

RAYMOND BASIN SNMP PLATES



SOURCE : Regional Water Board Assistance in Guiding Salt and Nutrient Management Plan Development in the Los Angeles Region. June 28, 2012.

RAYMOND BASIN MANAGEMENT BOARD

GROUNDWATER BASINS WITHIN THE LOS ANGELES REGION

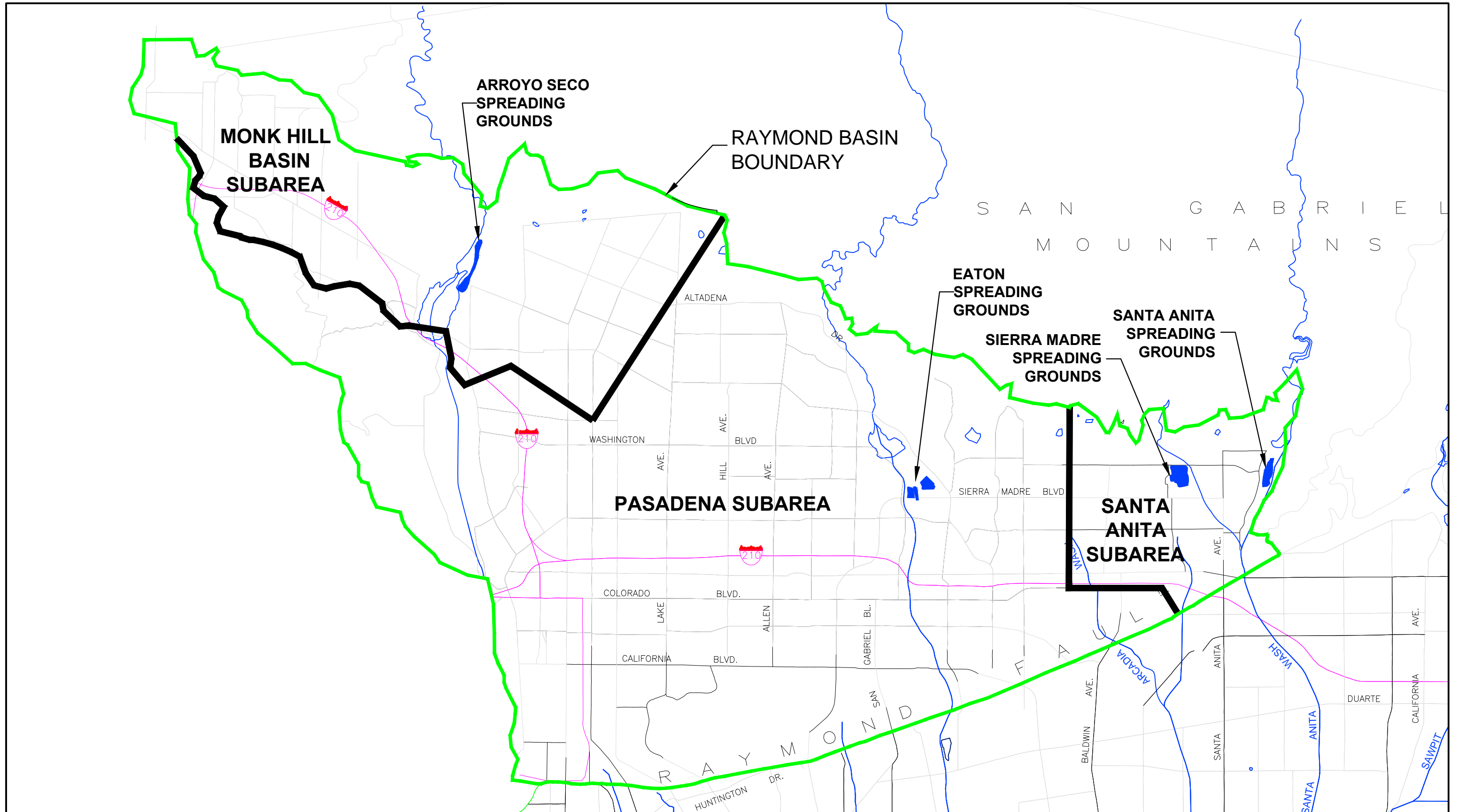


**STETSON
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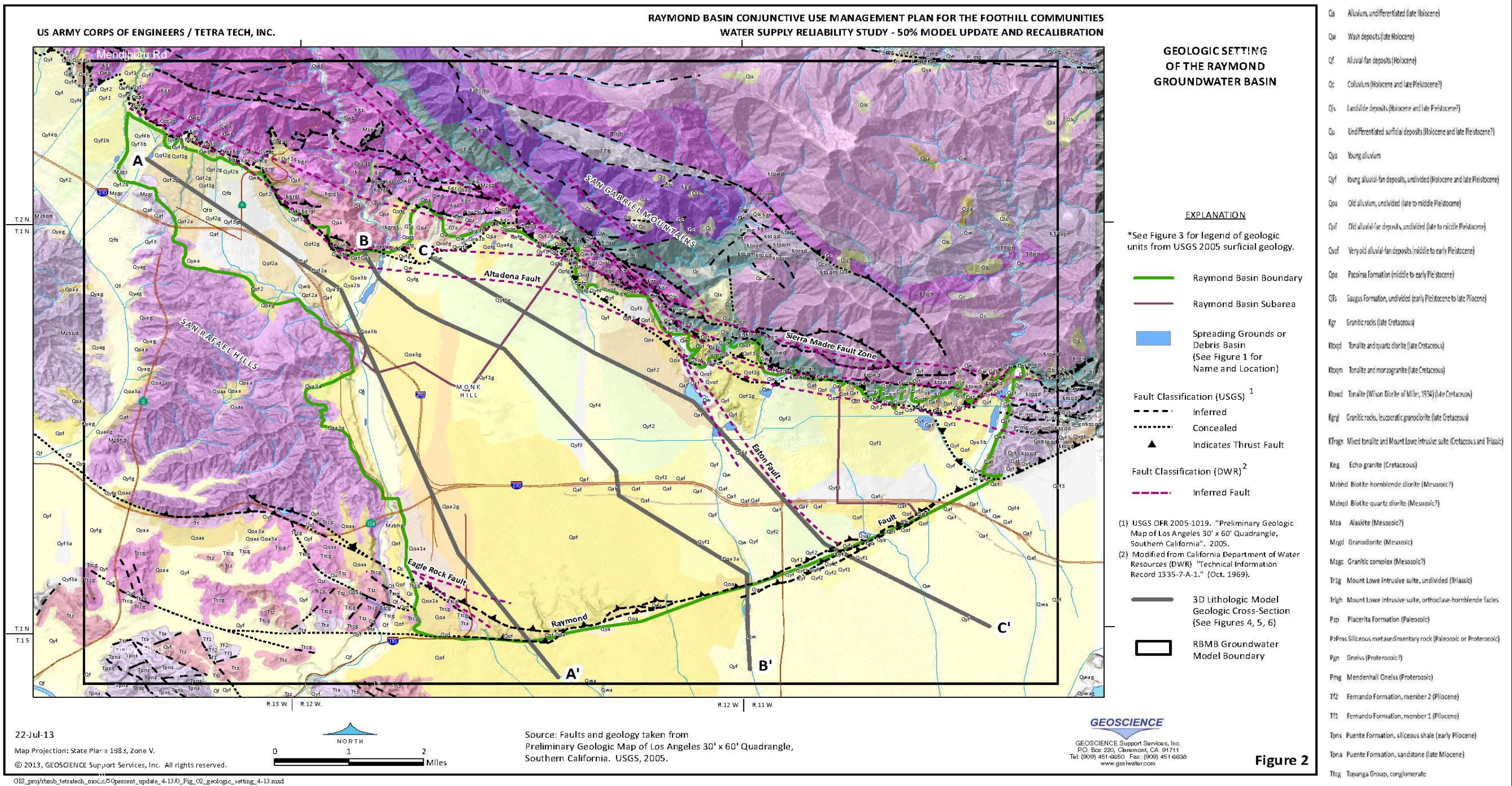
2651 W Guadalupe Rd., Suite A209
Mesa Arizona 85202



APPROX. SCALE :
0 2,500' 5,000'

RAYMOND BASIN MANAGEMENT BOARD

RAYMOND BASIN HYDROLOGIC SUBUNITS



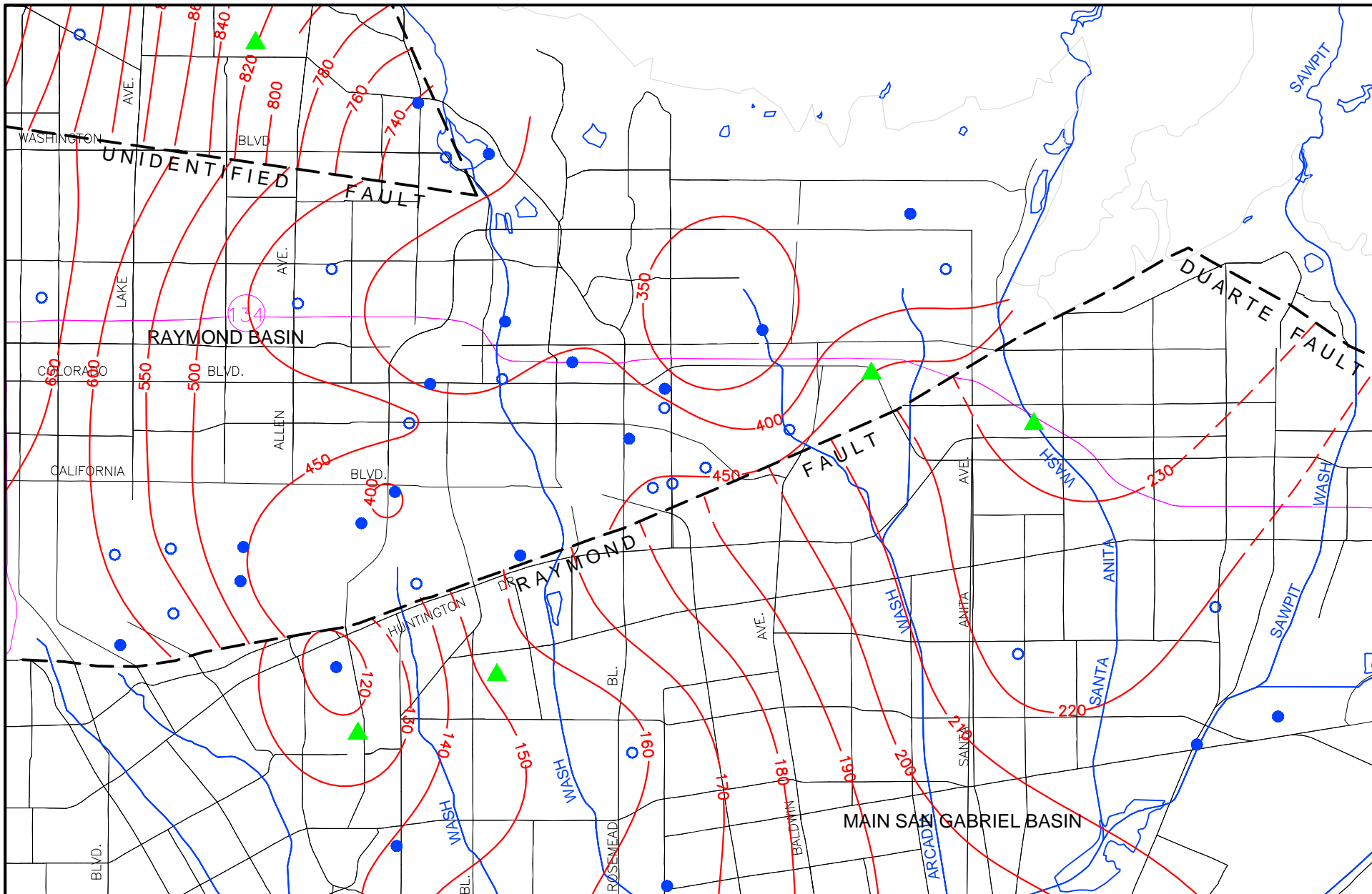
SOURCE: Figure 2 - Raymond Basin Conjunctive Use Management Plan for the Foothill Communities Water Supply Reliability Study - 50% Model Update and Recalibration, Geoscience. July 22, 2013



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GENERAL GEOLOGY OF THE RAYMOND BASIN



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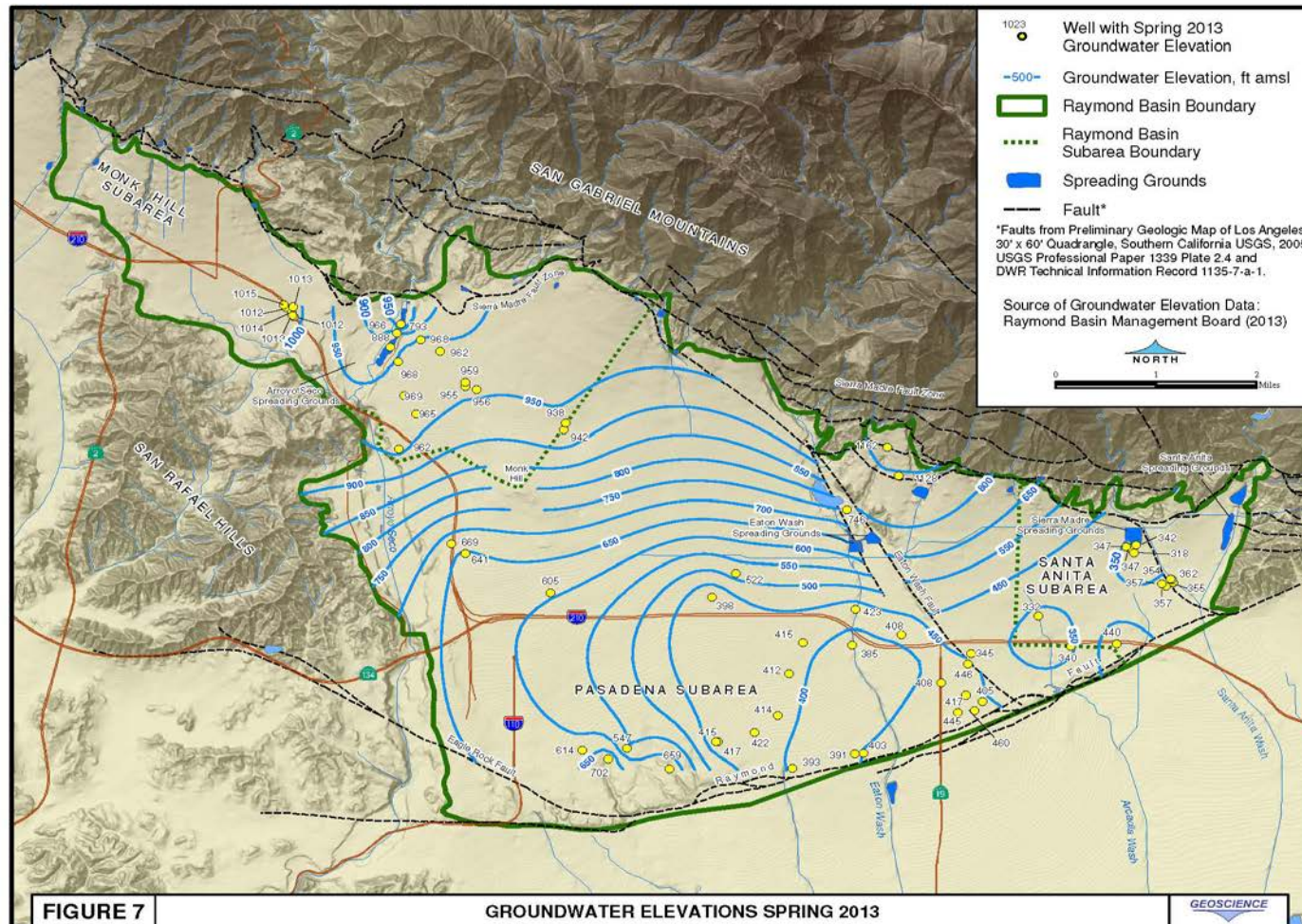
2651 W Guadalupe Rd., Suite A209
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APPROXIMATE SCALE:
2,500' 0 2,500'

RAYMOND BASIN MANAGEMENT BOARD

DIFFERENCES IN WATER LEVEL ELEVATIONS
ACROSS RAYMOND FAULT (OCTOBER 2007)



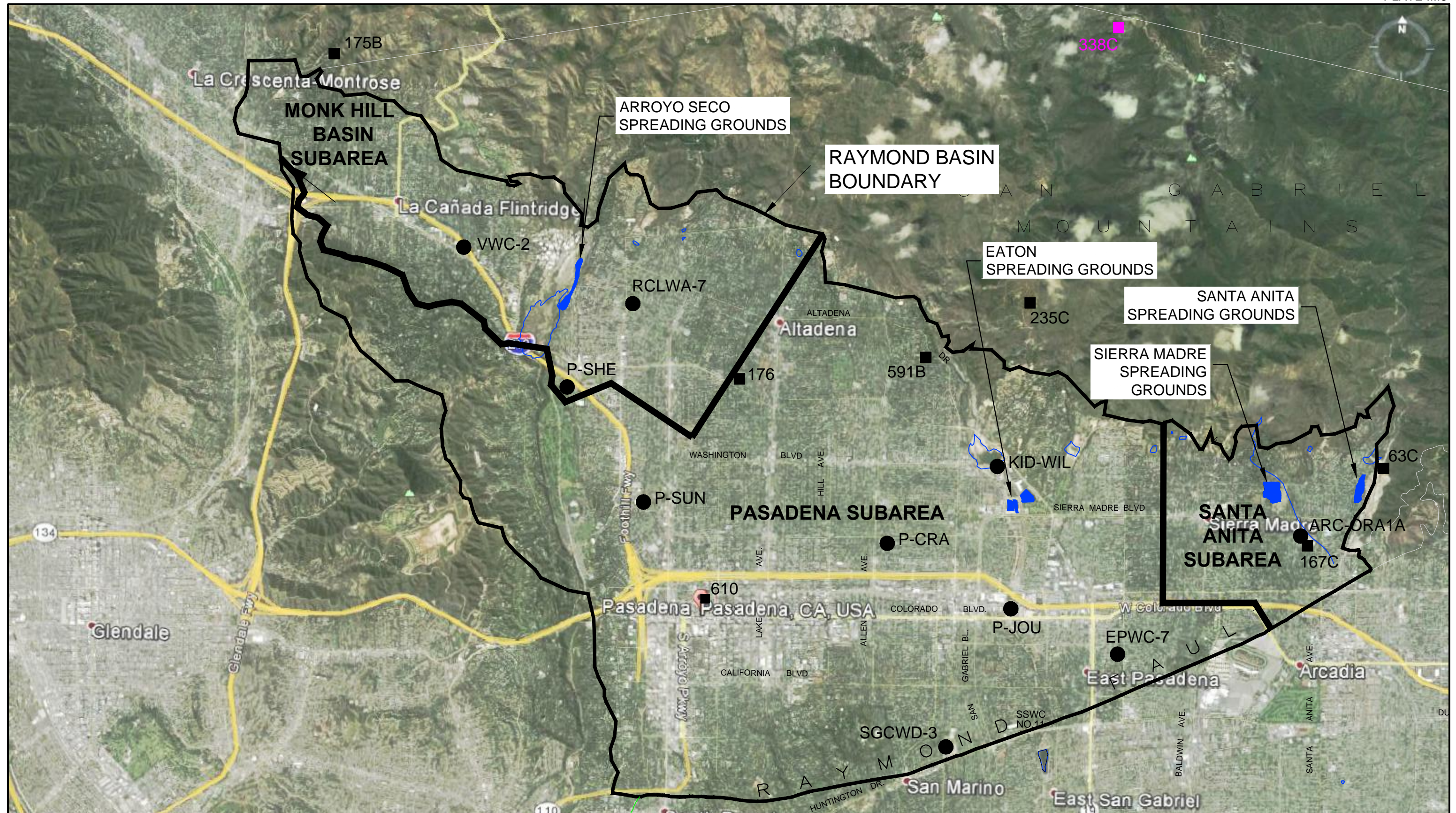
Source: Annual Report July 1, 2012 - June 30, 2013. Raymond Basin Management Board. September 2013.



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GROUNDWATER CONTOURS FOR RAYMOND BASIN - SPRING 2013



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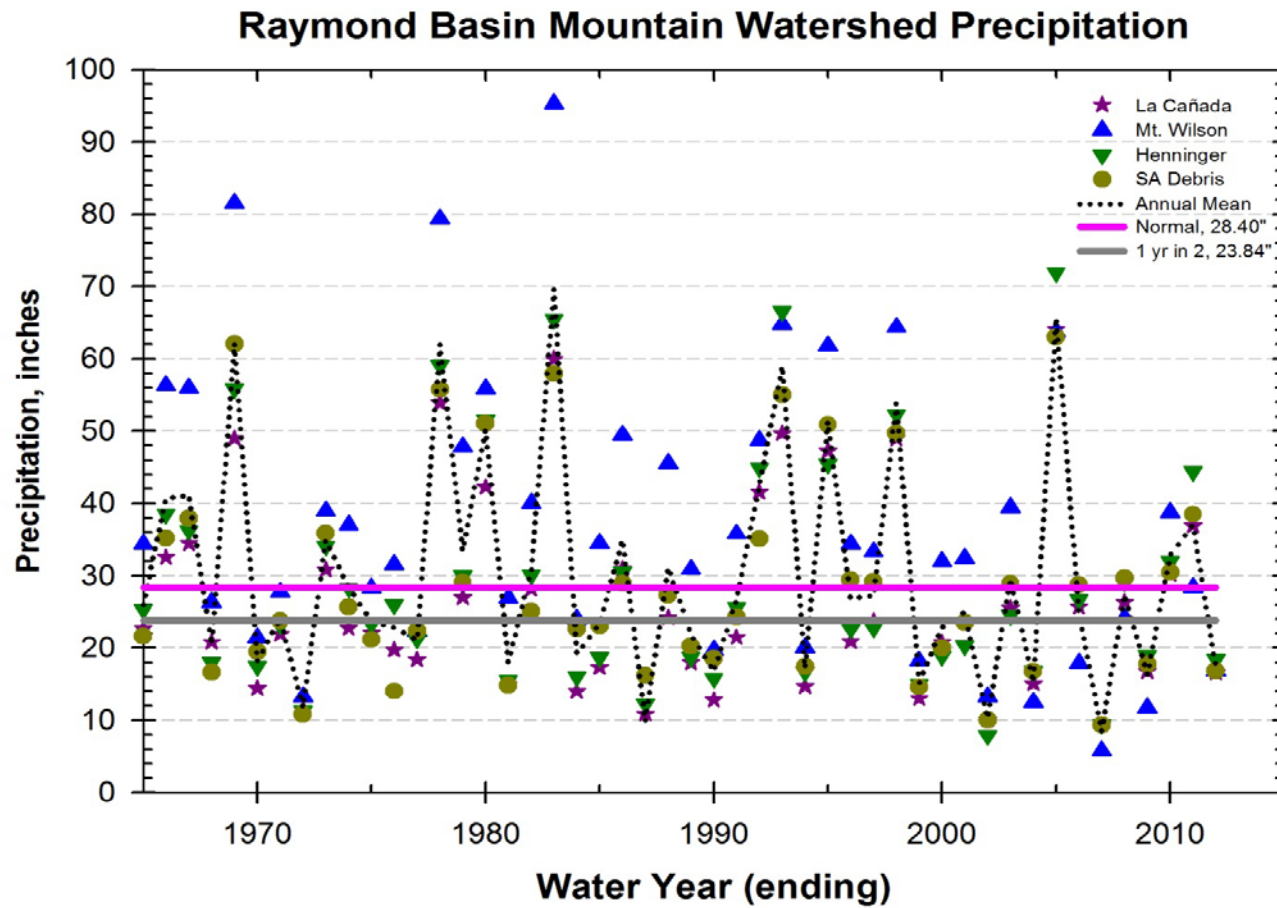
2171 E Francisco Blvd., Suite K
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APPROX. SCALE :
0 2,500' 5,000'

RAYMOND BASIN MANAGEMENT BOARD

RAYMOND BASIN PRECIPITATION STATIONS AND KEY WELLS LOCATION

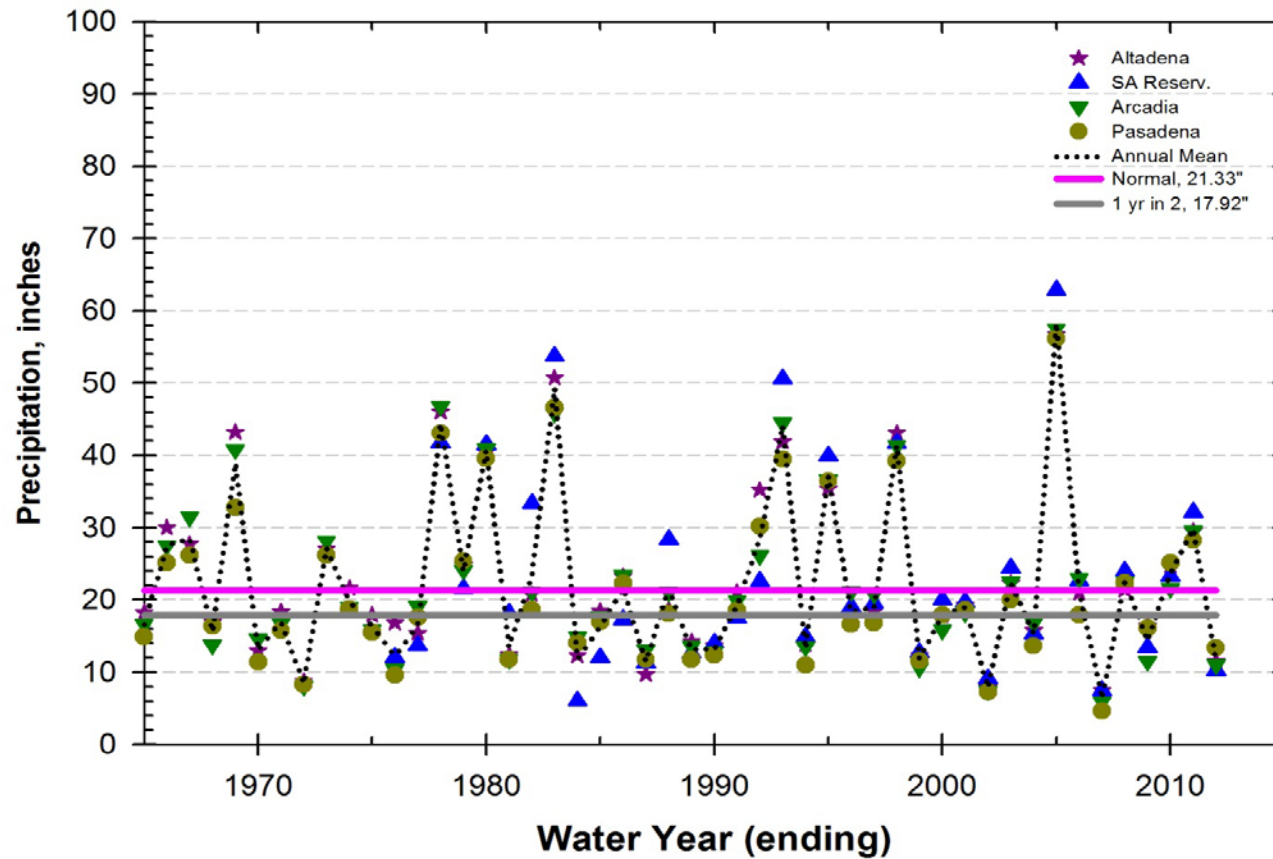


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PRECIPITATION IN RAYMOND BASIN (MOUNTAIN WATERSHED)

