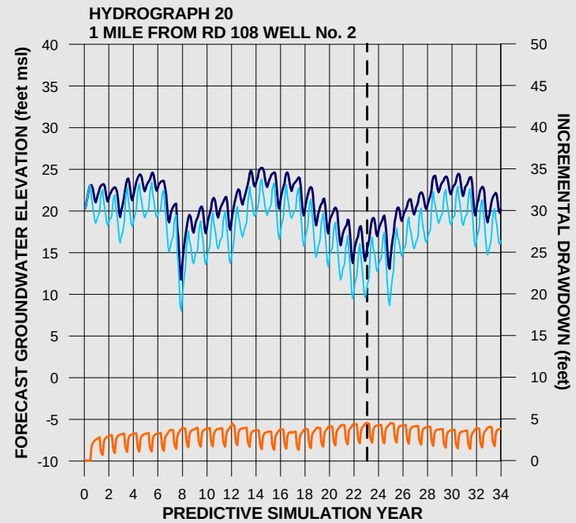
SHALLOW AQUIFER



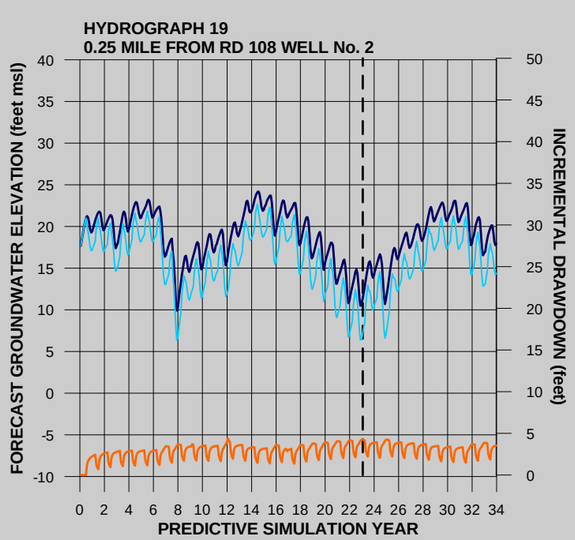


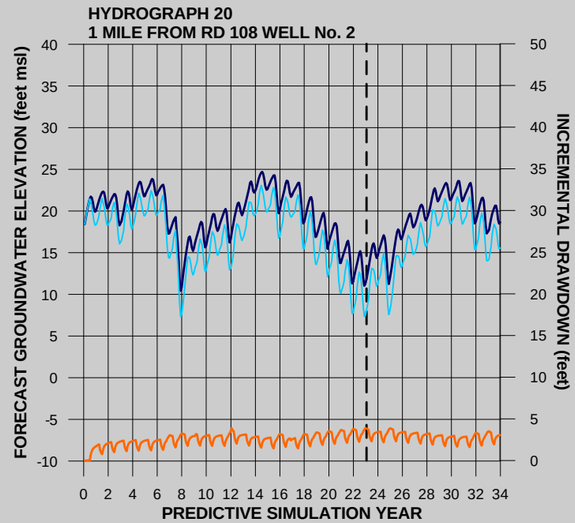
REGIONAL AQUIFER MIDDLE PUMPING ZONE





REGIONAL AQUIFER DEEP PUMPING ZONE





LEGEND

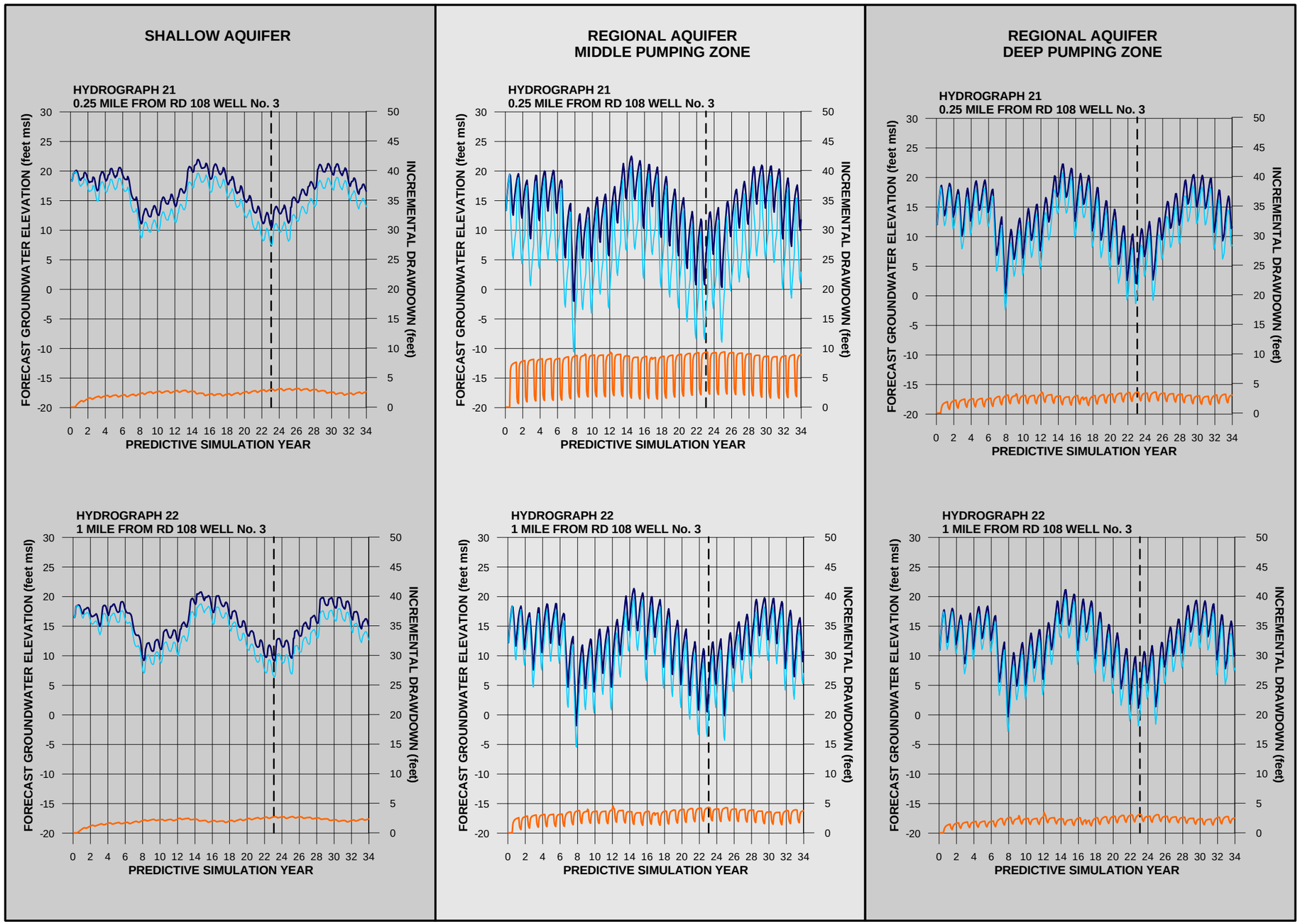
- BASELINE GROUNDWATER ELEVATION
- PROJECT GROUNDWATER ELEVATION
- INCREMENTAL DRAWDOWN
- TIME OF FORECAST RESULTS SHOWN ON FIGURES C-18 THROUGH C-20

PREDICTIVE SIMULATION YEAR	WATER-YEAR HYDROLOGY	SVGB WATER-YEAR CLASSIFICATION
1	1970	W
2	1971	W
3	1972	BN
4	1973	AN
5	1974	W
6	1975	W
7	1976	C
8	1977	C
9	1978	AN
10	1979	BN
11	1980	AN
12	1981	D
13	1982	W
14	1983	W
15	1984	W
16	1985	D
17	1986	W
18	1987	D
19	1988	C
20	1989	D
21	1990	C
22	1991	C
23	1992	C
24	1993	AN
25	1994	C
26	1995	W
27	1996	W
28	1997	W
29	1998	W
30	1999	W
31	2000	AN
32	2001	D
33	2002	D
34	2003	AN

NOTE:

1. HYDROGRAPH LOCATIONS SHOWN ON FIGURES C-18 THROUGH C-20
2. SVGB = SACRAMENTO VALLEY GROUNDWATER BASIN
3. RD 108 = RECLAMATION DISTRICT 108
4. AN = ABOVE NORMAL WATER-YEAR HYDROLOGY
5. BN = BELOW NORMAL WATER-YEAR HYDROLOGY
6. C = CRITICAL WATER-YEAR HYDROLOGY
7. D= DRY WATER-YEAR HYDROLOGY
8. W = WET WATER-YEAR HYDROLOGY

