ARROWHEAD MOBILE HOME PARK

LIFT STATION
22.7 SITE APPLICATION REPORT

ELEMENT ENGINEERING LLC

JUNE 2018

LIFT STATION
22.7 SITE APPLICATION REPORT
FOR
ARROWHEAD MOBILE HOME PARK

JUNE 2018

EE Job No.: 0013.0001

COLORADO LICENSED
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DILIGENT • INNOVATIVE • RESPONSIVE

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DEFINITIONS, ACRONYMS, AND ABBREVIATIONS (NOT ALL MAY BE FOUND IN THIS REPORT)

BOD_5	5-Day Biochemical Oxygen Demand
CDPHE	Colorado Department of Public Health and Environment
CDPS	Colorado Discharge Permit System
cm/sec	Centimeters per second
CY	Cubic Yards
DOLA	Department of Local Affairs
EA	Each
EDU	Equivalent Dwelling Unit
ECHO	Enforcement and Compliance History Online
EE	Element Engineering, LLC
EPA	Environmental Protection Agency
ft	Feet
gal	gallons
gpcd	Gallons per capita-day
gpd	Gallons per day
gpm	Gallons per minute
hp	Horsepower
HVAC	Heating, Ventilating and Air Conditioning
I&I	Inflow and Infiltration
kW	Kilowatts
lb/ac-day	Pounds per acre-day
lb/day	Pounds per day
LF	Linear Feet
LS	Lump Sum
mg/L	Milligrams per Liter
MGD	Million Gallons per Day
N/A	Not available or applicable
O&M	Operations and Maintenance
OMB	Office of Management and Budget
PEL	Preliminary Effluent Limitations
PVC	Polyvinyl Chloride
PW	Present Worth
RAS	Return Activated Sludge
ref.	Reference
RUS	Rural Utilities Services
SCADA	Supervisory Control and Data Acquisition
SFE	Single Family Equivalent
SF	Square Feet
SOG	Slab on Grade
TSS	Total Suspended Solids
USDA	United States Department of Agriculture
VFD	Variable Frequency Drives
WAS	Waste Activated Sludge
WWTP	Wastewater Treatment Plant
YR	Year

1 INTRODUCTION

The existing Arrowhead Mobile Home Park (AMHP) Wastewater Treatment Plant (WWTP) consists of a two-cell aerated chamber system with a small settling chamber that discharges to a two-cell unlined lagoon that functions as an infiltration basin. The WWTP is currently in non-compliance because there is no state approved discharge permit allowing discharge to groundwater in this manner. Furthermore, the existing facility will not be capable of treating to stringent effluent groundwater nutrient limits. The proposed project includes the complete decommissioning of the existing AMHP WWTP and the construction of a lift station that will consolidate with the neighboring Cherokee Metropolitan District (CMD). As part of this project, AMHP has submitted all necessary paperwork to be officially included as an in-district customer of CMD.

The proposed lift station will be located on AMHP property, adjacent to the existing WWTP so that the existing collection system can be utilized. It will pump to CMD's gravity sewer main that runs along North Curtis Road. Once it joins with the CMD collection system, it will be treated at the Cherokee Metropolitan District Water Reclamation facility, which is comprised of the Black Squirrel WWTF and Rapid Infiltration Basin Facility and discharges to groundwater.

1.1 APPLICABLE REGULATORY SECTIONS

This *Site Application Engineering Report* will address the requirements set forth in Regulation 22, Section 7. The proposed project includes the construction of a new lift station. The CDPHE Regulation 22.7 Application Form and Completeness Checklist are provided in Appendix A.

This report is being simultaneously submitted to CDPHE with the Basis of Design Report and 100% Plans and Specifications. These documents will be reviewed by CDPHE and all comments received from the agency will be addressed prior to moving forward with construction.

In addition to the applicable sections of Regulation 22, the design and facility layout will comply with *State of Colorado Design Criteria for Domestic Wastewater Treatment Works*.

1.2 APPLICANT INFORMATION

Applicant:

Arrowhead Mobile Home Park
75 N. Curtis Road
Colorado Springs, CO 80930
(719) 683-2727

Representative:

Dayton and Leah Orsburn, Co-Trustees
Owner
(909) 576-1324

2 PROJECT BACKGROUND

2.1 PROJECT LOCATION AND SERVICE AREA

The Arrowhead Mobile Home Park (AMHP) is located in El Paso County, ten (10) miles east of Colorado Springs. It serves one office building, and 54 mobile homes housing approximately 135 residents based on an average of 2.5 persons per unit (see CDPHE Regulation 43). The service area is located in Section 15, Township 14S, Range 64W of the Sixth Prime Meridian. The service area is at complete build-out and cannot expand. No changes to the population, flow, or wastewater characteristics are expected. Photos depicting the approximate service area boundary and proposed project location are shown in Figure 1 and Figure 2, respectively. Ownership documentation and project area maps are attached in Appendix B.

Figure 1 – Service Area Boundary Map

Figure 2 - Proposed Project Location

2.1.1 Area Discharge Permits, Drinking Water Intakes, and Domestic Wells

The two water and wastewater districts in the area are Cherokee Metropolitan District and Colorado Centre Metropolitan District. There are no dischargers within a 5-mile radius. Water wells in a one-mile radius were located utilizing the Colorado Decision Support System maps. There are several wells within this one-mile radius. Locations of these wells are shown in the 1-Mile Radius Map in Appendix B.

2.1.2 Topography

A USGS topographical map for the project area is located in Appendix B. A full geotechnical analysis, as required by CDPHE design criteria, is being completed by Kumar and Associates. The findings of this report will be utilized to update the project design as required. The geotechnical analysis will be submitted to CDPHE upon receipt.

2.1.3 Local Water Bodies, Streams, and Rivers

The only water body in the area of the proposed project is the Big Springs Creek, located approximately eleven (11) miles to the east. No other water bodies exist in the vicinity of the project area.

2.1.4 Floodplains and Wetlands

The proposed lift station project area is not located within the 100-year floodplain. According to the Flood Insurance Rate Map (FIRM No. 08041C0800F) the project area is located outside of the 500-year floodplain. A map depicting the project location is included in Appendix B.

Furthermore, no wetlands exist in the area of the proposed project. A National Wetlands Inventory Map is attached in Appendix B.

2.1.5 Endangered Species

An Information for Planning and Consultation (IPaC) Resource List was compiled that catalogues all of the listed and proposed threatened and endangered species, and critical habitats found within the planning area. This report can be found in Appendix C. The IPaC report found 3 endangered species and 7 threatened species in the planning area. The project area does not coincide with any critical habitats. Furthermore, several species are listed as only needing to be considered if the project includes water-related activities in the North Platte, South Platte, and Laramie River Basins. The planning area does not overlap any of these basins; therefore, the proposed project is not expected to affect these listed species. No critical habitats were found at this location.

2.1.6 Land Use Projections and Zoning

No changes are expected with respect to land use designations or zoning over the course of the 20-year planning period.

2.2 POPULATION AND FLOW PROJECTIONS

The AMHP service area consists of 54 mobile homes housing approximately 135 residents and one office building. The service area is at complete buildout, and no more growth is possible. Therefore, the existing flow and loading is equivalent to future flow and loading. In late June 2017, a temporary flow recording device was installed on the effluent piping of the plant. Due to the layout and design of the influent piping, there is no possible way to install a flow monitor on the influent piping. The existing plant is very small; therefore, it is reasonably assumed that effluent flow is equal to influent flow. The flow data collected to date is summarized in Appendix D.

2.3 HYDRAULIC LOADING ANALYSIS

As shown in Appendix D, the existing average daily flow (ADF) from June 2017 through August 2017 is 5,100 gpd. Although irrigation does not occur in the service area, the data is too limited to use this as a representative value. This report will therefore utilize a conservative design ADF of 7,500 gpd for the proposed lift station. Because the service area population will not change over the 20-year planning period, this is the projected ADF as well.

Peak hour flow can be calculated using a peaking factor obtained from Figure 3.1 of CDPHE's Design Criteria. At an existing and future population of 135, an appropriate and conservative design peak hour flow to design average flow factor of 4.0 is used. Therefore, the peak hour flow for the replacement lift station is 30,000 gpd or approximately 20.8 gpm. Table 1 summarizes the hydraulic loading conditions at the lift station.

Table 1 – AMHP Lift Station Hydraulic Loading Conditions

Criteria	Value	Units
Average Daily Flow (ADF)	7,500	gpd
20-Year Projected Average Daily Flow	7,500	gpd
Peak Hour Flow (PHF)	30,000	gpd
Peak Hour Flow (PHF)	20.8	gpm
PHF = ADF x 4 (appropriate for service area size)		

Because the existing facility was not properly permitted, influent BOD monitoring has not been performed. In lieu of site-specific data, BOD loading can be estimated using design values found in *CDPHE Regulation 43 – On-Site Wastewater Treatment System Regulation*. According to Table 6-2 of this regulation, the estimated per capita BOD loading for mobile homes is 0.2 lbs per day. For office buildings, the estimated BOD loading contribution is 0.06 lbs per day per employee per 8-hour shift. The existing office building is run by one employee; therefore, the total daily BOD contribution from the office building is 0.06 lbs per day. Table 2 summarizes the calculated influent organic loading based on service area characteristics and Regulation 43 design values. Table 3 summarizes the organic loading conditions at the lift station.

