AGENDA

REGULAR MEETING OF THE BOARD OF DIRECTORS
LA PUENTE VALLEY COUNTY WATER DISTRICT
112 N. FIRST STREET, LA PUENTE, CALIFORNIA
MONDAY, NOVEMBER 25, 2019 AT 5:30 PM

1. CALL TO ORDER

2. PLEDGE OF ALLEGIANCE

3. ROLL CALL OF BOARD OF DIRECTORS

President Escalera____ Vice President Hernandez____ Director Barajas____

Director Hastings____ Director Rojas____

4. PUBLIC COMMENT

Anyone wishing to discuss items on the agenda or pertaining to the District may do so now. The Board may allow additional input during the meeting. A five-minute limit on remarks is requested.

5. ADOPTION OF AGENDA

Each item on the Agenda shall be deemed to include an appropriate motion, resolution or ordinance to take action on any item. Materials related to an item on this agenda submitted after distribution of the agenda packet are available for public review at the District office, located at the address listed above.

6. APPROVAL OF CONSENT CALENDAR

There will be no separate discussion of Consent Calendar items as they are considered to be routine by the Board of Directors and will be adopted by one motion. If a member of the Board, staff, or public requests discussion on a particular item, that item will be removed from the Consent Calendar and considered separately.

A. Approval of Minutes of the Regular Meeting of the Board of Directors held on November 12, 2019.

7. FINANCIAL REPORTS

A. Summary of the District's Cash and Investments as of October 31, 2019.

Recommendation: Receive and File.

B. Statement of the District's Revenue and Expenses as of October 31, 2019.

Recommendation: Receive and File.

C. Statement of the Industry Public Utilities Water Operations' Revenue and Expenses as of October 31, 2019.

Recommendation: Receive and File.

8. ACTION / DISCUSSION ITEMS

A. Consideration of Job Description and Salary Range for the Operations and Maintenance Superintendent Position.

Recommendation: Approve the Proposed Job Description and Salary Range for the Operations and Maintenance Position.

B. Consideration to Approve the District's 2019 Newsletter for Distribution to the District's Customers.

Recommendation: Board Discretion.

C. Receive and File the Study Prepared by Stetson Engineers of the Projected Nitrate Concentrations at the District's Wellfield.

Recommendation: Receive and File the Study.

9. ENGINEERING & COMPLIANCE MANAGER'S REPORT

Recommendation: Receive and File.

10. WORKSHOP ON THE 2020 DISTRICT BUDGET

11. GENERAL MANAGER'S REPORT

12. OTHER ITEMS

A. Upcoming Events.

B. Information Items.

13. ATTORNEY'S COMMENTS

14. BOARD MEMBER COMMENTS

A. Report on Events Attended.

B. Other Comments.

15. FUTURE AGENDA ITEMS

16. ADJOURNMENT

POSTED: Friday, November 22, 2019

President John P. Escalera, Presiding.

Any qualified person with a disability may request a disability-related accommodation as needed to participate fully in this public meeting. In order to make such a request, please contact Mr. Greg Galindo, Board Secretary, at (626) 330-2126 in sufficient time prior to the meeting to make the necessary arrangements.

Note: Agenda materials are available for public inspection at the District office or visit the District's website at www.lapuentewater.com.

MINUTES OF THE REGULAR MEETING OF
THE BOARD OF DIRECTORS OF THE
LA PUENTE VALLEY COUNTY WATER DISTRICT
FOR TUESDAY, NOVEMBER 12, 2019 AT 5:30 PM

1. CALL TO ORDER

President Escalera called the meeting to order at 5:30 p.m.

2. PLEDGE OF ALLEGIANCE

President Escalera led the meeting in the Pledge of Allegiance.

3. ROLL CALL OF THE BOARD OF DIRECTORS

President Escalera	Vice President Hernandez	Director Barajas	Director Hastings	Director Rojas
Present	Present	Present	Present	Present

OTHERS PRESENT

Staff and Counsel: General Manager & Board Secretary, Greg Galindo; Engineering and Compliance Manager, Roy Frausto and District Counsel, Jim Ciampa.

Public: No members of the public were present.

4. PUBLIC COMMENTS

There were no comments from the public.

5. ADOPTION OF AGENDA

Motion: Adopt Agenda as Presented.
1st: Director Rojas
2nd: Director Barajas

	Escalera	**Hernandez**	**Barajas**	**Hastings**	**Rojas**
Vote	Yes	Yes	Yes	Yes	Yes

Motion carried by a vote of: 5 Yes, 0 No, 0 Abstain.

6. APPROVAL OF CONSENT CALENDAR

Motion: Approve Consent Calendar as Presented.
1st: President Escalera
2nd: Director Hastings

	Escalera	Hernandez	Barajas	Hastings	Rojas
Vote	Yes	Yes	Yes	Yes	Yes

Motion carried by a vote of: 5 Yes, 0 No, 0 Abstain.

7. ACTION / DISCUSSION ITEMS

A. Consideration of Entering into a Nitrate Treatment Funding Agreement with the Cooperating Respondents.

Mr. Galindo summarized his staff report prepared for this item. He also presented the flow diagram of the District's BPOU groundwater treatment facility and explained how a nitrate treatment system could work with the existing treatment systems. Mr. Galindo also provided an explanation of substantive provisions of the proposed Nitrate Funding Agreement. There was discussion amongst the Board and Staff on certain provisions. After discussion a motion was made by Director Rojas.

Motion: Authorize the General Manager to Enter into the Nitrate Treatment Funding Agreement with the Cooperating Respondents.
1st: Director Rojas
2nd: Director Barajas

	Escalera	Hernandez	Barajas	Hastings	Rojas
Vote	Yes	Yes	Yes	Yes	Yes

Motion carried by a vote of: 5 Yes, 0 No, 0 Abstain.

B. Consideration of Quote from Tri County Pump Company to Repair and Install Two Seventy-Five (75) Horse Power Motors for the District's Hudson Avenue Pump Station.

Mr. Galindo summarized hos staff report on this item. He provided additional information on the need for the motor repairs and on additional work that will be needed at the Hudson Booster Station. After some discussion, a motion was made by Director Rojas.

Motion: Authorize the General Manager to Proceed with the Work as Quoted by Tri County Pump Company for an Amount Not to Exceed $15,000.
1st: Director Rojas
2nd: Director Hastings

	Escalera	Hernandez	Barajas	Hastings	Rojas
Vote	Yes	Yes	Yes	Yes	Yes

Motion carried by a vote of: 5 Yes, 0 No, 0 Abstain

C. Discussion Regarding the Board Meeting Schedule for December 2019.

Mr. Galindo reviewed the Regular Board Meeting schedule for December 2019 with the Board. After some discussion it was the consensus of the Board to reschedule the December 23, 2019 Regular Meeting of the Board. A motion was made by Director Rojas.

Motion: Reschedule the December 23, 2019 Regular Meeting of the Board of Directors to Monday, December 16, 2019 at 5:30 pm.
1st: Director Rojas
2nd: Director Hernandez

	Escalera	Hernandez	Barajas	Hastings	Rojas
Vote	Yes	Yes	Yes	Yes	Yes

Motion carried by a vote of: 5 Yes, 0 No, 0 Abstain

D. Update on the District's Recycled Water Project.

Mr. Frausto provided a summary of his staff report on this item. There was discussion amongst the Board and staff on the Recycled Water Project's schedule and cost. This item was for discussion only and no formal action was taken.

8. GENERAL MANAGER'S REPORT

Mr. Galindo reported that he has enjoyed working with Mr. Frausto and that he will be missed, but wished him the best of luck at his new employer.

Mr. Galindo reported that as he looks to replace Mr. Frausto's position, he believes a change to the position is the best way to move forward. He stated he would like to create an Operations and Maintenance Superintendent position to replace the Engineering and Compliance Manager position and that he would be bringing that item to the Board for consideration at the next meeting. He provided some reasons why he believes this would be a benefit to the District. He also provided some specifics on the proposed position and the recruitment process to fill the position. There was some discussion on the item amongst the Board and Mr. Galindo.

Mr. Galindo reported that the District's Newsletter will be considered at the next Board meeting.

Mr. Galindo also reported on the construction status of the PVOU IZ project and requested that any members of the Board that would like to visit the construction site to contact him and he will coordinate a visit.

9. OTHER ITEMS

A. Upcoming Events.

Mr. Galindo reviewed upcoming events with the Board and verified what events each member would be attending.

B. Information Items.

Mr. Galindo reviewed one of the information items, that staff prepared, on the District's office schedule through the Holidays.

10. ATTORNEY'S COMMENTS

Mr. Ciampa had no items to report.

11. BOARD MEMBER COMMENTS

A. Report on Events Attended.

President Escalera, Director Hastings & Director Bajaras reported that they had attended the SCWUA monthly meeting where they discussed the water utility data collaborative.

President Escalera also reported that he attended the AWWA Fall conference in San Diego.

B. Other Comments.

President Escalera requested that the meeting be closed in memory of Mr. Andy Rodriguez, who was a longtime resident of La Puente.

12. FUTURE AGENDA ITEMS

No future agenda items were requested.

13. ADJOURNMENT

President Escalera adjourned the meeting at 6:25 p.m. in memory of longtime resident of La Puente, Mr. Andy Rodriguez.

Attest:

John P. Escalera, President	Greg B. Galindo, Secretary

Summary of Cash and Investments
October 2019

La Puente Valley County Water District

Investments	Interest Rate (Apportionment Rate)	Beginning Balance	Receipts/ Change in Value	Disbursements/ Change in Value	Ending Balance
Local Agency Investment Fund	2.19%	$ 3,004,975.13	$ 18,510.07	$ -	$ 3,023,485.20
Raymond James Financial Services		$ 101,641.60	$ 256.70	$ -	$ 101,898.30
Checking Account					
Well Fargo Checking Account (per General Ledger)		$ 275,970.70	$ 341,603.85	$ 353,008.15	$ 264,566.40
				District's Total Cash and Investments:	**$ 3,389,949.90**

Industry Public Utilities

Checking Account	Beginning Balance	Receipts	Disbursements	Ending Balance
Well Fargo Checking Account (per General Ledger)	$ 807,231.15	$ 286,445.51	$ 134,411.45	$ 959,265.21
			IPU's Total Cash and Investments:	**$ 959,265.21**

I certify that; (1) all investment actions executed since the last report have been made in full compliance with the Investment Policy as set forth in Resolution No. 237 and, (2) the District will meet its expenditure obligations for the next six (6) months.

_____ , General Manager Date: 11.21.19

Greg B. Galindo

La Puente Valley County Water District (Treatment Plant Included)
Statement of Revenues and Expenses
For the Period Ending October 31, 2019
(Unaudited)

	LPVCWD YTD 2019	TP YTD 2019	COMBINED YTD 2019	COMBINED BUDGET 2019	83% OF BUDGET	COMBINED 2018 YE
Total Operational Rate Revenues	$ 1,772,285	$ -	$ 1,772,285	$ 2,075,000	85%	$ 2,027,154
Total Operational Non-Rate Revenues	810,482	897,458	1,707,941	2,355,900	72%	$ 2,307,988
Total Non-Operating Revenues	233,833	-	233,833	340,500	69%	361,363
TOTAL REVENUES	**2,816,600**	**897,458**	**3,714,059**	**4,771,400**	**78%**	**4,696,506**
Total Salaries & Benefits	1,412,477	245,508	1,657,985	2,009,900	82%	1,931,953
Total Supply & Treatment	624,870	547,093	1,171,963	1,793,200	65%	1,631,908
Total Other Operating Expenses	175,754	85,825	261,579	481,000	54%	320,725
Total General & Administrative	271,701	19,032	290,733	412,200	71%	393,526
TOTAL EXPENSES	**2,484,802**	**897,458**	**3,382,260**	**4,696,300**	**72%**	**4,278,112**
TOTAL OPERATIONAL INCOME	**331,799**	**-**	**331,799**	**75,100**	**442%**	**418,394**
Capital Improvements	(266,861)	-	(266,861)	(797,000)	33%	(262,934)
Capital Outlay	(34,402)	-	(34,402)	(70,000)	49%	-
TOTAL CAPITAL	**(301,263)**	**-**	**(301,263)**	**(867,000)**	**35%**	**(262,934)**
INCOME (AFTER CAPITAL EXP.)	**30,536**	**-**	**30,536**	**(791,900)**	**-4%**	**155,461**
Capital Reimbursement (OU Projects)	-	-	-	160,000	0%	-
Grant Revenue	-	-	-	-		-
Loan Proceeds	-	-	-	-		-
Loan Repayment	-	-	-	-	0%	-
PROJECTED CHANGE IN CASH	**30,536**	**-**	**30,536**	**(631,900)**	**-5%**	**155,461**
Contributed Capital	-	-	-	-		213,160
Add Back Capitalized Assets	301,263	-	301,263	867,000	35%	262,934
Less Depreciation Expense	(316,667)	(150,000)	(466,667)	(560,000)	83%	(520,380)
Less OPEB & Pension Liability Expense	-	-	-	(10,000)	0%	(65,927)
NET INCOME (LOSS)	**$ 15,132**	**$ (150,000)**	**$ (134,868)**	**$ (334,900)**	**40%**	**$ 45,248**

La Puente Valley County Water District
Statement of Revenues and Expenses
For the Period Ending October 31, 2019
(Unaudited)

	October 2019	YTD 2019	ANNUAL BUDGET 2019	83% OF BUDGET	YEAR END 2018
Operational Rate Revenues					
Water Sales	$ 164,349	$ 1,095,576	$ 1,300,000	84%	$ 1,279,563
Service Charges	63,007	551,989	640,000	86%	612,240
Surplus Sales	4,591	43,372	40,000	108%	45,028
Customer Charges	4,665	30,438	34,100	89%	30,661
Fire Service	8,831	50,290	59,900	84%	57,698
Miscellaneous Income	-	620	1,000	62%	1,964
Total Operational Rate Revenues	**245,443**	**1,772,285**	**2,075,000**	**85%**	**2,027,154**
Operational Non-Rate Revenues					
Management Fees	-	218,569	265,900	82%	260,711
PVOU Service Fees (Labor)	-	8,081	20,000	40%	14,553
BPOU Service Fees (Labor)	27,802	245,508	301,400	81%	304,377
IPU Service Fees (Labor)	61,361	583,832	695,600	84%	688,181
Other O & M Fees	-	-	13,000	0%	12,892
Total Operational Non-Rate Revenues	**89,163**	**1,055,991**	**1,295,900**	**81%**	**1,280,713**
Non-Operational Revenues					
Taxes & Assessments	-	126,622	215,000	59%	244,409
Rental Revenue	3,116	30,887	36,800	84%	36,038
Interest Revenue	-	55,232	67,000	82%	56,997
Miscellaneous Income	287	16,700	16,700	100%	19,382
Developer Fees	-	4,392	5,000	88%	4,537
Total Non-Operational Revenues	**3,403**	**233,833**	**340,500**	**69%**	**361,363**
TOTAL REVENUES	**338,009**	**3,062,109**	**3,711,400**	**83%**	**3,669,231**
Salaries & Benefits					
Total District Wide Labor	103,157	978,910	1,195,800	82%	1,109,643
Directors Fees & Benefits	10,704	93,669	116,600	80%	118,898
Benefits	26,180	262,297	308,800	85%	302,046
OPEB Payments	1,374	111,445	142,000	78%	150,061
Payroll Taxes	7,832	78,719	92,800	85%	92,806
Retirement Program Expense	12,063	132,946	153,900	86%	158,499
Total Salaries & Benefits	**161,310**	**1,657,985**	**2,009,900**	**82%**	**1,931,953**
Analysis Purposes Only:					
Offsetting Revenue	**(89,163)**	**(837,422)**	**(1,017,000)**	**82%**	**(1,007,110)**
District Labor Net Total	**72,147**	**820,564**	**992,900**	**83%**	**924,843**
Supply & Treatment					
Purchased & Leased Water	228	225,186	467,200	48%	377,335
Power	12,954	130,904	163,700	80%	151,904
Assessments	-	220,707	248,300	89%	189,588
Treatment	439	2,696	6,700	40%	2,898
Well & Pump Maintenance	32,424	45,378	45,000	101%	19,250
Total Supply & Treatment	**46,045**	**624,870**	**930,900**	**67%**	**740,975**

La Puente Valley County Water District
Statement of Revenues and Expenses
For the Period Ending October 31, 2019
(Unaudited)

	October 2019	YTD 2019	ANNUAL BUDGET 2019	83% OF BUDGET	YEAR END 2018
Other Operating Expenses					
General Plant	3,547	24,266	48,100	50%	24,799
Transmission & Distribution	8,114	46,198	102,400	45%	75,273
Vehicles & Equipment	7,065	25,539	31,300	82%	21,166
Field Support & Other Expenses	3,426	37,079	69,000	54%	44,972
Regulatory Compliance	434	42,673	63,000	68%	34,621
Total Other Operating Expenses	**22,586**	**175,754**	**313,800**	**56%**	**200,831**
General & Administrative					
District Office Expenses	10,996	59,203	64,100	92%	31,919
Customer Accounts	1,845	18,943	25,000	76%	20,161
Insurance	5,567	42,252	65,800	64%	65,177
Professional Services	2,805	73,282	120,000	61%	149,737
Training & Certification	6,501	38,980	37,500	104%	38,323
Public Outreach & Conservation	1,328	7,887	32,500	24%	35,382
Other Administrative Expenses	1,244	31,153	36,800	85%	36,377
Total General & Administrative	**30,286**	**271,701**	**381,700**	**71%**	**377,077**
TOTAL EXPENSES	**260,227**	**2,730,310**	**3,636,300**	**75%**	**3,250,836**
TOTAL OPERATIONAL INCOME	**77,782**	**331,799**	**75,100**	**442%**	**418,395**
Capital Improvements					
Zone 3 Improvements	-	(10,860)	-	N/A	(174,029)
Fire Hydrant Repair/Replacements	-	(2,940)	(5,000)	59%	(15,001)
Service Line Replacements	-	(20,580)	(37,000)	56%	(60,055)
Valve Replacements	-	(9,593)	(40,000)	24%	(7,710)
Meter Read Collection System	-	-	(20,000)	0%	(181)
SCADA Improvements	-	-	-	N/A	-
Main & 1st Street Building Retrofit	-	-	-	N/A	(4,080)
Ferrero Lane & Rorimer St. Improvements	-	-	(40,000)	0%	-
5th Avenue Waterline Improvement	-	(170,870)	(180,000)	95%	-
LP-CIWS Interconnection (Ind. Hills)	-	-	(10,000)	0%	-
Hudson Plant Improvements	-	-	(30,000)	0%	-
Well No.5 Rehab (Design)	(77)	(51,311)	(165,000)	31%	-
Nitrate Treatment System	-	-	(85,000)	0%	-
Phase 1 - Recycled Water Project	(708)	(708)	(170,000)	5%	(1,879)
Other Improvements			(15,000)		-
Total Capital Improvements	**(785)**	**(266,861)**	**(797,000)**	**33%**	**(262,934)**

La Puente Valley County Water District
Statement of Revenues and Expenses
For the Period Ending October 31, 2019
(Unaudited)

	October 2019	YTD 2019	ANNUAL BUDGET 2019	83% OF BUDGET	YEAR END 2018
Capital Outlay					
Truck(s)	-	(34,402)	(40,000)	86%	-
Other Equipment	-	-	(10,000)	0%	-
IT Equipment	-	-	(20,000)	0%	-
Total Capital Outlay	**-**	**(34,402)**	**(70,000)**	**49%**	**-**
TOTAL CAPITAL	**(785)**	**(301,263)**	**(867,000)**	**35%**	**(262,934)**
INCOME (AFTER CAPITAL EXP.)	**76,997**	**30,536**	**(791,900)**	**-4%**	**155,462**
Funding & Debt Repayment					
Capital Reimbursement (OU Projects)	-	-	160,000	0%	-
Grant Revenue	-	-	-	N/A	-
Loan Proceeds	-	-	-	N/A	-
Loan Repayment	-	-	-	N/A	-
CASH DIFFERENCE	**76,997**	**30,536**	**(631,900)**	-5%	**155,462**
Contributed Capital	-	-	-	N/A	213,160
Add Back Capitalized Assets	785	301,263	867,000	35%	262,934
Less Depreciation Expense	(31,667)	(316,667)	(380,000)	83%	(364,997)
Less OPEB Expense - Not Funded	-	-	(10,000)	0%	(65,927)
NET INCOME (LOSS)	**$ 46,115**	**$ 15,132**	**$ (154,900)**	**-10%**	**$ 200,632**

Treatment Plant
Statement of Revenues and Expenses
For the Period Ending October 31, 2019
(Unaudited)

	October 2019	YTD 2019	ANNUAL BUDGET 2019	83% OF BUDGET	YEAR END 2018
Non-Rate Operational Revenues					
Reimbursements from CR's	38,604	651,950	$ 1,361,400	48%	1,027,275
Miscellaneous Income	-	-	-	N/A	-
Total Non-Rate Operational Revenues	**38,604**	**651,950**	**1,361,400**	**48%**	**1,027,275**
Salaries & Benefits					
BPOU TP Labor (1)	*27,802*	*245,508*	*301,400*	*81%*	-
Contract Labor	-	-	-	N/A	-
Total Salaries & Benefits	**27,802**	**245,508**	**301,400**	**81%**	**-**
Supply & Treatment					
NDMA, 1,4-Dioxane Treatment	4,610	127,601	218,200	58%	209,363
VOC Treatment	642	6,462	20,000	32%	1,756
Perchlorate Treatment	1,895	206,226	344,000	60%	446,147
Other Chemicals	1,373	20,327	17,500	116%	14,148
Treatment Plant Power	12,178	141,236	200,200	71%	185,672
Treatment Plant Maintenance	3,689	25,189	42,000	60%	24,568
Well & Pump Maintenance	-	20,052	20,400	98%	9,279
Total Supply & Treatment	**24,387**	**547,093**	**862,300**	**63%**	**890,933**
Other Operating Expenses					
General Plant	1,990	15,026	40,000	38%	16,262
Transmission & Distribution	1,236	3,255	-	N/A	263
Vehicles & Equipment	759	9,493	12,200	78%	10,926
Field Support & Other Expenses	-	22	15,000	0%	55
Regulatory Compliance	4,849	58,030	100,000	58%	92,388
Total Other Operating Expenses	**8,834**	**85,825**	**167,200**	**51%**	**119,894**
General & Administrative					
District Office Expenses	-	-	2,500	0%	-
Insurance	5,384	10,362	18,000	58%	9,153
Professional Services	-	8,670	10,000	87%	7,296
Total General & Administrative	**5,384**	**19,032**	**30,500**	**62%**	**16,449**
TOTAL EXPENSES	**66,406**	**897,458**	**1,361,400**	66%	**1,027,276**
TOTAL EXPENSES (Minus Labor)	***38,604***	***651,950***	***1,060,000***	*62%*	***1,027,276***
TOTAL OPERATIONAL INCOME	**-**	**-**	**-**		**-**
Depreciation Expense	(15,000)	(150,000)	(180,000)	83%	(155,383)
Total Non-Cash Items (Dep. & OPEB)	**(15,000)**	**(150,000)**	**(180,000)**	**83%**	**(155,383)**
NET INCOME (LOSS)	**$ (15,000)**	**$ (150,000)**	**$ (180,000)**	**83%**	**(155,383)**

(1) *The labor expense depicted here is the amount of labor billed to the BPOU in which the District recieves reimbursement which is shown on on the District's Statement of Revenues and Expenses as operational non-rate revenue (BPOU Service Fees).*

INDUSTRY PUBLIC UTILITIES - WATER OPERATIONS
Statement of Revenue and Expenses Summary
For the Period Ending October 31, 2019
(Unaudited)

	October 2019	FISCAL YTD 2019-2020	BUDGET FY 2019-2020	33% OF BUDGET	FY END 2018-2019
Total Operational Revenues	$ 129,380	$ 662,393	$ 1,983,600	33%	$ 1,870,756
Total Non-Operational Revenues	-	-	42,500	0%	31,502
TOTAL REVENUES	**129,380**	**662,393**	**2,026,100**	**33%**	**1,902,258**
Total Salaries & Benefits	61,361	226,224	687,500	33%	674,004
Total Supply & Treatment	10,762	95,314	667,200	14%	780,162
Total Other Operating Expenses	13,946	37,688	221,000	17%	179,462
Total General & Administrative	17,664	77,110	304,000	25%	265,387
Total Other & System Improvements	6,953	25,801	287,800	9%	68,587
NET OPERATING INCOME (LOSS)	**110,685**	**462,137**	**2,167,500**	**21%**	**1,967,602**
OPERATING INCOME	**18,695**	**200,256**	**(141,400)**		**(65,344)**
NET INCOME (LOSS)	**$ 18,695**	**$ 200,256**	**$ (141,400)**		**$ (65,344)**

INDUSTRY PUBLIC UTILITIES - WATER OPERATIONS
Statement of Revenue and Expenses
For the Period Ending October 31, 2019
(Unaudited)

		October 2019	FISCAL YTD 2019-2020	BUDGET FY 2019-2020	33% OF BUDGET	FY END 2018-2019
Operational Revenues						
1	Water Sales	$ 77,284	$ 426,816	$ 1,239,000	34%	$ 1,133,233
2	Service Charges	46,572	196,151	618,600	32%	615,778
3	Customer Charges	1,340	5,785	21,000	28%	19,095
4	Fire Service	4,184	33,641	105,000	32%	102,650
5	*Total Operational Revenues*	**129,380**	**662,393**	**1,983,600**	**33%**	**1,870,756**
Non-Operational Revenues						
6	Contamination Reimbursement	-	-	40,000	0%	31,502
7	Developer Fees	-	-	2,500	0%	-
8	Miscellaneous Income	-	-	-	N/A	-
9	*Total Non-Operational Revenues*	**-**	**-**	**42,500**	**0%**	**31,502**
10	**TOTAL REVENUES**	**129,380**	**662,393**	**2,026,100**	**33%**	**1,902,258**
Salaries & Benefits						
11	Administrative Salaries	18,659	69,202	202,400	34%	200,341
12	Field Salaries	20,925	75,922	234,800	32%	231,034
13	Employee Benefits	13,120	47,906	150,100	32%	145,869
14	Pension Plan	5,973	21,682	61,900	35%	60,337
15	Payroll Taxes	2,684	9,840	31,700	31%	29,991
16	Workman's Compensation	-	1,671	6,600	25%	6,431
17	*Total Salaries & Benefits*	**61,361**	**226,224**	**687,500**	**33%**	**674,004**
Supply & Treatment						
18	Purchased Water - Leased	-	-	235,900	0%	379,470
19	Purchased Water - Other	1,089	7,285	22,500	32%	21,271
20	Power	2,882	48,127	125,000	39%	98,112
21	Assessments	6,618	13,236	232,700	6%	161,648
22	Treatment	173	173	6,100	3%	7,399
23	Well & Pump Maintenance	-	26,493	45,000	59%	112,261
24	*Total Supply & Treatment*	**10,762**	**95,314**	**667,200**	**14%**	**780,162**
Other Operating Expenses						
25	General Plant	288	1,459	35,000	4%	13,288
26	Transmission & Distribution	10,124	21,383	75,000	29%	77,363
27	Vehicles & Equipment	-	-	36,000	0%	33,891
28	Field Support & Other Expenses	3,039	9,111	35,000	26%	24,898
29	Regulatory Compliance	495	5,735	40,000	14%	30,022
30	*Total Other Operating Expenses*	**13,946**	**37,688**	**221,000**	**17%**	**179,462**

INDUSTRY PUBLIC UTILITIES - WATER OPERATIONS
Statement of Revenue and Expenses
For the Period Ending October 31, 2019
(Unaudited)

		October 2019	FISCAL YTD 2019-2020	BUDGET FY 2019-2020	33% OF BUDGET	FY END 2018-2019
General & Administrative						
31	Management Fee	-	47,356	191,300	25%	187,569
32	Office Expenses	1,307	7,355	19,200	38%	34,693
33	Insurance	12,852	13,327	15,000	89%	14,991
34	Professional Services	-	297	30,000	1%	4,514
35	Customer Accounts	1,960	6,520	30,000	22%	17,674
36	Public Outreach & Conservation	1,304	1,344	15,000	9%	4,038
37	Other Administrative Expenses	241	909	3,500	26%	1,908
38	*Total General & Administrative*	**17,664**	**77,110**	**304,000**	**25%**	**265,387**
Other Exp. & System Improvements (Water Ops Fund)						
39	Fire Hydrant Repair/Replace	-	773	6,300	12%	11,629
40	Service Line Replacements	2,420	2,420	30,000	8%	44,327
41	Valve Replacements & Installations	-	6,199	19,500	32%	8,723
42	Meter Read Collection System	-	-	12,000	0%	-
43	SCADA System Assessment & Improvement	-	-	20,000	0%	-
44	Water Rate Study	4,533	16,409	-	0%	3,908
45	Groundwater Treatment Facility Feasability Stud	-	-	200,000	0%	-
46	*Total Other & System Improvements*	**6,953**	**25,801**	**287,800**	**9%**	**68,587**
47	**TOTAL EXPENSES**	**110,685**	**462,137**	**2,167,500**	**21%**	**1,967,602**
48	**NET OPERATING INCOME (LOSS)**	**18,695**	**200,256**	**(141,400)**		**(65,344)**

STAFF REPORT

Meeting Date: November 24, 2019

To: Honorable Board of Directors

Subject: Deletion of the vacated Engineering and Compliance Manager position and Creation of the Operations and Maintenance Superintendent position

Purpose - *To delete the position of Engineering and Compliance Manager and to create a new position named Operations and Maintenance Superintendent and adopt a job description and salary range for the new position.*

Recommendation - *Delete the positon of Engineering and Compliance Manager and approve the job description and salary range for the Operations and Maintenance Superintendent position, effective December 1, 2019. In addition, authorize the General Manager to offer, if appropriate, an additional week of vacation benefit to a prospective candidate.*

Fiscal Impact - *The new position will not have a material fiscal impact, since the expense for the new positon will be offset by the deletion of the Engineering and Compliance Manger positon.*

Summary

As the Board is aware, our Engineering and Compliance Manager recently accepted a job offer with another water agency with his last day being November 27, 2019.

Upon receiving news of this change in staffing, I assessed the current and future needs of the District to determine how best to fill the vacancy. I determined that the creation of an Operations and Maintenance Superintendent position would best meet our needs considering the addition of the PVOU IZ treatment facility, our upcoming capital projects and ongoing regulatory compliance needs. I have created a job description for this position (enclosed) and as you can see the position has a great deal of responsibility. As the District transition from our current organizational structure to a new structure, I will be more involved with capital improvement projects and less involved with daily operations and maintenance items.

At the upcoming Board meeting, I look forward to discussing this matter with you and answering questions you might have regarding my recommendation.

Fiscal Impact

The new Operations and Maintenance position will not have a material fiscal impact, since the expense for the new positon will be offset by the deletion of the Engineering and Compliance Manger positons

Recommendation

Staff recommends that the Board of Directors delete the positon of Engineering and Compliance Manager and approve the job description and salary range for the Operations and Maintenance Superintendent position, effective December 1, 2019. In addition, staff recommends the Board authorize the General Manager to offer, if appropriate, an additional week of vacation benefit to a prospective candidate.

Respectfully Submitted,

Greg B. Galindo

General Manager

Enclosure(s)

- Proposed Job Description for the Operations and Maintenance Superintendent
- Proposed District Salary Schedule with the New Position Included
- New Organization Chart with the Proposed Changes in Staffing

JOB DESCRIPTION

COMPLIANCE OFFICER / PROJECT ENGINEER

Date: December 1, 2019 Salary | **Reports to: General Manager**

Range: CO/PE | **FLSA: Non- Exempt**

Other: Safety Sensitive Position

DEFINITION

Reporting to the General Manager, the Compliance Officer/Project Engineer is responsible for professional, administrative, and technical work managing the District's adherence to local, state and federal regulations that govern drinking water quality, environmental compliance, and safety compliance. Also responsible for planning, coordinating and overseeing various engineering processes and projects, including developer-led and/or capital facility engineering, design, plan checking and construction support. Prepares or directs preparation of various engineering documents, including studies, reports, maps, exhibits, and correspondence. Work is performed under general administrative supervision with considerable latitude for the use of independent judgment and selection of work methods and procedures.

EXAMPLES OF ESSENTIAL DUTIES

The following are duties performed by employees in this class. Duties listed are not meant to be all-inclusive. Other duties may be required as assigned.

- Serves as liaison to regulatory agencies; interpretation of laws, regulations, rules and ordinances; environmental protection program implementation; performing technical computations; and preparation of permit applications and regulatory reports required to operate the District's water production, treatment and distribution facilities.
- Responsible for developing, maintaining, and submitting all required plans, documents, and reports to regulatory agencies (i.e., RWQCB, NPDES, EPA, SCAQMD, and OSHA).
- Manages and directs the implementation of projects, programs and responsibilities as assigned, including engineering design documents, negotiation and implementation of agreements and contracts, development of grant funding or other funding by outside agencies or organizations.
- Maintain, compose and administer all documents related to public contracts and projects (notice to proceed, certified payrolls, daily inspection logs, notice of completion, and CEQA filings).
- Prepares and administers the capital improvement project budgets and other expenses.
- Develop work standards, emergency plans, and development/capacity fee reports.

- Design, review, and comment on project plans, perform engineering calculations, compose specifications, respond to RFI's, host meetings, and compose project estimates and RFP's.
- Plan, supervise, and budget all projects to meet/exceed the District's financial goals.
- Directly communicate and exchange information with consultants, regulatory officials, public officials, board of directors, legal counsel, engineers, contractors, and developers.
- Coordinate with District staff to accomplish projects and objectives.
- Interfaces with the public and others stakeholders by phone, written correspondence, in the office and at various scheduled District events.

OTHER DUTIES

- Prepare the annual Consumer Confidence Report.
- Update and maintain District's GIS mapping and asset allocation system.
- Act as District construction inspector for water related construction projects.
- Monitors and responds to water system alarms (SCADA) on as needed basis.
- Attends Board of Director meetings as directed by General Manager.
- Serves as a liaison with vendors and contractors.
- Communicates with customers, face-to-face and via the telephone, to discuss and resolve problems and concerns.
- Performs other duties as assigned.

JOB STANDARDS / SPECIFICATIONS

Knowledge of:

- Advanced principles and practices related to civil engineering.
- Principles of management, administration, finance, and controls in a utility organization.
- Water production, treatment, and distribution systems including their design, operation, maintenance, equipment, and related material.
- Engineering economics and construction project management.
- Pertinent Federal, State, and local laws and regulations.
- State, County, City, Utility and Department organizational relationships.
- Personal computers and engineering related software applications including Auto Cad and GIS.
- Engineering project administration procedures and practices.
- Engineering maps and records; and symbols used on maps, plans and blueprints.
- Safety standards and regulations apply to the water utility industry.

Ability to:

- Drafts maps, plans, charts, graphs and technical drawings in Auto Cad, ink or pencil, as required.

- Accurately perform moderately complex drafting, engineering designs, estimates and computations.
- Apply direct engineering principles and practices to the solution of specific engineering problems for the District.
- Interpret and analyze technical information, make independent judgments, and implement recommendations through subordinate staff.
- Plan, organize, administer, coordinate, and direct the activities of multiple engineering related functions.
- Exercise tact and deal effectively with co-workers, officials and representatives of other jurisdictions, departments, and the general public.
- Perform technical research and provide reliable advice on engineering problems or projects.
- Communicate clearly and concisely, both orally and in writing.
- Operate a vehicle observing legal and defensive driving practices.
- Operate standard office equipment, personal computers, Internet, Microsoft Office software products, and engineering related software including Auto Cad and Arc view. Prepare and check complete maps, estimates and materials of assigned projects.
- Keep accurate construction records and prepare required reports.
- Complete inspections ensuring compliance with District standards.
- Locate and mark facilities in the field.
- Operate a vehicle observing legal and defensive driving practices.
- Observe proper safety precautions.
- Work overtime as required.
- Work independently with limited supervision.
- Stand, climb, walk, lift, bend, pull and/or push, grasp, reach, stoop and crouch, sit, type, read, write, speak and listen for extended periods of time.

TYPICAL PHYSICAL ACTIVITIES

- Work at a desk for an extended period of time.
- May include but not limited to standing, climbing, walking, lifting, bending, pulling and/or pushing, grasping, reaching, stooping and crouching, sitting, typing, walking, reading, writing, color determination, speaking and listening for extended periods of time.
- Travels by automobile in conducting District business.
- Must be able to carry, push, pull, reach, and lift equipment and parts weighing up to 30 pounds.
- Stoops, kneels, crouches, crawls, and climbs during field inspection work.
- At times may work in an environment with exposure to dust, dirt, and significant temperature changes between cold and heat.
- Communicates orally with District staff in face-to-face, one-to-one settings.

- Regularly uses a telephone and radio for communication.
- Uses office equipment such as computer terminals and copiers.
- Hearing and vision within normal ranges with or without correction.
- Sufficient finger/hand coordination and dexterity to operate and adjust office equipment.

ENVIRONMENTAL FACTORS

1. Exposure to the sun: 10% or less work time spent outside a building and exposed to the sun.
2. Irregular or extended work hours: Occasionally required to change working hours or work overtime.
3. High temp: Some work time spent in high temperatures.
4. Low temp: Some work time spent in low temperatures.
5. Noise: Occasionally there are unusually loud sounds.
6. Slippery surfaces: Occasional work on unusually slippery surfaces.
7. Dust: Works in or around areas with minor amounts of dust.

DESIRABLE QUALIFICATIONS

Experience: Five years of experience in performing complex/technical task in the areas of water quality/compliance and engineering.

Training/Education: Bachelor's degree (B.S.) from an accredited college or university with major course work in civil engineering or a related field.

LICENSE, CERTIFICATE, REGISTRATION, REQUIREMENTS

Possession of a valid California Class C Driver License is required at the time of appointment.

Possession of a Grade II Water Treatment Operator certificate issued by the State Water Resources Control Board - Division of Drinking Water or the ability to obtain within 1 year.

Possession of a Grade II Water Distribution Operator certificate issued by the State Water Resources Control Board - Division of Drinking Water or the ability to obtain within 1 year.

Possession of an AWWA Cross-Connection Control Specialist Certificate (preferred)

Cal OSHA 10 Hour Construction Safety (certificate of course completion).

Failure to obtain or maintain such required license(s) may be cause for disciplinary action.

The District may allow an appropriate amount of time to obtain required certifications, as specified and agreed upon at the time of hire.

I have reviewed this Job Description with the General Manager and agree with its contents.

_____

Employee Signature Date

_____

Supervisor Signature Date

The specific statements shown in each section of this job description are not intended to be all- inclusive. They represent typical elements and criteria necessary to successfully perform the job.

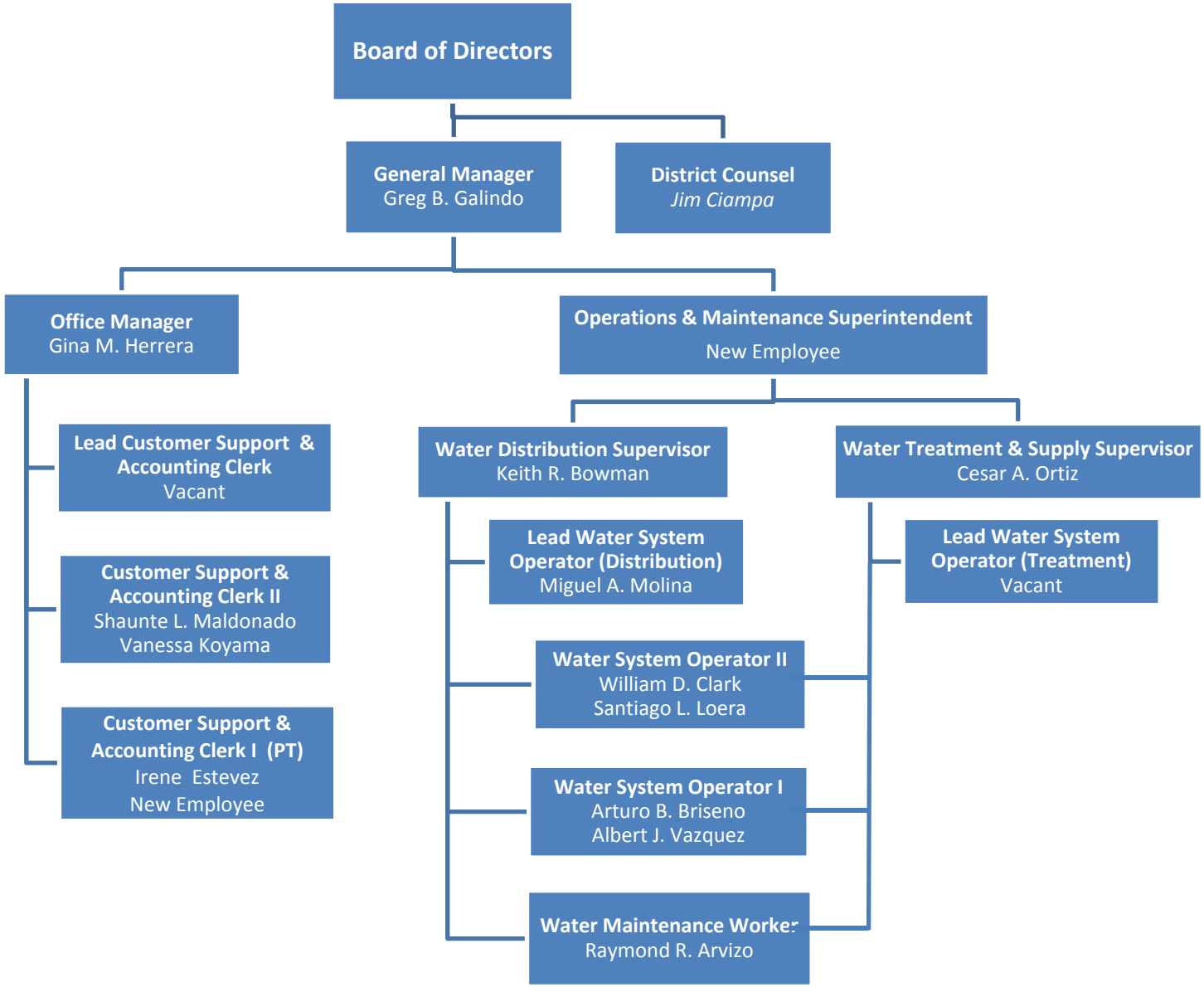
La Puente Valley County Water District

Salary Schedule - Revised for December 1, 2019

Range	Position	Time	Proposed		
			Begin	Mid	End
GM	General Manager	Annual	**$ 118,277**	**$ 138,963**	**$ 159,650**
		Month	$ 9,856	$ 11,580	$ 13,304
		Hour	$ 56.86	$ 66.81	$ 76.75
OMS	Operation and Maintenance Superintendent	Annual	**$ 94,000**	**$ 105,750**	**$ 117,500**
		Month	$ 7,833	$ 8,813	$ 9,792
		Hour	$ 45.19	$ 50.84	$ 56.49
OM	Office Manager	Annual	**$ 81,988**	**$ 92,237**	**$ 102,485**
		Month	$ 6,832	$ 7,686	$ 8,540
		Hour	$ 39.42	$ 44.34	$ 49.27
WTS	Water Treatment & Supply Supervisor	Annual	**$ 81,988**	$ 92,237	**$ 102,485**
		Month	$ 6,832	$ 7,686	$ 8,540
		Hour	$ 39.42	$ 44.34	$ 49.27
WDS	Water Distribution Supervisor	Annual	**$ 73,336**	**$ 82,503**	**$ 91,670**
		Month	$ 6,111	$ 6,875	$ 7,639
		Hour	$ 35.26	$ 39.66	$ 44.07
LWT	Lead Water System Operator (Treatment)	Annual	**$ 66,744**	**$ 75,087**	**$ 83,430**
		Month	$ 5,562	$ 6,257	$ 6,953
		Hour	$ 32.09	$ 36.10	$ 40.11
LWD	Lead Water System Operator (Distribution)	Annual	**$ 63,448**	**$ 71,379**	**$ 79,310**
		Month	$ 5,287	$ 5,948	$ 6,609
		Hour	$ 30.50	$ 34.32	$ 38.13
WSOII	Water System Operator II	Annual	**$ 59,328**	**$ 66,744**	**$ 74,160**
		Month	$ 4,944	$ 5,562	$ 6,180
		Hour	$ 28.52	$ 32.09	$ 35.65
WSOI	Water System Operator I	Annual	**$ 54,384**	**$ 61,182**	**$ 67,980**
		Month	$ 4,532	$ 5,099	$ 5,665
		Hour	$ 26.15	$ 29.41	$ 32.68
WMW	Water System Maintenance Worker	Annual	**$ 48,616**	**$ 54,693**	**$ 60,770**
		Month	$ 4,051	$ 4,558	$ 5,064
		Hour	$ 23.37	$ 26.29	$ 29.22
LCS	Lead Customer Support & Accounting Clerk	Annual	**$ 51,912**	**$ 58,401**	**$ 64,890**
		Month	$ 4,326	$ 4,867	$ 5,408
		Hour	$ 24.96	$ 28.08	$ 31.20
CSII	Customer Support & Accounting Clerk II	Annual	**$ 46,968**	**$ 52,839**	**$ 58,710**
		Month	$ 3,914	$ 4,403	$ 4,893
		Hour	$ 22.58	$ 25.40	$ 28.23
CSI	Customer Support & Accounting Clerk I	Annual	**$ 37,492**	**$ 45,526**	**$ 53,560**
		Month	$ 3,124	$ 3,794	$ 4,463
		Hour	$ 18.03	$ 21.89	$ 25.75

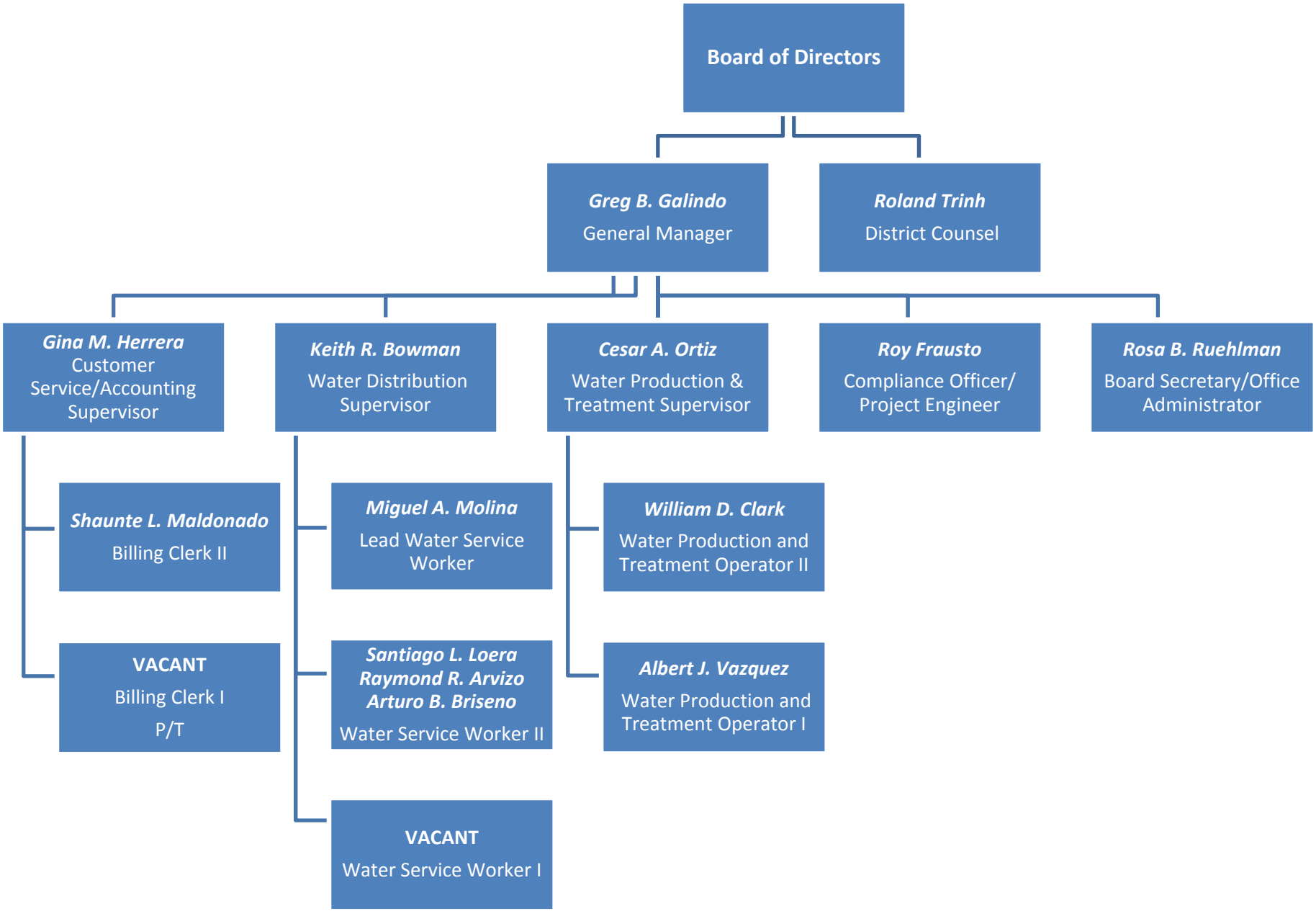
Organizational Chart

Proposed December 1, 2019



Organizational Chart

December 1, 2019



The La Puente Valley County Water District is Committed to Water Quality

Fall **News**letter | 2019

Serving Your Community **Since 1924**

Your Rate Dollars Hard at Work

Our customers come first and keeping you informed of important projects, programs and initiatives that affect your water and your rates is a top priority for La Puente Valley County Water District. We are committed to providing regular updates to transparently tell the story of where we are investing your dollars to ensure a reliable source of water for years to come.