Raymond Basin Valley Floor Precipitation

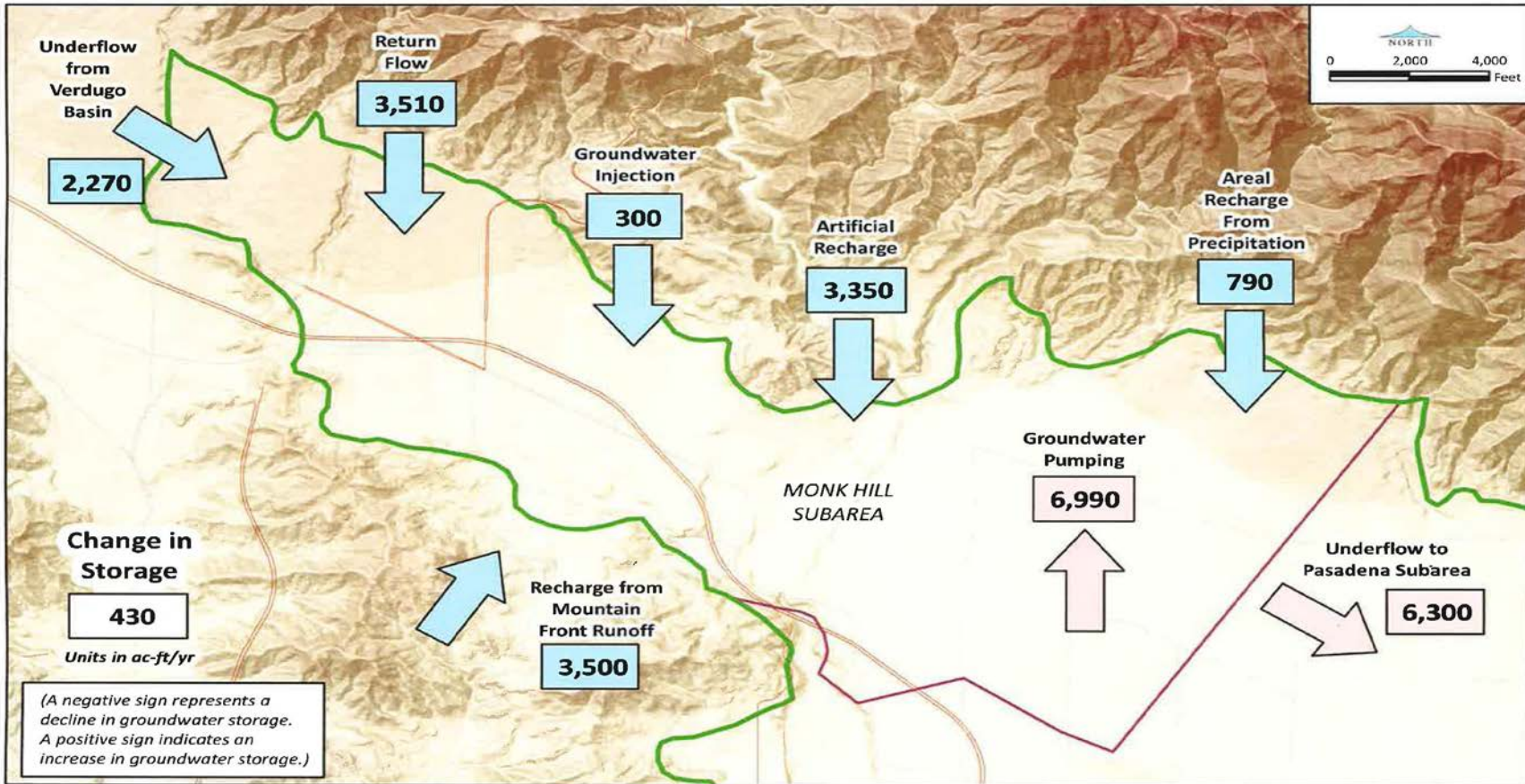


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PRECIPITATION IN RAYMOND BASIN (VALLEY FLOOR)

PLATE III.7b



22-Jul-13

Prepared by: DWB. Map Projection: UTM NAD 1927, Zone 11.

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GIS_proj/rbmb_tetrattech_model/50percent_update_7-13/0_Fig_35_8x11_monk_baseline_7-13.mxd

— Raymond Basin Boundary
— Raymond Basin Subareas

GEOSCIENCE

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P.O. Box 220, Claremont, CA 91711
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www.geoswater.com

**AVERAGE ANNUAL WATER
BUDGETS FOR MONK HILL SUBAREA
FOR MODEL CALIBRATION
JANUARY 1981 - APRIL 2012**

Figure 35

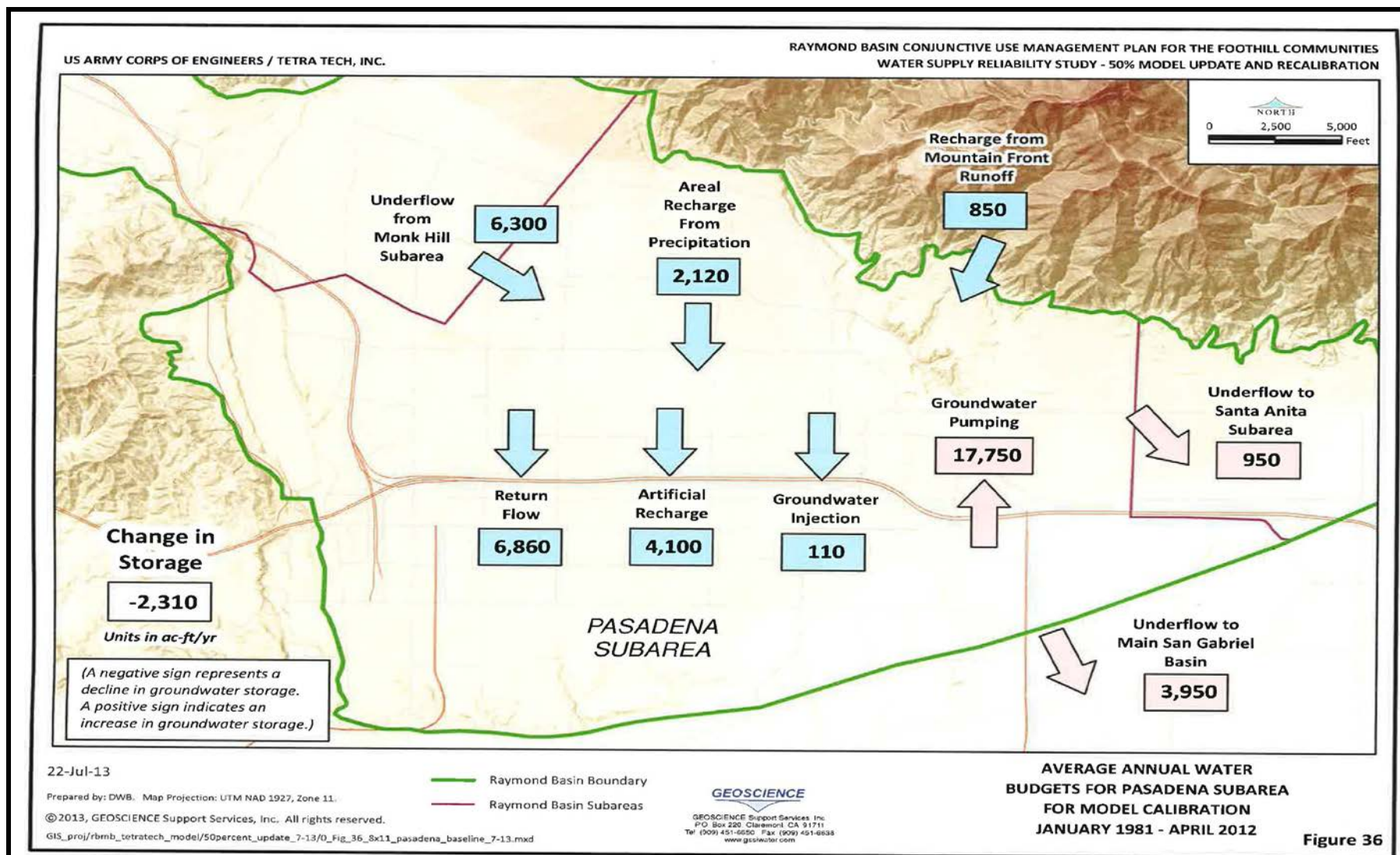
Source: Raymond Basin Conjunctive Management Plan for the Foothill Communities Water Reliability Study 50% Model Update and Recalibration. Geoscience. July 22, 2013



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ANNUAL WATER BUDGETS (MONK HILL SUBAREA)



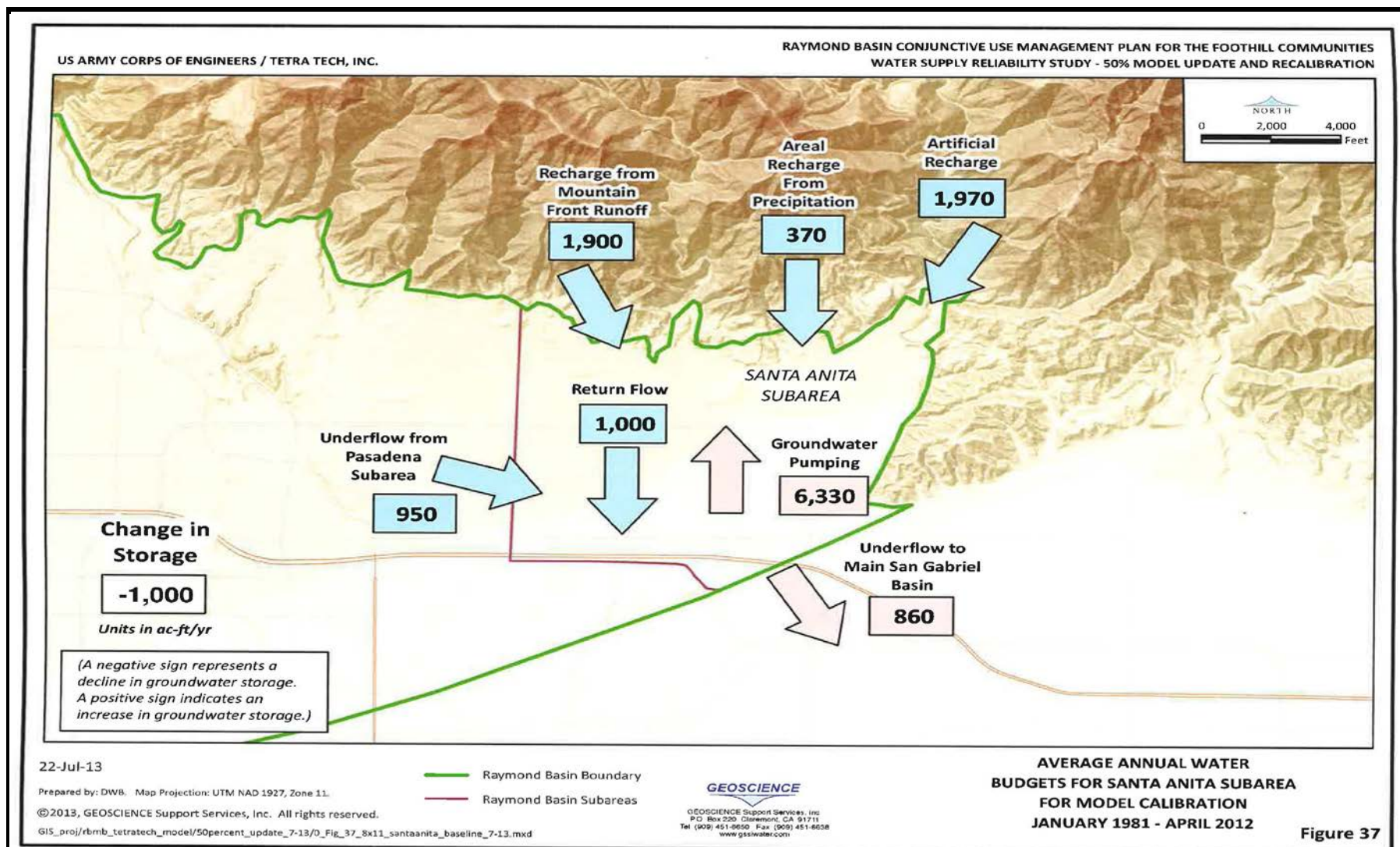
Source: Raymond Basin Conjunctive Management Plan for the Foothill Communities Water Reliability Study 50% Model Update and Recalibration. Geoscience. July 22, 2013



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ANNUAL WATER BUDGETS (PASADENA SUBAREA)



Source: Raymond Basin Conjunctive Management Plan for the Foothill Communities Water Reliability Study 50% Model Update and Recalibration. Geoscience. July 22, 2013

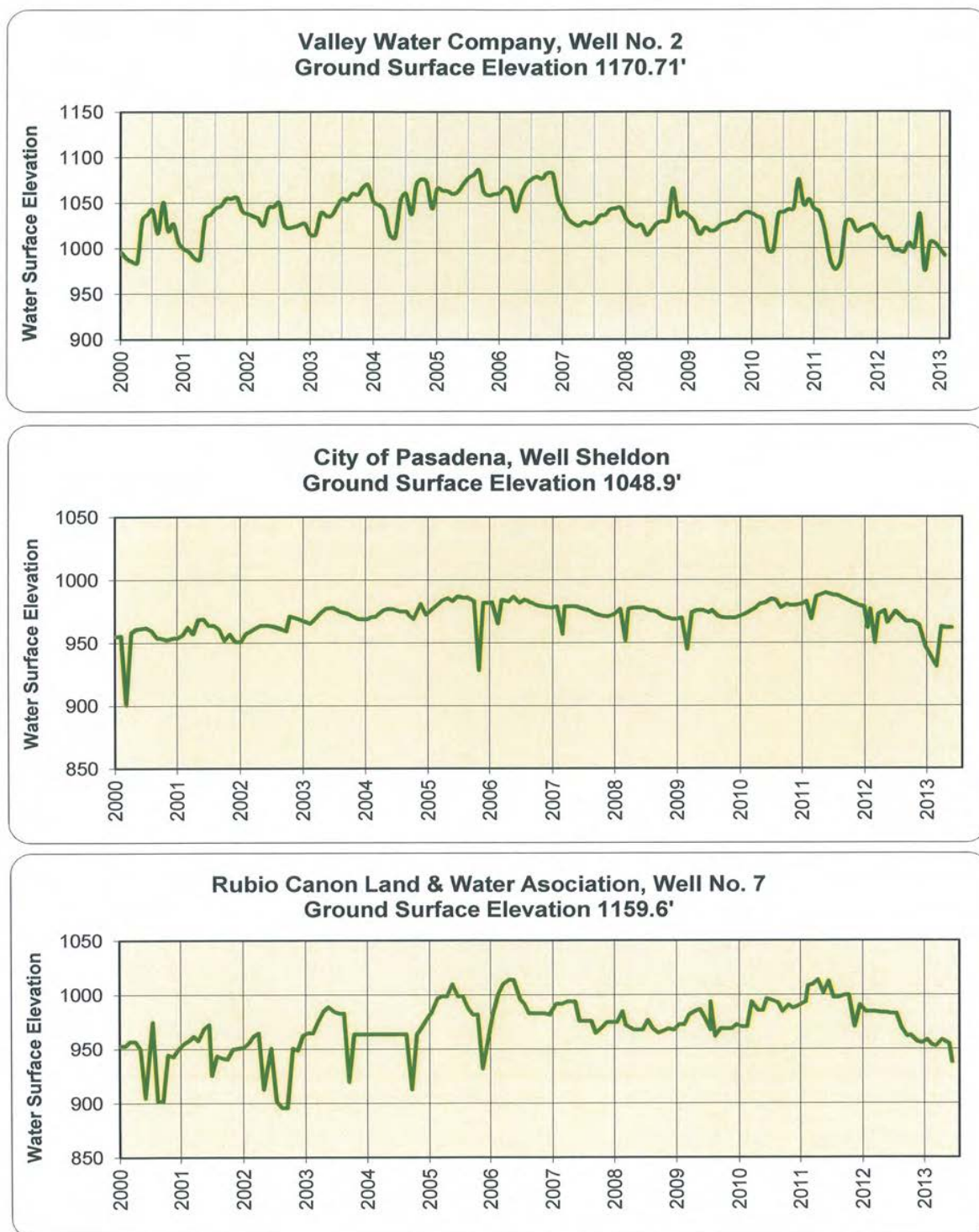


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ANNUAL WATER BUDGETS (SANTA ANITA SUBAREA)

FIGURE 12 - FLUCTUATION OF WATER LEVELS AT WELLS IN THE MONK HILL SUBAREA



SOURCE: Raymond Basin Management Board Annual Report, September 2013



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KEY WELLS ELEVATION HYDROGRAPHS
(MONK HILL SUBAREA)

FIGURE 10a - FLUCTUATION OF WATER LEVELS AT WELLS IN THE PASADENA SUBAREA

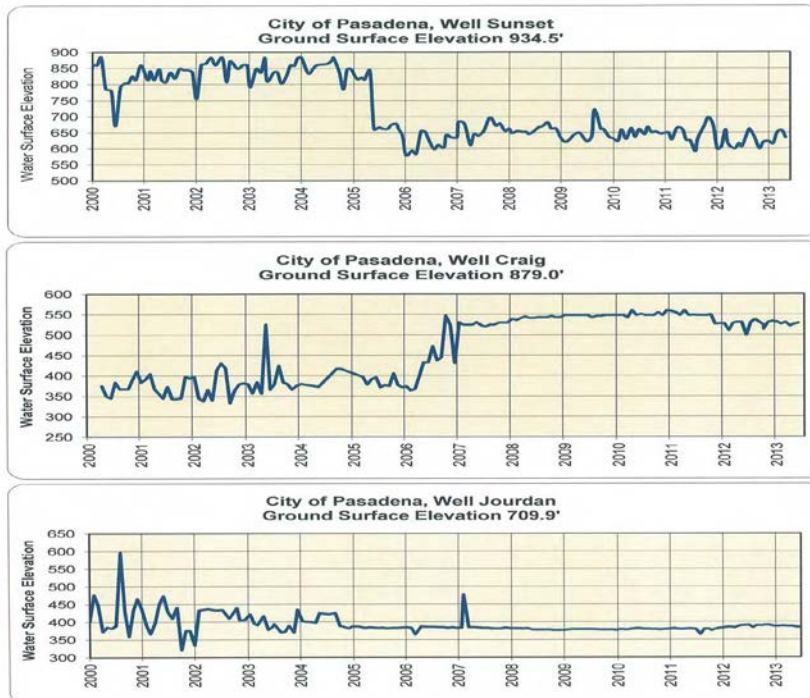
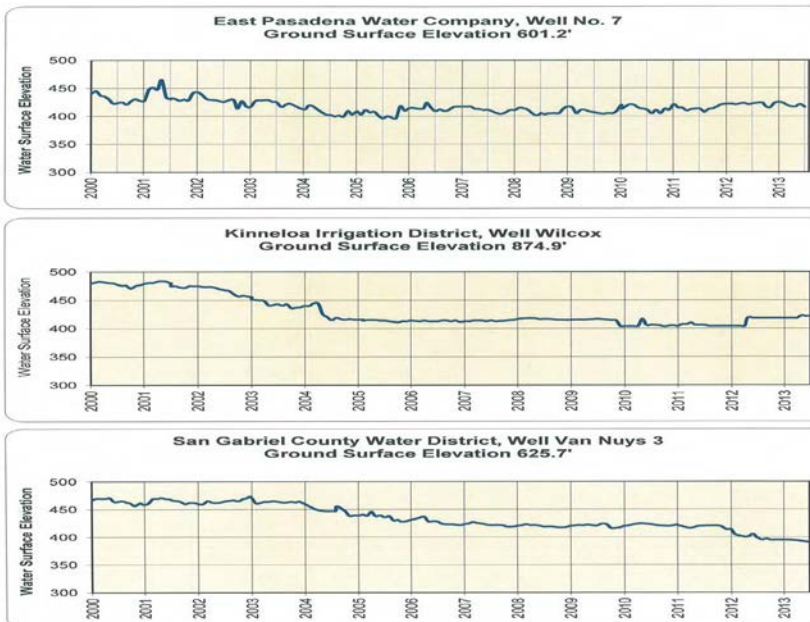


FIGURE 10b - FLUCTUATION OF WATER LEVELS AT WELLS IN THE PASADENA SUBAREA



SOURCE: Raymond Basin Management Board Annual Report, September 2013

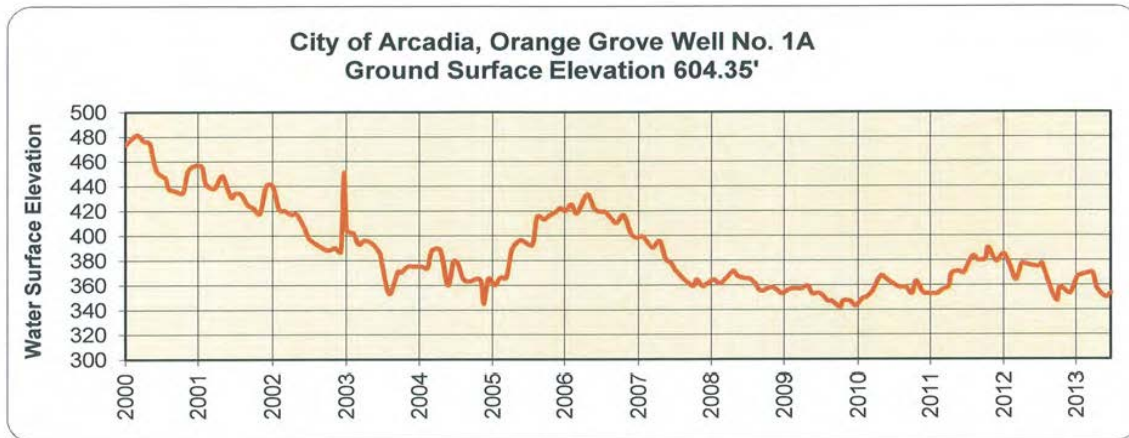


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KEY WELLS ELEVATION HYDROGRAPHS
(PASADENA SUBAREA)

FIGURE 11 - FLUCTUATION OF WATER LEVELS AT WELLS IN THE SANTA ANITA SUBAREA




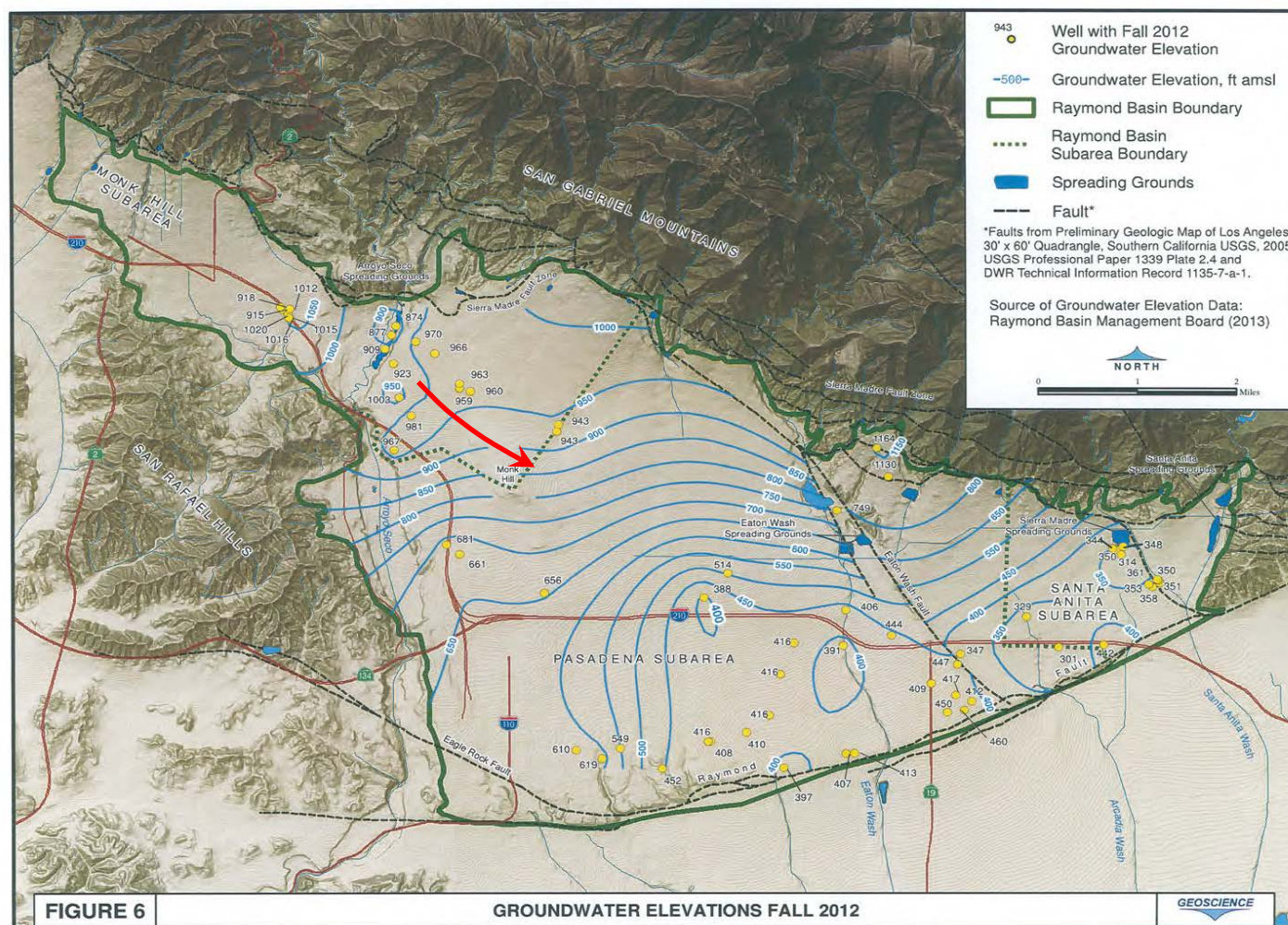
SOURCE: Raymond Basin Management Board Annual Report, September 2013



