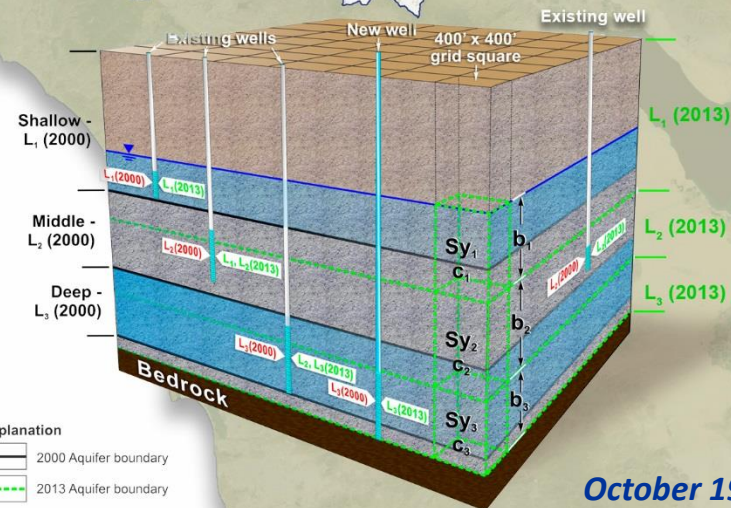
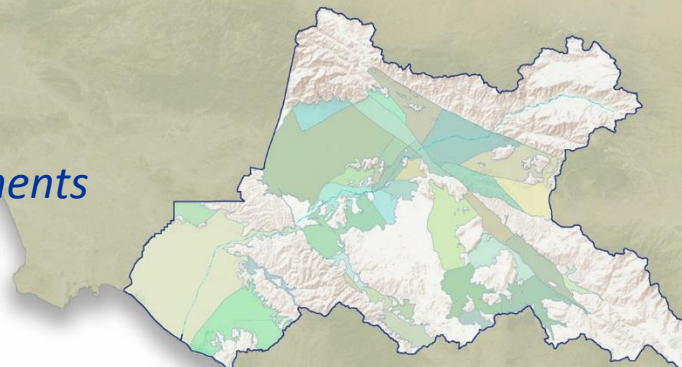


TDS/Nitrogen Management  
Plan for the Santa Ana River Basin  
*Groundwater Monitoring Requirements*

**Status Update for the  
Recomputation of  
Ambient Water Quality in the  
Santa Ana River Watershed for  
the Period 1996-2015**



October 19, 2016

# Status Update

- Data Collection Status
- Optional Task 2
  - GeoTracker GAMA
  - Other stakeholders, *e.g.*, City of Riverside
- High Priority Wells from the 2012 Attrition Analysis

# Data Collection Status

Agency	Received Data	Ready for Upload	Comments
Beaumont Cherry Valley Water District	YES	Processing	
Colton, City of	YES	READY	New well
Corona, City of	YES	READY	New wells
East Valley Water District	YES	Processing	Follow up with WL
Eastern Municipal Water District	YES	READY	New wells
Elsinore Valley Municipal Water District	YES	READY	New wells
Home Gardens County Water District	YES	READY	
Irvine Ranch Water District	NA	NA	
Muscoy Mutual Water Company	YES	READY	
Orange County Water District	YES	READY	
Redlands, City of	YES	READY	New wells
Rialto, City of	YES	Processing	
Riverside County Landfills	YES	Processing	
Riverside, City of (Public Utilities)	YES	READY	New wells
Riverside-Highland Water Company	YES	READY	
Rubidoux Community Services District	YES	READY	
San Bernardino County Landfills	YES	READY	New wells
San Bernardino Municipal Water Department	YES	READY	
San Bernardino Valley Municipal Water District	YES	NA	
South Mesa Water Company	YES	READY	New wells
Temescal Valley Water District (formerly known as Lee Lake Water District)	YES	READY	
West Valley Water District	YES	READY	New wells(?)
Western Heights Water Company	YES	READY	
Western Municipal Water District	YES	READY	
Western Riverside County Regional Wastewater Authority	YES	NA	