Table 2 – Influent Organic Loading Calculations

User Type	Units	No. Units	lbs BOD/day per Unit	Total lbs BOD/day
Residential - Mobile Home	per Capita	135	0.2	27
Office	per Employee (8-Hour Work Day)	1	0.06	0.06
			Total	27.06
Source: Regulation 43, Assumes 2.5 persons per mobile home.				

Table 3 – AMHP Lift Station Organic Loading Conditions

Criteria	Value	Units
Estimated Annual Average Loading (AAL)	27.06	lbs/day
Influent BOD Concentration	432	mg/L
Peak Hour Organic Loading (PHOL)	108	lbs/day
PHOL = Projected AAL x 4 (appropriate for service area size) Influent BOD Concentration calculated from ADF and estimated AAL		

2.4 IDENTIFICATION OF TREATMENT ENTITY

All wastewater in the collection system is currently directed to the existing AMHP WWTP, which is a small

packaged activated sludge plant. The treatment process consists of two concrete aeration chambers, a clarifier, and a two-cell unlined lagoon that discharges directly to groundwater. This facility does not currently hold a state approved discharge permit to legally discharge effluent to groundwater in this manner.

The proposed project includes the complete decommissioning of the existing AMHP WWTP and the construction of a lift station that will pump raw wastewater to the Cherokee Metropolitan District Water Reclamation Facility for treatment. As part of this project, AMHP will submit all necessary paperwork to be officially included as an in-district customer of CMD.

The CMD Water Reclamation Facility is located at 19174 Drennan Road and consists of the Black Squirrel WWTF and Rapid Infiltration Basin Facility. The Black Squirrel WWTF is an extended aeration activated sludge biological process, utilizing four sequencing batch reactors (SBRs), followed by effluent flow equalization and UV disinfection. Waste activated sludge (WAS) is aerobically digested and dewatered with centrifuges. Treated effluent from the mechanical treatment facility is conveyed to the Rapid Infiltration Basin Facility, located approximately four (4) miles east. An aerial image of these facilities is shown in Figure 3. Detailed information on the Water Reclamation Facility, including the permit certification and process flow diagrams, can be found in Appendix E.

Figure 3 – Cherokee Metropolitan District Water Reclamation Facility Layout

2.5 PROJECT IMPACT TO TREATMENT ENTITY

Although the proposed project will increase the total flow and loading received by the CMD Water Reclamation Facility (WRF), wastewater contributions from AMHP will be insignificant in comparison to total flows. Based on existing data and calculated influent organic load, average contributions from AMHP will be approximately 7,500 gpd and 27.06 lbs of BOD/day. At a facility permitted to receive 4.8 MGD, this would only contribute approximately 0.1% of the permitted hydraulic capacity and 0.2% of the existing ADF. Similarly, AMHP would contribute 0.3% of the permitted organic loading of 8,835 lbs of BOD/day at CMD.

Furthermore, although the CMD WRF has persistently had problems meeting its permitted effluent Total

Dissolved Solids (TDS) limit of 400 mg/L, the wastewater contribution from AMHP are so insignificant that it will not affect the overall TDS concentration received by the CMD WRF. Per the CMD Water and Wastewater Collections Manager, CMD staff is confident that the anticipated and projected additional flows to be received will not materially alter the status of their current Compliance Order on Consent (COC), Number MC-140514-1. This COC is included in Appendix F along with correspondence with CMD.

2.6 LEGAL CONTROL OF SITE

The proposed lift station will be located on AMHP property, adjacent to the existing treatment plant. The force main will extend through county right of way and connect to the CMD gravity pipe located within the county right of way easement.

2.7 WASTEWATER TREATMENT ENTITY STATEMENT

The Wastewater Receiving Entity Certification has been filled out by CMD and is attached in Appendix A as page 6 of the Application Form. As part of this project, AMHP has submitted and received board approval for an Inclusion Petition in order to be considered an in-district customer of CMD. As an in-district customer, AMHP will pay lower sewer rates than it would've otherwise. A signed copy of CMD Resolution 2018-03 to include AMHP as an in-district customer, along with all supporting documentation, is included in Appendix E.

3 PROJECT DESIGN CONSIDERATIONS

The proposed Arrowhead Mobile Home Park Lift Station will consist of the installation of a 4-ft diameter packaged lift station, and a 4-ft diameter meter vault adjacent to the location of the existing lift station. This also includes the installation of two submersible grinder pumps rated at 35 gpm at 54.80 ft of total dynamic head, along with all required electrical controls. Although the pumps are rated higher than the PHF of 21 gpm, the pumping rates must exceed the PHF in order to maintain velocities of greater than 2 fps in the 2" force main. At 35 gpm, pipe velocity will be approximately 3.58 fps.

Locating the proposed lift station adjacent to the existing AMHP WWTF will allow as much of the existing collection system piping to be utilized as possible.

The proposed lift station will be designed in accordance with *Colorado Design Criteria for Domestic Wastewater Treatment Works, Chapter 4.* The design criteria for the proposed lift station are as follows:

- Two grinder pumps rated at 35 gpm at 54.80 ft TDH
- Variable frequency drives
- 4-ft diameter wet well
- A maximum of 1-hour wet-well detention time at average day flow conditions
- Minimum velocity in the force main shall be greater than 2 fps
- Emergency storage for 2-hours of peak hour flow conditions in the emergency overflow manhole
- Flow monitoring will be achieved by installing a magmeter on the force main

4 EMERGENCY OPERATIONS AND MAINTENANCE

4.1 EMERGENCY OPERATIONS PLAN

The main goals of an emergency operations and maintenance plan for a lift station are to 1) prevent sanitary sewer overflows (SSOs) through routine maintenance, and 2) to clearly establish the procedure to follow in the event that an SSO does occur. A preliminary emergency response plan has been developed as part of this site application and details the following:

- Identification of Potential Causes of Overflow
- Prevention Practices
- Engineering Features to Address Sanitary Sewer Overflows
- Emergency Preparedness

The AMHP staff will operate the proposed lift station. All emergency response procedures will be handled by AMHP staff in conjunction with Cherokee Metropolitan District staff and practices.

4.1.1 Identification of Potential Causes of Overflow

The lift station will be equipped with pump failure and high wet well alarms and an auto-dialer that will alert operations staff to equipment failures and/or high wet well levels. Pumping equipment will include overcurrent and high temperature protection. In addition to the auto-dialer, an audible alarm and a visual alarm light will activate to alert and draw attention in the surrounding area. AMHP has dedicated 24-hour on-call staffing that will quickly respond to emergencies or alarms.

4.1.2 Prevention Practices

Routine operation and maintenance checks are essential to prevent overflows from a lift station. It is recommended that the lift station be inspected on a daily basis. This would simply include opening the wet well, meter vault, and control panels to inspect for damage or any potential sources of clogging.

Alarm testing will be completed on a monthly basis upon startup of the lift station to ensure alarms are functioning properly. Valves in the wet well should be exercised once per quarter to ensure they will work when needed.

Routine pump maintenance as described by the pump manufacturer will be included in the operation and maintenance manual turned over to the owner at the completion of construction.

4.1.3 Engineering Features to Address Sanitary Sewer Overflows

Two (2) pumps will be provided to ensure redundancy. During normal operation, each pump will operate in a lead-lag fashion. Each pump will be capable of pumping 100% of the peak hour flow individually.

Emergency storage, as required in the design criteria, will be provided by an overflow manhole to ensure there is adequate time for staff to respond and fix any issues. This emergency storage will

also allow room for a portable pump to be utilized if there are issues with the two permanent grinder pumps.

As previously mentioned, an alarm system will be included for the pumps. Alarms will include pump failure, high wet-well level, and grinder failure. Alarms will be visual, audible, and will be sent to AMHP staff by auto-dialer.

4.1.4 Emergency Preparedness

If an SSO occurs, the emergency preparedness and response plan of AMHP staff is essential. The design criteria requires that overflow storage of raw wastewater be provided at the lift station in the event of an extended power outage, electrical failure, or mechanical failure, including force main interruptions. The overflow storage volume required must be sufficient to contain all wastewater during the period of time required to restore pump station operation, install temporary pumping capacity, or haul raw wastewater to an acceptable point of discharge. The overflow storage will be designed to contain two-hours of peak hour storage, or 2,500 gallons (21 gpm x 120 minutes). The wet well is also required to provide a maximum of one hour of detention time at average flows.

AMHP staff will assess each emergency event and respond accordingly. For example, in the case of a complete mechanical failure of all equipment, a portable pump will be installed temporarily to pump wastewater from the wet well to a camlock fitting in the valve vault to pump directly into the force main. In the event of a power outage or other electrical failure, a portable backup generator will be connected to provide temporary power.

4.2 TELEMETRY AND ALARMS

The lift station will feature an alarm system for the pumps. Alarms will include pump failure and high wet well level. Alarms will be visible, audible, and will be sent to AMHP staff by auto-dialer. Pumps will also include overcurrent and high temperature protection.

4.3 BACKUP POWER SUPPLY

To accommodate portable backup power, a portable generator quick-connect will be installed at the control panel.

4.4 PORTABLE EMERGENCY PUMPING EQUIPMENT

AMHP has access to portable pumps and generators that will be made available as needed in the event of a mechanical or electrical failure.

