



Figure 1. Site map for Deer Creek

Table 1. Deer Creek data

Site ID:	Site Description: Deer Creek (DC)	Conductivity (µS/cm)		Pathogens (MPN/100mL)				Discharge (cfs)
				Coliform		E. coli		
		Pre (5/17) and Mid storm event (5/20)	Pre	Mid	Pre	Mid	Pre	Mid
DC1	DC into Chatfield Reservoir	1180	1320	43.8	243	9.4	10	0.30
DC2	DC at Hildebrand Ranch Park	1020	672	10.1	19900	---	301	2.34
DC2A	Plymouth Creek into DC	634	---	37.7	1340	---	10	---
DC4	DC at South Valley Park	1310	---	122	---	1	---	---
DC2B	Wildcat Gulch into DC	477	---	62.1	---	5.2	---	---
DC2C	Coleman Gulch into DC	543	---	870	---	---	---	---
DC3	North and South DC Confluence	388	459	387	281	88	223	---
DC3A	Switzers Gulch into North DC	506	522	1730	1010	7.5	631	---

Key Findings

- FIB concentrations decrease at sites approaching Chatfield Reservoir
- Conductivity increases at sites approaching Chatfield Reservoir.
- Zinc levels exceed CDHPE chronic level for 13 samples and 3 additional samples exceeded EPA aquatic life chronic zinc levels.
- Data shows large accumulations of total phosphorus in soil for the entire watershed.

Recommendations

- Monitor pathogens along Deer Creek, primarily at sites DC2 and DC3A.
- Add a stream gage to compare with future field session measurements.
- Remove sources of large rusting metals, and trash in Deer Creek.
- Inspect for faulty septic tanks of adjacent houses for DC3.
- Investigate water parameters at culverts and confluences that converge with Deer Creek (Mill Creek and Dunnman Gulch).
- Investigate Zinc sources along Deer Creek.
- Come back in June or July to see how the snowmelt impacts the water quality of Deer Creek, specifically Phosphorous.

Table 2. Deer Creek Toxicity Assessment

[1] US EPA National Recommended Water Quality Criteria - Aquatic Life Criteria Table
 [2] US EPA National Recommended Water Quality Criteria - Human Health Criteria Table
 [3] US EPA Drinking Water Standards
 [4] US EPA Secondary Standards
 [5] CDPHE (reg 38)
 [6] USDA Livestock
 N/A = not applicable or no results
 BDL = Below detection limit

				Metal and Anions Concentrations (mg/L)										Pathogens (cfu/100 mL)	
				Standards	Al	As	Cu	Fe	Mn	Total P	Se	Zn	Cl-	Coliform	E. Coli
				EPA Aquatic Life Chronic [1]	N/A	0.15	N/A	1.0	N/A	N/A	N/A	0.12	230	N/A	N/A
				EPA Aquatic Life Acute [1]	N/A	0.34	N/A	N/A	N/A	N/A	N/A	0.12	860	N/A	N/A
				EPA Human Recreation and Fishing [2]	N/A	1.8E-05	1.3	N/A	0.05	N/A	0.17	7.4	N/A	N/A	N/A
				EPA Drinking Water [3]	N/A	0.01	1.3	N/A	N/A	N/A	0.05	N/A	N/A	N/A	N/A
				EPA Secondary Drinking Water [4]	0.05	N/A	1	0.3	0.05	N/A	N/A	5	250	N/A	N/A
				CDPHE Chronic [5]	N/A	2.0E-05	0.006	WS	1.43	0.11	0.005	0.008	250	200	126
				CDPHE Acute [5]	N/A	0.34	0.009	N/A	2.59	N/A	0.018	0.11	N/A	200	N/A
				USDA Livestock [6]	5	0.01	0.5	0.3	0.05	N/A	0.05	25	1500	200	N/A
				Detection Limit	0.004	0.017	5.0E-04	3.0E-04	1.0E-04	0.029	0.011	3.0E-04	0.1	1	1
Sample Type	Site	Test	Date	Location	Al	As	Cu	Fe	Mn	Total P	Se	Zn	Cl-	Coliform	E. Coli
Water	DC1	ICP	17-May	39°32.755N 105°05.201W	BDL	BDL	BDL	0.014	0.075	BDL	0.014	0.009	158	43.8	9.4
	DC2		17-May	39°33.129N 105°06.679W	BDL	BDL	BDL	0.014	0.008	BDL	0.021	0.010	150	10.1	N/A
	DC2A		17-May	39°33.127N 105°06.680W	BDL	BDL	0.002	0.014	0.009	BDL	BDL	0.008	318	37.7	N/A
	DC4		17-May	39°33.083N 105°08.431W	BDL	BDL	BDL	0.017	0.035	BDL	BDL	0.009	145	122	1
	DC2B		17-May	39°32.657N 105°10.055W	BDL	BDL	0.002	0.011	0.005	BDL	BDL	0.010	75.2	62.1	5.2
	DC2C		17-May	39°32.441N 105°10.499W	BDL	BDL	0.001	0.003	0.001	BDL	BDL	0.009	43.4	870	N/A
	DC3 (north)		17-May	39°32.293N 105°11.158W	BDL	BDL	0.002	0.014	0.002	BDL	BDL	0.008	61.8	387	88
	DC3 (south)		17-May	39°32.242N 105°11.216W	BDL	BDL	0.002	0.011	0.002	BDL	BDL	0.009	73.5	N/A	N/A
	DC3A		17-May	39°32.202N 105°11.543W	BDL	BDL	0.001	0.007	0.003	BDL	BDL	0.008	61.9	1730	7.5
Soil	DC1	TCLP	17-May	39°32.755N 105°05.201W	0.049	0.028	BDL	0.057	5.62	0.508	0.055	0.123	N/A	N/A	N/A
	DC2B		17-May	39°32.657N 105°10.055W	0.300	BDL	0.020	0.275	2.20	0.453	0.037	0.146			
	DC3A		17-May	39°32.202N 105°11.543W	0.107	0.018	BDL	0.103	3.37	BDL	0.045	0.291			
	DC2A (Plymouth)		17-May	39°33.127N 105°06.680W	0.037	0.020	BDL	0.044	1.64	0.208	0.035	0.021			
	DC2A (Deer Creek)		17-May	39°33.127N 105°06.680W	0.050	BDL	BDL	0.074	1.40	0.267	0.029	0.026			
	DC1	CDMG	17-May	39°32.755N 105°05.201W	0.010	BDL	0.017	0.027	0.023	0.651	0.018	0.008			
	DC2B		17-May	39°32.657N 105°10.055W	0.362	BDL	0.060	0.409	0.093	1.20	BDL	0.013			
	DC3A		17-May	39°32.202N 105°11.543W	0.020	BDL	0.010	0.042	0.010	0.472	BDL	0.009			
	DC2A (Plymouth)		17-May	39°33.127N 105°06.680W	0.362	BDL	0.018	0.360	0.052	0.442	BDL	0.015			
	DC2A (Deer Creek)		17-May	39°33.127N 105°06.680W	0.500	BDL	0.015	0.468	0.022	0.454	BDL	0.011			