# Data Collection Status

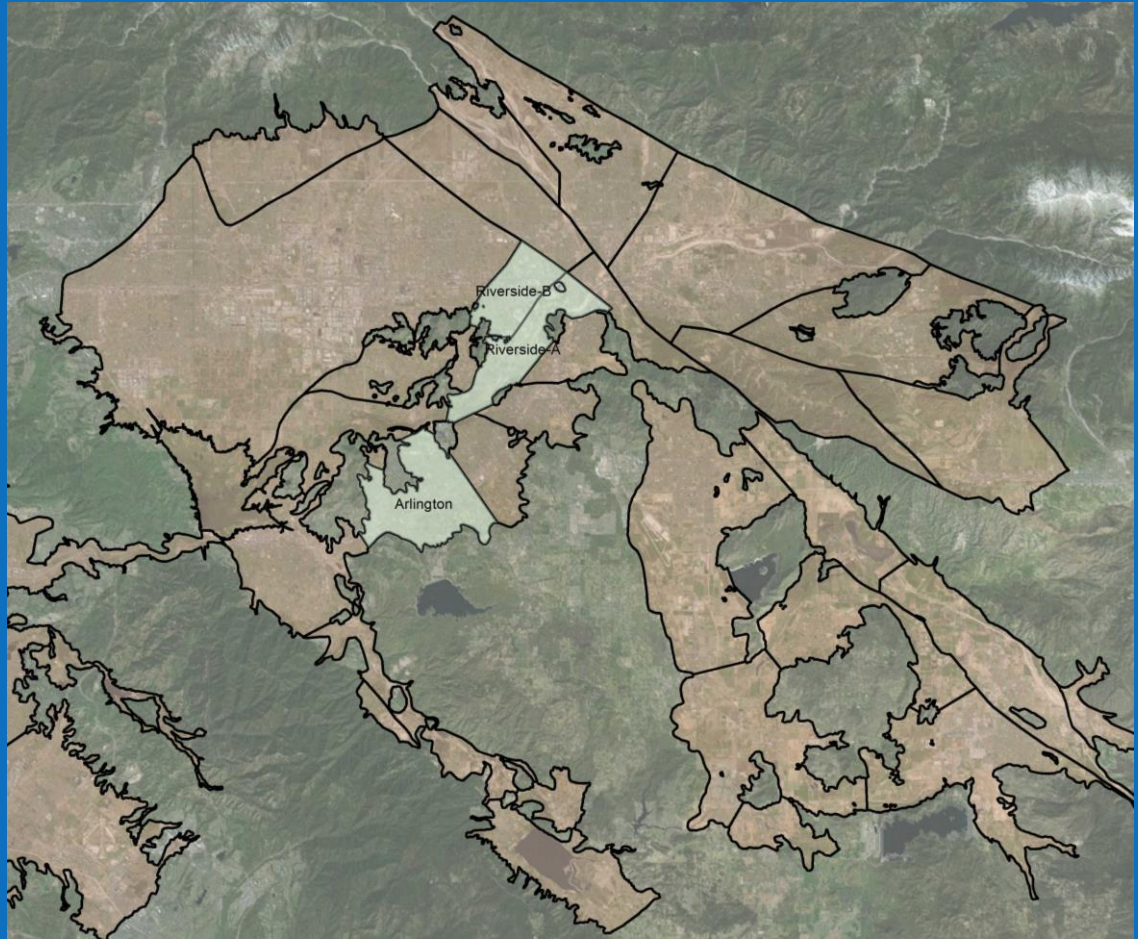
Agency	Received Data	Ready for Upload	Comments
Banning, City of	No response		Multiple attempts to contact the City
Jurupa Community Services District	No response		Multiple attempts to contact the District
Yucaipa Valley Water District	No response		Multiple attempts to contact the District
Beaumont, City of	Pending		
Chino Basin Watermaster	Pending*		*Non-Disclosure Agreement for private ag wells
Inland Empire Utilities Agency	Pending*		
Loma Linda, City of	Pending		
San Geronio Pass Water Agency	Pending		

# Optional Task 2

- Downgradient portion of Riverside-A near Riverside Narrows.
  - Few wells with data in this area
  - Riverside-A is an important GMZ that is receiving water for POTW discharge
- Central and western portions of Riverside-B
  - Few wells with data in these areas that are representative of regional groundwater quality
  - Most wells in these areas are shallow monitoring wells associated with point-source releases
- Central and eastern portions of the Arlington GMZ
  - Few wells with data in these areas
  - Areas considering recycled water reuse projects

