



**2008
City of Fort Collins
Lower Cache la Poudre
River
&
Urban Creek
Water Quality Report**



2008 Lower Poudre River & Urban Creek Water Quality Report

Executive Summary:

This 2008 Lower Poudre and Urban Creek Water Quality Report provides a water quality-focused summary of the scope, status and trends of the City's monitoring efforts on the Cache la Poudre River and three urban creeks in our community. Key stormwater quality enforcement and improvement efforts, regulatory requirements, activities and associated compliance and non-compliance issues are also highlighted. Details on river and creek monitoring site locations, test parameters, key results and trends are presented. It must be noted, however, that aspects of this report are limited in scope: flow and water quality are just two of many key factors that influence and reflect the health of a river or creek. Other factors include man-made changes and activities as well as stream geomorphology and the abundance and diversity of its biological community. The ability of the biological community in a stream to survive and thrive is dependent, in part, on the quantity, quality and physical characteristic of the water flow as well as stream habitat. Future monitoring reporting efforts and programs will strive to identify, assess and explain the interdependencies that tie together the many factors affecting the health of the Poudre and urban creeks in our community. This is the first of what will become an on-going series of annual reports for the lower Poudre and stormwater quality programs.

Key findings from this report:

- The Cache la Poudre River from Shields Street to above Boxelder Creek (Segment 11) is meeting all stream standards except for Selenium. Selenium exceedences in this stretch of the river are the result of stricter standards and not reduced water quality.
- Segment 11 of the Poudre is not listed as 303(d)-impaired for any water quality standards.
- Both Fossil Creek and Boxelder Creek are listed as 303(d)-impaired for selenium. Like the Poudre, exceedences of Selenium levels are the result of stricter standards and not reduced water quality.
- Data collected since 2000 show that Boxelder Creek, Spring Creek, and Fossil Creek have *E. coli* levels below the stream standard. *E. coli* levels are an indicator of fecal contamination.
- In cooperation with Colorado State University (CSU), the City is developing and will conduct a wet-weather monitoring program to assess the effectiveness of existing structural stormwater Best Management Practices (BMPs) and new Low Impact Development (LID) BMPs.
- In cooperation with CSU, data from the City's water quality monitoring programs are being evaluated to identify possible long-term trends and additional data needs.

History of the City's River, Creek and Stormwater Quality Monitoring Programs:

In the mid-1970s, the Colorado Water Quality Control Commission held its first stream classification hearings for the Cache la Poudre River. At that time, both Federal and State Clean Water Act mandates were being implemented across the state and the nation. Unfortunately, little or no water quality data was available for the Poudre as it flowed past the City's two wastewater treatment plants. At the Commission's hearings it quickly became apparent that because of this lack of data, the City was at both a tactical and strategic disadvantage: it had no acceptable proof that treated discharges from its wastewater treatment plants were not harming the river. Without data, the City was at a disadvantage to avoid the imposition of costly, broad-brush controls from the Commission and Colorado Department of Health and Environment. As a result, the City initiated several long-term monitoring efforts gather both flow and water quality data to protect both the Poudre and the City's interests.

Since the late 1970s and in cooperation with the US Geological Survey (USGS), the City has been monitoring both flow and water quality in the Cache la Poudre River above and through Fort Collins. Beginning in the early 1980s, and in cooperation with Colorado State University and Kodak Colorado Division (KCD), the USGS program was expanded to include assessments of the fish and benthic macro-invertebrate communities in the Poudre. At that same time, City staff from the Pollution Control Lab began weekly water quality monitoring both up- and down-stream of the City's two wastewater treatment plants. The City-CSU-KCD cooperative program expanded in 2007 to form the Poudre Monitoring Alliance. As part of EPA's award winning *Performance Track* program, the alliance brings together under one roof the monitoring efforts of the City, Boxelder and South Ft Collins Sanitation Districts, the Town of Windsor, KCD and the City of Greeley. The alliance monitors over 42 miles of the Poudre at ten separate sights from Lincoln Street to its confluence with the Platte. Beginning in 2000, the City's water quality monitoring program was expanded to include routine testing at three urban creeks: Boxelder Creek, Spring Creek and Fossil Creek. In 2003, the stormwater quality monitoring program initiated a water quality assessment of the effectiveness of the Udall site below Lincoln St.

Purpose of the Report:

In order to fulfill City Council's goal of protecting and enhancing the Poudre River as outlined in Council Resolution 92-14 "Framework for Environmental Action" and Resolution 95-14 "Approving the Watershed Approach to Stormwater Quality Management", City staff has prepared the following status report on water quality conditions in key urban creeks and the Cache la Poudre River through Fort Collins. The report also includes summaries on the 2008 status of several stormwater quality programs in the City.

Monitoring Background & 2008 Status:

Natural water bodies in the Fort Collins area are actively monitored at numerous locations to evaluate the impacts of human and natural activities on water quality. Water quality datasets for some sites in the City begin in the mid-1970s. The Cache la Poudre River, as it flows through

town from Shields Street to Boxelder Creek (Segment 11), is currently sampled and tested by several agencies, including:

- The City of Fort Collins,
- The Water Quality Control Division, Colorado Department of Health & Environment,
- Colorado State University,
- In Situ, Inc.,
- Boxelder Sanitation District, and
- RiverWatch

Location details for the City’s water quality monitoring sample sites for Segment 11 of the Cache la Poudre River are presented in Table 1. The table includes the sites routinely checked by the staff from the Pollution Control Lab plus river locations that are part of the Poudre Monitoring Alliance.

The Poudre Monitoring Alliance:

Starting in 2007, the *Cache la Poudre River Cooperative Monitoring Alliance* is part of EPA’s “Performance Track” environmental leadership program. This EPA award-winning effort formally joins together the cities of Fort Collins and Greeley, with the Town of Windsor, the Boxelder and South Fort Collins Sanitation Districts and Kodak Colorado Division in an on-going collaborative effort to routinely monitor ten sites on over 42 miles of the Cache la Poudre River from Fort Collins to the confluence with the Platte River.

In May 2007, the Utility received a letter of appreciation from Dave Akers, manager of the Clean Water Facilities program of the Colorado Water Quality Control Division (Exhibit A) commending the City’s thirty year commitment to on-going water quality monitoring on the Cache la Poudre River.

In the late fall of 2007, the City received a letter of recognition from then Senator Ken Salazar lauding the example of the Poudre Monitoring Alliance for on-going regional cooperation.

Water Quality Monitoring Locations, Test Parameters and Test Frequencies:

Tables 2 and 3 provide details on the 2008 monitoring locations and water quality test parameter frequencies for the Cache la Poudre River and urban creek sites, respectively.

For the City of Fort Collins in cooperation with Colorado State University and as part of the regional Poudre Monitoring Alliance, this testing also includes:

- Four sites eight times per year for bacteriological, physical, and chemical parameters,
- Three sites four times each year for benthic macro-invertebrate population abundance and diversity, and
- Two sites once each year for fish abundance and diversity.

To demonstrate that the wastewater treatment plants are not adversely impacting the Cache la Poudre River, the Utilities sponsors a biosurvey program of the fish and bottom-dwelling invertebrates in the river both upstream and downstream of the City's water reclamation facilities. The City and Kodak Colorado have participated for 28 years, and Boxelder Sanitation District joined the program eight years ago. On the upper portion of the river below Martinez Park, the City and Kodak Colorado Division share the costs of contracting the biosurvey program with CSU. Beginning in 2007, the CSU fish and benthic macroinvertebrate biosurvey program became an integral part of the Poudre Monitoring Alliance.

Table 1. 2008 City of Fort Collins Water Quality Monitoring Site Location Details:

2008 Lower Cache la Poudre Watershed Monitoring Sites

21-May-09

2008 City of Fort Collins Cache la Poudre River Monitoring Sites:

Sample Site Name	Description	Latitude	Longitude	River Mile
Lincoln Street Gage	USGS Gage 06752260	40°35'21" N	-105°04'09" W	43.4
432PLNC	Poudre River @ Lincoln Ave.	40°35'20.25304"N	-105°04'12.10260"W	43.2
1EFF (MWRF)	001A - Mulberry (MWRF) outfall to Poudre	40°35'00.02767"N	-105°03'36.15843"W	42.5
390PPROS	Poudre River at Prospect Street	40° 34' 07.24743"N	-105°01'38.68997"W	40.3
380PNAT	Poudre River @ Nature Center	40°33'34.04748"N	-105°01'12.48682"W	38.7
2EFF (DWRF)	002B - Fossil Creek outfall @ Drake WRF	40°33'23.58183"N	-105°01'10.62585"W	-
2EFF (DWRF)	002D - Poudre outfall @ Drake (DWRF)	40°33'23.56508"N	-105°01'08.16117"W	38.4
370PBOX	Poudre River above Boxelder Creek	40°33'07" N	-105°00'39" W	37.6
Boxelder Gage	USGS Gage 06752280	40°33'07" N	-105°00'39" W	37.6

Additional Sites that are part of the Poudre Monitoring Alliance:

		Latitude	Longitude	
350LCR5	Poudre at Larimer County Rd 5	40° 30' 15.2761"N	-105° 58' 56.0641"W	35.0
325PFOS	Poudre downstream of Fossil Cr Res outlet	40° 30' 5.7600"N	-104° 58' 0.05521"W	32.5
225SGAGE	Poudre at Staff Gage	40° 26' 26.6640"N	-104° 52' 44.3280"W	22.5
200STTH	Poudre at Shark's Tooth	40° 26' 36.4200"N	-104° 50' 45.1321"W	20.0
145FSPUR	Poudre at Farmer's Spur	40° 26' 47.3280"N	-104° 46' 22.4041"W	14.5
055WPCF	Poudre at Greeley WPCF gage	40° 25' 21.5040N	-104° 40'32.4119"W	5.5
022FERN	Poudre at Fern Ave.	40° 25' 3.5760"N	-104° 38' 23.6400W	2.2

2008 City of Fort Collins Urban Creek Monitoring Sites:

Sample Site Name	Description	Latitude	Longitude
FOSC34	Fossil Creek at County Rd 34	40°29'40.97882"N	105°03'04.63272"W
FOSC287	Fossil Creek at College Avenue	40°30'43.29438"N	105°04'39.77232"W
SPRC_EP	Spring Creek at Edora Park	40°33'52.81308"N	105°02'41.69868"W
SPRC287	Spring Creek at College Avenue	40°33'44.92284"N	105°04'38.31426"W
BXCG	Boxelder Creek Gage	40°33'08.07275"N	105°00'16.45045"W
BXC56	Boxelder Creek at County Road 56	40°39'13.14628"N	104°58'54.25413"W

Table 2. 2008 Monitoring Sites and Test Parameter Matrix for Cache la Poudre River Sites through Ft. Collins.

City of Fort Collins / Utilities Pollution Control Lab	Surface Water Quality Test Matrix			
	POUDRE RIVER MONITORING SITES			
Test Parameters	432PLNC	390PPROS	380PNAT	370PBOX
Alkalinity, mg/L as CaCO ₃	8/year	8/year	8/year	8/year
Ammonia-N, mg/L	1/week	1/week	1/week	1/week
Arsenic, µg/L	8/year	8/year	8/year	8/year
Biochemical Oxygen Demand, mg/L				
Cadmium, µg/L	8/year	8/year	8/year	8/year
Chromium, µg/L	8/year	8/year	8/year	8/year
Conductivity, µmhos/cm	1/week	1/week	1/week	1/week
Copper, µg/L	8/year	8/year	8/year	8/year
Dissolved Organic Carbon, mg/L	8/year	8/year	8/year	8/year
Dissolved Oxygen, mg/L	1/week	1/week	1/week	1/week
<i>E. coli</i> / 100ml	1/week	1/week	1/week	1/week
Flow, cfs	1/week	8/year	8/year	1/week
Hardness, mg/L as CaCO ₃	1/week	1/week	1/week	1/week
Iron, µg/L	8/year	8/year	8/year	8/year
Lead µg/L	8/year	8/year	8/year	8/year
Manganese, µg/L	8/year	8/year	8/year	8/year
Mercury, µg/L	8/year	8/year	8/year	8/year
Nickel, µg/L	8/year	8/year	8/year	8/year
Nitrate-N, mg/L	1/week	1/week	1/week	1/week
Nitrite-N, mg/L	1/week	1/week	1/week	1/week
pH	1/week	1/week	1/week	1/week
Selenium, µg/L	8/year	8/year	8/year	8/year
Silver, µg/L	8/year	8/year	8/year	8/year
Sulfate	8/year	8/year	8/year	8/year
Temperature, °C	1/week	1/week	1/week	1/week
TKN-N, mg/L	8/year	8/year	8/year	8/year
Total Organic Carbon, mg/L	1/week	1/week	1/week	1/week
Total Phosphorus, mg/L	1/week	1/week	1/week	1/week
Zinc, µg/L	8/year	8/year	8/year	8/year

Site Code	Description
432PLNC	Poudre River @ Lincoln Ave.
390PPROS	Poudre River at Prospect Street
380PNAT	Poudre River @ Nature Center
370PBOX	Poudre River above Boxelder Creek

Table 3. 2008 Monitoring Sites and Test Parameter Matrix for Urban Creek Sites through Ft. Collins.

City of Fort Collins / Utilities Pollution Control Lab	Surface Water Quality Test Matrix						
	CREEK MONITORING SITES						PARKWOOD LAKE
Test Parameters	FOSC287	FOSC34	SPRC287	SPRCEP	BXC56	BSCXG	PKL
Alkalinity, mg/L as CaCO3							
Ammonia-N, mg/L	1/Qtr	1/Qtr	1/Qtr	1/Qtr	1/Qtr	1/Qtr	2/year
Arsenic, µg/L							
Biochemical Oxygen Demand, mg/L							2/year
Cadmium, µg/L							
Chromium, µg/L							
Conductivity, µmhos/cm	1/Qtr	1/Qtr	1/Qtr	1/Qtr	1/Qtr	1/Qtr	
Copper, µg/L							2/year
Dissolved Organic Carbon, mg/L							
Dissolved Oxygen, mg/L	1/Qtr	1/Qtr	1/Qtr	1/Qtr	1/Qtr	1/Qtr	
<i>E. coli</i> / 100ml	1/Qtr	1/Qtr	1/Qtr	1/Qtr	1/Qtr	1/Qtr	
Flow, cfs							
Hardness, mg/L as CaCO3	1/Qtr	1/Qtr	1/Qtr	1/Qtr	1/Qtr	1/Qtr	2/year
Iron, µg/L							
Lead µg/L							2/year
Manganese, µg/L							
Mercury, µg/L							2/year
Nickel, µg/L							
Nitrate-N, mg/L	1/Qtr	1/Qtr	1/Qtr	1/Qtr	1/Qtr	1/Qtr	2/year
Nitrite-N, mg/L	1/Qtr	1/Qtr	1/Qtr	1/Qtr	1/Qtr	1/Qtr	2/year
pH	1/Qtr	1/Qtr	1/Qtr	1/Qtr	1/Qtr	1/Qtr	2/year
Selenium, µg/L	1/Qtr	1/Qtr	1/Qtr	1/Qtr	1/Qtr	1/Qtr	
Silver, µg/L							2/year
Sulfate							
Temperature, °C	1/Qtr	1/Qtr	1/Qtr	1/Qtr	1/Qtr	1/Qtr	2/year
TKN-N, mg/L							
Total Organic Carbon, mg/L							
Total Phosphorus, mg/L	1/Qtr	1/Qtr	1/Qtr	1/Qtr	1/Qtr	1/Qtr	2/year
Zinc, µg/L							2/year

Site Code	Description
FOSC34	Fossil Creek at County Rd 34
FOSC287	Fossil Creek at College Avenue
SPRC_EP	Spring Creek at Edora Park
SPRC287	Spring Creek at College Avenue
BXCG	Boxelder Creek Gage
BXC56	Boxelder Creek at County Road 56
PKL	Parkwood Lake

Is the Cache la Poudre River through Fort Collins Meeting Stream Standards?

Water quality conditions for the Cache la Poudre are reviewed approximately every five years by the Water Quality Control Division (WQCD) of the Colorado Department of Public Health and Environment. Their review is then used to determine new classifications and standards, to identify exceedences in water quality standards and then to subsequently develop discharge permit limits for industries, communities and sanitation districts. The permitted discharge limits are designed to protect the receiving stream. The WQCD completed a review of the river through Fort Collins in 2008 and Table 4 presents the results of their findings:

Table 4. Poudre Water Quality: Standards vs. Actual Test Results. 2008 Report from the Colorado Water Quality Control Division for Segment 11 of the Cache la Poudre from Shields Street to Boxelder Creek just upstream of I-25.

Parameter	TVS†	Results‡	# of Tests	Meeting Std?
pH, std units	6.5 – 9.0	7.6 – 8.51	438	Yes
Dissolved Oxygen, mg/L	5	8.4	384	Yes
Hardness, mg/L as CaCO3	NA	284	448	Yes
E. coli # / 100ml	126	24	185	Yes
Arsenic, dissolved, µg/L	7.6	0	112	Yes
Cadmium, dissolved, µg/L	0.93	0	148	Yes
Copper, dissolved, µg/L	21.81	2.77	330	Yes
Iron, dissolved, µg/L	NA	69	286	Yes
Iron, total recoverable	1000	180	264	Yes
Lead, dissolved, µg/L	7.67	0	145	Yes
Manganese, dissolved, µg/L	2335	53.4	119	Yes
Selenium, dissolved, µg/L	4.60	5.4	205	No
Silver, dissolved, µg/L	1.93	0	208	Yes
Zinc, dissolved, µg/L	302.5	23.2	147	Yes
Uranium, dissolved, µg/L	4738	9.4	5	Yes
Ammonia-N, mg/L	TVS	0.3	381	Yes
Nitrate-N, mg/L	100	1.18	252	Yes
Sulfate, mg/L	NA	282.4	75	Yes

Derived from "Colorado Department of Public Health & Environment. Water Quality Control Commission, Regulation No. 31, The Basic Standards and Methodologies for Surface Waters (5 CCR 1002-31), May 2008.