Throughout our fall newsletter, you'll learn more about the important initiatives that are underway.

FOR MORE INFORMATION
on all these projects and to learn more about our District, visit **LaPuenteWater.com.**

Investing in Local Water Supply Projects

The District is proactively tackling projects to ensure a local, reliable source of water for years to come.

Banbridge Pump Station Project

Status: **Completed in early 2019**
Project Cost: **$220,000**

The District rehabilitated an aging, inefficient pump station by replacing the pumping system to improve the reliability of service in its Service Zone 3.

5th Street Waterline Improvement Project

Status: **Completed in August 2019**
Project Cost: **$187,000**

The District installed approximately 600 feet of 12-inch waterline to improve reliability and fire flow capacity on 5th Street and Workman Avenue.

Puente Valley Operable Unit Intermediate Zone Project (PVOU IZ)

Get more info on this project on pg. 3

Status: **Project began in late 2018 and is estimated to be completed in fall 2020**
Project Cost: **$23,500,000**

When this groundwater cleanup project is complete, the District will conduct testing of the new facility and complete its permitting process with the CA Department of Water Resources Division of Drinking Water (DDW). Once the permit is issued, water from the facility will be distributed to neighboring Suburban Water Systems and also to District customers.

Recycled Water Project

Status: **The project begins in late 2019 and will be completed in July 2020.**
Cost: **$2,000,000**

The project will deliver 55-acre feet of local recycled water for irrigation use. Additionally, it will aid in reducing the need for imported water for groundwater replenishment. This will help maintain the cost of water for our customers as it reduces our need for higher-priced imported water.

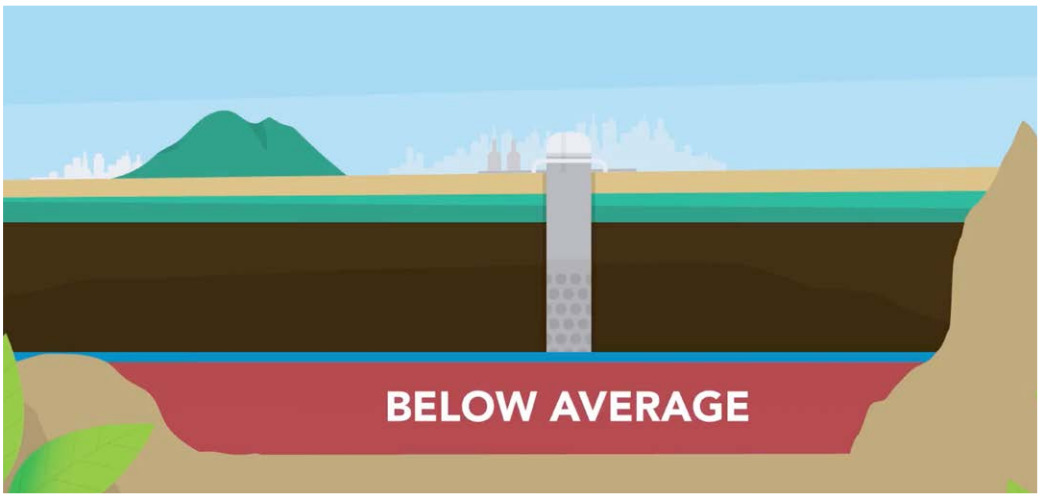
District's Well No. 5 Rehabilitation Project

Status: **To be completed in January 2020**
Project Cost: **$180,000**

The District is currently in the process of replacing the pumping equipment in its Well No. 5, which is the District's primary source of supply. This project will extend the life of the well and improve the efficiency of the pumping equipment. During this project, the District will rely on its other wells to meet the water supply needs of our customers.

KEEP CONSERVING: Our Groundwater Supply is Still Low

Although we are technically not in a drought thanks to a lot of rainfall earlier this year, we must continue to use water efficiently. Here's why: Most of our water comes from groundwater stored in the Main San Gabriel Basin, and we rely on this source to meet our day-to-day needs. But due to years of over-pumping during periods of prolonged drought, our basin's water supply is still extremely low. When we don't have enough groundwater, we need to import costly water from hundreds of miles away. In addition, using water efficiently is a way of life in California. There will be more droughts and proactive, long-term changes will help us maintain our groundwater basin. LPVCWD along with the Main San Gabriel Basin Watermaster are working together to manage the long-term water supply of the basin through new projects and programs, including a new outreach campaign that launches this winter.
Visit LaPuenteWater.com for more information on how to save water.



HELP CONSERVE **WATER**

LPVCWD has several permanent water use rules in place to help conserve water and replenish our groundwater supply.

REPAIR LEAKS PROMPTLY

NO IRRIGATION DURING AND WITHIN 48 HOURS AFTER MEASURABLE RAINFALL

NO RUNOFF FROM OVERWATERING

NO WASHING DOWN DRIVEWAYS OR OTHER HARDSCAPES

NO WASHING VEHICLES UNLESS USING A HOSE WITH AN AUTOMATIC SHUT-OFF NOZZLE

Now Playing: LPVCWD Water Videos

There's a lot of work that goes into delivering clean, reliable water to your tap 24/7, and LPVCWD gives you a behind-the-scenes look at where our water comes from, how we treat our water before it reaches your home and how we determine the cost of our water in two new videos now available at LaPuenteWater.com.

COMMITMENT TO WATER QUALITY

LPVCWD relies on local groundwater for our water supply. A top priority for our District is ensuring this groundwater is safely tested and treated to meet some of the highest water quality standards in the world.

During the past several years, LPVCWD has made significant strides in cleaning up the groundwater in the San Gabriel Valley using stringent standards set forth by the U.S. Environmental Protection Agency.

The final groundwater treatment area is the Puente Valley Operable Unit (PVOU). The PVOU consists of three sub-projects: the Shallow Zone North, Shallow Zone South and the Intermediate Zone (which is the most critical in preventing migration of water contaminants).

Once the project is complete in late 2020, the District will conduct testing of the new facility and complete its permitting process with the CA Department of Water Resources Division of Drinking Water (DDW) and will distribute water from this facility to neighboring Suburban Water Systems as well as District customers.

WATER EFFICIENCY REBATE$ AVAILABLE

Save water indoors and outdoors through LPVCWD's rebate programs.

- HIGH-EFFICIENCY WASHING MACHINES
- HIGH-EFFICIENCY TOILETS
- WEATHER-BASED IRRIGATION CONTROLLERS
- ROTATING WATER NOZZLES
- TURF REMOVAL

Visit LaPuenteWater.com for full details.

BOARD OF DIRECTORS

John P. Escalera, President
Henry P. Hernandez, Vice President
Cesar J. Barajas, Director
David Hastings, Director
William R. Rojas, Director

BOARD MEETINGS

2nd and 4th Monday
5:30 p.m.
112 N. First Street, La Puente

CONNECT WITH US

Office Hours:
Monday through Thursday: 8 a.m. to 5 p.m.
Friday: 7:30 a.m. to 3:30 p.m.

Phone: 626-330-2126

Email: service@lapuentewater.com

Website: LaPuenteWater.com

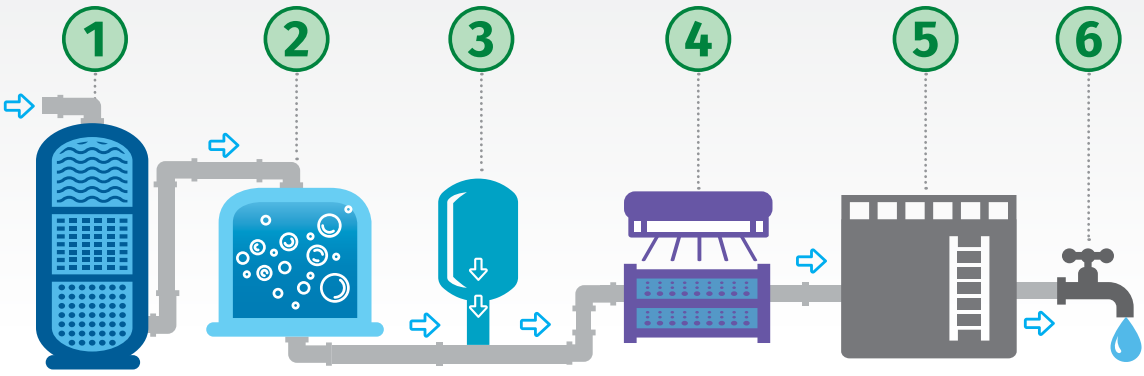
Para obtener este boletin informative en espanol, por favor llame al 626-330-2126.

112 N. First Street
La Puente, CA 91744
(626) 330-2126
www.lapuentewater.com

How it Works

Water from this facility will be treated through reverse osmosis – making history as the first drinking water treatment system in the San Gabriel Valley to do so – as well as with treatment technologies already in place at other LPVCWD facilities.

HOW WE TREAT YOUR WATER



1. Air Stripping Towers remove VOCs to below detection levels.
2. A single pass ion exchange system uses resin specifically manufactured to remove perchlorate.
3. A hydrogen peroxide injection system injects hydrogen peroxide in preparation for the UV reactors.
4. UV reactors treat for NDMA and 1, 4-Dioxane.
5. Water exiting the facility is chlorinated to provide a disinfectant residual in the water system.
6. Treated water then enters the water system and is delivered to your home.

STETSON ENGINEERS INC.

861 Village Oaks Drive, Suite 100 • Covina , California 91724
Phone: (626) 967-6202 • FAX: (626) 331-7065 • Web site: www.stetsonengineers.com

Northern California • Southern California • New Mexico • Arizona • Nevada • Colorado

Reply to: Covina

TECHNICAL MEMORANDUM

TO: **Mr. Greg Galindo**

FROM: **Stetson Engineers Inc.**

SUBJECT: **Numerical Study of Projected Nitrate-Nitrogen Concentrations at La Puente Valley County Water District Wellfield**

DATE: **November 22, 2019**

JOB NO: **2721-002**

INTRODUCTION

In a letter dated July 17, 2019, Stetson Engineers Inc (Stetson) provided La Puente Valley County Water District (LPVCWD) with a scope of work and budget to evaluate potential future Nitrate-Nitrogen (NO_3-N) concentrations at the LPVCWD Wellfield (Wells No. 2, 3, and 5), with an emphasis on Well No. 5. (LPWCWD subsequently authorized Stetson to proceed in an email dated July 26, 2019). As stated in the scope of work, the LPVCWD Wellfield and treatment facility is a component of the Baldwin Park Operable Unit (BPOU) EPA Superfund cleanup program and includes treatment facilities for a variety of contaminants, but not NO_3-N. Historically, NO_3-N concentrations in the LPVCWD Wellfield have been trending gradually upward over the last 30 years. For example, the NO_3-N concentration in Well No. 3 was around 5 to 6 milligrams per liter (mg/l) during the 1990's, which was below the Maximum Contaminant Level (MCL) of 10 mg/l. The NO_3-N concentrations in Well No. 3 have gradually increased and are currently averaging about 8.4 mg/l.

The Study Area (Figure 1) is located in the south-central portion of the Main San Gabriel Basin (Main Basin). LPVCWD owns three (3) extraction wells (Well No. 2, No. 3, and No. 5) and a groundwater treatment facility at its Wellfield located in the City of Baldwin Park. Major groundwater extraction wells, including the United States Environmental Protection Agency (USEPA) BPOU Remedy wells, and other municipal wells, are located within the Study Area. These wells include the LPVCWD Wells No. 2, No. 3 and No. 5; San Gabriel Valley Water Company's (San Gabriel's) Plant B4 (Wells B4B and B4C); Plant B6 (Wells B6C and B6D, and Wells B25A, B25B, B26A, and B26B); Suburban Water Systems (SWS) Plant 140 (Wells 140W-4 and 140W-5); and Valley County Water District (VCWD) Wells Big Dalton and Paddy Lane. Location of the Study Area is shown on Figure 1.

Historically, the Study Area included significant agricultural activities, often times associated with elevated NO_3-N concentrations in the groundwater. The Study Area is now highly urbanized, and on-going sources of NO_3-N from agricultural activities are almost nonexistent. However, the cause of the steady rate of increase of NO_3-N concentrations observed in the LPVCWD Wellfield is likely the combination of upgradient NO_3-N migration, possibly variable groundwater levels, residual NO_3-N in the vadose zone (unsaturated zone) from past agricultural activities, and other sources. Consequently, without planned treatment (including potential blending) for NO_3-N, the existing sources of supply to the LPVCWD BPOU treatment facility may need to be removed from service, which would impact the BPOU cleanup program under the USEPA Superfund.

PURPOSE AND SCOPE

A detailed analysis was conducted to assess the current and future NO_3-N concentrations in the Study Area. This includes reviewing historical water quality data, evaluating the possible occurrence and distribution of NO_3-N concentrations, and developing possible NO_3-N loading scenarios for 30-year groundwater flow and transport

model simulations. In addition, knowledge and experience with increasing NO_3-N concentrations at the nearby San Gabriel Valley Water Company (San Gabriel) Plant B6 Wellfield was used in this evaluation.

The following tasks were undertaken as part of this study to evaluate the need for NO_3-N treatment and/or blending of LPVCWD groundwater supply.

- Overview of Hydrology, Geology and Hydrogeology in the Study Area;
- Review Historical Water Quality Data in the Vicinity of the LPVCWD Wellfield (Study Area);
- Evaluate the Distribution and Occurrence of Nitrate-Nitrogen Concentration at the LPVCWD Wellfield and the Vicinity;
- Conduct Future NO_3-N Concentration Model Simulations; and
- Recommend the Preliminary Design Criteria for a LPVCWD NO_3-N Treatment Facility.

To achieve these goals, two (2) United States Geological Survey's (USGS's) models were used to simulate temporal variations in NO_3-N concentrations at the LPVCWD Wellfield, with an emphasis on Well No. 5, under different scenarios. The models used are Watermaster's 3-D Basin Model, coupled with the USGS transport Multi-Species Model (MT3D-USGS). The 3-D Basin Model was developed using the USGS modular structure MODFLOW-2005 (Harbaugh, 2005) code to perform the regional transient groundwater flow analysis. The 3-D Basin Model was calibrated from FY 1973-74 to FY 2014-15 in the shallow, intermediate, and deep water bearing formations. The 3-D Basin Model has been applied to various groundwater flow studies in the Main Basin including a recent study (coupled with the MT3D-USGS model) to evaluate impacts of indirect potable reuse water replenishment in the Main Basin (Stetson, 2018).

STUDY AREA

As noted above, the Study Area is located in the south-central portion of the

Main Basin, as shown on Figure 1. The following is a brief overview of the historical hydrology, geology, and hydrogeology in the Study Area.

Hydrology

The annual rainfall from Water Year (WY) 1958-59 through WY 2017-18 in the San Gabriel Valley averaged approximately 17.1 inches per year, as shown on Table 1 and Figure 2. The Study Area is drained by Big Dalton Wash and by Walnut Creek. Big Dalton Wash is a lined channel discharging into Walnut Creek about 1,000 feet westerly of the LPVCWD Wellfield. Flow in Big Dalton Wash is recorded by the Los Angeles County Department of Public Works (LACDPW) gaging station F274B-R located near Merced Avenue. There is little water flowing in Big Dalton Wash except for periods during and after heavy rainstorms or the release of untreated imported water into San Dimas Wash (which flows into Big Dalton Wash). According to the LACDPW's WY 2017-18 Hydrologic Report, stream flow in Big Dalton Wash at gaging station F274B-R ranged from 0.03 cubic feet per second (cfs) to 340 cfs. Walnut Creek is also a lined channel except for the westerly most 6,000 feet, discharging into the San Gabriel River about two miles southwesterly of the LPVCWD Wellfield. There is little water flowing in Walnut Creek except for periods during and after heavy rain and releases from Puddingstone Dam. Stream flow in Walnut Creek is recorded by LACDPW gaging station F304-R located about 850 feet easterly of Puente Avenue. The LACDPW's WY 2017-18 Hydrologic Report indicates stream flow in Walnut Creek ranged from 0.03 cfs to 101 cfs during WY 2017-18. The location of gaging stations F274B-R and F304-R are shown on Figure 1.

Geology

Available driller logs for production wells in the Study Area indicate the water bearing formations consist of alluvial materials ranging from fine-grained sand to boulders. Available drillers' logs for the LPVCWD wells indicates the water bearing formations consist of unconsolidated materials ranging from sand to coarse gravel and rocks with various clay shales (fine-grained units) present at a depth from about 400 feet through 550 feet below ground surface (bgs). These clay shales may not be spatially continuous, but can act as local vertical flow barriers. Lithologic profiles for the LPVCWD

wells are shown on Figure 3.

Hydrogeology

The direction and movement of groundwater can be estimated using a groundwater contour map. Over the years, groundwater contour maps prepared by Watermaster as part of its Basin-wide Groundwater Elevation Monitoring Program (BGWEMP) using static water level data from water production wells throughout the Basin indicate that the general direction of groundwater flow in the study area appears to be from the east-northeast toward the west-southwest. The groundwater direction and gradient in the Study Area, based on the calibrated Watermaster's 3D MODFLOW-based San Gabriel Basin Model (3D Basin Model) between Fiscal Year (FY) 1973-74 and FY 2014-15, indicates the groundwater flow direction (measured as a counter-clockwise rotation from the positive X-axis) ranges from a westerly flow (FY 2002-03) to a southwesterly flow (FY 2004-05). The hydraulic gradient ranges from approximately 0.00085 (FY 1976-77) to approximately 0.00135 (FY 2005-06). Groundwater flow direction and hydraulic gradient are calculated using simulated water level data from three (3) locations located close to the LPVCWD Wellfield within the Study Area. The locations of these three (3) data points and estimated annual groundwater flow directions and hydraulic gradients between FY 1973-74 and FY 2014-15 are shown in Figure 4 and Table 2.

The characteristics of the aquifer in the vicinity of LPVCWD Well No. 5 were estimated from an aquifer performance test (APT) conducted at the SGVWC Plant B6 on September 24, 1992 and the LPVCWD Wells 2 and 3 on March 15, 2006. Plant B6 is located approximately 1,200 feet westerly of Well No. 5. SGVWC Well B6B was used as the pumping well, and Well B6C was used as the monitoring well for the APT. For the LPVCWD Wells 2 and 3 APTs, two (2) nearby piezometers, PZ3-LP3A S/D and PZ3-LP3B S/D were used as the monitoring wells. The results of the APT indicate the shallow aquifer in the vicinity of the SGVWC Plant B6 act as a semi-confined aquifer with a transmissivity of approximately 71,000 square per feet per day (ft2/day), a coefficient of storage of approximately 8.2x10-5, and a hydraulic conductivity of approximately 260 feet

per day (ft/day) (Watermaster, January 1993). The average hydraulic conductivity and coefficient of storage in the shallow aquifer in the vicinity of the LPVCWD Well 2 are approximately 487 ft/day and 1.5x10-3, respectively and the average hydraulic conductivity and coefficient of storage in the deep aquifer approximately 62 ft/day and 6.5x10-6, respectively. Similarly, the average hydraulic conductivity and coefficient of storage in shallow aquifer in the vicinity of the LPVCWD Well 3 are approximately 289 ft/day and 1.3x10-4, respectively (Geomatrix, January 2007). In addition, Stetson Engineers, Inc. (Stetson) performed a step-drawdown test at the LPVCWD Well No. 5 on March 11, 2008. The step-drawdown test indicated that Well No. 4 is capable of achieving the design flow rate of 2,500 gallons per minute (gpm) and the estimated specific capacity at the LPVCWD Well No. 5 is approximately 90 gpm/foot (Stetson, July 2008). The high values of hydraulic conductivity and transmissivity from the APTs suggest a high groundwater movement system in the Study Area.

HISTORICAL WATER QUALITY DATA

Groundwater NO_3-N Data

This study assesses the historical and current NO_3-N concentrations within the Study Area to project NO_3-N concentrations in the LPVCWD Wellfield and to evaluate the need for a potential new treatment facility to remove the NO_3-N in the groundwater. The current NO_3-N concentrations are shown on Figure 5, and the historical high and current NO_3-N concentrations in the upgradient wells are summarized on Table 3. It is noted that for model simulation purpose, Figure 5 is a composite NO_3-N concentration of the shallow, intermediate and deep zones. The deep zone is assumed to be clean (no NO_3-N concentration contamination) and the shallow and intermediate zones are assumed to have the same NO_3-N concentrations. As noted earlier, the regional groundwater flow direction is from the east-northeast toward the west-southwest. Wells which are upgradient of the LPVCWD Wellfield are shown on Figures 1 and 5. Upgradient wells include, but are not limited to, the Valley County Water District (VCWD) Big Dalton Well (perforated between 250 feet and 582 feet bgs, in the shallow and intermediate zones), and the Suburban Water System (SWS) Wells 139-W2 (perforated between 105

feet and 361 feet bgs, in the shallow zone), 139-W4 (perforated between 566 feet and 825 feet bgs, in the intermediate and deep zones) and 139-W5 (perforated between 750 feet and 1,060 feet bgs, in the deep zone). The EPA multiport well MW5-20, which is located downgradient of the LPVCWD Wellfield, has NO_3-N concentrations for the shallow zone (port 7, 210 feet bgs, 12.0 mg/l in June 2017) and the intermediate zone (port 6, 410 feet bgs, 16.0 mg/l in June 2017). As noted on Figure 5, there is a substantial NO_3-N plume located to the northeast and east of the LPVCWD Wellfield. In many cases wells have ceased operation (or have been destroyed) as a result of elevated NO_3-N. Although recent data is not available, information has been provided on Table 3 and Figure 5 to characterize the widespread occurrence of NO_3-N in the Study Area.

Plots of historical NO_3-N concentrations in the LPVCWD Wellfield are shown on Figure 6A and nearby production wells are shown on Figure 6B. Figure 7 shows the NO_3-N concentrations sampled at the EPA BPOU multi-port wells within the Study Area. Historical NO_3-N concentrations (Figure 6A) generally show a gradually increasing trend for the LPVCWD Wells No. 2, No. 3, and No. 5, particularly after year 1990; however, the nearby production wells do not show the same increasing pattern except the Valley County Water district (VCWD) Paddy Lane Well (Figure 6B).

The LPVCWD Wells No. 2 and No. 5 are perforated from 576 feet to 926 feet and from 590 feet to 765 feet bgs, respectively. Based on the lithologic information in the Study Area, both wells are considered to be intermediate and deep wells. Despite slight fluctuations of NO_3-N concentration observed in the LPVCWD Wellfield, NO_3-N concentrations in the LPVCWD Wellfield generally show a steady upward trend over the past 30 years, as shown on Figure 6A. The NO_3-N concentration in Well No. 2 was measured at a concentration of 2.6 milligrams per liter (mg/l) in March 1993. The NO_3-N concentration in Well No. 2 has gradually increased to 6.4 mg/l in November 2017 and the maximum concentration of 8.0 mg/l was detected in May 2017. Although Well No. 5 has been in operation for a shorter period of time, the NO_3-N concentration in Well No. 5 shows a similar upward trend as Well No. 2. The NO_3-N concentration in Well No. 5 was measured at a concentration of 6.9 mg/l in January 2016. The NO_3-N concentration in Well No. 5 gradually increased to 8.2 mg/l in December 2018. Figure 6B and Figure 7

show historic water levels and NO_3-N concentrations for several key wells within the Study Area (including production wells and EPA BPOU monitoring wells).

Available NO_3-N concentrations in the up- and downgradient wells suggest plume migration, in conjunction with groundwater movement, is one of the mechanisms which has caused the increasing NO_3-N concentrations at the LPVCWD Wellfield. Another mechanism that causes the upward trend of the NO_3-N concentration is the impact of the residual NO_3-N in the unsaturated zone due to past agricultural activities in the upgradient Study Area. The occurrence and potential NO_3-N loading from the unsaturated zone to groundwater is discussed below.

Occurrence and Loading of NO_3-N

Sources of NO_3-N in the Study Area are believed to be the result of leaching (from historical agricultural and other activities) of NO_3-N from the unsaturated zone of the aquifer into the groundwater; however, the sources of NO_3-N cannot be delineated due to the lack of data and characterization of the spatial and temporal variabilities of the NO_3-N source through direct NO_3-N monitor in the Study Area which were not performed as part of this study. To gain an understanding of the NO_3-N sources and the corresponding loading rates in the Study Area, an indirect approach was performed through sensitivity analysis from transport simulations. It was determined the NO_3-N leakage from the unsaturated zone to groundwater is considered a function of NO_3-N loading rate uniformly applied to the future 30-year study period. NO_3-N loading rates were increased incrementally from the initial 5 Kilogram per Acre per day (Kg Acre-1 per day) to the largest level of 30 Kg Acre-1 per day during sensitivity analysis. The results of sensitivity analysis suggest the 5 Kg Acre-1 per day NO_3-N loading rate appear to be underestimated as this loading rate failed to support the gradual NO_3-N concentration increase observed at the LPVCWD Wellfield. Similarly, the 30 Kg Acre-1 per day NO_3-N loading rate seemed to be overestimated as this loading rate will significantly increase NO_3-N concentrations at the LPVCWD Wellfield in a short period.

The NO_3-N concentration data in the past ten (10) years obtained from the

Watermaster Database shows the average increased NO_3-N concentrations at the LPVCWD Wellfield is about 3.9 mg/l (Wells 2 increased from 5.1 mg/l on April 6, 2007 to 8.0 mg/l on May 17, 2017, Well 3 increased from 3.8 mg/l on April 1, 2007 to 9.9 mg/l on May 1, 2017 and Well 5 increased from 5.5 mg/l on March 3, 2008 to 8.2 mg/l on December 10, 2018). Model simulated NO_3-N concentrations at the LPVCWD Wellfield were able to produce the similar upward trends using the initial spatial NO_3-N distribution shown on Figure 5, and the NO_3-N loading rates (15 Kilogram per Acre per day (Kg Acre-1 per day) and 25 Kg Acre-1 per day) within the Study Area shown on Figure 8. Model simulation results will be discussed in the "***Transport Simulation***" Section later.

GROUNDWATER FLOW AND TRANSPORT SIMULATION

Watermaster's 3-D Basin Model, coupled with the USGS Transport Multi-Species Model (MT3D-USGS) were used for groundwater flow and solute transport simulations, respectively, to assess the future NO_3-N concentrations in the LPVCWD Wellfield. The 3D Basin Model is calibrated from FY 1973-74 to FY 2014-15. The technical basis of these two (2) models are documented the USGS's reports (Harbaugh, 2005 and Bedekar et al., 2016), and are included by reference. The 3D Basin Model closely simulates the hydraulic head and groundwater flow fields in the Study Area which provide the necessary groundwater velocity fields for transport simulations. Results of the flow simulations which generate the highest hydraulic gradient in the Study Area was chosen and used as the required velocity field for the transport simulations. (It is recognized there will be variations through the years based on varying hydrologic conditions. However, using the highest hydraulic gradient in the Study Area should be a dispersion dominant groundwater condition and results of simulated NO_3-N concentrations are deemed the most conservative in terms of planning and design (i,e, concentrations of NO_3-N will arrive sooner than later). The future NO_3-N concentrations in the LPVCWD Wellfield were simulated using the solute transport model under current NO_3-N distribution with and without possible NO_3-N loadings.

Both the flow and transport simulations (with and without NO_3-N loading) were performed under the following assumptions:

- Model calibration was performed for flow simulations. The calibrated flow model provides the flow velocity files required in the transport simulations.
- The efforts involved in the transport calibration of the NO_3-N concentrations will require a good understanding of the temporal and spatial changes of the NO_3-N concentration, possible nitrogen transformations in the unsaturated zone and groundwater, historical land use and NO_3-N loading, and impacts from the spreading activities. In addition, the purpose of this study is to provide a quick understanding of the future NO_3-N concentrations at the LPVCWD Wellfield for the design of a NO_3-N treatment plant under current NO_3-N information; therefore, transport calibration of the historical NO_3-N concentrations in the LPVCWD Wellfield was not performed.
- Groundwater basin production was assumed to increase over the next 30 years as a result of increased population, as shown on Table 4.
- Replacement Water deliveries to the Basin were assumed to average about 43,000 acre-feet per year, but will increase proportionally as a result of increased population.
- Hydrologic conditions for future flow and transport simulations remain the same.
- The unsaturated zone is a mixture of gaseous, solid and liquid material. Contaminant transport in the multiphase unsaturated zone is complex and requires field measurements to help calibrate and make simulation results meaningful and reliable. Because of the lack of data needed for transport simulation in the unsaturated zone, transport simulations of NO_3-N through the vadose zone were not performed. The NO_3-N loadings entering the shallow aquifer through the vadose zone is assumed to occur immediately (no time lag) and continuously for the entire 30-year simulation period.
- To be conservative, the loss of NO_3-N due to chemical reaction and adsorption were not considered in the transport simulation. This

assumption may affect the simulation results; however, it is believed the magnitude of impacts from this assumption is far less than the impacts from uncertainty.

There are some additional "qualifications" needed for these two model run scenarios (with and without NO_3-N loading).

1. By using the "highest hydraulic gradient" in the Study Area for the model runs, it is coincidentally a year when significant amounts of replenishment water was replenished in up-gradient spreading grounds. It is observed in the model runs (especially a model run without NO_3-N loading) that modeling this higher replenishment amount (about twice long-term average) results in abnormal and unrealistic lower future concentrations of NO_3-N in the LPVCWD Wellfield.
2. Available NO_3-N data in up-gradient wells is incomplete, very old, and at some locations, limited to multi-port well sampling zones. Efforts were made to correlate and use the most current and representative NO_3-N data available.

Groundwater Flow Simulation

Watermaster's 3-D Basin Model was calibrated between FY 1973-74 to FY 2014-15. Results of model simulated groundwater flow direction and hydraulic gradient in the Study Area are shown on Table 2. Groundwater flow directions range from northeast to southwest to and east to west direction. The hydraulic gradient ranges from 0.00085 (FY1976-77) to 0.00135 (FY 2005-06). The simulated groundwater condition in FY 2005-06 (the largest hydraulic gradient) in the Study Area was chosen and used as the initial conditions for the 30-year predictive flow simulation. The predictive simulation was performed with an annual stress period.

Assumptions made for the predictive simulation include:

- Groundwater demand was estimated based on the correlation between

the projected population (San Gabriel Valley Economic Forecast and Regional Overview reports) and hydrologic conditions. The 30-year projected groundwater demand is provided in Table 4 and Figure 9.

- The Main Basin receives a long-term average replenishment of about 39 MGD (approximately 43,250 AFY). The long-term average replenishment is uniformly applied to the predictive model (applied to the Main Basin through spreading grounds) for the entire model simulation period.
- The hydrologic condition in FY 2005-06 is assumed and applied to the entire model simulation period, as a conservative approach.

Transport Simulation

The transport simulation was performed using the USGS MT3D-USGS model (Bedekar et al., 2016), which is an updated release of the MT3DMS (Zheng, 2010), for the simulation of advection and dispersion of potential dissolved constituents in groundwater. Plume migration in groundwater is chemical dependent, and the migration pathways are highly dependent on the characteristics of the constituents. Despite many other factors that may affect plume migration, two (2) major factors, groundwater flow (advection) and mixing process (a result of the change of concentration gradient), were considered (conservative solute transport simulation). Two scenarios were assumed for the transport simulation; 1) that a considerable amount of NO_3-N remains in the vadose zone and continues to leach into the groundwater (with loading), and 2) the NO_3-N contaminant plume moves solely with groundwater movement and there is no additional loading, that is, NO_3-N leaching from the unsaturated zone is not considered. Both scenarios start with the same initial distribution of NO_3-N concentrations, as shown on Figure 5. The initial NO_3-N concentrations were applied to the 3-D Basin Model's shallow and intermediate layers from which the LPVCWD Wellfield produces. Zero (0) NO_3-N concentration was assumed and applied to the 3-D Basin Model's deep layer (deep zone). The difference between these two (2) scenarios is that a constant NO_3-N loading is only applied to Scenario 1.

Despite the unknowns of spatial distribution and leaching rate of NO_3-N in the unsaturated zone, the spatial distribution and leaching rate of NO_3-N were estimated through several transport test runs prior to applying the findings to the final transport simulations. In addition, the NO_3-N leaching was only applied to the shallow 3-D Basin Model layer for the entire simulation period. The well perforation information (Table 3) indicates the LPVCWD Well 2 (perforated between 576 feet and 926 feet bgs) extracts groundwater from the intermediate and deep zones and both Wells 3 (perforated between 620 feet and 770 feet bgs) and Well 5 (perforated between 590 feet and 765 feet bgs) mainly extract groundwater from the intermediate zone. Extracted groundwater from Well 2 will blend with more clean water from the deep zone and is expected to produce better groundwater quality than Wells 3 and 5. The results, assuming NO_3-N leaching (NO_3-N loading as shown on Figure 8) is applied to the Study Area (Scenario 1), are shown on Figure 10. The simulated NO_3-N concentrations at the LPVCWD Wells 2, 3 and 5 were calculated based on the weighted average (blended) of NO_3-N concentrations (the LPVCWD Wells 2, 3 and 5 are perforated in different aquifer zones). Model simulated NO_3-N concentrations at the LPVCWD Wells 2, 3 and 5 for Scenario 1 are shown on Table 5. Results of Scenario 1 transport simulation shows a steady increase in NO_3-N concentrations in LPVCWD Wells 2, 3 and 5 during the first fifteen (15) years simulation. The simulated concentrations stay relatively stable once NO_3-N concentrations reach about 16 mg/l, 21 mg/l ad 20 mg/l for the LPVCWD Wells 2, 3 and 5, respectively. The relatively stable concentrations at the LPVCWD Wellfield after fifteen (15) years of simulation are mainly due to the upgradient NO_3-N loading (leaching). A spatial NO_3-N plume map after 20-year transport simulation for Scenario 1 is shown on Figure 11.

Scenario 2 simulation is believed not realistic because it does not consider upgradient NO_3-N loading and, because it uses the “largest hydraulic gradient year” (with significantly larger quantities of replenishment water up-gradient). It is believed NO_3-N leaching will continue to occur as is reflected by increases observed historically and the Scenario 2 results likely are not indicative of expected future NO_3-N concentrations in the LPVCWD Wellfield. Results of Scenario 2 show gradual NO_3-N concentration decrease in the LPVCWD Wells 2, 3 and 5 after the concentrations at each well reach their highest levels. Results of simulated NO_3-N concentrations at the LPVCWD Wells 2, 3 and 5 for Scenario 2 are attached in Appendix A. In addition, a comparison of simulated NO_3-N

concentrations between Scenario 1 and Scenario 2 shows the simulated NO_3-N concentrations at the LPVCWD Well 2 are 8.0 mg/l and 11.4 mg/l, respectively; 12.3 mg/l and 16.4 mg/l, respectively for Well 3; and 10.6 mg/l and 14.1 mg/l, respectively for Well 4. On average, the model simulated NO_3-N concentration at the LPVCWD Wellfield under the Scenario 1 is about 3.7 mg/l higher than the Scenario 2 over the first ten (10) years simulation, which is comparable to the results of 3.9 mg/l NO_3-N concentration increase as discussed in the earlier Section "***Occurrence and Loading of NO_3-N***".

MODELING CAPABILITIES AND LIMITATIONS

This study used groundwater flow and transport numerical tools to assess the potential NO_3-N support concentrations which the LPVCWD Wellfield may experience in the future. Simulation results may be used as one of several tools to support of the decision-making processes involved in the design of an appropriate NO_3-N treatment and/or possible blending options. The numerical model is a simplified system to define the complex physical systems in the Main Basin. The level of detail in the subsurface system is far more complex than the numerical model can describe; therefore, simulation results derived from this study are subject to some variability related to parameters used in the 3-D Basin Model, local variation in the aquifer structure, sources and spatial distribution of NO_3-N in the vicinity of the Study Area, and the magnitude of chemical and microbiological impacts (although not considered in the study). Because of the variability associated with 3-D Basin Model parameters, the study results should not be used as the singular component for actual design of a NO_3-N treatment facility. However, this numerical study provides great insight and understanding of the groundwater system in the Study Area.

CONCLUSIONS AND RECOMMENDATIONS

The 3-D Basin Model is a simplified numerical tool to represent the real world in context of the Main Basin. However, it lacks some hydrogeologic information such as the vertical hydraulic gradients which impacts the NO_3-N plume's vertical migration, and spatial and temporal variabilities of the NO_3-N sources in the Study Area.

Model results shown on Figure 10 are dependent on the amount of NO_3-N that may be in the soils overlying the aquifer. Further study is needed to better understand and quantify the occurrence and distribution of NO_3-N in the Study Area. Because of the uncertainty involved in this study, it is recommended to set the design concentration for the proposed LPVCWD NO_3-N Treatment Facility based on the highest simulated NO_3-N concentration that may be occurred at the LPVCWD Wellfield within 15-year from now; and model results must be carefully evaluated by considering its intrinsic limitations. Based on the 3-D Basin Model results, the LPVCWD Well 3 may suffer the worst NO_3-N contamination with the highest NO_3-N concentration of approximately 20 mg/l (twice the MCL) in the next 15 years. Similarly, the LPVCWD Well No. 5 will reach the same magnitude of concentration level (20 mg/l) within the same time frame. The NO_3-N concentrations for both wells will then remain fairly constant for the next 15 years (between years 16 and 30), as shown on Figure 10. The duration of the plateau (the highest concentration) shown on Figure 10 is the model simulated results based on the current NO_3-N distribution in the Study Area and the NO_3-N loading rates in the soils overlying the aquifer. The simulated results are dependent on the amount of NO_3-N that may be in the soils and are subject to change when future information becomes available. It is recommended LPVCWD consider the 20 mg/l NO_3-N concentration for the proposed NO_3-N treatment plant or blend plan and consider preparing a preliminary design report for NO_3-N treatment at the LPVCWD Wellfield.

REFERENCES

Bedekar, V., Morway, E.D., Langevin, C.D., and Tonkin, M., 2016, MT3D-USGS version 1: A U.S. Geological Survey release of MT3DMS updated with new and expanded transport capabilities for use with MODFLOW: U.S. Geological Survey Techniques and Methods 6-A53, 69 p., http://dx.doi.org/10.3133/tm6A53

Geomatrix, 2007. Aquifer Testing Results for the LPVCWD Subproject. Prepared for the U.S. Environmental Protection Agency. January 26, 2007.

Harbaugh, A. W., 2005. *MODFLOW-2005, the U.S. Geological Survey Modular Ground-Water Model – The Ground-Water Flow Process*, U.S. Geological Survey Techniques and Methods 6 – A16, 253 pp.

Stetson Engineers, Inc., 2017b. Draft Technical Memorandum – Watermaster Three Dimensional San Gabriel Basin Flow Model Recalibration. Prepared for Main San Gabriel Basin Watermaster. November 1, 2017.

Stetson Engineers, Inc., 2018. Draft Technical Memorandum – Phase II Computer Model Flow and Transport simulations to Evaluate Impacts of Indirect Potable Reuse Water Replenishment from the MWD Carson Project Delivery to the Main San Gabriel Basin. Prepared for Main San Gabriel Basin Watermaster. May 25, 2017.

TABLES

TABLE 1

ANNUAL RAINFALL IN THE SAN GABRIEL VALLEY
FROM 1958-59 THROUGH 2017-18*

WATER YEAR	RAINFALL IN INCHES
1958-59	8.5
1959-60	10.6
1960-61	5.9
1961-62	22.4
1962-63	12.3
1963-64	9.4
1964-65	15.2
1965-66	19.6
1966-67	25.0
1967-68	15.0
1968-69	30.5
1969-70	11.1
1970-71	13.3
1971-72	8.5
1972-73	22.4
1973-74	16.8
1974-75	14.9
1975-76	12.1
1976-77	14.5
1977-78	38.4
1978-79	23.9
1979-80	34.8
1980-81	10.3
1981-82	18.9
1982-83	39.3
1983-84	10.6
1984-85	14.6
1985-86	22.0
1986-87	9.1
1987-88	14.9
1988-89	11.2
1989-90	12.4
1990-91	15.1
1991-92	22.8
1992-93	35.9
1993-94	11.6
1994-95	30.4
1995-96	15.6
1996-97	17.5
1997-98	36.1
1998-99	8.6
1999-00	14.4
2000-01	15.5
2001-02	6.4
2002-03	19.4
2003-04	12.7
2004-05	45.3
2005-06	16.8
2006-07	4.9
2007-08	16.4
2008-09	14.0
2009-10	20.2
2010-11	24.9
2011-12	10.9
2012-13	8.0
2013-14	6.3
2014-15	11.4
2015-16	10.1
2016-17	21.4
2017-18	7.0
TOTAL	**1028.0**
60-YEAR AVERAGE	**17.1**

*Annual rainfall determined as the average of rainfall at San Dimas (station 95), Pomona† (station 356C), El Monte (station 108D), and Pasadena (station 610B).
†Pomona (station 356C) replaced Walnut (station 102D) in 2000-01.
Pomona (average of stations 1260 and 1271) replaced in 2011-12.