FIGURE C-21 (PAGE 10 OF 11)
CUMULATIVE IMPACTS
FORECAST GROUNDWATER ELEVATIONS AND INCREMENTAL DRAWDOWN
APPLICATION OF SACFEM TO THE PMWC
GROUNDWATER PRODUCTION ELEMENT PROJECT



LEGEND

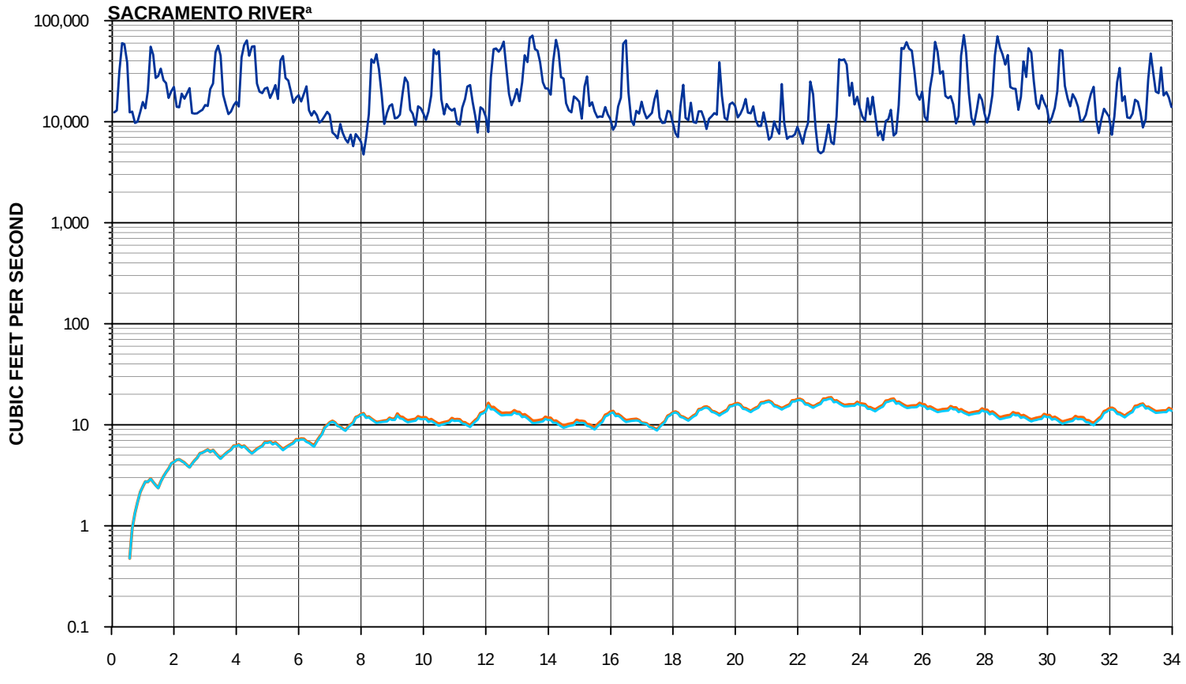
- BASELINE GROUNDWATER ELEVATION
- PROJECT GROUNDWATER ELEVATION
- INCREMENTAL DRAWDOWN
- TIME OF FORECAST RESULTS SHOWN ON FIGURES C-18 THROUGH C-20