# Optional Task 2

- Riverside A
- Riverside B
- Arlington



# Optional Task 2 Available Sources

- GeoTracker/GAMA
- EnviroStor
- USGS
- Division of Drinking Water
- Other stakeholders
- New well data from agencies

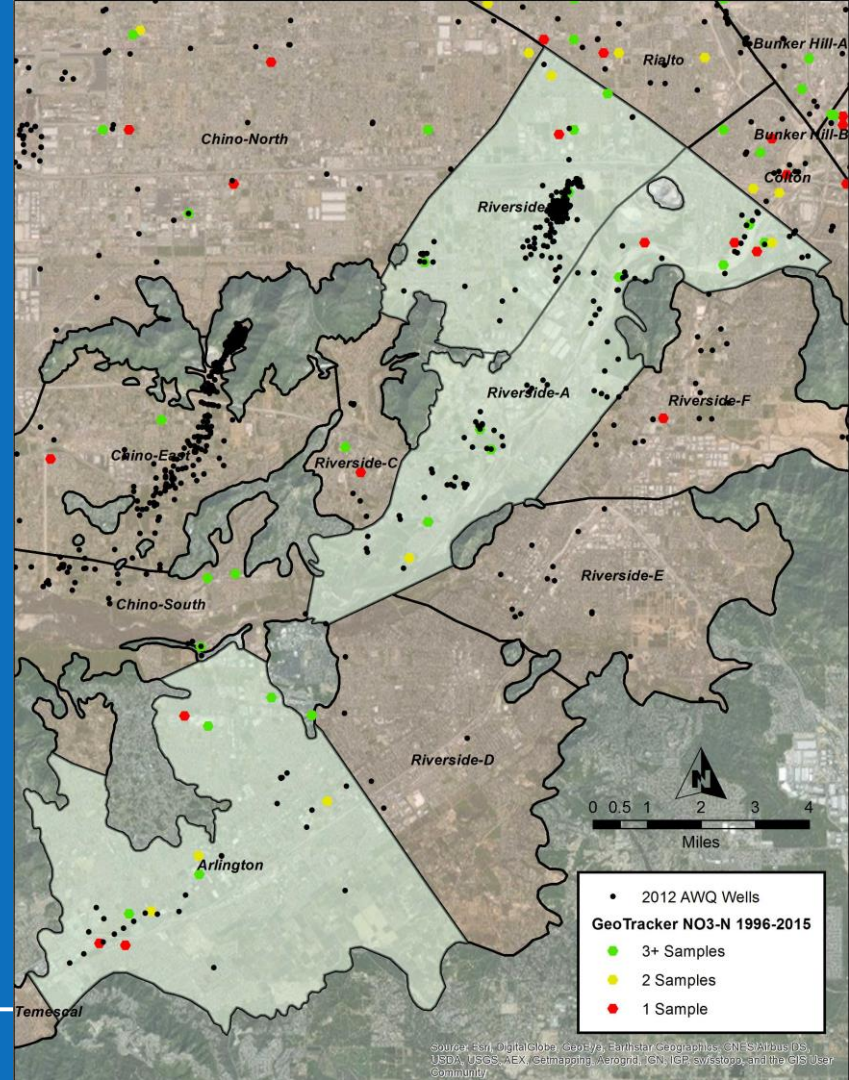


# GeoTracker GAMA: Nitrate

## GeoTracker Monitored Groundwater Wells with Nitrate Data between 1993-2015

Number of Samples	Arlington	Riverside-A	Riverside-B	Total
3+ Samples	4	7	7	18
2 Samples	3	2	1	6
1 Sample	3	4	1	8
Grand Total	10	13	9	32