TABLE 2

ANNUAL GROUNDWATER FLOW DIRECTION AND HYDRAULIC GRADIENT

FROM FY1973-74 THROUGH FY2014-15

Year	Simulated Water Levels of Three Point Analysis			Hydraulic Gradient	Flow Direction
	Location 1	Location 2	Location 3		
FY 1973-74	238.55	239.40	232.80	0.00100	201.90
FY 1974-75	231.80	232.80	226.43	0.00096	199.54
FY 1975-76	220.00	221.20	215.10	0.00090	196.09
FY 1976-77	214.90	216.00	210.23	0.00085	196.64
FY 1977-78	244.73	243.80	239.30	0.00087	224.16
FY 1978-79	252.30	252.10	246.55	0.00094	214.23
FY 1979-80	265.48	265.00	259.13	0.00103	217.12
FY 1980-81	252.30	253.20	246.60	0.00100	201.27
FY 1981-82	251.60	251.90	245.75	0.00098	208.21
FY 1982-83	276.40	275.20	269.40	0.00113	224.23
FY 1983-84	271.44	271.56	264.26	0.00119	210.58
FY 1984-85	258.48	259.47	252.11	0.00112	201.46
FY 1985-86	253.93	254.28	247.22	0.00113	208.10
FY 1986-87	248.61	249.68	242.13	0.00114	200.90
FY 1987-88	239.48	240.69	232.99	0.00116	199.58
FY 1988-89	230.71	231.96	224.92	0.00105	197.73
FY 1989-90	220.88	222.31	215.61	0.00098	194.56
FY 1990-91	213.36	214.68	208.28	0.00094	195.26
FY 1991-92	218.54	218.81	212.30	0.00105	208.58
FY 1992-93	236.94	236.47	230.12	0.00111	216.92
FY 1993-94	243.94	244.33	237.23	0.00113	207.63
FY 1994-95	241.20	241.93	234.98	0.00107	203.99
FY 1995-96	242.71	243.34	236.13	0.00112	205.30
FY 1996-97	240.94	241.59	233.94	0.00120	205.35
FY 1997-98	249.51	249.83	243.11	0.00107	208.32
FY 1998-99	248.11	249.48	242.32	0.00106	196.65
FY 1999-00	235.15	236.85	229.69	0.00104	192.48
FY 2000-01	229.43	230.93	223.81	0.00105	194.90
FY 2001-02	220.08	222.02	214.04	0.00116	191.88
FY 2002-03	213.36	215.38	207.44	0.00115	190.99
FY 2003-04	212.98	213.33	205.74	0.00122	208.47
FY 2004-05	225.15	223.86	219.34	0.00101	228.84
FY 2005-06	244.88	243.63	236.47	0.00135	222.44
FY 2006-07	236.53	237.13	229.53	0.00119	205.79
FY 2007-08	220.68	221.86	214.45	0.00111	199.31
FY 2008-09	210.40	211.61	204.78	0.00102	197.75
FY 2009-10	203.55	204.26	198.06	0.00096	203.11
FY 2010-11	216.46	215.38	209.94	0.00105	223.87
FY 2011-12	220.76	220.28	214.11	0.00109	216.45
FY 2012-13	208.88	209.48	203.03	0.00100	204.74
FY 2013-14	195.38	196.00	189.74	0.00097	204.39
FY 2014-15	183.70	185.12	178.44	0.00099	194.73
Maximum	276.40	275.20	269.40	0.00135	228.84
Minimum	183.70	185.12	178.44	0.00085	190.99

J:\2721\Report\Table & Figures\Table 2 - GW Gradient and Flow Direction.xlsx

Table 3
Nitrate Nitrogen Concentrations and Well Perforation Data in the Study Area

Owner	Well ID	Recordation Number	Well Type	Well Status	Port	Top of Screen (ft, bgs)	Bottom of Screen (ft, bgs)	Historic High		Most Recent	
								Value	Date	Value	Date
Asuza Light & Water	Gen 2 (OLD 5)	1902537	Municipal	Inactive		350	638	23.8	02/93	3.6	02/08
Asuza Light & Water	Well 10 (AVWC8)	8000103	Municipal	Active		792	1,132	14.9	05/08	12.0	05/19
Covina Irrigating Company	Baldwin 1	1900885	Municipal	Active		104*	398*	8.0	12/89	3.6	04/19
Covina Irrigating Company	Baldwin 2	1900883	Municipal	Active		104*	398*	10.6	03/10	6.5	04/19
Covina Irrigating Company	Baldwin 3	1900882	Municipal	Active		198	485	16.3	10/73	5.3	04/19
Glendora, City of	Well 03G	1901525	Municipal	Inactive		186	478	36.7	08/83	25.1	08/99
Glendora, City of	Well 04E	1901524	Municipal	Inactive		205	370	28.5	06/83	12.8	08/91
Glendora, City of	Well 07G	1900831	Municipal	Inactive		252	474	17.1	04/98	17.1	04/98
La Puente Valley County Water District	LPVCWD 02	1901460	Municipal	Active		576	926	8.0	05/17	6.4	11/17
La Puente Valley County Water District	LPVCWD 03	1902859	Municipal	Active		620	770	21.5	01/80	9.9	05/17
La Puente Valley County Water District	LPVCWD 05	8000209	Municipal	Active		590	765	8.2	12/18	8.2	12/18
San Gabriel Valley Water Company	SA3-2S (B26A)	8000189	Municipal	Active		380	780	16.0	05/17	12.0	05/19
San Gabriel Valley Water Company	SA3-2D (B26B)	8000190	Municipal	Active		850	1,010	3.8	09/18	3.4	05/19
San Gabriel Valley Water Company	Well B6C	1903093	Municipal	Inactive		275	506	22.0	08/16	22.0	08/16
San Gabriel Valley Water Company	Well B6D	8000098	Municipal	Inactive		760	1,032	6.6	05/15	5.5	08/17
Suburban Water Systems-San Jose	121-W1	8000181	Municipal	Active		660	1,130	6.1	04/17	4.0	11/18
Suburban Water Systems-San Jose	139-W2	1901599	Municipal	Inactive		105	361	23.4	10/08	20.0	06/17
Suburban Water Systems-San Jose	139-W4	8000069	Municipal	Standby		566	825	12.0	12/15	9.9	11/18
Suburban Water Systems-San Jose	139-W5	8000095	Municipal	Inactive		750	1,060	8.2	06/01	8.2	10/09
Suburban Water Systems-San Jose	139-W6	1910205	Municipal	Inactive		750	1,200	9.7	10/08	8.8	06/17
Suburban Water Systems-San Jose	140-W3	1903067	Municipal	Standby		150	438	17.6	03/85	12.0	11/18
Suburban Water Systems-San Jose	140-W4	8000093	Municipal	Inactive		420	1,190	8.2	10/03	8.2	12/04
Suburban Water Systems-San Jose	140-W5	8000145	Municipal	Active		600	1,320	8.3	12/15	7.4	11/18
Suburban Water Systems-San Jose	142-W2	8000183	Municipal	Active		680	1,365	14.0[1]	11/14	3.8	08/18
Suburban Water Systems-San Jose	151-W2	8000207	Municipal	Active		750	1,340	8.6[1]	11/14	2.0	02/19
Valley County Water District	Paddy Lane	1900031	Municipal	Inactive		300	585	17.0	05/16	13.0	06/17
Valley County Water District	Big Dalton	1900035	Municipal	Inactive		250	582	18.0	04/15	17.0	05/17
Valley County Water District	Palm	8000039	Municipal	Inactive		540	602	2.5	12/94	2.3	02/04
Valley County Water District	Well 01 (Main East)	1900027	Municipal	Active		250	580	4.7	02/11	0.9	05/19
Valley County Water District	Well 02 (Main West)	1900028	Municipal	Active		250	580	4.7	05/90	0.8	05/19
Valley County Water District	Well 06E (Nixon East)	1900032	Municipal	Active		300	586	3.1	02/05	0.8	11/18

Table 3
Nitrate Nitrogen Concentrations and Well Perforation Data in the Study Area

Owner	Well ID	Recordation Number	Well Type	Well Status	Port	Top of Screen (ft, bgs)	Bottom of Screen (ft, bgs)	Historic High		Most Recent	
								Value	Date	Value	Date
Valley County Water District	Well 06W (Nixon West)	1902356	Municipal	Active		300	584	1.9	08/13	1.0	05/19
Valley County Water District	Lante (SA1-3)	8000060	Municipal	Active		275	577	43[1]	04/15	11.0	11/18
Valley County Water District	Arrow	1900034	Municipal	Inactive		300	524	6.0	08/96	6.0	08/96
Valley County Water District	SA1-1	8000185	Municipal	Active		250	650	20.0	05/18	20.0	05/18
Valley County Water District	SA1-2	8000186	Municipal	Standby		250	650	21.0	05/18	21.0	05/18
Valley County Water District	Morada	1900029	Municipal	Inactive		275	585	25.0	11/90	19.0	06/17
Valley View Municipal Water Company	Well 01	1900363	Municipal	Inactive		300	585	1.4	09/09	1.3	09/10
Valley View Municipal Water Company	Well 02	1900364	Municipal	Active		300	535	1.8	09/15	1.6	09/18
Valley View Municipal Water Company	Well 03	1900365	Municipal	Inactive		180	200	6.1	03/98	6.1	03/98
EPA-BPOU	MW5-01	NA	Monitoring		1	1,495	1,505	0.6	05/15	0.3	06/17
					2	1,387	1,397	0.9	09/06	0.2	06/17
					3	1,256	1,266	0.5	05/15	0.2	06/17
					4	1,123	1,133	3.8	06/17	3.8	06/17
					5	1,030	1,040	14.0	06/17	14.0	06/17
					6	875	885	13.0	06/17	13.0	06/17
					7	765	775	15.0	06/17	15.0	06/17
					8	640	650	18.0	05/12	3.8	06/17
					9	523	533	10.0	08/98	1.4	06/17
					10	430	440	8.2	08/98	0.6	06/17
					11	335	345	7.6	03/96	0.1	06/17
					12	287	297	8.4	06/96	0.1	06/17
					13	216	226	4.8	05/11	0.1	05/14
EPA-BPOU	MW5-05	NA	Monitoring		1	552	562	9.2	08/95	5.1	05/17
					2	464	474	12.0	10/95	4.7	05/17
					3	380	390	13.0	10/95	5.1	05/17
					4	218	228	42.0	10/95	10.0	05/17
EPA-BPOU	MW5-08	NA	Monitoring		1	795	805	1.4	05/17	1.4	05/17
					2	670	680	1.9	04/07	1.7	05/17
					3	554	564	1.8	04/07	1.6	05/17
					4	380	390	12.0	05/17	12.0	05/17
EPA-BPOU	MW5-11	NA	Monitoring		1	690	700	16.0	05/10	11.0	06/17

Table 3
Nitrate Nitrogen Concentrations and Well Perforation Data in the Study Area

Owner	Well ID	Recordation Number	Well Type	Well Status	Port	Top of Screen (ft, bgs)	Bottom of Screen (ft, bgs)	Historic High		Most Recent	
								Value	Date	Value	Date
					2	530	540	6.2	10/06	3.5	06/17
					3	310	320	12.0	06/17	12.0	06/17
EPA-BPOU	MW5-13	NA	Monitoring		1	684	694	3.8	03/07	1.9	05/17
					2	520	530	5.7	01/98	2.9	05/17
					3	340	350	8.3	03/96	1.0	05/17
EPA-BPOU	MW5-15	NA	Monitoring		1	670	680	8.9	05/11	2.3	06/17
					2	450	460	5.1	10/06	3.6	06/17
					3	235	245	7.8	05/16	6.7	06/17
EPA-BPOU	MW5-17	NA	Monitoring		1	698	708	2.6	05/10	0.3	06/17
					2	540	550	4.5	03/08	2.8	06/17
					3	305	315	7.6	03/96	5.5	05/13
EPA-BPOU	MW5-18	NA	Monitoring		1	780	790	31.0	06/17	31.0	06/17
					2	630	640	31.0	06/17	31.0	06/17
					3	500	510	16.0	05/16	15.0	06/17
EPA-BPOU	MW5-19	NA	Monitoring		1	985	995	1.0	10/06	0.6	05/17
					2	874	884	1.0	05/11	0.9	05/17
					3	730	740	8.2	08/98	2.5	01/00
					4	615	625	5.9	05/11	2.7	05/17
					5	430	440	20.0	10/12	13.0	05/17
					6	225	235	4.8	08/98	3.5	05/17
EPA-BPOU	MW5-20	NA	Monitoring		1	940	950	3.9	06/17	3.9	06/17
					2	850	860	1.9	05/16	1.6	06/17
					3	760	770	5.7	05/14	5.1	06/17
					4	672	682	6.5	06/17	6.5	06/17
					5	594	604	2.7	05/16	2.0	06/17
					6	400	410	18.0	05/12	16.0	06/17
					7	210	220	20.3	08/98	12.0	06/17
EPA-BPOU	MW5-22	NA	Monitoring		1	950	960	1.6	07/98	1.1	06/17
					2	790	800	2.3	06/17	2.3	06/17
					3	694	704	5.4	05/15	5.1	06/17
					4	600	610	2.5	05/11	1.6	06/17

Table 3
Nitrate Nitrogen Concentrations and Well Perforation Data in the Study Area

Owner	Well ID	Recordation Number	Well Type	Well Status	Port	Top of Screen (ft, bgs)	Bottom of Screen (ft, bgs)	Historic High		Most Recent	
								Value	Date	Value	Date
					5	410	420	15.0	07/98	9.9	06/17
					6	235	245	16.0	10/06	15.0	06/17
EPA-BPOU	MW5-23	NA	Monitoring		1	980	990	3.0	05/11	1.5	06/17
					2	888	898	3.0	04/07	2.5	06/17
					3	700	710	6.6	06/17	6.6	06/17
					4	566	576	10.0	06/17	10.0	06/17
					5	426	436	23.0	05/11	16.0	06/17
					6	240	250	2.4	10/06	1.4	06/17
EPA-BPOU	MW5-24	NA	Monitoring		1	1,190	1,200	2.0	05/17	2.0	05/17
					2	1,020	1,030	2.8	05/17	2.8	05/17
					3	875	885	6.4	05/17	6.4	05/17
					4	730	740	10.0	05/17	10.0	05/17
					5	580	590	9.1	05/17	9.1	05/17
					6	420	430	28.0	11/13	3.3	05/17
					7	270	280	16.0	09/09	7.7	05/17
EPA-BPOU	MW5-25	NA	Monitoring		1	1,185	1,195	3.5	05/17	3.5	05/17
					2	1,015	1,025	5.3	05/14	3.0	05/17
					3	875	885	23.0	05/17	23.0	05/17
					4	750	760	23.0	10/14	22.0	05/17
					5	570	580	23.0	10/14	13.0	05/17
					6	425	435	13.0	03/07	1.4	05/17
					7	285	295	9.4	09/07	1.1	05/17
EPA-BPOU	MW5-26	NA	Monitoring		1	1,130	1,140	0.6	05/11	0.5	06/17
					2	1,020	1,030	0.6	05/11	0.5	06/17
					3	880	890	0.6	05/11	0.5	06/17
					4	700	710	0.6	05/11	0.5	06/17
					5	540	550	4.9	05/10	2.8	06/17
					6	410	420	9.5	03/07	1.4	06/17
					7	290	300	4.8	05/15	2.1	06/17
EPA-BPOU	MW5-27	NA	Monitoring		1	1,124	1,134	0.4	06/17	0.4	06/17
					2	1,005	1,015	0.5	05/11	0.5	06/17

Table 3
Nitrate Nitrogen Concentrations and Well Perforation Data in the Study Area

Owner	Well ID	Recordation Number	Well Type	Well Status	Port	Top of Screen (ft, bgs)	Bottom of Screen (ft, bgs)	Historic High		Most Recent	
								Value	Date	Value	Date
					3	880	890	0.4	03/07	0.3	06/17
					4	700	710	3.8	05/10	2.0	06/17
					5	568	578	1.1	05/11	0.7	06/17
					6	430	440	3.3	03/07	1.6	06/17
					7	274	284	1.4	03/07	0.5	06/17

Note:

* Well perforation is not available. It is assumed perforated in permeable zones by examining well logs.

1 Questionable data. The measurement might be the Nitrate-NO3 reading.

Table 4
Projected Groundwater Production For the Predictive 30-Year Simulation

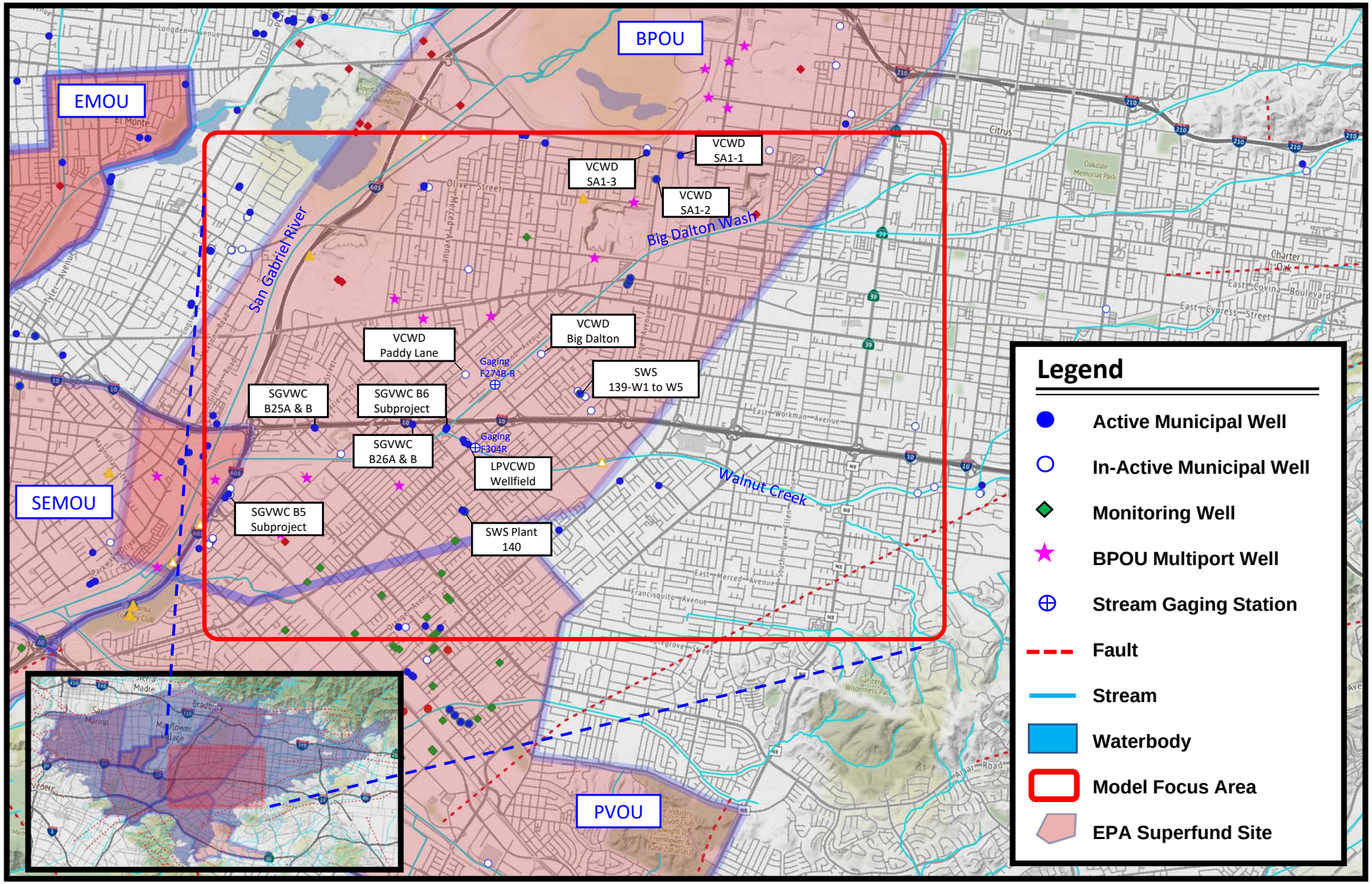
Projected Year	Projected Main Basin Groundwater Production (AF)
1	200,337
2	199,313
3	198,647
4	197,857
5	197,260
6	197,520
7	197,744
8	197,958
9	198,130
10	198,319
11	198,840
12	199,353
13	199,864
14	200,373
15	200,890
16	201,214
17	201,537
18	201,862
19	202,188
20	202,518
21	203,044
22	203,573
23	204,103
24	204,636
25	205,171
26	205,709
27	206,248
28	206,790
29	207,335
30	207,881
Maxmum:	207,881
Minimun:	197,260
Mean:	201,541

Table 5

Projected 30 Years Nitrate Nitrogen Concentrations (unit: mg/l)

Year	LPVCWD Scenario 1 Simulation		
	Well 2	Well 3	Well 5
1	6.39	9.31	8.08
2	6.77	9.13	7.94
3	9.43	11.51	10.52
4	10.71	14.09	12.50
5	11.14	15.33	13.37
6	11.35	15.94	13.84
7	11.41	16.21	14.04
8	11.26	16.24	14.01
9	11.18	16.24	13.96
10	11.36	16.37	14.05
11	11.86	16.68	14.37
12	12.69	17.34	15.08
13	13.78	18.41	16.22
14	14.92	19.74	17.62
15	15.88	20.99	18.89
16	16.59	21.95	19.87
17	17.07	22.60	20.52
18	17.35	22.96	20.88
19	17.48	23.07	21.00
20	17.50	23.01	20.97
21	17.47	22.89	20.86
22	17.42	22.77	20.76
23	17.39	22.70	20.70
24	17.38	22.68	20.70
25	17.39	22.71	20.75
26	17.43	22.78	20.83
27	17.48	22.88	20.93
28	17.54	23.00	21.05
29	17.60	23.14	21.19
30	17.66	23.30	21.34

FIGURES



MAIN SAN GABRIEL BASIN WATERMASTER

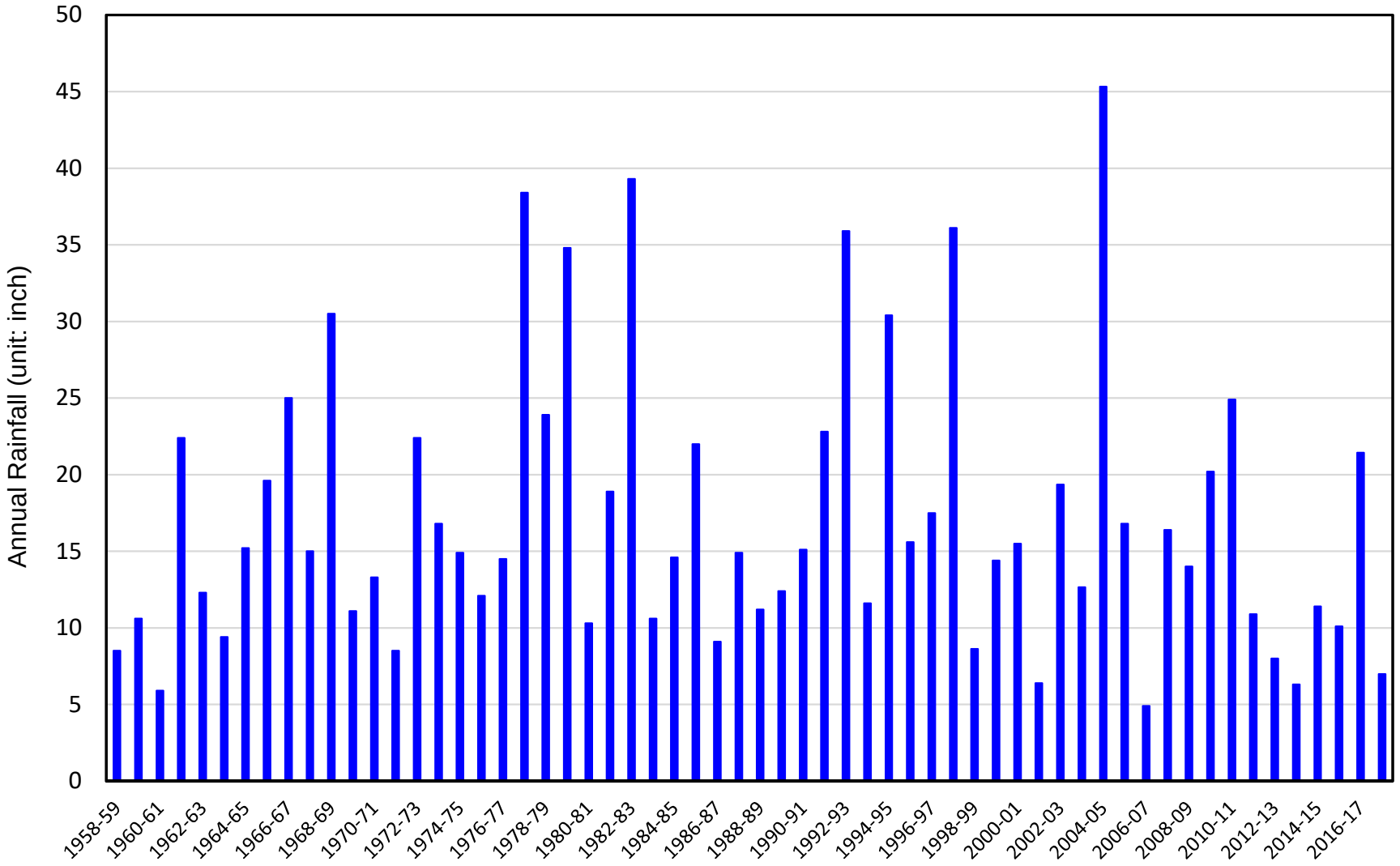
LPVCWD Nitrate Modeling Study Area

STETSON ENGINEERS INC.

MainSanGabrielBasin WATERMASTER

Figure 1

J:\2721\Report\Table & Figures\Figure 1 - Study Area.pdf



STETSON ENGINEERS INC.

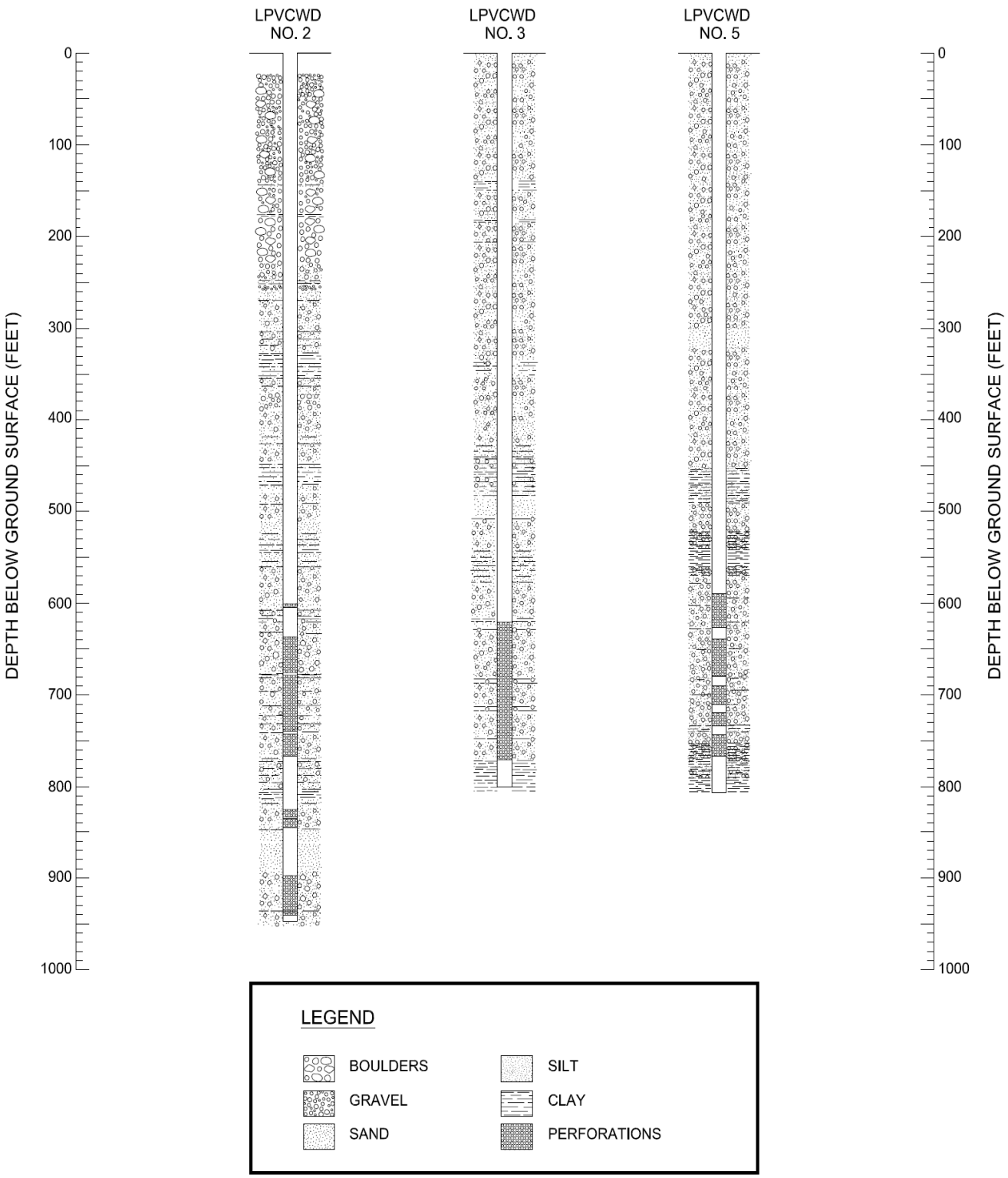
SAN GABRIEL VALLEY ANNUAL RAINFALL

From 1958-59 Through 2017-18

MainSanGabrielBasin WATERMASTER

FIGURE 2

J:\2721\Report\Table & Figures\Table 1 - Precipitation.xlsx

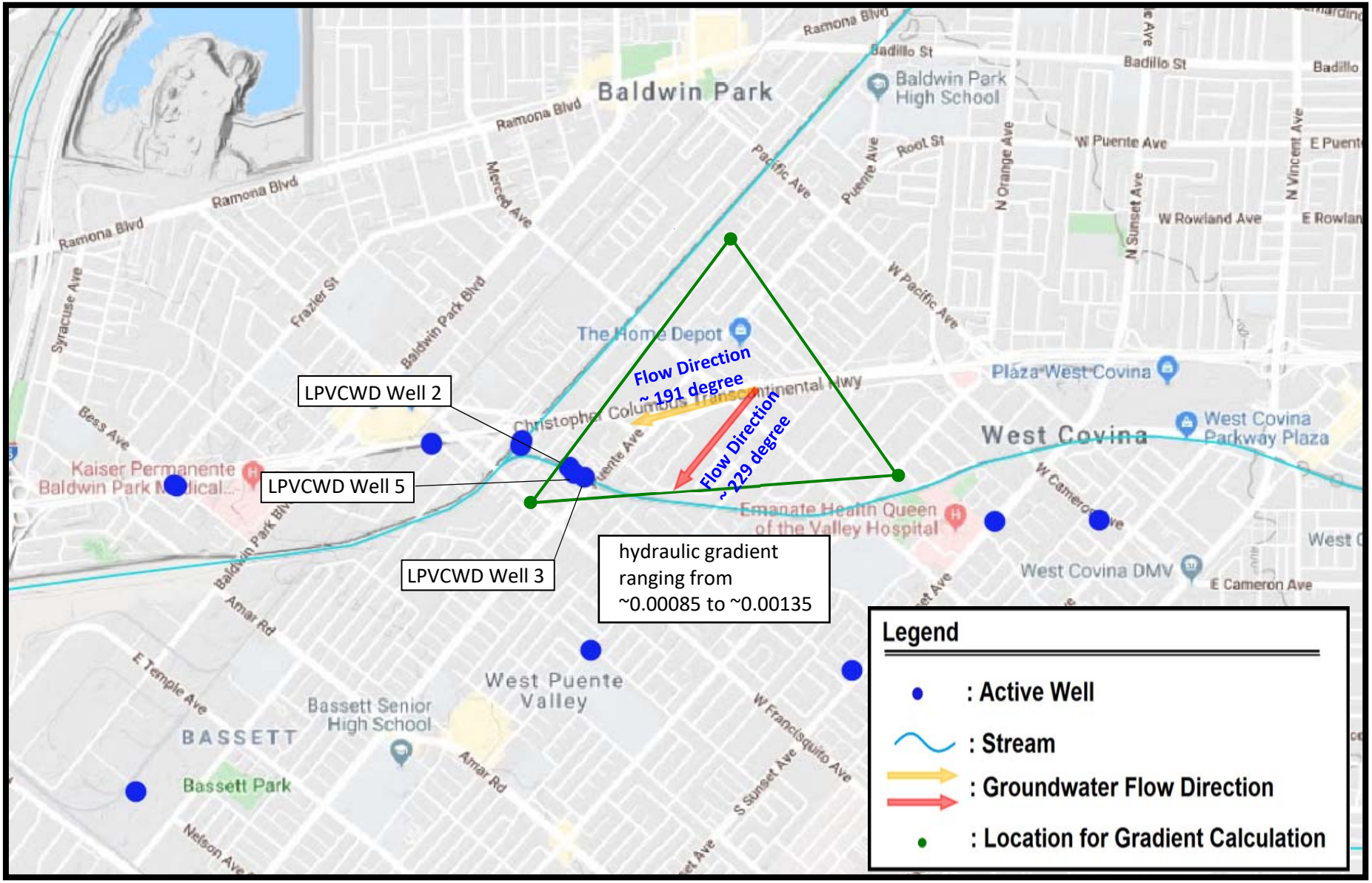


MAIN SAN GABRIEL BASIN WATERMASTER

LITHOLOGIC DATA
LA PUENTE VALLEY COUNTY WATER DISTRICT

STETSON ENGINEERS INC.

MainSanGabrielBasin WATERMASTER

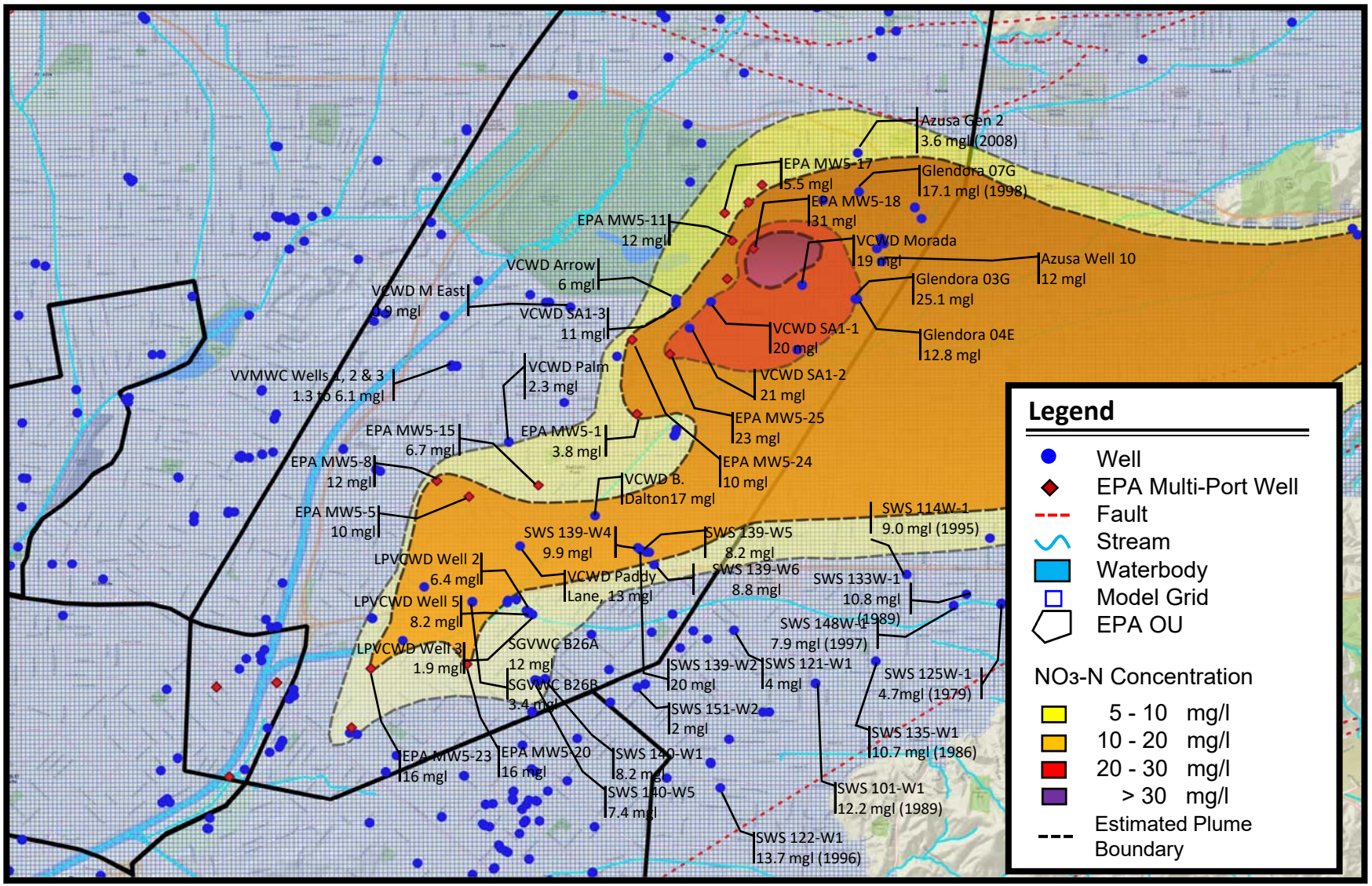


MAIN SAN GABRIEL BASIN WATERMASTER

Groundwater Flow Direction and Hydraulic Gradient in the Study Area

Figure 4

J:\2721\Report\Table & Figures\Figure 4 - GW Flow Direction and Gradient.pdf



STETSON ENGINEERS INC.

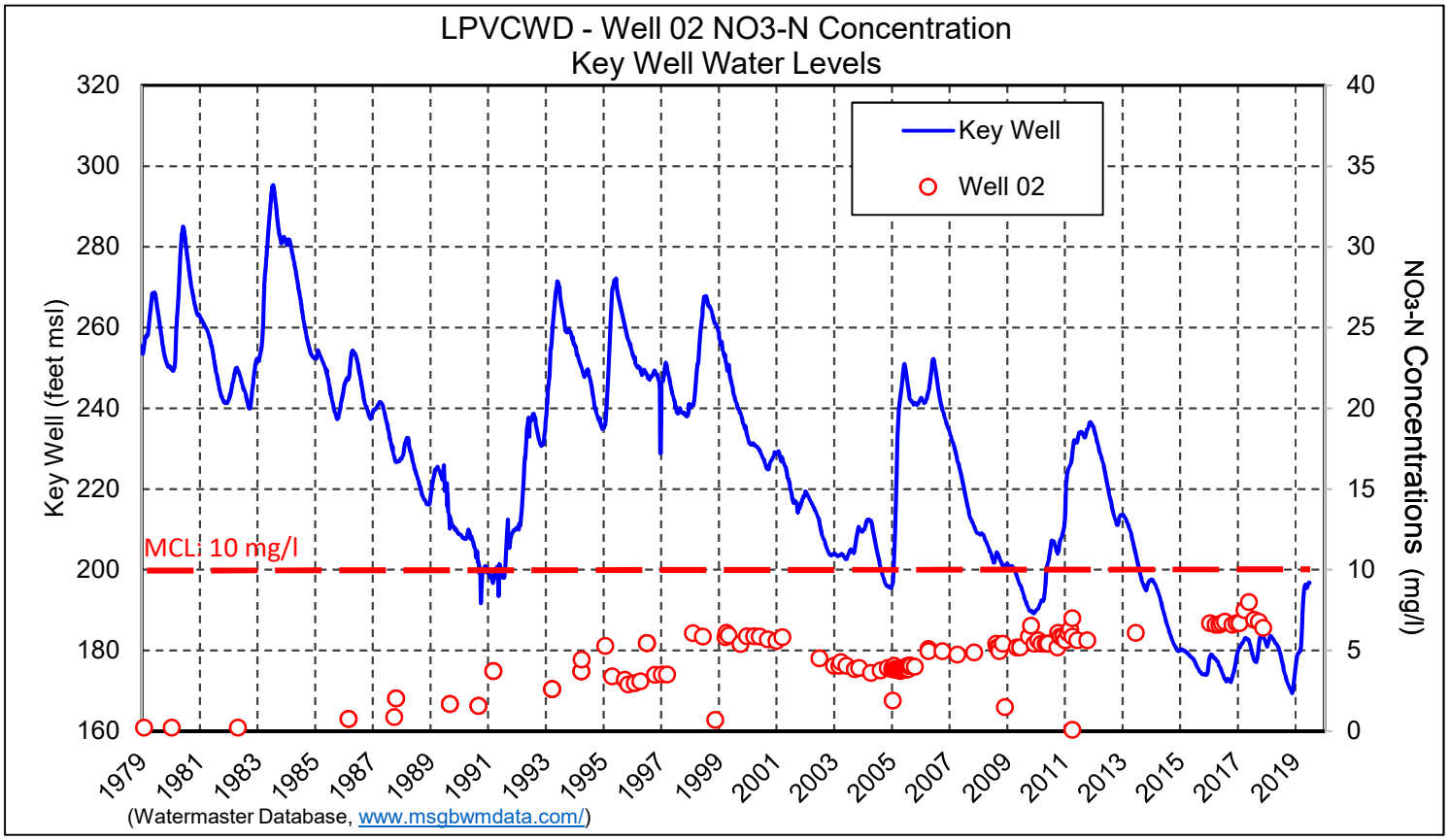
MAIN SAN GABRIEL BASIN WATERMASTER

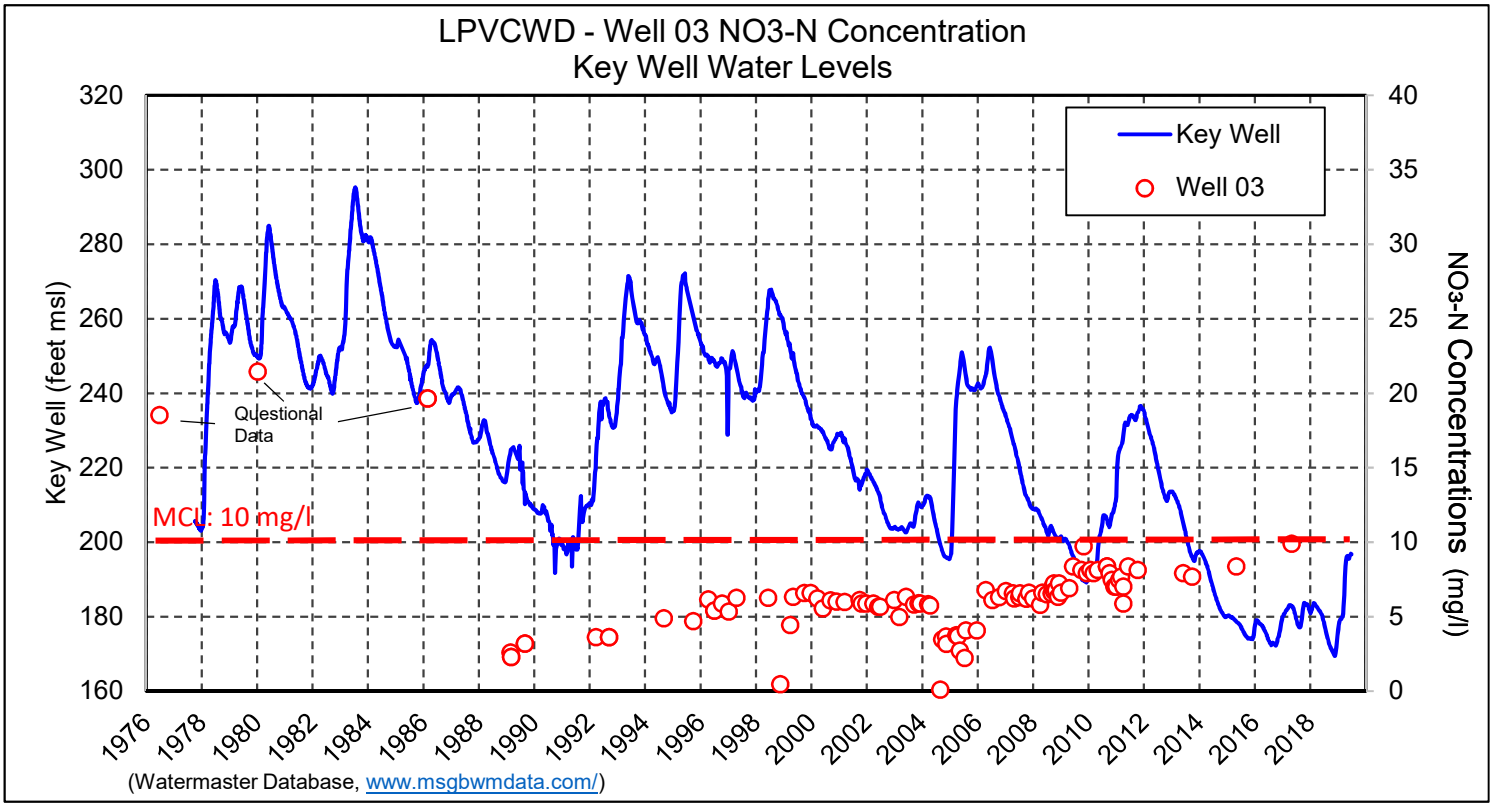
Composite LPVCWD Nitrate Nitrogen Concentration Contour Map

MainSanGabrielBasin WATERMASTER

Figure 5

J:\2721\Report\Table & Figures\ Figure 5 - Plume Map (Extended).pdf

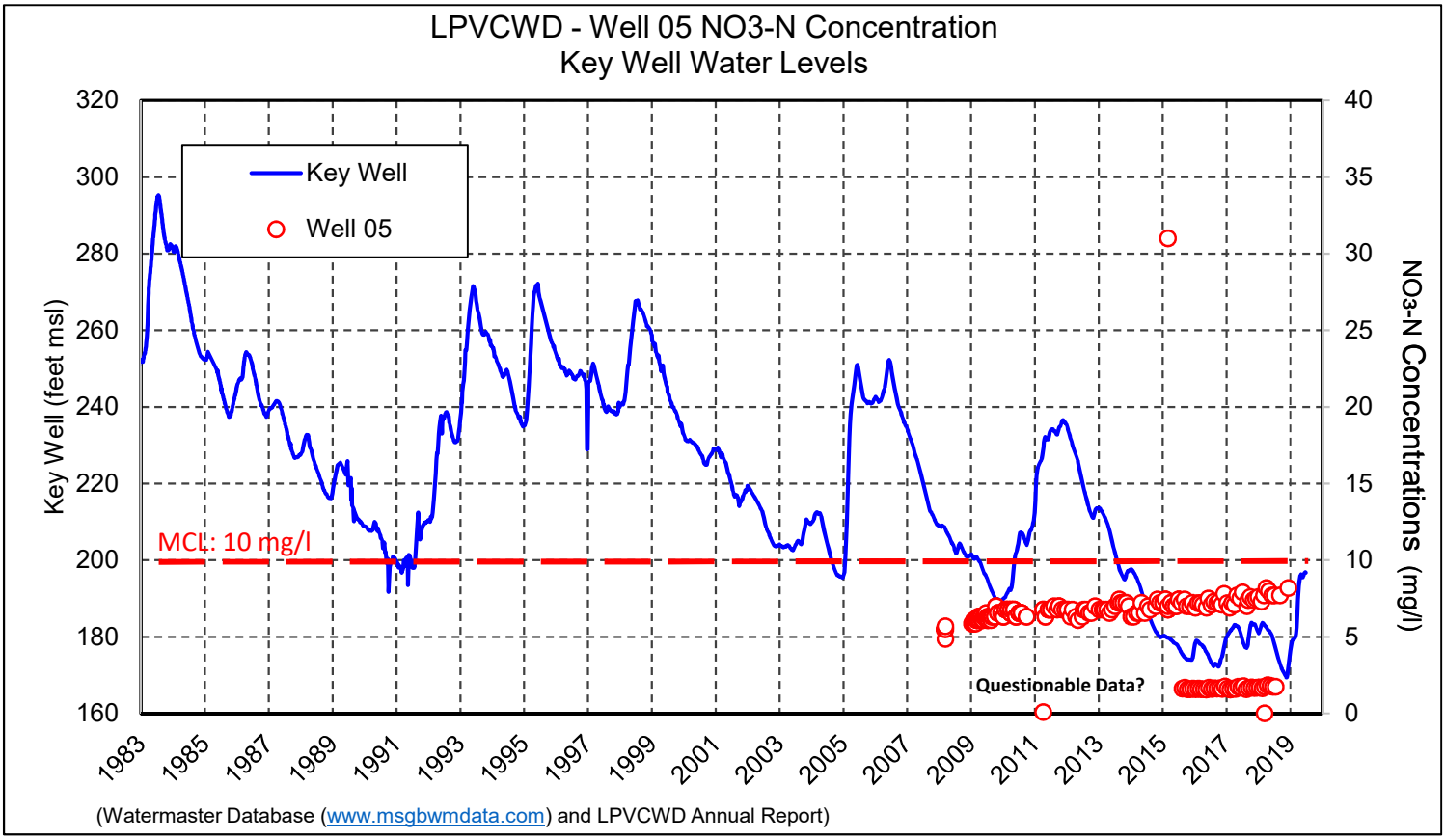




STETSON ENGINEERS INC.