† = TVS: Table Value Standard µg/L = part per billion mg/L = part per millions

‡ Results from the Water Quality Control Division, US Geological Survey, RiverWatch, Boxelder Sanitation District and the City of Fort Collins. Selenium exceedences on the Cache la Poudre were reported by RiverWatch. TVS stream standard for Selenium was reduced by the EPA to a lower level in 2001. Selenium exceedences were the result of stricter standards and not changes in water quality.

The chronic dissolved selenium standard was exceeded in the Cache La Poudre River at the USGS gage above Boxelder Creek (BSD #Station 4), at Lee Martinez Park (Riverwatch, RW #599), at Prospect Rd. (RW #602), and above Boxelder Creek (USGS #6752280). The acute dissolved copper standard was exceeded in the Cache La Poudre River at Lee Martinez Park (RW #599). Legend: RW = River Watch data.

Change to “Anti-Degradation Review” Status for the Cache la Poudre through Fort Collins:

In 2008 and for over thirty years, Segment 11 of the Cache la Poudre from Shields Street to the confluence above Boxelder Creek, has been designated “use-protected” primarily because of the Mulberry Water Reclamation Facility (MWRf) discharge. However, in their 2008 assessment, review, the Water Quality Control Division (WQCD) reported:

“Evidence shows that the water quality in this segment is better than TVS [sic: table value standards] for the key parameters, and supports the removal of the Use Protected designation as defined in 31.8(2)(b). Of the 12 key parameters, only the dissolved selenium standard was exceeded.”

When “use-protected” status is removed, the river segment’s classification is replaced with the more restrictive “anti-degradation review status”. In June 2009, the Colorado Water Quality Control Commission approved anti-degradation review status for Poudre river Segments 10, 11, and 12; these three river segments run from the Monroe Canal diversion upstream of Gateway Park to the confluence with the Platte east of Greeley. The potential impacts of this change on the water quality discharge limits for both the MWRf and Drake WRF (DWRF) are currently being evaluated.

Cooperative United States Geological Survey (USGS) Flow and Water Quality Monitoring on the Cache la Poudre Segment 11:

The City has participated in the USGS cooperative flow and water quality monitoring program on the Cache la Poudre River for over thirty years. This program plays mission critical roles in both managing the City’s multi-million dollar water resources portfolio and providing independent 3rd-party documentation of ambient water quality conditions in the Poudre. Having accurate flow data is critical to successfully manage the City’s water rights. Furthermore, having accurate flow and water quality data is essential for the WQCD to develop accurate discharge permit limits.

The City pays the USGS a majority of the costs to record stream flow and water quality at several gauge stations on the Poudre. At the USGS water quality sites, samples are collected and tested each month for a lengthy list of water quality parameters. Both the Lincoln Street and the river site above Boxelder Creek are equipped with continuous recording water flow gauges. Real-time flow data for these two sites are posted at the USGS web site. The entire historical record of flow and water quality data for the City-sponsored sites on the Cache la Poudre is available at the USGS web site. The combined USGS-City cost total for the 2008 USGS flow and water quality monitoring on the Poudre was \$111,880. The City’s share of that amount was \$73,850 with the remaining amount obtained from Federal matching funds. Details for the 2008 USGS flow and water quality sites on the Cache la Poudre River are presented in Table 5.

Table 5. City of Fort Collins & USGS Water Flow & Quality Cooperative Monitoring Sites, Period of Record and Cost-Sharing Importance to the USGS:

Site Number	Location	Period of Record	Flow and/or Water Quality	Importance to USGS †
6614800	Michigan River near Cameron Pass	1973 - Present	Flow	High
6746095	Joe Wright Crk above Reservoir	1978 – Present	Flow	Low
6746100	Joe Wright Crk blw Reservoir	1978 – Present	Flow	Low
06751150	North Fork Cache la Poudre blw Halligan Res.	1998 – Present	Flow	Low
06752258	Cache la Poudre at Shields St	1975 – 2005	Quality & Instantaneous Flow	Low
06752260	Cache la Poudre at Lincoln St	1975 – Present	Flow & Quality	High
06572270	Cache la Poudre at Prospect St	1975 – 2005	Quality & Instantaneous Flow	Low
06752280	Cache la Poudre above Boxelder Crk	1979 – Present	Flow & Quality	Medium
06737500	Horsetooth Res in conjunction with NCWCD & USBR	1969 - 2008	Quality	Low

† Ranking priorities influence the cost-sharing percentages. A higher USGS importance ranking increases proportion of available Federal matching funds.

303(d) Listing of Impaired Waters on the Cache la Poudre River

In accordance with Section 303 of the Clean Water Act (PL 92-500), the Colorado Water Quality Control Division (WQCD) evaluates waters every two years to determine if they are impaired from meeting their water quality criteria. Waters that are determined to be impaired are added to the State's 303(d) list and become eligible for grant funds to determine the cause of impairment. Based on data collected in part by the City, the Cache la Poudre River, below the confluence with Boxelder Creek and then east to the South Platte River was put on the State's 303(d) list for high *E. coli* levels in 2004. The presence of *E. coli* is an indicator of fecal contamination in the water. This has been a long-term issue on the lower reaches of the Cache La Poudre and is attributed primarily non-point source and stormwater runoff and irrigation return waters from agricultural operations.

Table 6 presents a summary of the 303(d) listing status for the Cache la Poudre River from the Monroe diversion through the various classification segments to its confluence with the Platte River east of Greeley. Note that Segment 11 through the City is **not** listed as 303(d)-impaired for any water quality parameter.

Both Fossil and Boxelder Creeks as well as Segment 12 of the Poudre below Boxelder Creek are listed as 303(d) impaired for selenium values that exceed the chronic table value stream standard of 4.6 µg/L. The following paragraph provides details on the toxicity, nature and fate of selenium in waters and the environment:

“Selenium is an essential nutrient for humans and animals. There is a narrow margin between too little and too much selenium. Selenium can be harmful to humans at 5 to 10 times recommended daily dose (55 micrograms per day for adults). Selenium is more toxic to vertebrates than to invertebrates and plants. Selenium is more toxic to fish and wildlife than to humans. Selenium “bioaccumulates” in the food chain, when selenium is ingested in amounts greater than the body needs, the excess selenium is not excreted, but instead is retained within the body. As organisms are preyed upon by other animals higher on the food chain, the predator takes on the entire body burden of selenium carried by the prey. High concentrations of selenium can result in adverse impacts to birds and fish, including selenium poisoning and reproductive toxicity. Extremely high concentrations of selenium can result in adverse impacts to livestock.” (Source: Fountain Creek Watershed Group, Pikes Peak and Pueblo Areas Council of Governments)

It should be noted that the selenium-impaired listings given in Table 6 are a result of a lower EPA and CDPHE stream standard and not changing water quality. For comparison, the safe drinking water standard for selenium is 50 µg/L (microgram per liter or part per billion, ppb) and Fort Collins drinking water contains less than 1 µg/L or less than 1 ppb.

Table 6. Colorado 303(d) Listing of Impaired Waters on the Cache la Poudre River:

River Segment COSPCP ID#	Segment Description	Designation	Use Classifications	Portion	Impairment	State's Priority	Easy Fix?
10	Cache la Poudre River, Monroe Canal to Shields Street	Use Protected†	Aquatic Life Cold 2 Recreation E Water Supply Agriculture	Below confluence with North Fork	pH, Copper	Medium	No
11	Cache la Poudre River, Shields St to Boxelder Cr	Use Protected†	Aquatic Life Warm 2 Recreation E Agriculture	All	None	-	-
12	Cache la Poudre River, Boxelder Cr to S. Platte River	Use Protected†	Aquatic Life Warm 2 Recreation E Agriculture	All	Selenium	Low	No
12	Cache la Poudre River, Boxelder Creek to S. Platte River	Use Protected†	Aquatic Life Warm 2 Recreation E Agriculture	Below Eaton Draw	<i>E. coli</i>	High	No
13a	All tributaries to the Cache la Poudre River, including all lakes reservoirs and wetlands, from the North Fork of the Cache la Poudre River to the confluence with the South Platte River	Use Protected	Aquatic Life Warm 2 Recreation E Water Supply Agriculture	Fossil Creek	Selenium	Low	No
13b	Boxelder Creek from source to the Cache la Poudre River	Use Protected†	Aquatic Life Warm 2 5/15-9/15 Recreation P 9/16-5/14 Recreation N Agriculture	All	Selenium	Low	No
14	Horsetooth Reservoir	Anti- Degradation Status – Reviewable	Aquatic Life Cold 2 Recreation E Water Supply Agriculture	All	Dissolved Oxygen; Aquatic Life Use (Mercury fish consumption advisory)	Low / High	No

Derived from: Colorado Department of Public Health and Environment; Water Quality Control Commission; 5 CCR 1002-93 April 2008; Regulation #93; Section 303(d) list water-quality-limited segments requiring TMDLs. † Moved to "Reviewable" Anti-Degradation Status by the Commission on 09 June of 2009.