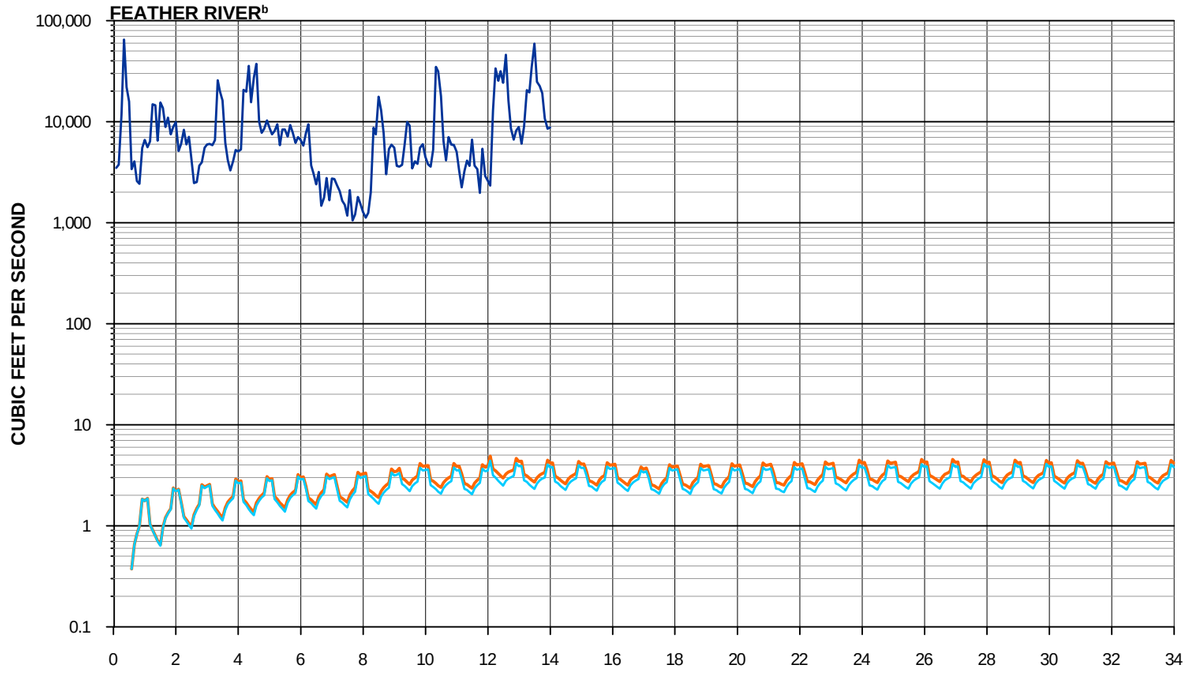
PREDICTIVE SIMULATION YEAR	WATER-YEAR HYDROLOGY	SVGB WATER-YEAR CLASSIFICATION
1	1970	W
2	1971	W
3	1972	BN
4	1973	AN
5	1974	W
6	1975	W
7	1976	C
8	1977	C
9	1978	AN
10	1979	BN
11	1980	AN
12	1981	D
13	1982	W
14	1983	W
15	1984	W
16	1985	D
17	1986	W
18	1987	D
19	1988	C
20	1989	D
21	1990	C
22	1991	C
23	1992	C
24	1993	AN
25	1994	C
26	1995	W
27	1996	W
28	1997	W
29	1998	W
30	1999	W
31	2000	AN
32	2001	D
33	2002	D
34	2003	AN

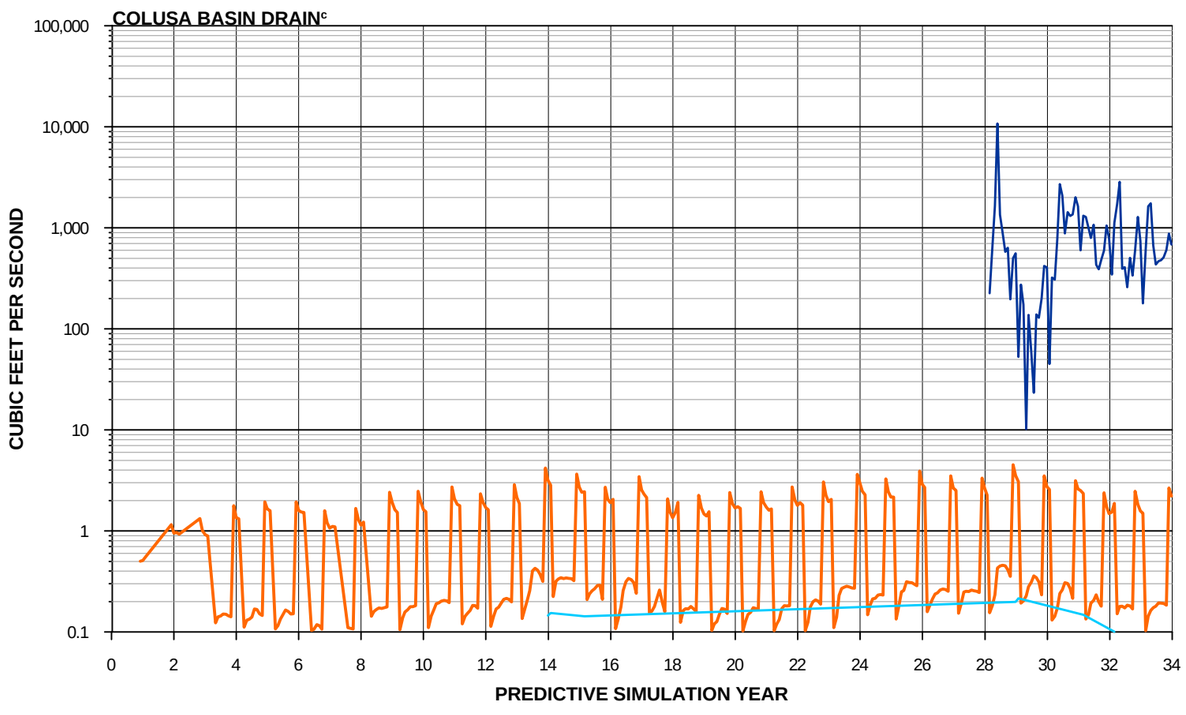
NOTE:

1. HYDROGRAPH LOCATIONS SHOWN ON FIGURES C-18 THROUGH C-20
2. SVGB = SACRAMENTO VALLEY GROUNDWATER BASIN
3. RD 108 = RECLAMATION DISTRICT 108
4. AN = ABOVE NORMAL WATER-YEAR HYDROLOGY
5. BN = BELOW NORMAL WATER-YEAR HYDROLOGY
6. C = CRITICAL WATER-YEAR HYDROLOGY
7. D= DRY WATER-YEAR HYDROLOGY
8. W = WET WATER-YEAR HYDROLOGY

FIGURE C-21 (PAGE 11 OF 11)
CUMULATIVE IMPACTS
FORECAST GROUNDWATER ELEVATIONS AND INCREMENTAL DRAWDOWN
APPLICATION OF SACFEM TO THE PMWC
GROUNDWATER PRODUCTION ELEMENT PROJECT







LEGEND

- MEAN MONTHLY MEASURED STREAMFLOW
- FORECAST STREAMFLOW REDUCTION - UPSTREAM OF GAGE
- FORECAST STREAMFLOW REDUCTION - ENTIRE STREAM

[a]MEASURED STREAMFLOW AT USGS GAGE No. 11425500, SACRAMENTO RIVER AT VERONA, CALIFORNIA.

[b]MEASURED STREAMFLOW AT USGS GAGE No. 11425000, FEATHER RIVER NEAR NICOLAUS, CALIFORNIA.

[c]MEASURED STREAMFLOW AT DWR GAGE CDR, COLUSA BASIN DRAIN NEAR HIGHWAY 20.

PREDICTIVE SIMULATION YEAR	WATER-YEAR HYDROLOGY	PREDICTIVE SIMULATION YEAR	WATER-YEAR HYDROLOGY
1	1970	18	1987
2	1971	19	1988
3	1972	20	1989
4	1973	21	1990
5	1974	22	1991
6	1975	23	1992
7	1976	24	1993
8	1977	25	1994
9	1978	26	1995
10	1979	27	1996
11	1980	28	1997
12	1981	29	1998
13	1982	30	1999
14	1983	31	2000
15	1984	32	2001
16	1985	33	2002
17	1986	34	2003

FIGURE C-22
CUMULATIVE IMPACTS
FORECAST STREAM IMPACTS
APPLICATION OF SACFEM TO THE PMWC
GROUNDWATER PRODUCTION ELEMENT PROJECT

\\ODINPROJ\NORTHERNCALIFORNIAWAISACVALLEYPROP50\FIGURES\MXDS\MODELAPPLICATIONSACFEMFIG_23_CUMULATIVE_GW_FLOW_SHALLOW.MXD HPERRY 7/26/2011 11:40:43

GCID Well No. 7
GCID Well No. 9
GCID Well No. 10
GCID Well No. 12
WILLOWS
COLUSA
OROVILLE
MARYSVILLE
YUBA CITY
MFWC Well
FWD Well
RD 108 Well No. 1
PMWC Well
RD 108 Well No. 2
RD 108 Well No. 3
RGFC Well
Lake Oroville
Thermalito Reservoir
Butte County
Glenn County
Glenn County
Colusa County
Colusa County
Yolo County
Butte County
Sutter County
Sutter County
Yuba County
Sutter County
Placer County
Walker Creek
Wilson Creek
French Creek
Willow Creek
South Fork Willow Creek
Sacramento River
Funks Creek
Stone Corral Creek
Glenn Colusa Canal
Colusa Basin Drain
Willow Creek
Sacramento River
Butte Creek
Colusa County
Sutter County
Yuba River
Feather River
Dry Creek
Bear River
Yolo County
Sutter County
Feather River
99
162
5
20
45
70
65
113
16
505