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KEY WELLS ELEVATION HYDROGRAPHS
(SANTA ANITA SUBAREA)

 Groundwater Flow Direction

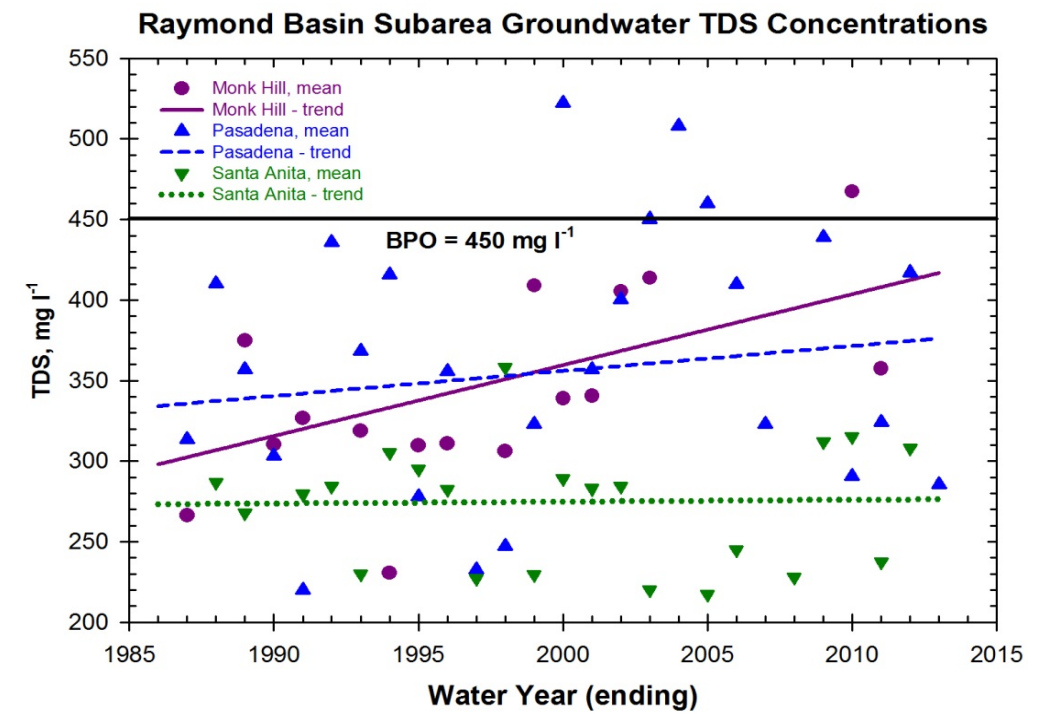
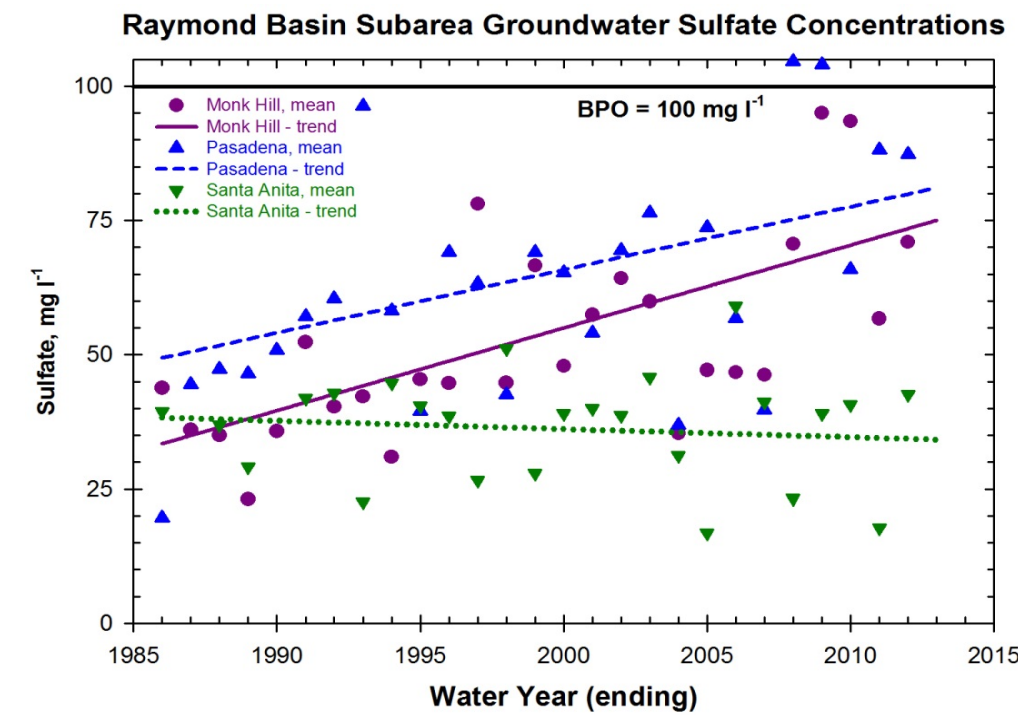
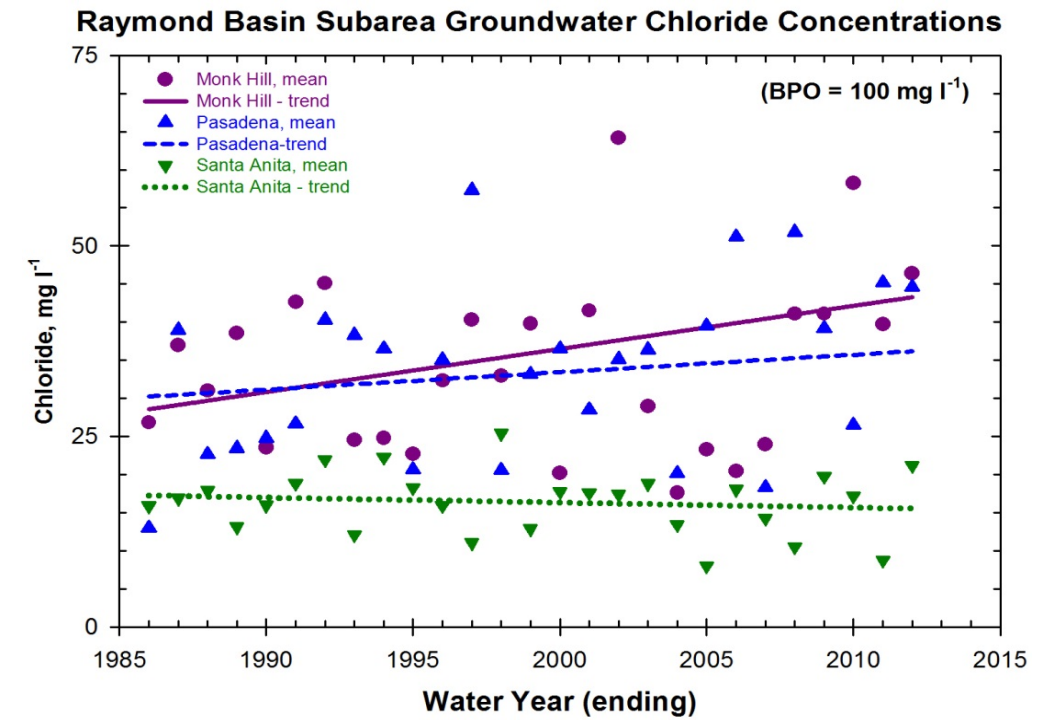
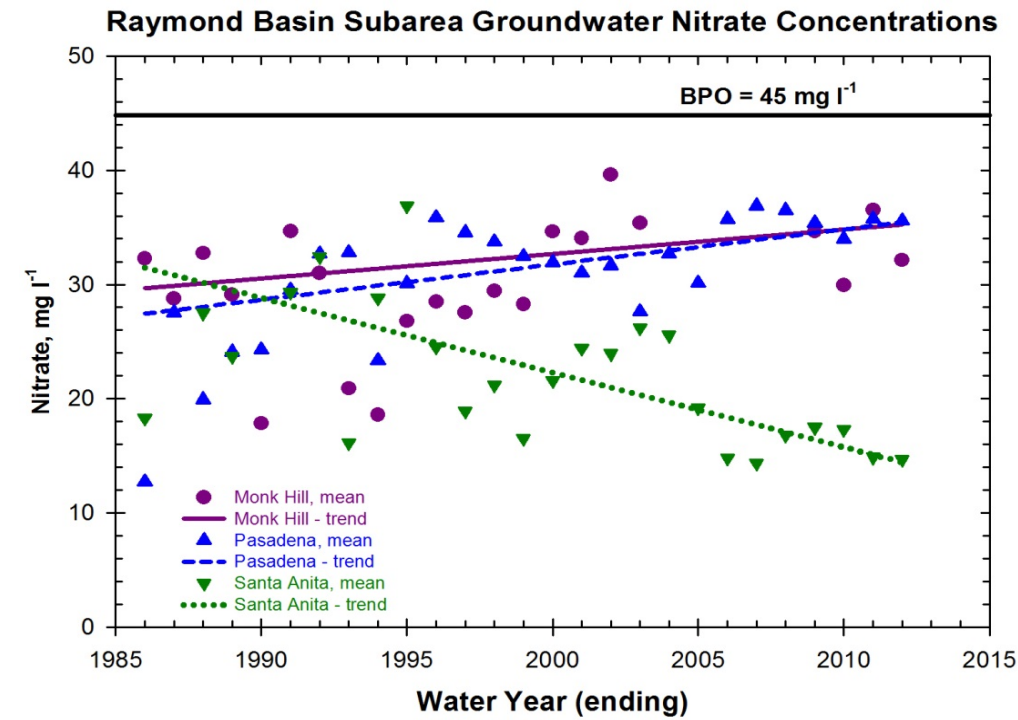
Source: Annual Report July 1, 2012 - June 30, 2013. Raymond Basin Management Board. September 2013.



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GROUNDWATER FLOW DIRECTION IN RAYMOND BASIN - FALL 2012



(compiled from Table III.4 and Appendices J and K.)

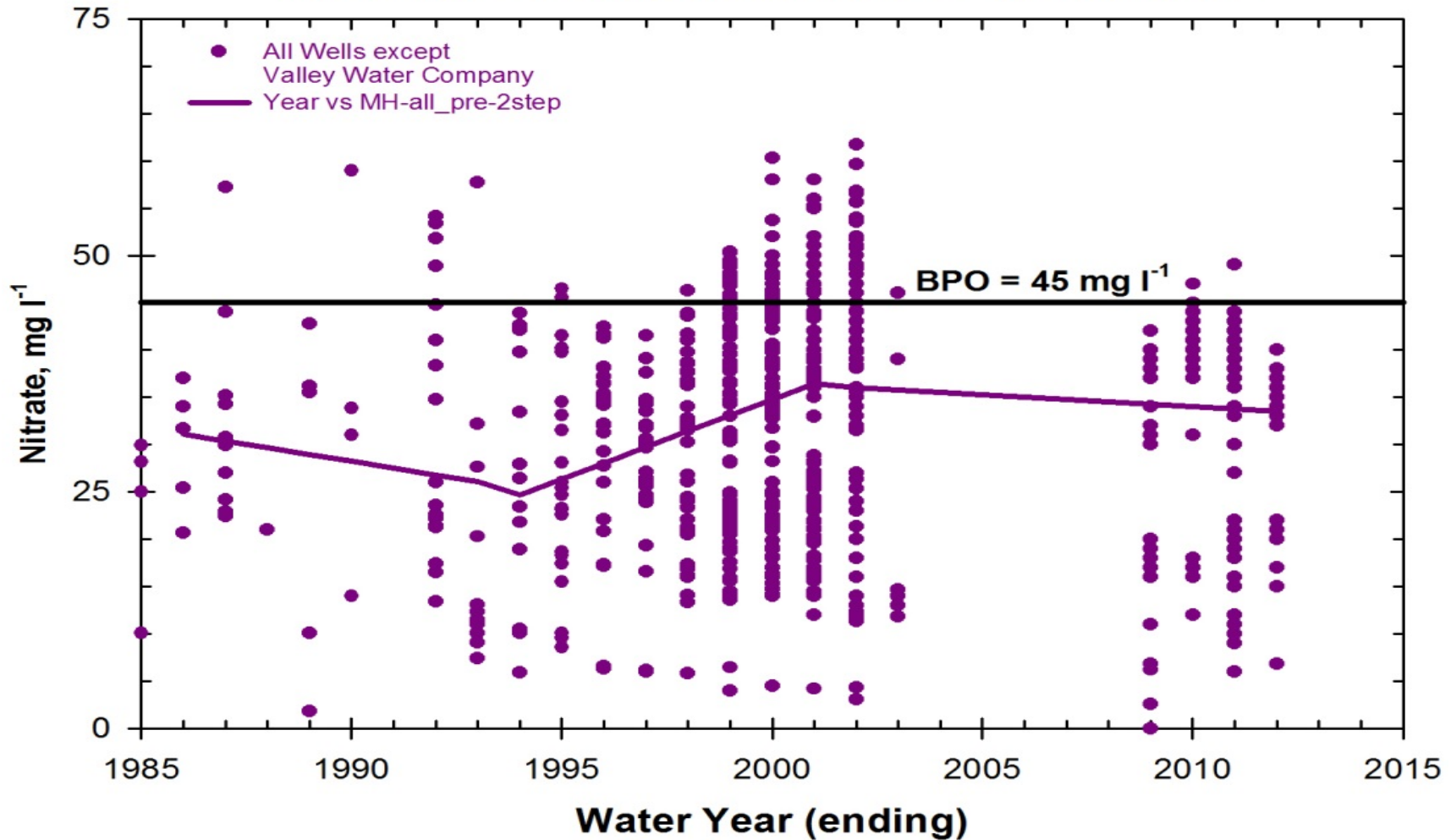


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RAYMOND BASIN MEAN ANNUAL GROUNDWATER QUALITY CHARACTERISTICS BY SUBAREA

Monk Hill Groundwater Nitrate Concentrations



(compiled from Table III.4 and Appendices J and K) BPO is the Basin Water Quality Plan Objective

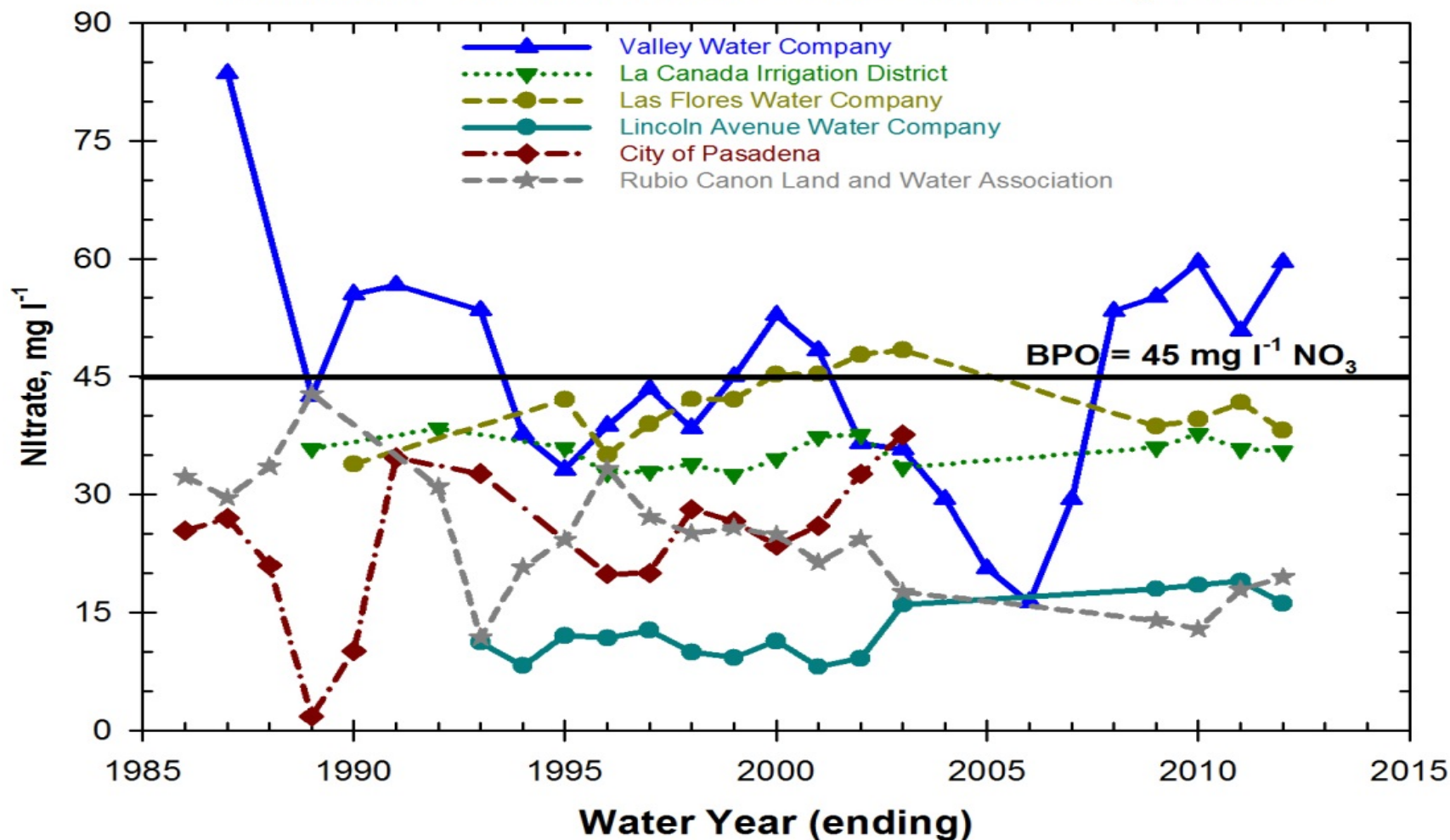


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MONK HILL SUBAREA NITRATE GROUNDWATER QUALITY
CHARACTERISTICS

Monk Hill Subarea Nitrate Concentrations by District



(compiled from Appendices J and K.) BPO is the Basin Water Quality Plan Objective

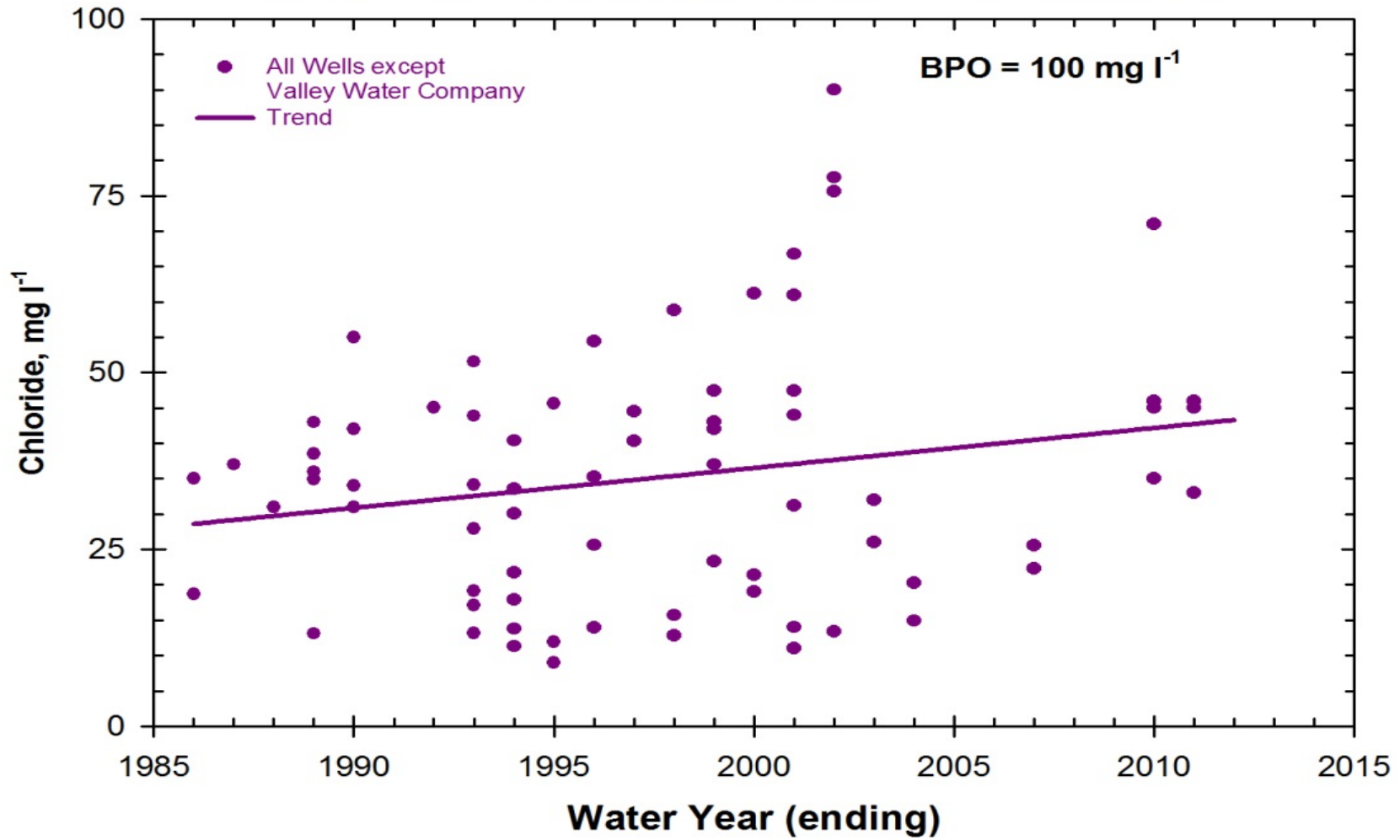


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MONK HILL SUBAREA NITRATE GROUNDWATER QUALITY
CHARACTERISTICS BY PURVEYOR

Monk Hill Groundwater Chloride Concentrations



(compiled from Table III.4 and Appendices J and K) BPO is the Basin Water Quality Plan Objective

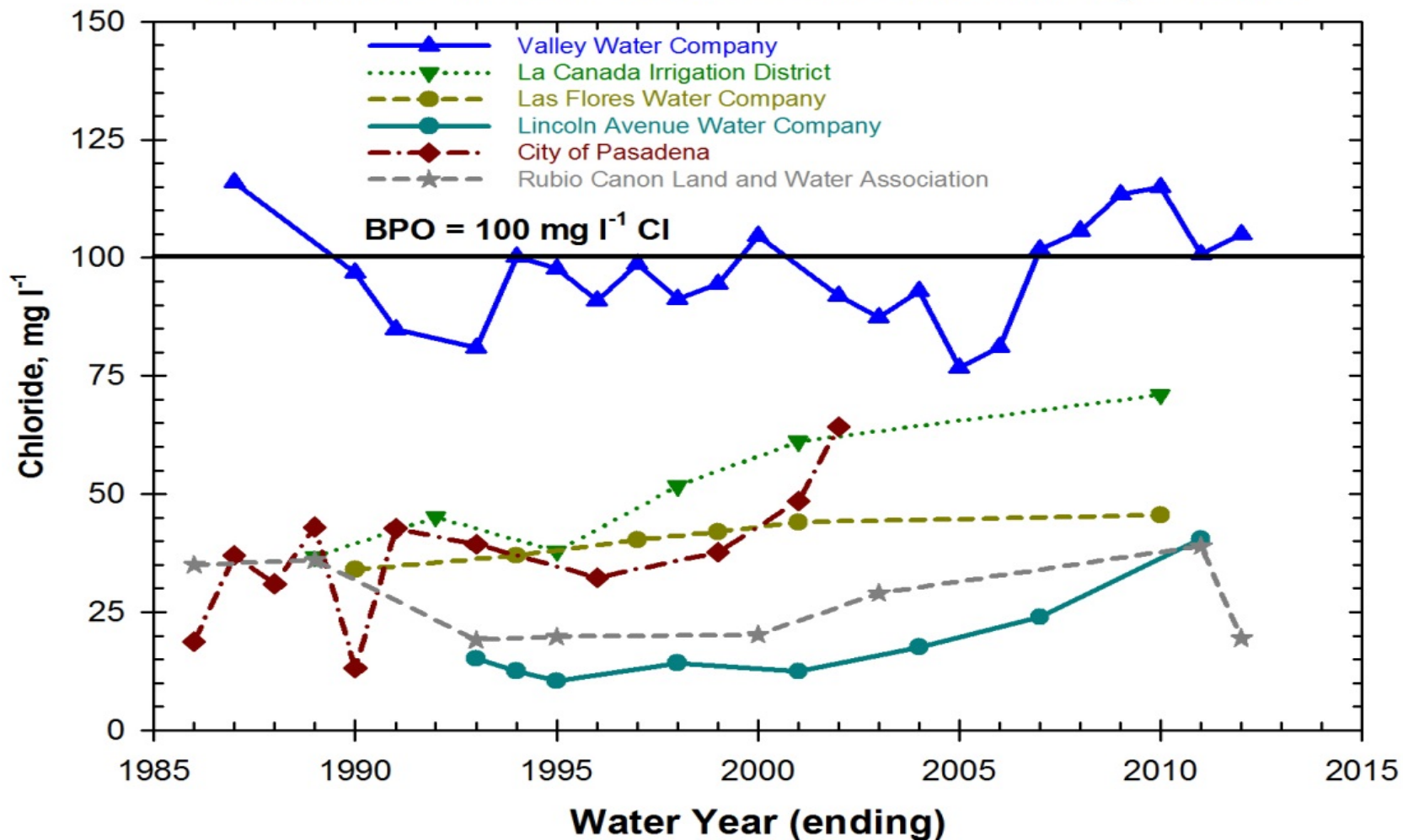


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MONK HILL SUBAREA CHLORIDE GROUNDWATER QUALITY
 CHARACTERISTICS

Monk Hill Subarea Chloride Concentrations by District



(compiled from Appendices J and K) BPO is the Basin Water Quality Plan Objective

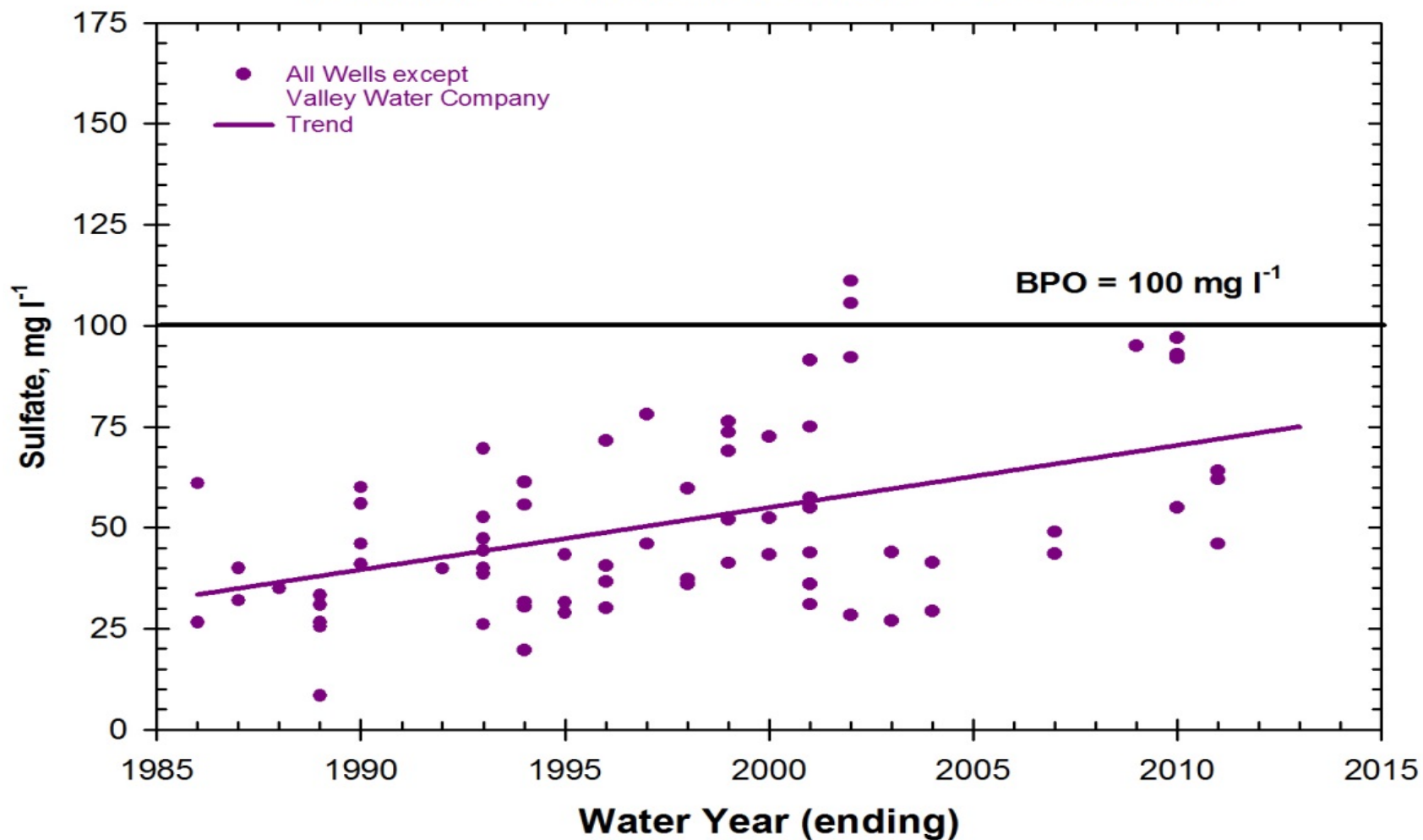


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MONK HILL SUBAREA CHLORIDE GROUNDWATER QUALITY
CHARACTERISTICS BY PURVEYOR