- Well owner
- Well status
- Perforated intervals
- Historical water quality



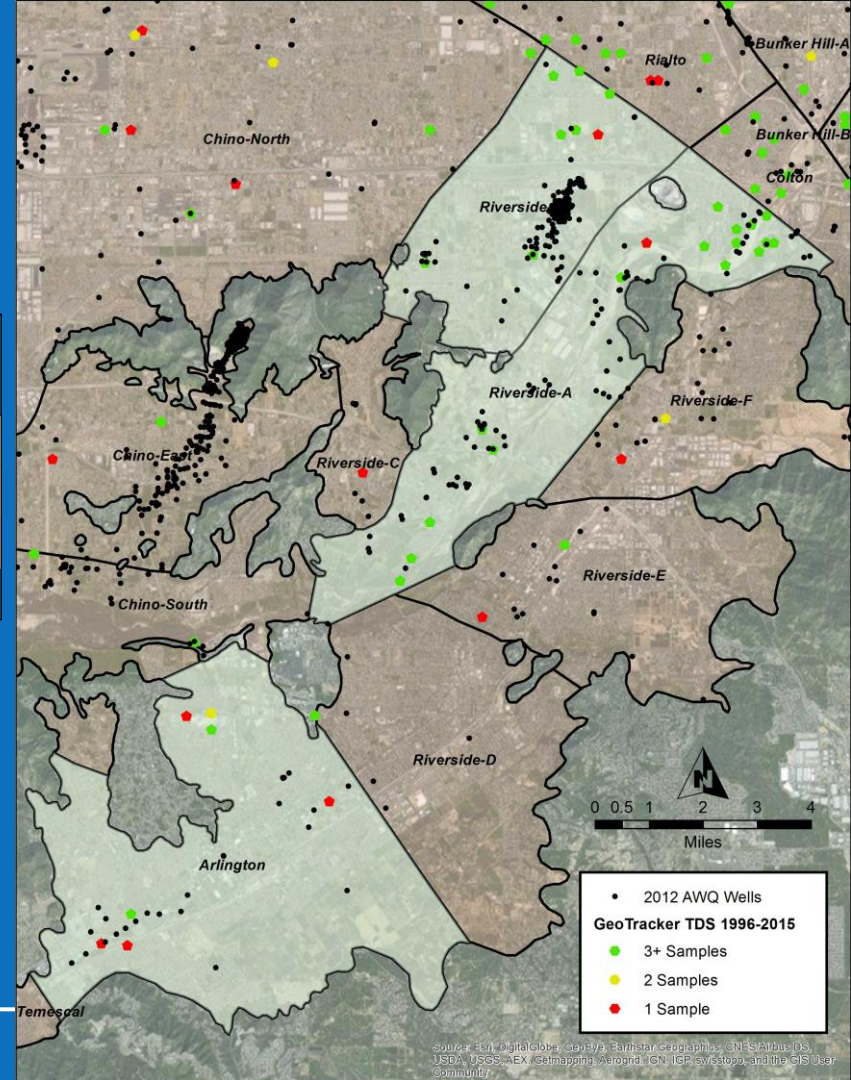


# GeoTracker GAMA: TDS

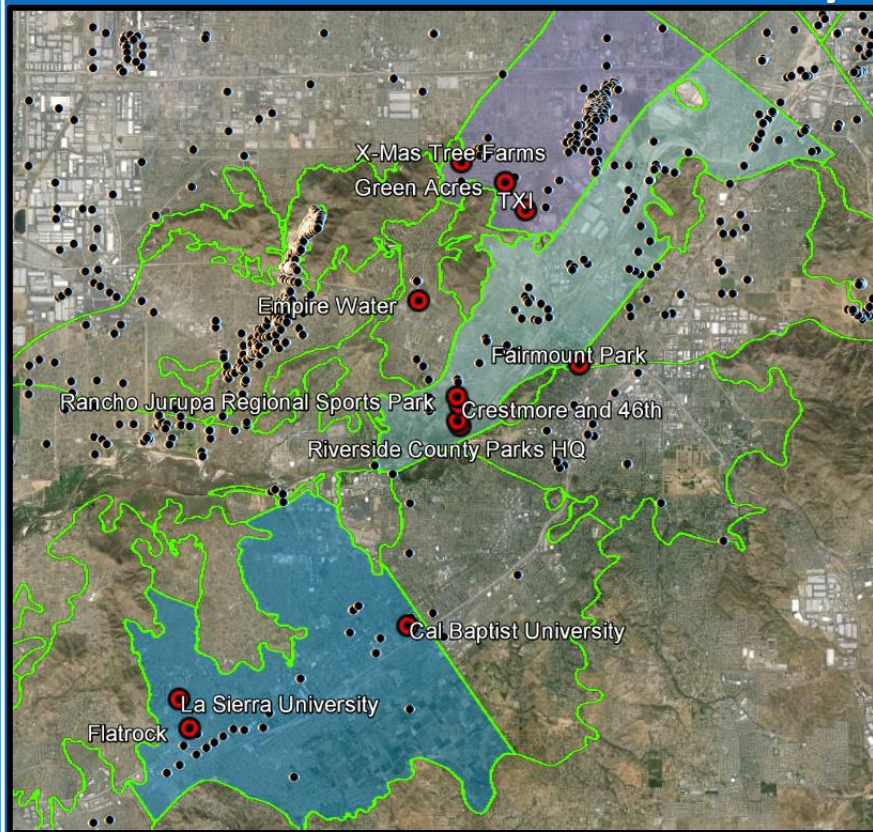
GeoTracker Monitored Groundwater Wells with TDS Data  
between 1993-2015

