



2020 GROUND WATER QUALITY MONITORING REPORT

South Platte Natural Resources District



JANUARY 6, 2020
REPORTED BY CHRIS KAISER

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Nitrates in Drinking Water

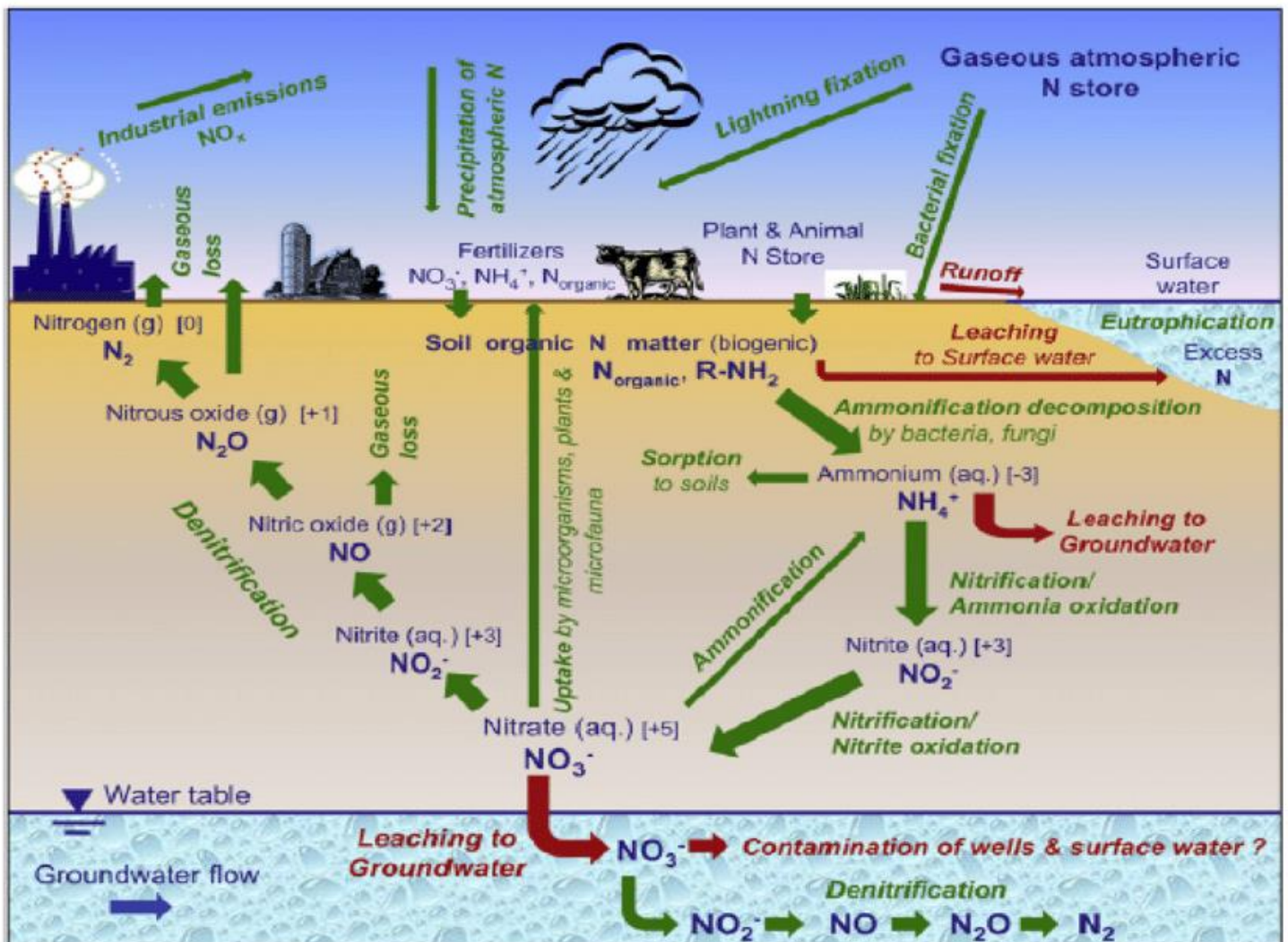
Nitrate levels are regulated within the SPNRD primarily because excess levels can cause methemoglobinemia, or “blue baby” disease. This sickness is extremely rare, but it is important to be aware of the risks. Nitrate levels that affect infants do not pose a direct threat to older children and adults until nitrate levels exceed 100 ppm, but the effect on any given person depends on many factors. (Source: Cornell University Cooperative Extension).

Methemoglobinemia is the most significant health problem associated with nitrate in drinking water. During the process of reduction, nitrite (NO_2) can be formed from nitrate (NO_3). When nitrite is present, hemoglobin (which is an iron based compound which carries oxygen) can be converted to methemoglobin (which cannot carry oxygen). When oxygen cannot be carried through the blood stream, the skin turns blue and brain damage or death can occur.

The current standard for nitrate in drinking water is set at 10 ppm. Because potential health risks are often unknown or hard to predict, many drinking water standards are set at some fraction of the level of “no-observed adverse health effects”. In general, the greater the uncertainty about potential health effects, the greater the margin of safety built into the standard.

Nitrate in groundwater originates primarily from fertilizers, septic systems, and manure. Nitrogen that is not taken up by plants, volatilized, or carried away by surface runoff can leach below the root zone in the form of nitrate and contaminate drinking water sources.

Nitrogen Cycle



Summary

This report summarizes the 2020 ground water quality monitoring program for the South Platte Natural Resources District (SPNRD).

The SPNRD has completed its thirty-second year of monitoring nitrates in the District. Of the 177 network wells, 151 were sampled at least once this year. This breaks down to 49 of 52 domestic wells, 60 out of 79 irrigation wells, 37 out of 38 dedicated monitoring wells, and five out of eight municipal wells. The municipal nitrate information is collected by the city of Sidney and they allow the NRD to use their data for this report. Some irrigation wells were unable to be sampled for the following reasons: enrolled in temporary deferment, EQIP practices, crop rotations, or the well is no longer being used. Some irrigation wells were not used very often, or not used at all throughout the last year. Most irrigation users have also gone to a set irrigation schedule which has made it difficult to catch those systems running.

There are 62 monitoring wells established on the tablelands that are not considered in the network. All these wells have been sampled within the last few years. Except for three wells, nitrate results in these wells fall between 1-3 parts per million (ppm).

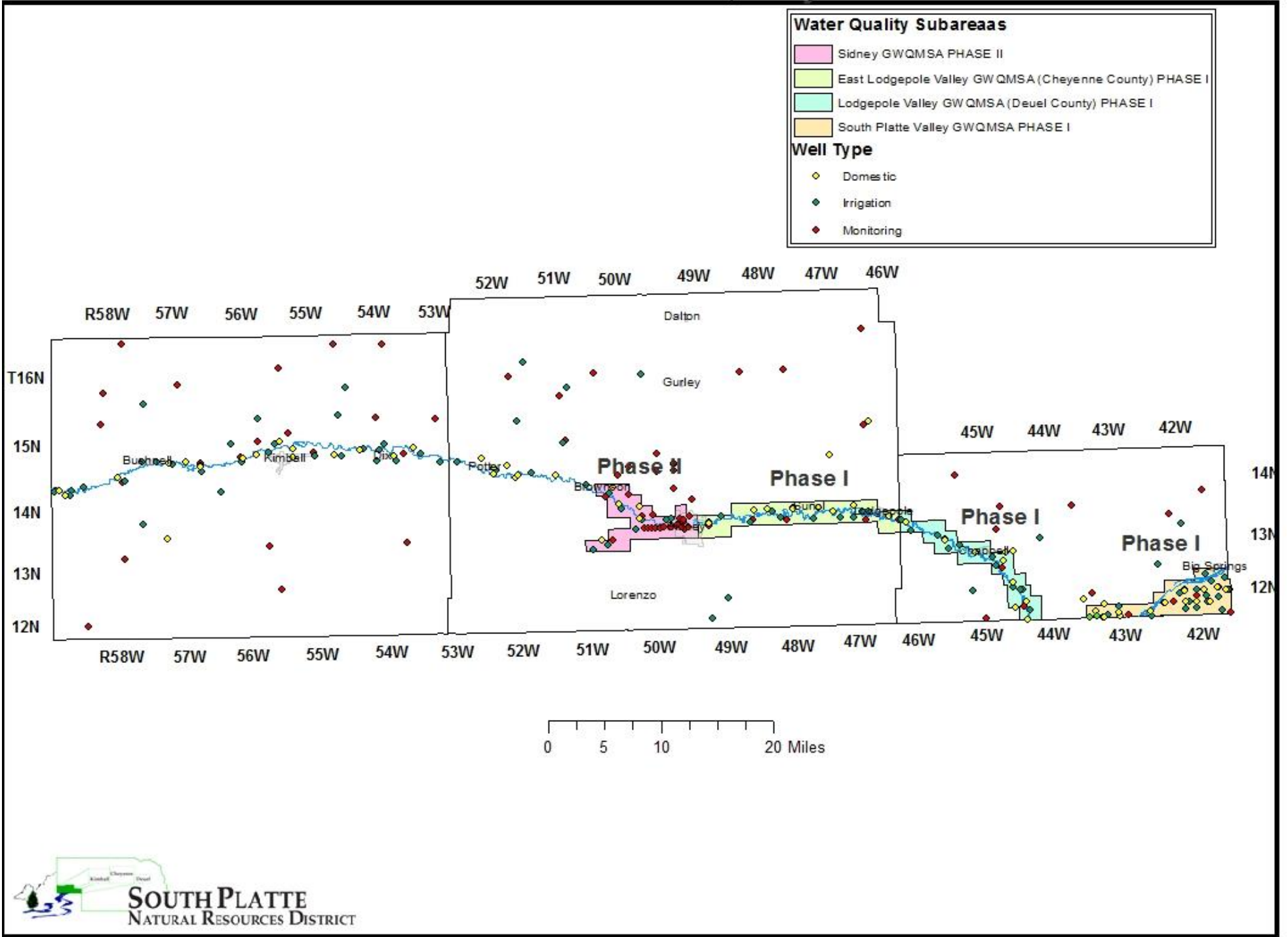
Quality Assurance/Quality Control (QA/QC) measures were followed during nitrate sampling. The primary method used for QA/QC was duplicate sampling. One duplicate was taken for every ten samples. The relative percent difference (RPD) was determined from the two duplicate samples. An average of this percent is then calculated for all the RPD's. This year's average was 1.8% for 23 duplicate samples. According to Ward Laboratories, the most precise data will fall within the 0-10% range.

Attached in this report is a map indicating the current SPNRD ground water quality management subareas and the management area phase those subareas are in.

Items to take into consideration when reviewing the following information obtained in this report:

- The Sidney GWQMSA is in a Phase II management control (three consecutive years over the 80% MCL trigger). Producers in this area are required to abide by the District's Nitrogen Reporting Program. This is the fourth consecutive year that this subarea has been over the 95% MCL trigger.
- The Sidney GWQMSA is projected to move into a Phase III management system beginning in 2022.
- This is the first consecutive year that the South Platte Valley GWQMSA has been over the 80% MCL trigger
- Nitrate levels have been steadily increasing in areas along the Lodgepole Creek in Kimball county between Pine Bluffs, WY and Bushnell. Currently, there are no ground water quality management areas designated in Kimball county.