LA PUENTE VALLEY COUNTY WATER DISTRICT
Nitrate Nitrogen Concentrations

Main San Gabriel Basin WATERMASTER

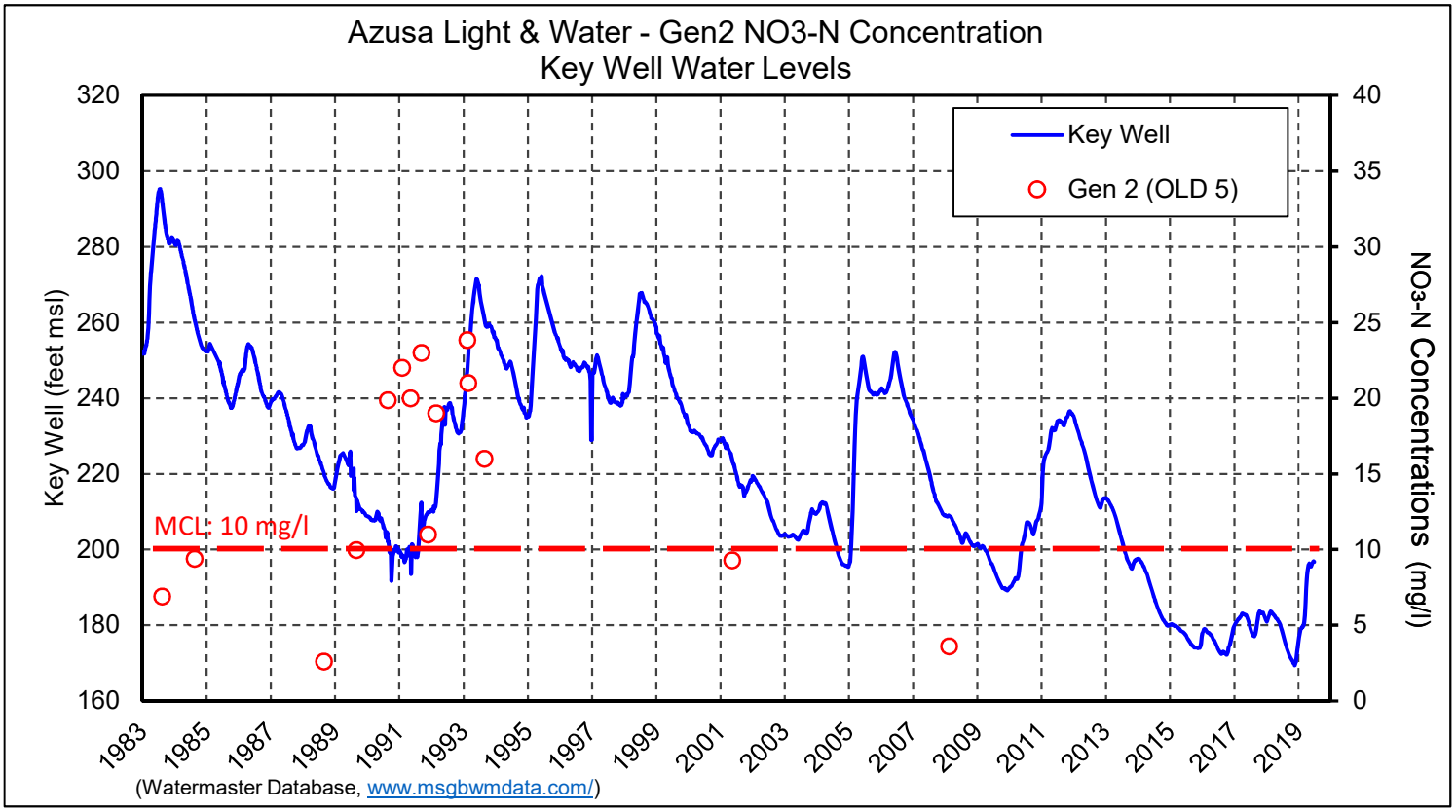


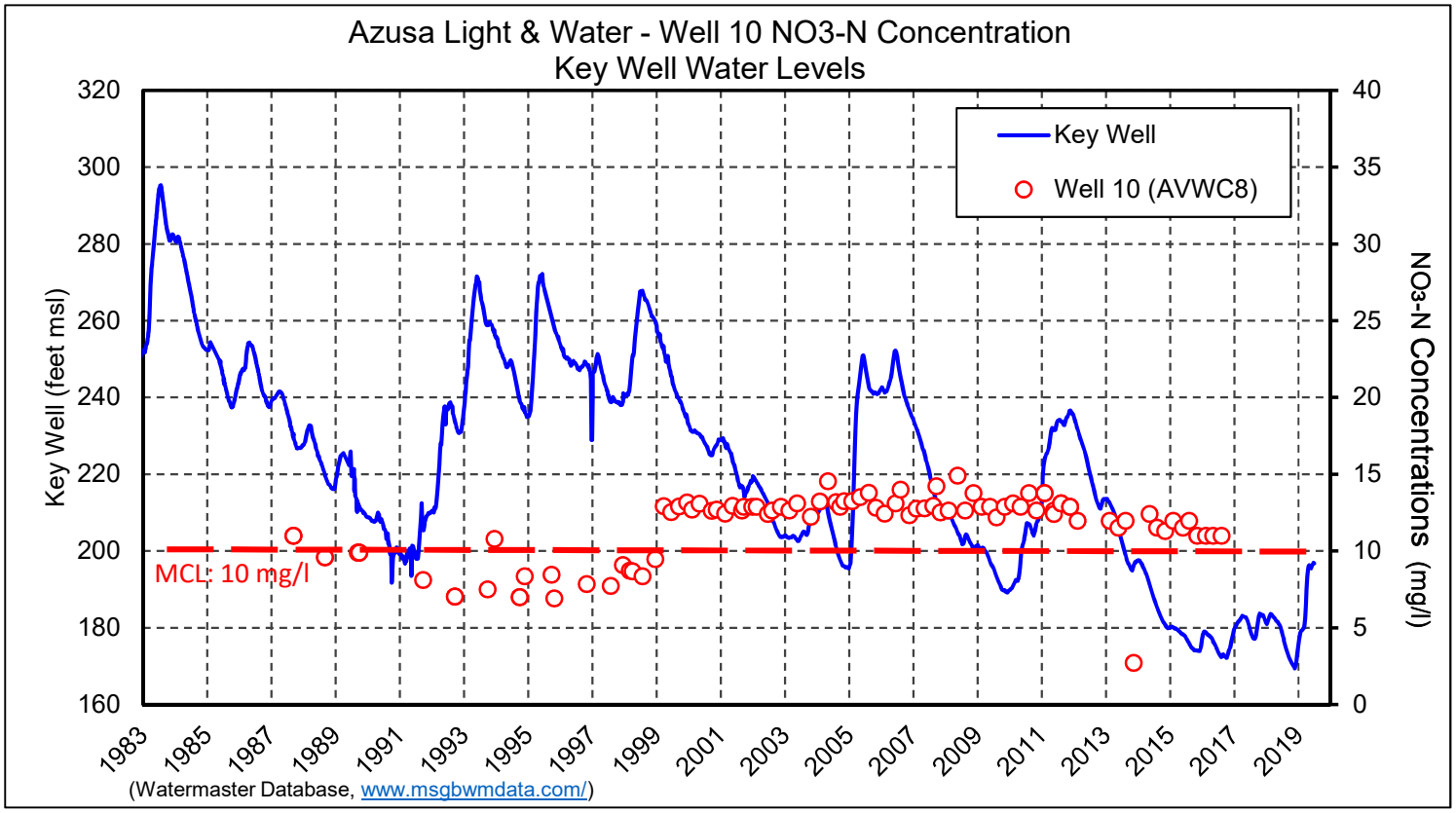
(Watermaster Database (www.msgbwmdata.com) and LPVCWD Annual Report)

STETSON ENGINEERS INC.

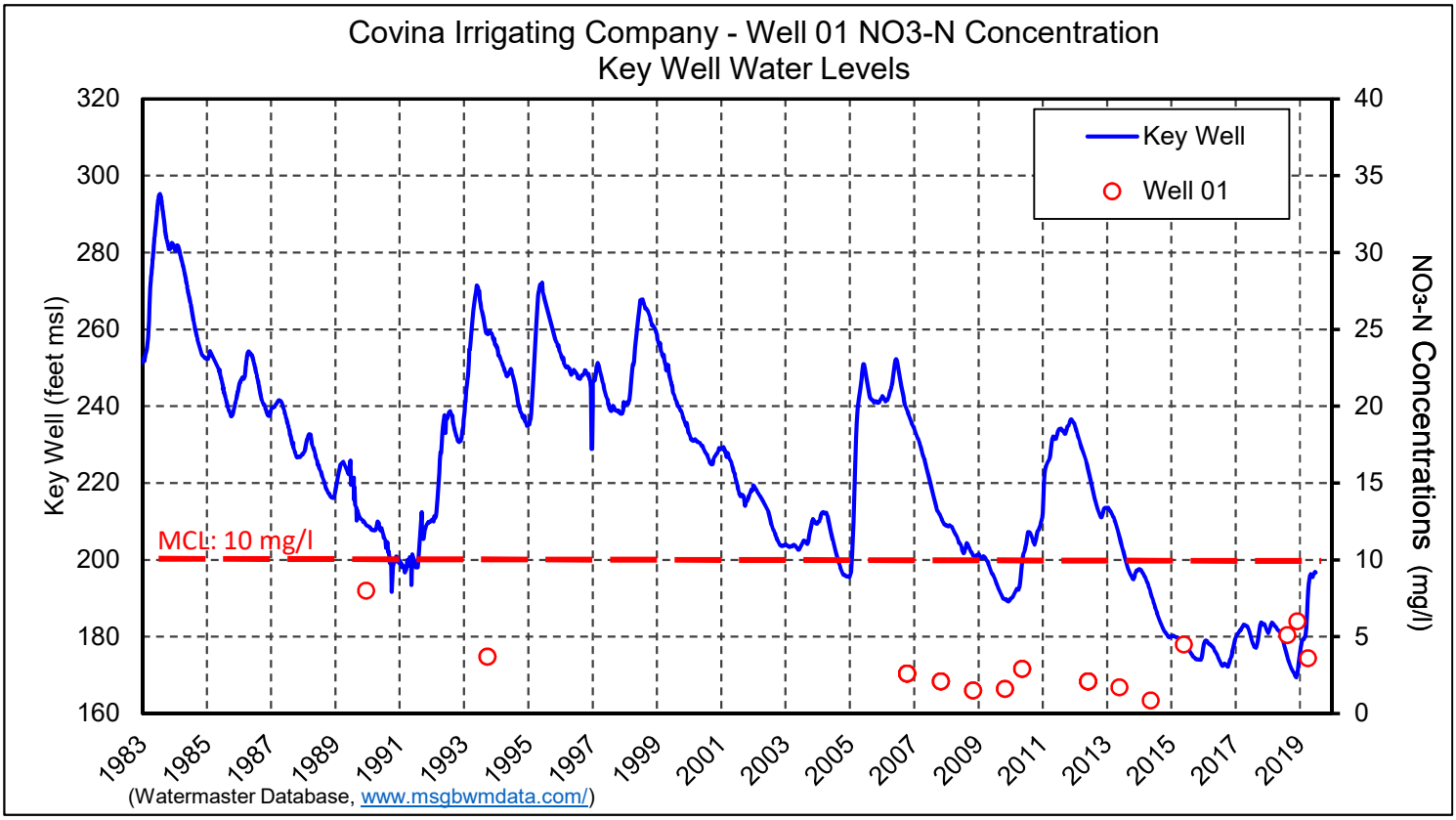
LA PUENTE VALLEY COUNTY WATER DISTRICT AND SAN GABRIEL VALLEY WATER COUNTY
Nitrate Nitrogen Concentrations

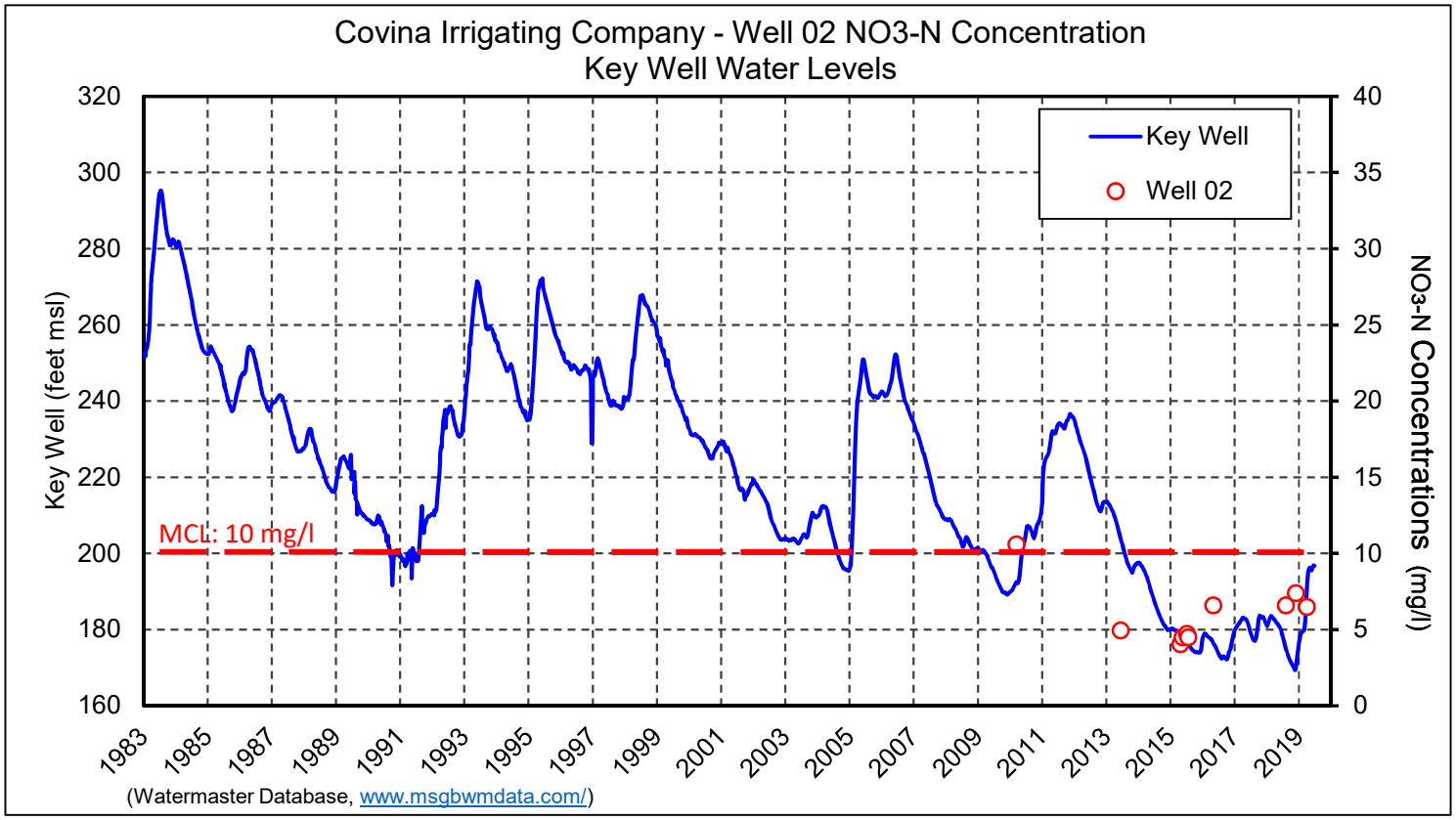
MainSanGabrielBasin WATERMASTER



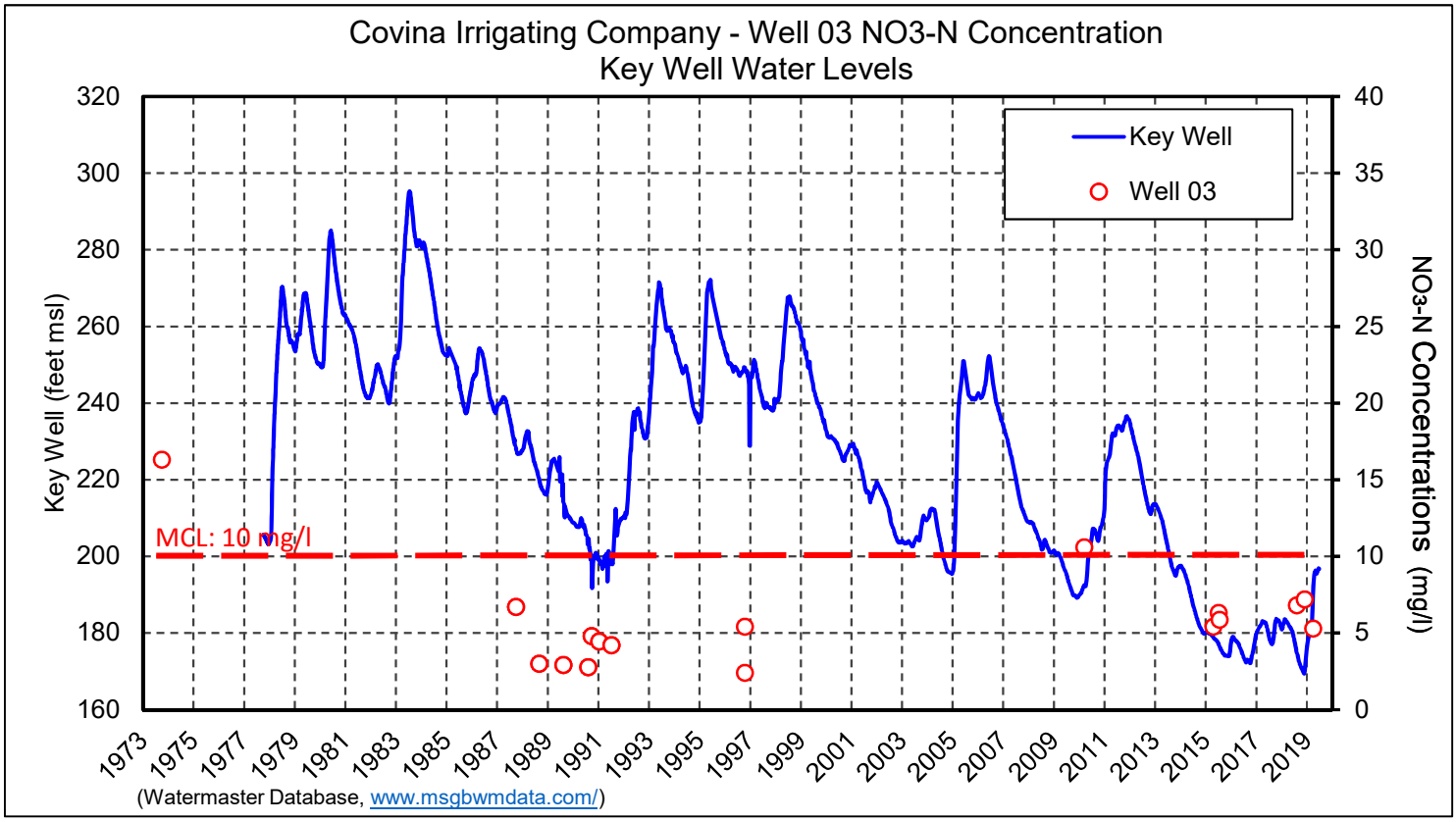


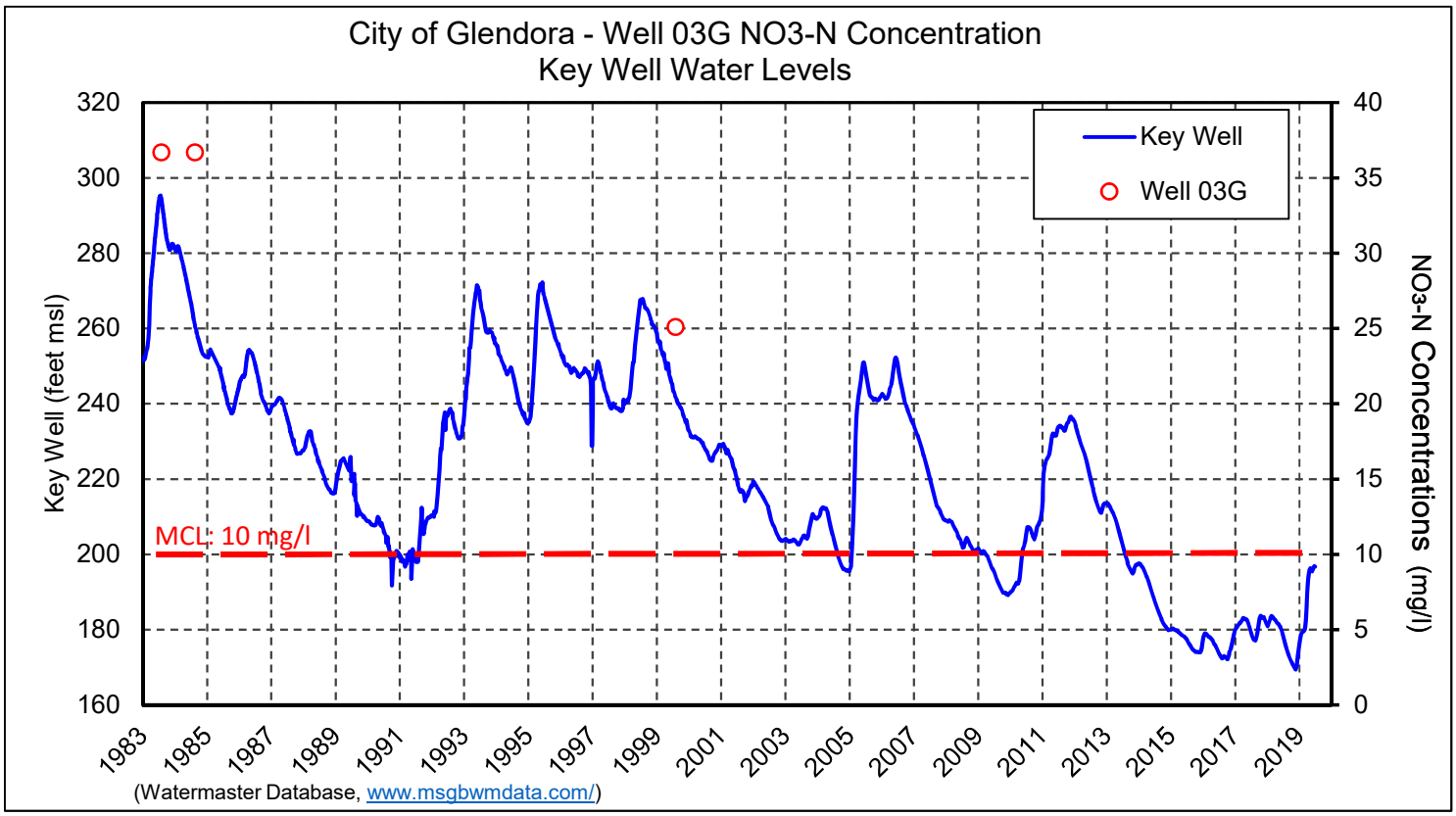
AZUSA LIGHT & WATER
Nitrate Nitrogen Concentrations



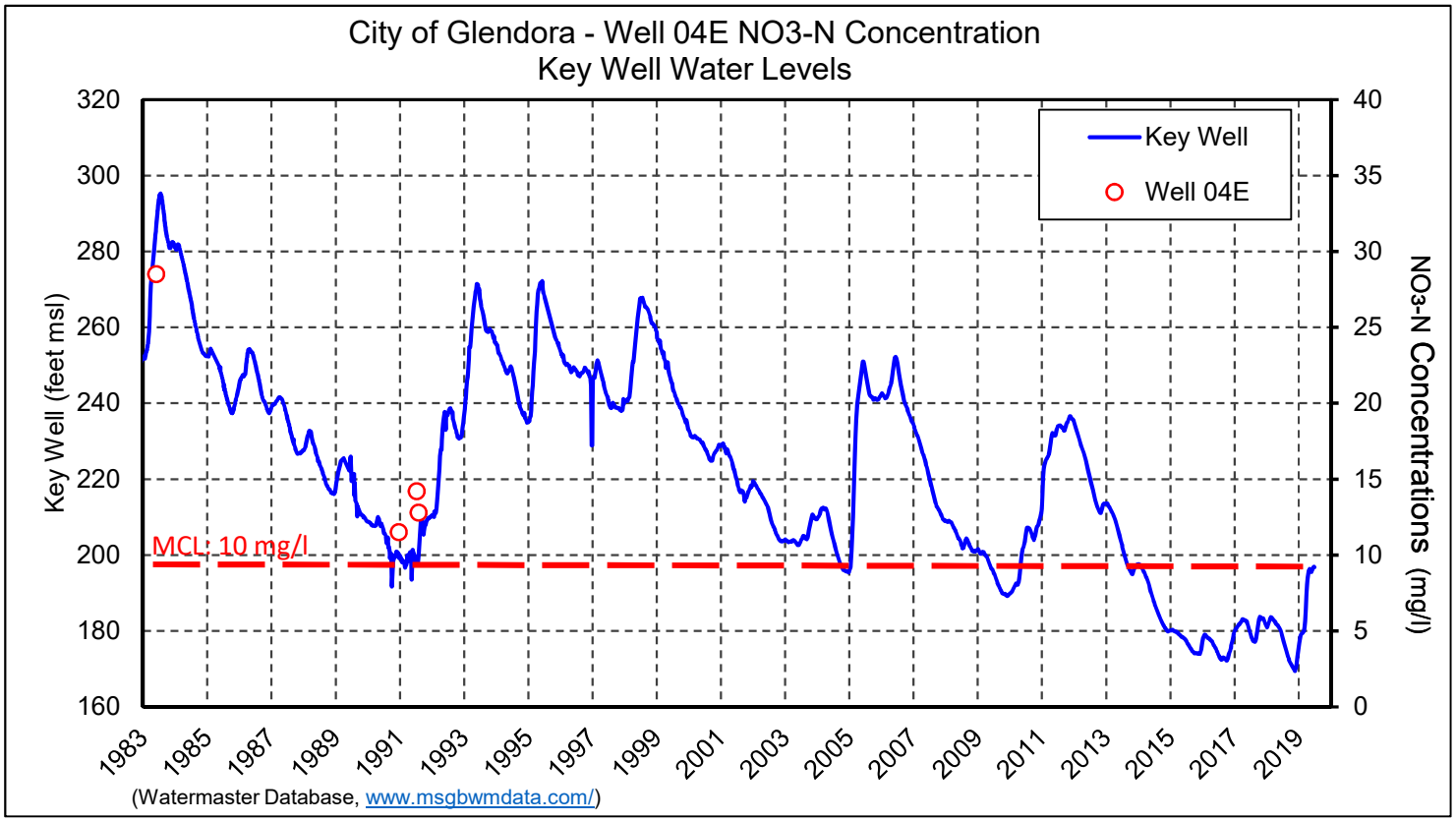


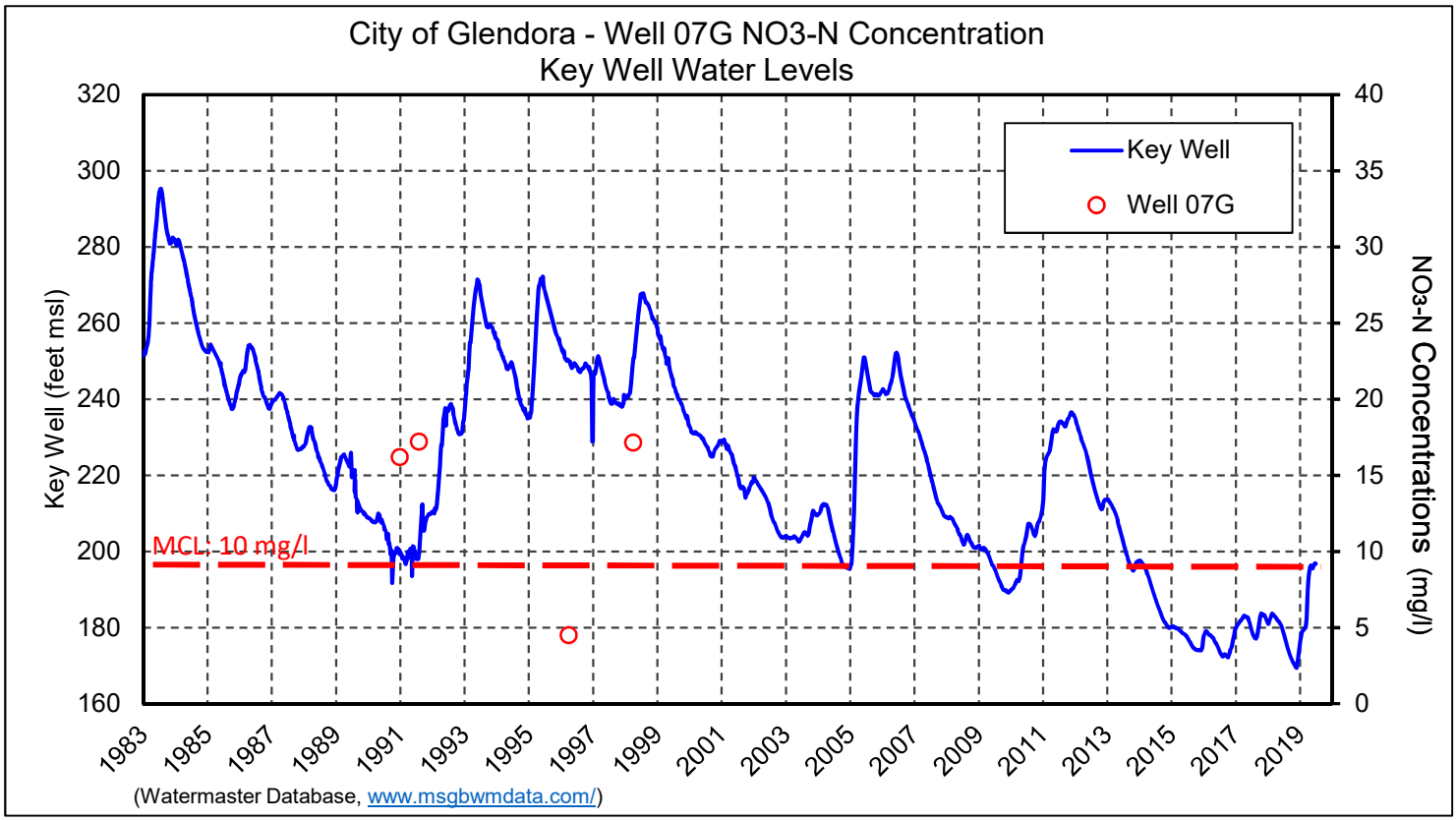
COVINA IRRIGATING COMPANY
Nitrate Nitrogen Concentrations





COVINA IRRIGATING COMPANY
CITY OF GLENDORA WELLS
Nitrate Nitrogen Concentrations

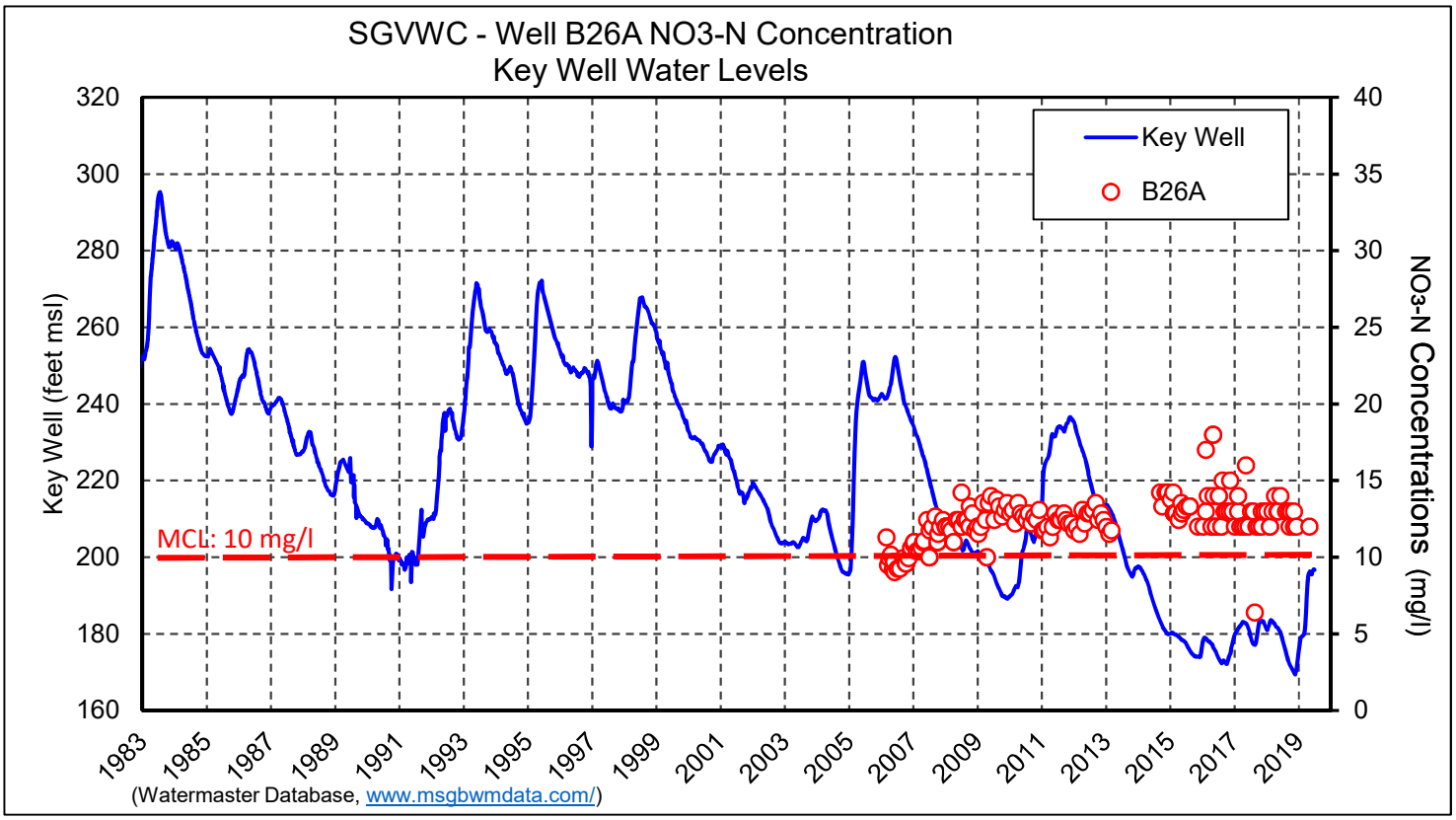


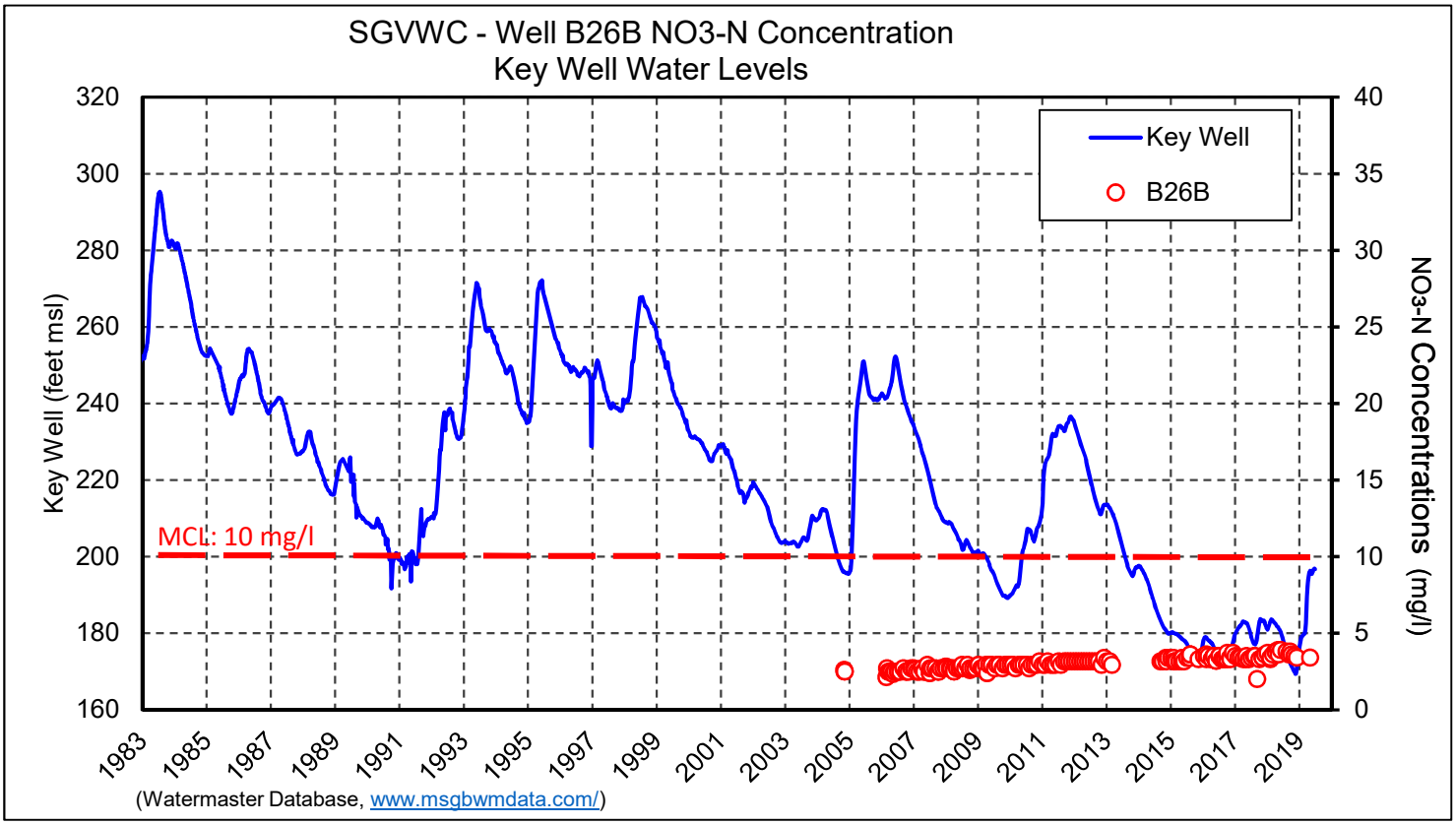


STETSON ENGINEERS INC.

CITY OF GLENDORA
Nitrate Nitrogen Concentrations

Main San Gabriel Basin WATERMASTER

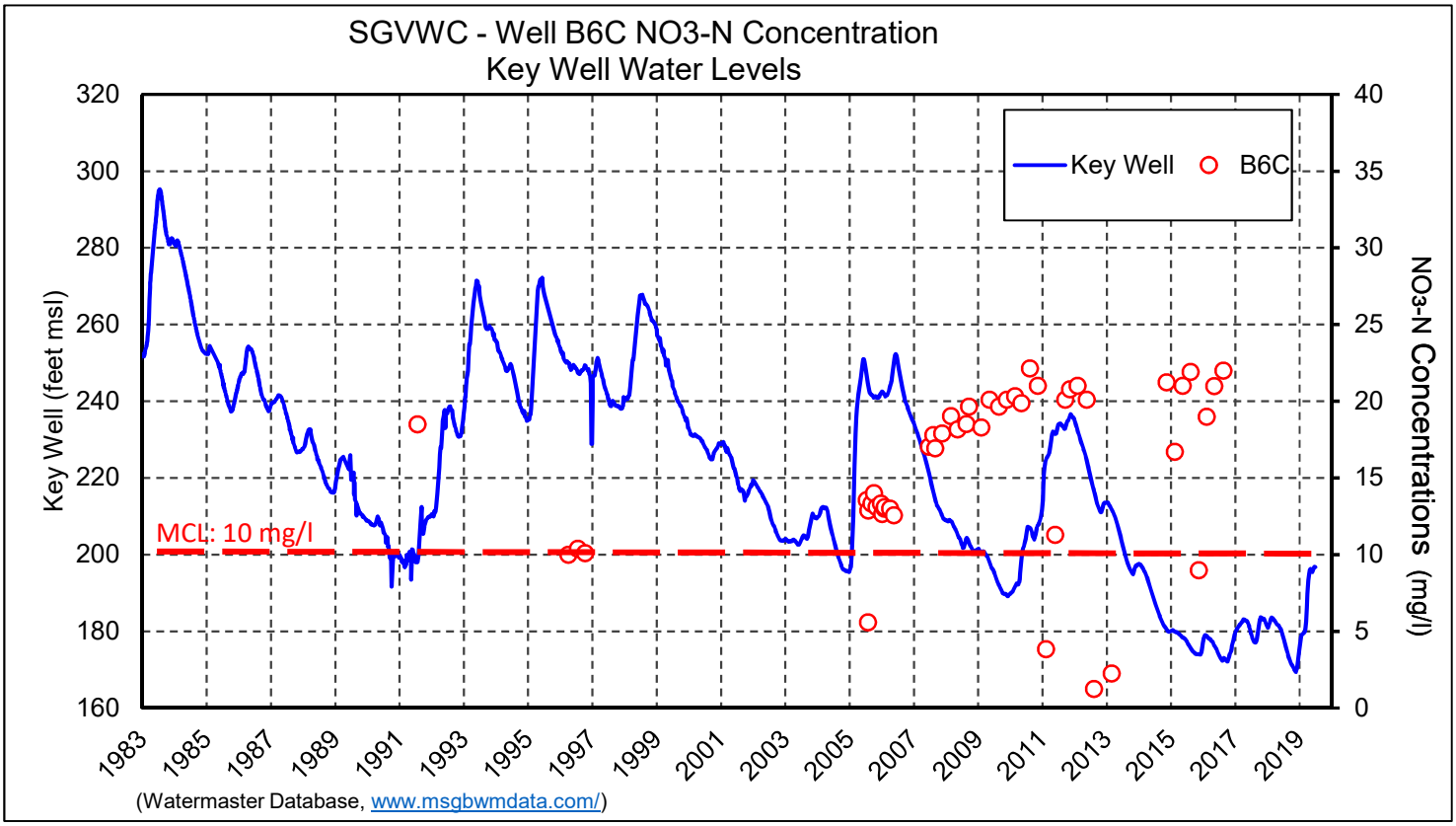


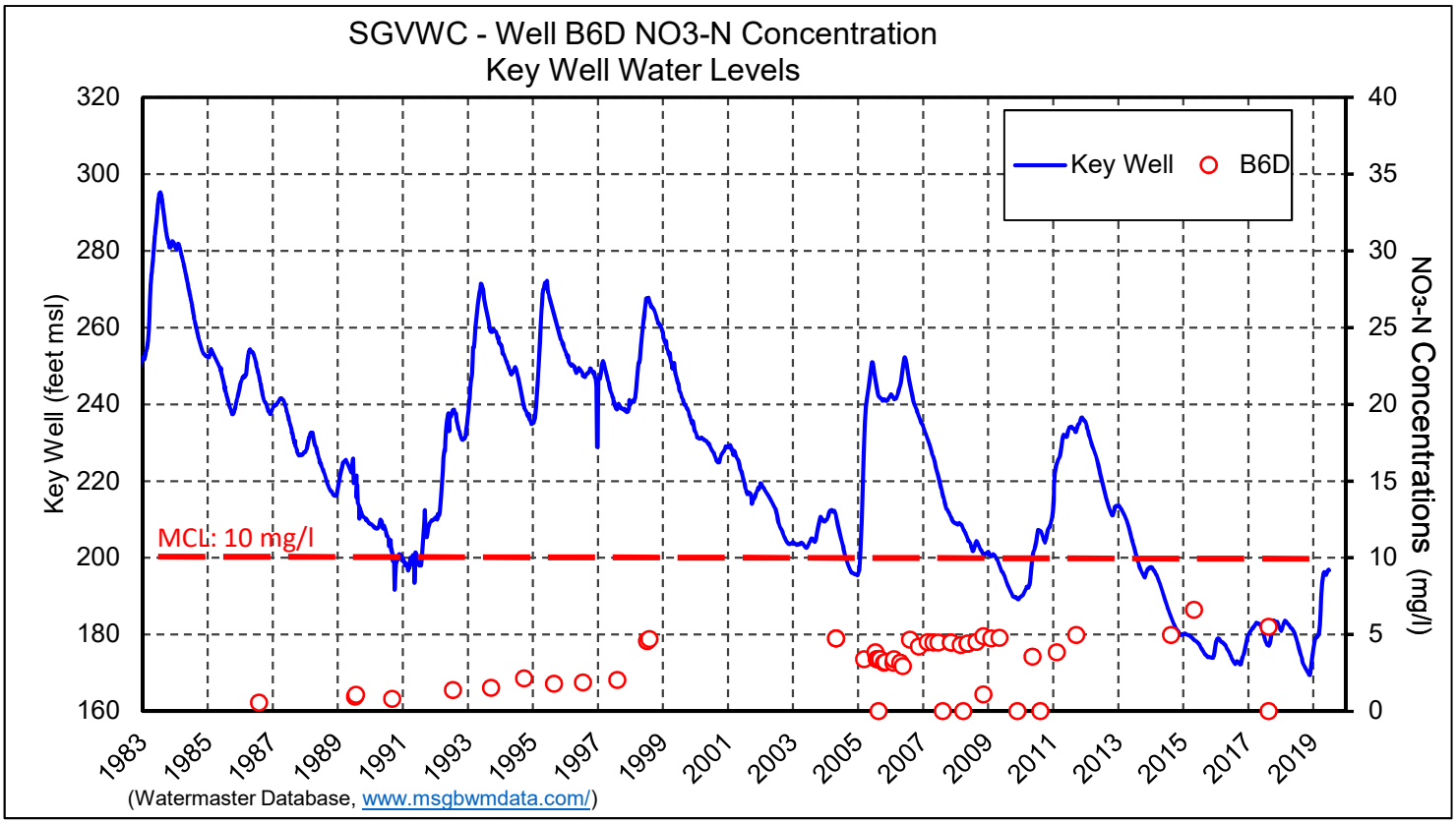


STETSON ENGINEERS INC.