Number of Samples	Arlington	Riverside-A	Riverside-B	Total
3+ Samples	2	17	6	25
2 Samples	1	0	0	1
1 Sample	4	1	2	7
Grand Total	7	18	8	33

- Well owner
- Well status
- Perforated intervals
- Historical water quality



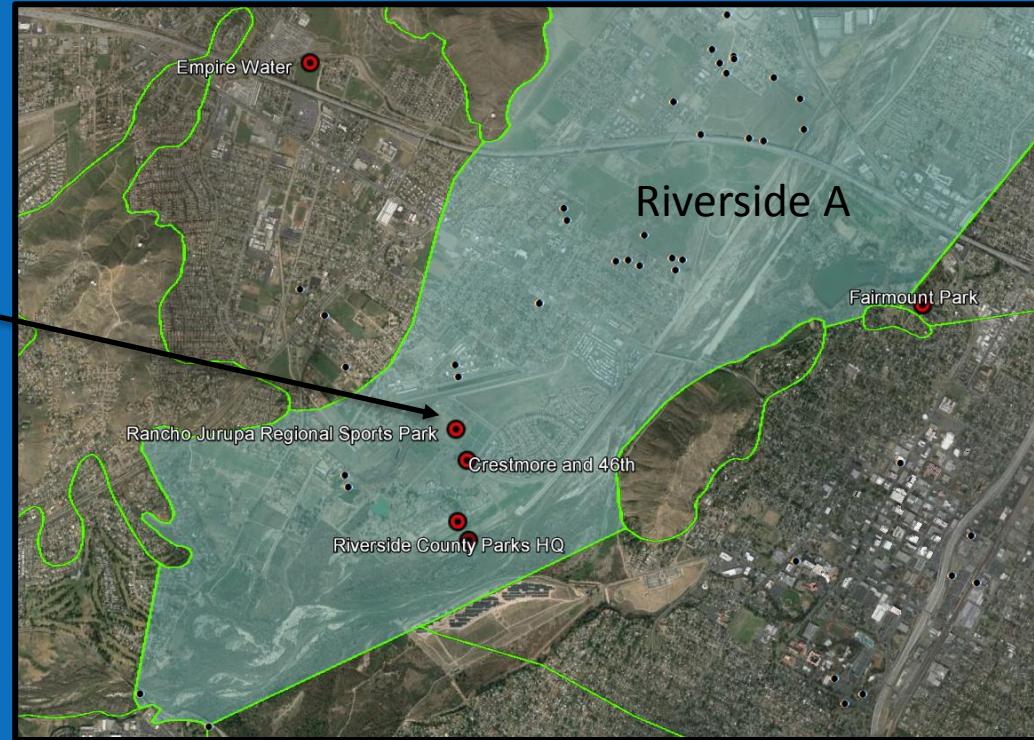
# Well Site Visit with City of Riverside



Basin	Name	Comment
Arlington	Loving Homes	Irrigation well.
	Flatrock	Two wells in complex.
	Cal Baptist well (new)	New well located on property
	La Sierra University	At Least one well
Riverside B	Green Acres	Multiple wells located on property
	X-Mas Tree Farm	Well located on this property
	TXI	Multiple wells located on property
Riverside A	Riv. County Flood Control	
	City of Riverside Fairmount Park	Multiple wells located on property
	County of Riverside	4 wells locations know. Park HQ best one for sampling
	USGS	USGS NAWQA well