City of Fort Collins Cache la Poudre River Monitoring Sites and Descriptions:

Cache la Poudre @ USGS Lincoln Street Gage Site 06752260, River Segment 11:



Aerial map of Lincoln St gage and Mulberry Water Reclamation Facility (MWRF) sites:



The Lincoln Street Gage site is a flow and water quality control station upstream of Mulberry Water Reclamation Facility (MWRF). It is influenced by urban, stormwater and recreational impacts. There are extensive long-term flow, chemical and physical water quality data available for this site from both the City and USGS for over 25 years.

Cache la Poudre @ Prospect Street, River Segment 11:



Map of showing the location of the Prospect St sample site and other key locations downstream.



The Prospect St Site is downstream from the MWRW discharge point. It is influenced by urban usage, stormwater and MWRW treated wastewater discharges. Long-term biological, chemical and physical data is available from City and USGS. Instantaneous flow and water quality monitoring from the USGS ceased at this site in 2005 due to the cost. Utility staff continue to monitor at this site.

Cache la Poudre @ Nature Center, River Segment 11:



The Nature Center Site is located downstream from MWRF and Spring Creek. It is influenced by urban usage, stormwater and treated wastewater discharge impacts. There are long-term biological, chemical quality and physical data available for this site from City.

Cache la Poudre River at USGS Gage Site (06752280) above confluence with Boxelder Creek

Arial photograph of the Cache la Poudre River @ USGS Gage above Boxelder Creek, River Segment 11:



Cache la Poudre River looking downstream from the USGS Gage 06752280 upstream of Boxelder Creek:

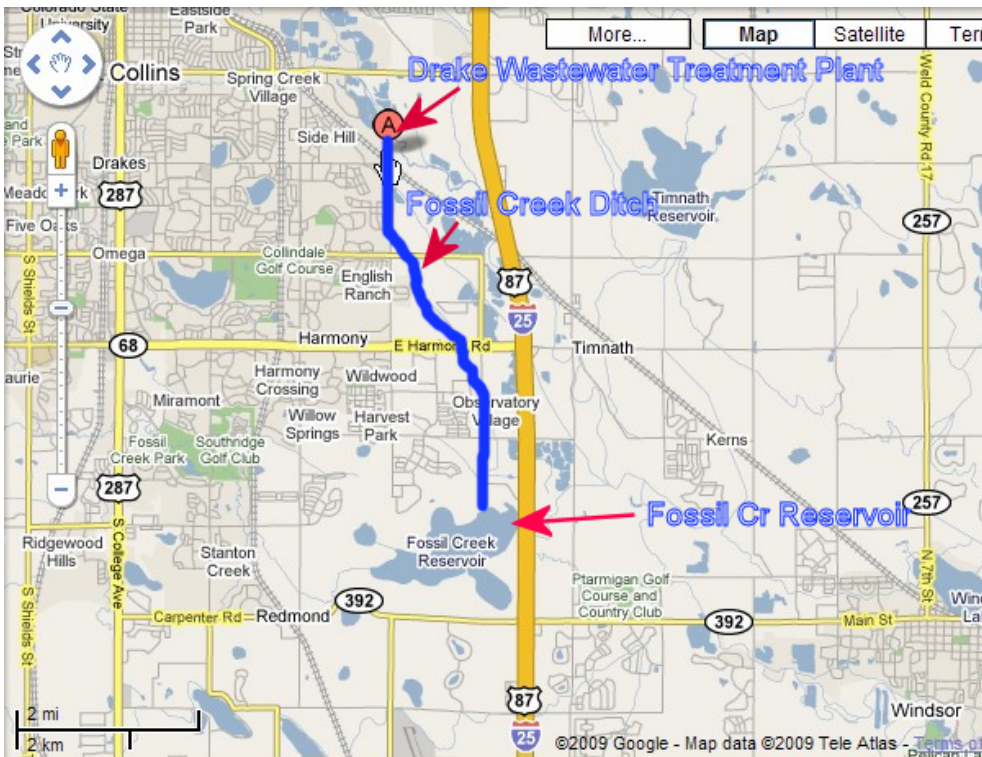


The site located at the USGS Gaging station (Site # 06752280) just above Boxelder Creek. It is downstream from the Nature Center site and serves as an upstream control site for treated wastewater from the Boxelder Sanitation District. It is influenced by urban usage, stormwater, treated wastewater and gravel mining impacts. There are extensive long-term flow, biological, chemical and physical data available from both the City and USGS for this site.

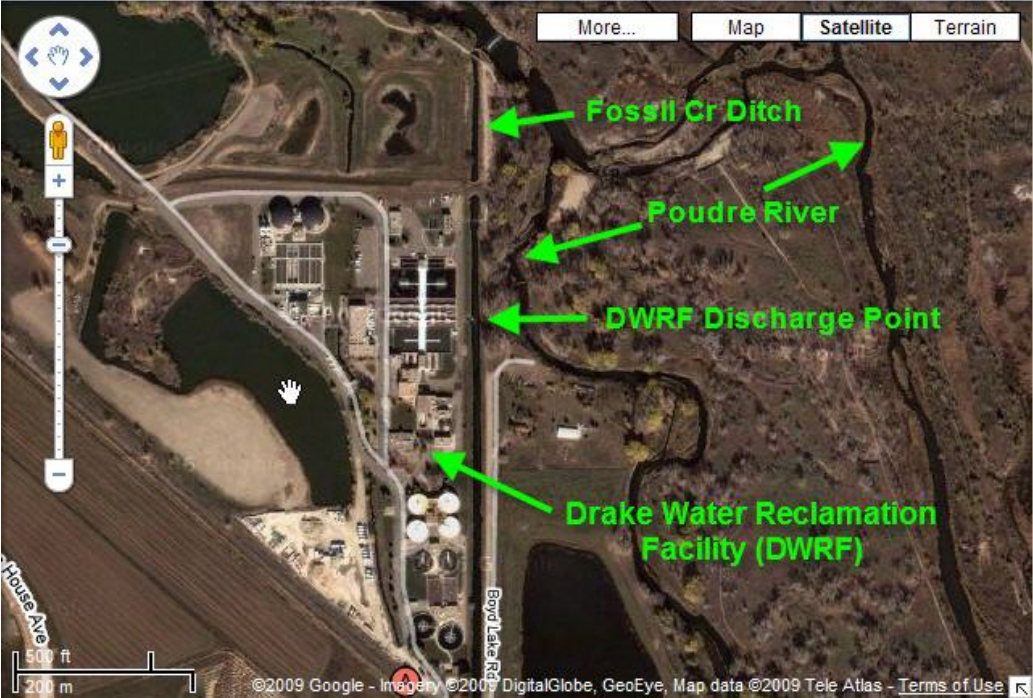
Map of Drake Water Reclamation Facility (DWRF) and discharge point, Cache la Poudre River, and Fossil Creek Ditch:

The City’s Pollution Control Laboratory staff monitor Fossil Creek Ditch both up and downstream of the DWRF discharge as well as above the inlet to Fossil Creek Reservoir over four miles away to the south. There are urban usage, stormwater, treated wastewater and former gravel mining pond impacts on both the Poudre river and Fossil Creek Ditch.

Map of Fossil Creek Ditch from the DWRF to Fossil Creek Reservoir:



Arial Map of Drake Water Reclamation Facility (DWRF) and discharge point, Cache la Poudre River, and Fossil Creek Ditch:



Treated Effluent Discharge Point for the DWRF into Fossil Creek Ditch:



The City's Pollution Control Laboratory staff monitor Fossil Creek Ditch both up and downstream of the DWRF discharge as well as above the inlet to Fossil Creek Reservoir over four miles away to the south. There are urban usage, stormwater, treated wastewater and former gravel mining pond impacts on both the river and Fossil Creek Ditch.