LEGEND

- 0.25-MILE BUFFER
- CITY
- MAJOR WATERWAY
- COUNTY BOUNDARY
- SACRAMENTO VALLEY GROUNDWATER BASIN
- TDS CONCENTRATION GREATER THAN 500 mg/L
- BORON CONCENTRATION GREATER THAN 0.75 mg/L
- BASELINE SIMULATION GROUNDWATER FLOW DIRECTION
- PROJECT SIMULATION GROUNDWATER FLOW DIRECTION

NOTES:
FWD = FEATHER WATER DISTRICT
GCID = GLENN-COLUSA IRRIGATION DISTRICT
MFWC = MERIDIAN FARMS WATER COMPANY
RD 108 = RECLAMATION DISTRICT 108
RGFC = RIVER GARDEN FARMS COMPANY
GROUNDWATER FLOW DIRECTIONS SHOWN OCCUR NEAR THE END OF PREDICTIVE SIMULATION YEAR 23 (OCTOBER 1992)

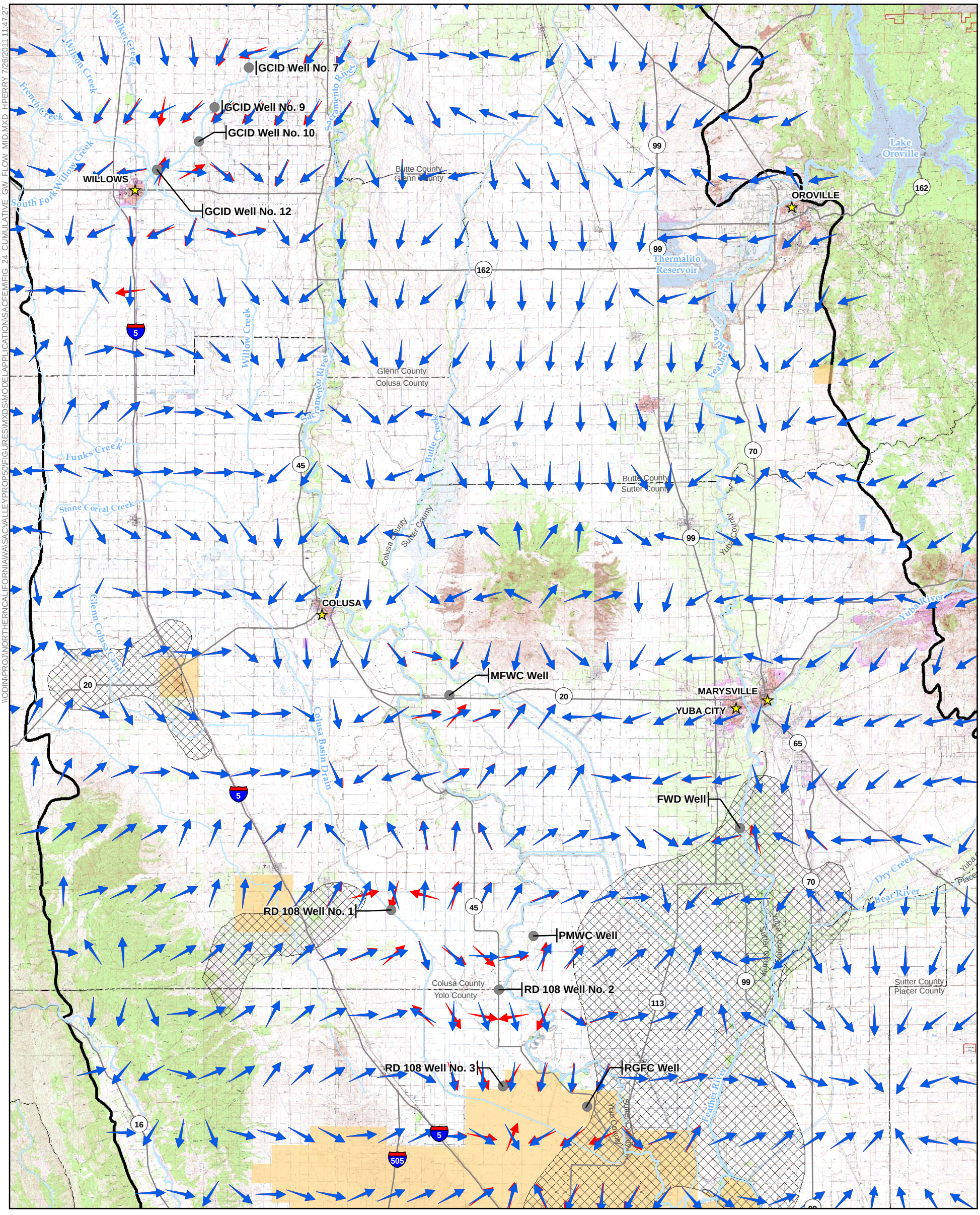
DATA SOURCES:
BERTOLDI, 1991; BERTOLDI, 1976; EVENSON, 1985; FOGELMAN, 1978; FOGELMAN, 1979; AND JOHNSON, 1985.