4.5 EMERGENCY STORAGE/OVERFLOW PROTECTION

An emergency overflow structure is included in the design. This structure will allow AMHP staff to respond to an emergency and take corrective action prior to an SSO.

4.6 OPERATOR CALL-DOWN LIST AND RESPONSE TIME JUSTIFICATION

The emergency phone number list includes emergency responders and AMHP personnel. The main point of contact would be (719) 589-5807 which is Colorado State Patrol (CSP) Dispatch. CSP then contacts AMHP personnel (24/7). The average response time is about 30 minutes after personnel receive the call from dispatch. The call-down list provided by AMHP is as follows:

EMERGENCY PHONE NUMBERS
ARROWHEAD MOBILE HOME PARK

Operator in Responsible Charge – Paul E. Grant II, Contract Operator
(719) 303-0411

Park Manager – Rhonda Folden
(719) 683-2727

Colorado State Patrol Dispatch
(719) 589-5807

El Paso County Sheriff
911 or (719) 520-7100

El Paso County Fire Marshal
911 or (719) 575-8590

WQCD 24HR Incident Report Line
1-877-518-5608

5 MANAGEMENT AND FINANCIAL CAPACITY

5.1 MANAGEMENT CAPACITY

AMHP owns and maintains the collection lines that are on park property, while CMD owns, manages, operates and maintains the off-park property sewer lines leading to the Water Reclamation Facility and the Water Reclamation Facility itself. AMHP will own, operate, and maintain the proposed lift station and force main up to the point where it connects to the CMD collection system. There is no need for additional park staff as the proposed project will reduce the operational intensity required by AMHP. Furthermore, there is no need for additional staff at CMD as a result of the proposed project because the increase to plant capacity is only 0.1% of CMD's permitted hydraulic capacity and 0.2% of the existing ADF seen by CMD's Water Reclamation Facility.

5.2 FINANCIAL CAPACITY

This project is being undertaken by the park owner and will be entirely privately funded. The owner is willing to increase lot rent fees as necessary to support this project. Operation and maintenance costs are expected to decrease with the installation of the new lift station. No increased staffing will be required with the new installation.

5.2.1 Capital Improvement Plan

The construction of a new lift station allows AMHP to consolidate with the nearest wastewater district, which is the most economically feasible means of bringing the park into regulatory compliance. Following completion of this project, no additional capital improvement projects should be necessary for the wastewater system for many years.

AMHP has had no major issues with or breaks in the pipe in their collection system. Annual inspection and maintenance will be necessary for the collection system to remain in good condition, and to address any emerging issues before they negatively impact system performance.

5.2.1 Rate Structure

AMHP residents do not pay individual usage-based water bills, but instead pay a flat-rate monthly lot fee that accounts for rent as well as utilities. The park owner is willing to adjust lot fees as necessary to support this project.

6 POSTING OF SITE & LOCAL AGENCY REVIEW

6.1 POSTING OF SITE

As required by Regulation 22, notice has been posted at the proposed site. A photo of the posted site is presented in Figure 4.

Figure 4 – Photo of Posted Notice

6.2 LOCAL AGENCY REVIEW

Regulation 22, Section 7 requires that a copy of the site location application and all supporting and ancillary documentation be submitted to the local review and commenting agencies prior to submission to CDPHE. The applicable agencies for this project are:

- County: El Paso County
- Health Department: El Paso County Department of Health and Environment
- 208/COG, RCOG: Pikes Peak Area Council of Governments

Transmittals showing distribution of this site application document are attached in Appendix G. Comments by the local agency reviewers will be submitted to CDPHE upon receipt.

7 CONSISTENCY WITH WATER QUALITY MANAGEMENT PLAN

The proposed project includes the construction of a new lift station and approximately 850 feet of force main, as well as the decommissioning of an unpermitted, unlined lagoon. This project will provide wastewater disposal without vector nuisances and will eliminate untreated discharges to groundwater, which is consistent with Colorado's Statewide Water Quality Management Plan. Furthermore, this project aligns with Objective 10.1 of the El Paso County 2004 Highway 94 Comprehensive Master Plan that encourages the consolidation of regional water and sanitation systems over the proliferation of small, individual systems. This project is also consistent with Section 3.6 of the Pikes Peak Area Council of Governments Water Quality Management Plan 2010 Update regarding the adequate collection, treatment, and disposal of wastewater.

8 IMPLEMENTATION SCHEDULE

A possible implementation schedule for the proposed project is shown in Table 4. Note that this schedule is preliminary and is subject to change.

Table 4 – Preliminary Project Schedule

Task	Start Date	End Date
Complete and Submit 22.7 Site Application to CDPHE	--	06/15/18
CDPHE Review and Approval of Site Application	06/15/18	09/15/18
Complete and Submit Basis of Design Report, 100% Plans and Specs to CDPHE	06/15/18	10/15/18
CDPHE Review and Approval of Basis of Design Report, 100% Plans and Specs	10/15/18	01/15/19
Project Bidding	01/15/19	02/15/19

APPENDIX A – REGULATION 22.7 APPLICATION FORM
REGULATION 22.7 APPLICATION COMPLETENESS CHECKLIST

Colorado Department of Public Health and Environment

Water Quality Control Division
Engineering Section

4300 Cherry Creek Drive South, B2
Denver, Colorado 80246-1530
CDPHE.WQEngReview@state.co.us
303-692-6298

Regulation 22 Application Form
Section 22.7 of Regulation 22: Interceptor Sewers Not Eligible for Certification and Lift Stations

A. Project and System Information			
System Name	Arrowhead Mobile Home Park		
Project Title	Arrowhead Mobile Home Park Lift Station		
County	El Paso		
Date Fee Paid or payment attached		Invoice Number and Check Number	
Design Company Name	Element Engineering, LLC		
Design Engineer	Nicholaus Marcotte	CO License Number	47164
Address	12687 West Cedar Drive, Suite 300		
	Lakewood, CO 80228		
Email	nmarcotte@elementengineering.net		
Phone	(303) 378-2969	Fax	
Applicant / Entity	Arrowhead Mobile Home Park		
Representative Name/Title	Orsburn, Dayton and Leah CO-Trustees		
Address	P.O. Box 154		
	Chino Hills, CA 91709		
Email	daytonorsburn@me.com		
Phone	(909) 576-1324	Fax	

B. Project Information			
Location (existing or proposed site)		***Proposed Project Capacity***	
Brief location description	75 N. Curtis Rd, Colorado Springs, CO 80930	Maximum Month Average Hydraulic Capacity in million gallons per day (MGD)	0.0051 MGD
Legal Description (e.g., Township, Range)	S2SW4NW4	Peak Hour Hydraulic Capacity in million gallons per day (MGD)	0.0204 MGD
County	El Paso		
Latitude	38°49'56.46" N	Organic Capacity (lbs. BOD_5/day) – Treatment Facility Only	8,835 lbs. BOD_5/day
Longitude	-104°33'06.08" W		

Funding Process	Will a State or Federal grant or loan be sought to finance any portion of the project (e.g., State Revolving Fund)?	No	☒	Yes	☐	If yes, please list project number

Project Schedule and Cost Estimate	
Estimated Bid Opening Date	1/15/19
Estimated Completion Date	7/31/19
Estimated Project Cost	$272,000

Regulation 22 Application Form
Section 22.7 of Regulation 22: Interceptor Sewers Not Eligible for Certification and Lift Stations

Project and System Information	
Project Title	Arrowhead Mobile Home Park Lift Station
System Name	Arrowhead Mobile Home Park
County	El Paso

Interceptor/Lift Station Design Information	
1.	a) Name and address of wastewater treatment facility providing treatment (Receiving wastewater facility must fill out "Receiving Wastewater Entity Certification")
	Cherokee Metropolitan District Water Reclamation Facility, 19174 Drennan Rd, Colorado Springs, CO 80930

Site Information	
2.	**Vicinity maps of facility location which includes the following:** a) 1 mile radius map: habitable buildings, location of public and private potable water wells, an approximate indication of the topography, and neighboring land uses
	See Site Application Appendices
3.	***Site Location Zoning***
	a) Present zoning of the site location?
	b) Zoning within a one (1) mile radius of the site? For New Lift Stations Only.
4.	**Floodplain or Natural Hazards**
	a) Is the facility located in a 100-year floodplain or other natural hazard area? If so, what precautions are being taken?
	No, N/A
	b) Has the floodplain been designated by the Colorado Water Conservation Board, Department of Natural Resources or other agency? If so, please list agency name and the designation.
	N/A
5.	**Land Ownership**
	a) Who owns the land upon which the facility will be constructed? Please attach copies of the document(s) creating authority for the applicant to construct the proposed facility at this site.
	Dayton and Leah Orsburn, Co-Trustees. See Appendix B.

Lift Station Facility Only	
6.	Please describe the period during which service area build-out will occur.
	The service area is already at full build-out and cannot expand.
7.	Please describe the flows expected in the first five years and ten years of operation.
	Future flows are equal to existing flows due to the service area being at full build-out. Average Day Flows are 7,500 gpd.
8.	Will the proposed lift station replace an existing lift station?
	Yes ☐ No ☒
	If Yes, please describe the current flows and loadings that will be switched to the proposed lift station.