Fossil Creek Ditch and water quality sampling site above Horsetooth Road:



Fossil Creek Ditch sample site just above Kechter Drive leading to Fossil Creek Reservoir:



Table 7. 2008 Fossil Creek Ditch Study Parameter Matrix:

City of Fort Collins Fossil Cr Ditch Water Quality Actual Study for DWRP NPDES Permit
Pollution Control Laboratory / City of Fort Collins

25-May-09

	Latitude	40°33'34.04748"N	40°29'53.43265"N	40°32'16.14181"N	40°29'53.43265"N
	Longitude	105°01'12.48682"W	105°00'01.85699"W	105°00'59.10532"W	105°00'01.85699"W
Test Parameters	Nature Center Site above Fossil Cr Ditch just upstream of DWRP discharge to Fossil Cr Ditch	DWRP Effluent Discharge to Fossil Cr Ditch - NPDES Testing Requirements	Fossil Creek Ditch Control Structure at Horsetooth Road	Fossil Creek Ditch above discharge point to Fossil Cr Reservoir @ Kechter Drive	
Physicals, Nutrients, etc:					
Instantaneous Flow, cfs		Yes, continuous			
5-Day BOD, mg/L	-	Yes, 3 per week	-	-	
Total Suspended Solids, mg/L	Yes, bi-weekly	Yes, 3 per week	Yes, bi-weekly	Yes, bi-weekly	
Total Residual Chlorine, mg/L	-	Yes, 5 per day	-	-	
Oil & Grease, mg/L	-	Yes, daily	-	-	
pH	Yes, bi-weekly	Yes, daily	Yes, bi-weekly	Yes, bi-weekly	
Temperature °C	Yes, bi-weekly	Yes, daily	Yes, bi-weekly	Yes, bi-weekly	
Conductivity, µmhos/cm	Yes, bi-weekly	Yes, bi-weekly	Yes, bi-weekly	Yes, bi-weekly	
Cyanide, Total, µg/L	-	Yes, Quarterly	-	-	
<i>E. coli</i> by QuantiTray / 100ml	Yes, bi-weekly	Yes, daily	Yes, bi-weekly	Yes, bi-weekly	
Whole Effluent Toxicity, Chronic	-	Report Stat Dif & IC25, quarterly	-	-	
Hardness, mg/L as CaCO3	Yes, bi-weekly	Yes, bi-weekly	Yes, bi-weekly	Yes, bi-weekly	
NH3-N, Total, mg/L	Yes, bi-weekly	Yes, bi-weekly	Yes, bi-weekly	Yes, bi-weekly	
Nitrite-N, mg/L	Yes, bi-weekly	Yes, bi-weekly	Yes, bi-weekly	Yes, bi-weekly	
Nitrate-N, mg/L	Yes, bi-weekly	Yes, bi-weekly	Yes, bi-weekly	Yes, bi-weekly	
TKN, mg/L	Yes, bi-weekly	Yes, bi-weekly	Yes, bi-weekly	Yes, bi-weekly	
DOC, mg/L	Yes, bi-weekly	Yes, bi-weekly	Yes, bi-weekly	Yes, bi-weekly	
Metals:					
Arsenic, total, µg/L	-	Yes, Quarterly	-	-	
Cadmium, pd, µg/L	-	Yes, Quarterly	-	-	
Chromium, total, µg/L	-	Yes, Quarterly	-	-	
Copper, total rec, µg/L, Dr Lewis	2X / month	2X / month	2X / month	2X / month	
Copper, dissolved, µg/L, river	2X / month	2X / month	2X / month	2X / month	
Copper, pd, µg/L NPDES		2X / month			
Iron, dis, µg/L	-	Yes, Quarterly	-	-	
Iron, total rec, µg/L	-	Yes, Quarterly	-	-	
Lead, pd, µg/L	-	Yes, Quarterly	-	-	
Manganese, pd, µg/L	-	Yes, Quarterly	-	-	
Mercury, total 1631E, ng/L	2X / month	2X / month	2X / month	2X / month	
Nickel, pd, µg/L	-	Yes, Quarterly	-	-	
Selenium, pd, µg/L	2X / month	2X / month	2X / month	2X / month	
Silver, pd, µg/L	-	Yes, Quarterly	-	-	
Zinc, pd, µg/L	-	Yes, Quarterly	-	-	

Fossil Creek Ditch at the inlet point to Fossil Creek Reservoir, River Segment 22:



Arial Map of Fossil Creek Reservoir, Fossil Creek Ditch Inlet and the urban creek sample site on Fossil Creek:



Fossil Creek Reservoir is located approximately 4.5 miles downstream from the Drake WRF discharge to Fossil Creek Ditch. It is influenced by urban usage, stormwater, and treated wastewater impacts from both the DWRF and South Fort Collins Sanitation District. It is also the receiving reservoir for Fossil Creek. A new water quality study on the reservoir sponsored by the City and South Fort Collins Sanitation District got underway in the late fall of 2008 and will be completed in 2009.

Table 8. 2008 – 2009 Fossil Creek Reservoir Study Matrix

Fossil Creek Reservoir 2008 - 2009 Water Quality Study Parameters

Field Parameters: vertical depth profiles of:	Test Method	Tester
Temperature	SM-2550B	Field Crew
pH	150.1	Field Crew
Conductivity	120.1	Field Crew
Dissolved Oxygen	360.1	Field Crew

Three separate depth samples from reservoir water column: top, mid, & bottom

Water Quality Test Parameters for each sample:

<i>E. coli</i>	9223B	PCLab
Soluble reactive phosphorus	SM-4500-P	WQLab
Total dissolved phosphorus	SM-4500-P	WQLab
Particulate phosphorus	SM-4500-P	WQLab
Ammonia-nitrogen	350.1	WQLab
Nitrate-nitrogen	300	WQLab
Nitrite-nitrogen	300	WQLab
TKN (Total Kjeldahl Nitrogen)	351.2	PCLab
Chlorophyll a	SM10200H WQL	WQLab
Phytoplankton composition (quantitative)	SM10200-F	PCLab
Major Cations (calcium, magnesium, sodium, potassium)	Flame AA	PCLab
Major Anions:		
Bicarbonate	2320B	PCLab
Sulfate	300 IC	WQLab
Chloride	300 IC	WQLab
Chlorine (Ac/Ch)	SM-4500 CL	PCLab
Sulfur		
Boron	200.7	Analytica
Cyanide	SM-4500E	Analytica

Metals Test Parameters:

Arsenic-T	200.9	PCLab
Cadmium-PD	200.7	PCLab
Chromium-T	200.7	PCLab
Copper-PD	200.9	PCLab
Iron-D&TR	200.7	PCLab
Lead-PD	200.7	PCLab
Manganese-PD	200.7	PCLab
Manganese-Dissolved	200.7	PCLab
Mercury-T (1631E)	1631E	PCLab
Nickel-PD	200.7	PCLab
Selenium-PD	200.9	PCLab
Silver-PD	200.9	PCLab
Zinc-PD	200.7	PCLab

Table 9. 2008 Poudre River, Creek and Stormwater Water Quality Program Cost Summary:

2008 Monitoring Program Description	Cost	Comment
USGS: U.S. Geologic Survey cooperative monitoring program for river six flow and two water quality sites on the Cache la Poudre from the Michigan River near Cameron Pass to the gage station upstream of Boxelder Cr.	\$111,880	City's share: \$73,850. Federal funds cover remainder.
Poudre River: City's Pollution Control and Water Quality Lab monitoring on Cache la Poudre River at both up- and down-stream sites from water reclamation facilities with both a weekly schedule and 8 special data collections for the Poudre Monitoring Alliance including the CSU fish and benthic macroinvertebrate surveys.	\$92,152	Cost value of field sampling, field measurements and lab work; includes City's portion of Poudre Monitoring Alliance Program.
Urban Creeks: City's Pollution Control and Water Quality Lab quarterly monitoring at two sites on three urban creeks plus Parkwood Lake at three locations twice each year.	\$6,939	Cost value of field sampling, field measurements and lab work.
Fossil Creek Ditch: 2008 – 2009 City's Pollution Control and Water Quality Lab bi-weekly monitoring of Fossil Creek Ditch at three sites from above the Drake WRF to Kechter Drive above the inlet to Fossil Cr Res. Monitoring began in late fall of 2008.	\$46,484	Cost value of field sampling, field measurements and lab work. Study needed for development of DWRF discharge permit limits.
2008 Fossil Cr Reservoir: water quality <i>Mixing Zone Study</i> for the Drake Water Reclamation Facility (DWRF).	\$8,500	Study needed for development of DWRF discharge permit limits.
Fossil Cr Reservoir: 2008 – 2009 Fossil Creek Reservoir water quality study for the Drake Water Reclamation Facility (DWRF). Study needed for development of DWRF discharge permit limits.	\$56,273	Cooperative monitoring program and cost sharing between the City and South Fort Collins Sanitation District. Data analysis and reports from Western Environmental Analysts, Inc.

In 2008, the City committed over \$320,000 to collect both water quality and flow data on the lower Cache la Poudre River, key urban creeks and Fossil Creek Reservoir. This data is used to manage operations at the City's two water reclamation facilities and to manage its extensive water rights portfolio. The data is also used to assess stormwater impacts on the river and key urban creeks.

Stormwater Quality Monitoring Programs:

Study Programs Completed:

- Assessments of all flowing stream corridors were completed in 1999 by Dr. Bob Zuellig for development of the Master Plans.
- Udall study completed in 2004.

Study Programs Underway in 2008 and 2009:

In cooperation with Colorado State University (CSU), the City is developing and will conduct a wet-weather monitoring program to assess the effectiveness of existing structural stormwater Best Management Practices (BMPs) and new Low Impact Development (LID) BMPs. In addition, CSU is reviewing data from the City's water quality monitoring programs to identify possible trends and additional data needs.