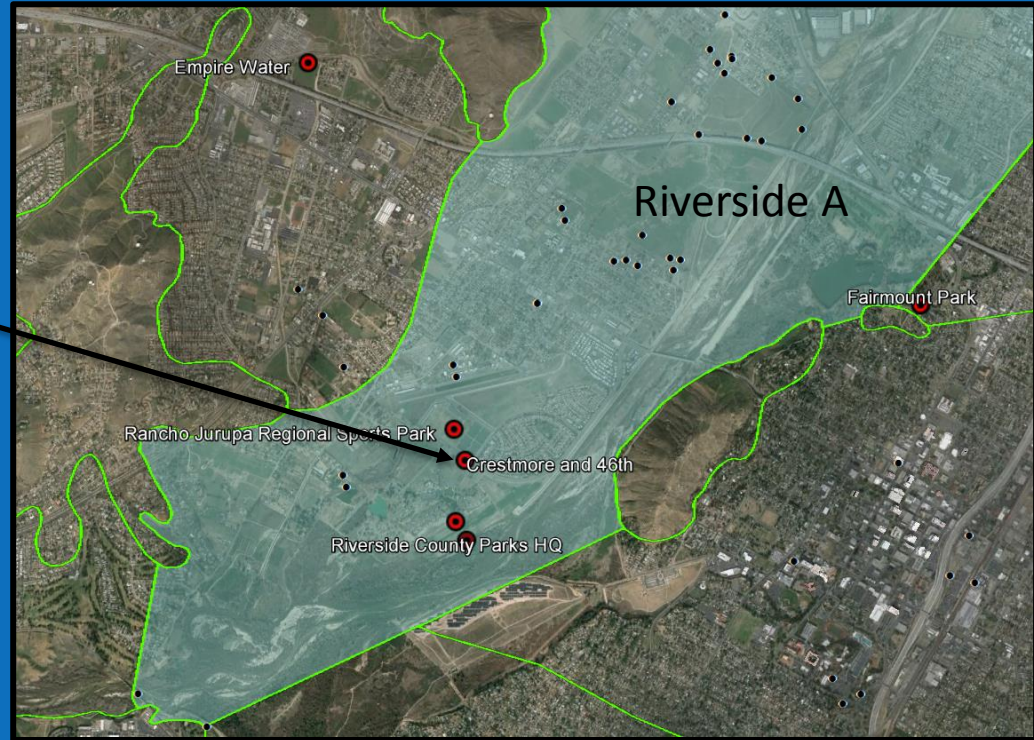


# City of Riverside





# City of Riverside



# High Priority Wells

- Well-attrition analysis is a forward-looking tool that provides an opportunity for the BMPTF to prevent the loss of water-quality point statistics at wells in the next triennial recomputation of ambient water quality

# High Priority Wells

- In 2012 well-attrition analysis identified:
  - 131 wells for nitrate-N and 133 wells for TDS that would be removed from the AWQ program if no water quality samples were collected during the 2013 to 2015 period
  - 185 unique wells (TDS or nitrate) that would be removed from the AWQ program absent sampling in the 2013 to 2015 period
  - 69 assumed to be destroyed or cannot otherwise be sampled
  - 2012 AWQ report identified 12 “High Priority” wells that – if removed from the AWQ program – may result in significant changes to the mapping of regional groundwater quality