9.	Describe emergency back-up system in case of lift station and/or power failure.
	See Section 4 of the Site Application
Project Information	
10.	a) What entity is financially responsible for the construction of the facility?
	Dayton and Leah Orsburn, Co-Trustees
11.	a) What entity has the financially responsibility for owning and long term operating expense of the proposed facility?
	Dayton and Leah Orsburn, Co-Trustees
12.	a) What entity has the responsibility for managing and operating the proposed facility after construction?
	Dayton and Leah Orsburn, Co-Trustees
Additional Factors	
13.	Please identify any additional factors that might help the Water Quality Control Division make an informed decision on your site location application.

Colorado Department of Public Health and Environment

Water Quality Control Division
Engineering Section

4300 Cherry Creek Drive South, B2
Denver, Colorado 80246-1530
CDPHE.WQEngReview@state.co.us
303-692-6298

Applicant Certification and Review Agencies Recommendation
Section 22.7 of Regulation 22: Interceptor Sewers Not Eligible for Certification and Lift Stations

A. Project and System Information	
System Name	Arrowhead Mobile Home Park
Project Title	Arrowhead Mobile Home Park Lift Station
County	El Paso

1. Applicant Certification

I certify that I am familiar with the requirement of *Regulation 22 - Site Location and Design Approval Regulations for Domestic Wastewater Treatment Works*, and have posted the site in accordance with the Regulations. An engineering report, as described by the regulations, has been prepared and is enclosed.

Applicant Legal Representative (e.g. Public Works Director)	Date	Typed Name	Signature
Owner	6/13/18	Dayton Orsburn	

The system legal representative is the legally responsible agent and decision-making authority (e.g. mayor, president of a board, public works director, owner). The Consulting Engineer is not the legal representative and cannot sign this form.

2. Recommendation of Review Agencies

As required in Section 22.7(2 and 3), the application and the engineering report must be submitted to all appropriate local governments, 208 planning agencies and State agencies for review and comment prior to submittal to the Division. By signing below, the entity or agency: 1) acknowledges receipt of the proposed site location application, 2) has reviewed the proposed site location application and may elect to provide comments, and 3) has provided a recommendation to the Division. The recommendation should be based on the consistency of the proposed site location application with the local comprehensive plan(s) as they relate to water quality and any adopted water quality management plans(s). *Please note: If a governmental authority does not recommend approval then the authority must attached a letter describing the reason for their decision or comment on the next page.*

Signature of County, if proposed facility is located in unincorporated areas of a county							
Role	Date	Typed Name / Agency	Signature				
		El Paso County	Recommend Approval?	Yes	☐	No	☐
Signature of City or Town, if site is located within three miles of the City/Town boundary							
Role	Date	Typed Name / Agency	Signature				
			Recommend Approval?	Yes	☐	No	☐
Signature of Local Health Authority							
Role	Date	Typed Name / Agency	Signature				
		El Paso County Department of Health & Environment	Recommend Approval?	Yes	☐	No	☐
Signature of 208 Planning Agency							
Role	Date	Typed Name / Agency	Signature				
		Pike's Peak Area Council of Local Governments	Recommend Approval?	Yes	☐	No	☐

Colorado Department of Public Health and Environment

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303-692-6298

Applicant Certification and Review Agencies Recommendation
Section 22.7 of Regulation 22: Interceptor Sewers Not Eligible for Certification and Lift Stations

A. Project and System Information	
System Name	Arrowhead Mobile Home Park
Project Title	Arrowhead Mobile Home Park Lift Station
County	El Paso

1. Applicant Certification

I certify that I am familiar with the requirement of *Regulation 22 - Site Location and Design Approval Regulations for Domestic Wastewater Treatment Works*, and have posted the site in accordance with the Regulations. An engineering report, as described by the regulations, has been prepared and is enclosed.

Applicant Legal Representative (e.g. Public Works Director)	Date	Typed Name	Signature
Owner	6/12/18	Dayton Orsburn	

The system legal representative is the legally responsible agent and decision-making authority (e.g. mayor, president of a board, public works director, owner). The Consulting Engineer is not the legal representative and cannot sign this form.

2. Recommendation of Review Agencies

As required in Section 22.7(2 and 3), the application and the engineering report must be submitted to all appropriate local governments, 208 planning agencies and State agencies for review and comment prior to submittal to the Division. By signing below, the entity or agency: 1) acknowledges receipt of the proposed site location application, 2) has reviewed the proposed site location application and may elect to provide comments, and 3) has provided a recommendation to the Division. The recommendation should be based on the consistency of the proposed site location application with the local comprehensive plan(s) as they relate to water quality and any adopted water quality management plans(s). *Please note: If a governmental authority does not recommend approval then the authority must attached a letter describing the reason for their decision or comment on the next page.*

Signature of County, if proposed facility is located in unincorporated areas of a county

Role	Date	Typed Name / Agency	Signature				
		El Paso County	Recommend Approval?	Yes	☐	No	☐

Signature of City or Town, if site is located within three miles of the City/Town boundary

Role	Date	Typed Name / Agency	Signature				
			Recommend Approval?	Yes	☐	No	☐

Signature of Local Health Authority

Role	Date	Typed Name / Agency	Signature				
EH Manager	8-13-18	El Paso County Department of Health & Environment	Recommend Approval?	Yes	☒	No	☐

Signature of 208 Planning Agency

Role	Date	Typed Name / Agency	Signature				
CHAIR	8/8/18	Pike's Peak Area Council of Local Governments	Recommend Approval?	Yes	☒	No	☐

Signature of Other State or Federal Agencies, if facility is located on or adjacent to a site that is owned or managed by a federal or state agency.			
Role	**Date**	**Typed Name / Agency**	**Signature**
			Recommend Approval? Yes ☐ No ☐

Signature of Other Basin Water Quality Authority, Watershed Association, Watershed Authority, etc., if facility is located in a Water Quality Control Commission Watershed Protection Control Area.			
Role	**Date**	**Typed Name / Agency**	**Signature**
			Recommend Approval? Yes ☐ No ☐

Review Agency Comments:

THE PPACG BOARD OF DIRECTORS (BY RECOMMENDATION FROM ITS WATER QUALITY MANAGEMENT COMMITTEE) RECOMMEND THAT APPROVAL BY THE STATE, AND IMPLEMENTATION OF THIS PROJECT, OCCUR AS EXPEDITIOUSLY AS POSSIBLE.

Signature of Other State or Federal Agencies, if facility is located on or adjacent to a site that is owned or managed by a federal or state agency.							
Role	**Date**	**Typed Name / Agency**	**Signature**				
			Recommend Approval?	***Yes***	☐	***No***	☐

Signature of Other Basin Water Quality Authority, Watershed Association, Watershed Authority, etc., if facility is located in a Water Quality Control Commission Watershed Protection Control Area.							
Role	**Date**	**Typed Name / Agency**	**Signature**				
			Recommend Approval?	***Yes***	☐	***No***	☐

Review Agency Comments:

Colorado Department of Public Health and Environment

Water Quality Control Division
Engineering Section

4300 Cherry Creek Drive South, B2
Denver, Colorado 80246-1530
CDPHE.WQEngReview@state.co.us
303-692-6298

Wastewater Receiving Entity Certification
Section 22.7 of Regulation 22: Interceptor Sewers Not Eligible for Certification and Lift Stations

Project and System Information	
System Name	Arrowhead Mobile Home Park
Project Title	Arrowhead Movile Home Park Lift Station
County	El Paso

Receiving Wastewater Entity – Certification of Available Treatment Capacity

Receiving wastewater treatment entity information			
Receiving wastewater treatment entity and facility	Cherokee Metropolitan District Water Reclamation Facility		
County	El paso		
CDPS discharge permit number and expiration date	COX048348	CDPS discharge permit capacity	4.8 MGD
Site location approval number and date (please attach a copy of approval letter)	SA4823, 8/25/2006	Site location approved capacity	4.8 MGD

Proposed facility capacity impacts on receiving wastewater treatment facility (projected at buildout or 20-years)	
Proposed project hydraulic capacity: maximum month average	0.0075 million gallons per day
Proposed project hydraulic capacity: peak hour	0.03 million gallons per day
Proposed project organic capacity: maximum month average	27.06 lbs BOD_5/day
Proposed project will increase the receiving treatment facility's hydraulic loading capacity to (% of total capacity):	36.4%
Proposed project will increase the receiving treatment facility's organic loading capacity to (% of total capacity):	43.5%

Treatment Certification (22.7 (1)(f) (i))

I certify that the receiving wastewater treatment facility will treat the wastewater from the proposed wastewater facility project.

Yes, will provide treatment	☒	No, will not provide treatment	☐

Capacity Certification (22.7 (1)(f) (ii))

I certify that the receiving wastewater treatment facility is not presently receiving wastes (hydraulic and organic loads) in excess of the above listed site location approval and discharge permit to treat the projected discharge from the new interceptor sewer or from the new or expanded lift station, as listed above (initial in box).	MP
OR	
I certify that the receiving wastewater treatment facility does not currently have the capacity to serve the proposed project flows but is under construction, or will be in a phased construction of new or expanded facilities and will have the necessary capacity to treat the projected discharge from the new interceptor sewer or from the new or expanded lift station, as listed above (initial in box).	
Estimated date capacity will be available	

Note: Projections of flow and loading to the treatment facility over the period during which build out of the service area will occur or twenty years, whichever is less, as well as current and future plant capacity information must be provided to demonstrate the plan for maintaining adequate treatment capacity. Any proposed treatment plant phased construction must be shown in the Water Quality Management Plan (reference, attach), or by appropriate planning and engineering studies (reference, attach).