MS4 Report Background & Highlights:

The City of Fort Collins is required by the Colorado Water Quality Control Division (WQCD) to have a Municipal Separate Storm Sewer System (MS4) permit in order to discharge stormwater from its MS4 into State waters. The City must implement a Colorado Discharge Permit System (CDPS) Stormwater Management Program in accordance with the MS4 permit. The City's Stormwater Management Program is a comprehensive program comprised of six minimum control measures designed to reduce the discharge of pollutants from its MS4. Each measure requires several detailed elements that must be implemented annually or on an ongoing basis.

In addition to maintaining permit compliance, the elements facilitate protection of water quality and habitat of the Cache la Poudre River and our urban streams. City staff take pride in implementation of these pollution prevention measures and the resulting watershed quality. Many of the elements identified below were originally developed as a part of the "*Watershed Approach to Stormwater Quality*". Listed below are the minimum control measures, abbreviated requirements, and 2008 accomplishments.

1. Public Education and Outreach - *The permittee must implement a public education program in an effort to promote behavior change by the public to reduce water quality impacts associated with pollutants in stormwater runoff and illicit discharges*
 - In 2008, the City's WaterSHED (Stormwater Habitat Education Development) program educated 4,433 students and 286 adults, for a total of 7770 student and 708 adult contact hours.
 - Other events that included stormwater education and outreach were the Fort Collins Children's Water Festival, the Master Naturalist Program, Sustainable Living Fair, Thursday Night Music & More, and partnerships with P.R.E.P. (Poudre River Ecology Partners), CSU, and Poudre School District.
 - The Storm Drain Stenciling program stenciled 220 storm drains in 2008.

- The Stormwater Business Outreach Program targets a different business sector each year and makes at least 50 business contacts. In 2008, businesses that change motor oil and collect used oil from customers for recycling were given oil pollution prevention posters and brochures. These materials focused on business and customer oil changing and recycling practices.
 - Interpretive signage is displayed at select outdoor classrooms in Fort Collins, including the watershed display at the Spring Creek Bicycle Trail.
2. Public Participation and Involvement - *The permittee must provide a mechanism and process to allow the public to review and provide input on the CDPS Stormwater Management Program.*
- An annual update of the permit Stormwater Management Program is presented to the Natural Resources Advisory Board and the Water Board. In 2008, the review described the changes in the revised Stormwater Management Program for the 2008-2013 permit term.
 - A new permit goal for the second permit term is to expand the City's web site to list the City's MS4 Stormwater Management Program descriptions and related information so that the public can read and comment on the program. Content for MS4 permit website was compiled in 2008; the web site will be launched by December 31, 2009.
3. Illicit Discharge Detection and Elimination - *The permittee must develop, implement and enforce a program to detect and eliminate illicit discharges into the permittee's MS4.*
- Staff responded to 65 spill complaint calls in 2008. Responses included site visits, incident investigations, on-site and phone education, delivery of educational door hangers and follow-up letters. Staff reported 18 educational efforts, 25 verbal and 18 written notices of violation, and one monetary penalty.
 - Staff worked with legal staff to issue a summons to Top Gun Pressure Washing Inc. for violation of section 26-498, discharge of pollutants to the stormwater system. Resolution of the issue included a guilty plea by Top Gun without the expenditure of time and resources of going to trial.
 - Staff worked with City legal staff on various strategies to obtain reimbursement from Midas for cleanup of the oily discharge in January '08. Options included asking the franchise owner for reimbursement, the issuance of a municipal summons, and taking them to small claims court or County court. The issue was resolved in 2009.
 - Staff responded to permitting issues regarding the construction dewatering discharge from the Resource Recovery Farm Outlet project and followed up with Natural Resources, the Colorado WQCD, and the responsible contractor to resolve the issue.

4. Construction Site Runoff Control – *The permittee must develop and implement a program to assure adequate design, implementation, and maintenance of BMPs at construction sites within the MS4 to reduce pollutant discharges and protect water quality.*
 - Staff performed 1,599 inspections for construction site sediment and erosion control in 2008. Enforcement measures for inadequate sediment and erosion control included: 47 verbal warnings, 214 verbal notices, three written warnings, four stop-work orders, 16 certificates of occupancy held on 1 development site, and holds issued on 8 initial building permits until installation of erosion control measures was complete.
 - Staff organized “Stormwater Construction Permit” training for City project engineers and staff.
 - Staff organized and presented three erosion control training courses to private developers and their contractors.
 - Staff administered the City erosion control re-vegetation contract and assisted City engineering staff with the development of erosion control and wetlands plans for 18 City projects.
 - Staff attended 8 development construction permitting meetings to review plans for new building projects within the City.

5. Post-Construction Stormwater Management in New Development/Redevelopment - *The permittee must develop, implement, and enforce a program to address stormwater runoff from new development and redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale, that discharge into the MS4. The program must ensure that controls are in place that would prevent or minimize water quality impacts.*
 - Staff worked with Utility Database Analysts to develop and implement a computer database for the stormwater post-construction program. The database is an on-going program management tool that automatically generates deficiency and compliance letters, saving many hours of staff time;
 - Staff inspected 134 private water quality ponds and 236 private stormwater detention/retention basins. Enforcement actions included 30 written warnings that cited deficiencies and provided education on maintenance requirements, 8 notices of violation, and one bond withheld for maintenance work performed by the City.
 - Staff presented Low Impact Development (LID) Structural BMP Presentation to AWARE Colorado and Colorado League of Women Voters.
 - Staff participated on the Stormwater BMP (Best Management Practices) Review Project Team (now titled the Stormwater Quality Team) to review stormwater BMPs in Fort Collins. The review included work with a contractor to assess programs using the Center for Watershed Protection’s benchmarking tool, project partnering meetings, Non-Point Source Grant

application, and work with contractor to discuss project sampling plan, and LID presentations and field trips.

6. Pollution Prevention/Good Housekeeping for Municipal Operations - *The permittee must develop and implement an operation and maintenance program that includes an employee training component and has the ultimate goal of preventing or reducing pollutants in runoff from municipal operations.*
 - Staff conducted waste management and stormwater assessments at numerous City facilities and developed Runoff Control Plans (RCPs) for ten different facilities including Streets, Traffic, Parks, Cemetery, Natural Areas, Fleet, Golf, and Utilities.
 - Staff conducted RCP/ Spill Training for 197 employees for those facilities with RCPs and DWRF.
 - Staff collaborated with Capital Projects and DWRF staff on improvements for the stormwater vacuum truck decant and equipment washing site to facilitate discharge to the sanitary sewer.
 - The Fort Collins Colorado Department of Transportation (CDOT) facility is situated between two City facilities with RCPs. Staff coordinated with CDOT on its Runoff Control Plan site inspection and staff training.
 - Staff advised Natural Resources, Hageman Earthcycle, and Northern Engineering on a Stormwater Management Plan and sampling for the Hageman lease of City property.
 - Staff advised on potential stormwater discharge issues with the Spring Canyon Dog Park water quality pond.

The elements required by the Stormwater Management Program (SMP) focus primarily on stormwater pollution prevention BMPs. Stormwater quality monitoring is not required by the MS4 permit. However, an annual assessment and report to the State are required. If monitoring is to be conducted to assess the effectiveness of the SMP, then these results must be included in the City's MS4 annual report to the State.

MS4 Permit outfall screening was conducted during the first permit term, 2003-2008. The purpose of the outfall screening was to locate improper connections (sanitary sewer connected to storm sewer) and priority areas in which illicit discharges may occur. The project included sampling and testing of any discharges from stormwater outfalls during dry weather. No improper connections were found as a result of the screening. This program has since been discontinued from the City's MS4 permit at the request of staff in order to conserve resources. Potential illicit discharge investigations are now handled on a case-by-case basis.

Urban Watershed Water Quality Monitoring Program:

The Colorado Department of Health and Environment (CDPHE) has established public use classifications and water quality standards for Spring Creek and Fossil Creek designed to protect aquatic life and support public uses, recreation and agriculture. Available water quality data from November 2000 through August 2007 show that Fossil Creek and Spring Creek consistently meet water quality standards for pH, dissolved oxygen, and nitrite designed to support aquatic life.

The water quality standard for the indicator bacteria, *E. coli*, is designed to protect recreational use. Spring Creek and Fossil Creek are both designated as “Recreation Class 1a” waterbodies. This classification indicates waters where primary contact occurs including swimming and frequent water play by children. Water quality data for *E. coli* show strong seasonal trends with individual values above the water quality standard primarily during summer months. Sources of *E. coli* contamination include human and animal waste. Controlling or minimizing contamination from improper connections to the City’s river and creeks is the focus of the Utility’s Illicit Discharge Program, a component of the City’s stormwater quality program.

In 2006, Fossil Creek was included on CDPHE’s list of impaired waterbodies for non-attainment of the selenium water quality standard. Available monitoring data shows selenium values consistently above the water quality standard. High concentrations of selenium are found in local shale deposits.

The EPA has published more stringent Selenium standard of 4.6 ppb in a revision of water quality criteria. Consequently in 2006, Colorado adopted this as a water quality standard and is now placing numerous river and stream segments on the 303(d) list for Selenium. The following local stream segments were put on the 303(d) list in 2006 due to exceeding the new selenium standard:

- the Poudre River from Boxelder Creek to where it meets the South Platte River,
- all of Fossil Creek, and
- Boxelder Creek, from its origin in northern Colorado to where it meets the Poudre River.