SPNRD Ground Water Quality Subareas

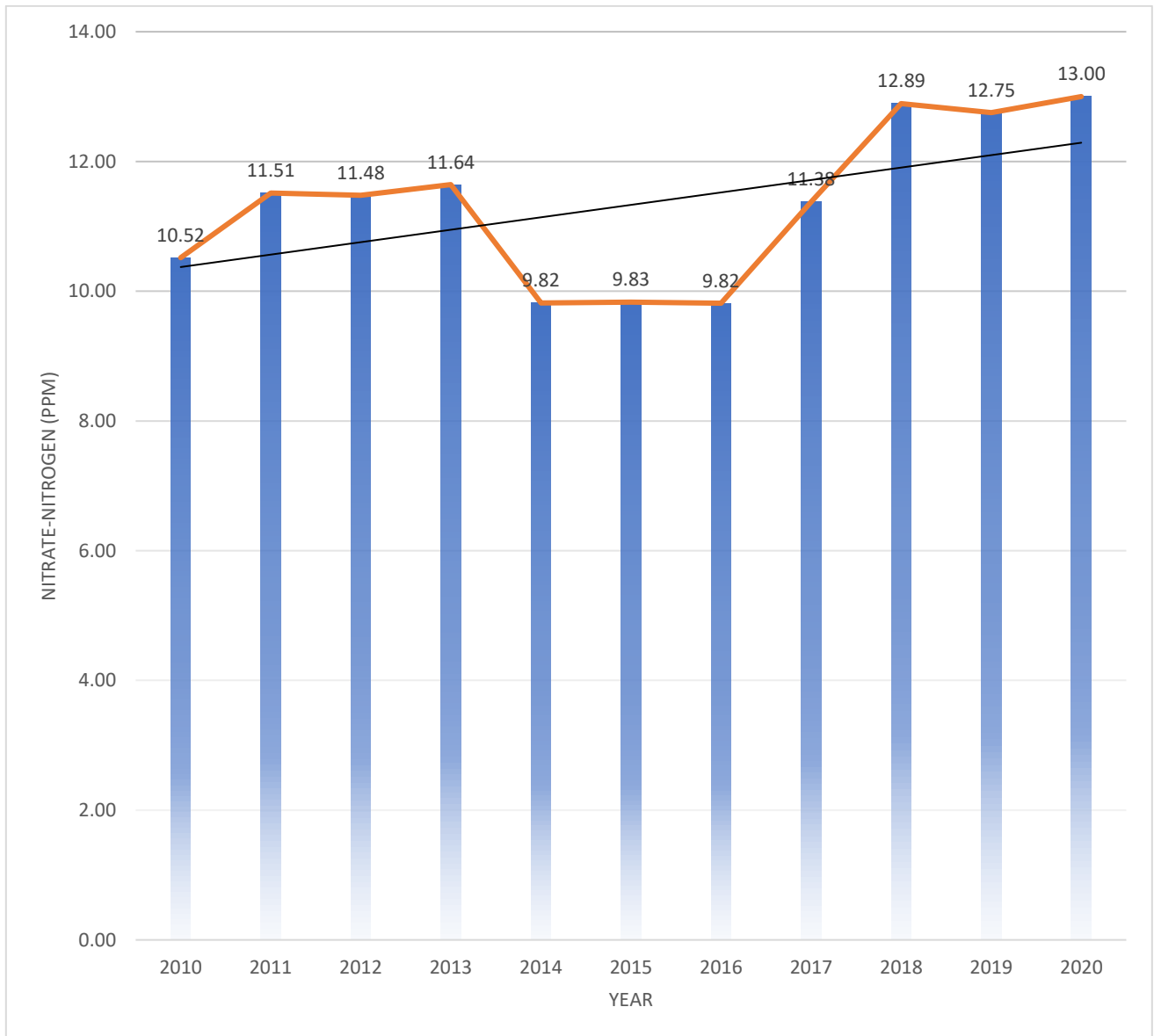


NITRATE AVERAGES FOR TARGET SUBAREAS OF THE DISTRICT

Target Area	2012	2013	2014	2015	2016	2017	2018	2019	2020
City of Sidney Municipal Wells	11.48	11.64	9.82	9.83	9.82	11.38	12.89	12.75	13.00
Sidney Draw Trigger Monitoring Wells	9.76	10.22	9.88	10.53	10.49	11.10	11.74	11.82	13.70
Sidney GWMA Network Wells	4.10	4.55	4.61	4.72	6.91	7.05	8.04	8.39	10.46
Composite Average SGWQMSA (Phase II)	8.70	9.03	8.01	8.40	8.97	9.77	10.56	10.55	12.16
East Lodgepole Valley GWMA Network Wells	7.92	7.42	6.31	7.34	7.56	7.44	6.99	6.64	7.60
East Lodgepole Valley Monitoring Wells	10.61	9.99	8.56	7.45	8.65	8.67	10.03	9.00	7.80
Composite Average East Lodgepole Valley GWQMSA (Phase I)	8.43	7.88	7.74	7.36	7.79	7.97	7.75	7.31	7.66
West Lodgepole Valley Cheyenne County	4.59	3.90	3.71	3.43	4.13	5.07	4.16	3.86	3.49
South Platte Valley GWMA Network Wells	8.40	8.63	8.97	8.75	9.79	8.50	9.29	9.02	10.32
South Platte Valley Monitoring Wells	4.87	5.90	5.32	4.73	4.42	3.90	3.82	3.92	4.87
Composite Average South Platte Valley GWQMSA (Phase I)	7.70	8.02	8.21	7.89	8.64	7.55	8.20	7.96	9.23
Lodgepole Valley (DC) GWMA Network Wells	7.01	5.69	6.16	6.36	7.73	6.90	7.21	6.76	6.61
Lodgepole Valley (DC) Monitoring Wells	5.41	5.73	5.23	4.90	3.88	3.10	3.03	3.40	3.78
Composite Average Lodgepole Valley GWQMSA Deuel County (Phase I)	6.68	5.70	5.93	6.00	6.70	5.73	6.01	5.80	5.98
Lodgepole Valley (KC) Network Wells	5.66	4.56	5.16	4.61	6.13	6.37	5.99	6.53	6.06
Lodgepole Valley (KC) Monitoring Wells	6.37	6.63	6.27	5.71	6.68	7.55	6.38	5.61	6.27
Composite Average Lodgepole Valley (KC)	5.21	5.42	4.84	5.18	6.26	6.61	6.07	6.31	6.10

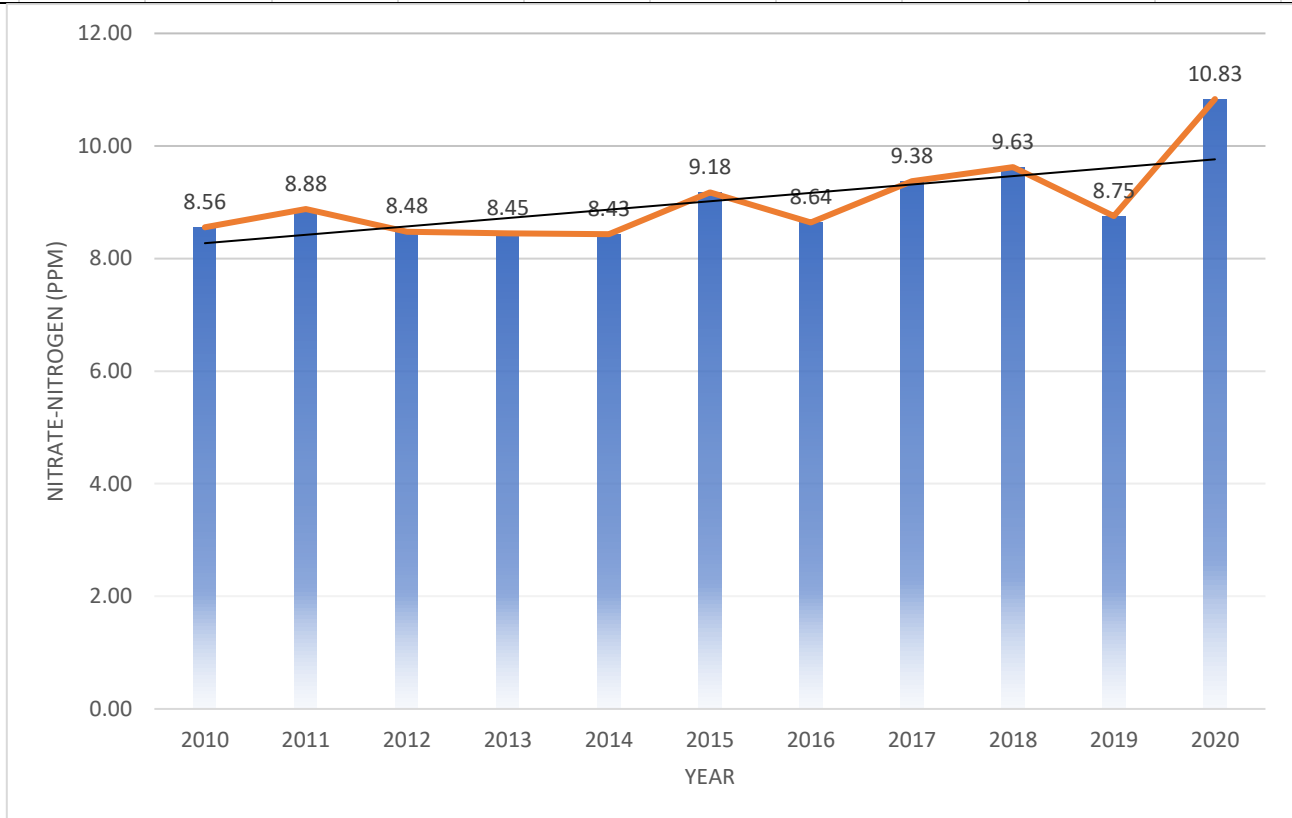
City of Sidney Municipal Nitrate-Nitrogen Levels

Well ID	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
SMW-1	12.47	13.75	13.63	13.85	10.42	10.85	11.87	13.95	14.26	13.65	13.72
SMW-2	12.07	13.65	13.50	13.90	11.49	11.53	12.10	14.29	14.36	14.31	15.35
SMW-3	13.10	14.00	14.20	14.70	11.44	11.60	10.51	14.30	16.16	16.09	15.85
SMW-4	8.23	8.90	8.53	8.75	8.23	8.11	7.30				
SMW-6	12.60	14.05	14.17	14.10	12.03	12.15	10.50	7.49			
SMW-7	10.13	11.25	10.80	10.35	9.06	8.35	9.90				
SMW-8	7.63	8.00	7.87	7.80	7.11	7.49	8.19	8.66	8.57	8.71	8.62
SMW-9	7.90	8.50	9.13	9.70	8.78	8.58	8.15	9.56	11.12	11.00	11.47
AVG	10.52	11.51	11.48	11.64	9.82	9.83	9.82	11.38	12.89	12.75	13.00