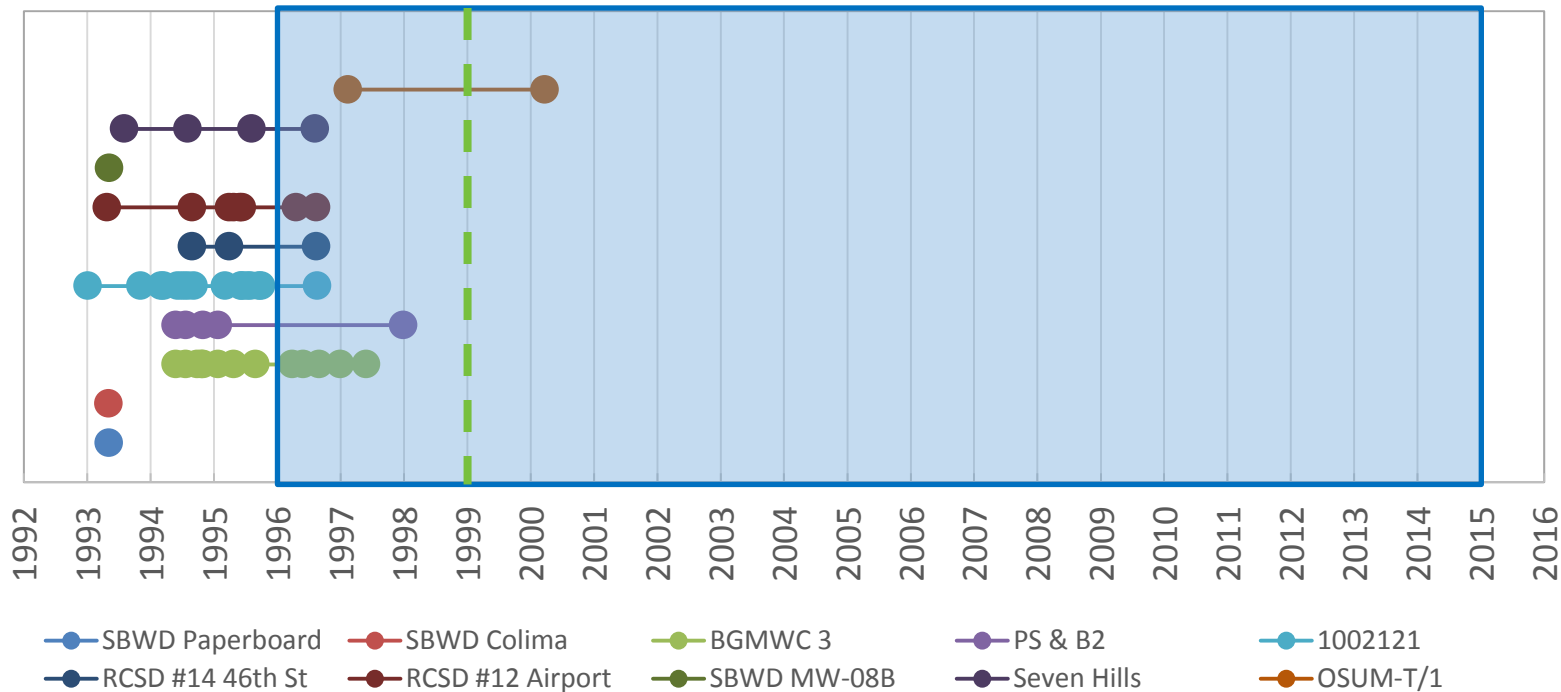


# High Priority Wells

Well_ID	Well_Name	Well_Owner	Management	State_Well	Longitude	Latitude	Status	TDS Loss	Nitrate Loss
1000336	3	Baseline Gardens Mutual Water Company	Bunker Hill A	01N04W35R01	-117.2627	34.12462	Active	Yes	Yes
1000365	PS & B 2	Baseline Gardens Mutual Water Company	Bunker Hill B	01N04W36M01	-117.2582	34.12823	Inactive	Yes	Yes
1000151	SBWD Paperboard	City of San Bernardino	Bunker Hill A	01N04W20N01	-117.3275	34.15121	Active	Yes	Yes
1000249	SBWD Colima	City of San Bernardino	Bunker Hill A	01N04W29F01	-117.3254	34.14454	Inactive	Yes	Yes
1203809	SBWD MW-08B	City of San Bernardino	Bunker Hill A		-117.3291	34.17303	Active	Yes	Yes
1212109	Seven Hills	Eastern Municipal Water District	South Hemet	05S01W21M01	-116.9936	33.72163	Active	Yes	Yes
1213875	IDP-3/1	Orange County Water District	Irvine		-117.7465	33.66696	Active	Yes	No
1214564	OSUM-T/1	Orange County Water District	Irvine		-117.8334	33.7015	Active	Yes	Yes
1003378	RCSD #14 46th St	Rubidoux Community Services District	Riverside C	02S05W20A01	-117.4195	33.99016	Inactive	Yes	No
1003384	RCSD #13 Hunter 1	Rubidoux Community Services District	Riverside A	02S05W20H04	-117.4192	33.98575	Inactive	Yes	Yes
1003396	RCSD #12 Airport	Rubidoux Community Services District	Riverside A	02S05W21C01	-117.4107	33.9903	Inactive	Yes	Yes
1002121	WVWD 29	West Valley Water District	Riverside B	01S05W23Q01	-117.3723	34.06357	Active	Yes	Yes