LA PUENTE VALLEY COUNTY WATER DISTRICT
Nitrate Nitrogen Concentrations

Main San Gabriel Basin WATERMASTER

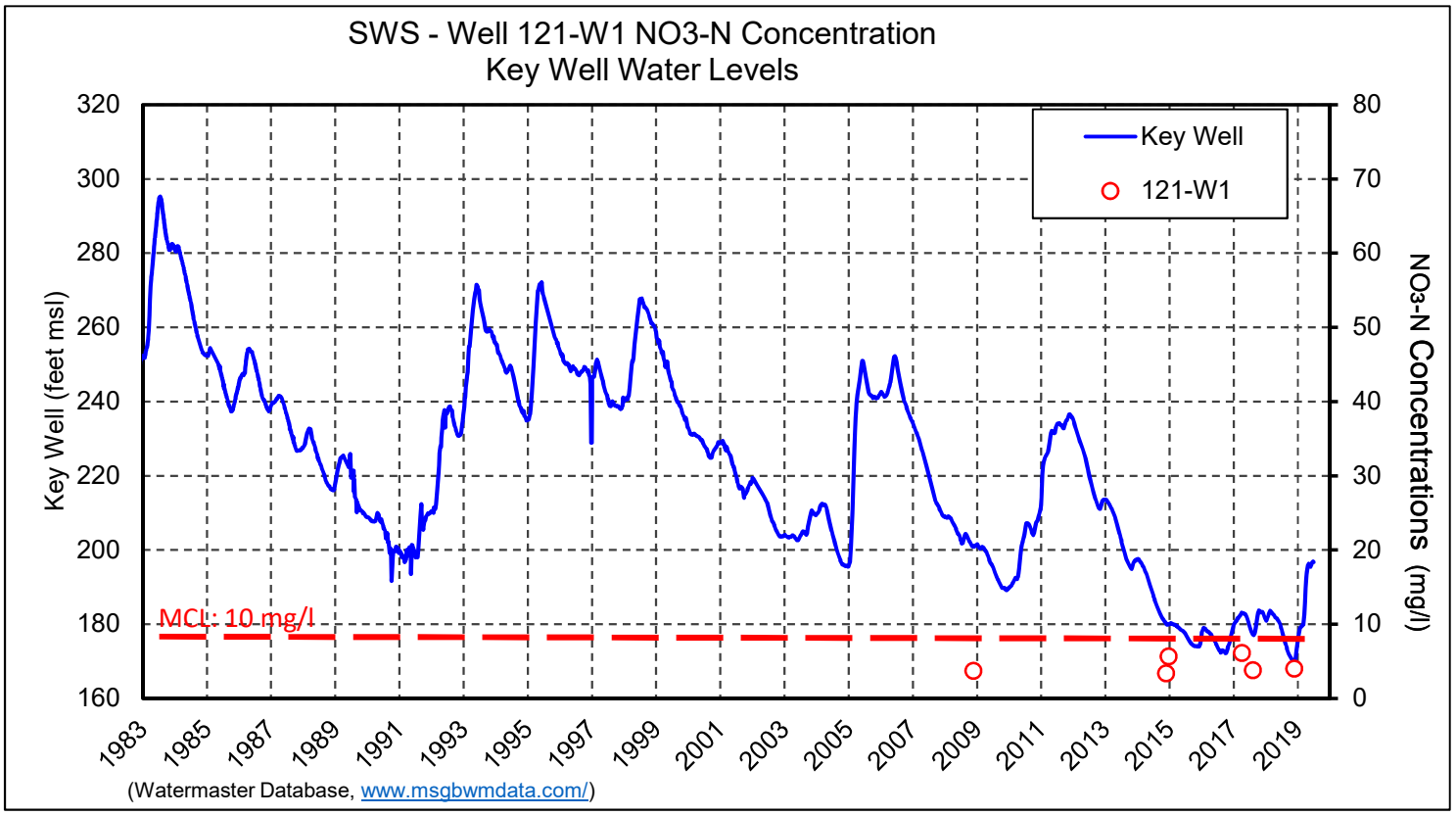


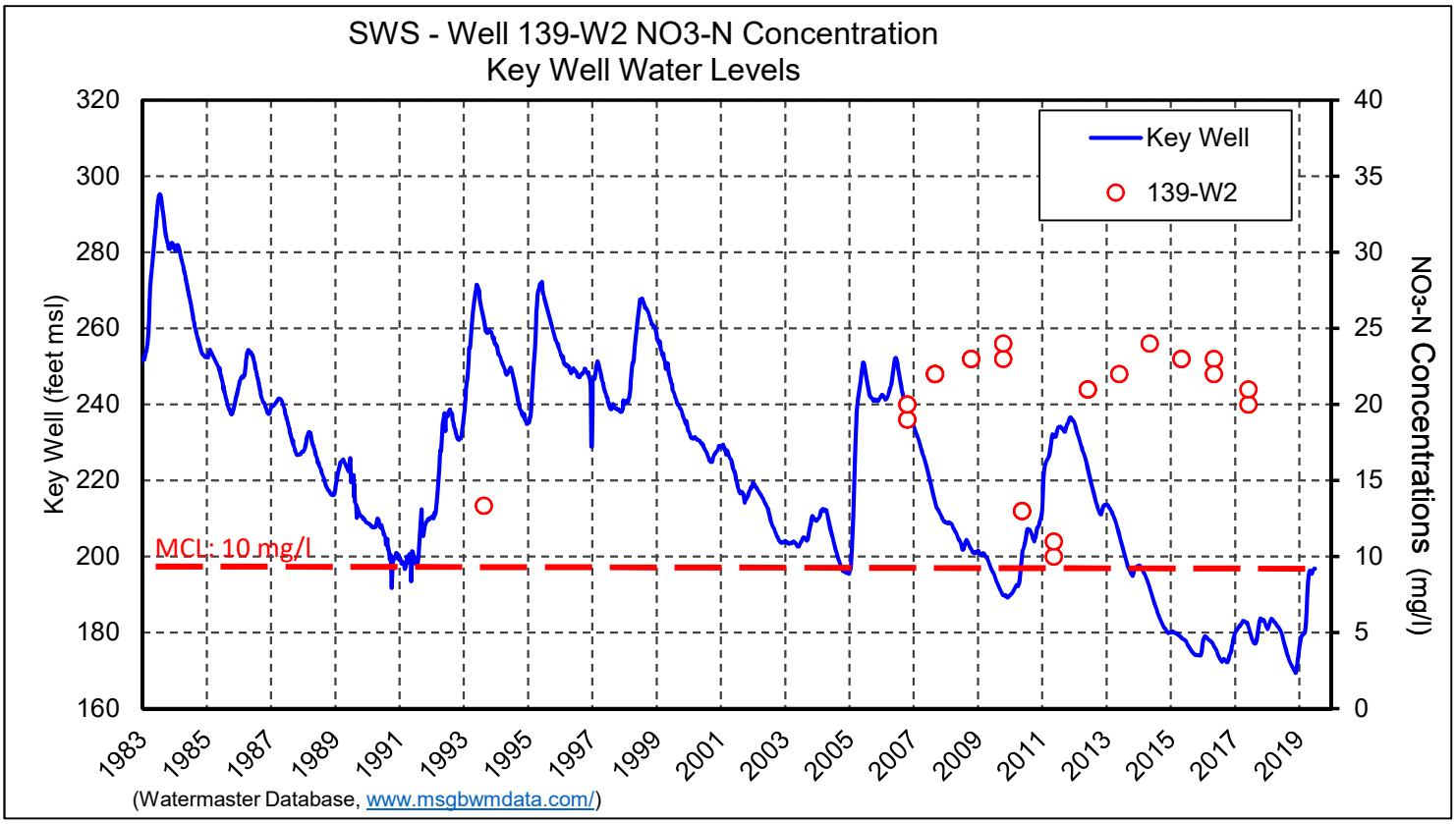


STETSON ENGINEERS INC.

LA PUENTE VALLEY COUNTY WATER DISTRICT AND SAN GABRIEL VALLEY WATER COUNTY
Nitrate Nitrogen Concentrations

MainSanGabrielBasin WATERMASTER

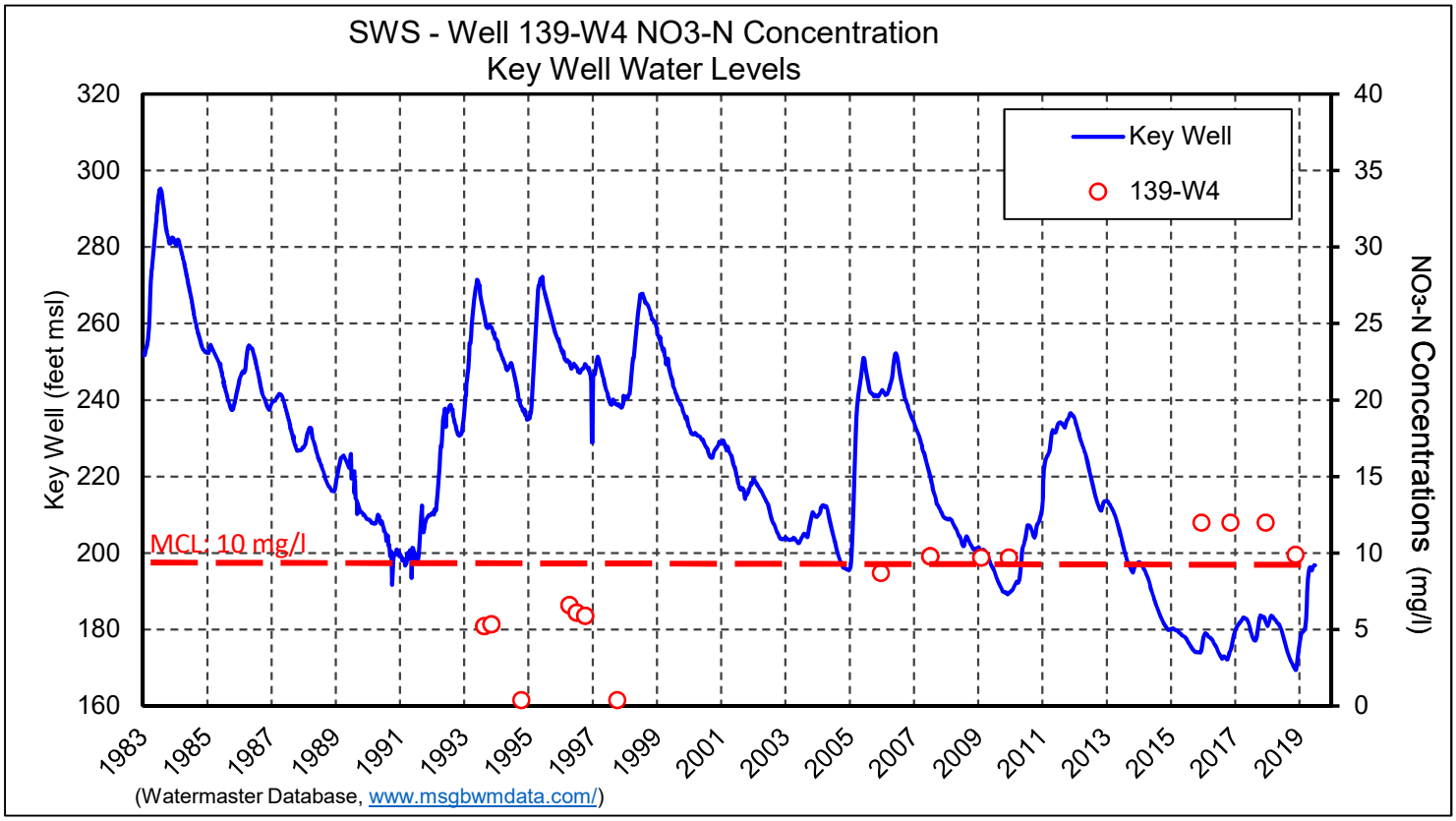


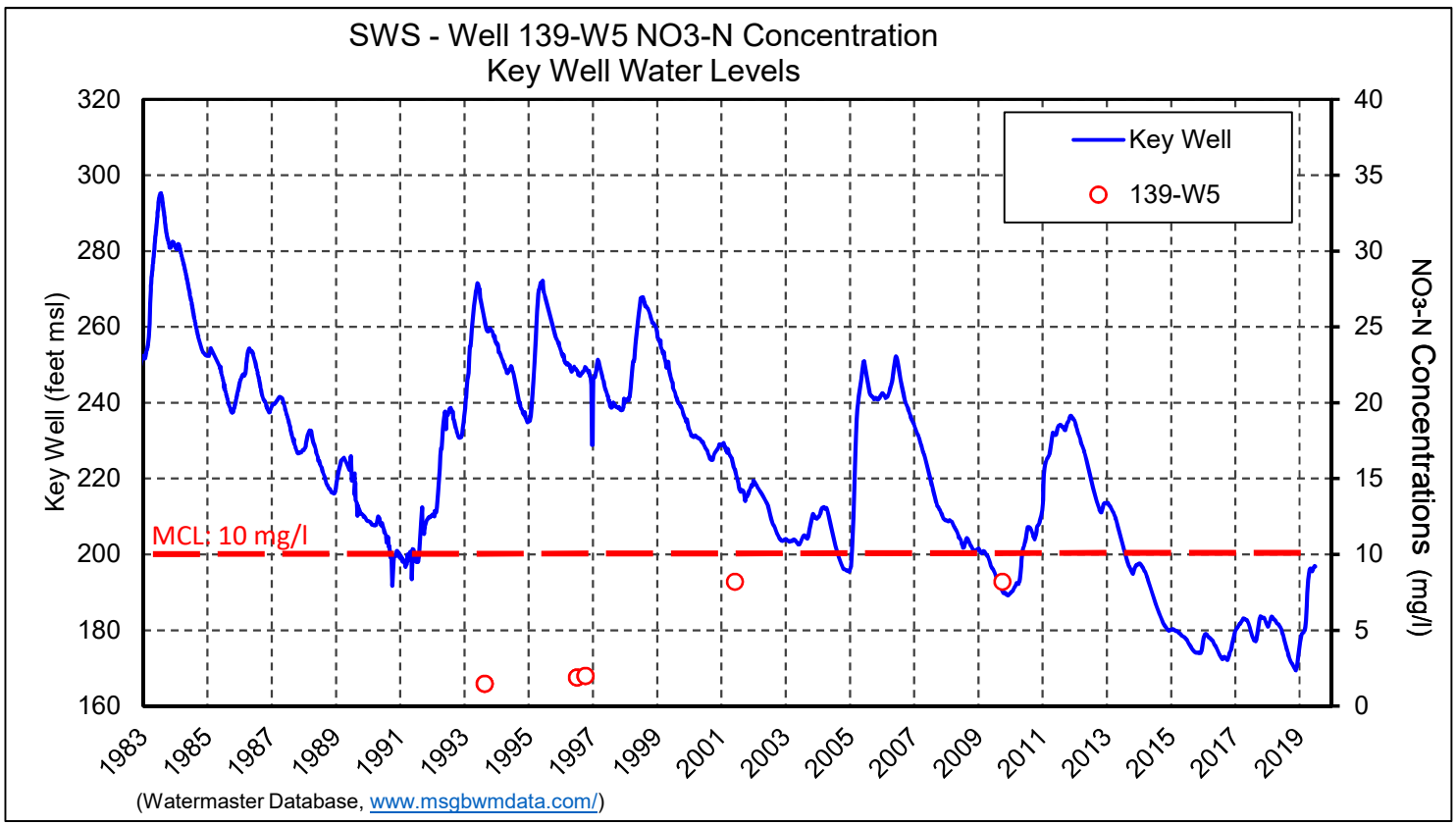


STETSON ENGINEERS INC.

SAN GABRIEL VALLEY WATER COUNTY
Nitrate Nitrogen Concentrations

Main San Gabriel Basin WATERMASTER

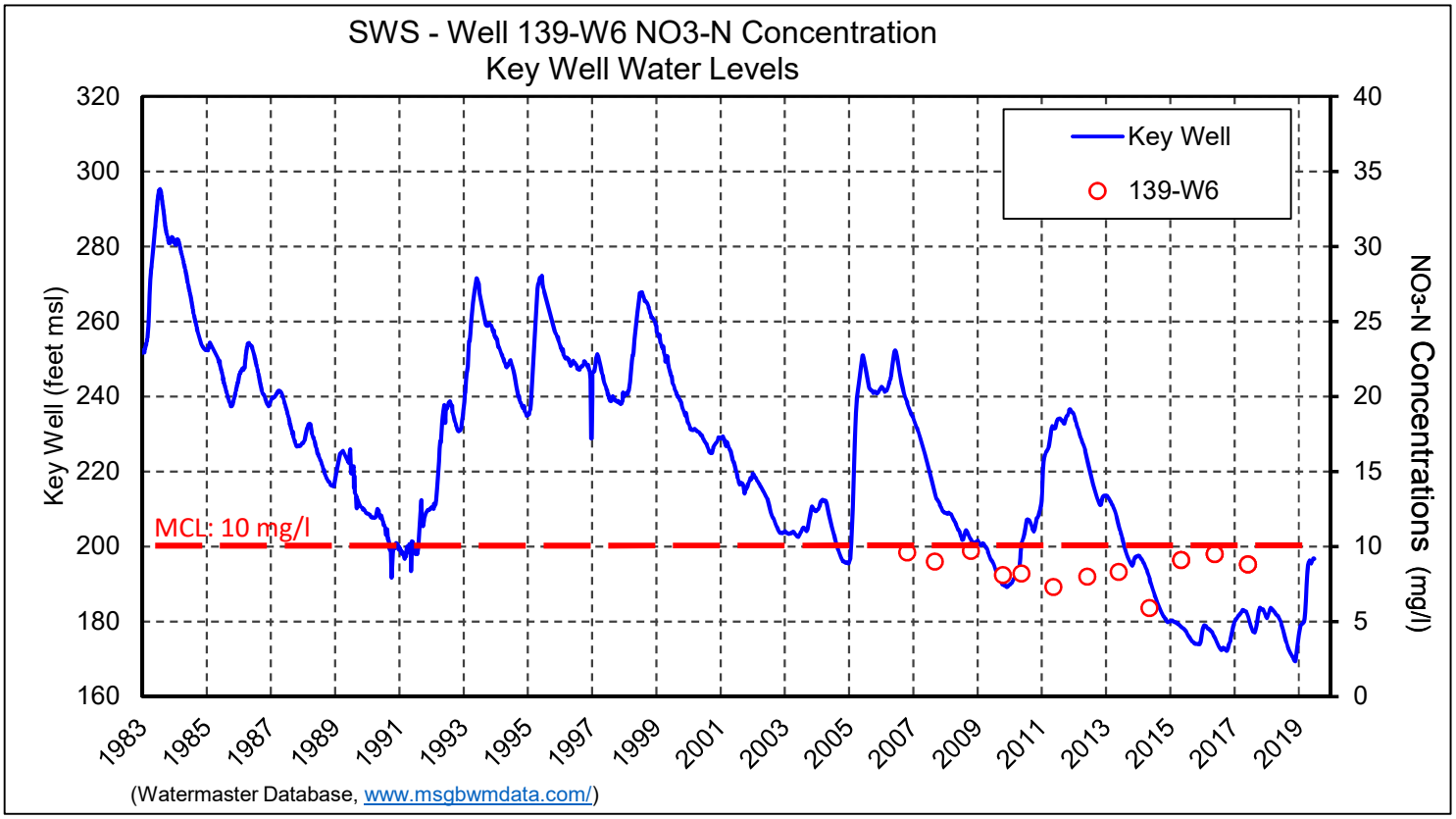




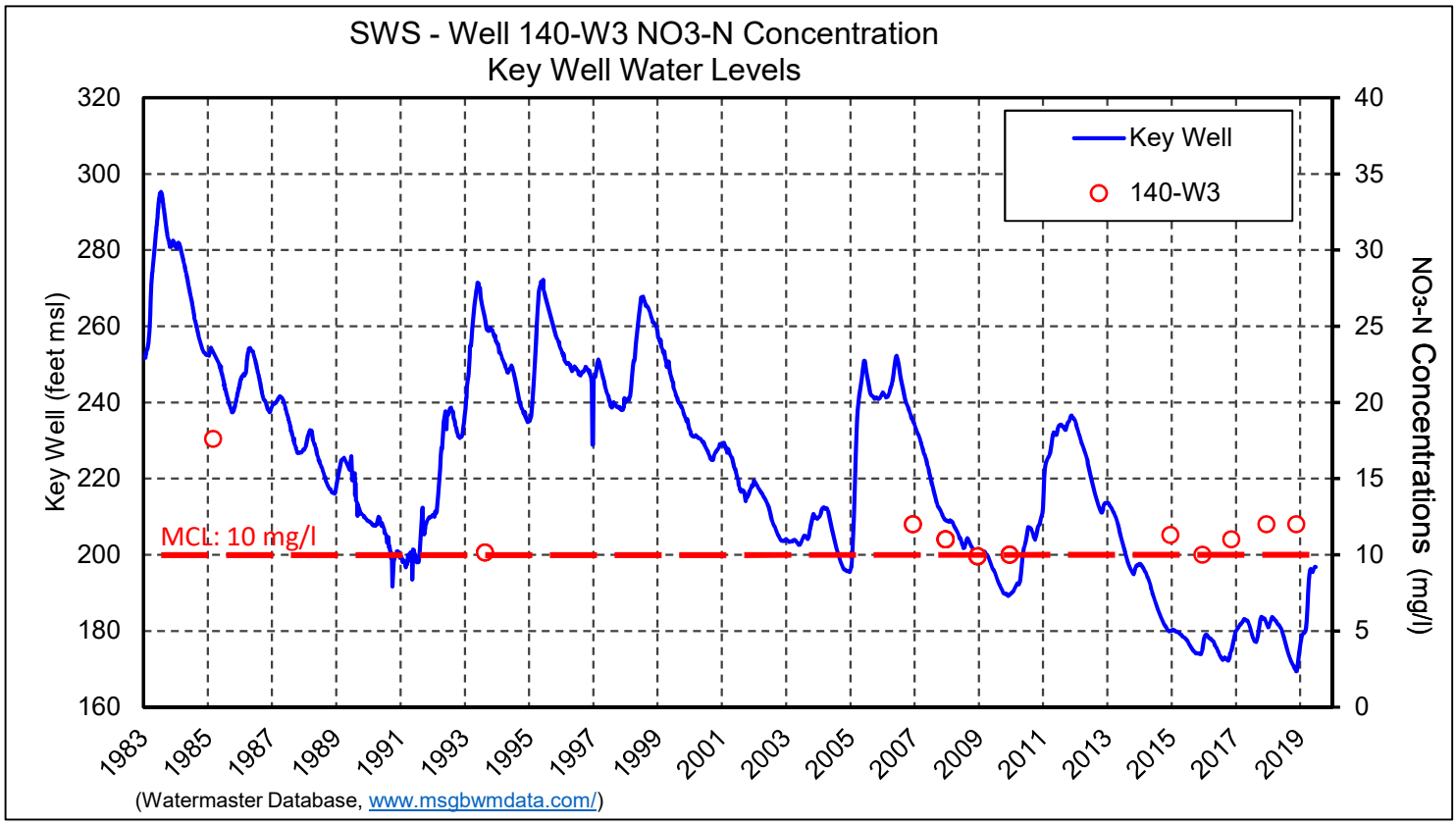
STETSON ENGINEERS INC.

SAN GABRIEL VALLEY WATER COUNTY AND SUBURBAN WATER SYSTEMS
Nitrate Nitrogen Concentrations

MainSanGabrielBasin WATERMASTER



(Watermaster Database, www.msgbwmdata.com/)

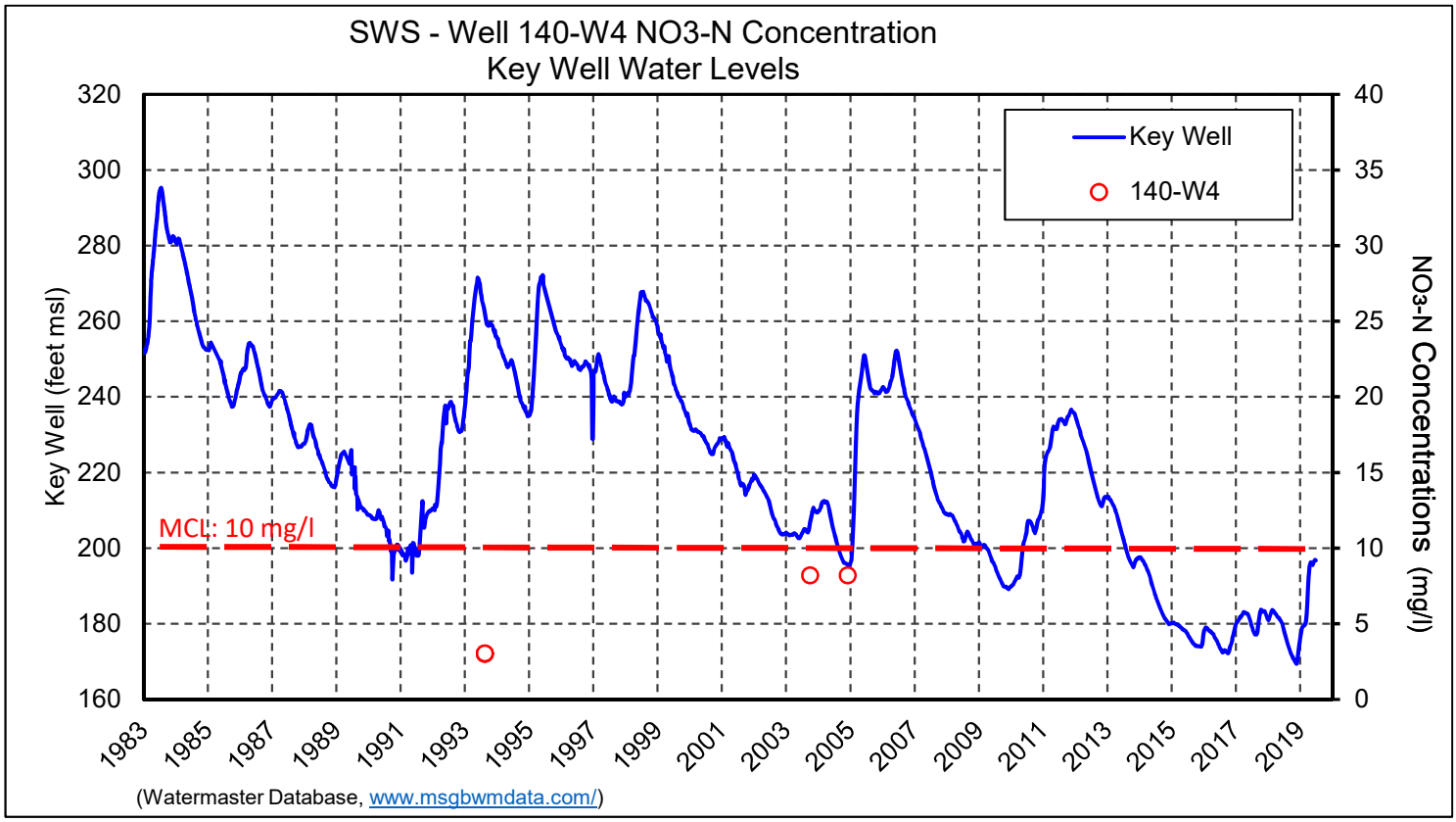


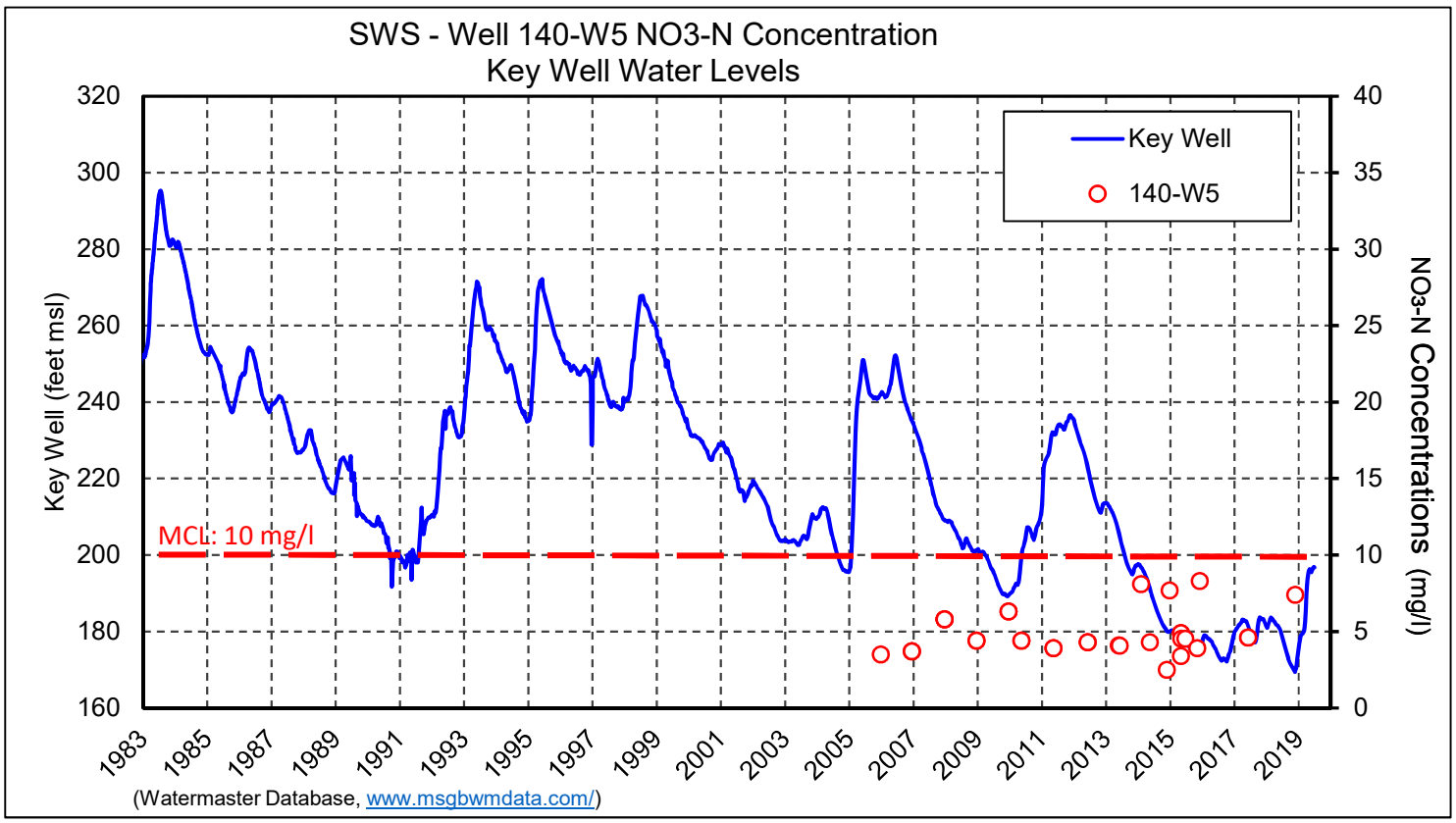
(Watermaster Database, www.msgbwmdata.com/)

STETSON ENGINEERS INC.

SUBURBAN WATER SYSTEMS
Nitrate Nitrogen Concentrations

Main San Gabriel Basin WATERMASTER

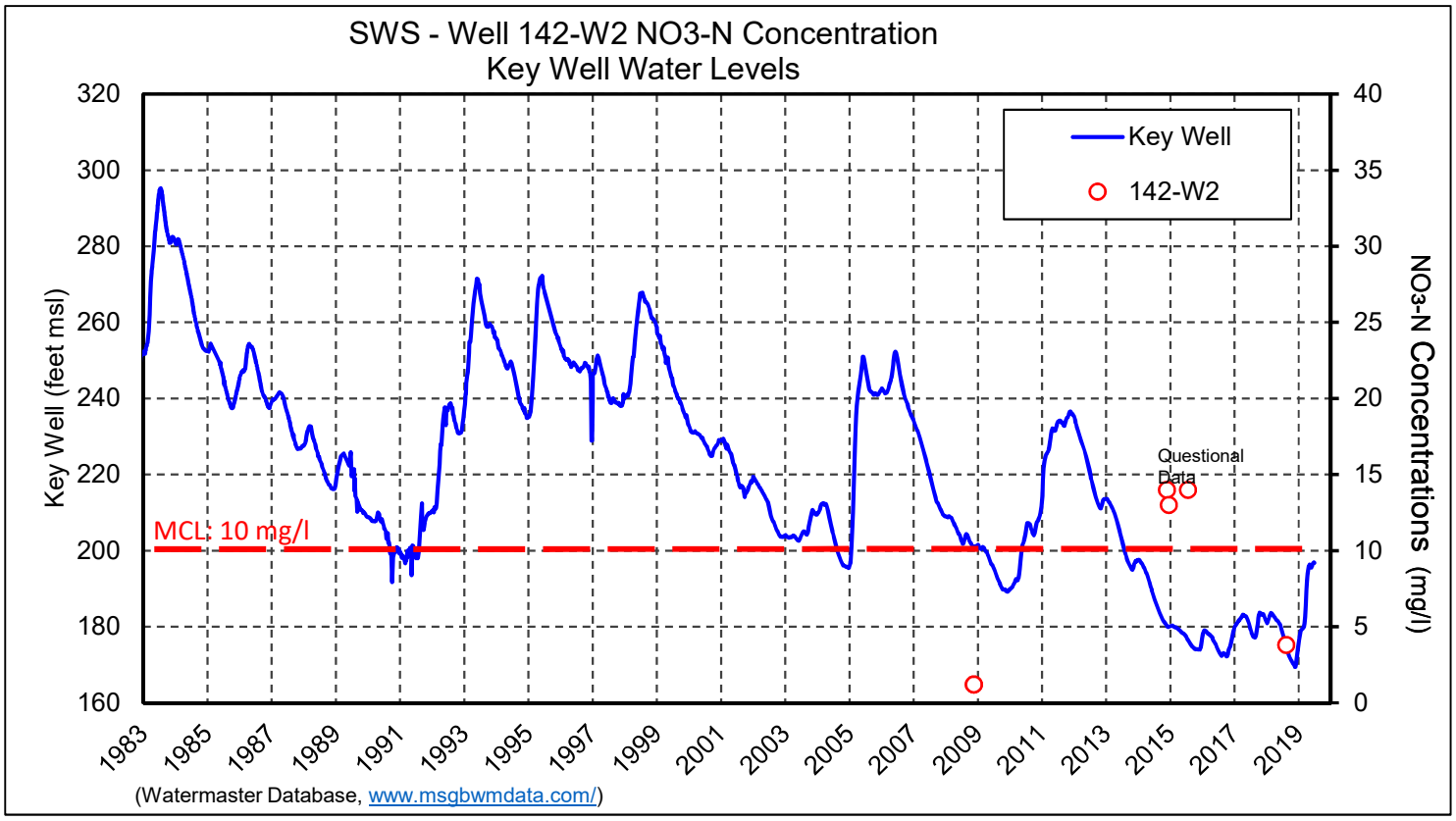


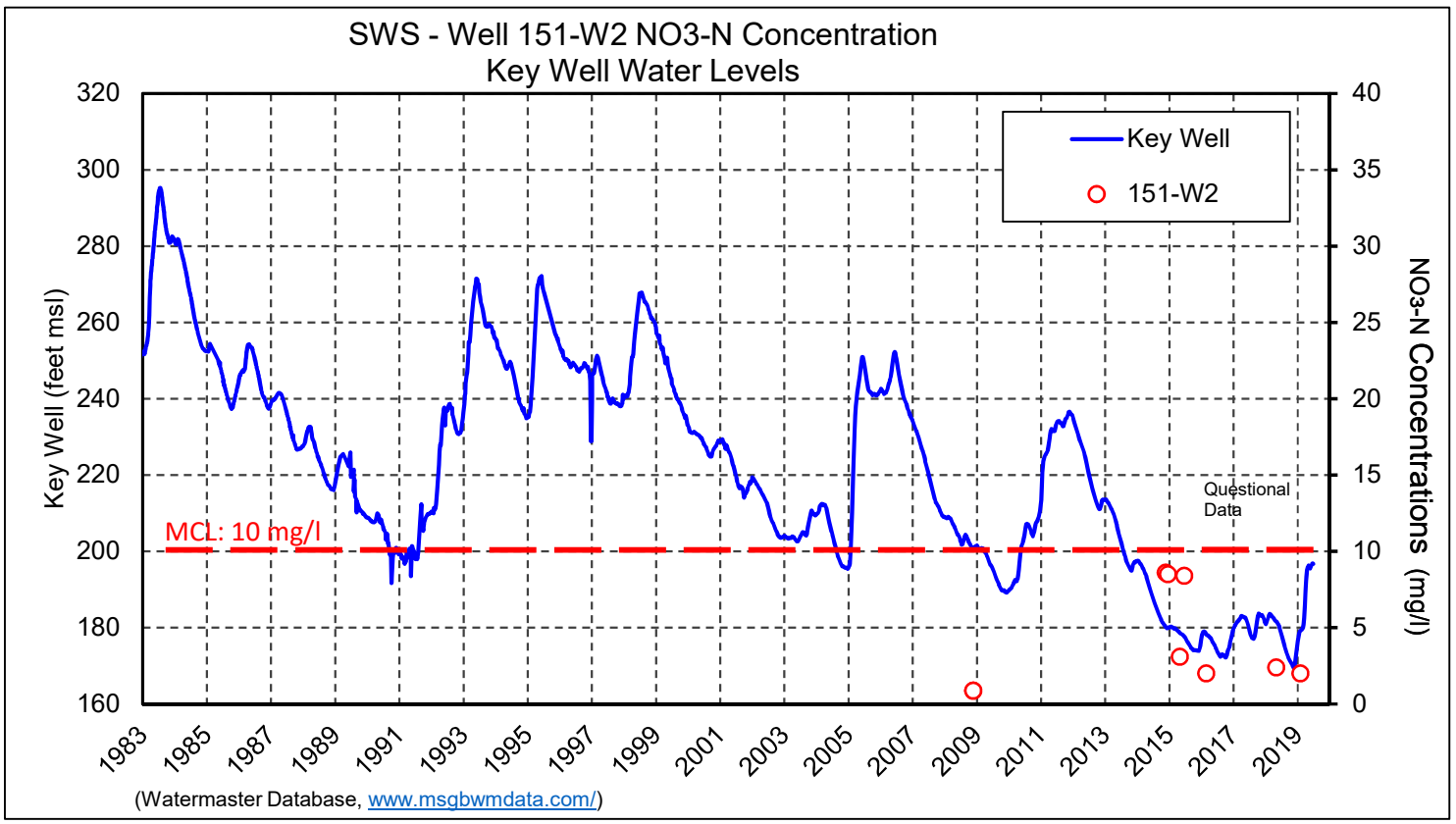


STETSON ENGINEERS INC.