All Sidney Draw Monitoring Wells

Well ID	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
SD-1	8.96	7.90	7.30	7.50	8.11	7.70	9.80	8.10	9.30	7.10	8.40
SD-10	11.90	11.87	9.50	10.30	9.90	10.07	10.05	10.80	10.20	11.10	13.40
SD-12-D	12.13	12.20	12.09	12.52	12.30	12.60	11.20	12.10	12.80	14.80	15.90
SD-12-S	13.07	13.40	13.25	13.47	13.10	14.10	10.40	15.00	12.80	11.10	14.20
SD-15	5.60	6.93	7.37	3.87	5.18	5.50	3.95	4.10	4.10	3.40	3.90
SD-16	2.08	1.70	1.80	1.77	1.80	1.90	1.63	1.70	1.60	2.45	1.90
SD-2	5.78	7.97	6.00	6.95	6.80	11.30	10.65	8.10	7.70	6.60	10.20
SD-3	5.53	4.80	6.10	4.90	5.20	5.05	7.33	8.90	7.90	6.30	7.40
SD-4	7.92	7.37	8.00	8.60	8.24	8.95	11.35	12.40	13.70	10.90	11.50
SD-6	10.03	10.45	9.90	10.40	10.23	11.55	10.53	11.40	12.50	11.40	15.00
SD-7-D	9.07	9.65	9.32	9.30	8.74	9.50	9.30	8.80	9.50	10.90	12.70
SD-7-S	10.63	12.30	11.08	11.83	11.60	11.90	7.50	11.10	13.40	9.00	15.50
AVG	8.56	8.88	8.48	8.45	8.43	9.18	8.64	9.38	9.63	8.75	10.83

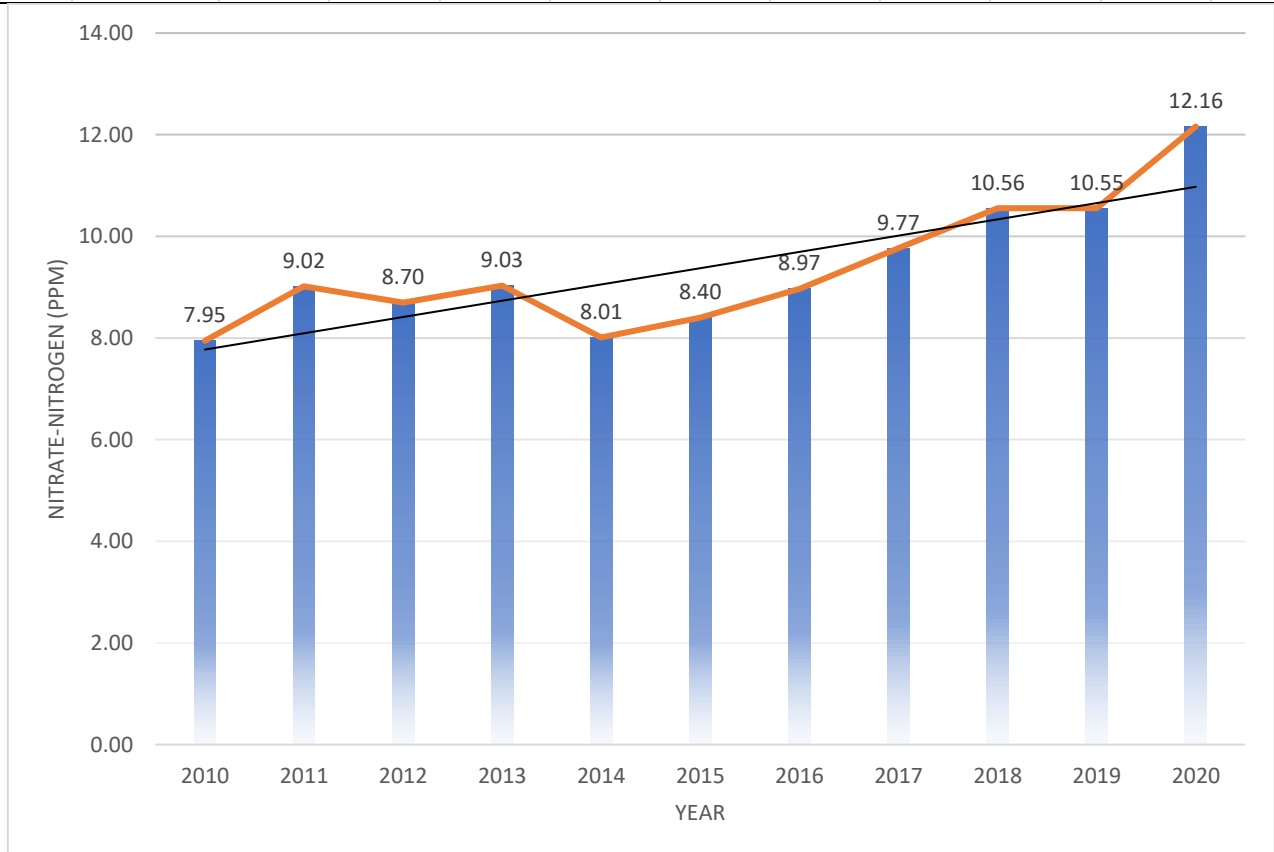


Wells Included in Triggers

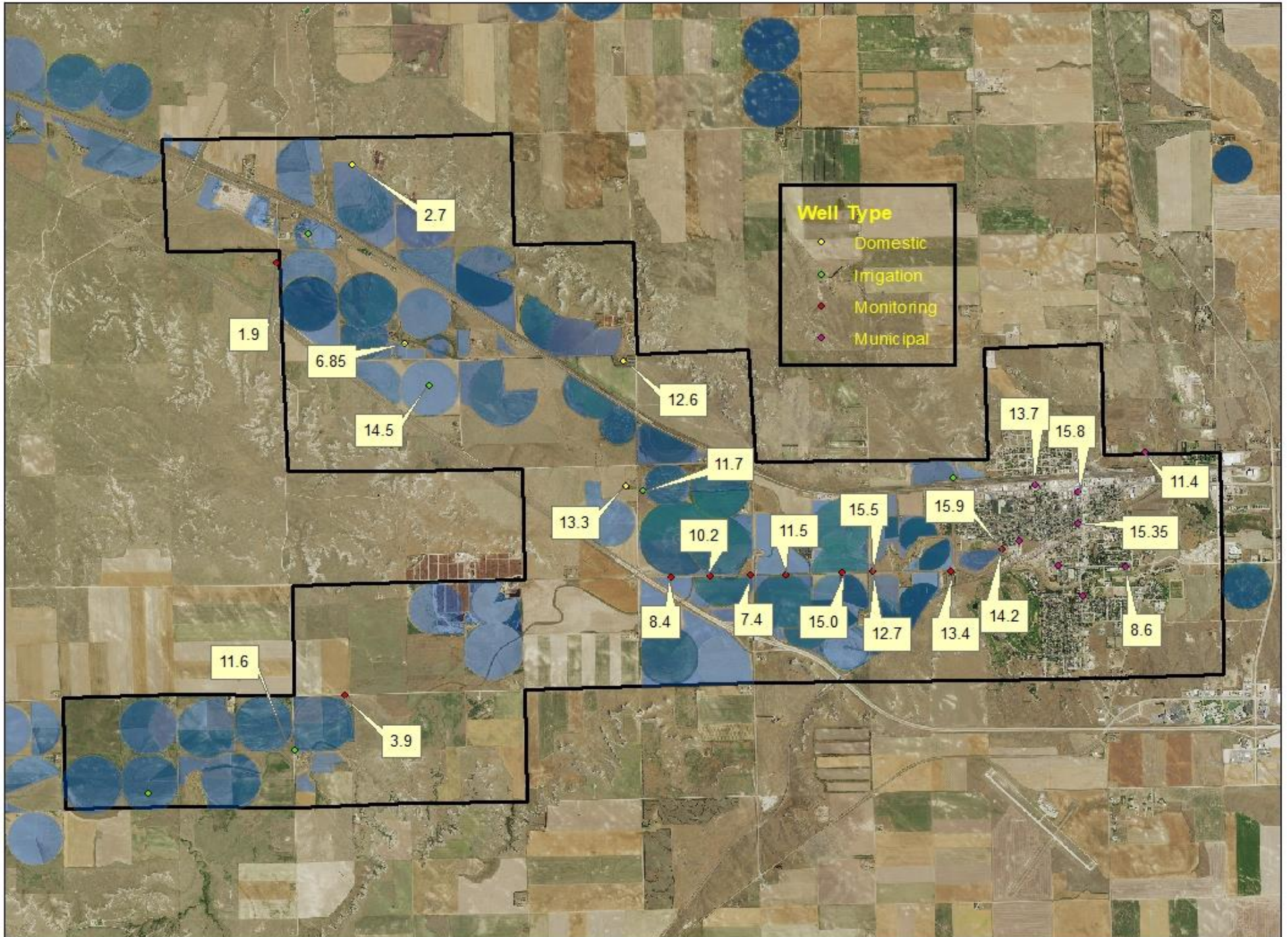
Well ID	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
SD-10	11.90	11.87	9.50	10.30	9.90	10.07	10.05	10.80	10.20	11.10	13.40
SD-12-D	12.13	12.20	12.09	12.52	12.30	12.60	11.20	12.10	12.80	14.80	15.90
SD-4	7.92	7.37	8.00	8.60	8.24	8.95	11.35	12.40	13.70	10.90	11.50
SD-6	10.03	10.45	9.90	10.40	10.23	11.55	10.53	11.40	12.50	11.40	15.00
SD-7-D	9.07	9.65	9.32	9.30	8.74	9.50	9.30	8.80	9.50	10.90	12.70
AVG	10.21	10.31	9.76	10.22	9.88	10.53	10.49	11.10	11.74	11.82	13.70