Monk Hill Groundwater Sulfate Concentrations



(compiled from Table III.4 and Appendices J and K) BPO is the Basin Water Quality Plan Objective

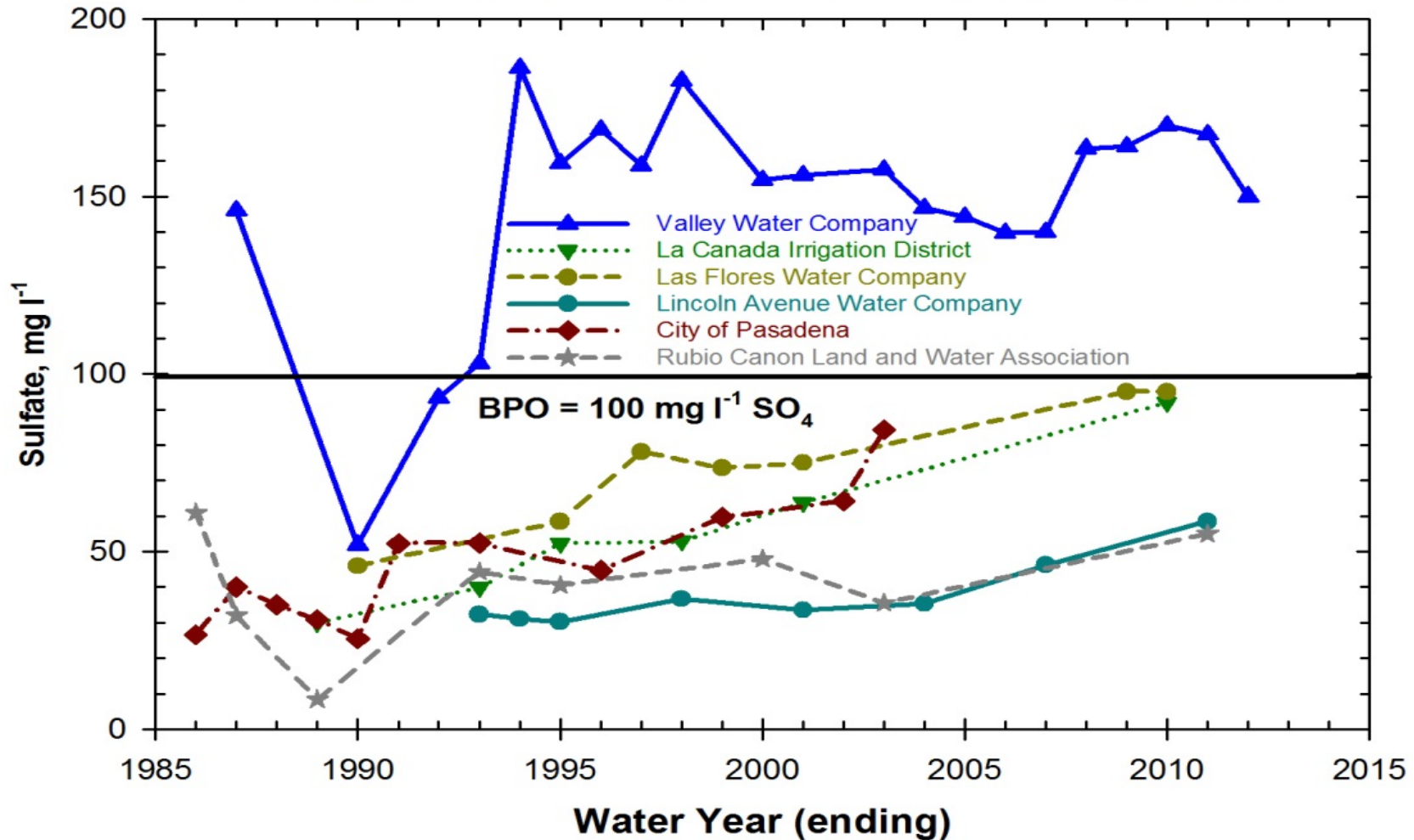


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MONK HILL SUBAREA SULFATE GROUNDWATER QUALITY
CHARACTERISTICS

Monk Hill Subarea Sulfate Concentrations by District



(compiled from Appendices J and K) BPO is the Basin Water Quality Plan Objective

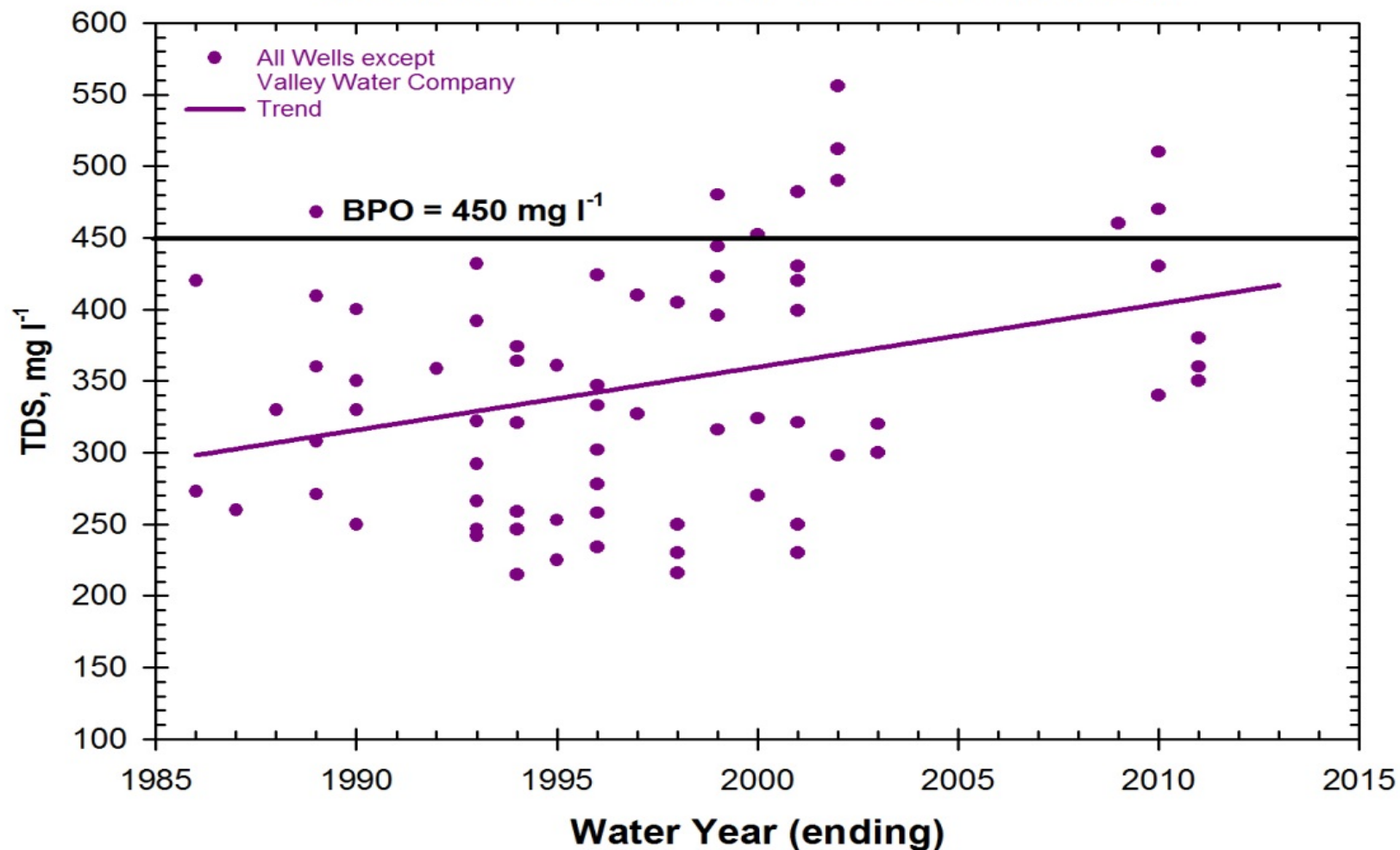


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MONK HILL SUBAREA SULFATE GROUNDWATER QUALITY
CHARACTERISTICS BY PURVEYOR

Monk Hill Groundwater TDS Concentrations



(compiled from Table III.4 and Appendices J and K) BPO is the Basin Water Quality Plan Objective

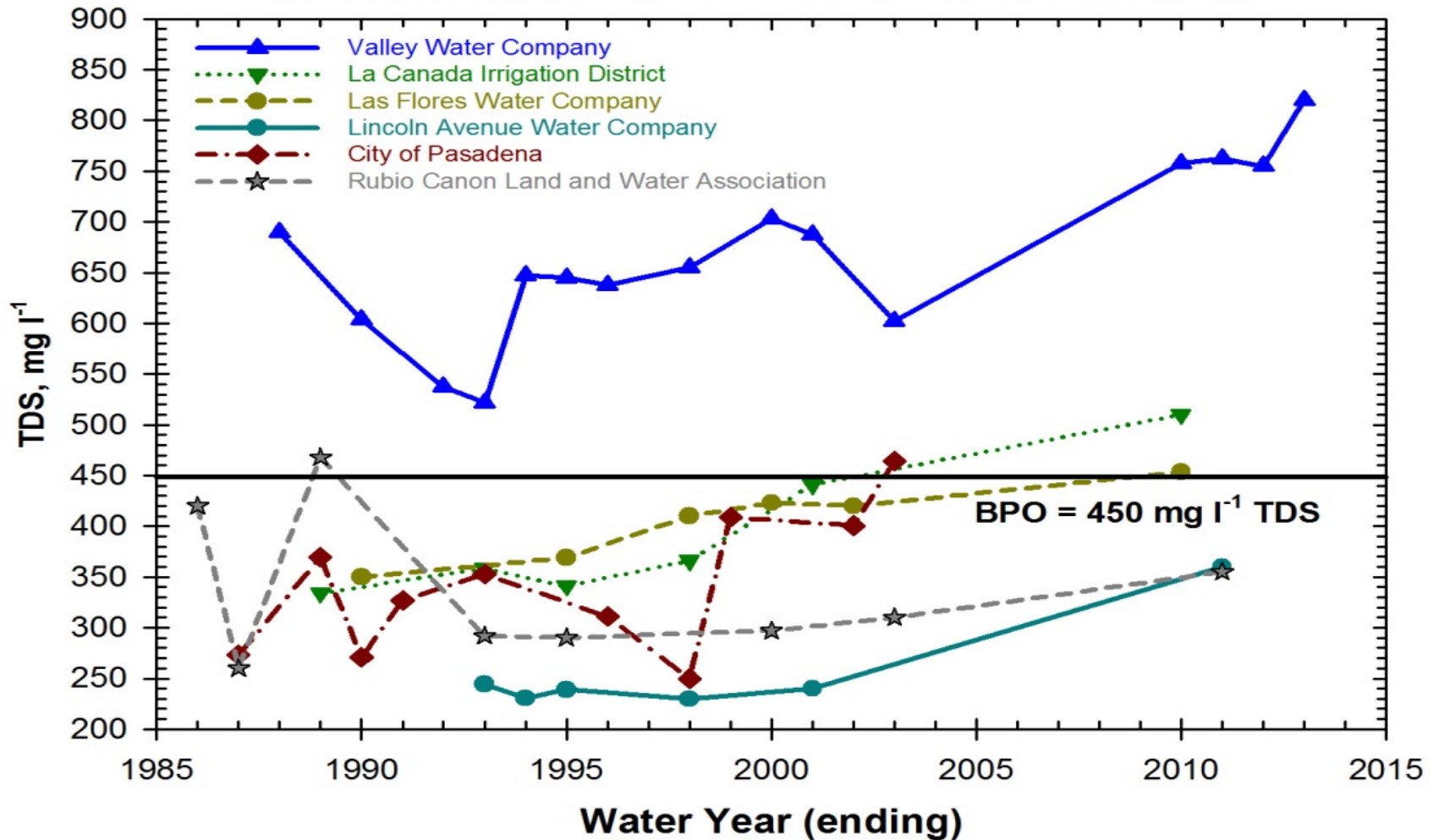


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MONK HILL SUBAREA TOTAL DISSOLVED SOLIDS (TDS) GROUNDWATER
QUALITY CHARACTERISTICS

Monk Hill Subarea TDS Concentrations by District



(compiled from Appendices J and K) BPO is the Basin Water Quality Plan Objective



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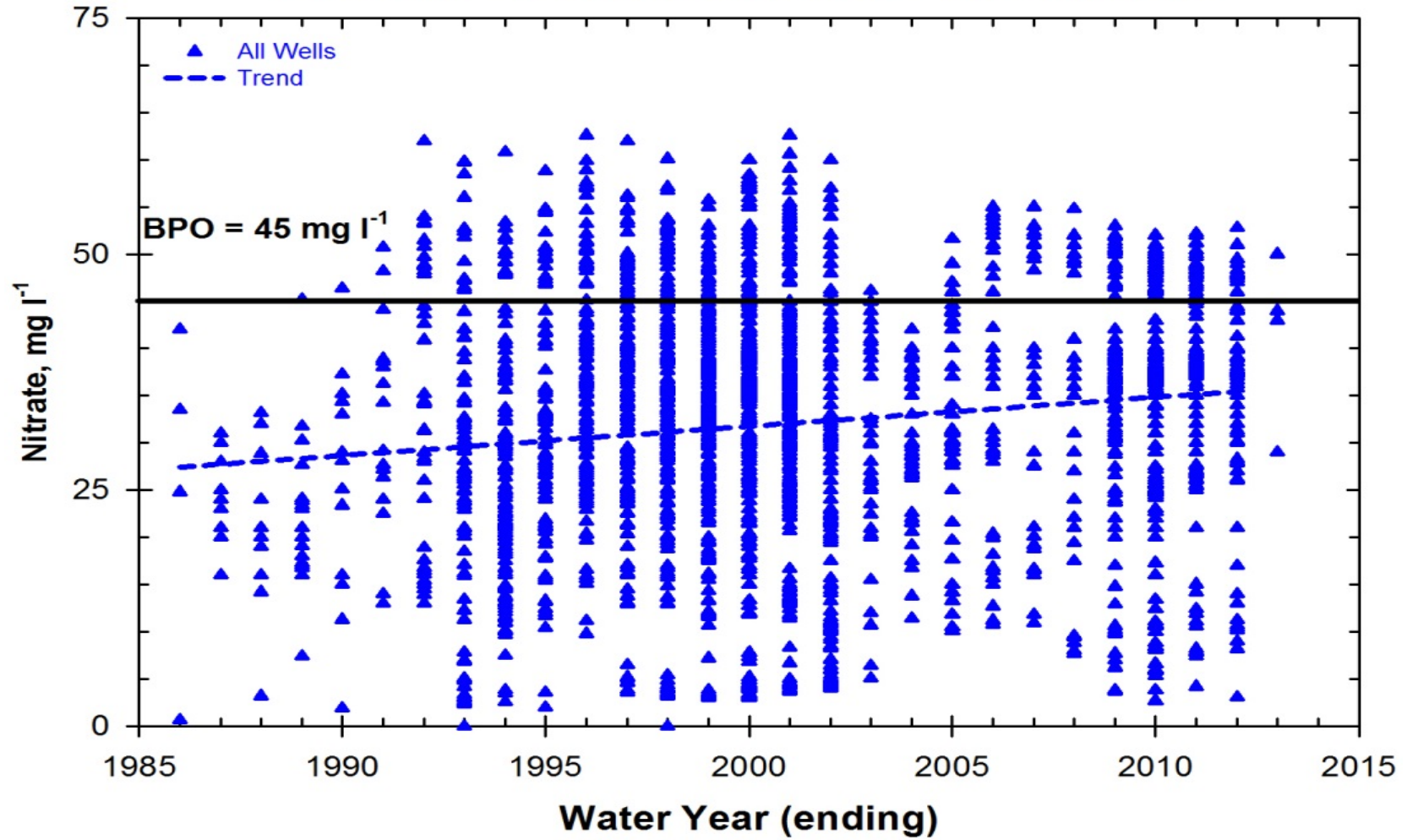
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WATER RESOURCE ENGINEERS

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MONK HILL SUBAREA TOTAL DISSOLVED SOLIDS (TDS) GROUNDWATER
QUALITY CHARACTERISTICS BY PURVEYOR

Pasadena Groundwater Nitrate Concentrations



(compiled from Table III.3 and Appendices J and K) BPO is the Basin Water Quality Plan Objective

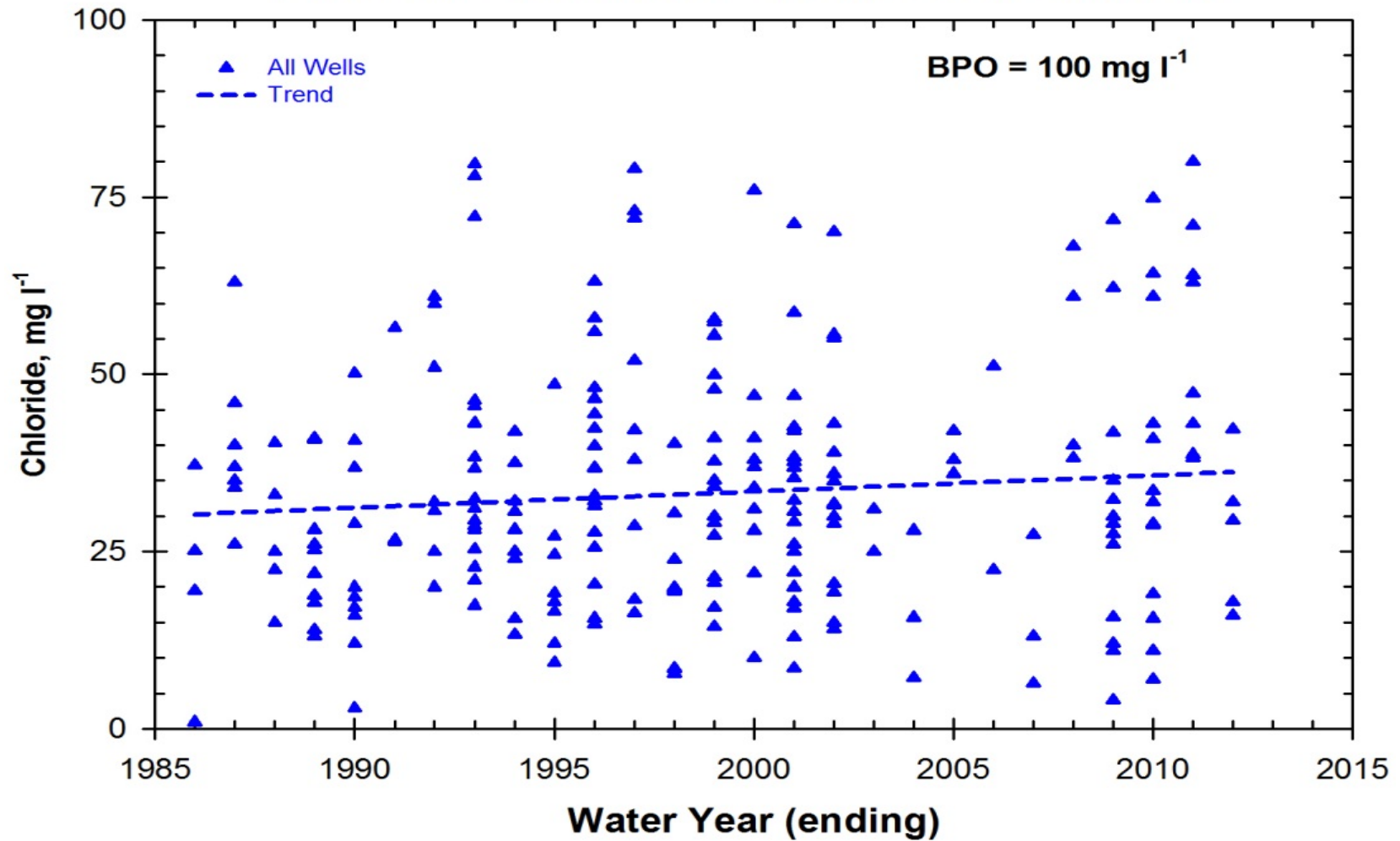


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PASADENA SUBAREA NITRATE GROUNDWATER QUALITY
CHARACTERISTICS

Pasadena Groundwater Chloride Concentrations



(compiled from Table III.3 and Appendices J and K) BPO is the Basin Water Quality Plan Objective

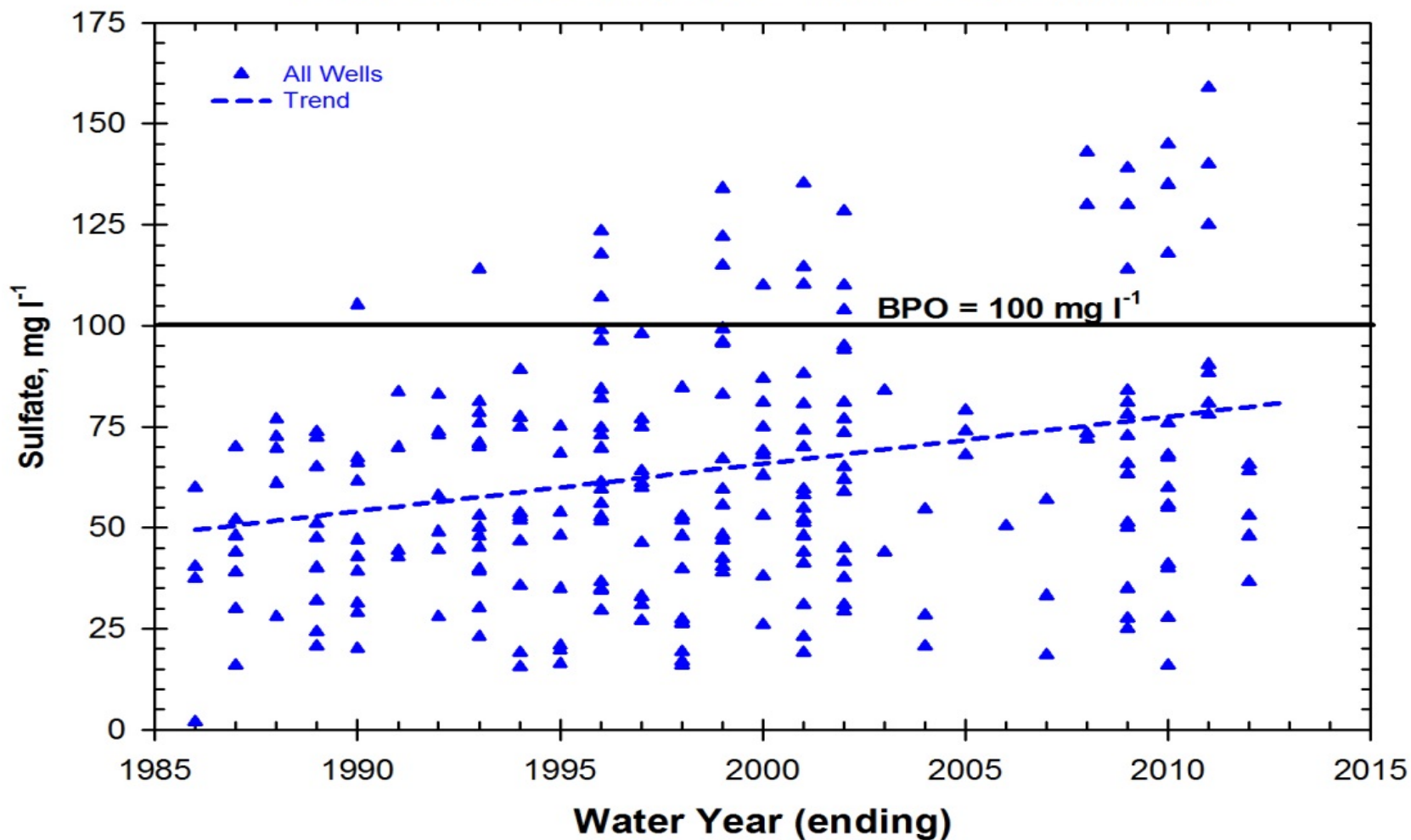


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PASADENA SUBAREA CHLORIDE GROUNDWATER QUALITY
CHARACTERISTICS

Pasadena Groundwater Sulfate Concentrations



(compiled from Table III.3 and Appendices J and K) BPO is the Basin Water Quality Plan Objective