Compliance Status Certification (22.7 (1)(f) (iii))

I certify that the receiving wastewater treatment facility has not been in violation of any effluent limitations in its discharge permit for the last two years (initial in box).	
I certify that the receiving wastewater treatment facility is not operating under a Notice of Violation and/or Cease and Desist Order from the Division resulting from discharge permit violations (initial in box).	

Note: If there have been effluent violations or if the receiving wastewater treatment facility is operating under a Notice of Violation and/or Cease and Desist Order from the Division, please provide additional description of the situation and the treatment entity's proposed corrective measures to achieve consistent compliance. The Division will evaluate information provided and determine if approval should be granted, granted with conditions, or denied.

I hereby certify that the information presented above is accurate and complete.

Receiving Treatment Facility Representative	Date	Typed Name and Title	Signature
Michael Poeckes, ORC	6/14/18	Michael Poeckes, ORC	Michael J. Poeckes

Colorado Department of Public Health and Environment

Water Quality Control Division
Engineering Section

4300 Cherry Creek Drive South, B2
Denver, Colorado 80246-1530
CDPHE.WQEngReview@state.co.us
303-692-6298

Regulation 22 Completeness Checklist
Section 22.7 of Regulation 22: Interceptor Sewers Not Eligible for Certification and Lift Stations

Project and System Information	
Project Title	GArrowhead Mobile Home Park Lift Station
System Name	Arrowhead Mobile Home Park
County	El Paso

Regulation 22 Citation	Submittal Requirements		Included/Addressed in Site Location Submittal? Yes/No/NA	Location in Submittal (page)
22.7(1)	Site Application Forms including: - Signature of local authorities and 208 planning agency (see 22.7(2) and 22.7(3)) - Signature of responsible party of the proposed facility			
22.7 (1)	Engineering Report including			
	22.7 (1)(a)	Name and Address of Applicant	Y	Sec 1.2
	22.7 (1)(b)	A map identifying the proposed facilities site including area topography, and neighboring land uses	Y	Appx B
	22.7 (1)(c)	Service Area including:		
		- Existing and project population	Y	Sec 2.1
		- 20 year flow/loading projections	Y	Sec 2.2
	22.7 (1)(d)	Identification of the treatment entity responsible for receiving and treating the wastewater	Y	Sec 2.4
	22.7 (1)(e)	Control of site or right of way legal arrangements for project life	Y	Sec 2.6
	22.7 (1)(f)	Written confirmation that the receiving wastewater treatment entity (use form page	Y	Sec 2.7
	22.7 (1)(g)	Evidence that the facility will be properly operated and maintained	Y	Appx A
	22.7 (1)(h)	Management capabilities for controlling the wastewater loading within the capacity limitation of the proposed facility (e.g., user contracts, operating agreements)	Y	Sec 2.5
	22.7 (1)(i)	Financial system which has been developed to provide for necessary capital, O&M, and replacement cost through the life of the project. This would include:		
		- Anticipated annual budget	N/A	
		- Fee and rate structure	Y	Sec 5.2.1
	22.7 (1)(j)	Demonstration of the owner's capacity to operate and maintain the facility including		
		- Emergency operations plan	Y	Sec 4.1
	22.7 (1)(k)	Implementation plan and schedule, including:		
		- Estimated construction time	Y	Sec 8
		- Estimated start up date	Y	Sec 8
	22.7 (1)(l)	Site Location Posting Documentation (e.g., photo of the public notification sign) – For New Lift Stations Only	Y	Sec 6.1
22.7 (2-3)	Site Application Review and Comments from: (a) County (b) City or Town (c) Local Health (d) 208 Planning Agency (e) Other state or federal agencies		Y	Sec 6.2, Appx G

APPENDIX B – OWNERSHIP DOCUMENTATION
PROJECT MAPS

12 February 2018

Legal Description

A parcel of land located within Section 15, Township 14 South, Range 64 West of the 6th P.M., El Paso County, Colorado being more particularly described as follows:

The South 1/2 of the Southwest 1/4 of the Northwest 1/4 of Section 15, Township 14 South, Range 64 West of the 6th P.M., El Paso County, Colorado as recorded in Book 5872 at Page 1387, Reception Number, of the records of the Clerk and Recorder, El Paso County, Colorado;

Except Parcel A, as recorded in Reception Number 203108692, of the records of the Clerk and Recorder, El Paso County, Colorado, being further described as follows:

From the Point of Commencement at the west quarter corner of Section 15, thence N89˚46'41"E a distance of 30.00 feet to intersect the existing east right-of -way line of Curtis Road for the Point of Beginning.

Thence the following four (4) courses:

1. Along said east right-of way line of Curtis Road N00˚15'10"W a distance of 656.56 feet to intersect the north line of the aforesaid parcel.
2. Along the north line of said parcel N89˚07'42"E a distance of 10.00 feet to intersect a line drawn parallel to and 40.00 feet east of the west line of said Section 15.
3. Along said parallel line S00˚15'10"E a distance of 656.39 feet to intersect the south line of the aforesaid parcel.
4. Along said south line S89˚52'39"W a distance of 10.00 feet to the Point of Beginning.

Cameron Forth,
Colorado Professional Land Surveyor, #38390

Arrowhead Mobile Home Park
Property Owner Information

VICINITY MAP

ELEMENT ENGINEERING LLC
12687 W. CEDAR DRIVE, SUITE 350
LAKEWOOD, CO 80228
303.378.2969
WWW.ELEMENTENGINEERING.NET

DATE
AUGUST 2017

JOB NUMBER
0013.0001

SCALE
1" = 2,000'

Arrowhead Mobile Home Park
Area Dischargers - NPDES Permitted Facilities

CDSS
Colorado's Decision Support Systems

Map Viewer

Legend

- Well Constructed
- Permit Issued; Completion Sta
- County

Location

Notes

2 0 1 2 Miles

1: 63,360

This product is for informational purposes and may not have been prepared for, or be suitable for legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information.

Date Prepared: 6/28/2017 9:02:06 AM

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

CORRAL BLUFFS QUADRANGLE
COLORADO-EL PASO CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
SE/4 FALCON 15' QUADRANGLE

Mapped, edited, and published by the Geological Survey in cooperation with U.S. Corps of Engineers

Control by USGS and USC&GS

Topography by photogrammetric methods from aerial photographs taken 1947. Field checked 1948
Revised from aerial photographs taken 1960. Field checked 1961

Polyconic projection. 1927 North American datum
10,000-foot grid based on Colorado coordinate system, central zone
1000-meter Universal Transverse Mercator grid ticks, zone 13, shown in blue

Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs. This information is unchecked

TRUE NORTH
MAGNETIC NORTH
14°
APPROXIMATE MEAN DECLINATION, 1961

SCALE 1:24 000
1 ½ 0 1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 .5 0 1 KILOMETER
CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER 25, COLORADO OR WASHINGTON 25, D.C.
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

COLORADO
QUADRANGLE LOCATION

ROAD CLASSIFICATION
Medium-duty — Light-duty
Unimproved dirt
State Route

CORRAL BLUFFS, COLO.
SE/4 FALCON 15' QUADRANGLE
N3845—W10430/7.5
1961

INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D.C.—1963
MR 5809

U. S. GOVT DOCUMENTS
APR 10 '64
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APPROXIMATE SCALE IN FEET

2000 0 2000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

EL PASO COUNTY, COLORADO AND INCORPORATED AREAS

PANEL 800 OF 1300

(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS: COMMUNITY	NUMBER	PANEL	SUFFIX
EL PASO COUNTY, UNINCORPORATED AREAS	080059	0800	F

MAP NUMBER 08041C0800 F

EFFECTIVE DATE: MARCH 17, 1997

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

U.S. Fish and Wildlife Service

National Wetlands Inventory

AMHP

June 27, 2017

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

APPENDIX C – INFORMATION FOR PLANNING AND CONSULTATION REPORT

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

NOT FOR CONSULTATION

Location

El Paso County, Colorado

Local office

Colorado Ecological Services Field Office

(303) 236-4773
(303) 236-4005

MAILING ADDRESS

Denver Federal Center
P.O. Box 25486
Denver, CO 80225-0486

PHYSICAL ADDRESS

134 Union Boulevard, Suite 670
Lakewood, CO 80228-1807

http://www.fws.gov/coloradoES
http://www.fws.gov/platteriver

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

---

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS

NOT FOR CONSULTATION

North American Wolverine Gulo gulo luscus — Proposed Threatened

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/5123

Preble's Meadow Jumping Mouse Zapus hudsonius preblei — Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/4090

Birds

NAME	STATUS
Least Tern Sterna antillarum	Endangered
Mexican Spotted Owl Strix occidentalis lucida	Threatened
Piping Plover Charadrius melodus	Threatened
Whooping Crane Grus americana	Endangered

Least Tern

This species only needs to be considered if the following condition applies:

- Water-related activities/use in the N. Platte, S. Platte and Laramie River Basins may affect listed species in Nebraska.