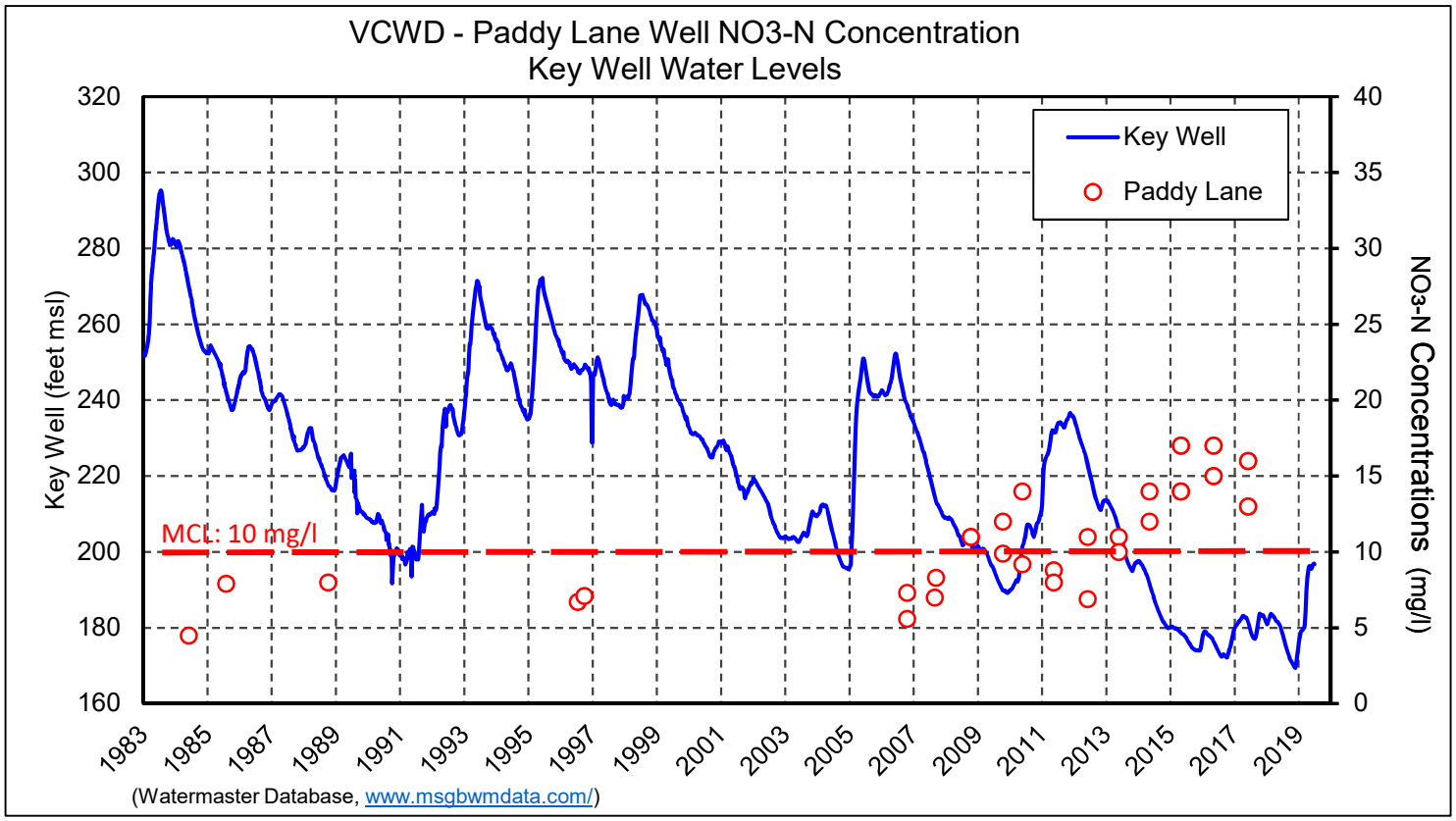
SUBURBAN WATER SYSTEMS
Nitrate Nitrogen Concentrations

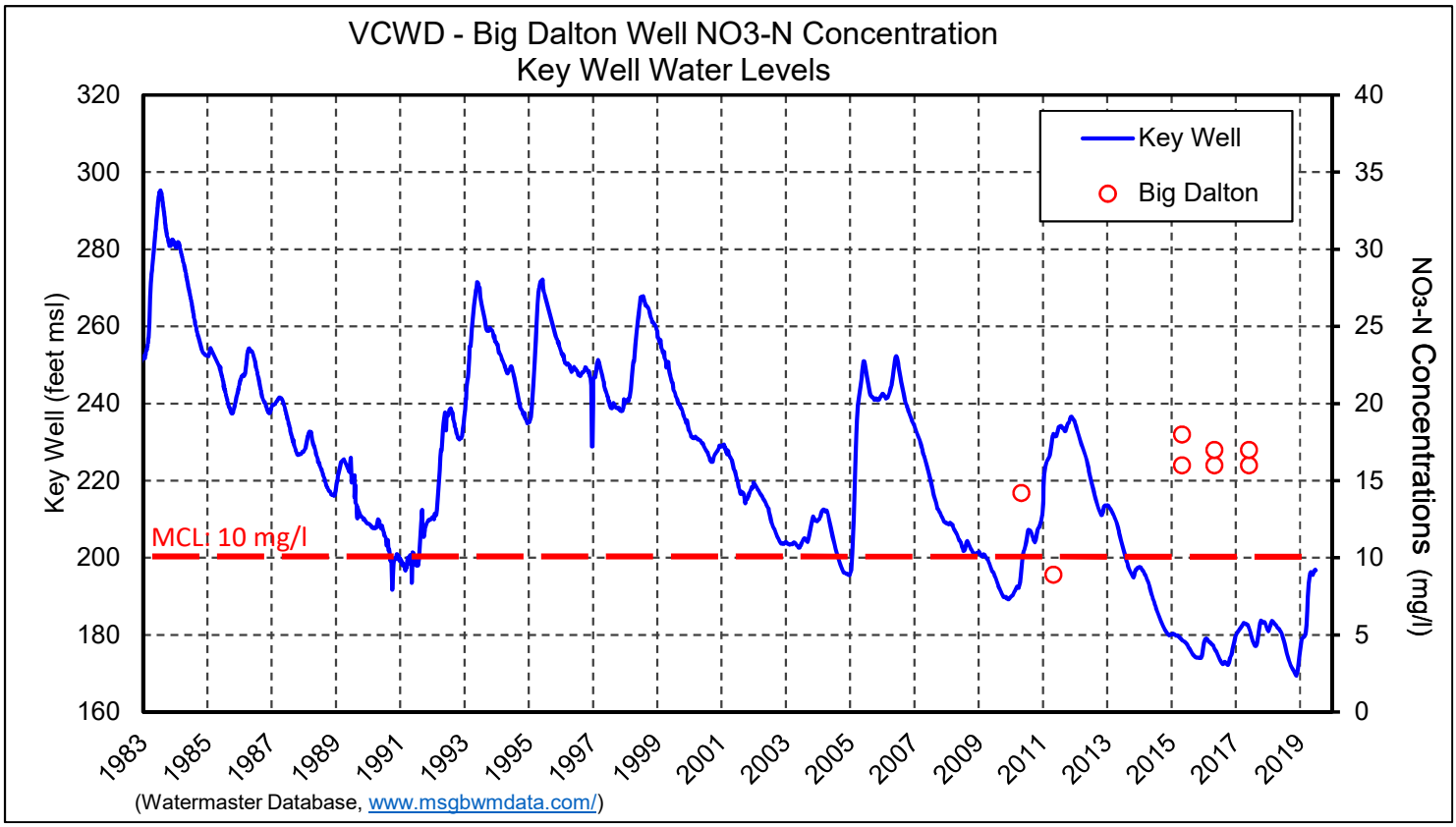
Main San Gabriel Basin WATERMASTER



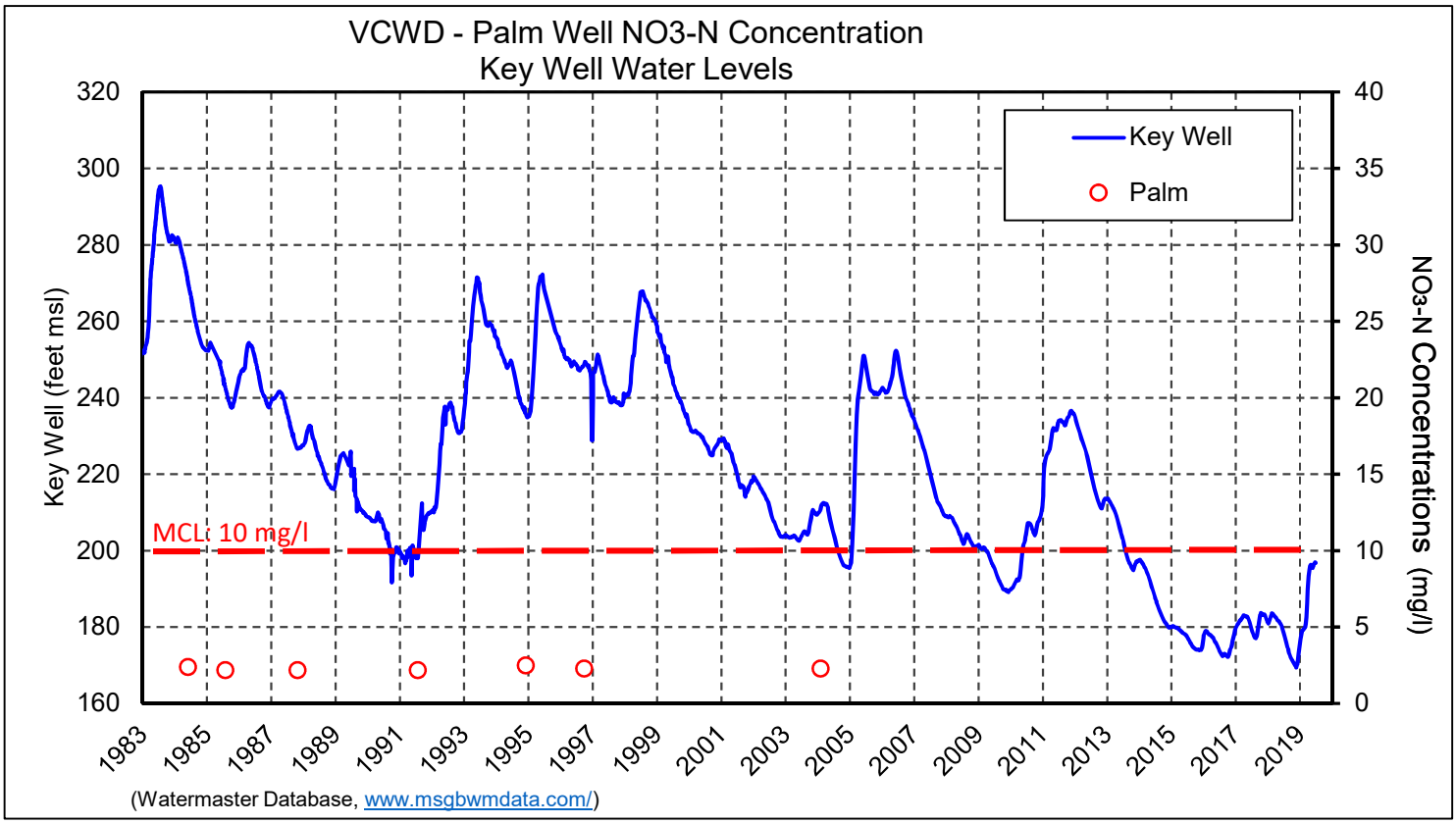


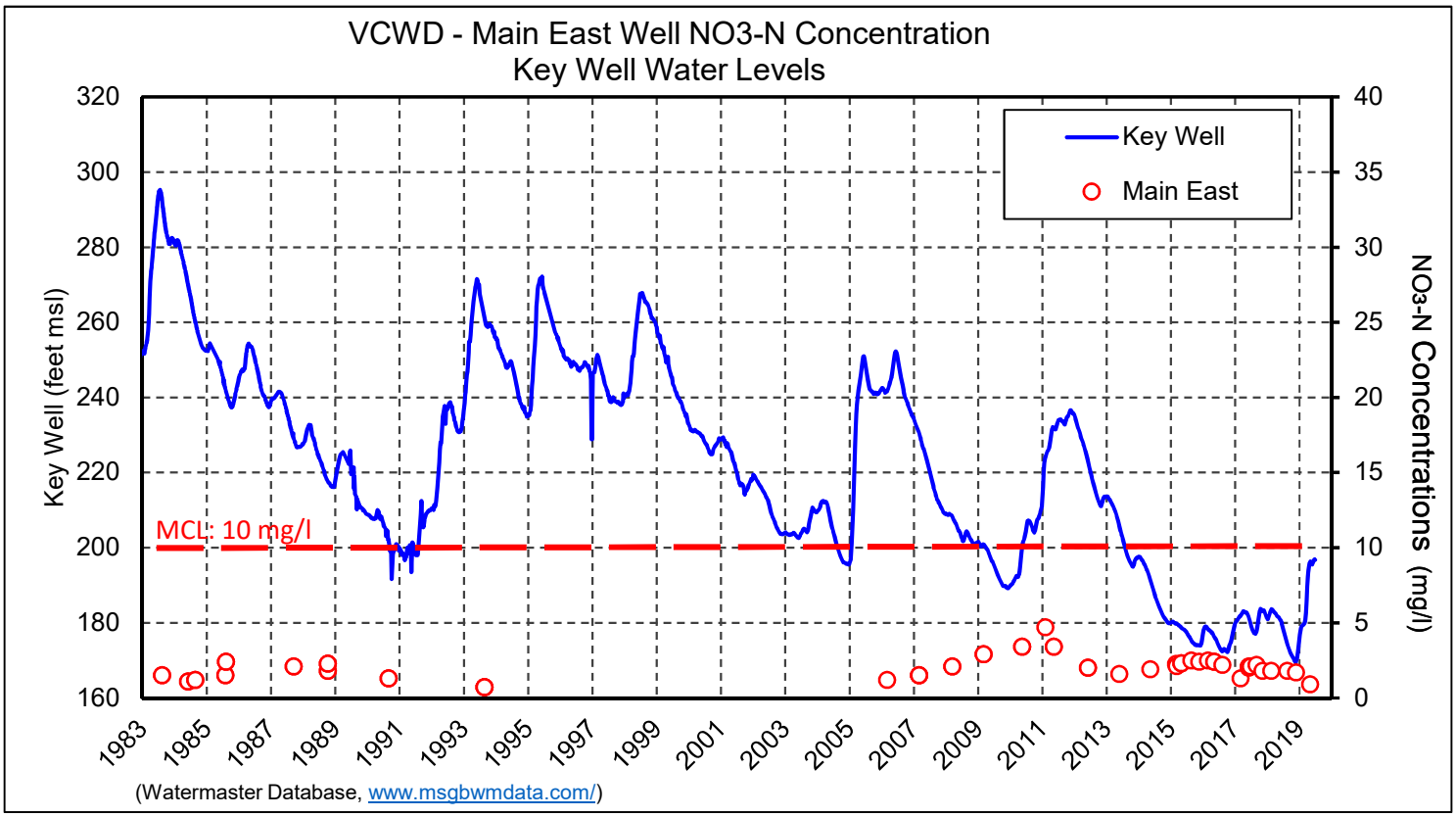
SUBURBAN WATER SYSTEMS
Nitrate Nitrogen Concentrations





SUBURBAN WATER SYSTEMS
Nitrate Nitrogen Concentrations

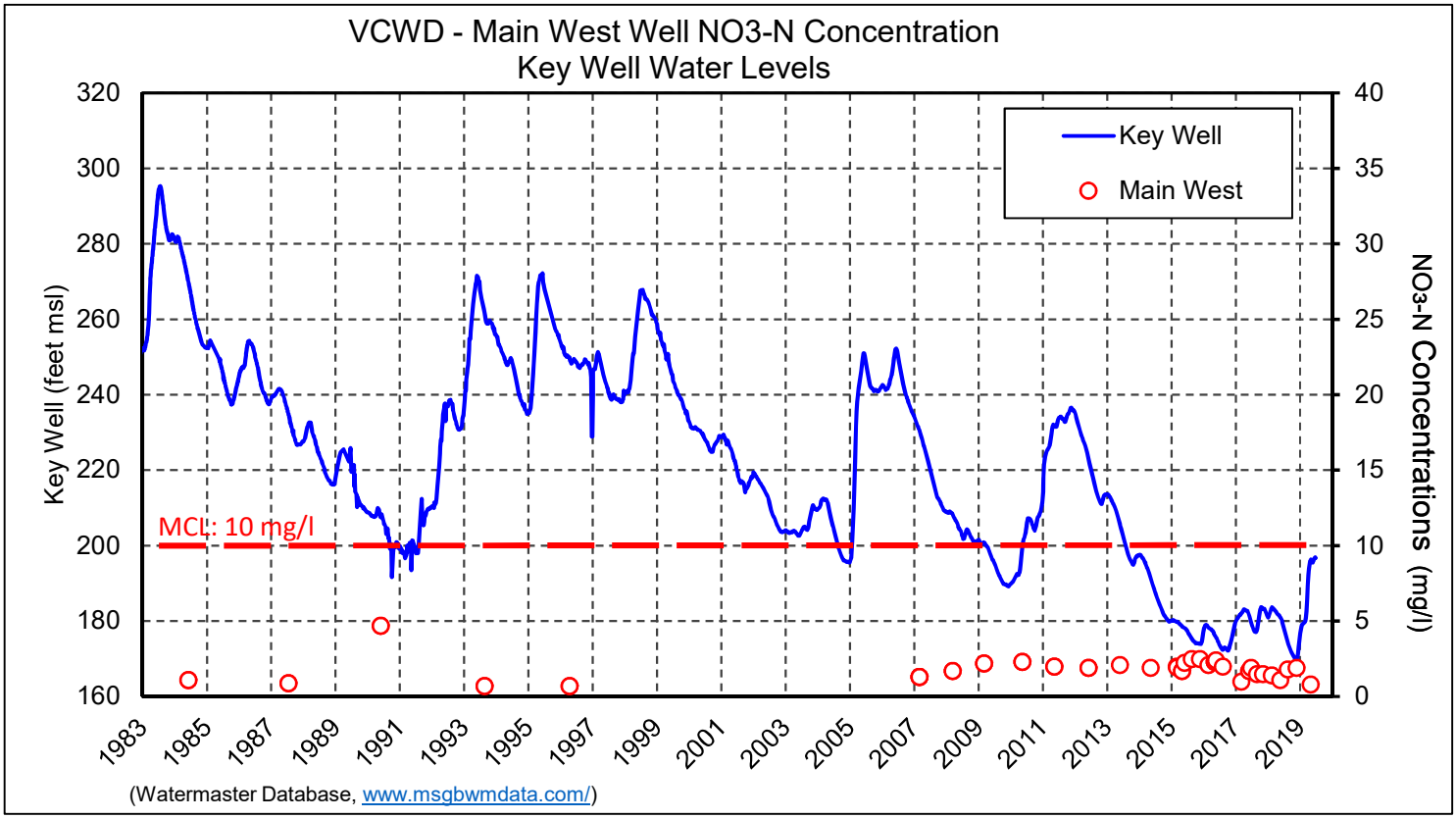


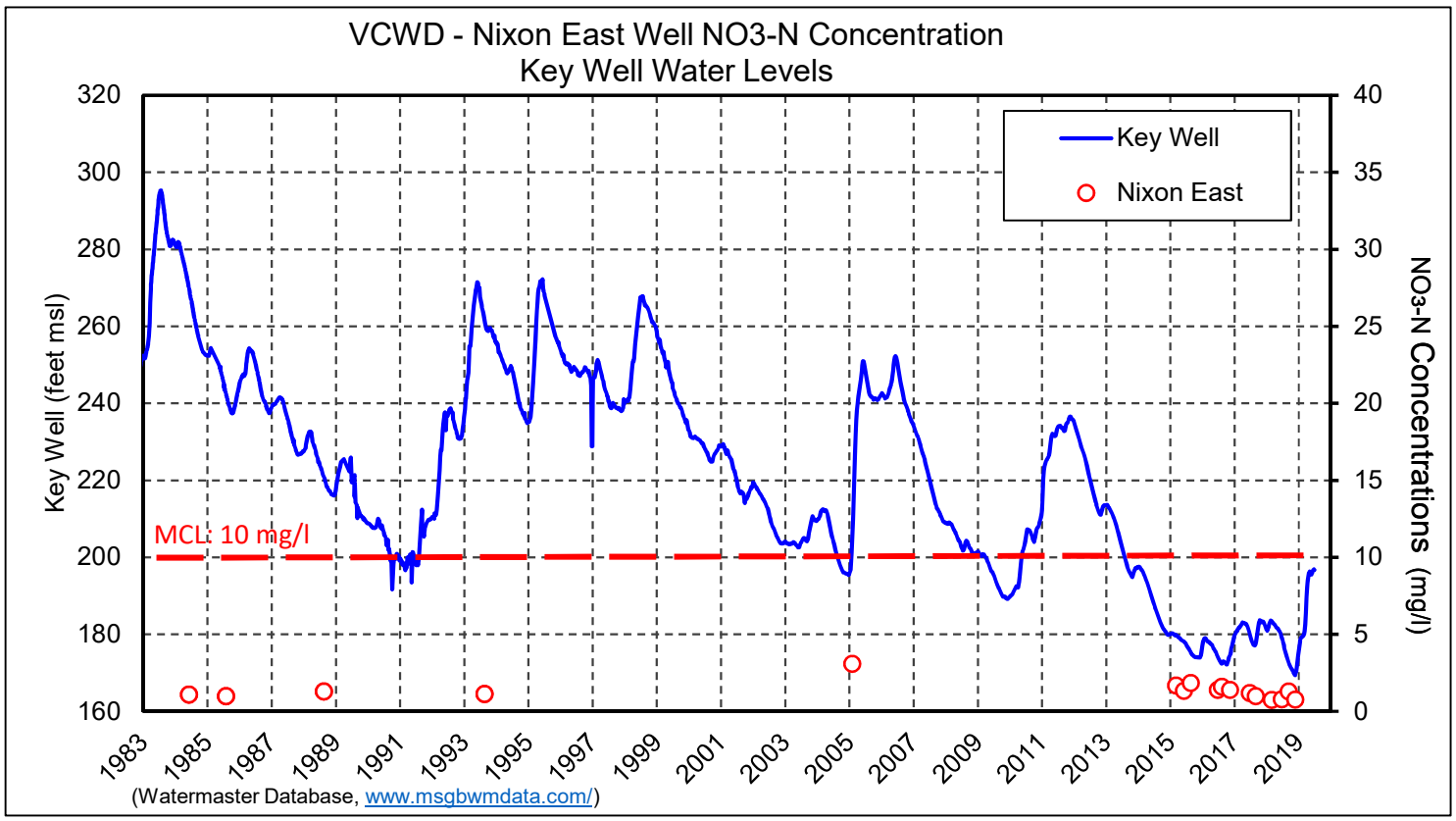


STETSON ENGINEERS INC.

SUBURBAN WATER SYSTEMS AND VALLEY COUNTY WATER DISTRICT
Nitrate Nitrogen Concentrations

Main San Gabriel Basin WATERMASTER

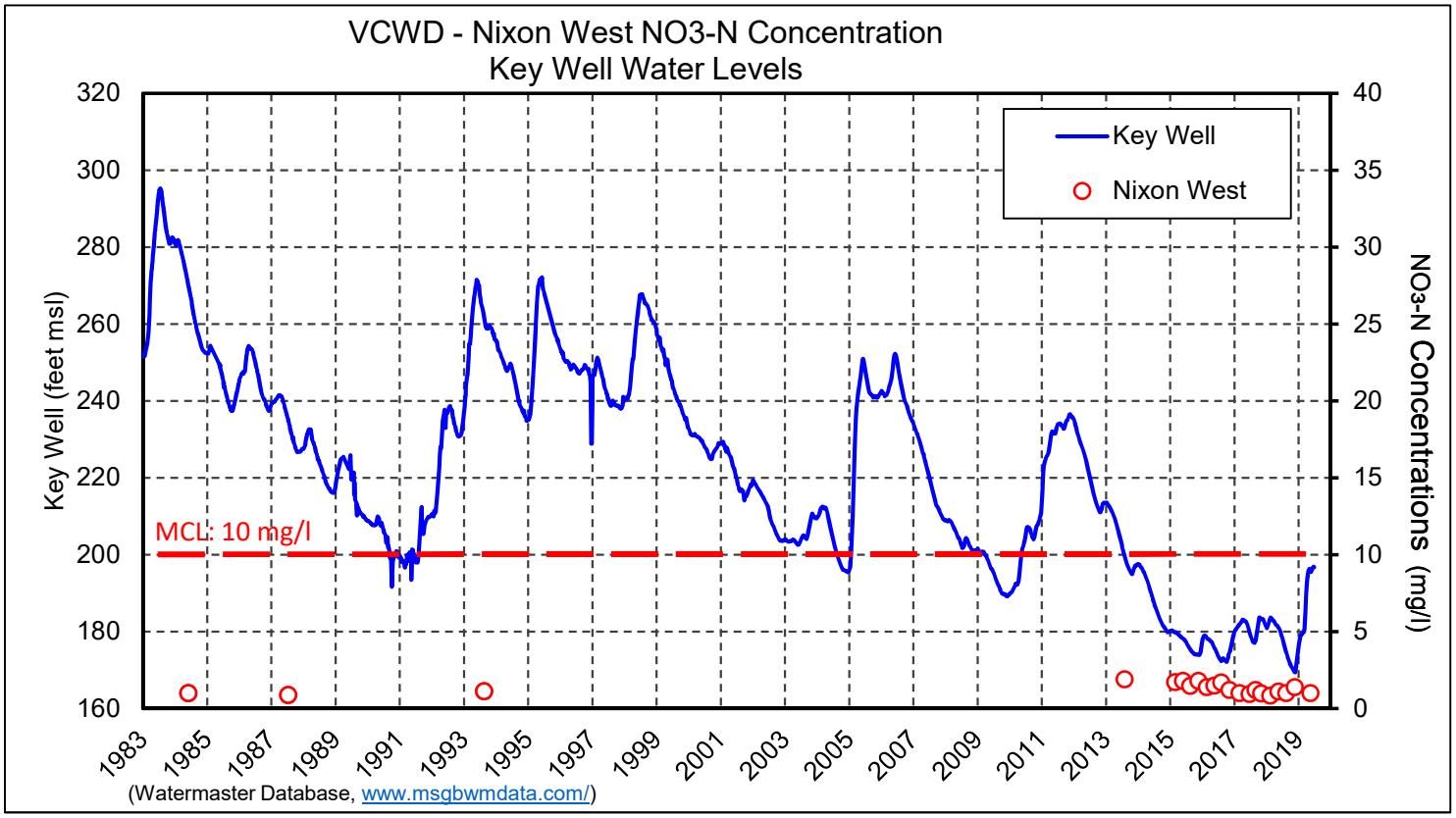


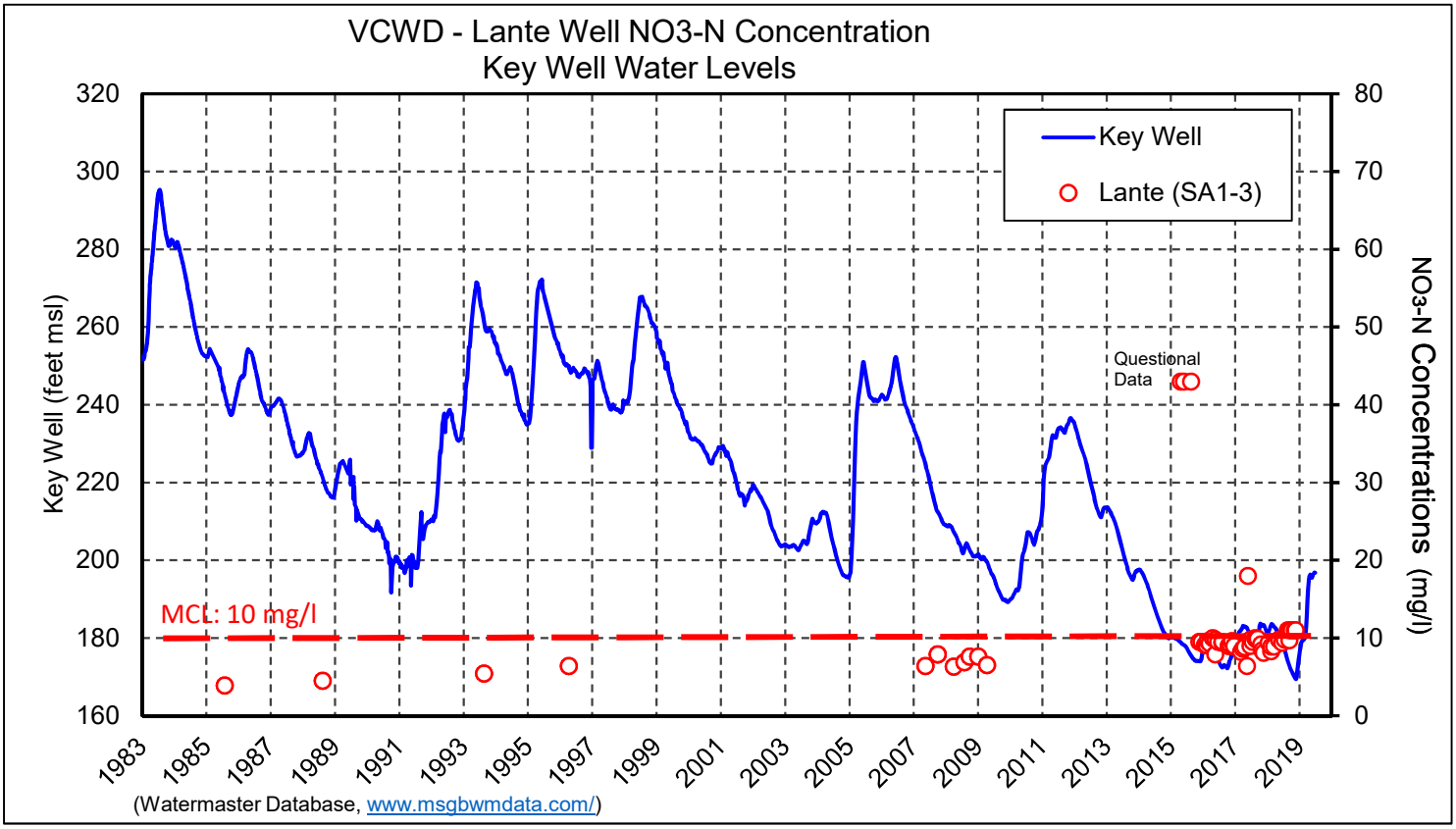


STETSON ENGINEERS INC.

VALLEY COUNTY WATER DISTRICT
Nitrate Nitrogen Concentrations

MainSanGabrielBasin WATERMASTER

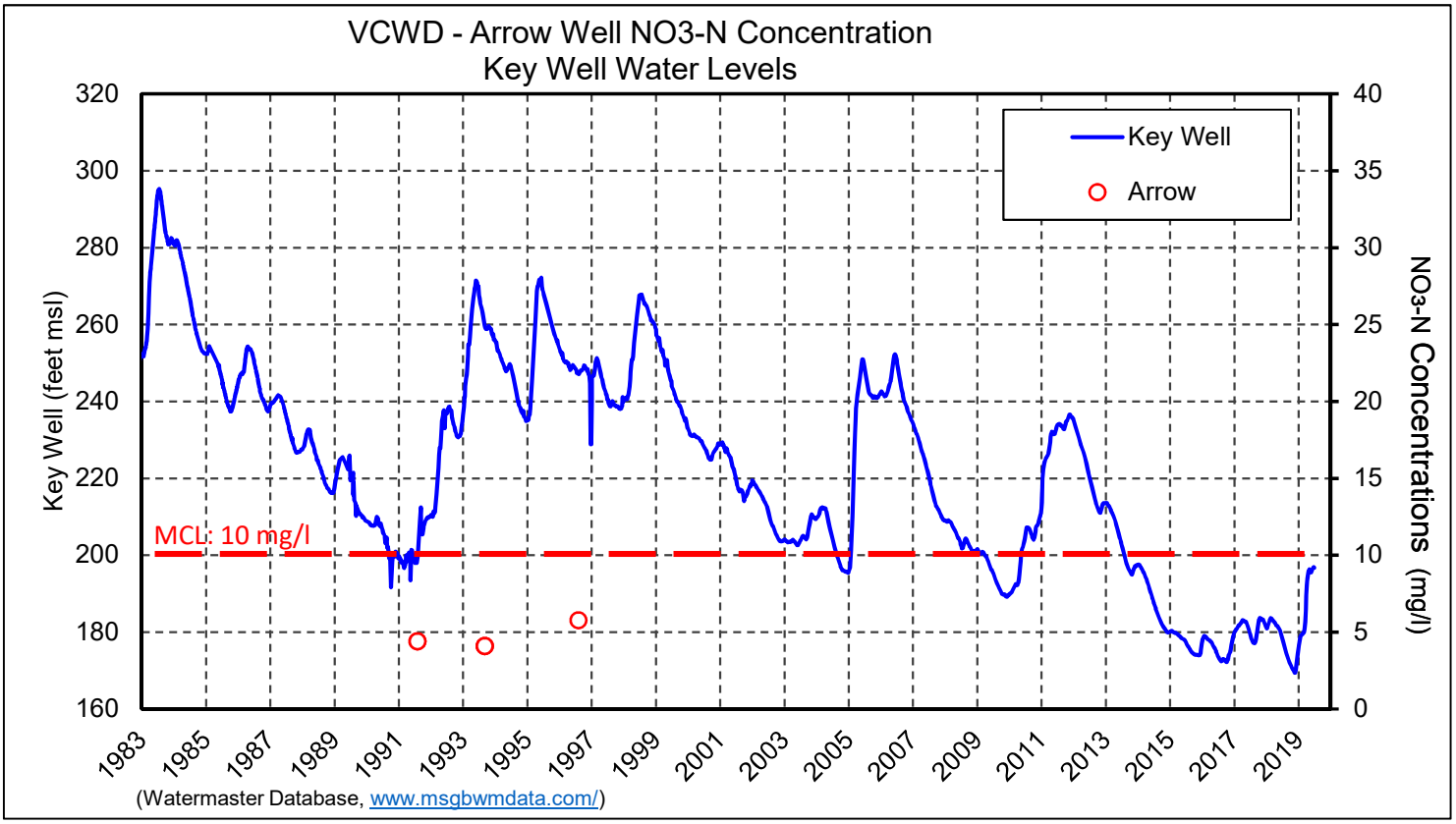


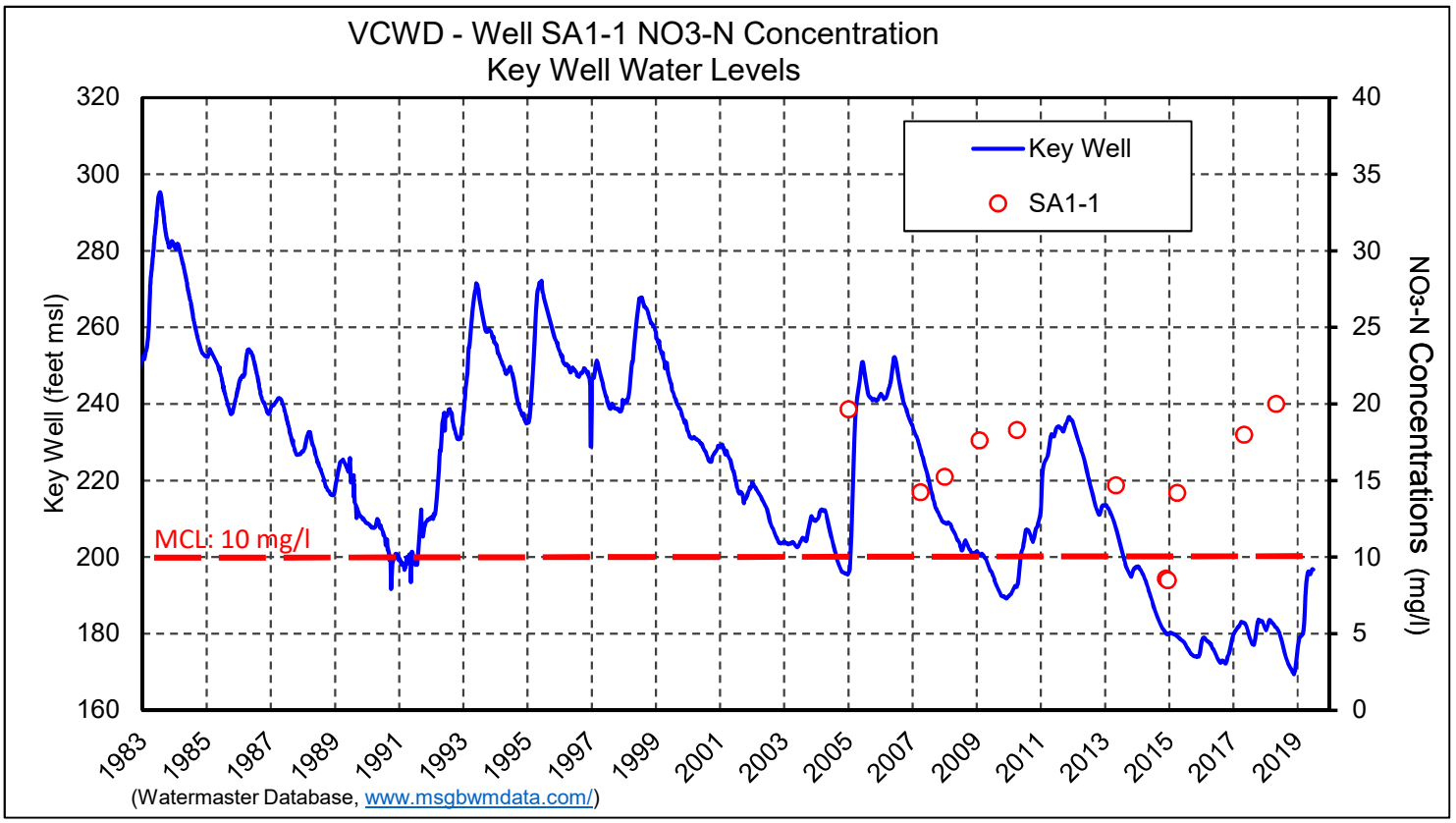


STETSON ENGINEERS INC.

VALLEY COUNTY WATER DISTRICT
Nitrate Nitrogen Concentrations

Main San Gabriel Basin WATERMASTER

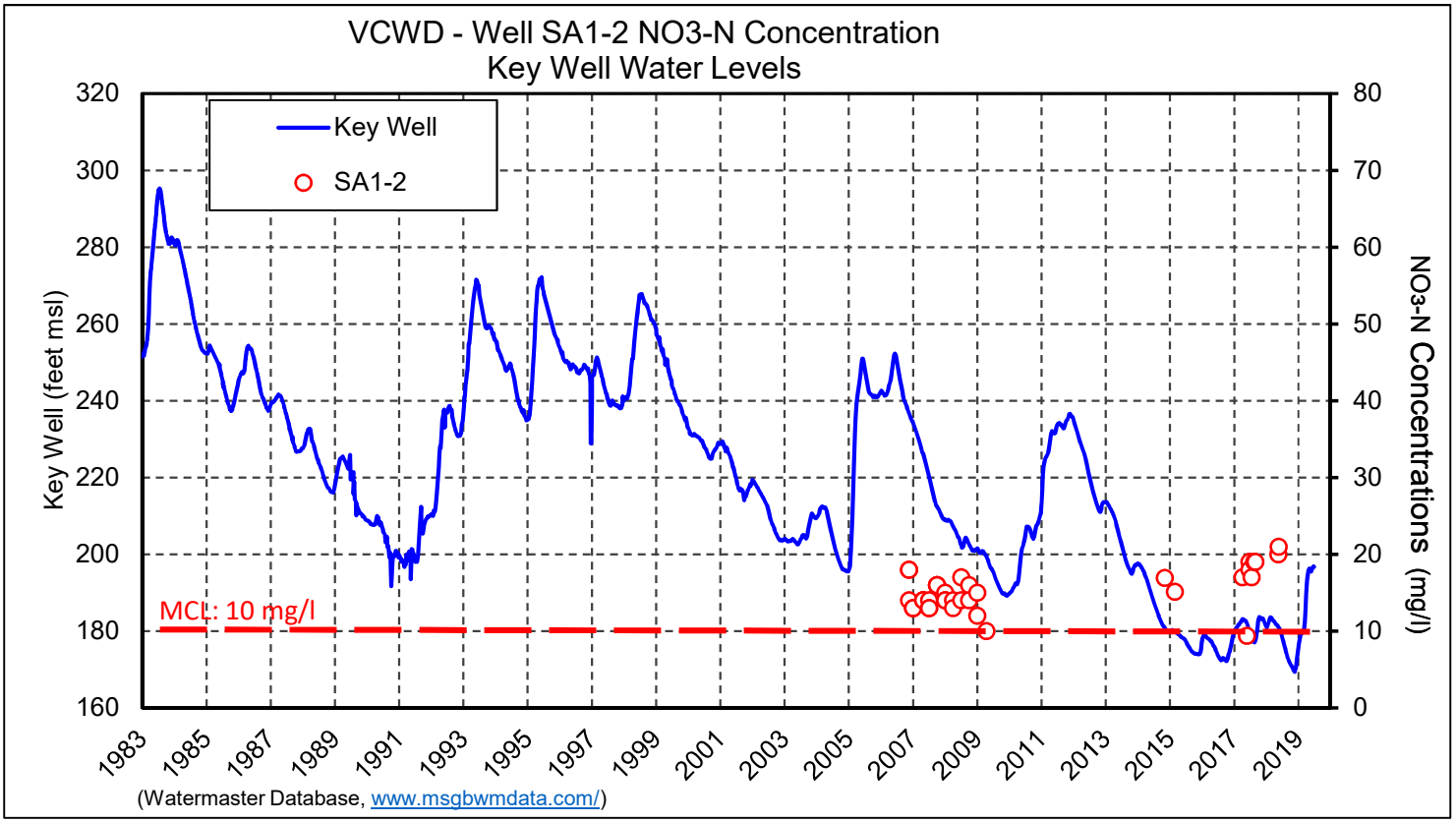




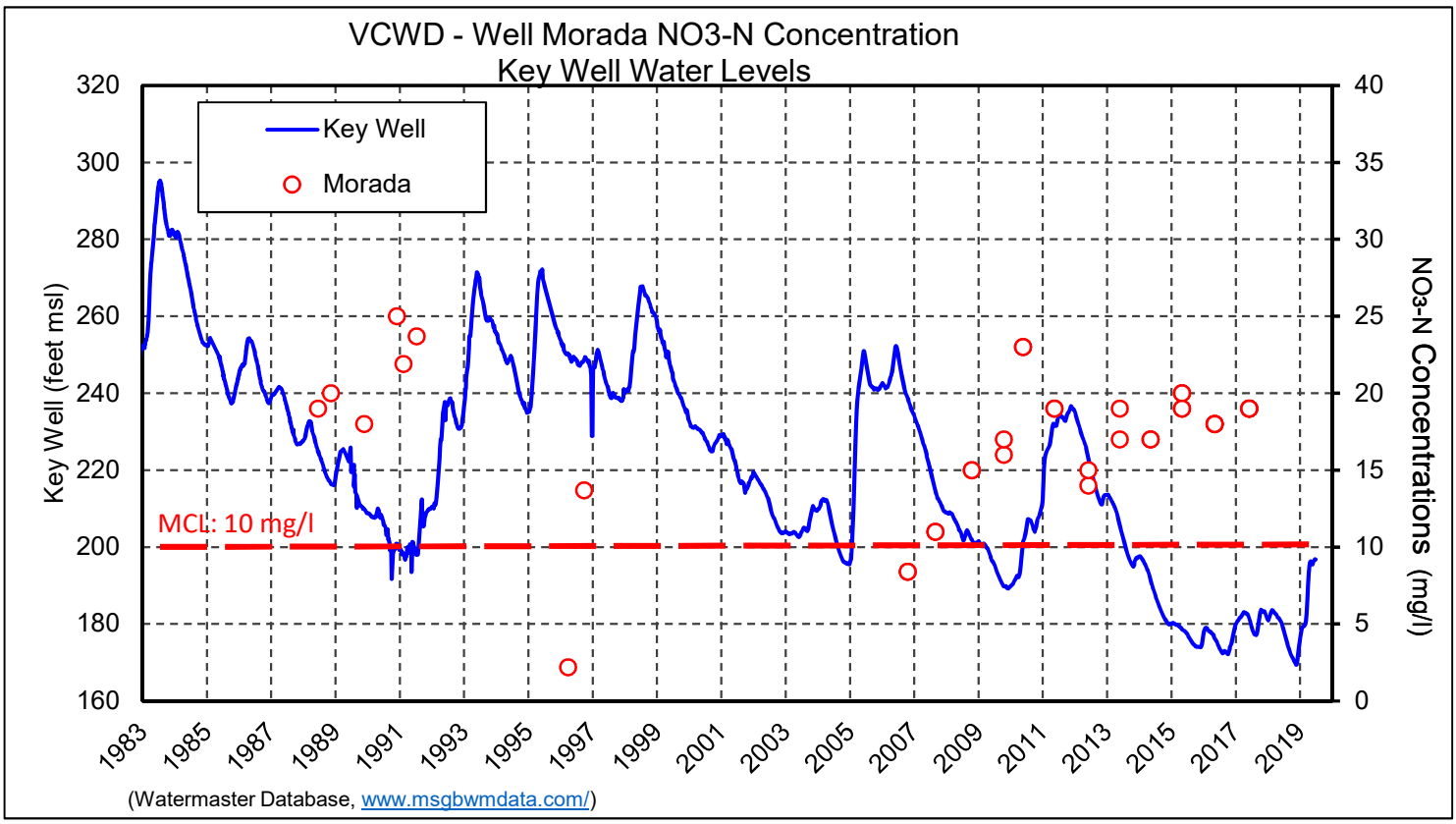
STETSON ENGINEERS INC.