Sidney Ground Water Quality Management Subarea Composite Averages

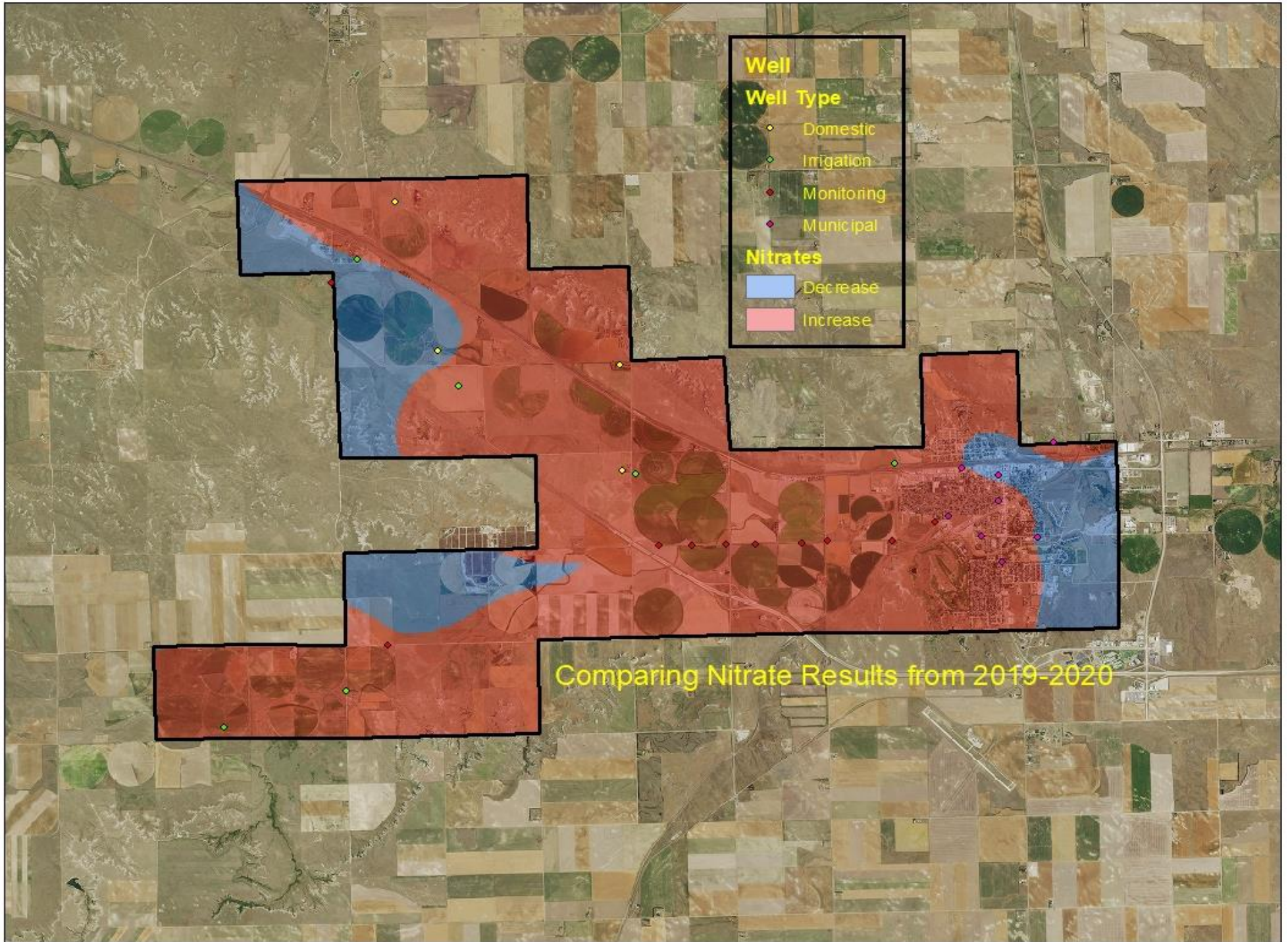
Well Type	Well ID	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Domestic	D068	1.15	6.20	1.00	2.95	0.95	8.40	7.05	8.15	6.85	9.20	13.30
	D060	1.35	1.35	1.10	1.55	1.20	1.05	0.95	1.70	2.30	1.20	2.70
	D058	4.43	5.00	6.90	5.95	7.40	5.45	6.45	6.60	9.50	8.27	6.85
	D069	5.55	5.30	5.70	5.15	5.95	5.30	10.05	6.65	8.65	6.80	12.60
Irrigation	I061			4.40	3.80	3.40	3.80					
	I063	1.90						5.40				
	I067	4.05	4.01		7.90				9.50	12.50	11.10	11.70
	I070										11.75	
	I064	5.30	5.90	5.50		4.50	4.30	8.40		7.10	7.40	11.60
	I059					8.90		10.10	9.70	9.40	11.40	14.50
Municipal	SMW-1	12.47	13.75	13.63	13.85	10.42	10.85	11.87	13.95	14.26	13.65	13.72
	SMW-2	12.07	13.65	13.50	13.90	11.49	11.53	12.10	14.29	14.36	14.31	15.35
	SMW-3	13.10	14.00	14.20	14.70	11.44	11.60	10.51	14.30	16.16	16.09	15.85
	SMW-4	8.23	8.90	8.53	8.75	8.23	8.11	7.30				
	SMW-6	12.60	14.05	14.17	14.10	12.03	12.15	10.50	7.49			
	SMW-7	10.13	11.25	10.80	10.35	9.06	8.35	9.90				
	SMW-8	7.63	8.00	7.87	7.80	7.11	7.49	8.19	8.66	8.57	8.71	8.62
	SMW-9	7.90	8.50	9.13	9.70	8.78	8.58	8.15	9.56	11.12	11.00	11.47
	Monitoring	SD-10	11.90	11.87	9.50	10.30	9.90	10.07	10.05	10.80	10.20	11.10
SD-12-D		12.13	12.20	12.09	12.52	12.30	12.60	11.20	12.10	12.80	14.80	15.90
SD-4		7.92	7.37	8.00	8.60	8.24	8.95	11.35	12.40	13.70	10.90	11.50
SD-6		10.03	10.45	9.90	10.40	10.23	11.55	10.53	11.40	12.50	11.40	15.00
SD-7-D		9.07	9.65	9.32	9.30	8.74	9.50	9.30	8.80	9.50	10.90	12.70
Average		7.95	9.02	8.70	9.03	8.01	8.40	8.97	9.77	10.56	10.55	12.16