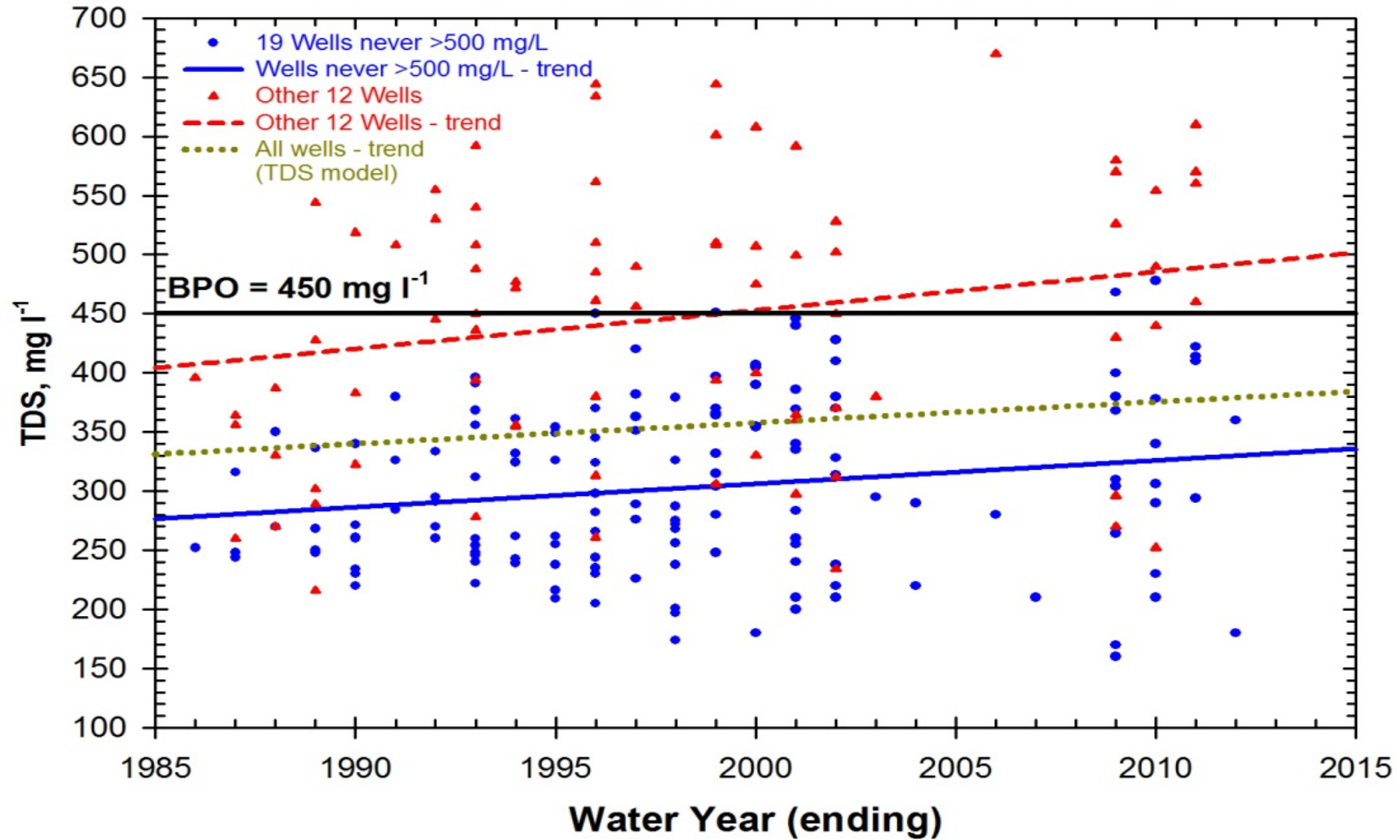


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PASADENA SUBAREA SULFATE GROUNDWATER QUALITY
CHARACTERISTICS

Pasadena Groundwater TDS Concentrations



(compiled from Table III.3 and Appendices J and K) BPO is the Basin Water Quality Plan Objective

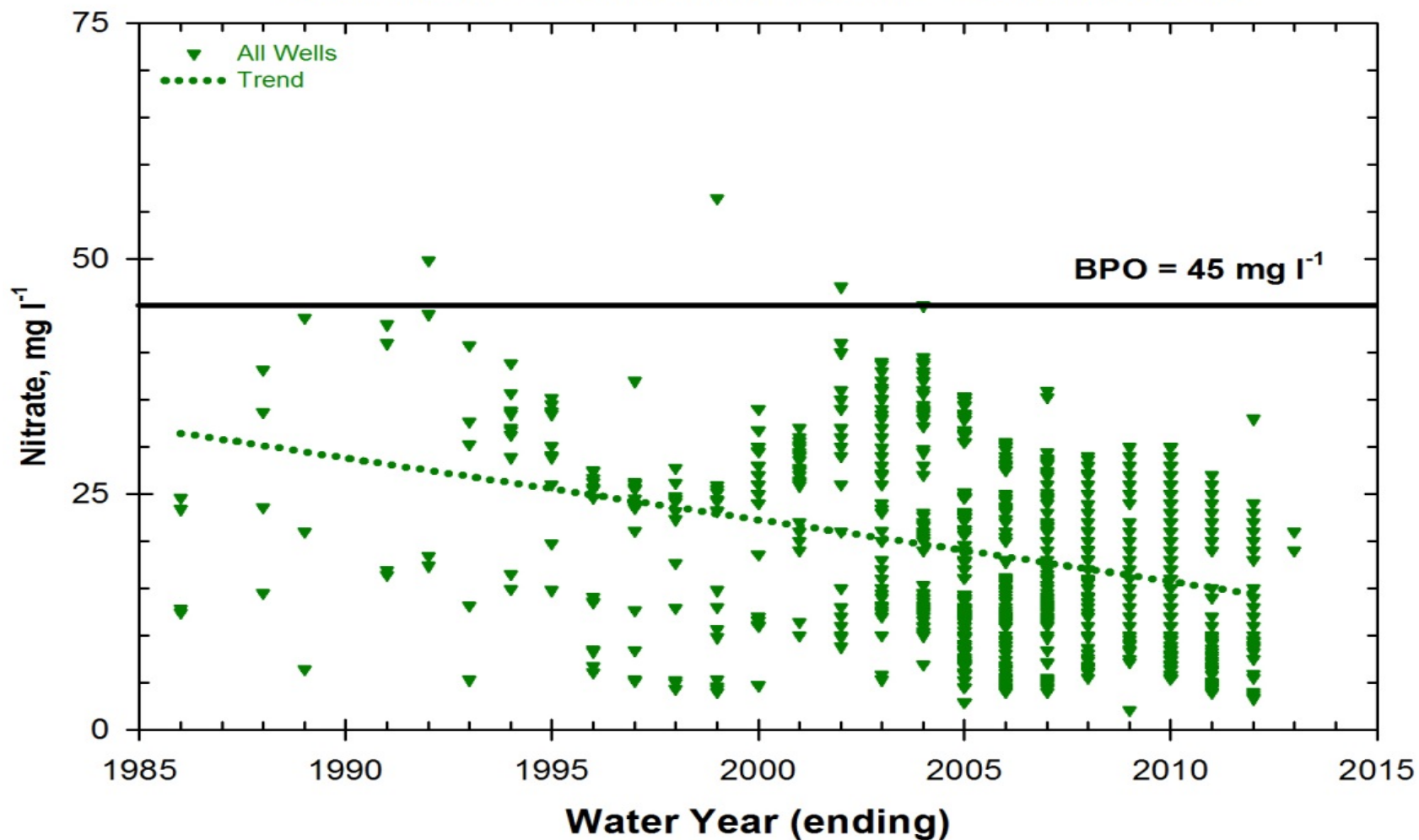


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PASADENA SUBAREA TOTAL DISSOLVED SOLIDS (TDS) GROUNDWATER
QUALITY CHARACTERISTICS

Santa Anita Groundwater Nitrate Concentrations



(compiled from Table III.3 and Appendices J and K) BPO is the Basin Water Quality Plan Objective



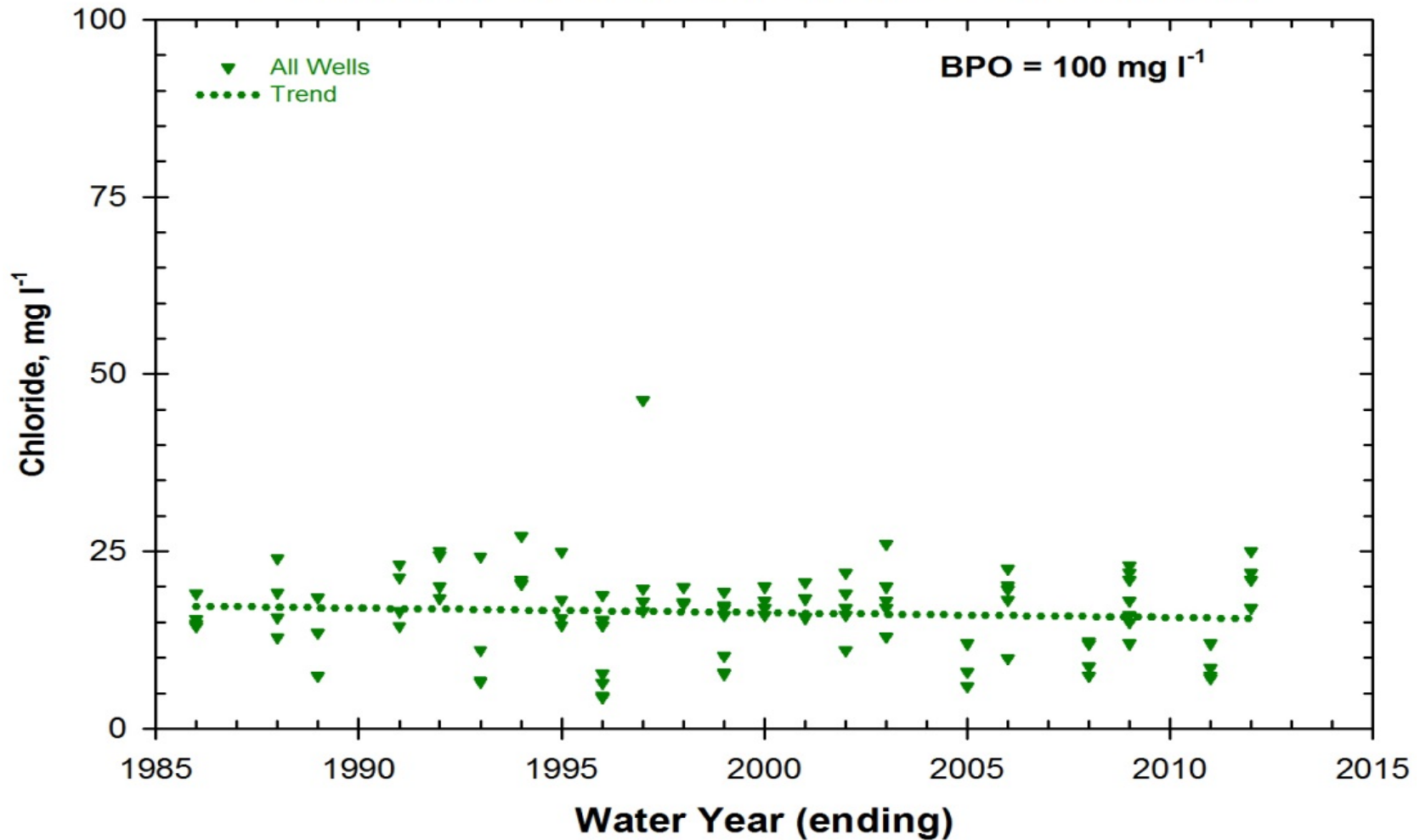
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SANTA ANITA SUBAREA NITRATE GROUNDWATER QUALITY
CHARACTERISTICS

PLATE III.17a

Santa Anita Groundwater Chloride Concentrations



(compiled from Table III.3 and Appendices J and K) BPO is the Basin Water Quality Plan Objective



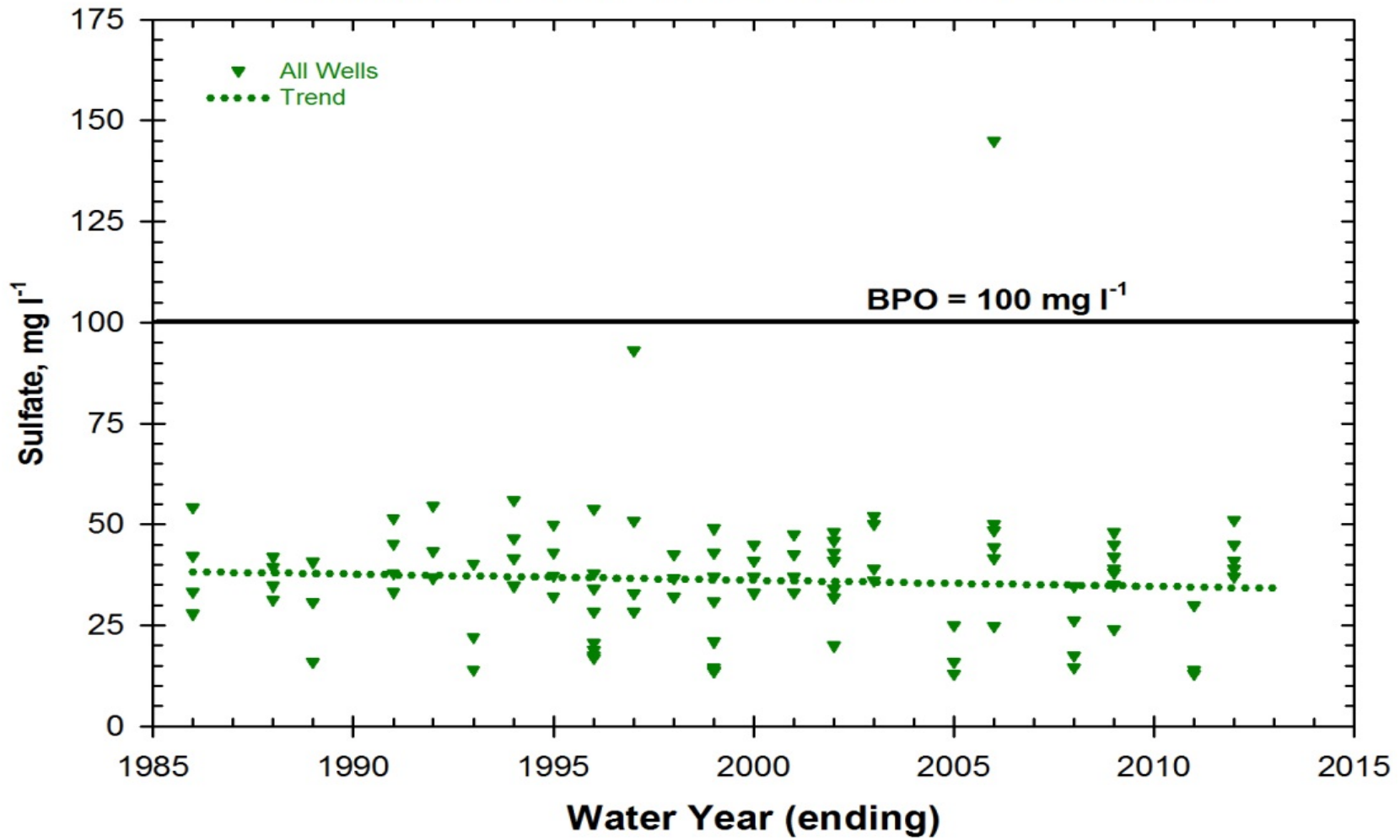
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SANTA ANITA SUBAREA CHLORIDE GROUNDWATER QUALITY
CHARACTERISTICS

PLATE III.17b

Santa Anita Groundwater Sulfate Concentrations



(compiled from Table III.3 and Appendices J and K) BPO is the Basin Water Quality Plan Objective



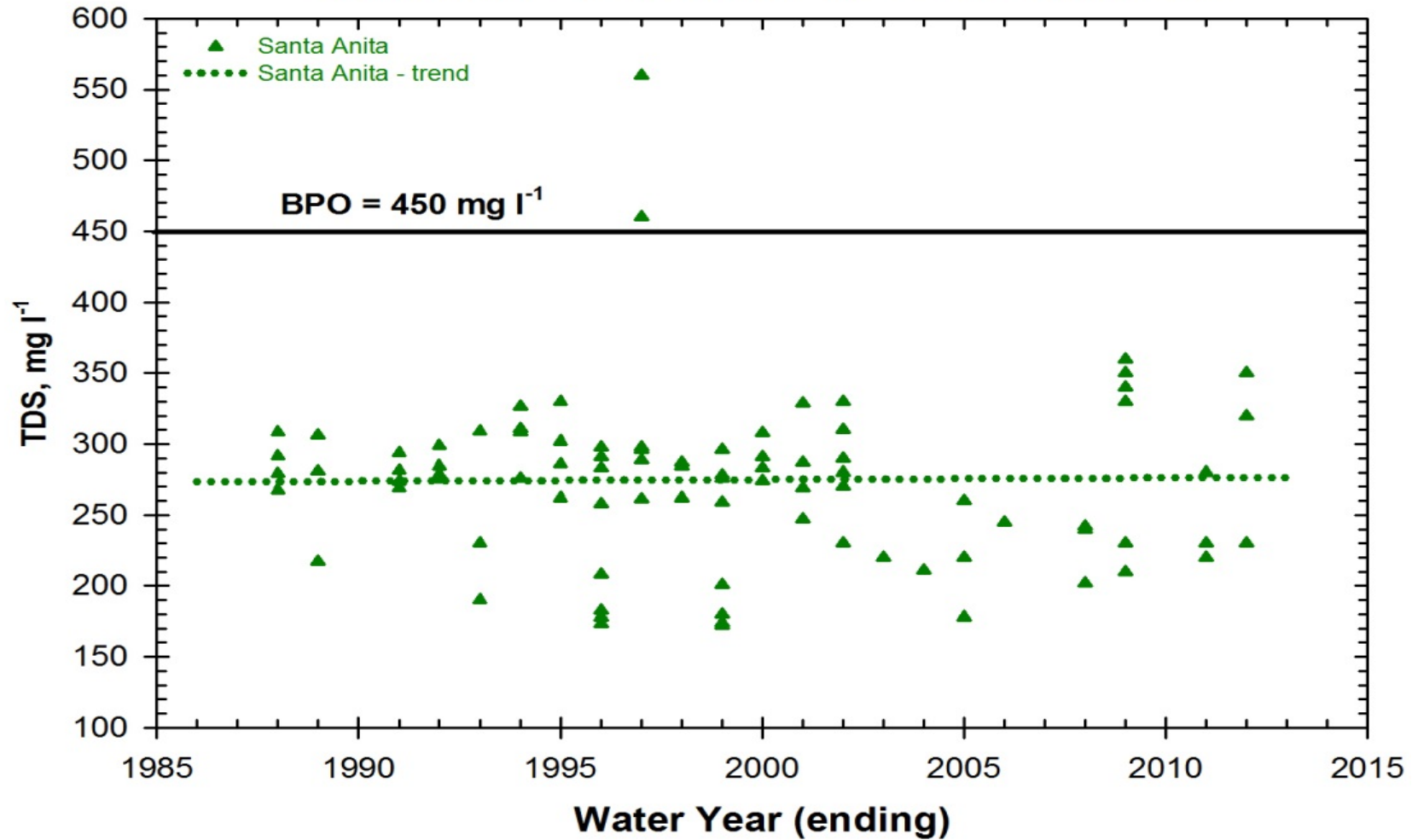
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SANTA ANITA SUBAREA SULFATE GROUNDWATER QUALITY
CHARACTERISTICS

PLATE III.17c

Santa Anita Groundwater TDS Concentrations



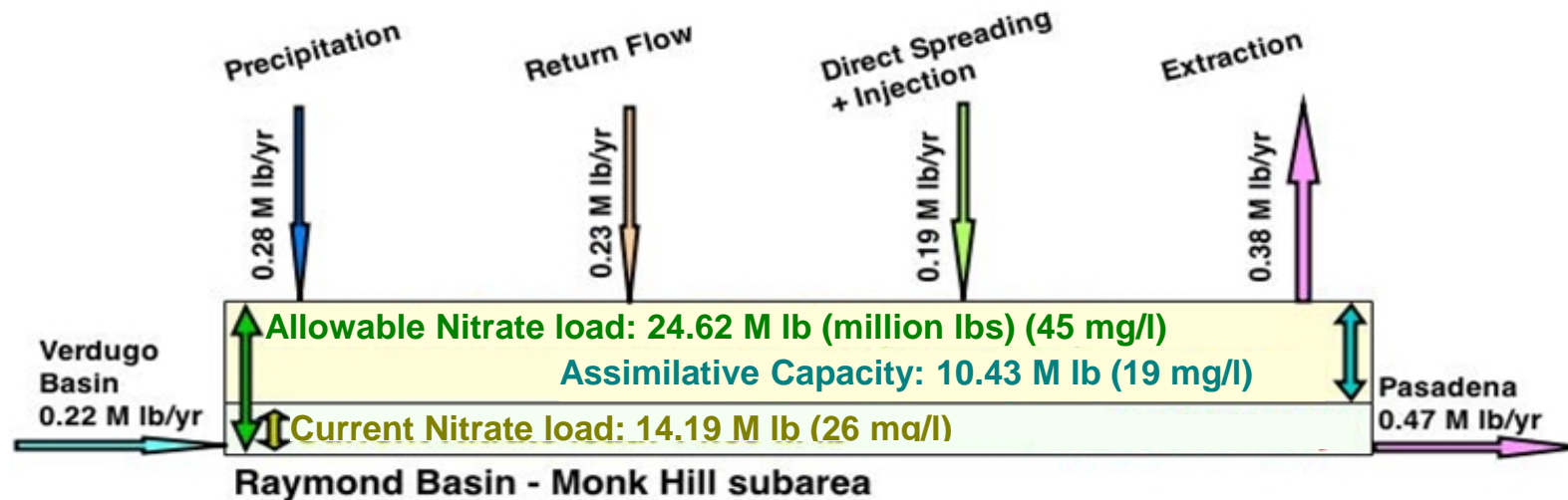
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SANTA ANITA SUBAREA TOTAL DISSOLVED SOLIDS (TDS)
GROUNDWATER QUALITY CHARACTERISTICS



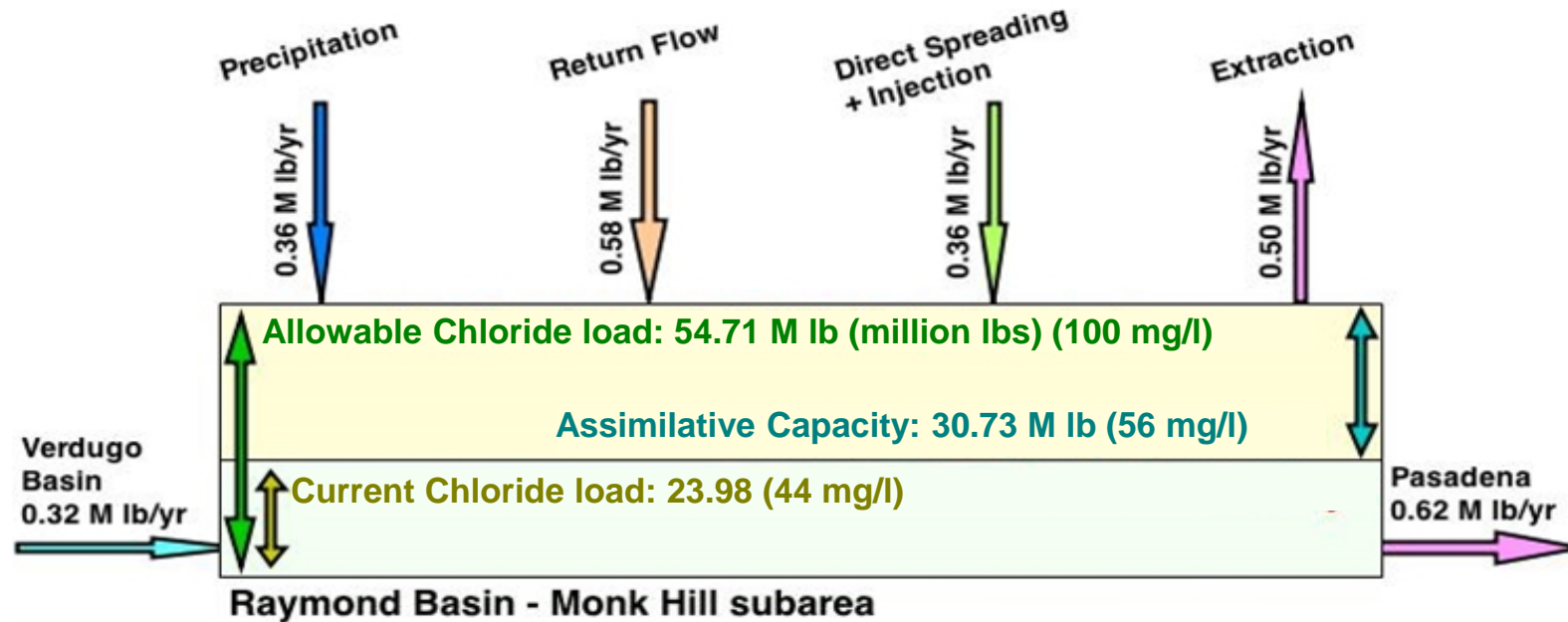
(compiled from Tables III.6 through III.9 and Appendix G)



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MONK HILL SUBAREA NITRATE LOADING / UNLOADING BALANCE, 2002-2003 THROUGH 2011-2012