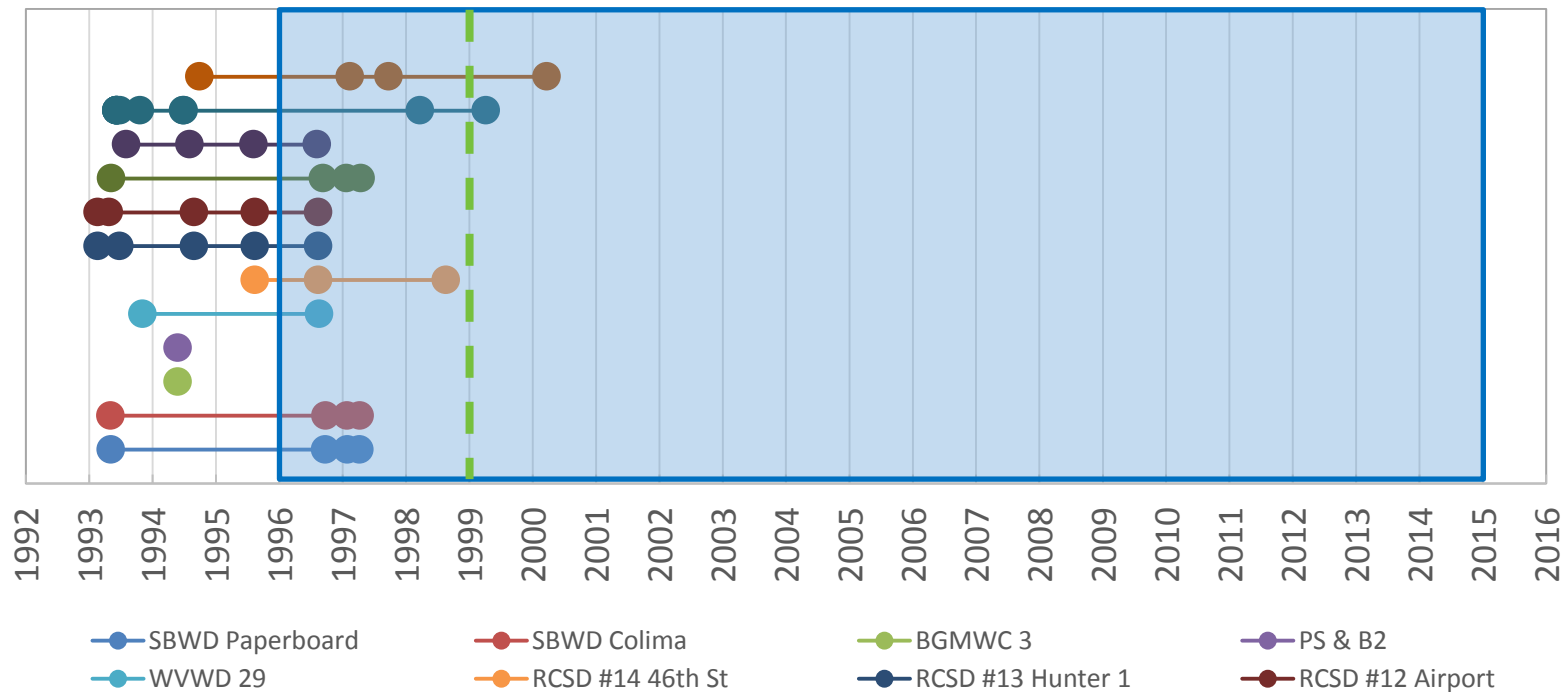
# High Priority Wells

## Well Attrition Analysis: Nitrate



# High Priority Wells

## Well Attrition Analysis: TDS



Questions?