Sidney Ground Water Quality Management Subarea

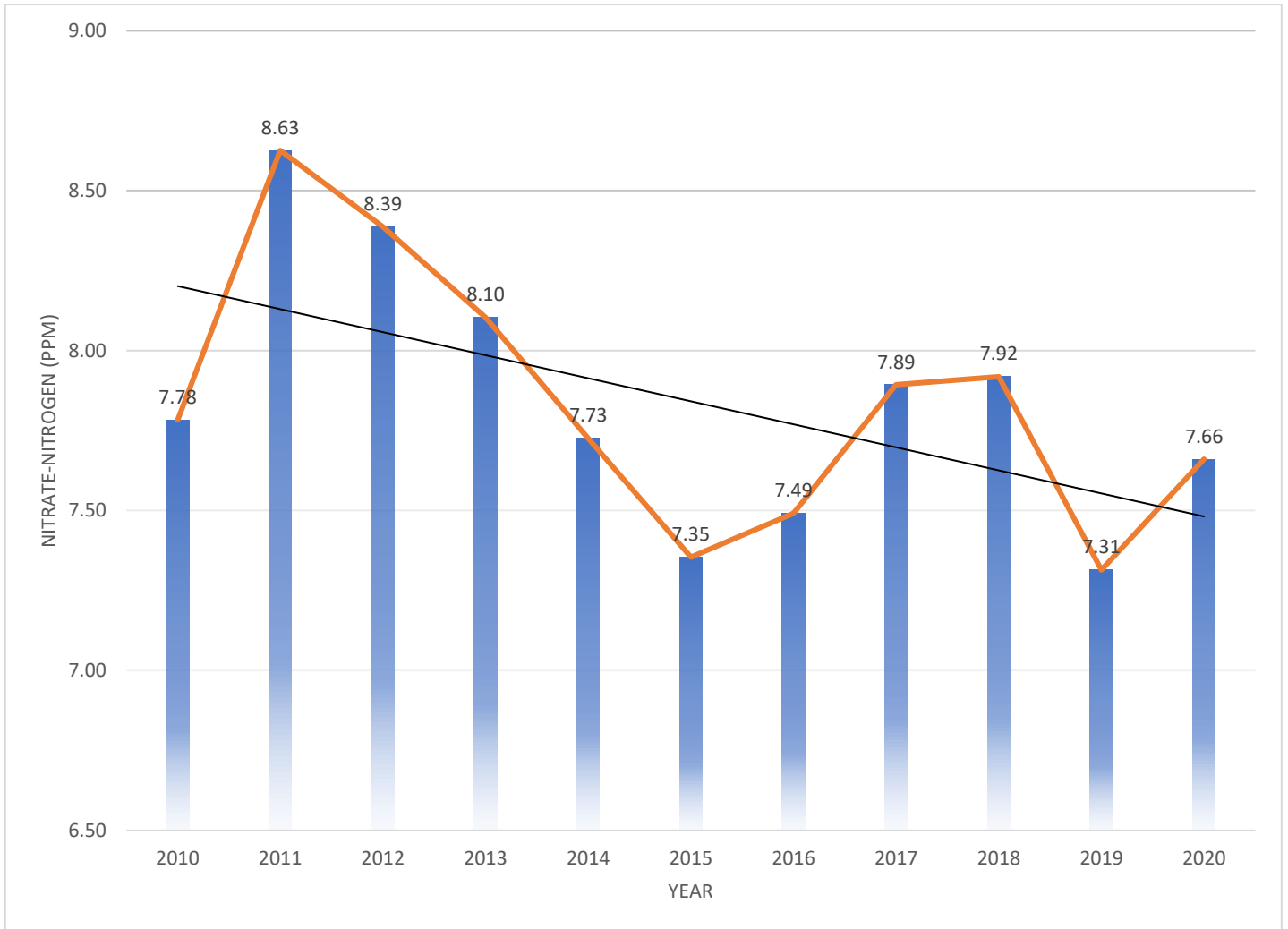


Sidney Ground Water Quality Management Subarea

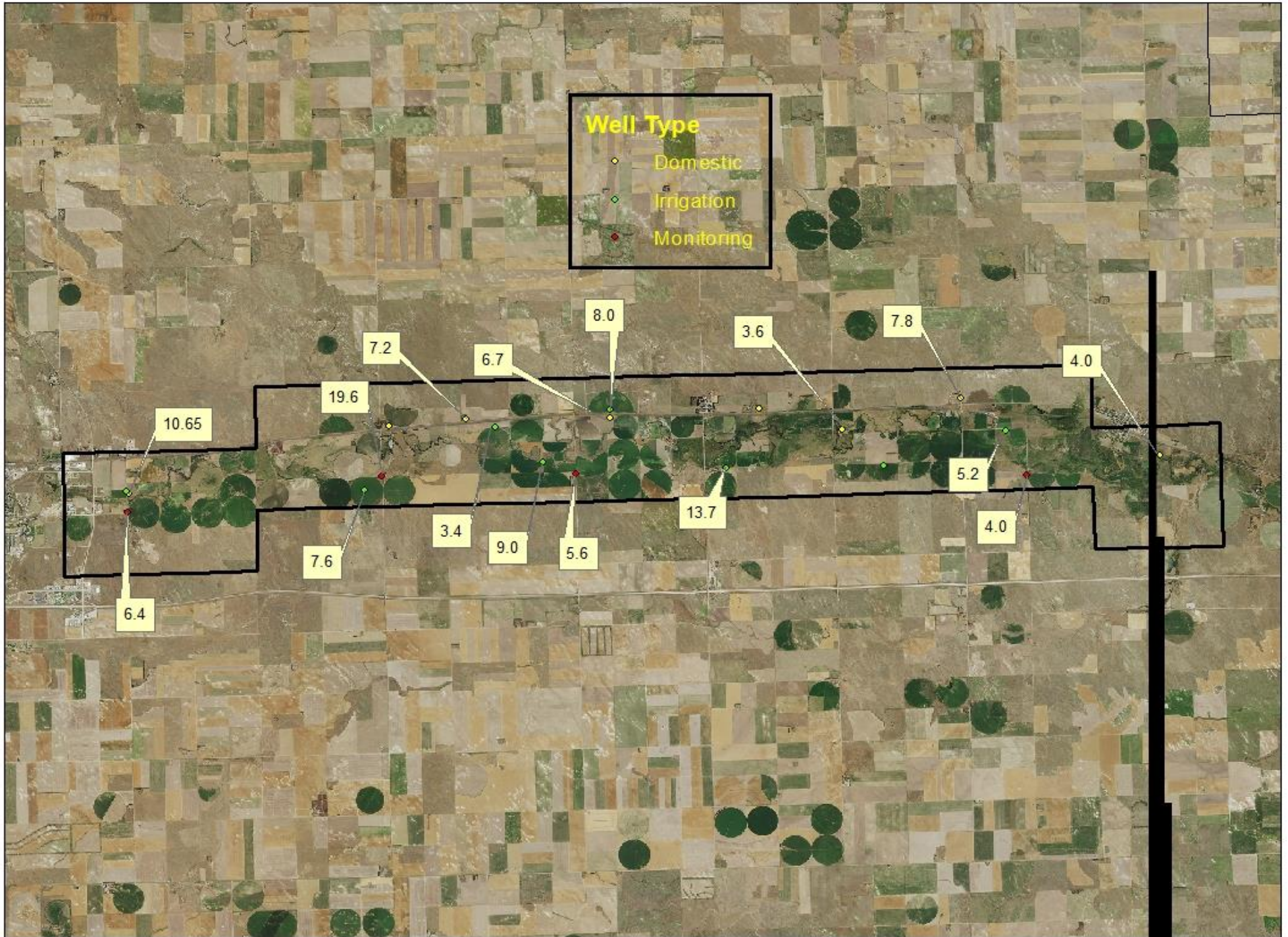


East Lodgepole Valley Ground Water Quality Management Subarea

Well Type	Well ID	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Domestic	D151	15.25	13.00	7.80	7.70	8.80	8.23	7.45	7.75	7.35	6.85	6.70
	D153	5.70	6.35	5.40	4.90	4.55	4.50	4.40	6.43	5.40	4.20	3.63
	D150	5.75	6.80	7.10	6.90	8.55	8.20	7.45	7.95	7.80	7.30	7.23
	D082	8.25	12.80	13.55	13.25	14.55	10.75	13.60	11.30	10.10	11.70	10.65
	D154	12.80	8.95	6.80	6.40	8.50	8.50	8.10	8.40	8.00	7.70	7.80
	D146	4.35	4.20	4.00	3.40	4.20	4.00	4.05	4.50	4.05	3.60	4.05
	D147	4.90	6.70	7.40	6.65	6.00			7.50			
Irrigation	I157	11.20	15.50	13.10	11.10	12.60	13.45	9.30	13.60	13.50		13.70
	I087	7.10	10.70	11.30	11.40	9.45	7.30	6.80	4.30	7.30		5.20
	I130			7.30	6.30	6.30	6.90	6.60	6.20		7.05	9.00
	I151	3.70	4.27	6.90	6.30	5.70	5.15	9.00		7.90	7.10	8.00
	I148	5.50	4.76	5.45	6.80	5.20	5.00	6.50	6.70	5.90		7.60
	I085	7.90		6.80	7.30	7.20	7.70	6.00	6.20	6.40	6.90	
	I083	9.70	9.21	10.00	12.80		10.20					
	I156	3.60	4.20	4.00	2.80	3.20	2.70	3.50	3.40	2.90	4.00	3.40
Monitoring	E-1	10.15	5.80	5.65	5.10	4.94	3.30	4.10	4.30	5.50	5.10	4.00
	E-2	7.80	5.85	14.05	6.85	6.50	6.00	5.80	5.40	6.00	6.40	5.60
	E-3	8.60	20.15	16.10	20.95	15.23	14.30	19.10	23.40	21.30	17.90	19.60
	E-4	7.85	7.40	6.65	7.07	7.60	6.20	5.60	6.85	7.30	6.60	6.4
Average		7.78	8.63	8.39	8.10	7.73	7.35	7.49	7.89	7.92	7.31	7.66

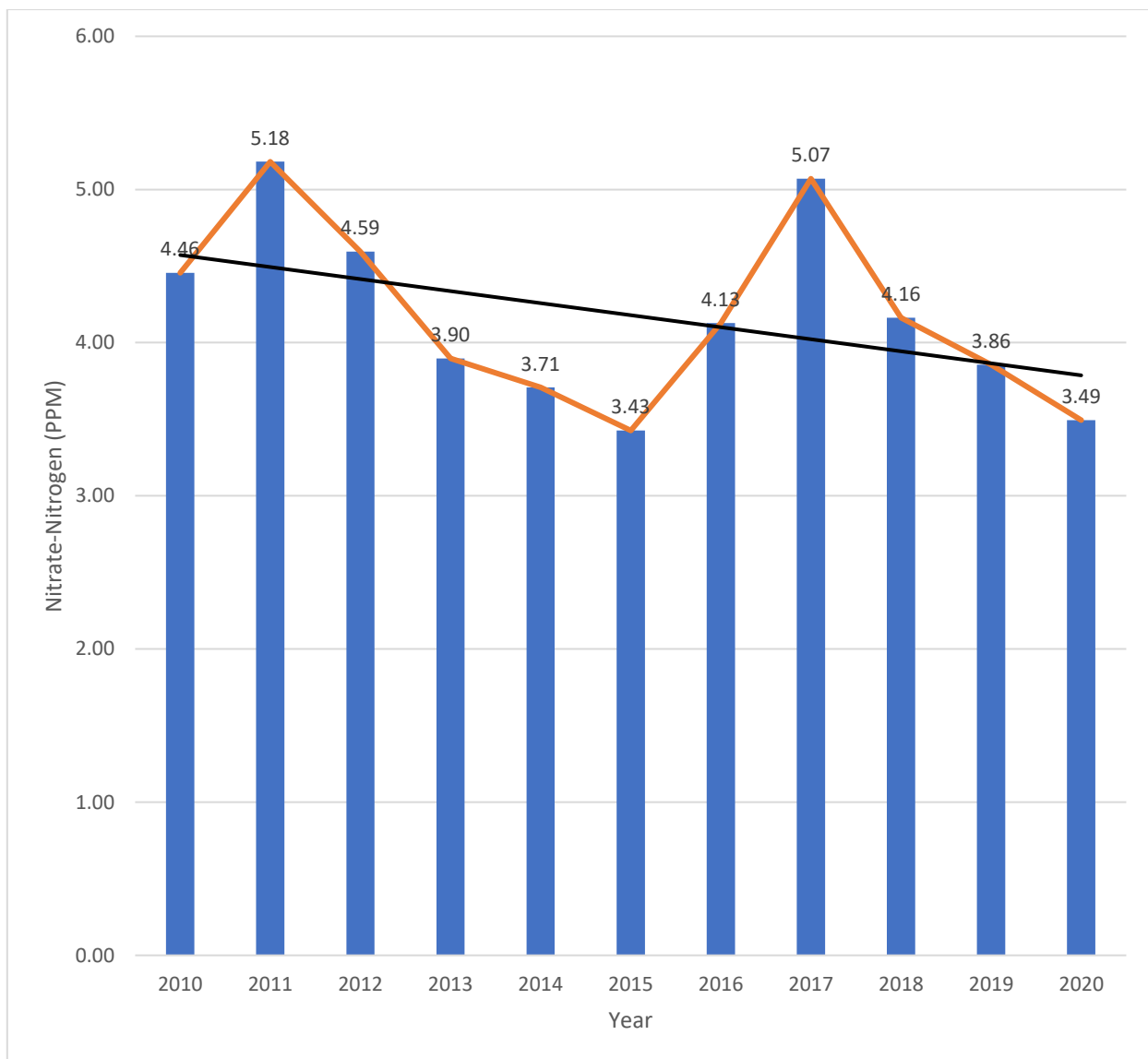


East Lodgepole Valley Ground Water Quality Management Subarea



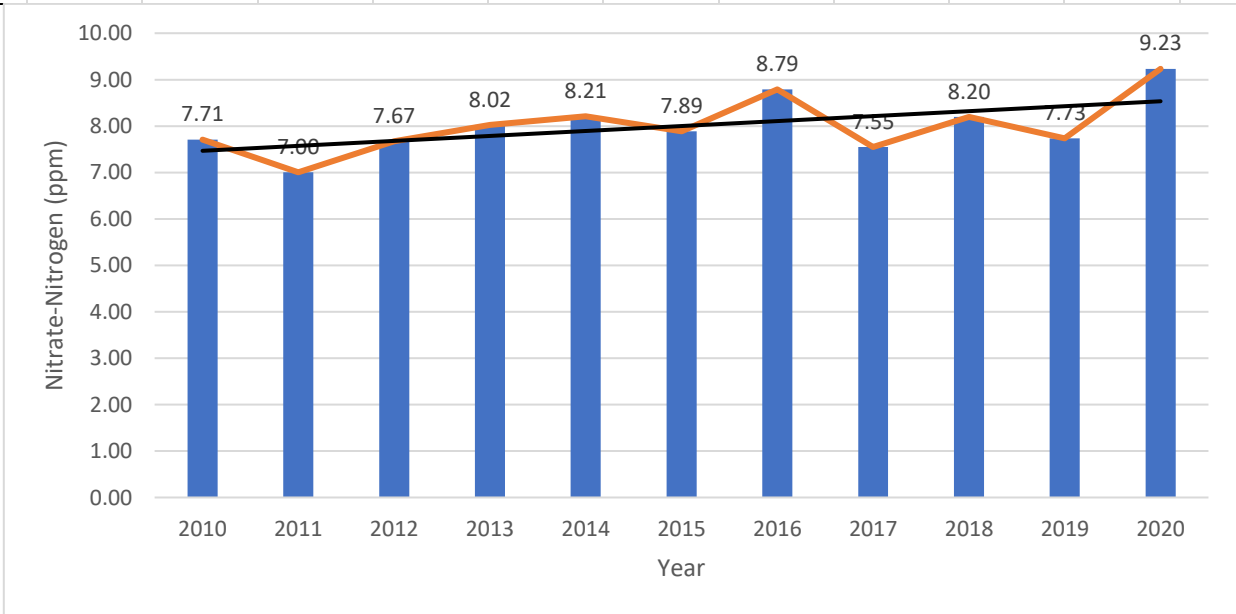
Cheyenne County West Lodgepole Valley

Well Type	Well ID	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Domestic	D051	10.75	9.90	13.00	10.25	7.70	5.13	6.20	6.80	6.90	5.80	3.70
	D048	4.40	4.20	4.10	3.60	3.50	3.25	3.35	3.90	4.50	3.80	4.10
	D056	1.80	1.60	1.40	1.37	1.35	1.30	1.27	1.97	1.70	1.60	1.60
	D053	1.55	1.40	1.70	1.55	1.45	1.35	1.20	1.70	1.60	1.30	3.50
	D049	6.85	15.10	4.55	4.20	6.47	7.55	8.10	14.90	6.70	7.65	3.40
Irrigation	I047			7.30	3.90	3.70		7.00	5.90	6.30	5.40	6.50
	I057	1.10	1.00	1.30	1.60	1.20	1.30	1.40	0.80	0.90	0.70	1.30
	I050	5.00	4.30	4.80	5.00	5.00	4.10	4.50	4.60	4.70	4.60	3.85
	I055	4.20	3.95	3.20	3.60	3.00						
Average		4.46	5.18	4.59	3.90	3.71	3.43	4.13	5.07	4.16	3.86	3.49