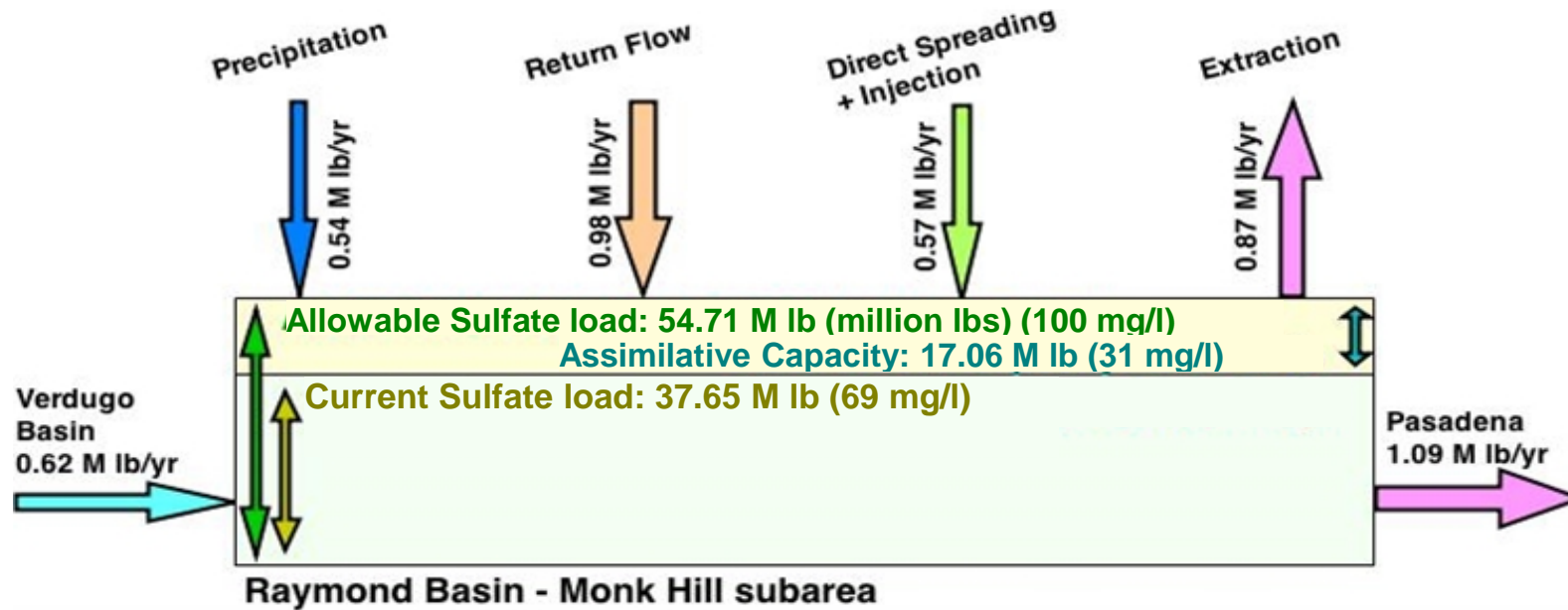
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MONK HILL SUBAREA CHLORIDE LOADING / UNLOADING BALANCE, 2002-2003 THROUGH 2011-2012



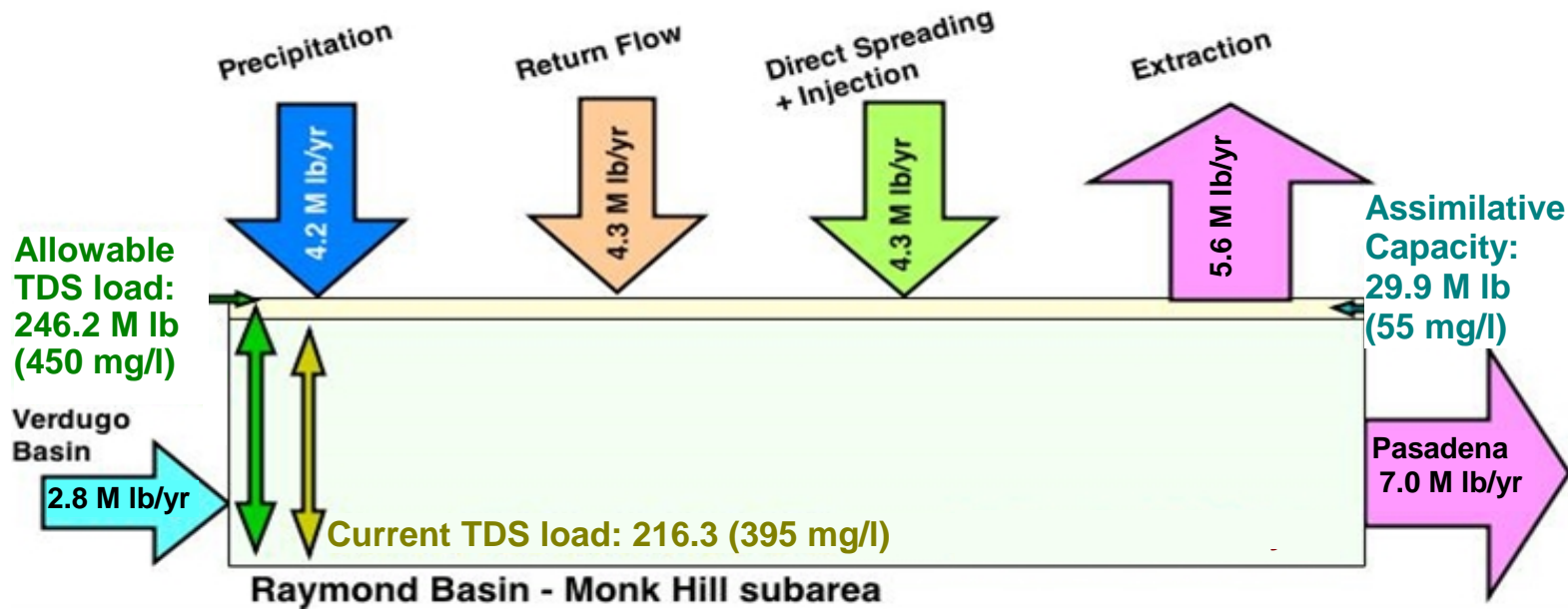
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MONK HILL SUBAREA SULFATE LOADING / UNLOADING BALANCE, 2002-2003 THROUGH 2011-2012



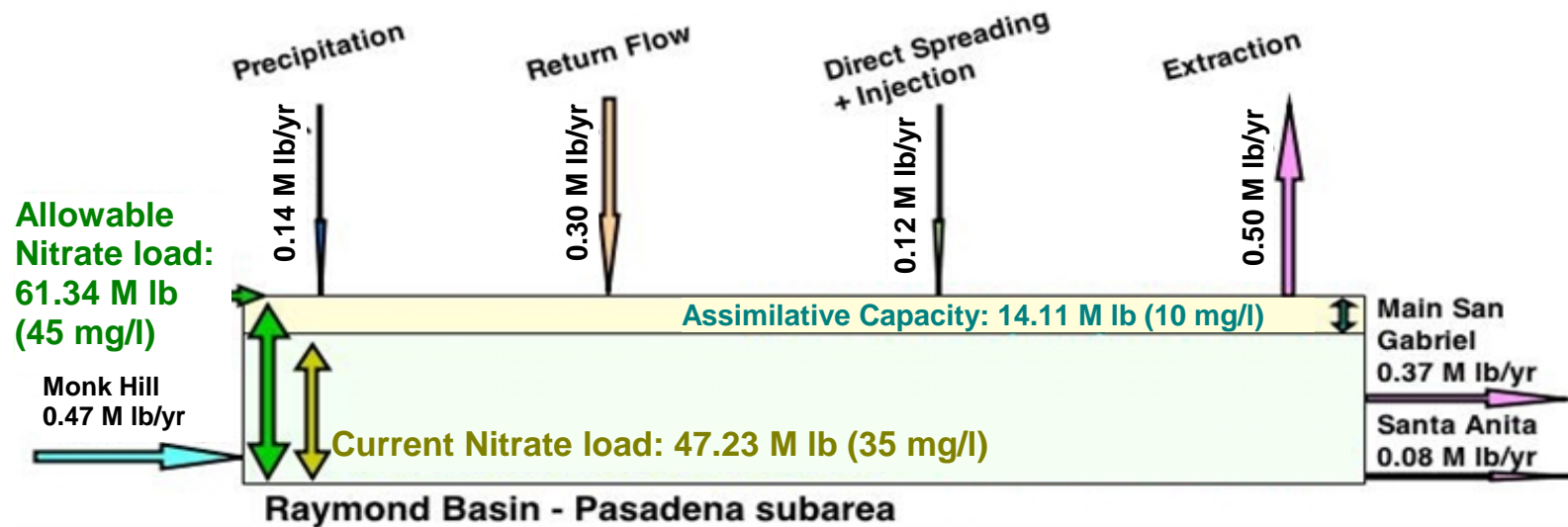
(compiled from Tables III.6 through III.9 and Appendix G)



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MONK HILL SUBAREA TOTAL DISSOLVED SOLIDS (TDS) LOADING /
 UNLOADING BALANCE, 2002-2003 THROUGH 2011-2012



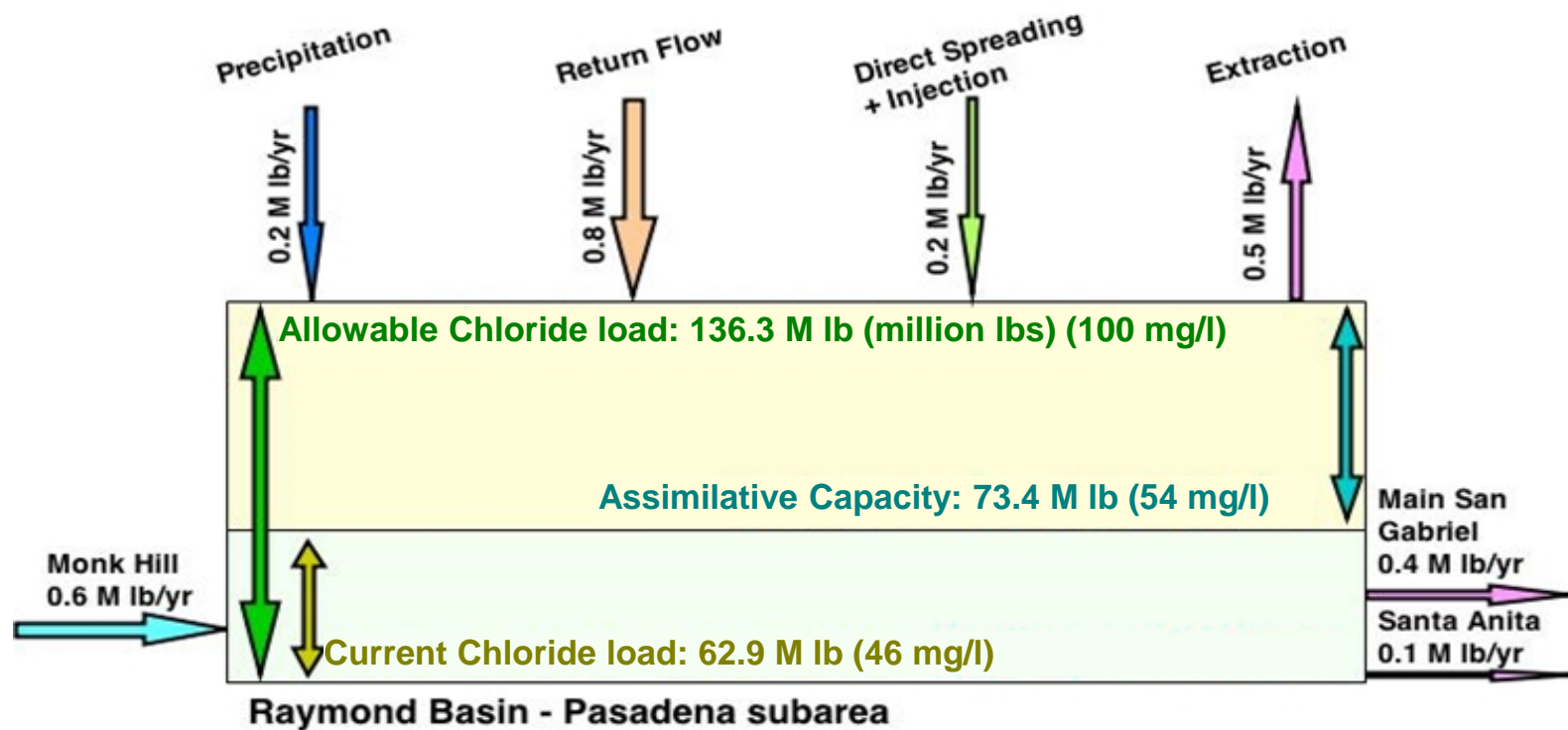
(compiled from Tables III.10 through III.13)



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PASADENA SUBAREA NITRATE LOADING / UNLOADING BALANCE, 2002-2003 THROUGH 2011-2012



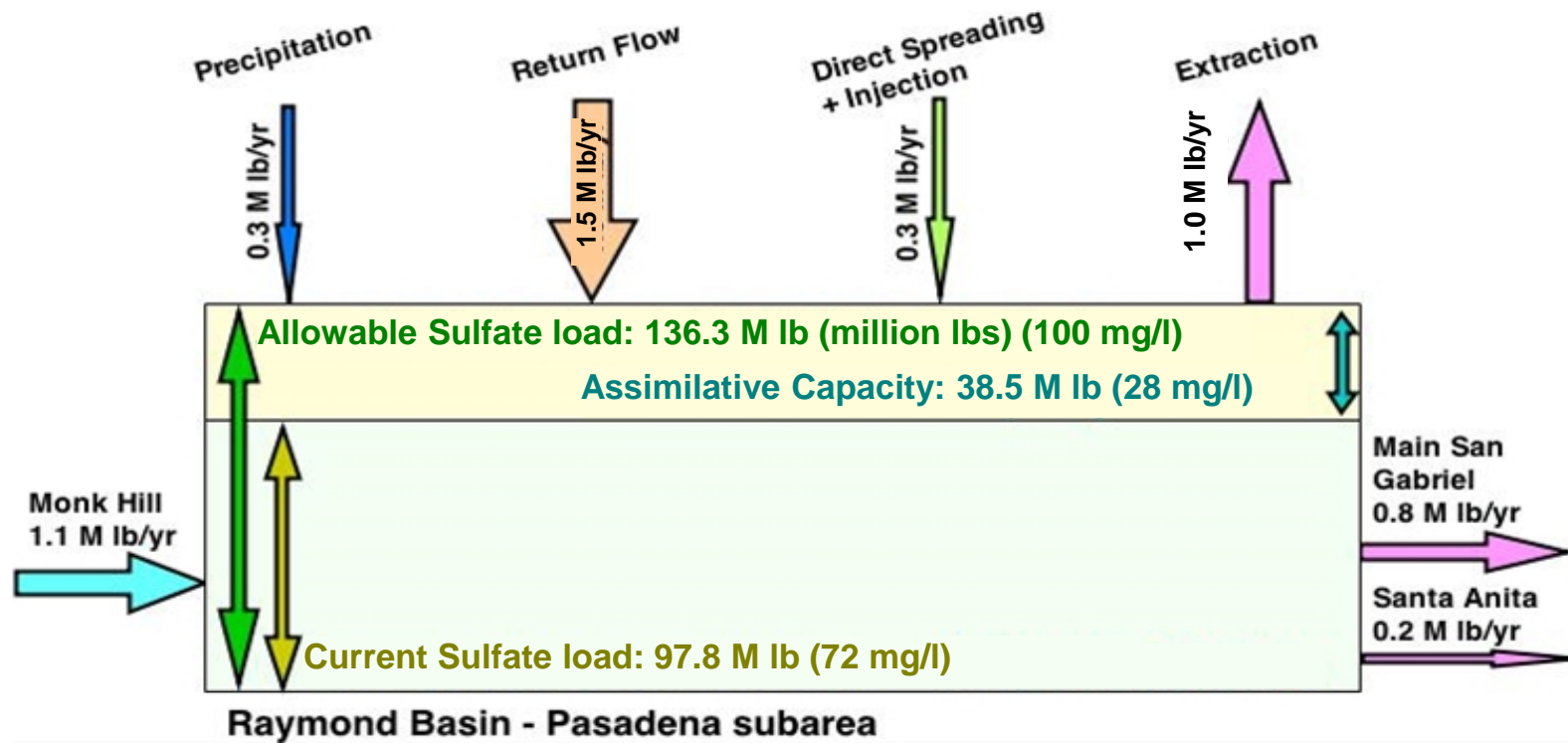
(compiled from Tables III.10 through III.13)



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PASADENA SUBAREA CHLORIDE LOADING / UNLOADING BALANCE,
 2002-2003 THROUGH 2011-2012



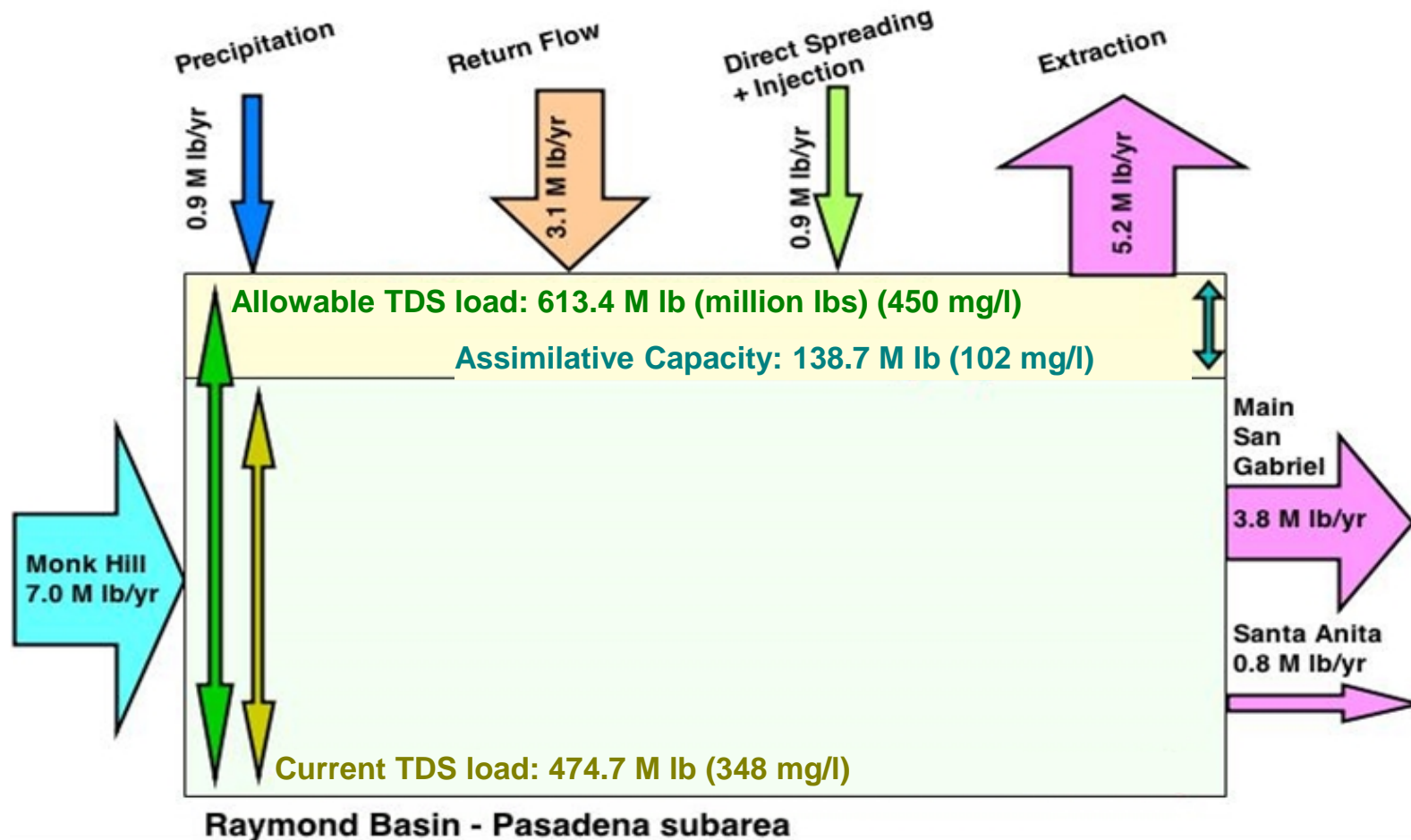
(compiled from Tables III.10 through III.13)



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PASADENA SUBAREA SULFATE LOADING / UNLOADING BALANCE, 2002-
2003 THROUGH 2011-2012



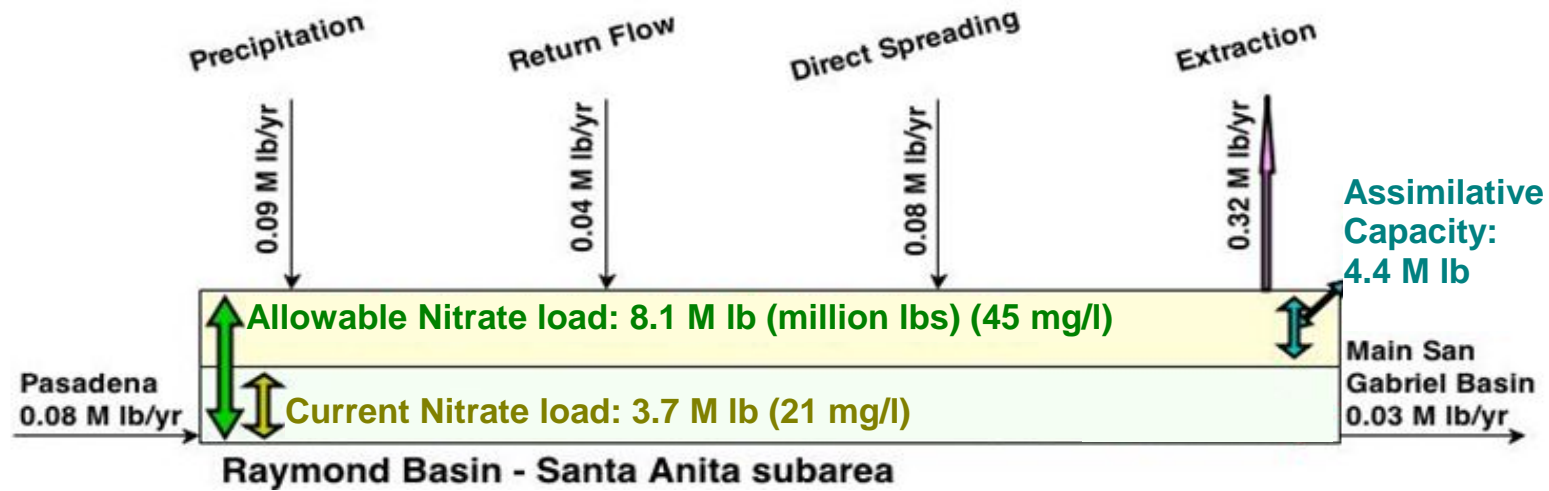
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PASADENA SUBAREA TOTAL DISSOLVED SOLIDS LOADING / UNLOADING
 BALANCE, 2002-2003 THROUGH 2011-2012



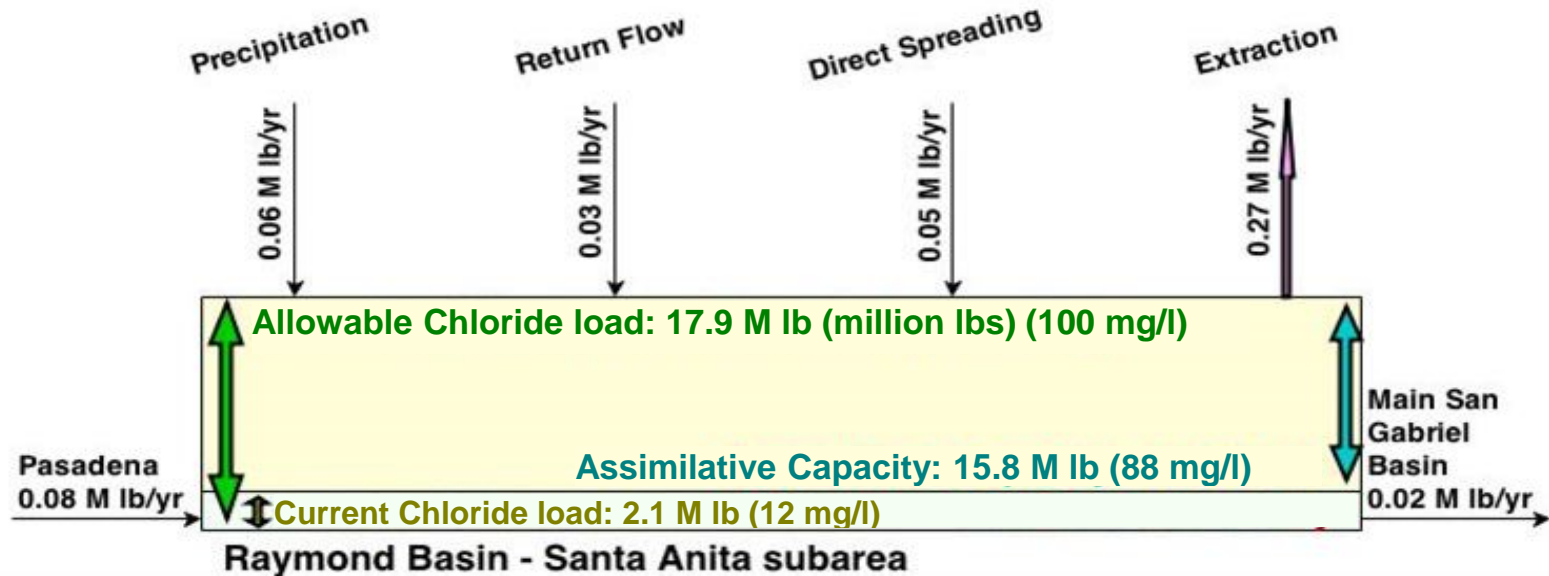
(compiled from Tables III.14 through III.17)



STETSON ENGINEERS INC.
 West Covina San Rafael Mesa, Arizona
 WATER RESOURCE ENGINEERS

RAYMOND BASIN MANAGEMENT BOARD

SANTA ANITA SUBAREA NITRATE LOADING / UNLOADING BALANCE, 2002-2003 THROUGH 2011-2012



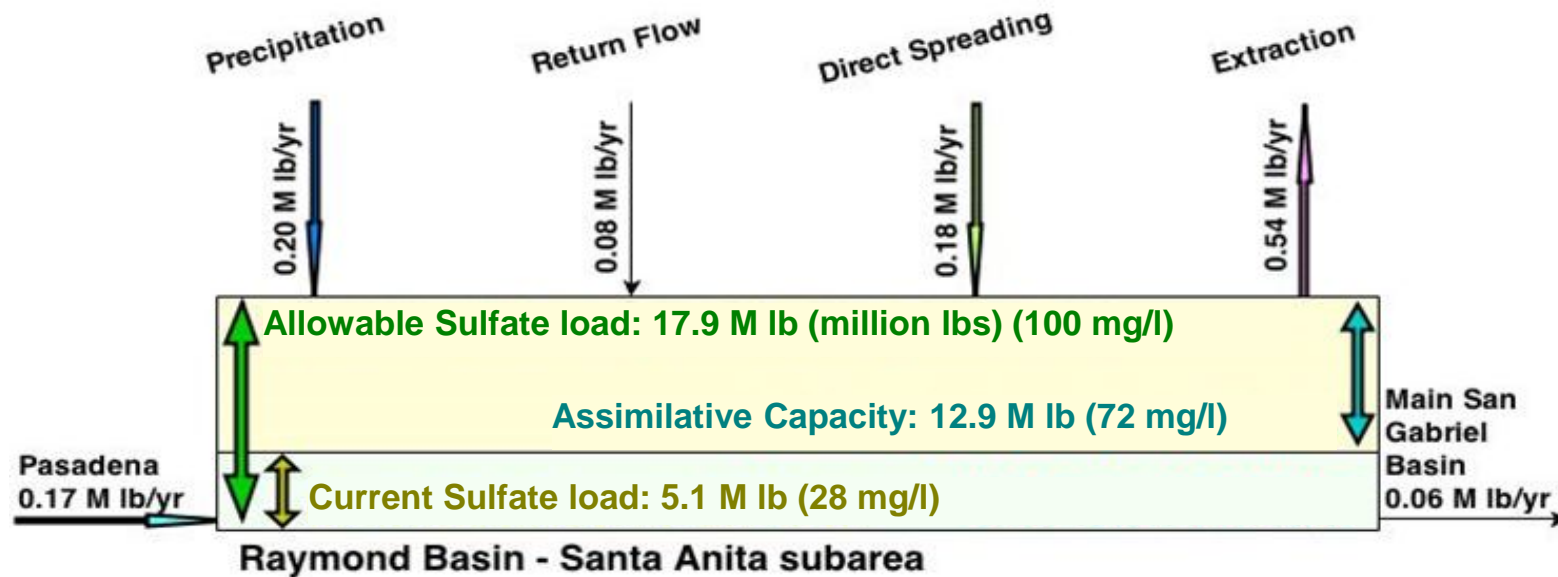
(compiled from Tables III.14 through III.17)