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/8505

Mexican Spotted Owl

There is **final** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/8196

Piping Plover

This species only needs to be considered if the following condition applies:

- Water-related activities/use in the N. Platte, S. Platte and Laramie River Basins may affect listed species in Nebraska.

There is **final** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/6039

Whooping Crane

This species only needs to be considered if the following condition applies:

- Water-related activities/use in the N. Platte, S. Platte and Laramie River Basins may affect listed species in Nebraska.

There is **final** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/758

Fishes

NAME	STATUS

NOT FOR CONSULTATION

Greenback Cutthroat Trout Oncorhynchus clarkii stomias — Threatened

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/2775

Pallid Sturgeon Scaphirhynchus albus — Endangered

This species only needs to be considered if the following condition applies:

- Water-related activities/use in the N. Platte, S. Platte and Laramie River Basins may affect listed species in Nebraska.

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/7162

Flowering Plants

NAME	STATUS
Ute Ladies'-tresses Spiranthes diluvialis No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2159	Threatened
Western Prairie Fringed Orchid Platanthera praeclara This species only needs to be considered if the following condition applies: • Water-related activities/use in the N. Platte, S. Platte and Laramie River Basins may affect listed species in Nebraska. No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1669	Threatened

NOT FOR CONSULTATION

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.

2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

MIGRATORY BIRD INFORMATION IS NOT AVAILABLE AT THIS TIME

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the counties which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the E-bird Explore Data Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

NOT FOR CONSULTATION

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird entry on your migratory bird species list indicates a breeding season, it is probable that the bird breeds in your project's counties at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the BGEPA should such impacts occur.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

NOT FOR CONSULTATION

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

THERE ARE NO KNOWN WETLANDS AT THIS LOCATION.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION

APPENDIX D – INFLUENT FLOW DATA

Date	Total Flow (gpd)
6/28	8316
6/29	8447
6/30	7038
7/1	5648
7/2	5267
7/3	4524
7/4	4844
7/5	4838
7/6	4289
7/7	6065
7/8	6321
7/9	7957
7/10	6804
7/11	6405
7/12	5123
7/13	5357
7/14	4339
7/15	5313
7/16	5244
7/17	4842
7/18	4639
7/19	3968
7/20	4556
7/21	3749
7/22	4150
7/23	4870
7/24	4473
7/25	3718
7/26	5484
7/27	4465
7/28	3959
7/29	3504
7/30	3908
7/31	4586
8/1	3491
8/2	3972
8/3	3704
8/4	4361
8/5	4596
8/6	5466
8/7	4772
Average	**5057.85**

APPENDIX E – PERMIT CERTIFICATION NO. COX048348
SITE APPROVAL NO. 4823
SIGNED INCLUSION PETITION

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COLORADO DISCHARGE PERMIT SYSTEM (CDPS)
FACT SHEET FOR PERMIT NUMBER COX-048348

CHEROKEE METROPOLITAN DISTRICT
WATER RECLAMATION FACILITY

EL PASO COUNTY, COLORADO

TABLE OF CONTENTS

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I. TYPE OF PERMIT — Domestic Major, New Groundwater-State Permitting Program Only

II. FACILITY INFORMATION

A. Facility Type: Domestic - Major Municipal, Mechanical Plant
Fee Category: Domestic Wastewater - Mechanical Plant, Category 21, Subcategory 7
Category Flow Range: Sewage from 2,500,000 up to 9,999,999 gpd
Annual Fee: $11,410 effective July 1, 2007

B. SIC Code: 4952 Sewerage Systems
Facility Classification: Class A per Section 100.5.2 of the Water and Wastewater Facility Operator Certification Requirements

C. Legal Contact/Permittee: Cherokee Metropolitan District
Kevin I. Petersen, General Manager
6250 Palmer Park Blvd., Colorado Springs, CO 80915-1721
719-597-5080

Facility Contact: Pete Heidebrecht, Certified Operator
719-597-5080, e-mail "pheidebrecht@cherokeemetro.org."

Facility Location: 19174 Drennan Rd., Colorado Springs, CO 80930;
WWTF Latitude: 38° 45' 12" N, Longitude: 104° 28' 26" W;
Rapid Infiltration Basin System 38° 44' 25" N, Longitude: 104° 24' 14" W

Certified Operator: Pete Heidebrecht, Classification A No. 116 (719) 597-5080

D. Discharge Points: Outfall 001A, following disinfection and prior to mixing with the receiving aquifer
Outfalls 050C(L), 050D(L) (down-gradient compliance wells)

E. Facility Flows: 4.8 Million Gallons per Day (MGD)

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F. Major Changes from Last Renewal:

This is a new permit, therefore there are no changes.

III. RECEIVING GROUNDWATER

A. Groundwater Identification: Upper Black Squirrel Creek Alluvial Groundwater Aquifer, El Paso County

a. Specified Area: All unconfined ground waters within the saturated zone underlying that area of El Paso County shown on Figure 3, Regulation No. 42.

b. Classification: The classifications of the unconfined ground water in the specified area are:
-Domestic Use-Quality
-Agricultural Use-Quality

c. Ground Water Quality Standards: The ground water quality standards included in Tables 1-4 of the "Basic Standards for Ground Water" 41.0 (5 CCR 1002-41) are assigned to all unconfined ground water in the specified area.

B. Groundwater Description

The Upper Black Squirrel Creek Basin is located about 25 miles east of Colorado Springs, and has an area of approximately 353 square miles. Streams in the area flow in response to thunderstorms, snowmelt, and prolonged rainfall. All streams are ephemeral and do not provide a dependable source of water. The upper Black Squirrel Creek basin is underlain by an alluvial aquifer and four bedrock aquifers. Most of the water used in the basin is pumped from the alluvial aquifer; the bedrock aquifers virtually are undeveloped (USGS Report, 1988).

1. Geology

On a macro level, the upper Black Squirrel Creek alluvial aquifer consists primarily of unconsolidated alluvial sands and gravels overlain by thin eolian sand deposits. The unconsolidated alluvial deposits consist of poorly graded to well graded sands, clayey and silty sands, and gravels with locally discontinuous clay lenses. Clay lenses occur at varying depths and thicknesses, but are sporadic in nature. The alluvial deposits reach thicknesses of up to 200 feet and are thickest where they overlay paleochannels. Depth to groundwater ranges from 50 to 100 feet below the ground surface.

The Upper Black Squirrel Creek Basin contains consolidated and unconsolidated deposits. Consolidated deposits in ascending stratigraphic order include the Cretaceous and Tertiary Denver Formation, and the Dawson Arkose, all of which are important aquifers. In addition, the Cretaceous Pierre Shale subcrops beneath the alluvial aquifer in the extreme southern part of the basin; however, the Pierre Shale does not yield any water to wells in the area. The Fox Hills Sandstone and the Laramie Formation are exposed in the southeastern part of the basin. The Dawson Arkose is exposed in the north-central and northeastern part of the basin.

2. Groundwater

Since the late 1800's, the alluvial aquifer has provided a dependable source of suitable quality water for domestic, agricultural, and municipal uses. Water from the alluvial aquifer is exported to suburbs east of Colorado Springs and to the Schriever Air Force Base, formerly known as the Falcon Air Force Station, by the Cherokee Metropolitan District. Water from the alluvial aquifer also is used extensively within the basin for

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irrigation and other agricultural purposes. The alluvial aquifer contains sufficient water to supply domestic, stock, irrigation, and municipal wells, and it is the principal aquifer in the basin area. Domestic water supply within the basin area is obtained from the aquifer by individual domestic wells.

The approximate area of the alluvial aquifer is 101.3 square miles. Horizontal ground-water movement occurs approximately perpendicular to the water-table contours. Water in the alluvial aquifer generally flows to the south of the basin. Thickness of the saturated alluvium during March 1984 ranged from less than 40 feet to more than 120 feet of the basin. The greatest thickness of the saturated alluvium is at the southern boundary of the basin.

Recharge to the aquifer is from deep percolation of precipitation, irrigation-return flow, infiltration of streamflow, and inflow from underlying bedrock aquifers. Natural discharge from the aquifer is by evapotranspiration and underflow, which accounts for groundwater that leaves the basin at the southern end.

Thirty-six ground-water samples were collected during 1984 by the United State Geological Survey (USGS); analyses of the samples indicated that concentrations of nitrite plus nitrate as nitrogen were greater than expected in the groundwater. Concentrations of nitrite plus nitrate in 14 percent of the samples exceeded the drinking-water standard of 10 mg/L. In general, groundwater from the alluvial aquifer is of suitable quality for most uses.

In 1988, the USGS published a report entitled "Geohydrology, Water Quality, and Preliminary Simulations of Ground-Water Flow of the Alluvial Aquifer in the Upper Black Squirrel Creek Basin, El Paso County, Colorado." This report was prepared in cooperation with the Cherokee Metropolitan District. The report is available from the USGS.

3. Surface Water

The upper Black Squirrel Creek basin is drained by Black Squirrel Creek and its tributaries, Brackett Creek and Big Springs Creek. Currently (1986), all streams are ephemeral and flow only in direct response to precipitation; streambeds in most areas are many feet above the water table. Because of the ephemeral nature of streams in the basin, streamflow does not provide a dependable source of water. Prior to large water-level declines caused by ground-water pumpage beginning during the 1950's and 1960's, segments of the streams were intermittent.