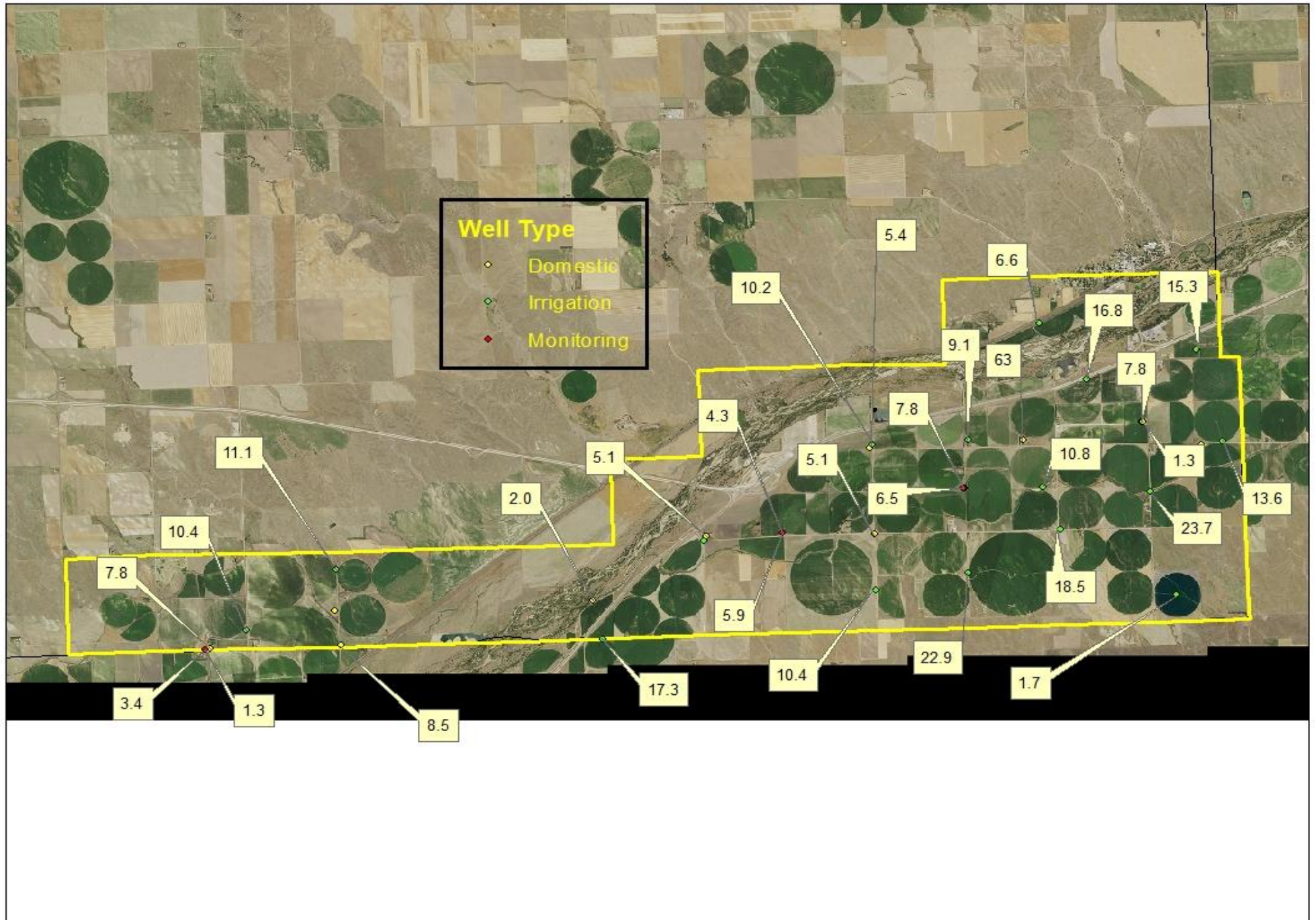


South Platte Valley Ground Water Quality Management Subarea

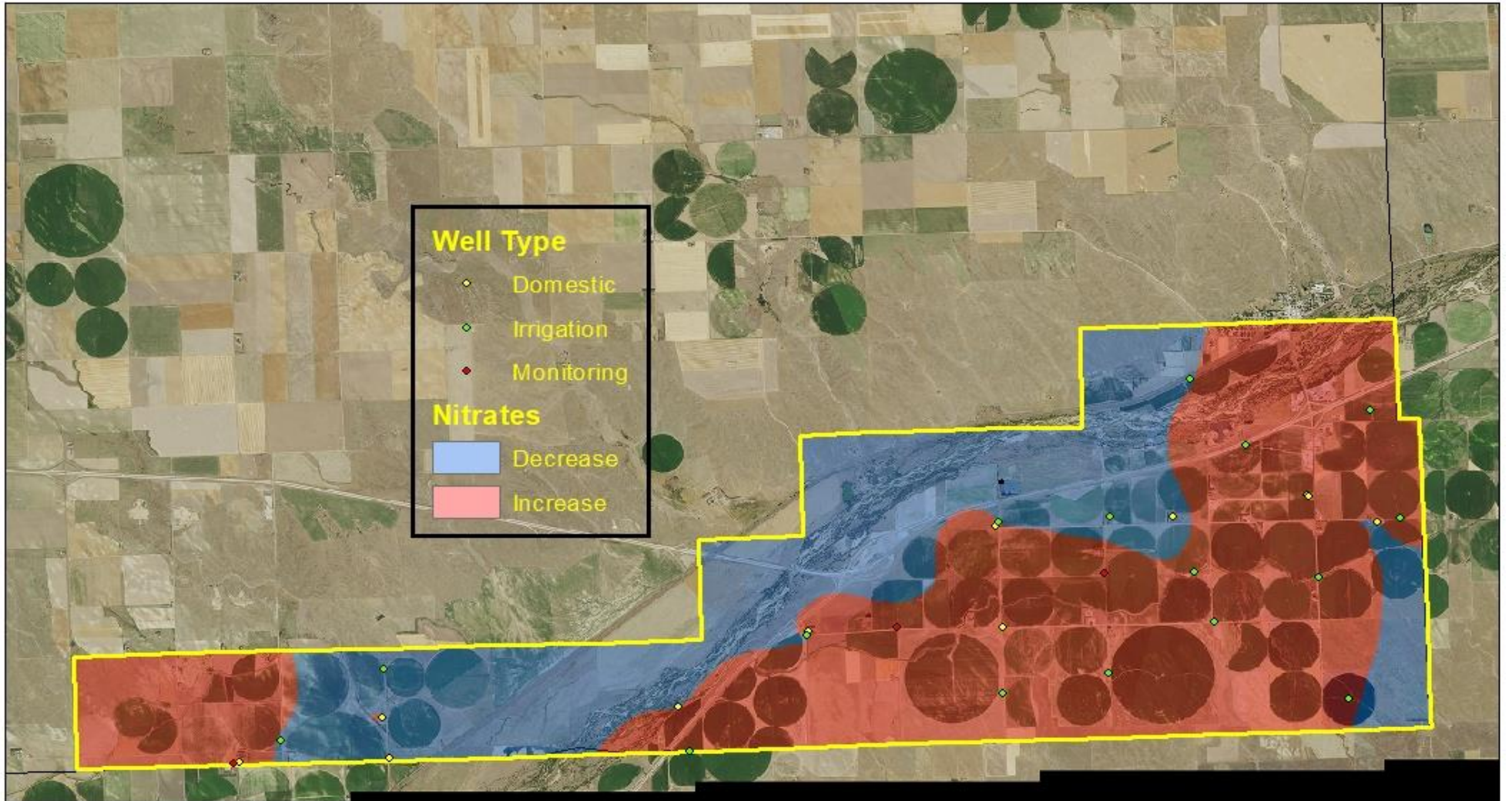
Well Type	Well ID	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
Domestic	D078	3.05	3.20	4.40	4.20	4.20		3.80		5.80	4.50	5.13	
	D077	3.50	4.00	4.10	5.10	4.60	5.95		4.70	4.85	4.35	5.40	
	D110	13.55		5.55	10.50	15.70	16.10	15.60	12.80	14.90	13.60	8.50	
	D076	8.35	9.80	7.93	7.33	10.20	9.00	8.25	7.97	8.15	7.10	6.30	
	D109	3.15	1.75	4.57	9.65	1.63	2.15	5.50	5.25	3.50	2.10	7.75	
	D111	18.70											
	D075	13.90	15.00	14.10	9.25	9.60	7.40	5.40	6.70				
	D100										10.60	1.10	7.80
	D074	1.50	1.45	1.30	4.70	1.30	1.15	5.30	2.10	1.15	1.10	1.10	1.35
	D113	2.25	1.95	5.07	2.70	2.30	1.40	1.95	2.43	2.80	2.13	2.00	
Irrigation	D079	8.25	6.95	3.00	3.95	4.80	4.10	3.60	4.60	3.55	4.25	5.15	
	I119	11.80	7.30	8.10	5.20	5.20	10.50	14.20	8.50	10.40	6.80	6.60	
	I139	9.40	6.20	8.00	8.10	11.90	12.70	13.90	8.40	11.30	10.50	10.20	
	I144	1.30	1.60	1.50	1.35	1.20	1.40	1.20	1.20	0.90	1.10	1.70	
	I112	7.40	7.28	7.60		19.60	16.20	16.90	12.20	11.50	16.20	11.10	
	I143	6.90	16.90	20.00	19.80	18.90	17.70	20.55	16.90	20.40	17.70	23.70	
	I114	7.00	6.87	6.70	6.50	6.20	5.50	11.00	10.00	12.40	12.07	17.30	
	I116	22.90	11.80	12.00					4.00	3.00	4.50	3.60	10.40
	I108	8.80	9.00	13.40	12.80	10.20	12.30		12.90	9.30	10.70	10.40	
	I118	5.50	7.00	6.50	7.50	5.40	5.20	7.20	6.40	6.20	10.80	15.30	
	I141	10.40		10.80	10.20	11.80	9.90	10.60	10.60	10.70	10.10	10.80	
	I138	8.20	7.70	7.90	6.80	6.40	6.20	8.60	7.90	9.50	10.20	9.10	
	I137	8.70	8.16	8.80	10.90	8.80	9.30	11.10	10.60	12.30	12.40	16.80	
	I142	14.20	13.10	14.40	18.60	19.70	15.40	20.00	15.70	17.70	16.50	18.50	
	I159		19.10	19.60	16.10	15.70	11.30	14.00	8.90	11.20	10.90	13.60	
I145	3.00	4.10	6.40		10.90	11.60	17.00	15.70	19.40	18.70	22.90		
Monitoring	D-3-M	7.12	6.00	8.70	10.40	10.42	9.40	7.60	5.70	5.10	5.10	7.80	
	D-3-S	5.50	7.80	7.65	8.05	7.90	4.60	3.50	3.20	4.20	5.90	6.50	
	D-4-M	4.58	3.20	3.70	4.25	3.80	6.60	6.50	5.20	6.40	6.10	5.90	
	D-4-S	3.50	4.60	1.79	3.05	2.80	5.20	3.80	6.20	3.50	3.10	4.30	
	D-5-M	5.87	2.30	3.65	7.10	4.90	1.55	3.90	1.90	2.80	2.50	3.40	
	D-5-S	2.97	2.00	2.95	2.55	2.11	1.05	1.20	1.20	0.90	0.80	1.30	
Average		7.71	7.00	7.67	8.02	8.21	7.89	8.79	7.55	8.20	7.73	9.23	