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WATER RESOURCE ENGINEERS

RAYMOND BASIN MANAGEMENT BOARD

SANTA ANITA SUBAREA CHLORIDE LOADING / UNLOADING BALANCE,
2002-2003 THROUGH 2011-2012



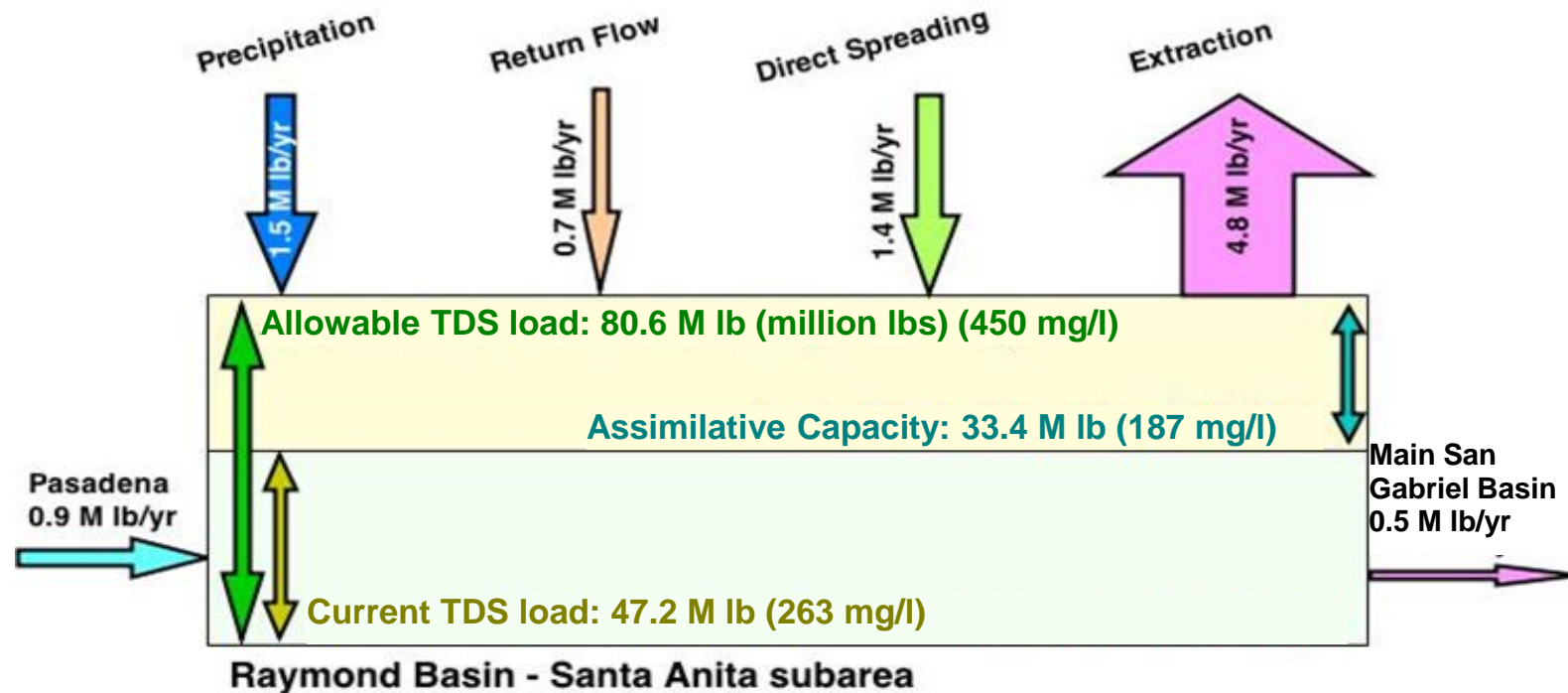
(compiled from Tables III.14 through III.17)



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WATER RESOURCE ENGINEERS

RAYMOND BASIN MANAGEMENT BOARD

SANTA ANITA SUBAREA SULFATE LOADING / UNLOADING BALANCE, 2002-2003 THROUGH 2011-2012



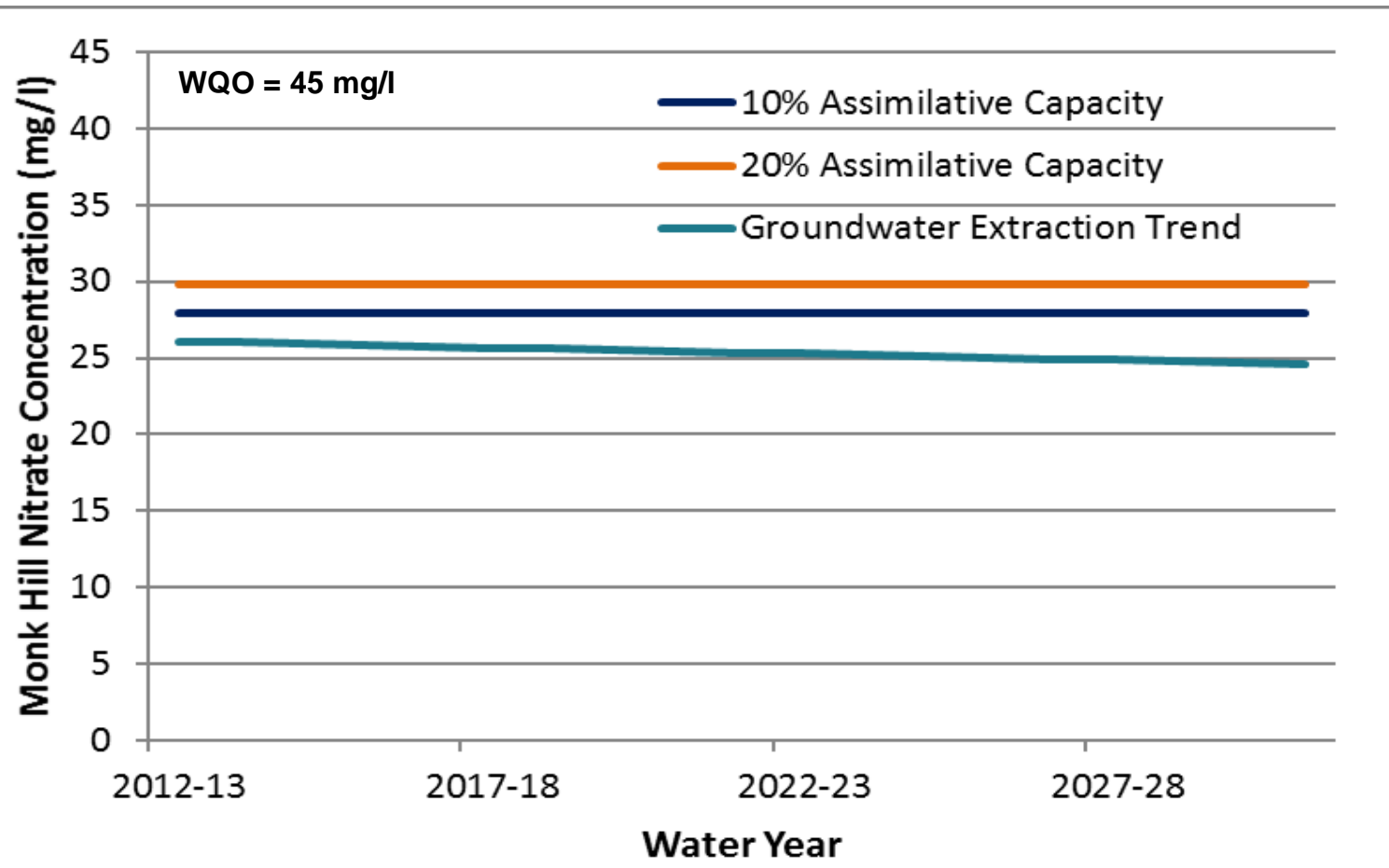
(compiled from Tables III.14 through III.17)



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WATER RESOURCE ENGINEERS

RAYMOND BASIN MANAGEMENT BOARD

SANTA ANITA SUBAREA TOTAL DISSOLVED SOLIDS (TDS) LOADING /
UNLOADING BALANCE, 2002-2003 THROUGH 2011-2012

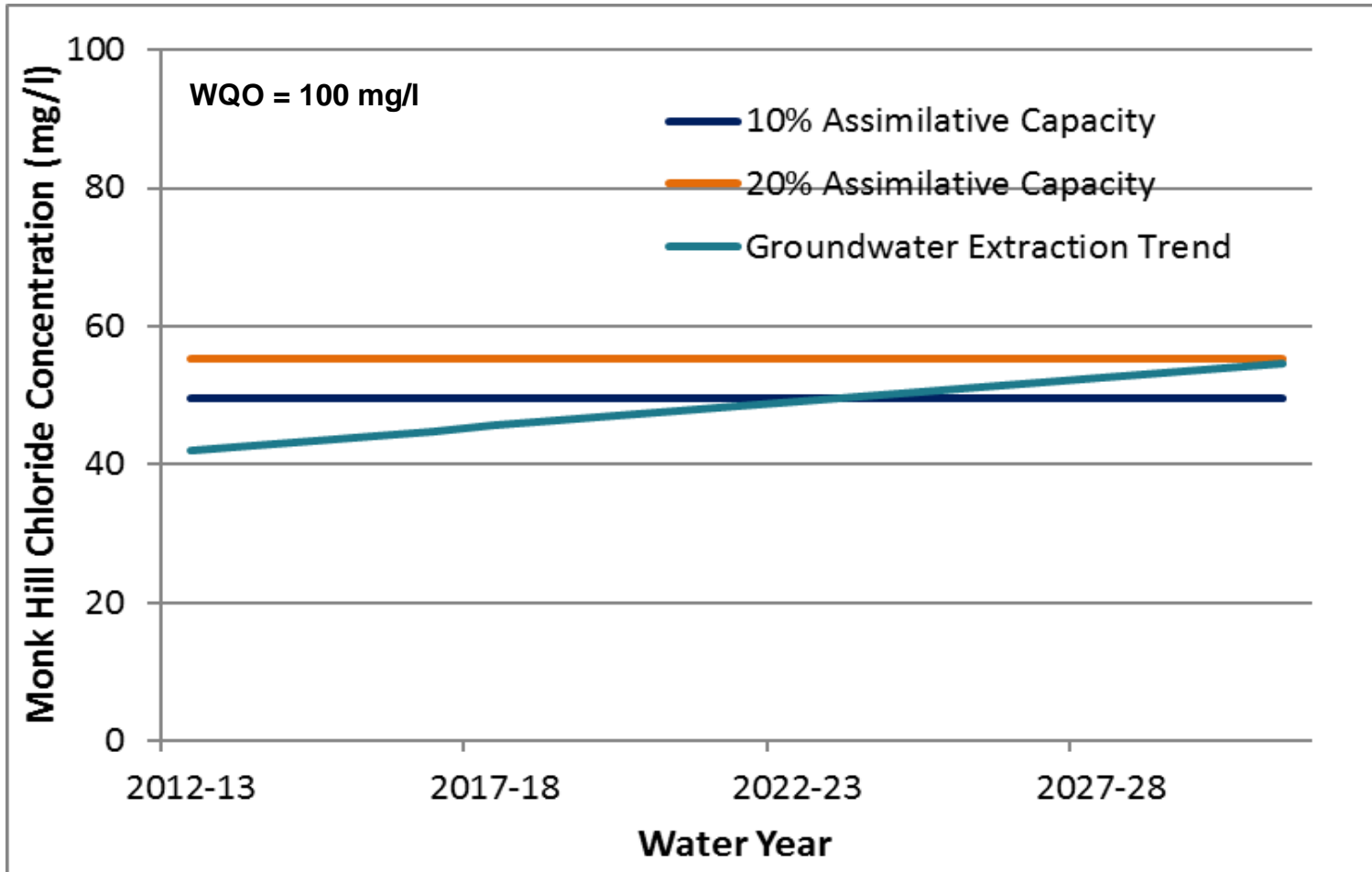


STETSON ENGINEERS INC.
West Covina San Rafael Mesa, Arizona
WATER RESOURCE ENGINEERS

RAYMOND BASIN MANAGEMENT BOARD

MONK HILL NITRATE CONCENTRATION TREND

PLATE IV.1a

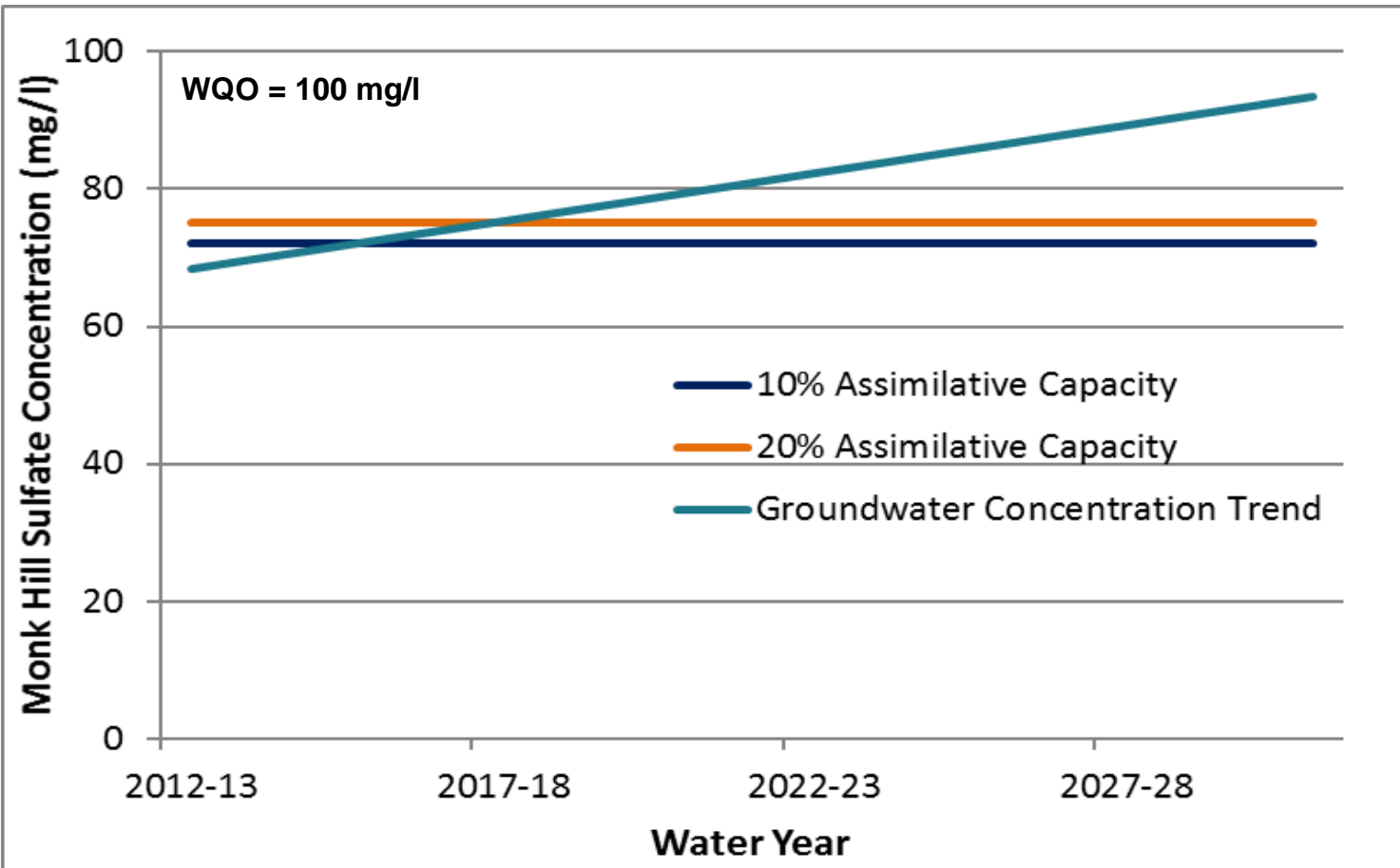


STETSON ENGINEERS INC.
 West Covina San Rafael Mesa, Arizona
 WATER RESOURCE ENGINEERS

RAYMOND BASIN MANAGEMENT BOARD

MONK HILL CHLORIDE CONCENTRATION TREND

PLATE IV.1b

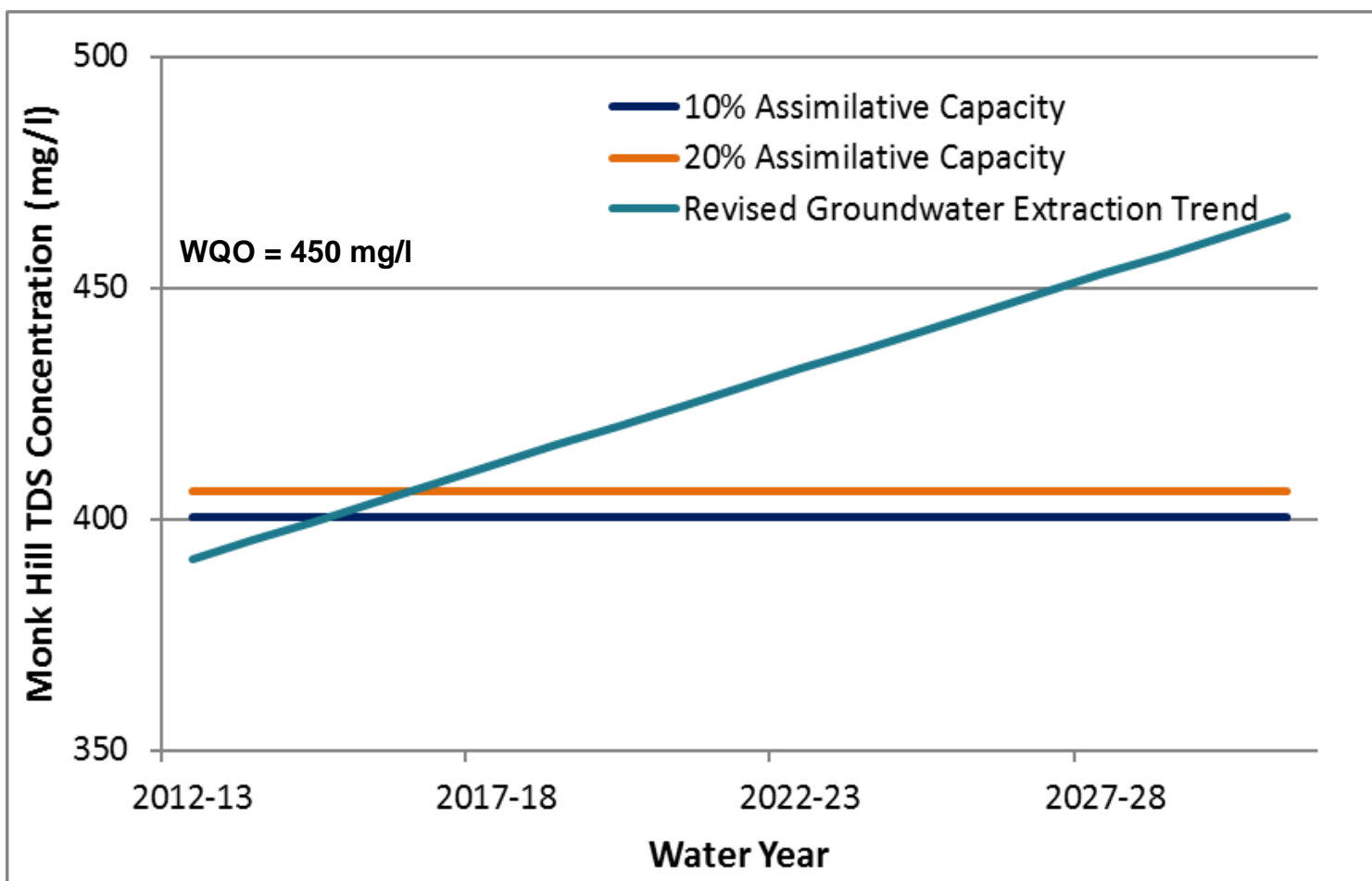


STETSON ENGINEERS INC.
 West Covina San Rafael Mesa, Arizona
 WATER RESOURCE ENGINEERS

RAYMOND BASIN MANAGEMENT BOARD

MONK HILL SULFATE CONCENTRATION TREND

PLATE IV.1c

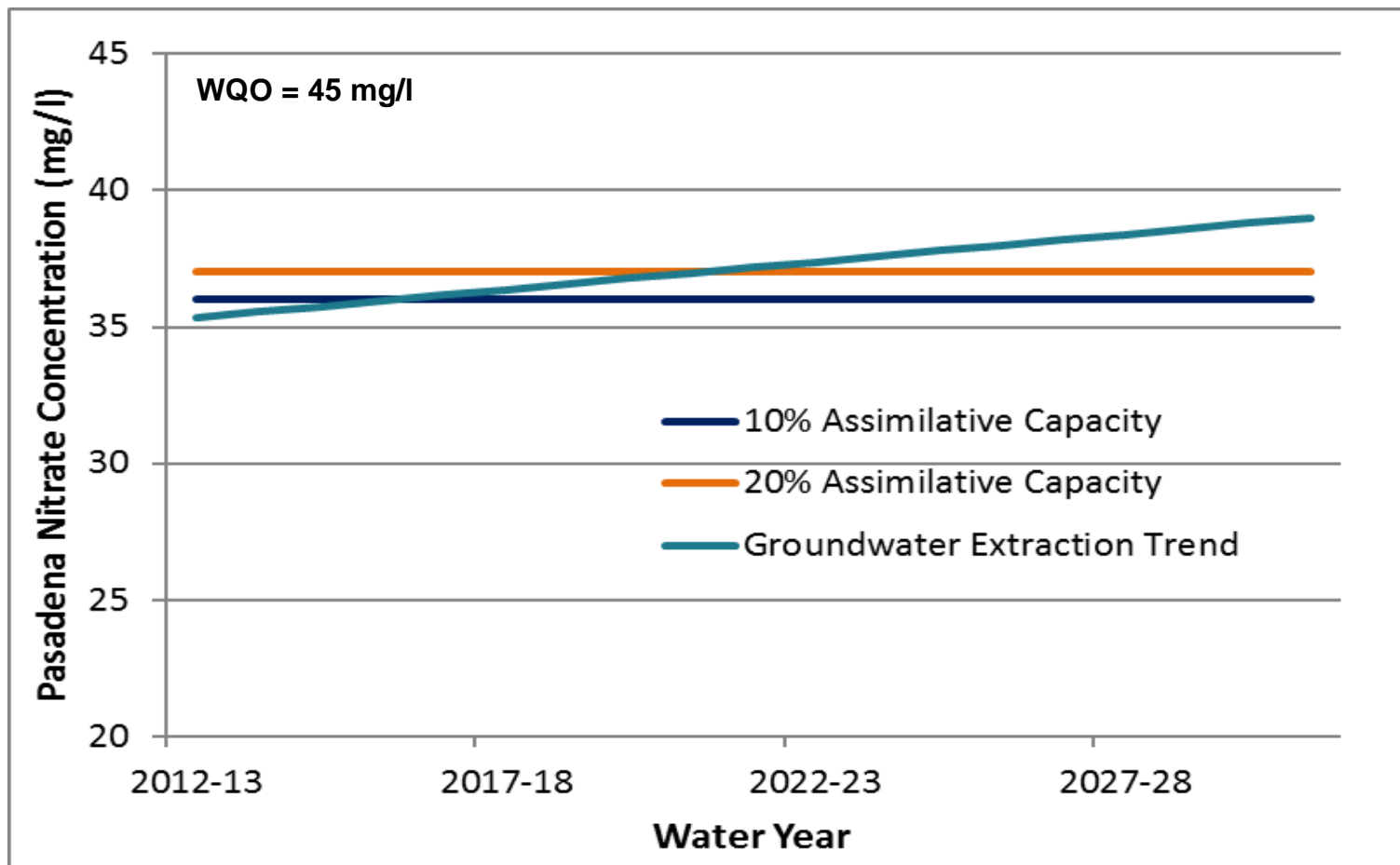


STETSON ENGINEERS INC.
 West Covina San Rafael Mesa, Arizona
 WATER RESOURCE ENGINEERS