Selenium is naturally occurring in the underlying shale. The listings given above were a result of a new lower standard and not changing water quality. Selenium can be mobilized by precipitation runoff and infiltration to surface water and groundwater, resulting in elevated stream concentrations.

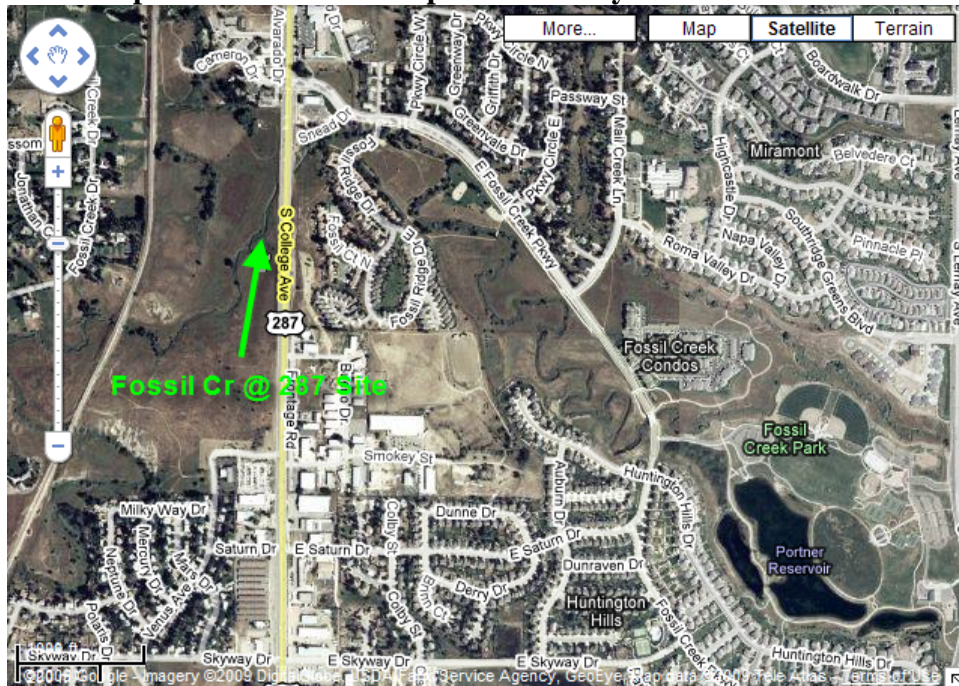
As directed in City Council Resolution 2000-128, “Recognizing the Need to Protect Water Quality”, the City monitors Boxelder Creek, Spring Creek, and Fossil Creek at two sites every calendar quarter for inorganic chemicals, dissolved oxygen and bacteria. Parkwood Lake is sampled twice per year for bacteriological, physical, and chemical parameters. Details for the sampling sites for these key urban creeks are presented in Tables 1 and 3.

Fort Collins Urban Creek Monitoring Sites:

Photograph of Fossil Creek looking downstream toward Hwy 287:



Arial Map of Fossil Creek sample site at Hwy 287:



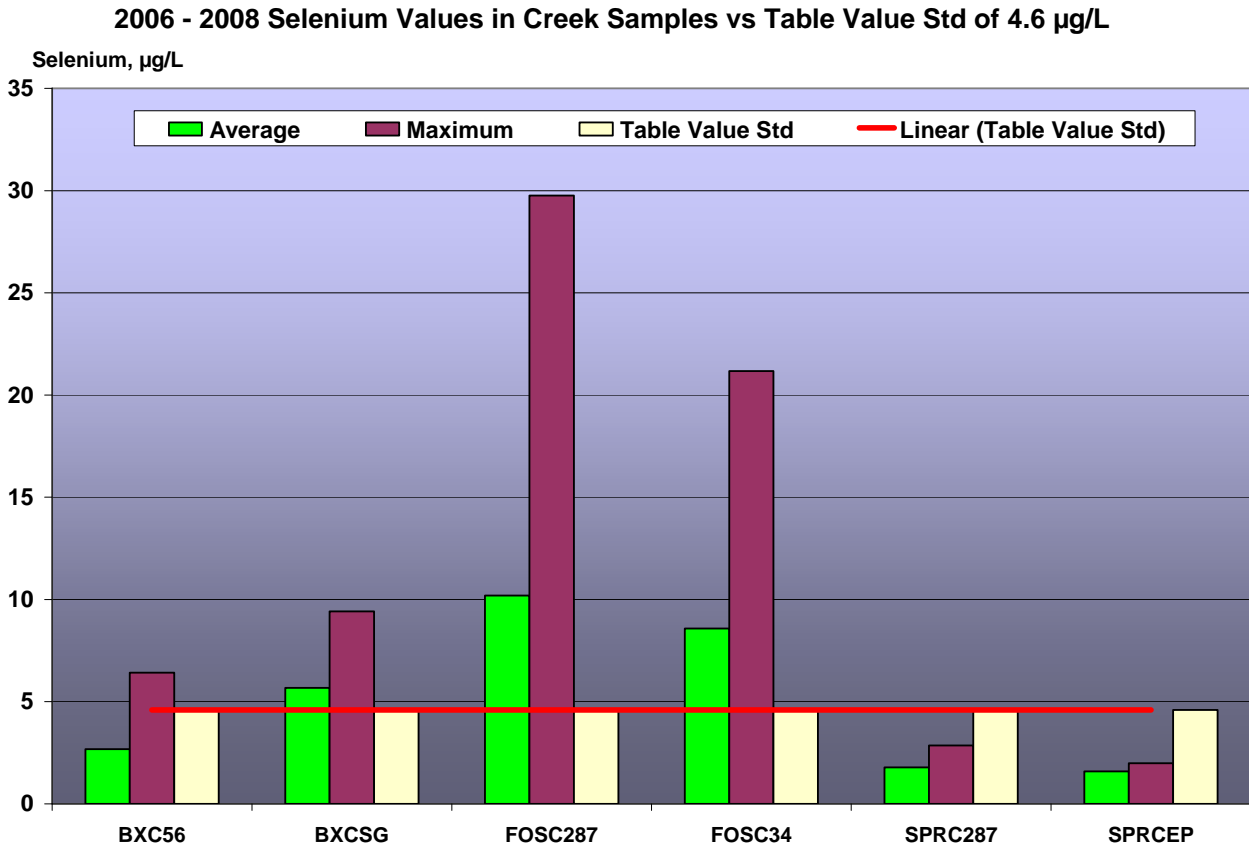
Arial map of Fossil Creek @ County Road 34:



Photograph of Fossil Creek looking upstream from County Road 34:



Figure 1. 2006 – 2008 Maximum, Average and Table Value Standard Selenium Levels in Fort Collins Urban Creeks.



Legend:

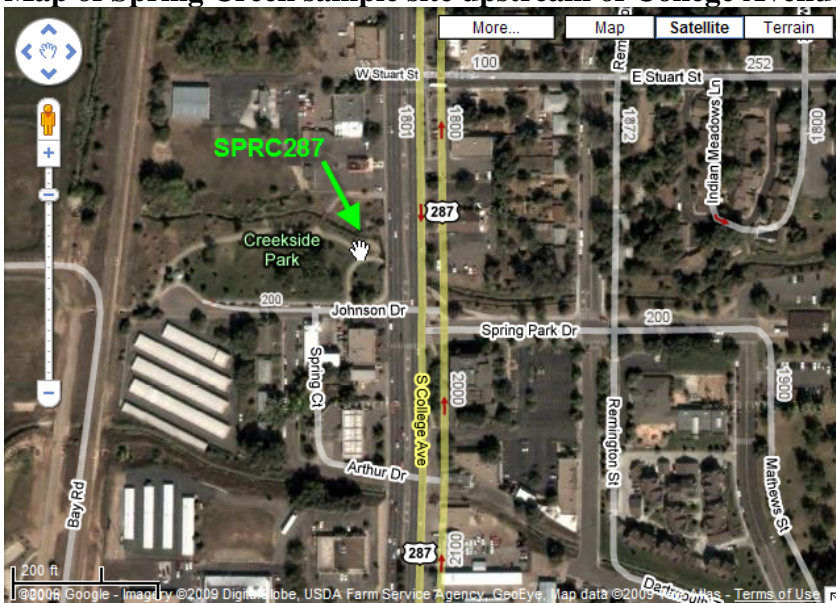
- BXC56 = Boxelder Creek at County Road 56
- BXCSG = Boxelder Creek at Staff Gage located south of Prospect St.
- FOOSC287 = Fossil Creek at Hwy 287
- FOOSC34 = Fossil Creek at County Road 34
- SPRC287 = Spring Creek at Hwy 287
- SPRCEP = Spring Creek at Edora Park

The Colorado Department of Health, Water Quality Control Division has listed both Boxelder Creek and Fossil Creek as 303(d)-impaired for the naturally elevated selenium levels in those waters. The Table Value Standard (TVS) for selenium levels in these creeks is 4.6 micrograms per liter. Selenium is associated with the shale common to soils in our geographic region. The City’s Pollution Control Lab monitors the selenium levels in these urban creeks at two locations once each calendar quarter.