SUBURBAN WATER SYSTEMS AND VALLEY COUNTY WATER DISTRICT
Nitrate Nitrogen Concentrations

Main San Gabriel Basin WATERMASTER



(Watermaster Database, www.msgbwmdata.com/)

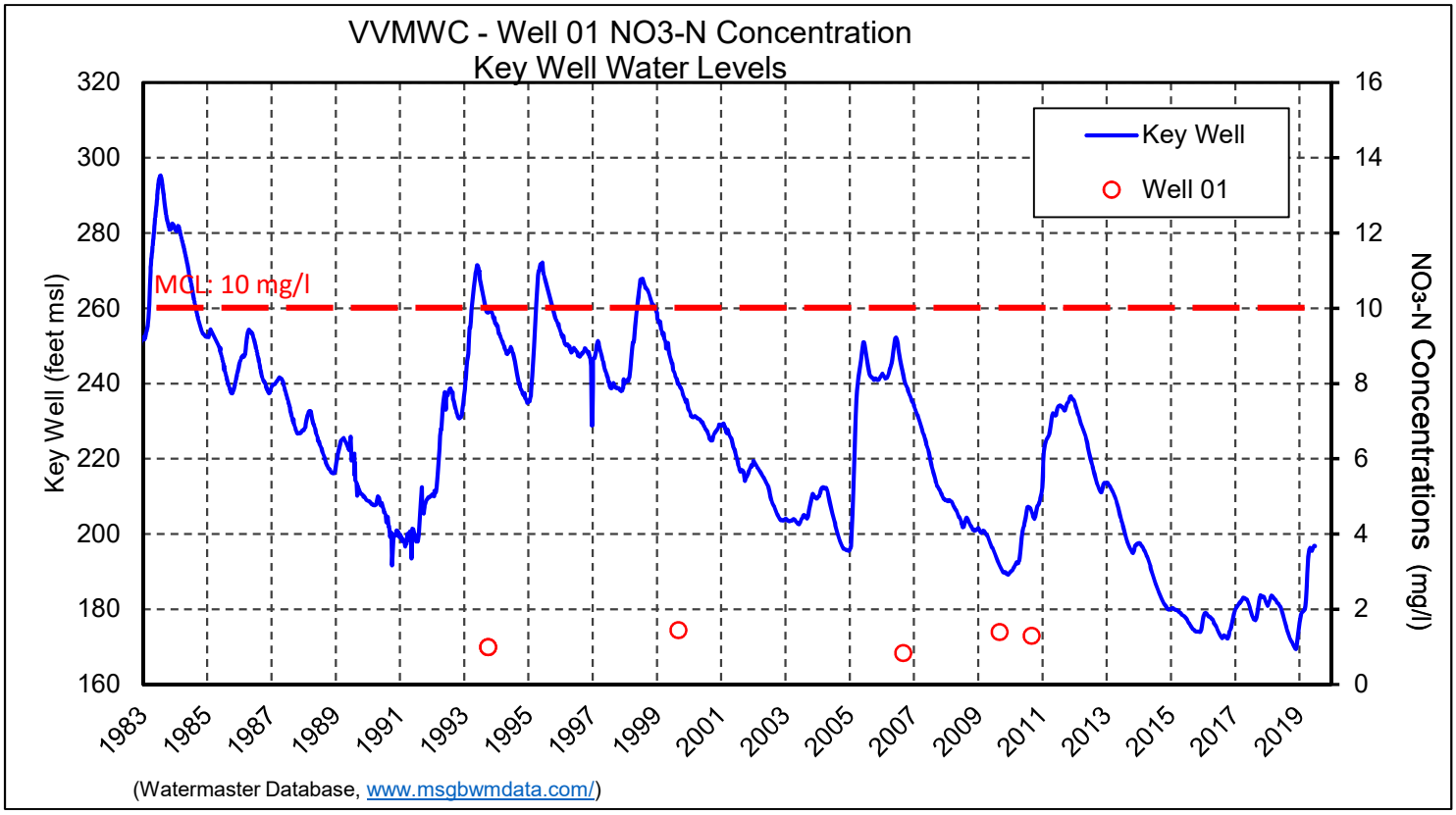


(Watermaster Database, www.msgbwmdata.com/)

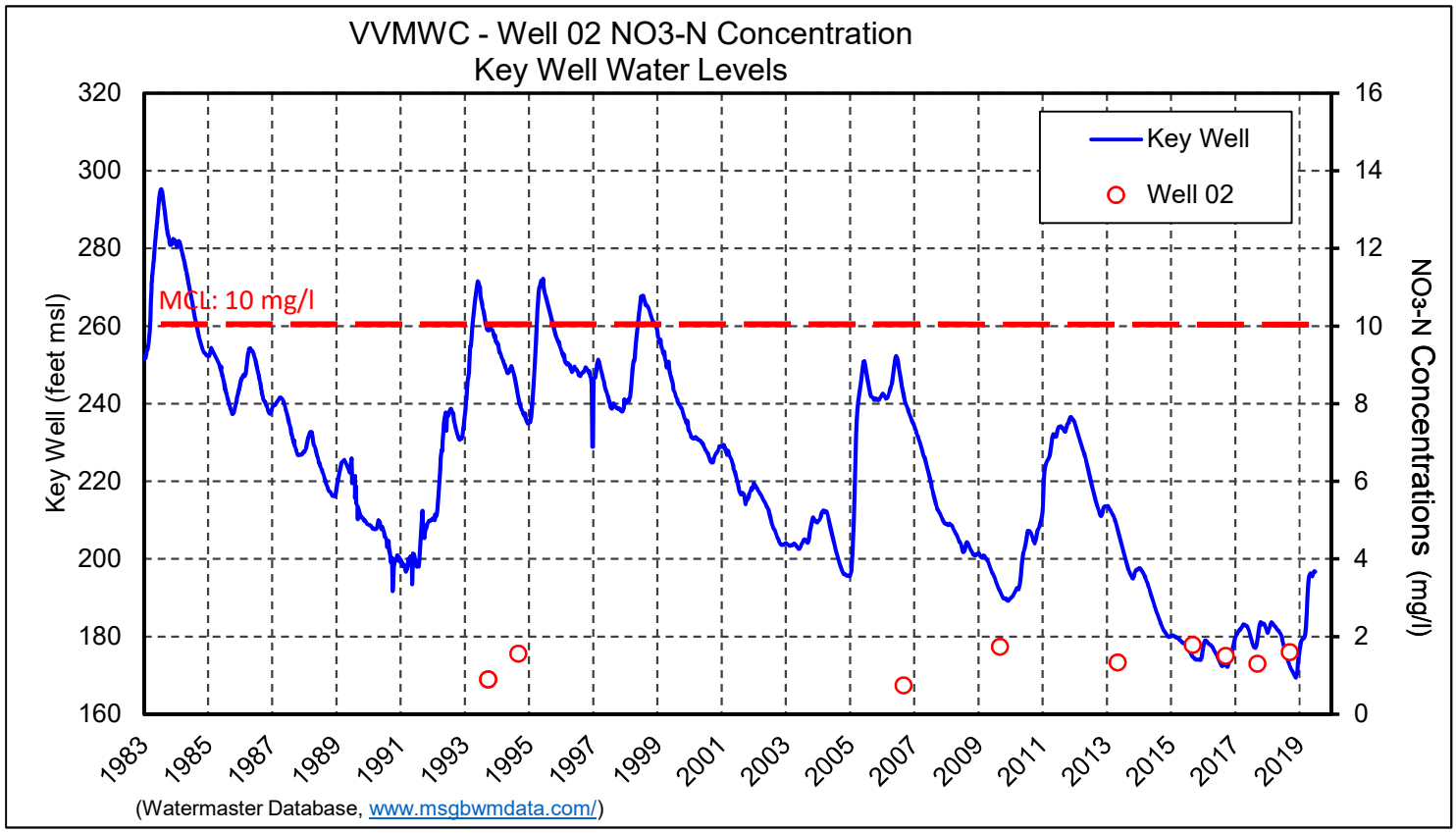
STETSON ENGINEERS INC.

VALLEY COUNTY WATER DISTRICT
Nitrate Nitrogen Concentrations

Main San Gabriel Basin WATERMASTER



(Watermaster Database, www.msgbwmdata.com/)

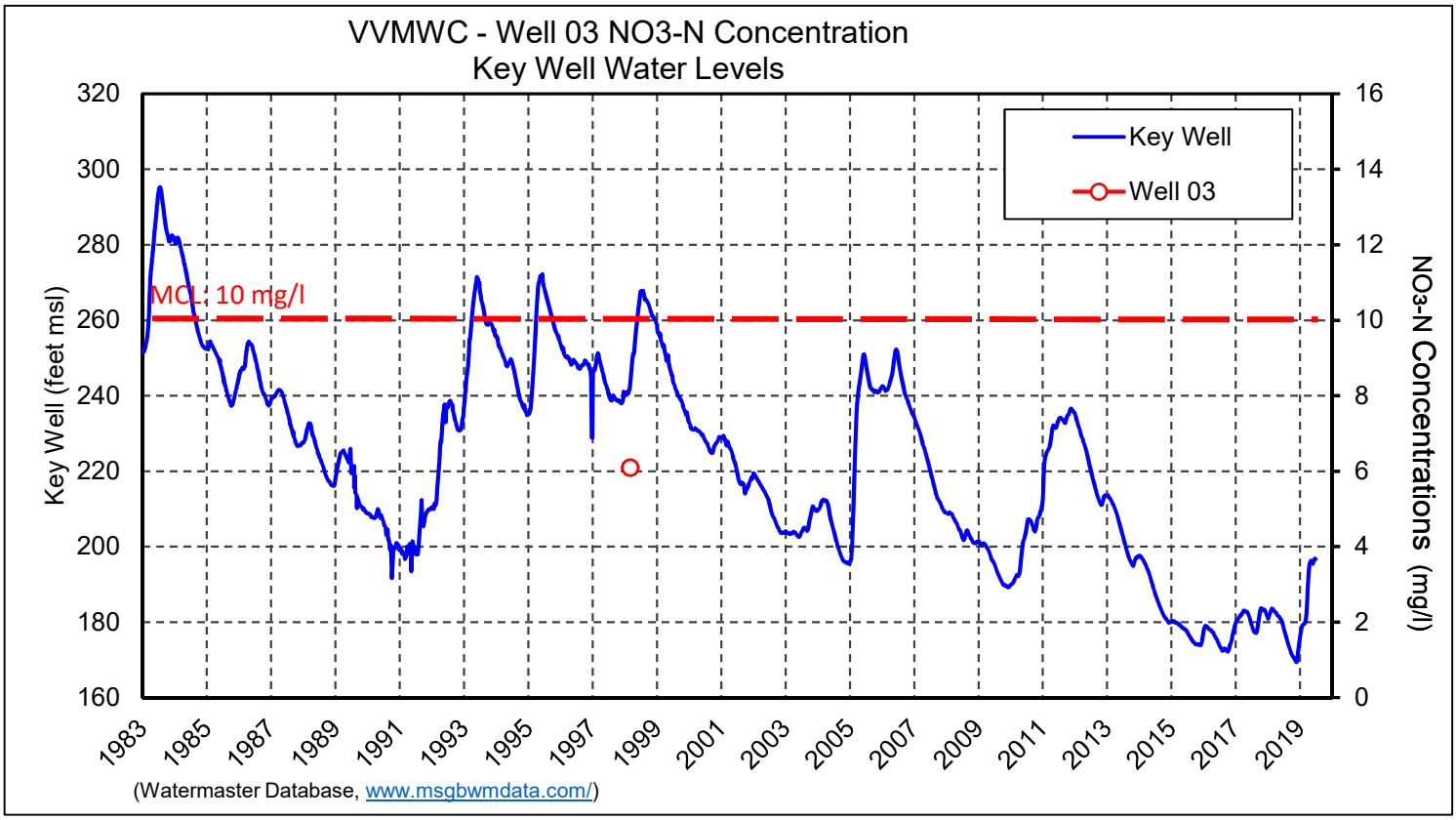


(Watermaster Database, www.msgbwmdata.com/)

STETSON ENGINEERS INC.

VALLEY COUNTY WATER DISTRICT
Nitrate Nitrogen Concentrations

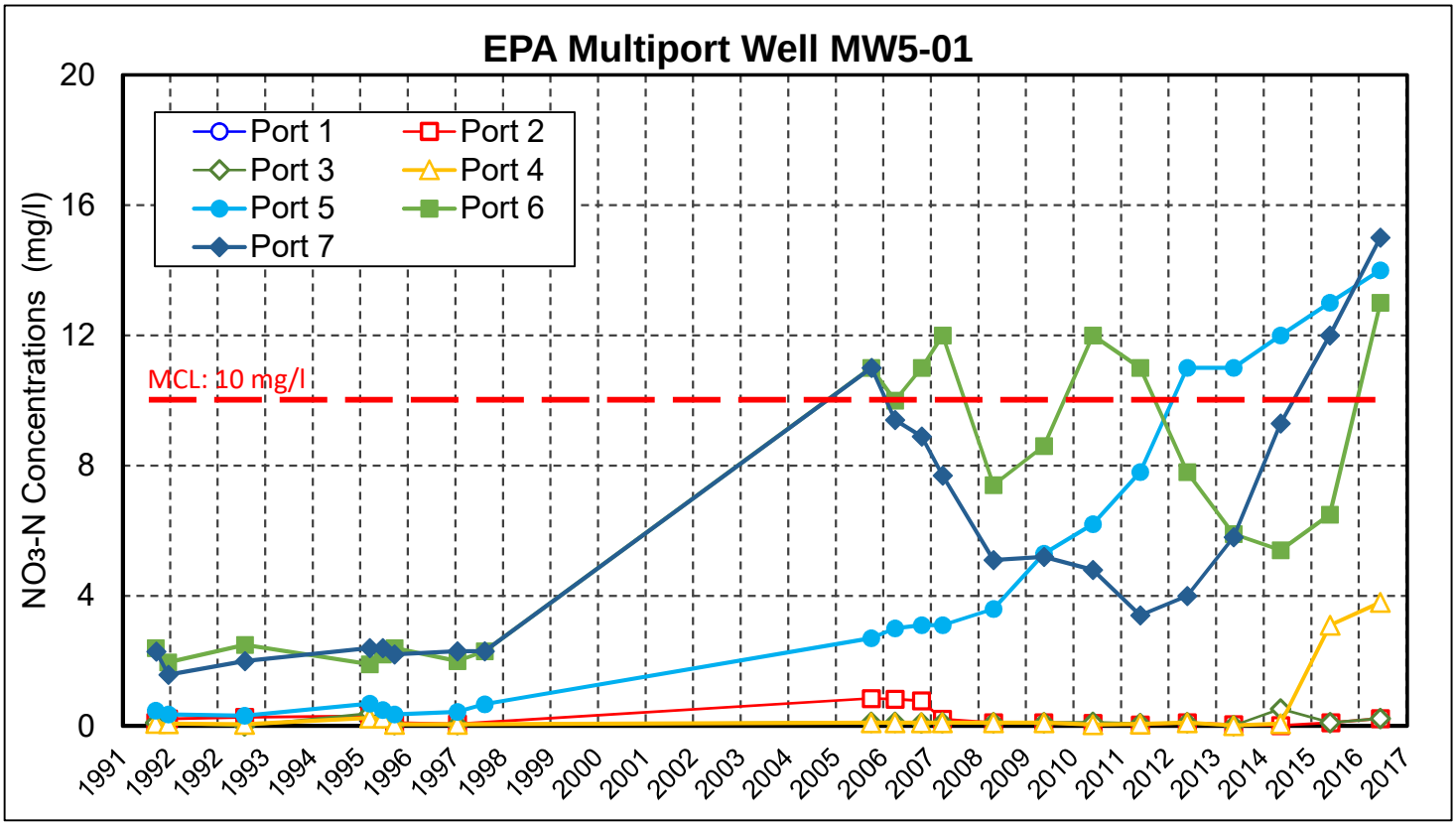
Main San Gabriel Basin WATERMASTER

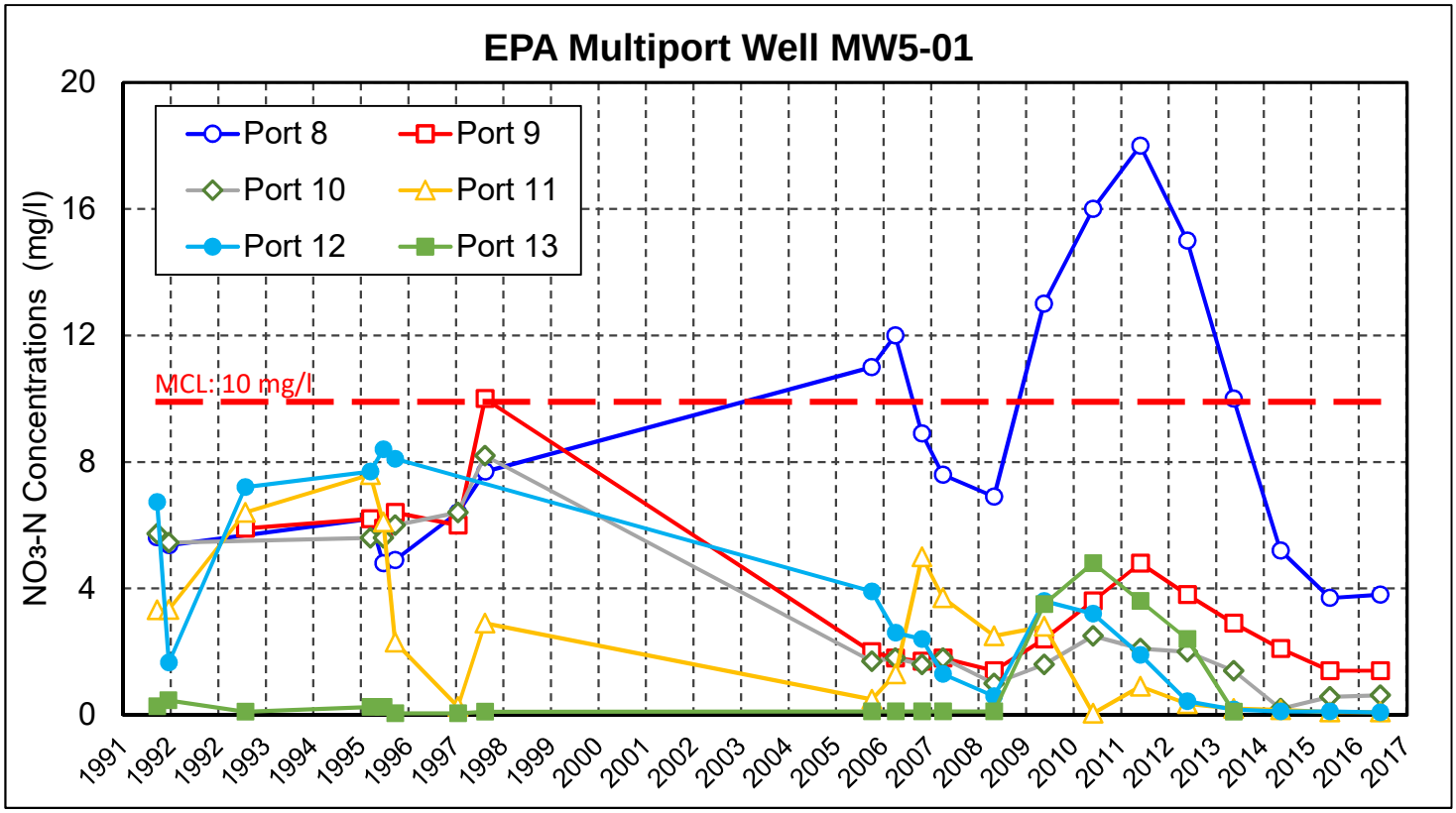


STETSON ENGINEERS INC.

SUBURBAN WATER SYSTEMS AND
VALLEY VIEW MUNICIPAL WATER COMPANY
Nitrate Nitrogen Concentrations

MainSanGabrielBasin WATERMASTER

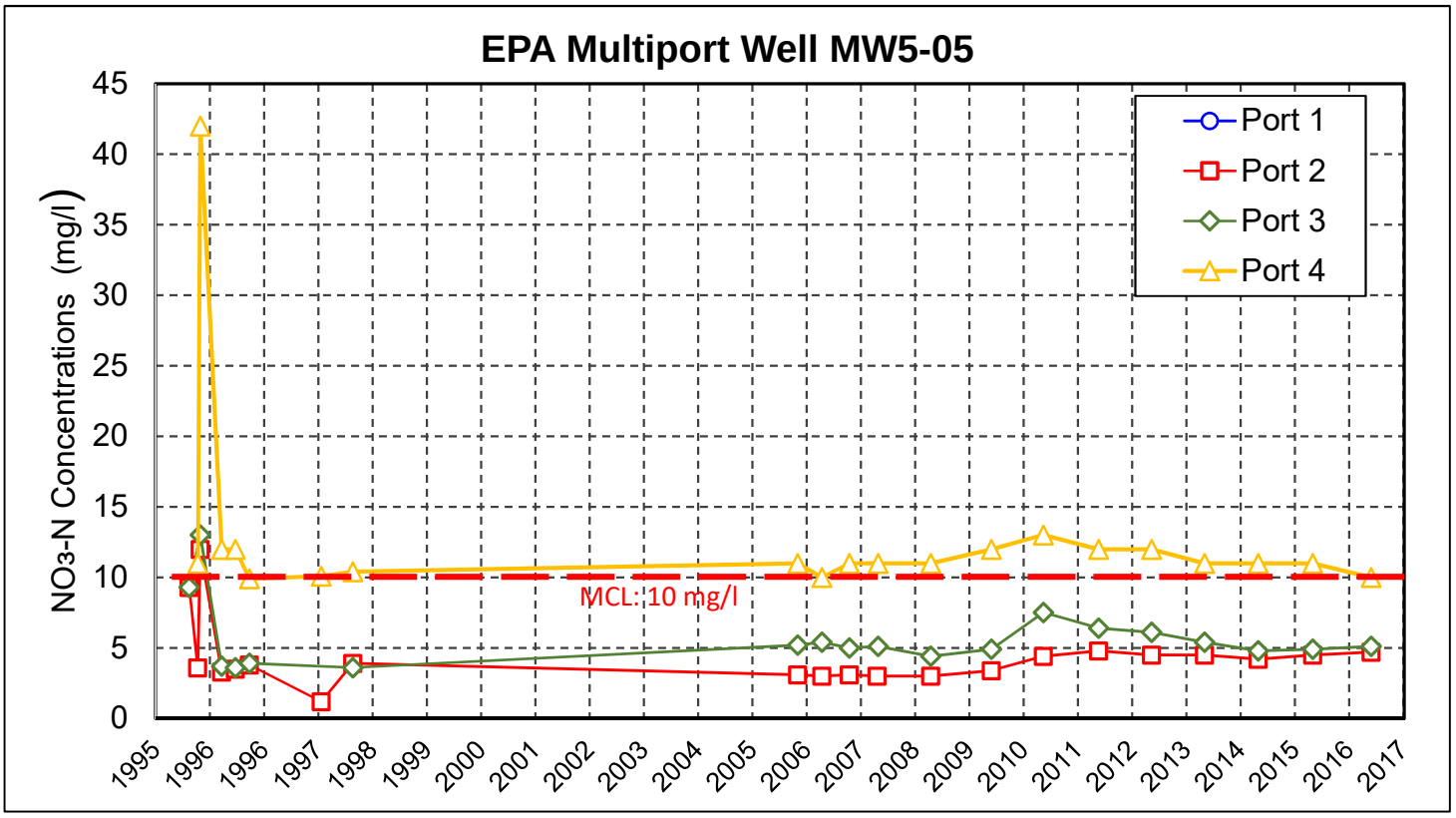


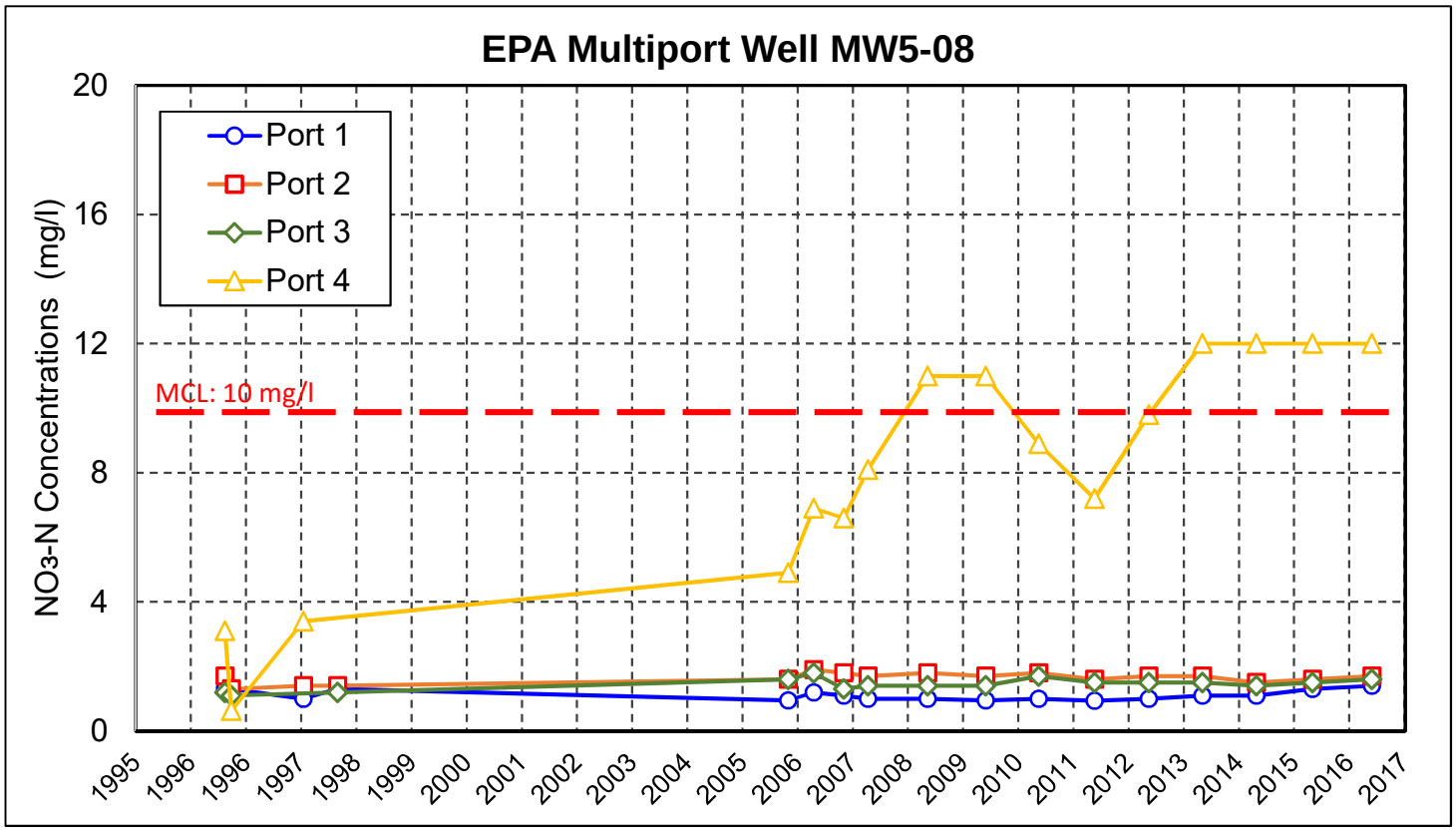


STETSON ENGINEERS INC.

EPA MULTIPORT WELL MW5-01
Nitrate Nitrogen Concentrations

Main San Gabriel Basin WATERMASTER

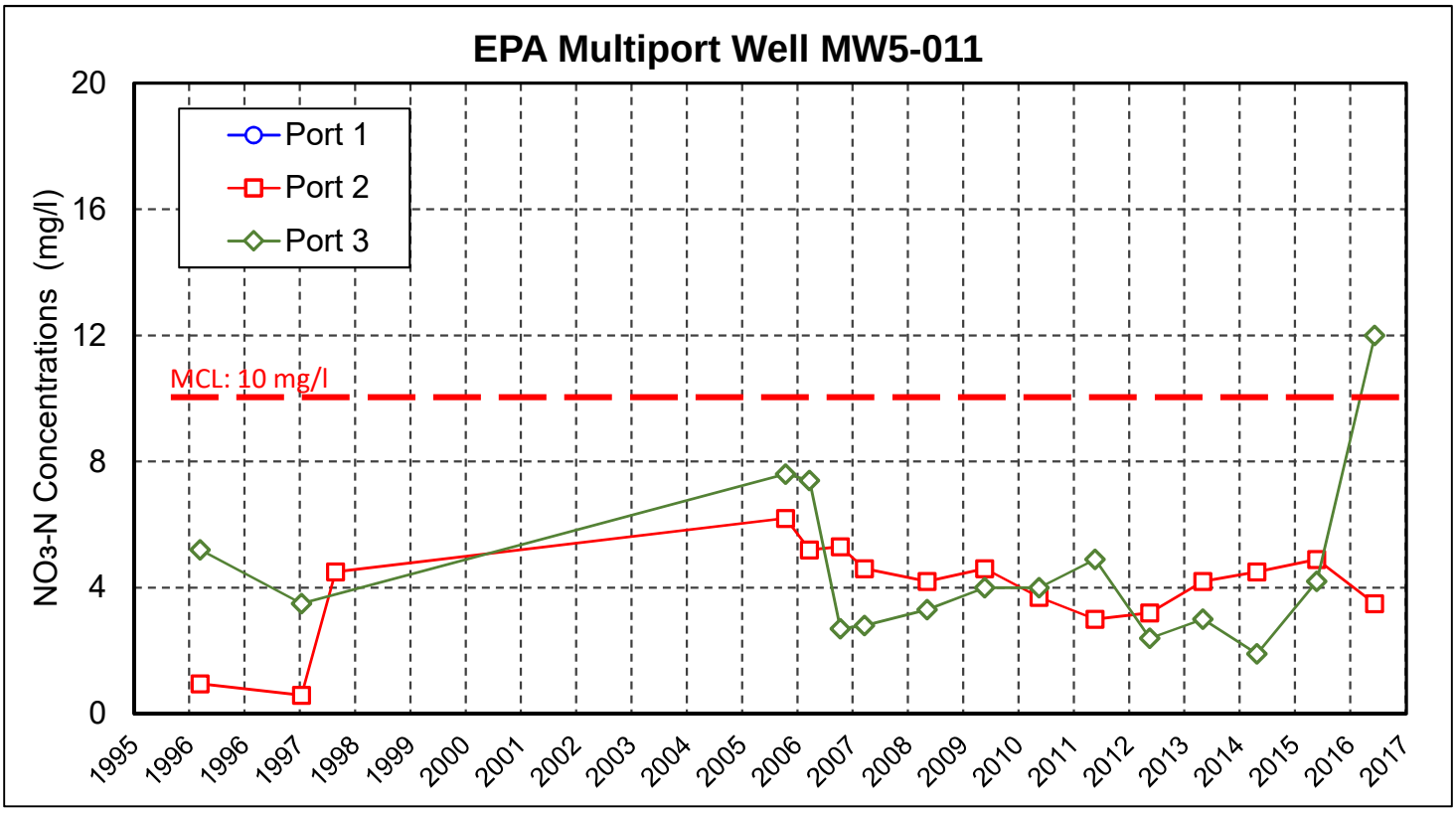


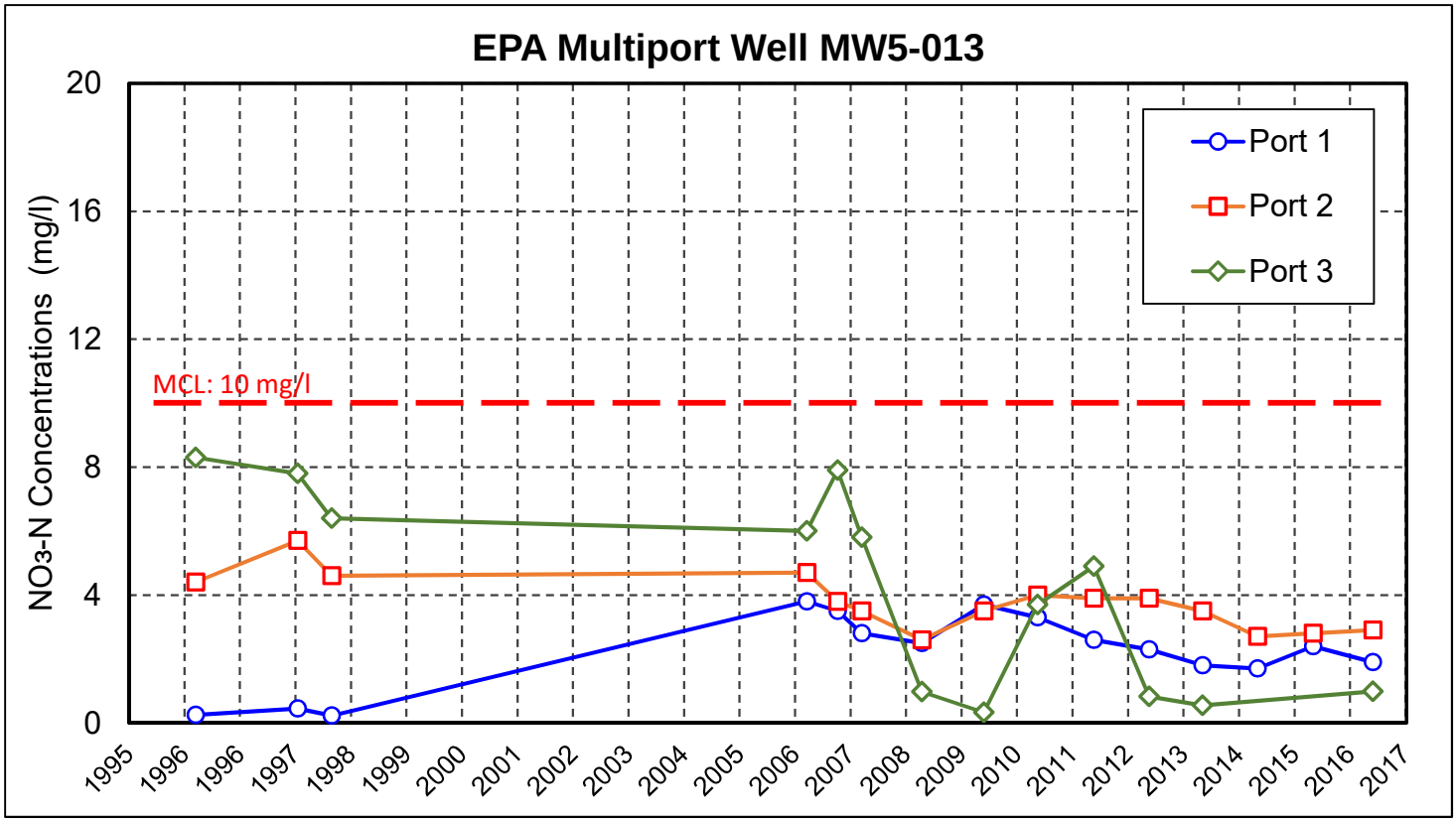


STETSON ENGINEERS INC.

EPA MULTIPORT WELLS MW5-01 & MW5-08
Nitrate Nitrogen Concentrations

MainSanGabrielBasin WATERMASTER

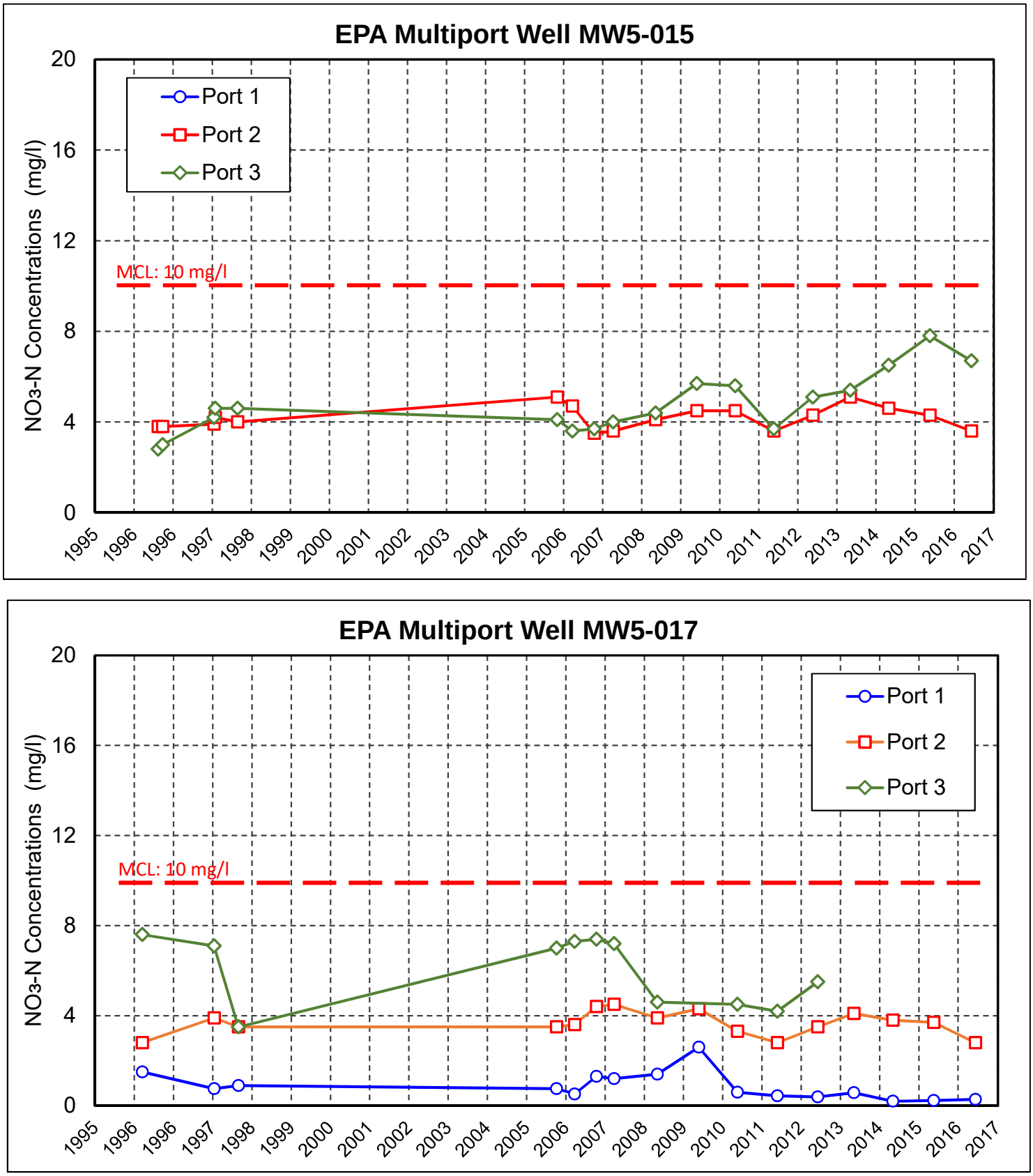




STETSON ENGINEERS INC.

EPA MULTIPORT WELLS MW5-11 & MW5-13
Nitrate Nitrogen Concentrations

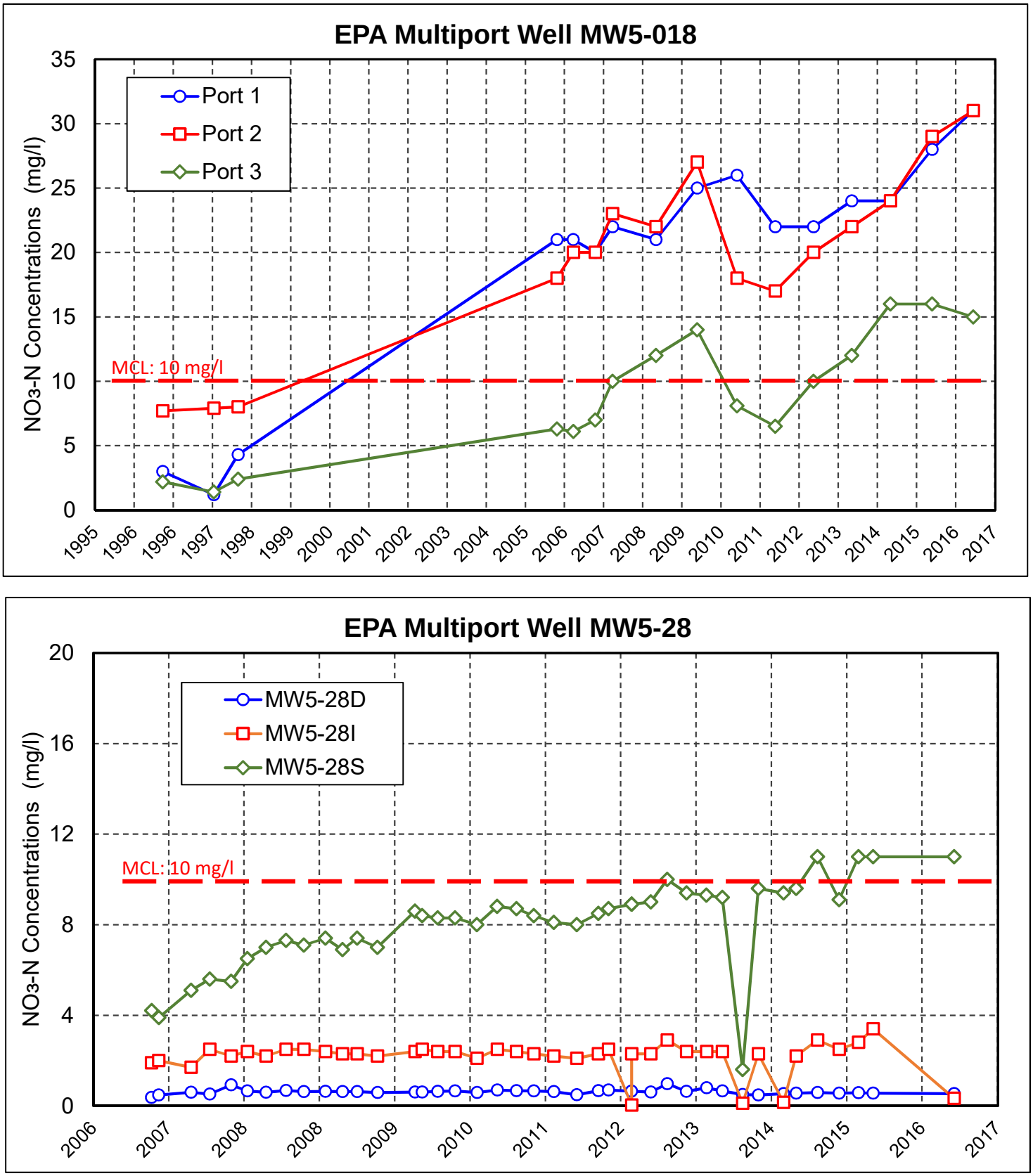
MainSanGabrielBasin WATERMASTER



STETSON ENGINEERS INC.

EPA MULTIPORT WELL MW5-15 & MW5-17
Nitrate Nitrogen Concentrations

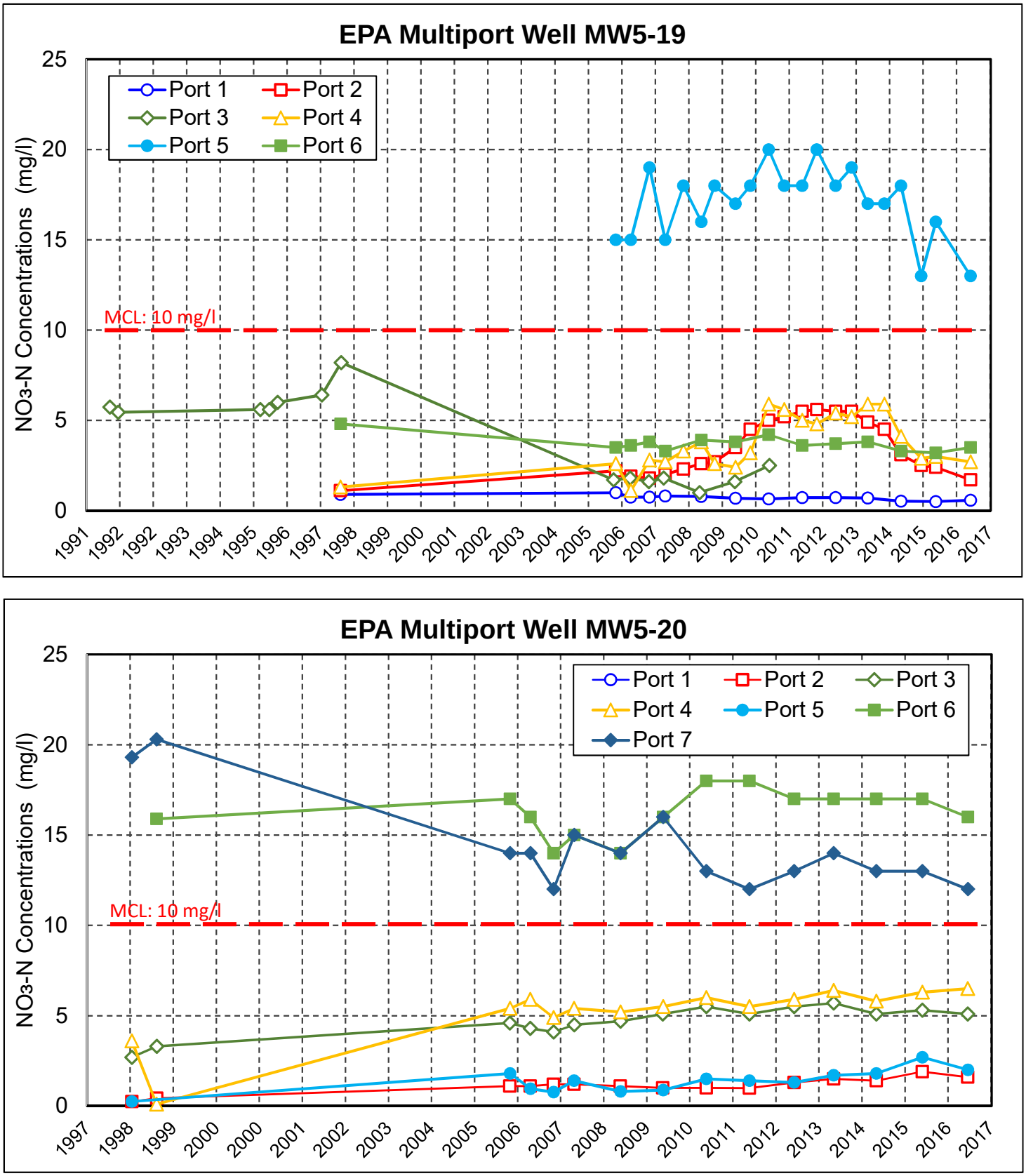
MainSanGabrielBasin WATERMASTER



EPA MULTIPORT WELLS MW5-18 & MW5-28
Nitrate Nitrogen Concentrations

STETSON ENGINEERS INC.

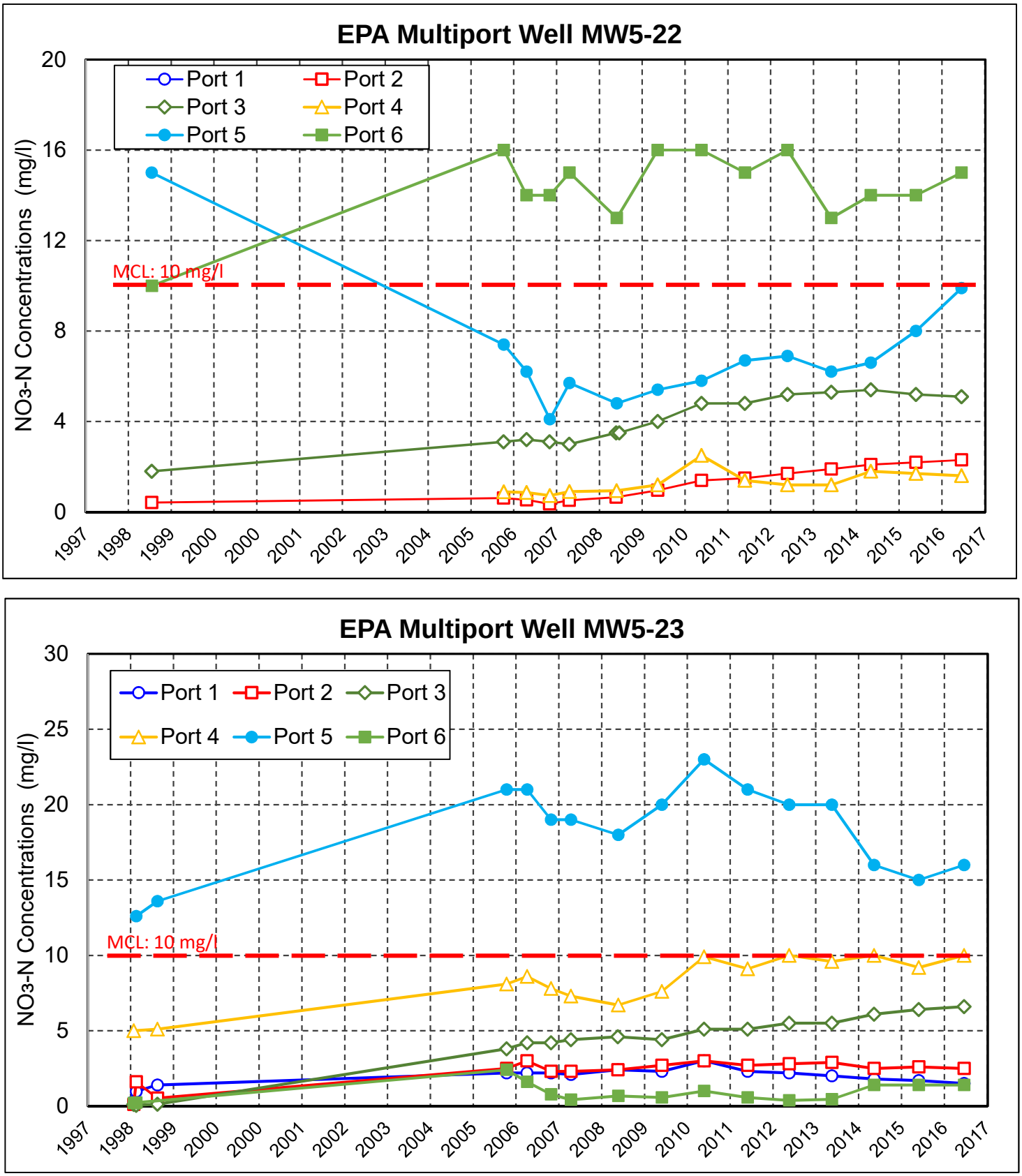
Main San Gabriel Basin WATERMASTER



STETSON ENGINEERS INC.