RAYMOND BASIN MANAGEMENT BOARD

MONK HILL TDS CONCENTRATION TREND

PLATE IV.1d

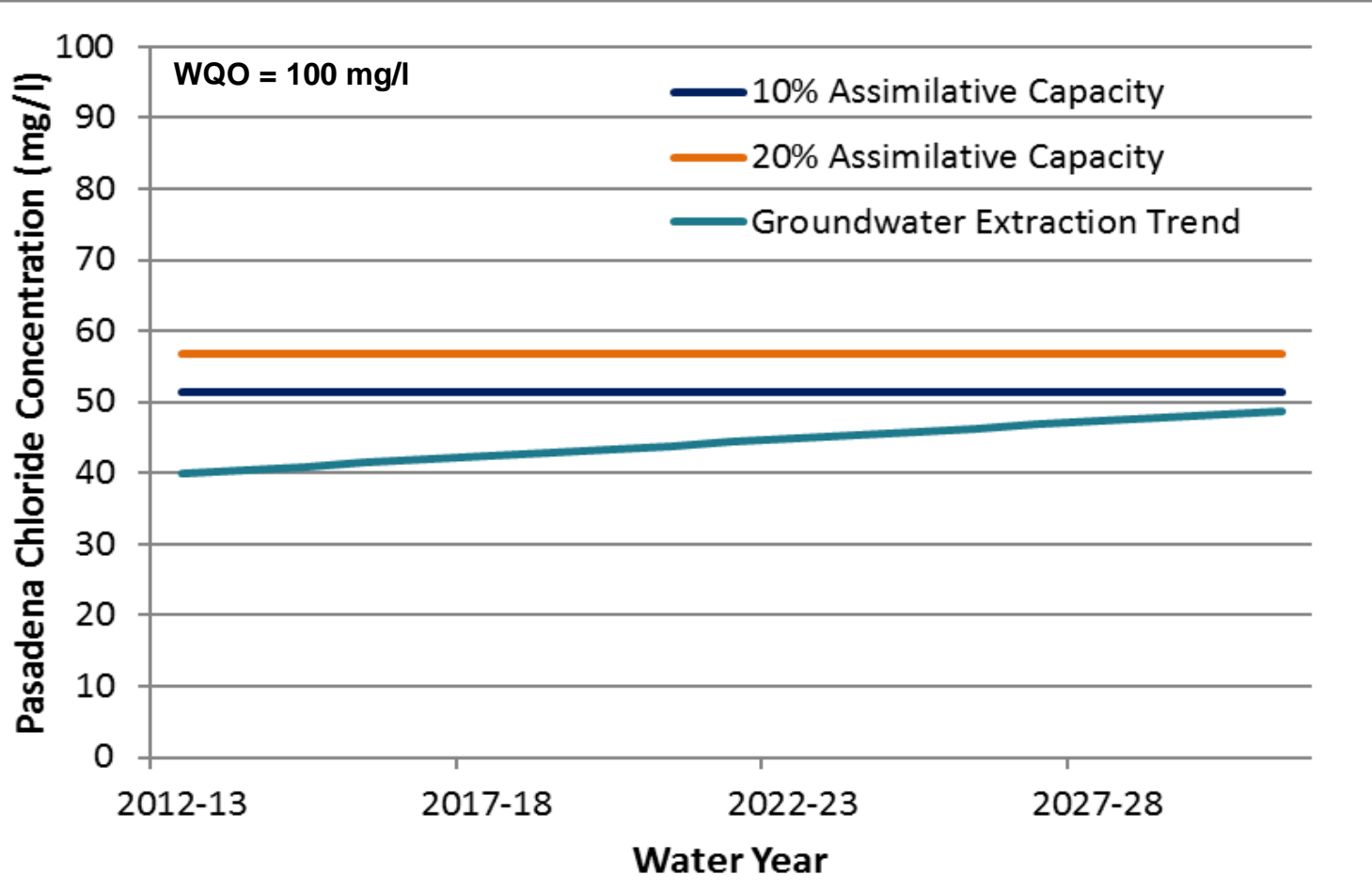


STETSON ENGINEERS INC.
 West Covina San Rafael Mesa, Arizona
 WATER RESOURCE ENGINEERS

RAYMOND BASIN MANAGEMENT BOARD

PASADENA NITRATE CONCENTRATION TREND

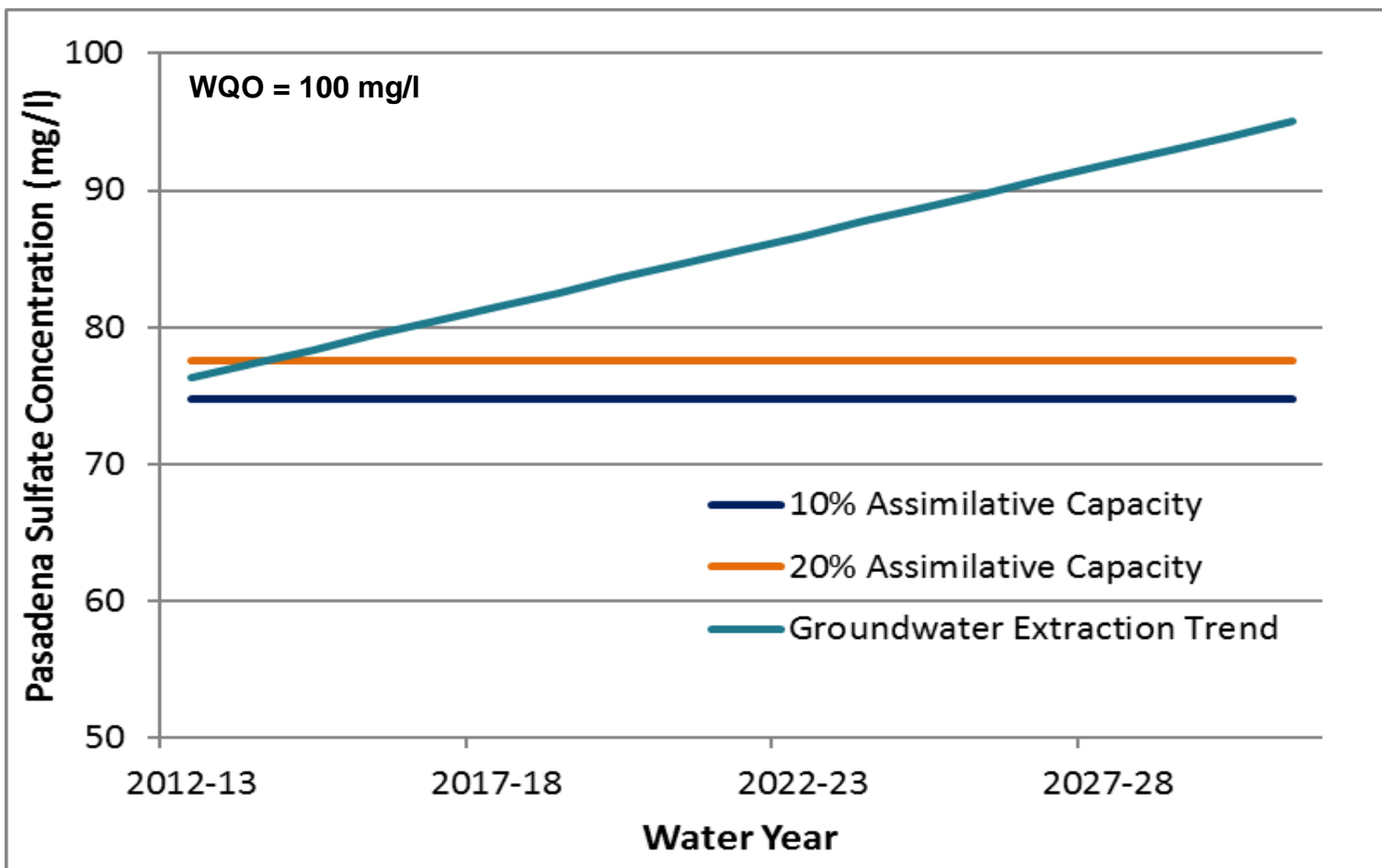
PLATE IV.2a



STETSON ENGINEERS INC.
West Covina San Rafael Mesa, Arizona
WATER RESOURCE ENGINEERS

RAYMOND BASIN MANAGEMENT BOARD

PASADENA CHLORIDE CONCENTRATION TREND

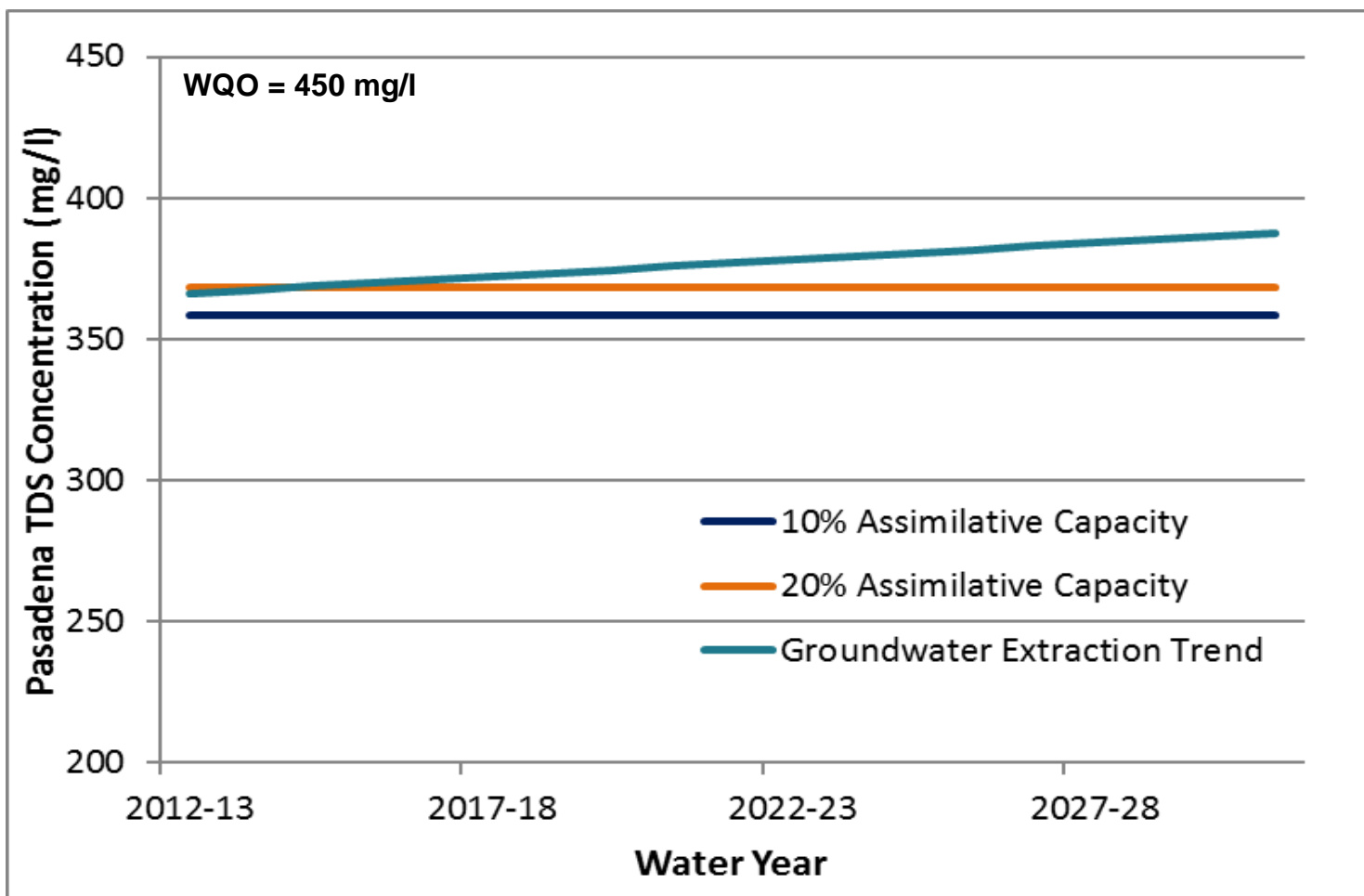


STETSON ENGINEERS INC.
 West Covina San Rafael Mesa, Arizona
 WATER RESOURCE ENGINEERS

RAYMOND BASIN MANAGEMENT BOARD

PASADENA SULFATE CONCENTRATION TREND

PLATE IV.2c

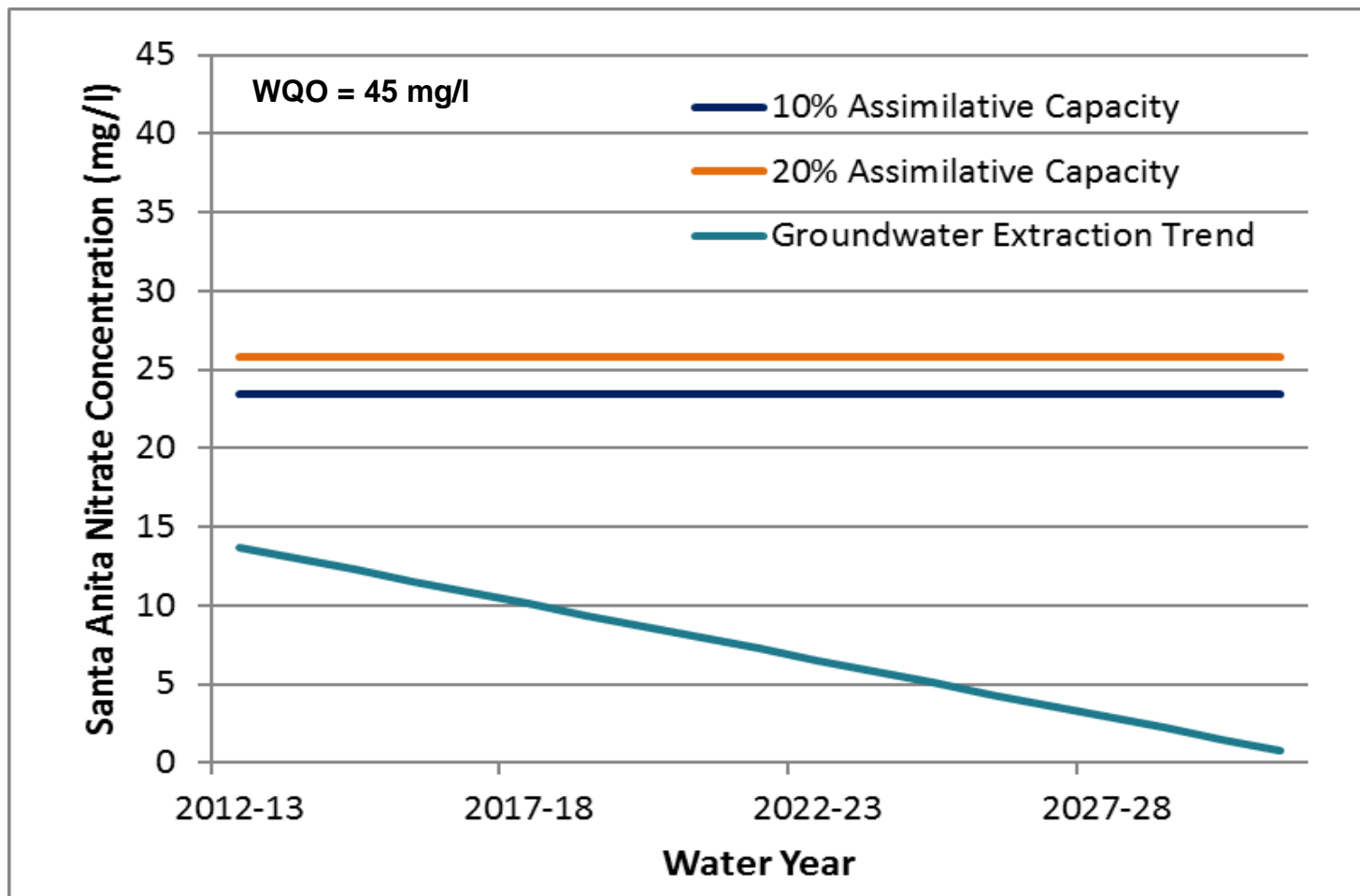


STETSON ENGINEERS INC.
 West Covina San Rafael Mesa, Arizona
 WATER RESOURCE ENGINEERS

RAYMOND BASIN MANAGEMENT BOARD

PASADENA TDS CONCENTRATION TREND

PLATE IV.2d

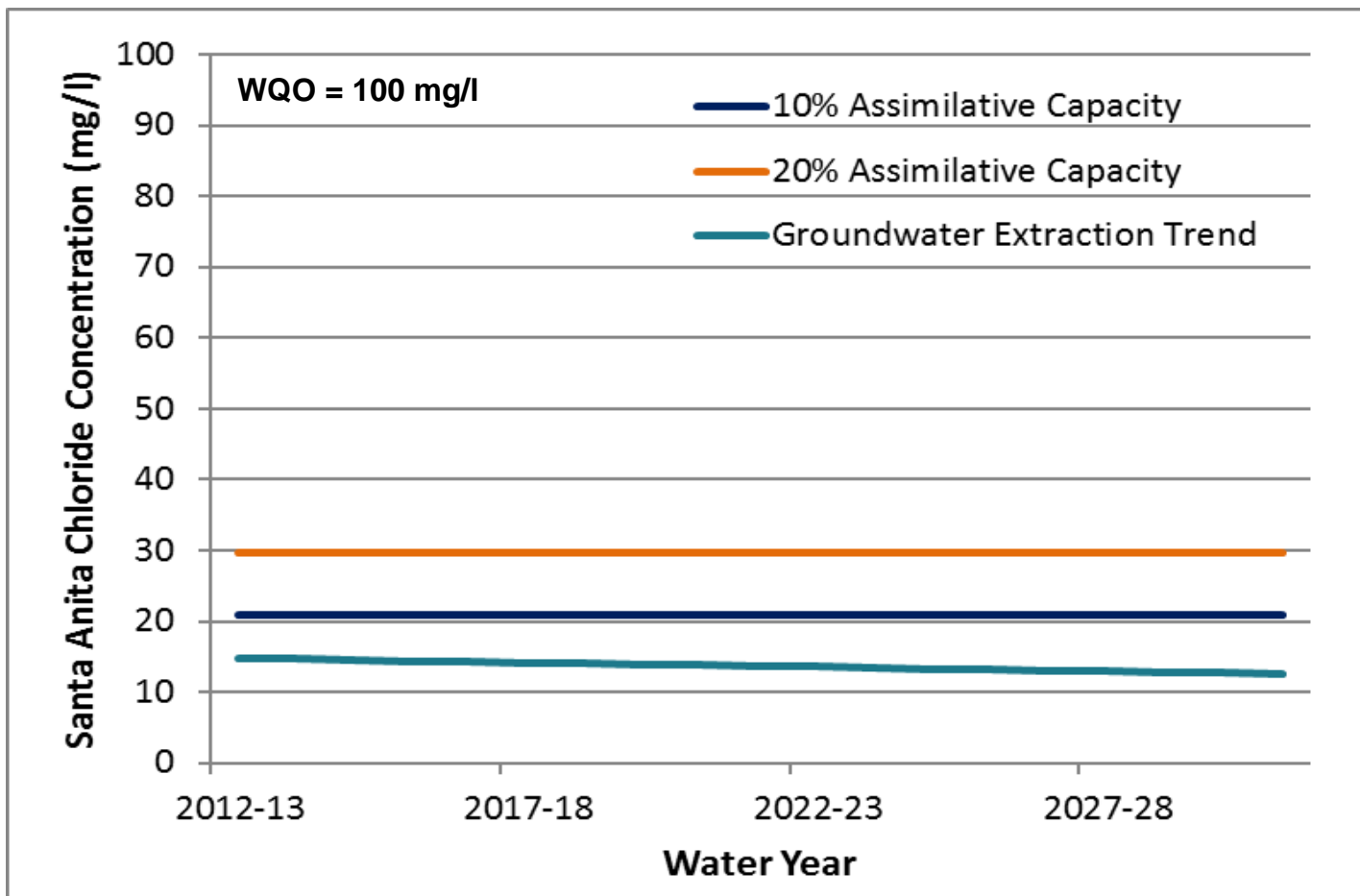


STETSON ENGINEERS INC.
 West Covina San Rafael Mesa, Arizona
 WATER RESOURCE ENGINEERS

RAYMOND BASIN MANAGEMENT BOARD

SANTA ANITA NITRATE CONCENTRATION TREND

PLATE IV.3a

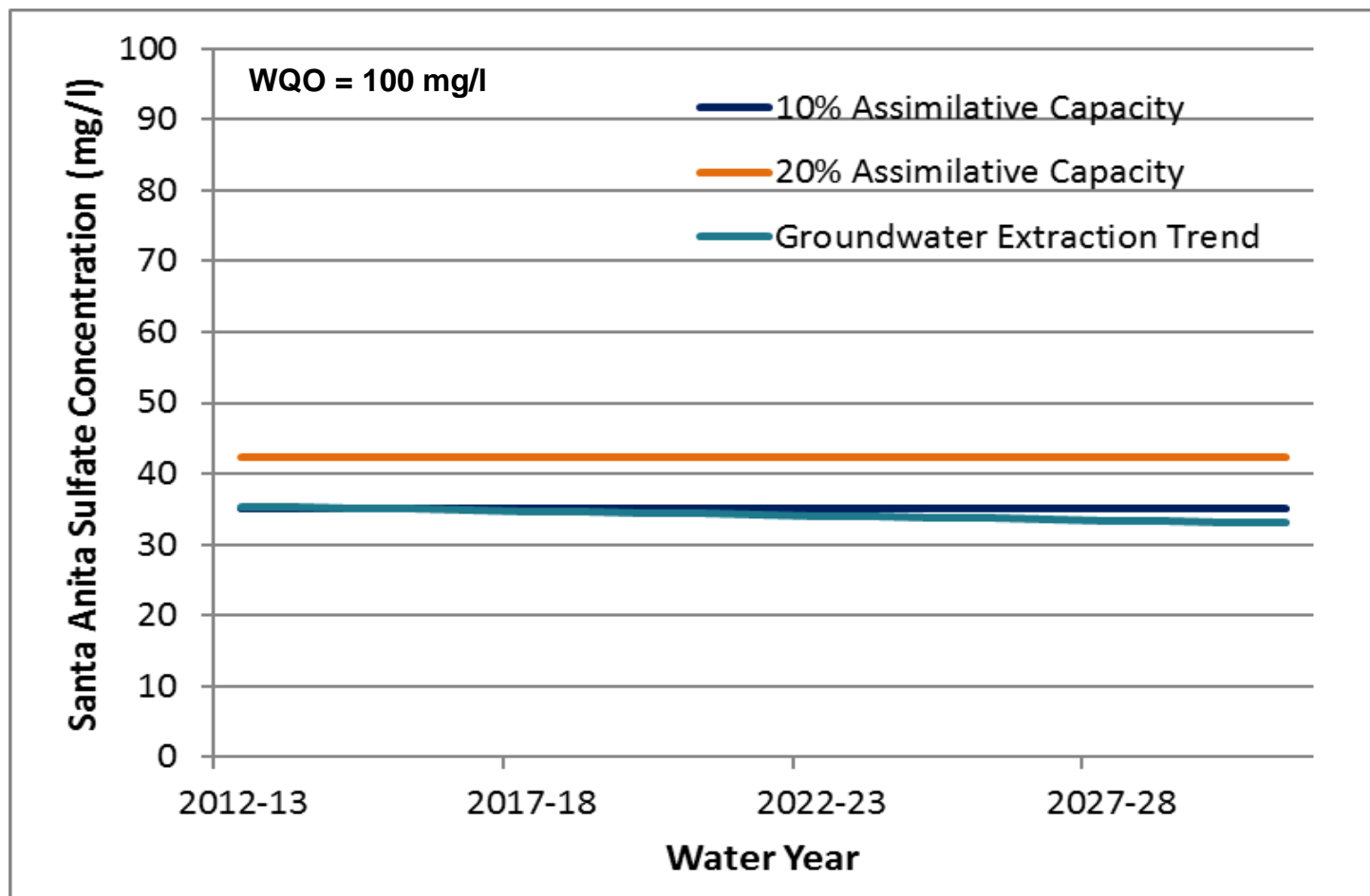


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RAYMOND BASIN MANAGEMENT BOARD

SANTA ANITA CHLORIDE CONCENTRATION TREND

PLATE IV.3b

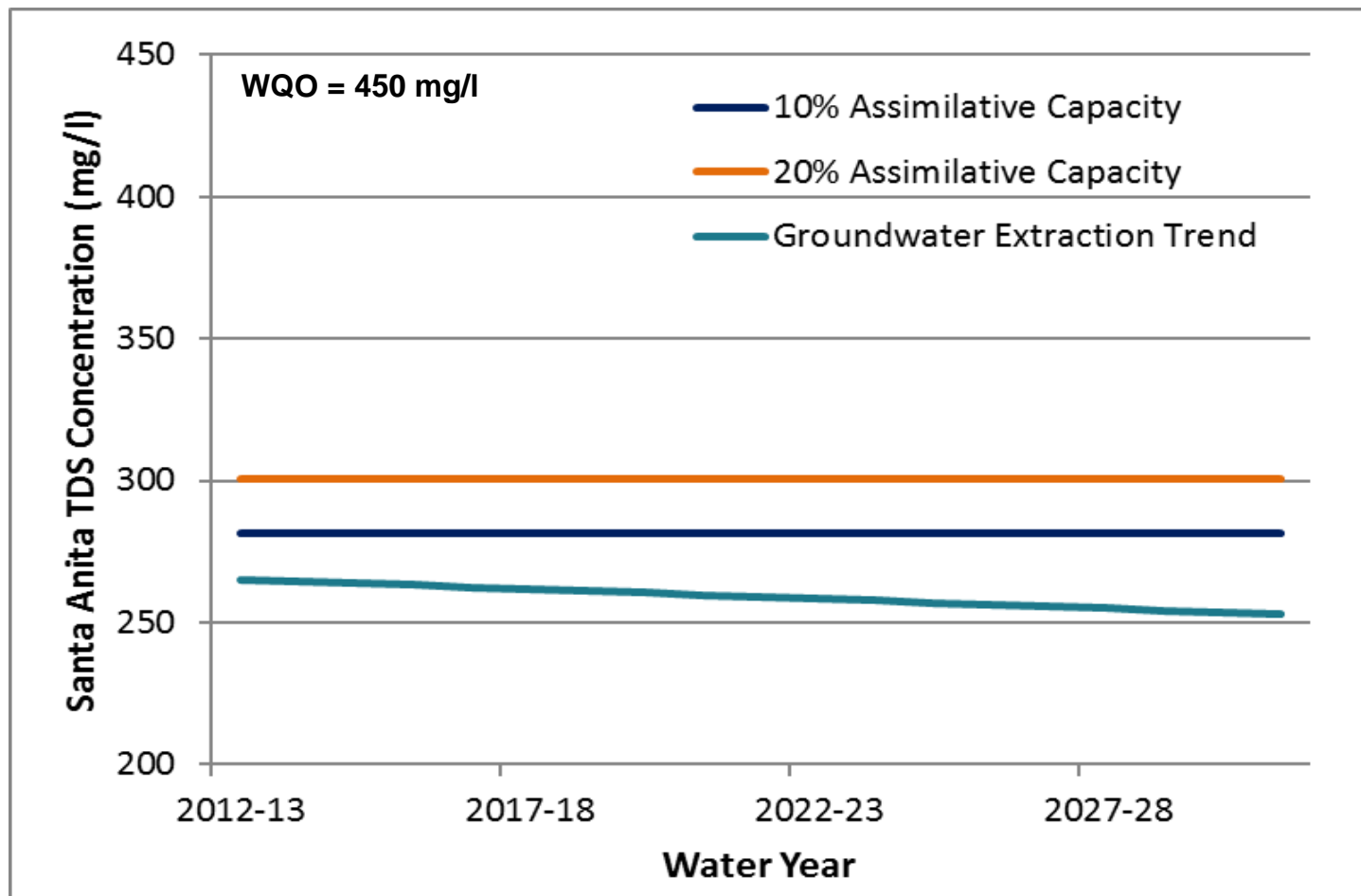


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SANTA ANITA SULFATE CONCENTRATION TREND

PLATE IV.3c



STETSON ENGINEERS INC.
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RAYMOND BASIN MANAGEMENT BOARD

SANTA ANITA TDS CONCENTRATION TREND

PLATE IV.3d