N

0 5
Miles

FIGURE C-23
CUMULATIVE IMPACTS
FORECAST TEMPORARY GROUNDWATER FLOW DIRECTIONS IN THE SHALLOW AQUIFER
APPLICATION OF SACFEM TO THE PMWC GROUNDWATER PRODUCTION ELEMENT PROJECT

\\ODIN\PROJ\NORTHERNCALIFORNIA\WASACVALLEYPROP50\FIGURES\MXD\SACFEMFIG_24_CUMULATIVE_GW_FLOW_MID.MXD HPERRY 7/26/2011 11:47:27



LEGEND

- 0.25-MILE BUFFER
- CITY
- MAJOR WATERWAY
- COUNTY BOUNDARY
- SACRAMENTO VALLEY GROUNDWATER BASIN
- TDS CONCENTRATION GREATER THAN 500 mg/L
- BORON CONCENTRATION GREATER THAN 0.75 mg/L
- BASELINE SIMULATION GROUNDWATER FLOW DIRECTION
- PROJECT SIMULATION GROUNDWATER FLOW DIRECTION

NOTES:
FWD = FEATHER WATER DISTRICT
GCID = GLENN-COLUSA IRRIGATION DISTRICT
MFWC = MERIDIAN FARMS WATER COMPANY
RD 108 = RECLAMATION DISTRICT 108
RGFC = RIVER GARDEN FARMS COMPANY
GROUNDWATER FLOW DIRECTIONS SHOWN OCCUR NEAR THE END OF PREDICTIVE SIMULATION YEAR 23 (OCTOBER 1992)