Photograph of Spring Creek sample site near College Avenue:



Map of Spring Creek sample site upstream of College Avenue:



Photograph of Spring Creek at Edora Park looking downstream:



Map of Spring Creek at Edora Park sample site:



Photograph of Boxelder Creek looking upstream from CR56



Arial Photograph of the Boxelder Creek Sampling Site just upstream of CR56:



Photograph of Boxelder Creek looking downstream toward the confluence with the Cache la Poudre



Arial Map of Boxelder Cr sample site a Resource Recovery Farm gage site:

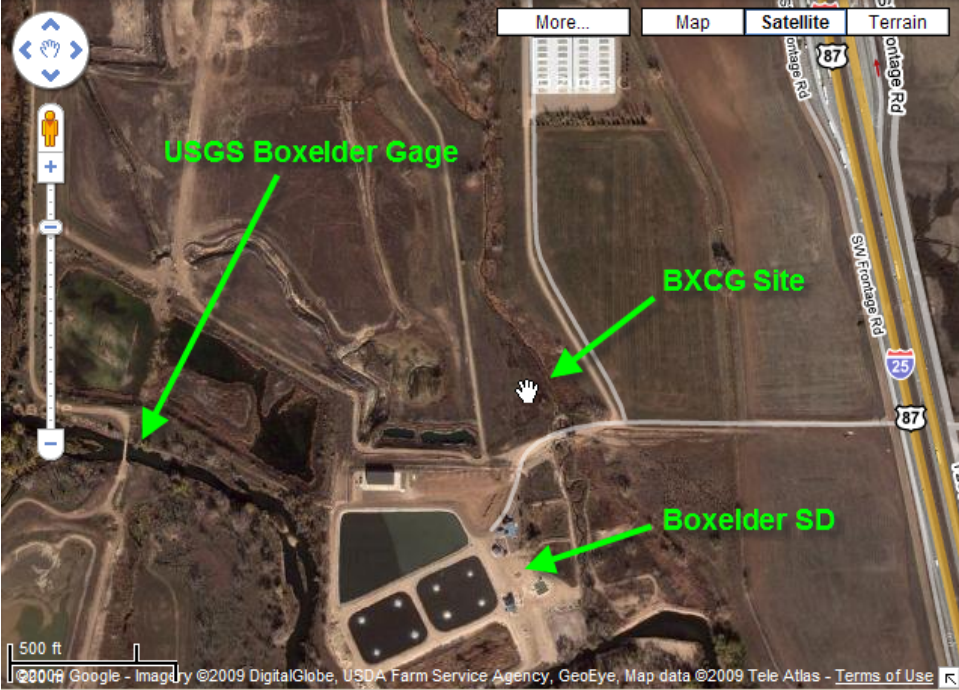


Figure 2. 2004 – 2008 *E. coli* levels in Fort Collins key urban creeks versus the stream standard of 126 *E. coli* per 100 milliliters (ml).

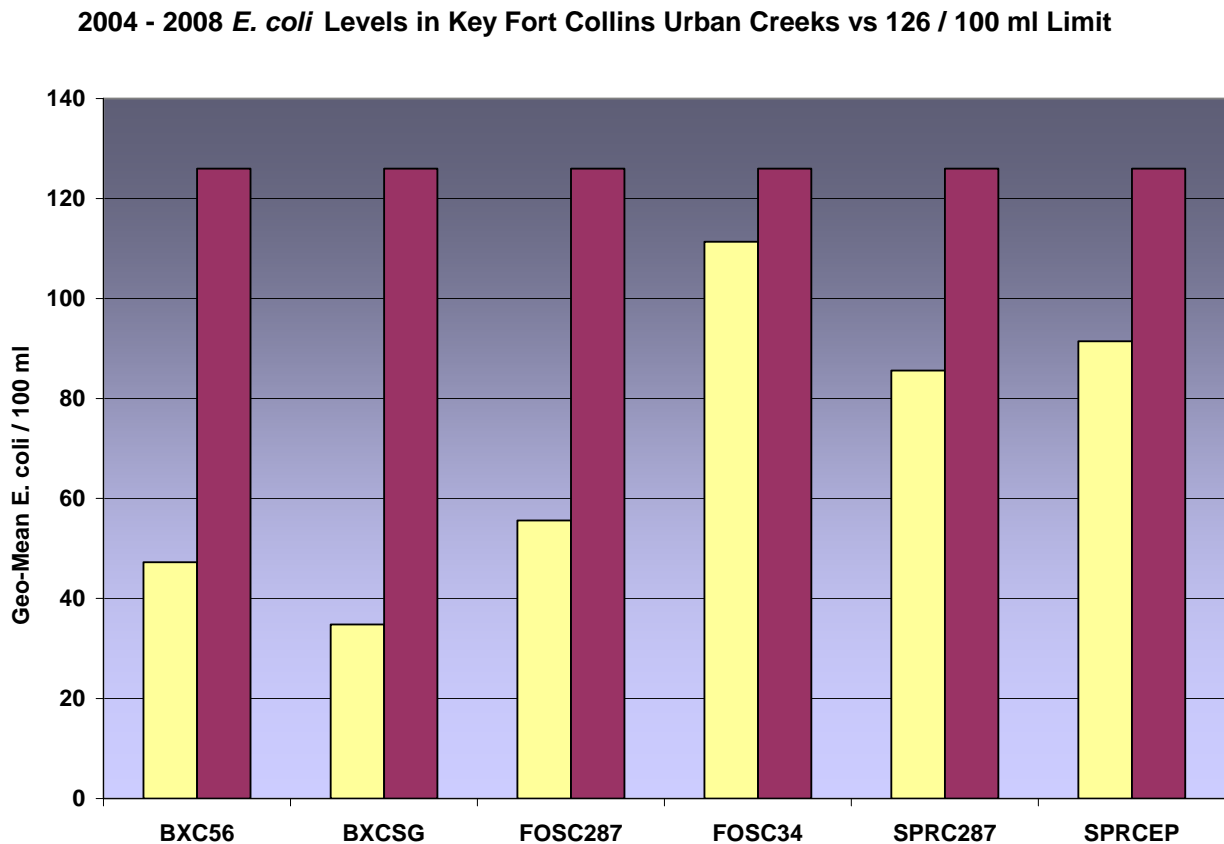


Figure 2 depicts the geometric mean values of *E. coli* levels found in key Fort Collins urban creeks for the 2004 – 2008 timeframe compared to the stream standard. *E. coli* levels were monitored once each calendar quarter for this time period and the geometric mean calculated per Colorado Water Quality Control Division (WQCD) procedures. The geometric mean values (n=20) for each site were all below the 126 *E. coli* / 100 ml limit set by the WQCD. *E. coli* levels are an indicator of the extent of human and animal fecal contamination in water.

Exhibit A

Letter of Appreciation from the Water Quality Control Division

STATE OF COLORADO

Bill Ritter, Jr., Governor
James B. Martin, Executive Director

Dedicated to protecting and improving the health and environment of the people of Colorado

4300 Cherry Creek Dr. S. Laboratory Services Division
Denver, Colorado 80246-1530 8100 Lowry Blvd.
Phone (303) 692-2000 Denver, Colorado 80230-6928
TDD Line (303) 691-7700 (303) 692-3090
Located in Glendale, Colorado
<http://www.cdphe.state.co.us>



Colorado Department
of Public Health
and Environment

May 3, 2007

Carol A. Webb
Regulatory & Government Affairs Division
City of Fort Collins Utilities
700 Wood St.
Fort Collins, CO 80521

Re: City of Fort Collins' Ambient Water Quality Monitoring Program

Dear Ms. Webb:

This letter is written to express the appreciation of the Water Quality Control Division for the effort the City of Fort Collins has made to conduct an ambient water quality monitoring program on the Cache la Poudre River for the past thirty years. This monitoring provides information that is not only valuable to the City in terms of support for the development of its permits but also provides important data to the Division and other stakeholders that is used to make other water quality management decisions. The fact that the City started this program of its own volition is laudable. Furthermore, the efforts made by the City and other participants in Poudre River monitoring over the past year to examine and revise the program will improve the quality and usefulness of the data. As a result of the City and other Poudre River stakeholders' foresight and cooperation, the Division has developed a discharge permit monitoring policy that specifically provides for reduced discharge monitoring where an entity conducts ambient water quality monitoring. This policy will be applied to the City's permits at the time that the Division renews them later this year. The Division wholeheartedly supports the City of Fort Collins continued participation in the regional monitoring effort and we look forward to working with you on this and other initiatives in the future.

Sincerely,

David Akers, Manager
Clean Water Facilities Program
Water Quality Control Division

xc: Steve Gunderson, WQCD Director