South Platte Valley Ground Water Quality Management Subarea

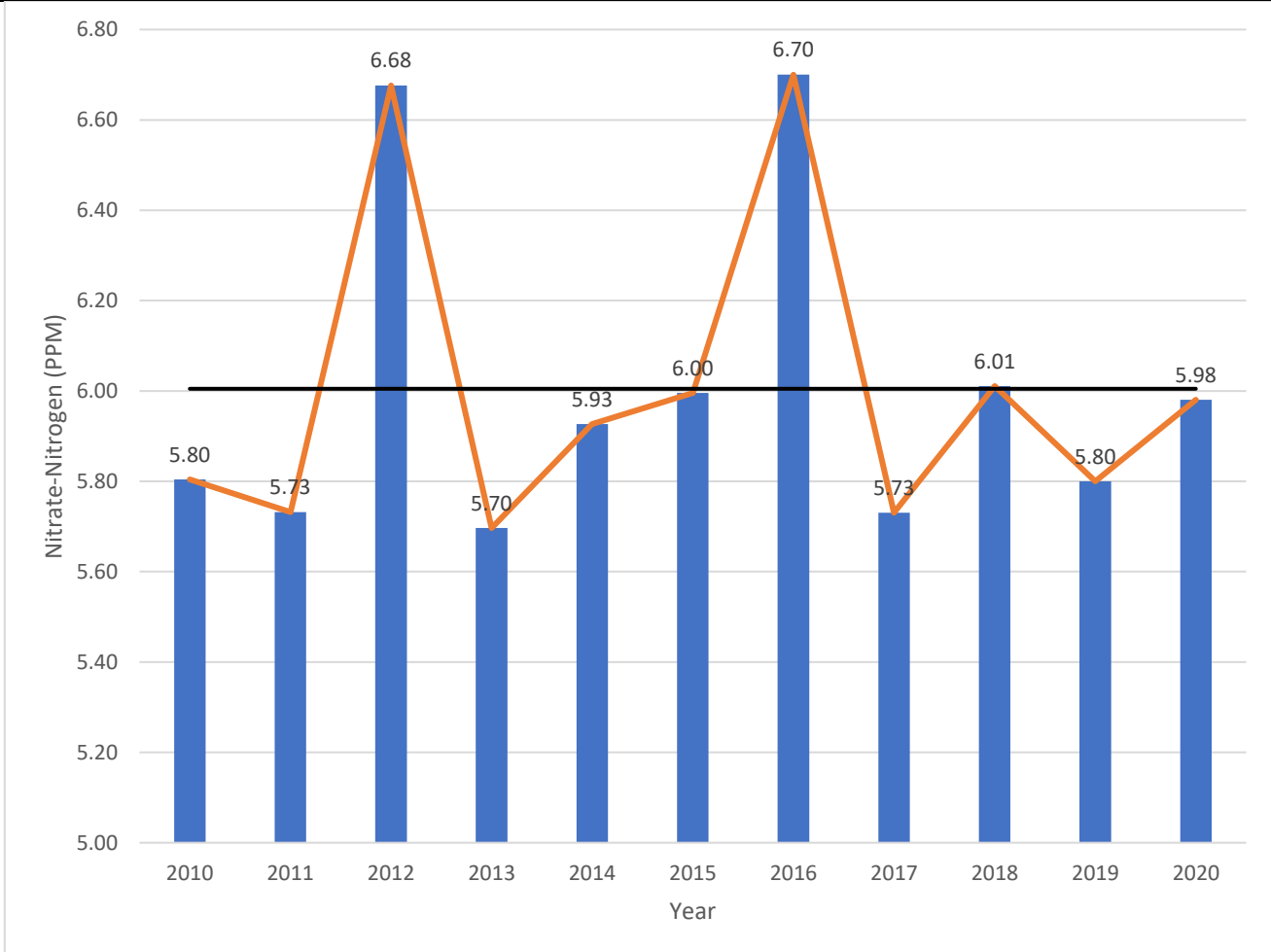


South Platte Valley Ground Water Quality Management Subarea



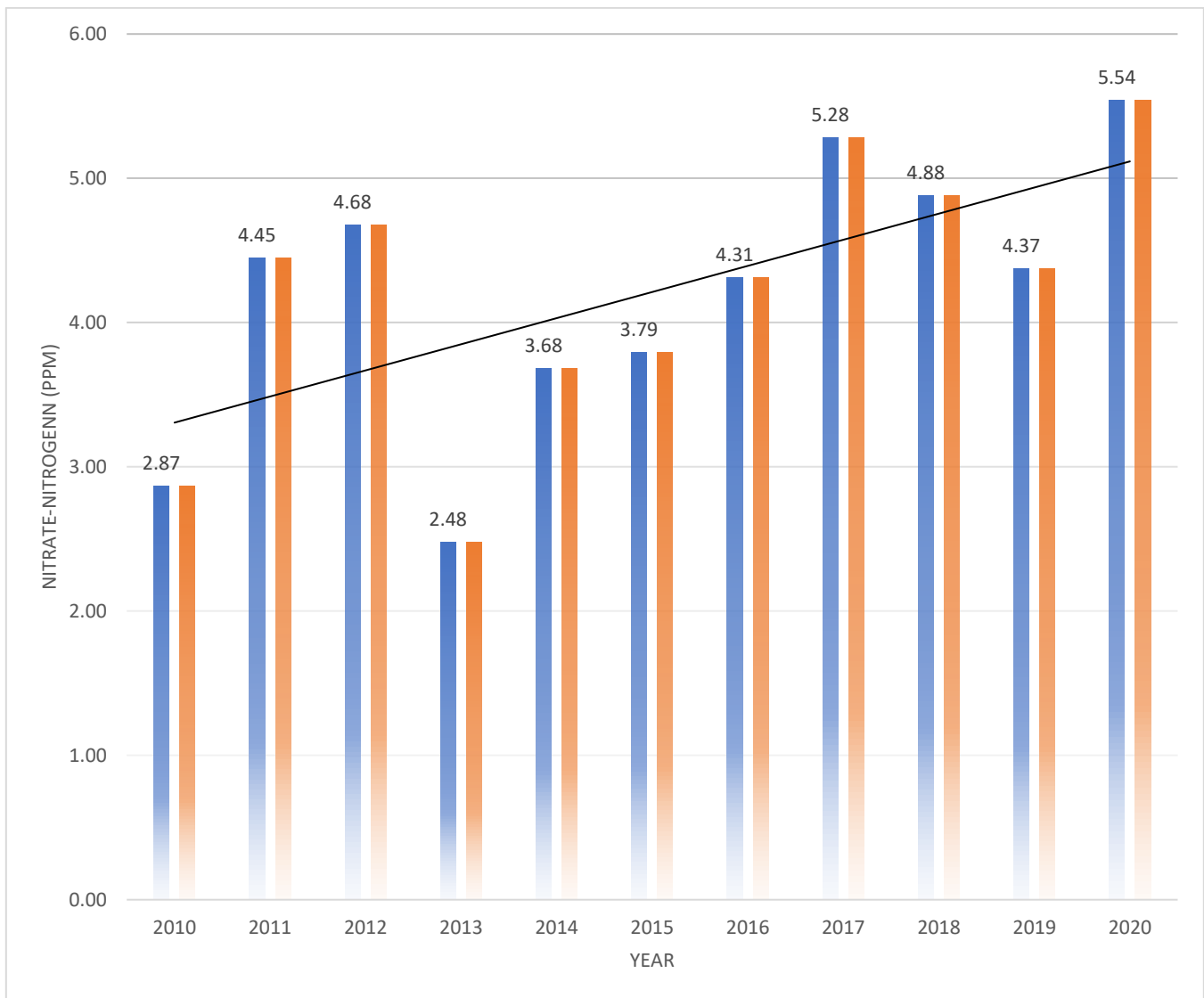
Deuel County Lodgepole Valley Ground Water Quality Management Subarea

Well Type	Well ID	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Domestic	D101	5.60	6.10	5.33	5.25	8.70	5.70	6.60	3.75	3.00	1.75	1.90
	D090	6.35	5.85	6.90	4.75	4.10	4.70	6.10	6.10	5.00	4.20	5.40
	D098	5.85	6.40	5.53	5.95	5.60	5.00	5.05	5.55	5.25	5.10	5.10
	D094	4.90	5.00	4.10	3.70	4.20	4.20	4.20		4.20	3.85	3.80
	D097	25.00	21.25	25.57	24.20	15.90	20.00	27.80	20.40	23.15	31.25	33.00
	D092	2.45	1.25	2.17	1.85	2.30	1.73	2.05	1.90	1.35	2.75	2.35
Irrigation	I088	2.20	2.50	2.80	3.50	2.60	10.90	10.30				2.50
	I089	3.60	4.20	4.70	4.10	4.60	4.30	4.30			4.50	5.30
	I158	3.50	3.39	9.70				1.90	4.30			6.60
	I095		7.95	8.20	8.10	7.90				8.40		
	I132				4.50		4.00	8.20	6.70	6.30	4.00	4.60
	I093	7.60	7.60	9.90	2.30	7.00	8.00	7.80	8.50	9.10	5.40	5.90
	I134	3.30	5.90	7.20	5.30	5.40	6.10	7.60	4.90	6.30	4.80	6.60
	I133	5.10		5.50	5.60	5.60		6.50				6.60
	I091	3.60	3.55	4.30	3.40		1.70					
I135	3.20	3.13	3.30	2.80							2.90	
Monitoring	D-6	8.25	6.25	9.00	10.45	9.10	7.40	3.30	0.90	1.10	2.80	4.10
	D-7	7.28	7.10	6.20	5.85	5.80	5.90	6.00	5.50	5.50	5.40	5.20
	D-8	2.78	2.10	2.45	2.60	2.10	2.30	1.90	2.10	2.00	1.80	2.10
	D-9	3.93	3.65	4.00	4.03	3.93	4.00	4.30	3.90	3.50	3.60	3.70
Average		5.80	5.73	6.68	5.70	5.93	6.00	6.70	5.73	6.01	5.80	5.98