IV. FACILITIES EVALUATION

A. BASIS FOR NEW INTEGRATED SYSTEM

The Cherokee Metropolitan District Water Reclamation Facility and Rapid Infiltration Basins are located in El Paso County, just east of Colorado Springs, Colorado, Figure 1.

1. Replenish Alluvial Groundwater

The Cherokee Metropolitan District (CMD) is a longstanding quasi-municipal entity created as a special district under the Colorado Revised Statutes. The CMD, as a result of both regulatory water quality related requirements associated with its existing lagoon type wastewater treatment facility, and in an effort to more effectively utilize its water resources, initiated a significant capital construction project. The project includes undertaking the construction of the necessary conveyance facilities to transmit its raw wastewater together

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with wastewater received from the Schriever Air Force Base (SAFB) and the Meridian Service Metropolitan District (MSMD) to a new wastewater treatment facility (WWTF). The objective for the overall system is to treat the wastewater received from the contributing service areas to better than secondary treatment levels utilizing an activated sludge process incorporating biological nitrogen removal. The discharge of treated effluent from the WWTF is then conveyed by a pipeline under the control of the CMD to rapid infiltration basins located on a 70 acre parcel at the northwest corner of the intersection of Bar 10 Road and Henderson Road, Figures 2 and 3. At the rapid infiltration basin facility, the alluvial ground water in the Upper Black Squirrel Creek Designated Basin will be replenished.

2. Scope of Integrated System

Construction of the new WWTF and rapid infiltration basin facility are two components of an integrated system that also included construction of two new lift stations and a new interceptor sewer from the SAFB point of connection to the new WWTF site. The CMD has developed a substantial sanitary sewage collection system which conveys wastewater from its primary service area to the current WWTF site located on the downstream side of the district, immediately south of U.S. Highway 24 adjacent to the east side of the East Fork of Sand Creek. Lift Station No. 1 is located at the site of the current WWTF and will utilize some of the existing impoundments for preliminary treatment and flow equalization with the remainder functioning as emergency storage. A raw wastewater force main has also been constructed between the current WWTF site and the SAFB point of connection. This force main was originally constructed to convey wastewater from SAFB westerly to the CMD's existing WWTF. The force main was sized such that CMD can reverse the flow to convey its wastewater easterly from its existing WWTF site through this force main. The lift station located at SAFB will be relocated to serve as Lift Station No. 1. A second lift station is located along this force main due to the hydraulic conditions associated with conveying wastewater from the CMD's existing WWTF site easterly. A Schematic Overview of the entire system is shown in Figure 4.

3. Status of Permit for CMD Wastewater Treatment Facility

The CMD's current treatment facility consists of a five-cell aerated lined lagoon system located immediately south of U.S. Highway 24/State Highway 94 adjacent to the East Fork of the Sand Creek. Currently, effluent from this treatment facility is discharged to the East Fork of Sand Creek. When the new WWTF is placed into service, discharge from the current WWTF will be terminated.

The CMD will continue to utilize the site of the current WWTF into the future. Lift Station No. 1 is located at the site of the current WWTF. Also, some of the existing impoundments will be utilized for preliminary treatment and flow equalization with the remainder functioning as emergency storage.

Cell No. 1, together with its aeration equipment, will be retained and will provide a degree of pretreatment to the wastewater generated in the CMD's primary service area.

Cell No. 2 will be reconfigured into two cells. One cell will serve as the wet well for Lift Station No. 1 and provide flow equalization so the discharge from Lift Station No. 1 can be maintained at a relatively constant rate approximating the average daily influent flow. The remainder of Cell No. 2 will function as the primary emergency overflow/storage pond. In the event of a mechanical problem with either Lift Station No. 1 or No. 2 or the 14-inch force main, wastewater will automatically be transferred by gravity to the storage pond when the liquid level in the flow equalization/wet well exceeds the normal high operating level. This storage pond has a capacity of approximately 14.32 million gallons, which provides approximately 6.5 days of holding capacity at the design average day flow rate. A return pump station is provided between the primary emergency storage pond and the flow equalization/wet well to facilitate transfer of wastewater back to the flow

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equalization/wet well. The storage pond and flow equalization/wet well will be lined with a synthetic membrane liner to preclude any seepage from these structures.

Within the decommissioning of the CMD's existing WWTF, sludge accumulations will be removed from existing Cell Nos. 3, 4 and 5 and these cells will be left to sit idle. These cells will also be capable of functioning as emergency backup storage basins in the event of a catastrophe that mandates a holding time in excess of 6.5 days. An overflow from the primary emergency overflow/storage pond can be conveyed by gravity to the subsequent three cells. These cells would be dewatered by pumping back to the primary emergency storage pond once the lift stations and force main have been returned to operation.

B. Service Area and Lift Stations

The CMD's primary service area encompasses the area generally known as Cimarron Hills. This area lies east of Powers Boulevard, north of U.S. Highway 24/State Highway 94, south of Barnes Road and extends approximately one mile east of Marksheffel Road. This area constitutes the District's primary service area. The District has annexed 800 acres in the vicinity of Ellicott Highway and Drennan Road, significantly east of this location. That area currently receives and will continue to receive wastewater treatment service at the existing Ellicott Springs Resources, LLC wastewater treatment facility. Cherokee's primary service area currently receives wastewater treatment service at a treatment facility owned and operated by the District located immediately south of U.S. Highway 24/State Highway 94, adjacent to the East Fork of the Sand Creek. The location of the CMD service area and lift stations are shown in Figures 2 and 3.

Table 1 summarizes the information provided in the permit application for the lift stations in the service area.

Table 1
Lift Station Summary

Station Name/#	Firm Pump Capacity (gpm)	Peak Flows (gpd)	% Capacity (based on peak flow)
Terminal Avenue	1,390,000	290,000	20.9
Lift Station #1	2,590,000	Not Yet in Service	85.3
Lift Station #2	2,590,000	Not Yet in Service	85.3

The wet well at Lift Station No. 1 functions as a flow equalization basin so that the discharge from Lift Station No.1 can be maintained at a relatively constant rate approximating the average daily influent flow.

Lift Station No. 1 and No. 2 operate in series to convey wastewater from the Cherokee Metropolitan District's primary service area to the Cherokee Metropolitan District Water Reclamation Facility. Because these two lift stations operate in series, and the manner in which the pumping operation is controlled, a wet well is not required at Lift Station No. 2.

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C. Cherokee Metropolitan District-Cherokee Metropolitan District Water Reclamation Facility

1. Pretreatment Program

Discharges of non-domestic wastewater have the potential to interfere with the operation of a wastewater treatment facility and to pass through the treatment works or otherwise be incompatible with the operation of the facility. To prevent such impacts, State and EPA regulations, 5 CCR 1002-63 and 40 CFR Section 403.8 respectively, require the implementation of a pretreatment program for publicly owned treatment works that discharge to surface waters with total design flow greater than 5 mgd and that receive pollutants from industrial users.

Although the discharge is to groundwater instead of surface water, the Cherokee Metropolitan District Water Reclamation Facility would otherwise meet the criteria for requiring a pretreatment program, and has similar potential for impacts to the WWTF operations and discharges from non-domestic contributions. The Division has determined that implementation of a pretreatment program for the control of contributions of non-domestic wastewater from industrial users to the WWTF is reasonably necessary to achieve effluent limitations and standards. In accordance with the requirements Part 61.8(3)(r) of 5 CCR 1002-61, Part I.A.3 of the permit includes practice based effluent limits for implementation of a pretreatment program for Industrial Users. The requirements of Part I.A.3 are consistent with the requirements of above reference EPA and State pretreatment regulations.

The permittee has developed and implemented a pretreatment program that was approved by the EPA on November 16, 1998. The permit requires that this program continue to be implemented for the WWTF and to modify the program when necessary. A compliance schedule is included in Part I.A.3.b(v) of the permit that requires specific revision be made as necessary to address new effluent limits and water quality standards associated with the new permit.

2. Wastewater Treatment Processes

The Cherokee Metropolitan District Water Reclamation Facility is designed for the following parameters:

- Hydraulic Design Capacity of 4.8 MGD (maximum monthly average)
- Peak Hydraulic Capacity of 9.432 MGD
- Organic Capacity of 8,835 lbs. BOD_5/day

The Cherokee Metropolitan District Water Reclamation Facility consists of a mechanical treatment facility that includes an extended aeration activated sludge biological process, utilizing four sequencing batch reactors (SBRs) for carbon oxidation, nitrification and denitrification, followed by effluent flow equalization, and ultraviolet disinfection. Waste activated sludge is aerobically digested and dewatered utilizing centrifuges, as shown in Figure 5. Treated effluent from the mechanical WWTF is conveyed to a rapid infiltration basin system, approximately four (4) miles east, south-east, and consisting of 11 individual basins and/or structures, as shown in Figure 6. CMD received "Site Application Approval" on August 25, 2006, Site Approval Letter #4823.

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3. Biosolids Treatment and Disposal

Biosolids are treated in three (3) aerobic digesters. Liquid is removed in a centrifuge, and the biosolids are transported to off-site disposal areas.

3.1 EPA General Permit

EPA Region 8 issued a General Permit (effective October 19, 2007) for Colorado facilities whose operations generate, treat, and/or use/dispose of sewage sludge by means of land application, landfill, and surface disposal under the National Pollutant Discharge Elimination System. All Colorado facilities are required to apply for and to obtain coverage under the EPA General Permit.