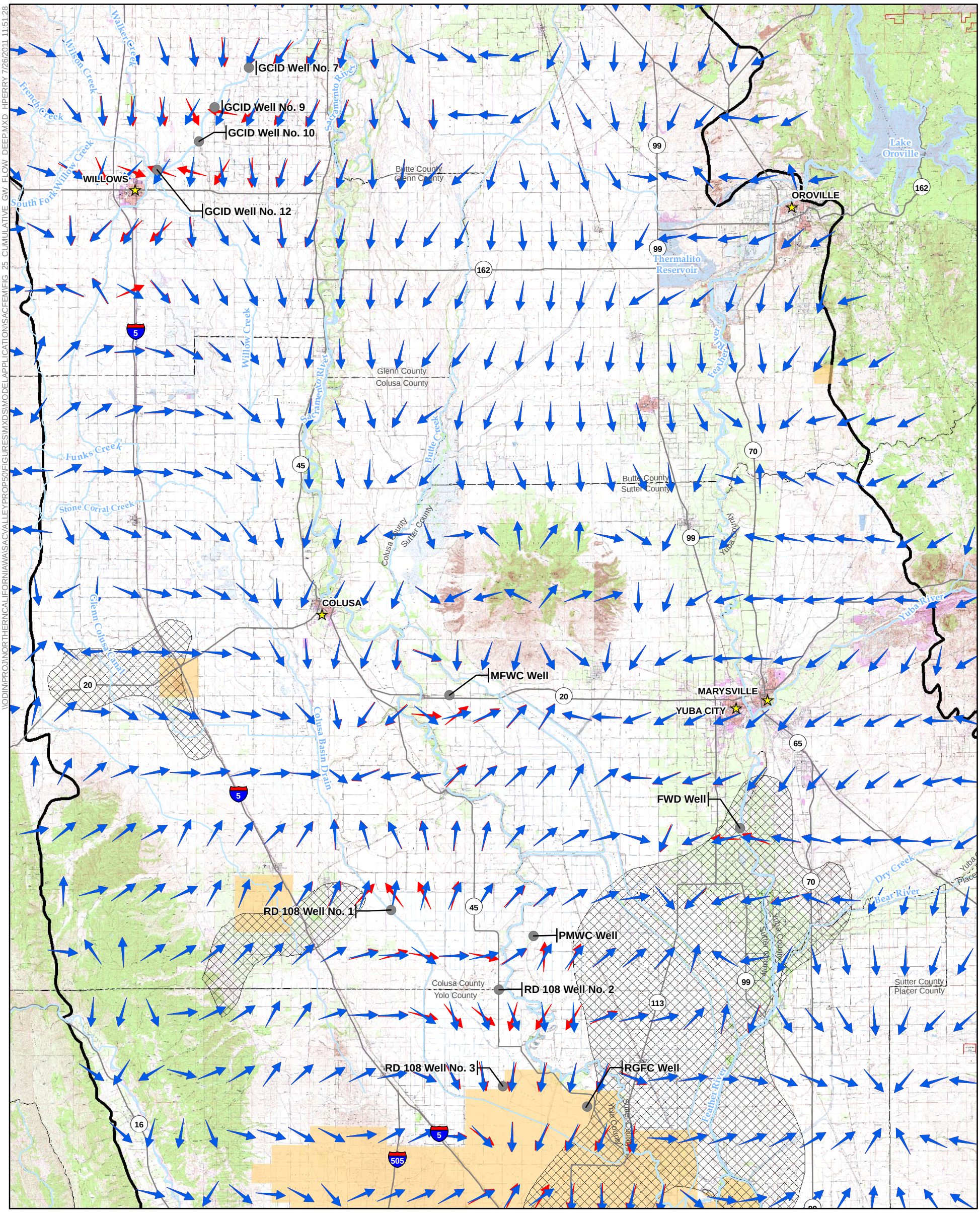
DATA SOURCES:
BERTOLDI, 1991; BERTOLDI, 1976;
EVENSON, 1985; FOGELMAN, 1978;
FOGELMAN, 1979; AND JOHNSON, 1985.

N

0 5
Miles

FIGURE C-24
CUMULATIVE IMPACTS
FORECAST TEMPORARY GROUNDWATER FLOW DIRECTIONS REGIONAL AQUIFER - MIDDLE PUMPING ZONE
APPLICATION OF SACFEM TO THE PMWC
GROUNDWATER PRODUCTION ELEMENT PROJECT

CH2MHILL



\\ODI\PROJ\NORTHERNCALIFORNIAWA\SACVALLEYPROP50\FIGURES\MXDS\MODEL APPLICATIONSACFEMFIG_25 CUMULATIVE_GW_FLOW_DEEP.MXD HPERRY 7/26/2011 11:51:28

LEGEND

- 0.25-MILE BUFFER
- CITY
- MAJOR WATERWAY
- COUNTY BOUNDARY
- SACRAMENTO VALLEY GROUNDWATER BASIN
- TDS CONCENTRATION GREATER THAN 500 mg/L
- BORON CONCENTRATION GREATER THAN 0.75 mg/L
- BASELINE SIMULATION GROUNDWATER FLOW DIRECTION
- PROJECT SIMULATION GROUNDWATER FLOW DIRECTION

NOTES:
FWD = FEATHER WATER DISTRICT
GCID = GLENN-COLUSA IRRIGATION DISTRICT
MFWC = MERIDIAN FARMS WATER COMPANY
RD 108 = RECLAMATION DISTRICT 108
RGFC = RIVER GARDEN FARMS COMPANY
GROUNDWATER FLOW DIRECTIONS SHOWN OCCUR NEAR THE END OF PREDICTIVE SIMULATION YEAR 23 (OCTOBER 1992)

DATA SOURCES:
BERTOLDI, 1991; BERTOLDI, 1976; EVENSON, 1985; FOGELMAN, 1978; FOGELMAN, 1979; AND JOHNSON, 1985.

N

0 5
Miles

FIGURE C-25
CUMULATIVE IMPACTS
FORECAST TEMPORARY GROUNDWATER FLOW DIRECTIONS REGIONAL AQUIFER - DEEP PUMPING ZONE
APPLICATION OF SACFEM TO THE PMWC
GROUNDWATER PRODUCTION ELEMENT PROJECT

CH2MHILL