EPA MULTIPORT WELLS MW5-19 & MW5-20
Nitrate Nitrogen Concentrations

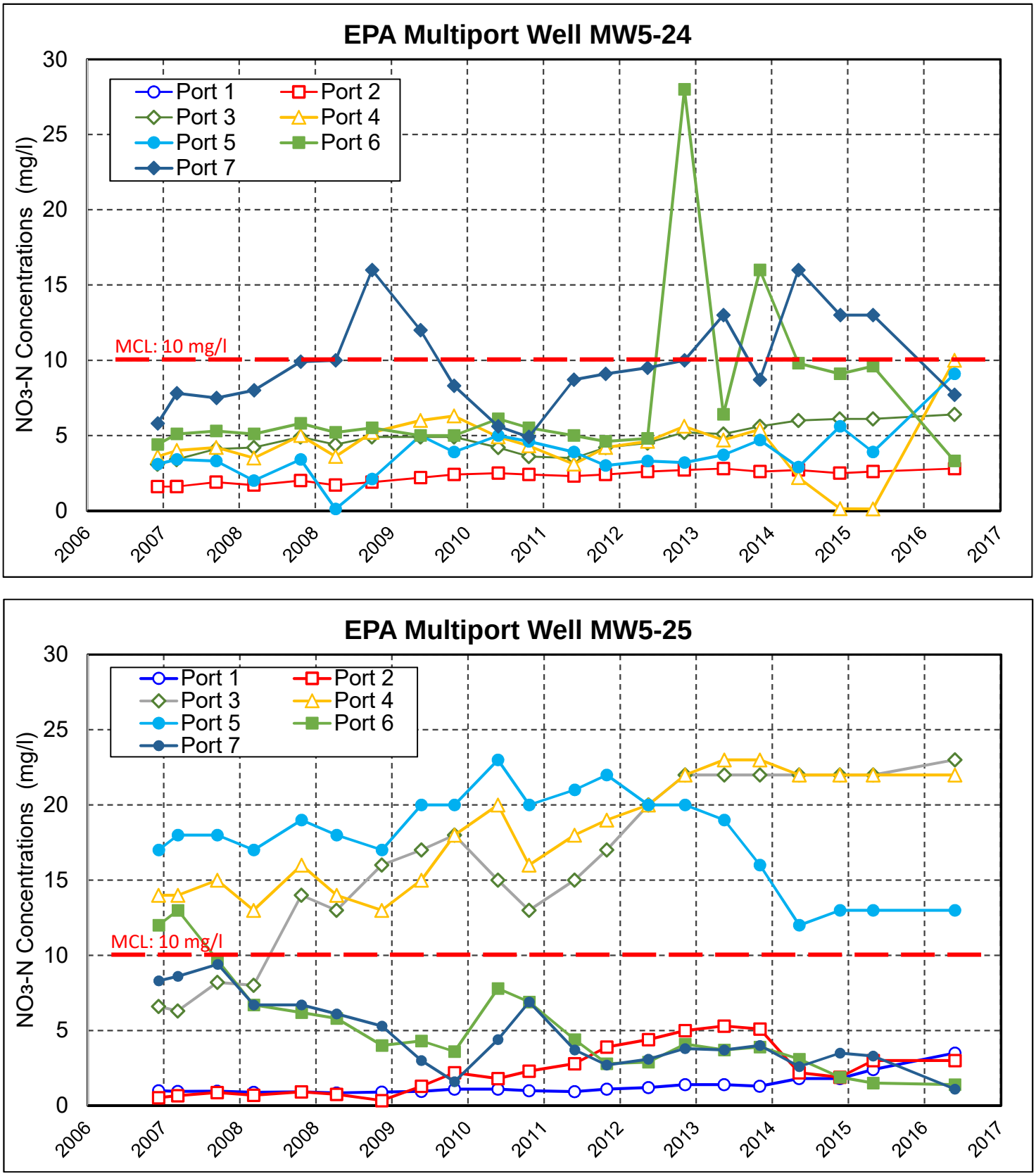
MainSanGabrielBasin WATERMASTER



EPA MULTIPORT WELL MW5-22 & MW5-23
Nitrate Nitrogen Concentrations

STETSON ENGINEERS INC.

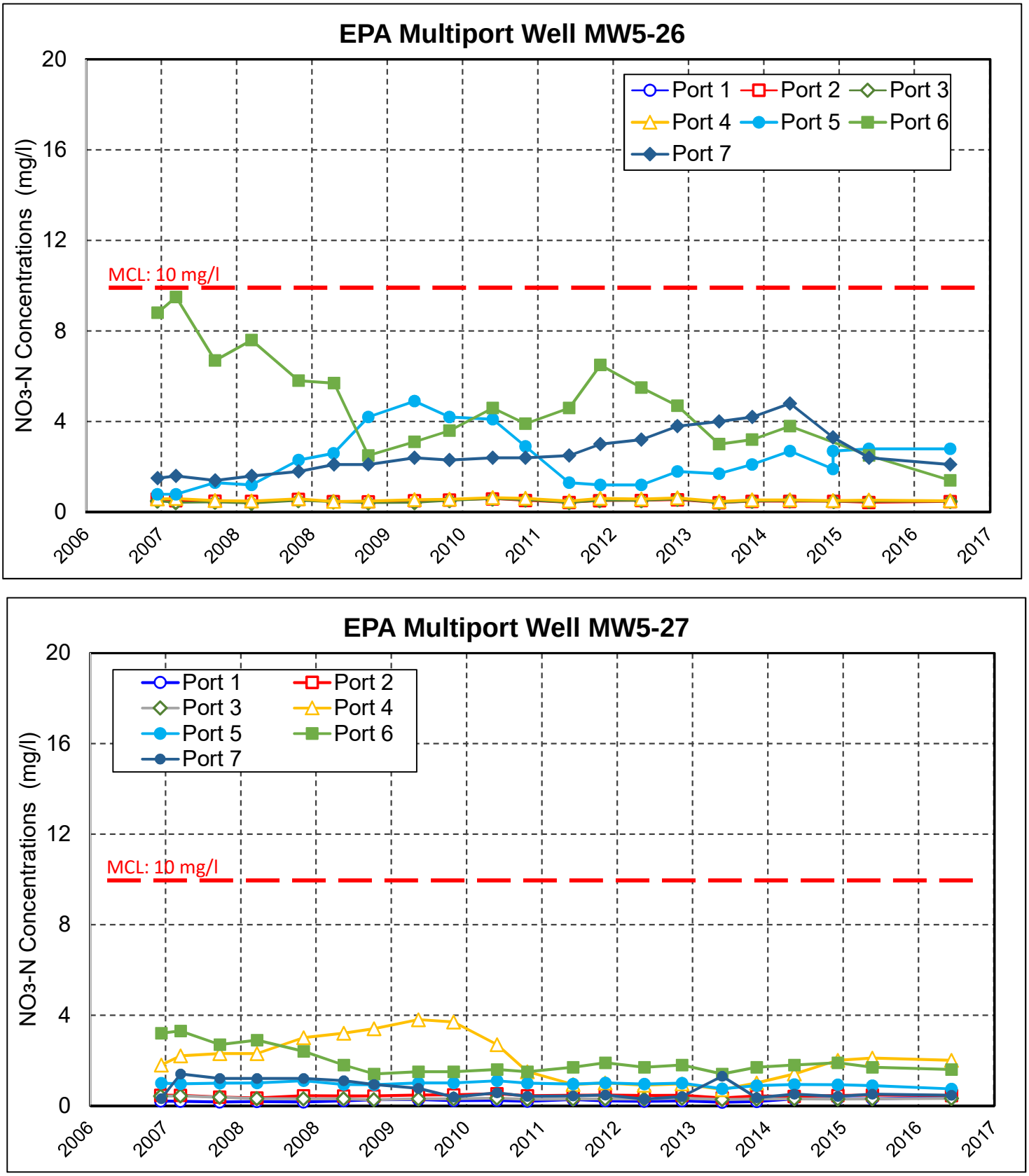
MainSanGabrielBasin WATERMASTER



EPA MULTIPORT WELLS MW5-24 & MW5-25
Nitrate Nitrogen Concentrations

STETSON ENGINEERS INC.

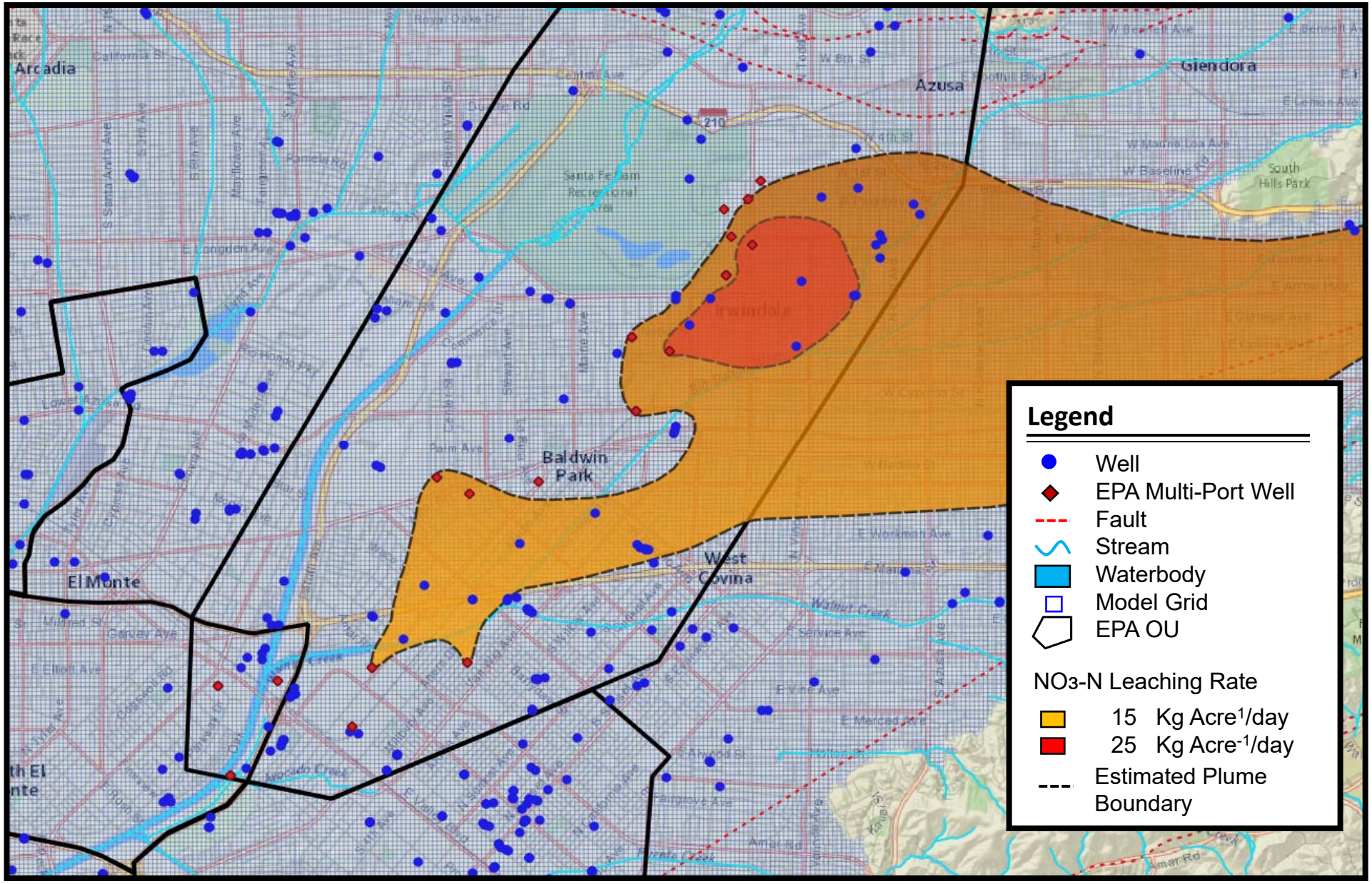
Main San Gabriel Basin WATERMASTER



STETSON ENGINEERS INC.

EPA MULTIPORT WELLS MW5-26 & MW5-27
Nitrate Nitrogen Concentrations

Main San Gabriel Basin WATERMASTER



STETSON ENGINEERS INC.

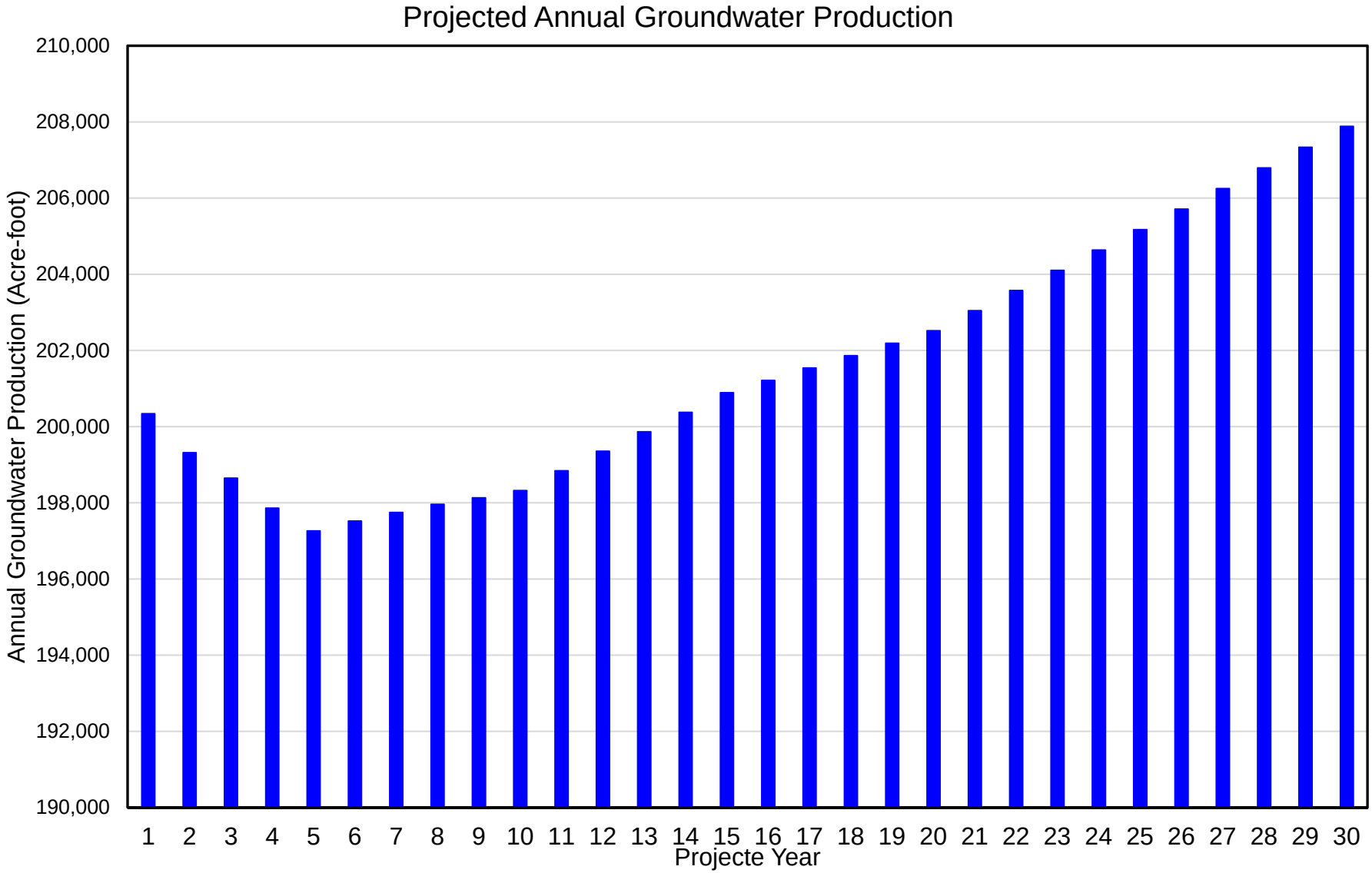
MAIN SAN GABRIEL BASIN WATERMASTER

Estimated Nitrate Nitrogen Loading Rates In Study Area

MainSanGabrielBasin WATERMASTER

Figure 8

J:\2721\Report\Table & Figures\Figure 8 - Estimated Nitrate Leaching Map.pdf



STETSON ENGINEERS INC.

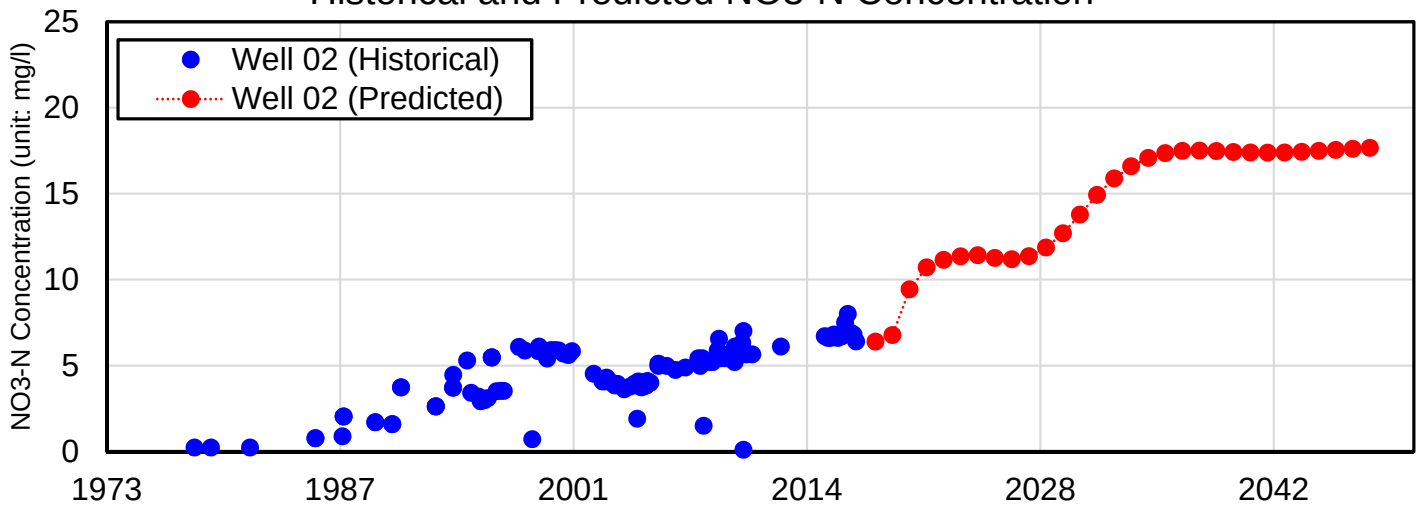
MAIN SAN GABRIEL BASIN WATERMASTER

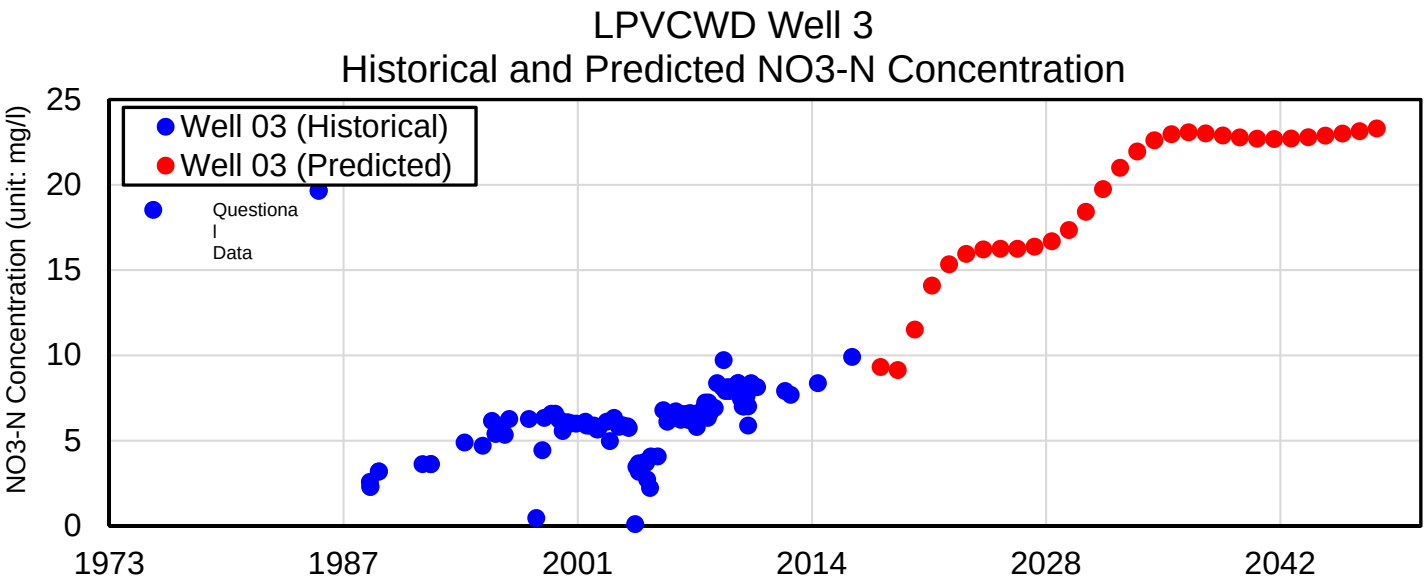
30-Year Projected Annual Groundwater Production

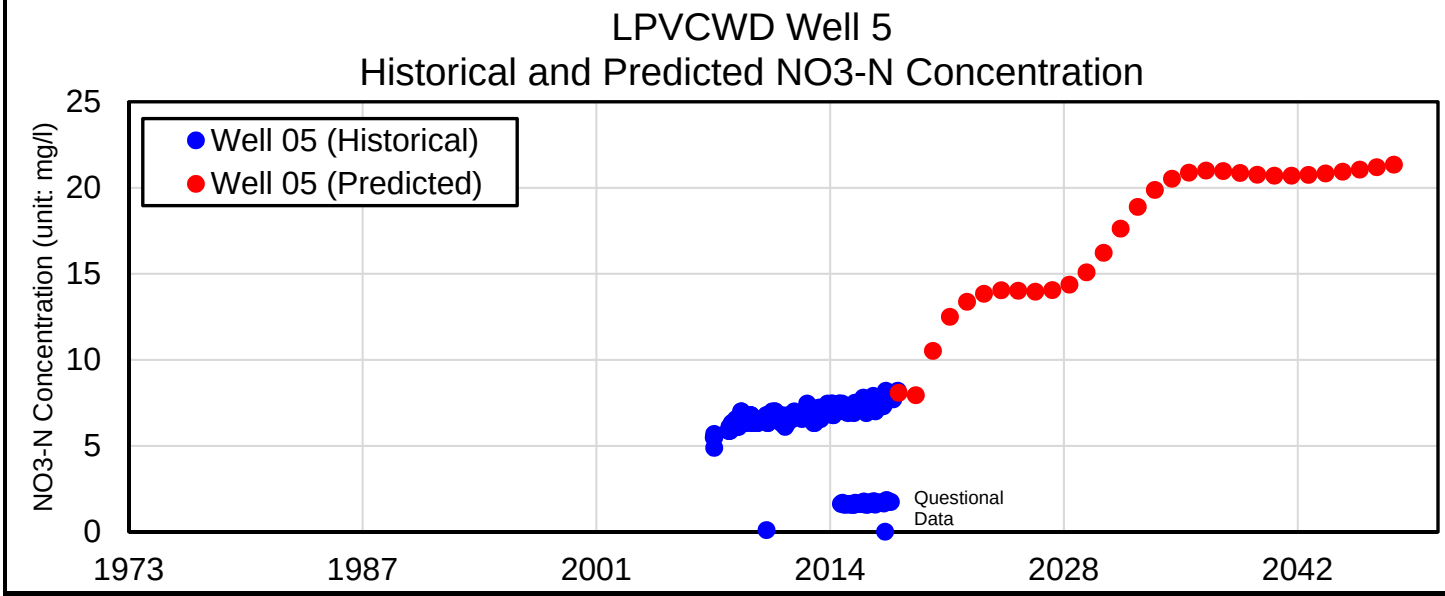
MainSanGabrielBasin WATERMASTER

FIGURE 9

J:\2721\Report\Table & Figures\Table 4 - Groundwater Projection.xlsx



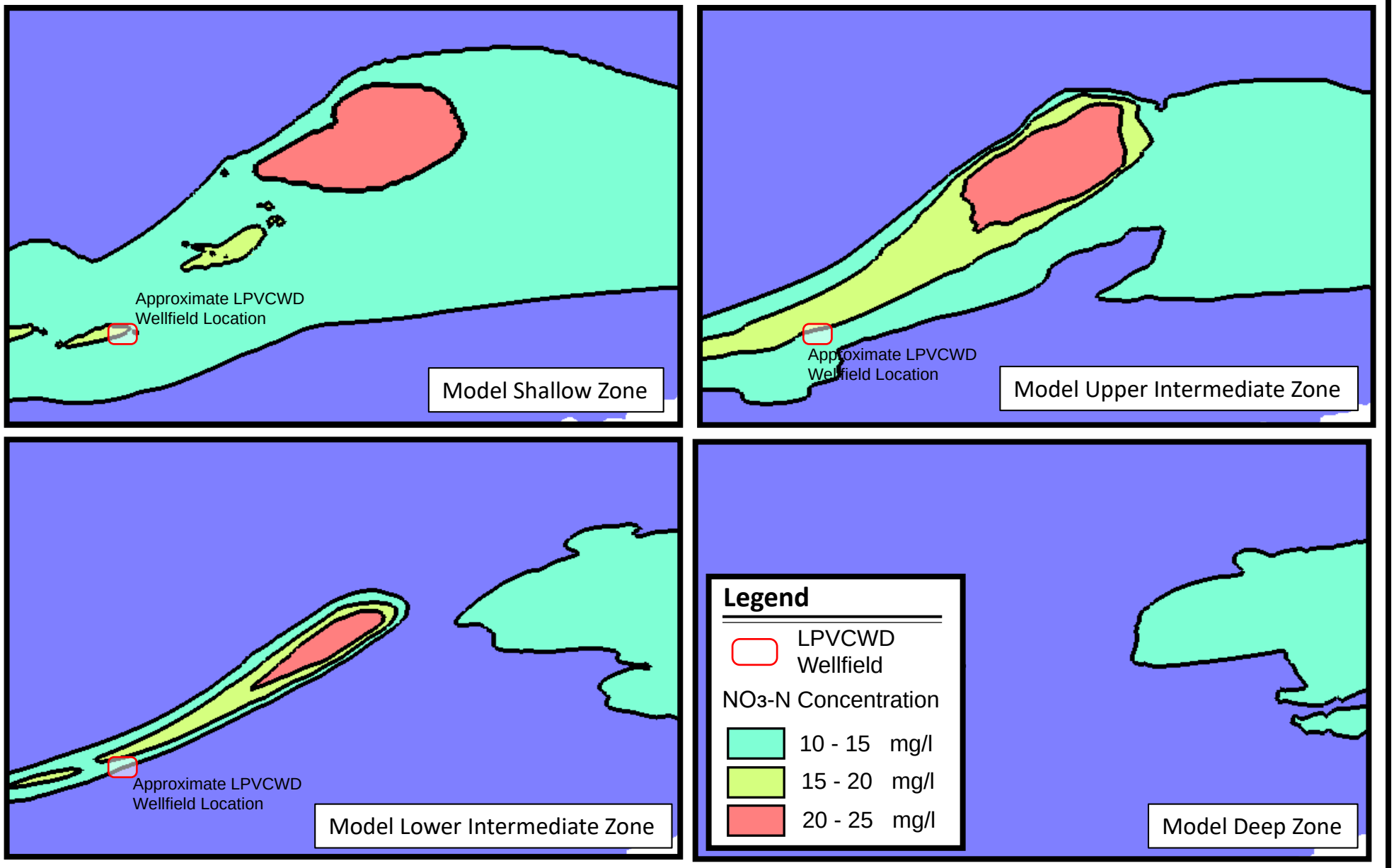




STETSON ENGINEERS INC.

LA PUENTE VALLEY COUNTY WATER DISTRICT
Historical and Model Simulated Nitrate Nitrogen Concentrations

MainSanGabrielBasin WATERMASTER



STETSON ENGINEERS INC.

MAIN SAN GABRIEL BASIN WATERMASTER

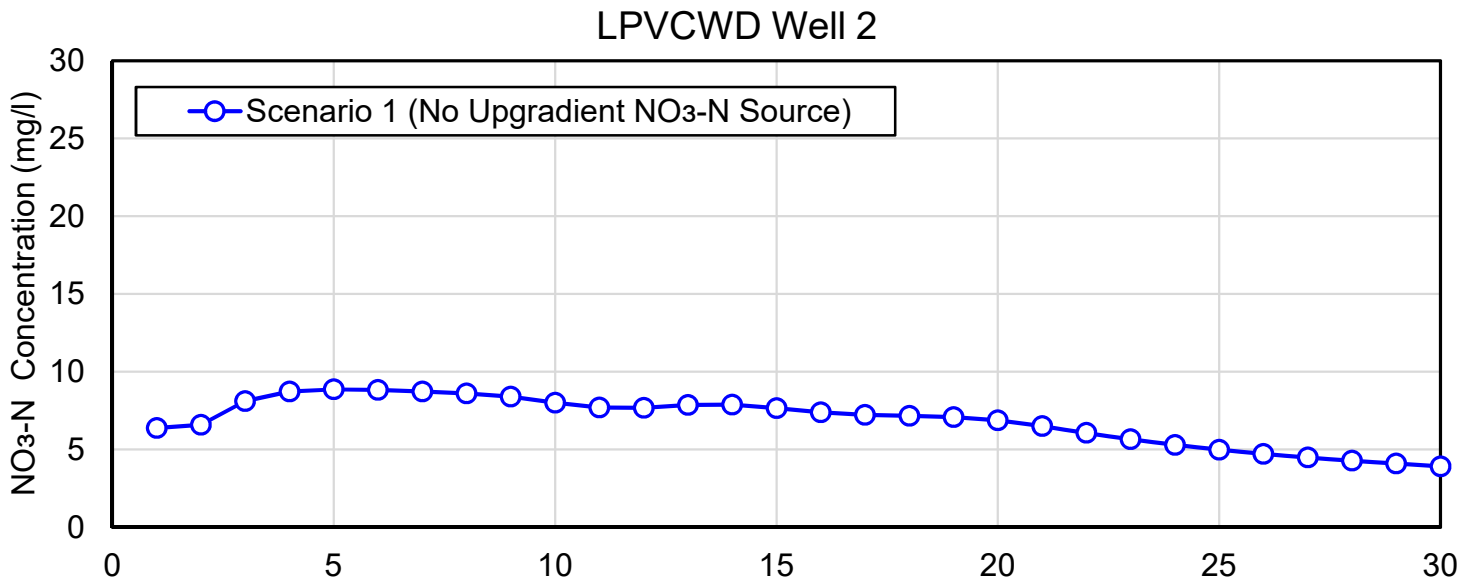
20-Year Model Simulated Nitrate Nitrogen Contour Map

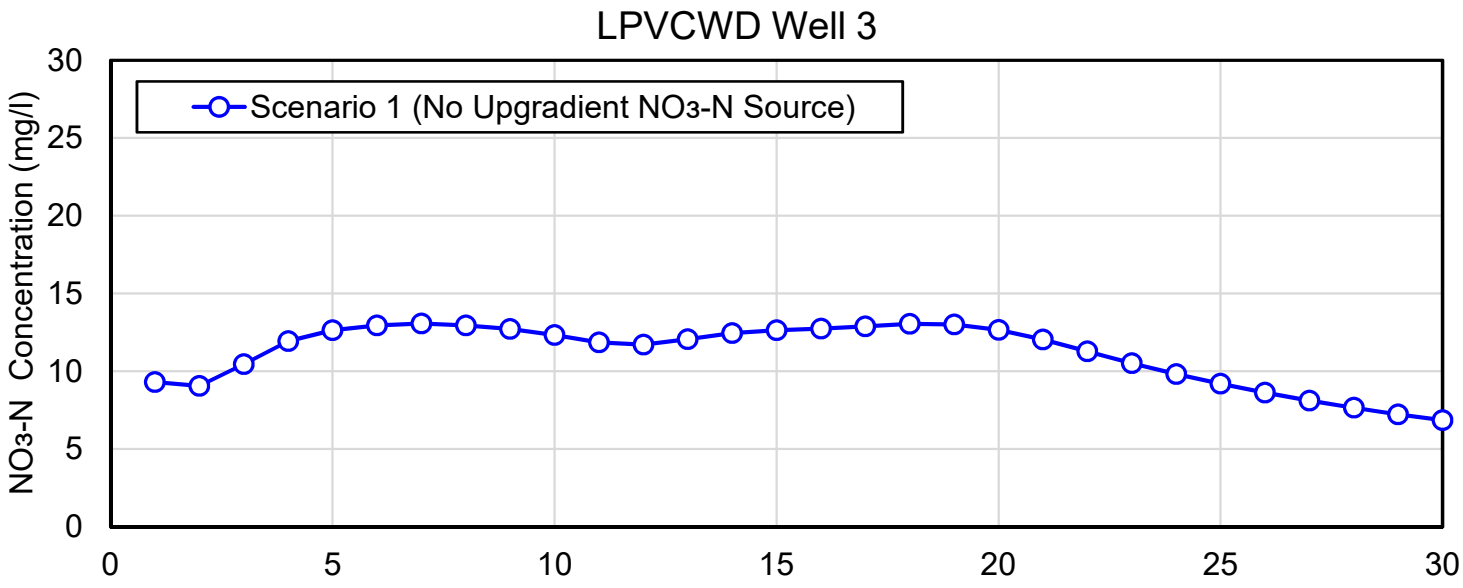
MainSanGabrielBasin WATERMASTER

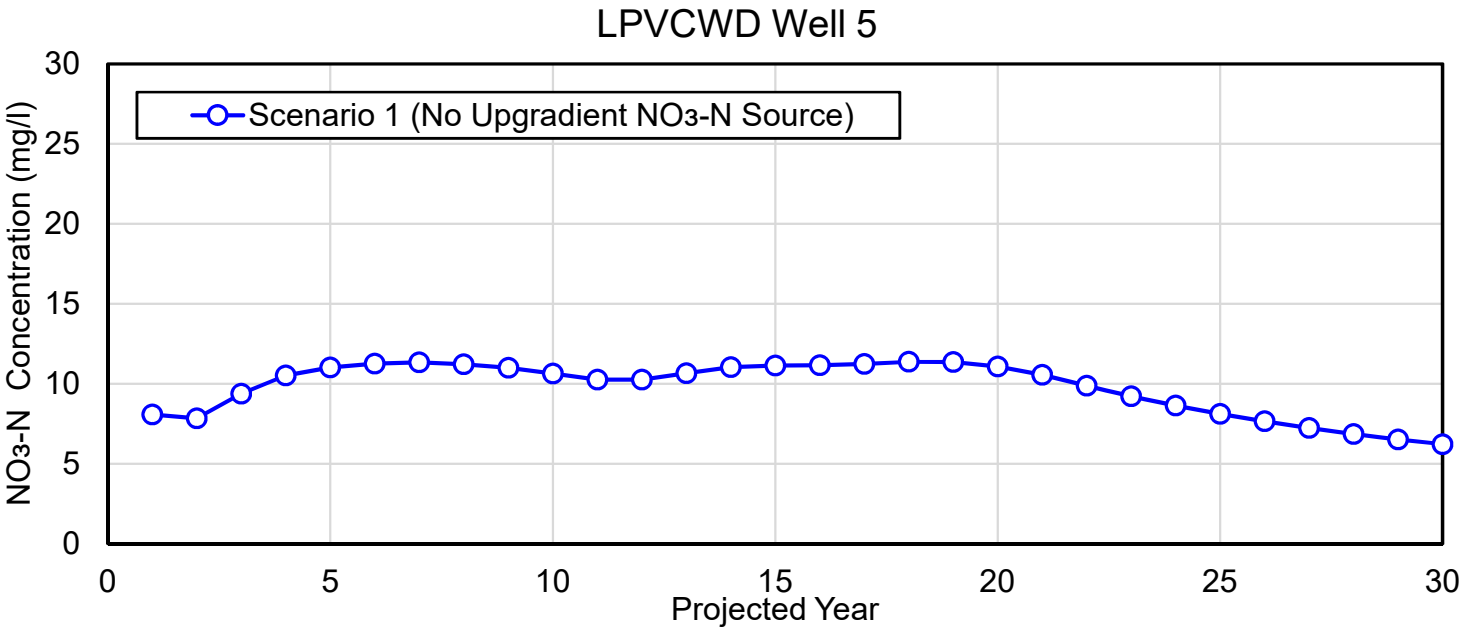
Figure 11

J:\2721\Report\Table & Figures\ Figure 11 - Simulated Nitrate Nitrogen Contour Map.pdf

APPENDIX A


LPVCWD Well 2
Scenario 1 (No Upgradient NO3-N Source)
NO3-N Concentration (mg/l)
0
5
10
15
20
25
30


LPVCWD Well 3
Scenario 1 (No Upgradient NO3-N Source)
NO3-N Concentration (mg/l)
0
5
10
15
20
25
30


LPVCWD Well 5
Scenario 1 (No Upgradient NO3-N Source)
NO3-N Concentration (mg/l)
0
5
10
15
20
25
30
Projected Year

Appendix A

Projected 30 Years Nitrate Nitrogen Concentrations (unit: mg/l)

Year	LPVCWD Scenario 2 Simulation		
	Well 2	Well 3	Well 5
1	6.39	9.31	8.08
2	6.59	9.07	7.84
3	8.12	10.47	9.37
4	8.74	11.94	10.51
5	8.87	12.65	11.02
6	8.83	12.96	11.26
7	8.74	13.07	11.34
8	8.61	12.95	11.22
9	8.41	12.72	10.99
10	8.02	12.34	10.64
11	7.71	11.87	10.26
12	7.69	11.72	10.25
13	7.88	12.07	10.66
14	7.90	12.45	11.03
15	7.66	12.64	11.14
16	7.39	12.75	11.16
17	7.24	12.88	11.24
18	7.18	13.05	11.37
19	7.09	13.01	11.36
20	6.88	12.66	11.07
21	6.51	12.05	10.55
22	6.08	11.29	9.88
23	5.66	10.53	9.22
24	5.29	9.82	8.63
25	4.99	9.20	8.12
26	4.73	8.63	7.66
27	4.50	8.12	7.23
28	4.29	7.67	6.86
29	4.10	7.23	6.52
30	3.92	6.86	6.22

Memo

To: Honorable Board of Directors

From: Roy Frausto, Engineering & Compliance Manager

Meeting Date: November 25, 2019

Re: Engineering & Compliance Report – October 2019

CAPITAL PROJECTS

1. LPVCWD Recycled Water Project
   - On October 29, 2019, the District opened up the competitive bidding process and advertised the project on the San Gabriel Valley Tribune and Whittier Daily News.
   - Bid opening is scheduled for November 26, 2019 at 10:00 AM

2. LPVCWD PVOU IZ Project and SZ-South Project
   - Staff met with the Northrop team to discuss project schedule and pending items on November 15, 2019.
   - Staff reviewed the PVOU SZ CEQA Initial Study/Mitigated Negative Declaration (IS/MND) and provided comments to then finalize the document. Once the comment period is complete, staff will bring the document for consideration of adoption.
   - Recent construction activity of the IZ plant includes installation of the LGAC vessels, SPIX vessels and raw water piping along Nelson Ave.

3. LPVCWD Nitrate Treatment Project
   - Staff has met with the Geosyntec team to discuss the different treatment technologies with respect to their scoring and feasibility. Currently, a draft TM is being drafted and is expected to be submitted for comment and review during early December 2019.

DEVELOPMENTS

1. LPVCWD: 15817 San Jose Ave. – Staff received a request for the installation of a new water service to support the development of a new home. Staff met with the property owner and advised that a formal request must be submitted to the District specifying the size of meter.

2. LPVCWD: 333 Hacienda Blvd. (Old Kmart) – Staff received a will serve letter request to support a proposed industrial warehouse building requiring (1) one 2-inch domestic service, one (1) 2-inch irrigation service and one 8-inch fire service. Staff provided an estimate letter to the developer on November 4, 2019.

3. LPVCWD: 16019 Central Avenue – Staff received a request for the installation of one ¾-inch and four 1-inch services new services. Staff has provided an estimate; no deposit has yet been received.

4. LPVCWD: Star Theatre Property (22 Condo Development) – The demolition of the existing building began the week of June 17, 2019. Currently, the building is completely demolished. From previous correspondence with the developer, the development plan is to construct 22 condos.

5. LPVCWD: 15921 Sierra Vista Court – It is anticipated that a request to construct 5 water services in support of a 5-unit development will be submitted in the near future. No activity.

6. CIWS: 14241 & 14245 Proctor Ave – Staff received a request for a Will Serve letter to support a new building. It is anticipated that the building will require a 2-inch domestic and a 6-inch fire service.

7. CIWS: 365 ½ S 4th Ave. – Staff received a request for the installation of a new one 1-inch service to accommodate new construction of an ADU. Staff provided a cost estimate for the install on June 11, 2019.

8. CIWS: 162 S 3rd Ave: - Request for information was received from an engineering firm for substructure maps in support of a field survey. Development of property is unknown at this time.

SPECIAL/OTHER PROJECTS

1. LPVCWD: La Puente Park – Staff provided a final estimate letter to the City on November 13, 2019, for execution. It is understood that City Council will need to approve the estimate amount included in the letter to then move forward with the project. Staff anticipates our filed crews to start the project during mid-late December.

2. LPVCWD: SAMS Water Quality Compliance Software – Staff partnered with SAMS Water Quality to host a District water quality database and to optimize monthly compliance reporting. Staff is working with SAMS to finalize the automated reporting and mapping functions.

3. 2019 TP Annual Performance Technical Report – Staff will finalize and distribute the annual treatment plant technical performance report by the end of November. A copy of the final report will be provided during the December 2019 Board Meeting.

4. LPVCWD: Nitrate Levels – Provided as **Enclosure 1** is a table of the current Nitrate levels at the District's well field.

5. LPVCWD: Well 2 & 5 Electrical Service Analysis – Staff received a letter from EPA with respect to increase pumping at Well #2 to increase removal of contaminant mass from the aquifer. Staff will draft a Technical Memorandum to document the changes for DDW approval.

6. LPVCWD: AWIA – Staff will begin working with Claris Strategies to start the Compliance Crosswalk effort as the first step towards completing a Risk Assessment and Emergency Response Plan.

7. LPVCWD & CIWS: Water Quality Sampling – Per- and polyfluoroalkyl substances (PFAS) samples were taken at the District's Well Field (Well 2 & 3), SP-6 (TP Effluent), CIWS Well 5 and at the Lomitas Reservoir. In addition, a PFAS Frequently Asked Questions (FAQs) document (**Enclosure 2**) was drafted to provide customers answers with respect to common PFAS questions.

Enclosures

- *Enclosure 1: October - November 2019 Nitrate Levels*

SP 6 and SP 10
Nitrate Concentrations
EPA Method 300.0
MCL = 10 mg/l

Nitrate Concentrations October/November 2019				
Date	SP 10	SP 6	Well	Comments
10/07/2019	7.4	7.5	2&3	
10/15/2019	7.1	7.1	2&3	
10/21/2019	7.2	7.2	2&3	
10/28/2019	7.2	7.2	2&3	
11/4/2019	7.3	7.3	2&3	
11/12/2019	7.1	7.1	2&3	
11/18/2019	7.8	7.7	2&3	
AVERAGE	7.3	7.3		
MINIMUM	7.1	7.1		
MAXIMUM	7.8	7.7		

NOTES:

All units reported in milligrams per liter (mg/l)

MCL = Maximum Contaminant Level

La Puente Valley County Water District

112 N First St.
La Puente, CA 91744

Enclosure 1

Upcoming Events

To: Honorable Board of Directors

Date: 11/25/19

Re: Upcoming Meetings, Conferences and Community Events for 2019

Day/Date	Event	***Barajas***	***Escalera***	***Hastings***	***Hernandez***	***Rojas***
Tuesday - Friday, December 3 - 6, 2019	ACWA 2019 Fall Conference Conference at the Manchester Grand Hyatt, San Diego, CA.				X	X
Friday, December 6, 2019	City of La Puente Holiday Parade. (non-compensable)					
Thursday, December 12, 2019	SCWUA – Christmas Luncheon					
12:00 p.m. Friday, December 13, 2019	LPVCWD Annual Christmas Luncheon (non-compensable)					

Board Meetings typically held on the 2nd and the 4th Monday of each Month.