Deuel County Tablelands

Well Type	Well ID	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Domestic	D106	3.37	2.90	2.95	2.65	2.70	2.30	2.50	3.30	2.80	2.30	2.80
	D155						6.90	10.40	10.70	9.30	10.50	15.30
	D095						6.35	6.30	7.50	7.85	6.90	8.00
	D107	3.30	3.15	2.95	2.67	3.00	2.65	2.50	3.00	2.75	2.45	2.45
Irrigation	I120		9.60	9.80		8.00		3.60				
	I072	2.50	2.15	3.00	2.60	2.90	2.80	2.90			1.80	2.70
	I102	2.30			2.00	1.80	1.75	2.00	1.90	1.70	2.50	2.00
Monitoring	DT-10										1.45	
	DT-12										1.9	
	DT-2										15.6	
	DT-6										1.3	
	DT-7										1.4	
Average		2.87	4.45	4.68	2.48	3.68	3.79	4.31	5.28	4.88	4.37	5.54



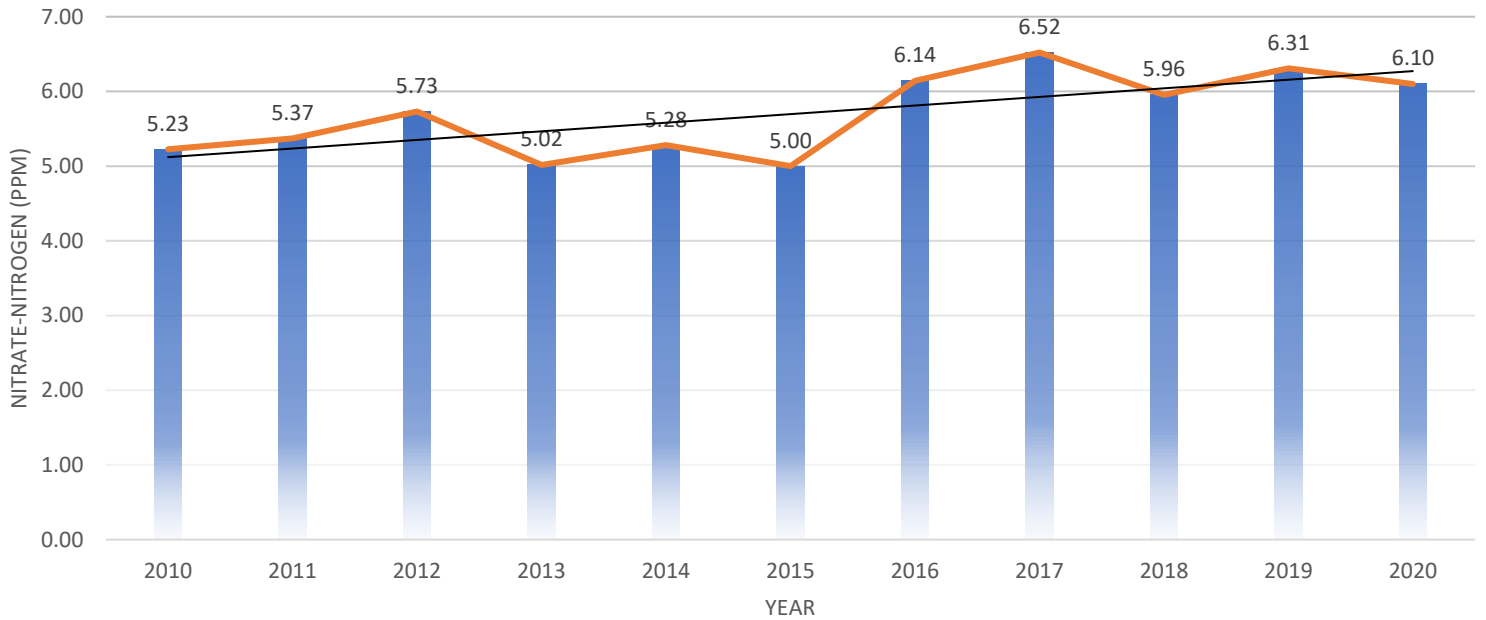
Cheyenne County Tablelands

Well Type	Well ID	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Domestic	D122	4.90	6.85	7.40	5.40	5.80	6.60	6.85	6.90	7.30	7.70	6.65	6.10
Irrigation	I129			3.42	3.80								3.60
	I128							3.50		3.30			
	I127		1.90					1.20	1.80	1.60			
	I126			1.48									1.3
	I123		3.10					1.30				1.20	
	I125								2.30	2.00	1.90		2.00
	I128							3.50		3.30			
Monitoring	CD-10-D		3.8								2.3		
	CD-10-S		4.1								1.1		
	CL-05-S		1								1.1		
	CL-09-S		2.7						1.3				
	CL-19-D		1										
	CT-01-D		1							3			
	CT-01-S		2.3							2.8			
	CT-02-D		2.8							1.9			
	CT-02-M		1.8							1.8			
	CT-02-S		1.7							1.9			
	CT-03-S		2.3							3.2			
	CT-06-S		1.3						1.4				
	CT07		1.9										
	CT-15-D		1.2							0.2			
	CT-15-S		1.6							1.3			
	CT-17-D		1.7								2.1		
	CT-17-S		2.6								1.4		
	CT-18		1.4								1.1		
	CT-20		1.9								2.5		
	CT-21		2.1								2.3		
	CT-24		1.8								1.6		
	CT-25		1.4								3.4		
	CT-30				2.3						1.7		
	CT-31				1.65						1.3		
	CT-32				2.6				1.9				
	CT-37				4				4.85				
	CT-38				4.7				5.6				
	CT-39-D				2						3.9		
	CT-43								2.8				
	CT-45											8.1	
Average		4.90	2.21	4.10	3.31	5.80	6.60	3.27	3.21	2.58	2.36	5.32	3.25

Kimball County Lodgepole Valley Composite Averages

Well Type	Well ID	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
	D017	0.30	0.30	0.27	0.15	0.15	0.10	0.10	0.15	0.30	0.10	0.15
	D003	3.80	4.40	4.80	5.30	5.40	5.65	7.10	9.20	10.00	10.90	11.50
	D027	5.83	6.30	6.40	5.80	5.65	5.83	5.85	6.30	6.05	6.90	7.60
	D018	1.35	3.50	0.90	2.85	0.70	0.70	1.53	0.77	0.90	0.60	0.40
	D030	8.35							10.95	10.05	9.85	10.30
	D038	5.70	8.10	5.40	3.80	4.55	4.20	6.20	7.80	3.77	4.10	3.95
	D004	6.80	6.85	7.32	7.77	7.97	8.10	9.40	11.90	14.40	18.85	18.50
	D029	4.35	6.10	4.40	3.40	4.30	7.37	7.20	6.80	5.95	5.35	3.90
	D014	8.35	6.90	7.30	6.05	5.40	6.00	6.23	9.45	6.40	8.45	7.55
	D007	6.55	5.30	4.90	5.25	5.65	5.10	5.90	6.00	4.60	4.45	4.80
	D022	4.05	4.00	3.97	4.05	4.05	3.90	4.15	4.70	4.40	4.20	4.45
	D016	0.65	0.80	0.80	2.25	2.30	1.80	0.20	0.20	0.25	0.10	0.20
	D043	8.70	5.65	6.20	6.20	7.30	8.00	7.70	10.45	10.95	11.23	12.05
	D044	12.40	14.20	12.60	10.13	11.03	10.45	13.73	11.00	9.35	8.50	9.53
Irrigation	I011											3.60
	I013	3.00	3.20	3.10				3.40	2.80	2.90	2.20	2.30
	I039		8.40	7.20	6.80					9.40		
	I005	4.60	5.20	5.70	5.30	5.20						6.40
	I006	6.15	5.98	6.20	6.30	7.20		9.00	9.80		13.50	14.10
	I002	4.90	5.70	5.40	5.20	8.90			6.10	5.20		
	I025	4.00	4.00	3.70	3.90	4.40						
	I023	3.30	3.10	2.70	2.40	2.20						2.80
	I028	6.90	6.52	7.70	5.30	5.40	4.90	7.90	6.60	7.20	6.90	6.5
	I041	2.10	4.58			2.70	2.80			3.10		3.60
	I046			7.00	2.40	2.70	2.20	2.50	3.00	2.50		2.50
	I008								2.60	2.20	2.70	2.4
	I037	5.70	6.00	6.15	5.80	4.80	5.10	6.30	6.60	7.20		7.95
	I001	6.30	2.70		4.60				9.90			
	I045	3.20	5.90	11.10	2.70	3.30	3.40	3.70	3.50	3.80		4.20
	I015	3.10	2.90	2.50	3.10	4.00	2.80	4.00	3.00	3.20	2.70	3.20
	I032							5.60	4.60	4.80		4.60
	I024	5.10	5.20	5.60	4.50	5.00	5.80	5.80	6.10	6.00		6.30
	I040	3.80	5.00	4.70	4.10	5.40	5.10	5.80	5.80	6.20	5.00	6.40
	I042	8.50	12.60	13.10	7.20	11.20		17.00	12.00	15.90	14.10	12.60
	I031	3.20	3.40	4.00	3.20	3.10		3.00	2.80	3.30	3.00	3.60
Monitoring	K-1-D	6.43	5.20	5.50	5.60	5.90	4.80	6.00	5.90	4.30	4.50	4.20
	K-1-S	9.70	9.30	10.80		9.20	8.10	10.50	8.90	8.50		
	K-2	10.20	9.60	10.00	11.60	11.21	7.30	8.10	9.40	5.60	5.50	5.40
	K-3	7.22	5.35	8.35	7.60	6.20	10.50	9.30	12.50	8.70	4.50	8.90
	K-4	1.93	1.80	2.80	4.20	3.84	2.50	1.95	3.60	2.40	5.10	5.10
	K-5	3.13	2.50	2.70		2.62	2.40	2.50	2.60	2.30	2.60	3.10
	K-6-D	4.40	3.80	5.43	5.40	5.50	5.00	6.87	8.00	8.20	7.90	8.40
	K-6-S	4.53	3.80	5.40	5.40	5.70	5.10	8.20	9.50	10.10	9.20	8.80
Average		5.23	5.37	5.73	5.02	5.28	5.00	6.14	6.52	5.96	6.31	6.10

KIMBALL COUNTY LPV COMPOSITE AVERAGES



Kimball County Tablelands

Well Type	Well ID	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Irrigation	I035	2.30	2.17	3.10	3.00	2.50	2.40	2.20			2.30	
	I034	2.70	2.67	2.90	2.50	2.90	2.80		2.60			2.6
	I020	3.30	2.90	2.30	2.55	2.50	2.70	2.50	2.30	2.60	1.20	1.5
	I009	4.70	4.30	3.80	3.70	5.20	4.00	4.50				
	I012	2.50	2.50	2.80	2.30	3.00	3.80		3.20	3.25	3.60	3.30
Monitoring	KT-10			4.4				4.1				
	KT-11							3.6				
	KT13							1.1				
	KT-14							1.9				
	KT-15							2.3				
	KT-16							2.9				
	KT-3			2.8				2				
	KT-4-D							1.5				
	KT-4-S							1.8				
	KT-5			1.1				0.8				
	KT-6			3				2.4				
	KT-7			2.9				2.6				
	KT-8			4.4				3.8				
	KT-9			4.3								
Average		3.10	2.91	3.15	2.81	3.22	3.14	2.50	2.70	2.93	2.37	2.47

Kimball County Composite/Tableland Map