3.2 Biosolids Regulations (Regulation No. 64)

While the EPA is now the issuing agency for biosolids permits, Colorado facilities that land-apply biosolids must comply with requirements of Regulation No. 64, such as the submission of annual reports as discussed later in this rationale.

D. Rapid Infiltration Basin System

The primary objective of the rapid infiltration basin system is groundwater replacement. Therefore, the design of the rapid infiltration basin system was based on maximizing the infiltration rate. Treatment to secondary or higher levels is recommended if maximizing the hydraulic loading and infiltration rate are the primary objectives of the rapid infiltration system. A secondary objective for the rapid infiltration basin system is water quality enhancement by additional treatment occurring within the upper alluvial material and/or the vadose zone. Given the high quality of effluent anticipated to be produced by the Cherokee Metropolitan District Water Reclamation Facility, with low ammonia and nitrate nitrogen concentrations, it is not anticipated that significant additional nitrification or nitrogen removal will occur as a result of utilizing the rapid infiltration process. However, some additional reduction in BOD_5, TSS, coliform, viruses, inorganic constituents, heavy metals, and organic compounds is anticipated as the treated wastewater migrates through the upper soil profile prior to reaching and comingling with the underlying groundwater.

As shown on Figure 3, the sites for the Cherokee Metropolitan District Water Reclamation Facility and the rapid infiltration basin facility are separated by approximately four miles. This became necessary due to the availability of a large enough parcel upon which to construct the Cherokee Metropolitan District Water Reclamation Facility with adequate buffer zones and the need to site the rapid infiltration basin facility in an area that would provide optimal infiltration and recapture of the reclaimed water by the CMD's southern well field. A pipeline was constructed between the Cherokee Metropolitan District Water Reclamation Facility and the rapid infiltration basin facility to convey the treated effluent in a manner that will ensure total containment and control of the water by the CMD.

The rapid infiltration basin facility consists of 11 rapid infiltration basins with a yard piping system to facilitate the controlled dosing of each basin or set of basins sequentially. The rapid infiltration basin system is sized to provide a total of approximately 1,064,300 square feet (24.43 acres) of infiltration surface area. The configuration of the rapid infiltration basin system and associated yard piping layout is shown on Figure 6.

Each infiltration basin has been constructed in a manner to maximize the amount and depth of clean sands and gravels underneath the infiltration surface (cell bottom). The average overall basin depth from the cell bottom

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to the top of the dike is approximately 6.5 feet. Basin side slopes were constructed at 3:1 slopes and a polypropylene liner was installed on the side slopes to minimize erosion. The bottom of each rapid infiltration basin is constructed as level as possible to help ensure a uniform flooding depth across the infiltration surface and preclude shallow ponding areas. This will promote better infiltration and reduce the potential for freezing in shallow areas under winter operating conditions.

Treated and reclaimed water from the Cherokee Metropolitan District Water Reclamation Facility will be introduced into each rapid infiltration basin through an inlet structure located at the termination of a 20-inch feeder lateral. Inlet structures are designed to dissipate inlet velocities and minimize erosion of the basin bottom immediately adjacent to the inlet structure. Flow equalization basins are provided at the Cherokee Metropolitan District Water Reclamation Facility downstream of the sequencing batch reactor (SBR) process and prior to ultraviolet disinfection and flow measurement. This provides for a more uniform and continual discharge from the treatment facility. A more uniform and continual discharge into the rapid infiltration basins will also help to minimize any erosion that could take place near the inlet structures.

The operational concept for the rapid infiltration basin system provides a total basin cycle time of 7 days under summer operating conditions and 10 days under winter operating conditions. The total basin cycle time has been divided into a "wet" period during which reclaimed water will be applied to a basin and permitted to infiltrate into the underlying soils and a subsequent "dry" period during which no reclaimed water will be applied and the underlying soil will be allowed to drain and re-aerate. A wet period of 2.25 days will be utilized followed by a 4.75 day dry period under summer operating conditions and a 7.75 day drying period under winter operating conditions. These wet-dry cycle periods were established to maximize the infiltration rate and are in accordance with EPA and WQCD Policy 96-1 recommendations.

The drying cycle period allows the surface of the infiltration basin to dry out and the upper subsurface soils to re-aerate. Provision of a drying period permits any organic material (suspended solids) that may collect on the infiltration basin bottom surface and inhibit the infiltration rate to dry, crack and disperse. Such has been documented to aid recovery of the infiltration rate between wetting cycles to near original conditions. Re-aeration of the upper subsurface soils enables these upper subsurface soils to be maintained in an aerobic condition, thereby helping to optimize treatment of the reclaimed water applied to the basin. Provision of this drying time will aid in minimizing the frequency at which infiltration surface cleaning activities must be conducted. The preliminary operational concept for the rapid infiltration basin system operating under design conditions (4.80 mgd) is summarized in Table 2.

Table 2
RAPID INFILTRATION BASIN SYSTEM
OPERATIONAL CONCEPT

	Summer Operating Conditions	Winter Operating Conditions
Application period (days)	0.91	0.91
Draining period (days)	1.34	1.34
Total "wet" cycle period (days)	2.25	2.25
Drying cycle period (days)	4.75	7.75
Total cycle period (days)	7.00	10.00

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V. PERFORMANCE HISTORY

A. Monitoring Data

1. Discharge Monitoring Reports – This is a new WWTF, therefore there is no monitoring data.

B. Compliance with Terms and Conditions of Previous Permit (CO-0024457)

The effluent discharged from the CMD's WWTF has been into the East Fork of Sand Creek. Earlier documentation provided by CMD has indicated that the discharge was confined in a surface water flow to the East Fork of Sand Creek and percolated into the stream's alluvial material prior to the confluence of Sand Creek with Fountain Creek. Sand Creek, the receiving stream for Cherokee's effluent, has standards for three parameters, pH, fecal coliform and dissolved oxygen. Over time, with the combination of the increase in the volume of water discharged from the CMD's WWTF coupled with the urbanization of the areas contiguous to the lower reaches of the East Fork of Sand Creek, a surface flow now extends from Cherokee's point of discharge to the confluence of Sand Creek with Fountain Creek. In the most recent renewal of the District's CDPS permit, the effluent was determined by the Division to reach Fountain Creek where it mixes with Fountain Creek's flow. As a result, additional standards apply to CMD's WWTF for the protection of Fountain Creek, including; whole effluent toxicity (WET), dissolved copper, dissolved lead, total mercury and free cyanide. Significant upgrades to the CMD's existing WWTF would be required in order to comply with these additional parameter requirements. The nature of these upgrades was such that replacement of the existing treatment facility would be required. Consequently, CMD has constructed a new groundwater WWT.

VI. TERMS AND CONDITIONS OF PERMIT

A. Groundwater Discharge Limitations

The water quality standards to which a discharge to groundwater must comply are based on the classifications assigned to the groundwater within a specific area. Within Water Quality Control Commission (WQCC) Regulation No. 42 "Site-Specific Water Quality Classifications and Standards for Ground Water", Section 42.7(3), the Upper Black Squirrel Creek Alluvial Aquifer has been classified for Domestic Use-Quality and Agricultural Use-Quality. The numeric groundwater quality standards associated with these classifications are contained in Tables 1 through 4 and Table A of WQCC Regulation No. 41 "The Basic Standards for Ground Water".

1. Technology-Based Limitations (Regulation 62)

The Federal Effluent Limitation Guidelines for domestic wastewater treatment facilities are the secondary treatment standards. These standards have been adopted, and are applied from Regulation No. 62 (Regulations for Effluent Limitations). These Regulations include effluent limitations that apply to all discharges of wastewater to State waters. These regulations are applicable to the discharge from the Cherokee Metropolitan District Water Reclamation Facility. The technology-based limitations will be applied at Compliance Point 001A, subsequent to treatment and prior to discharge to groundwater.

a. **BOD_5** - The BOD_5 concentration is the most stringent effluent limit and is therefore applied. The removal percentage for BOD_5 also applies based on the Regulations for Effluent Limitations.

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b. **Oil and Grease** – The oil and grease limitations from the Regulations for Effluent Limitations are 10 mg/l, and will be applied at Compliance Point 001A.

c. **pH** -The pH concentration specified in the Regulations for Effluent Limitations is 6.0 – 9.0, and is applied at Compliance Point 001A.

d. **Total Suspended Solids**—Although Total Suspended Solids (TSS) limitations were not included in the PEL determination, there are "Technology-Based" limitations for TSS pursuant to Regulation No. 62 that apply to this discharge. The Division has included TSS limitations of 45 mg/l for a 7-day average and 30 mg/l for a 30-day average. In addition, because CMD is discharging their treated wastewater into Rapid Infiltration Basins that are designed to "rapidly transmit" water into the subsurface, it is imperative that the interstices and/or voids of the Rapid Infiltration Basins not become clogged with solid debris. Based on CMD's WWTF, it is believed they can meet these limits at Compliance Point 001A.

2. **Water Quality-Based Limitations (Regulations Nos. 41 and 42)**

a. **Total Inorganic Nitrogen (TIN)**--The effluent limitation for nitrate nitrogen is established at 10 milligrams per liter (mg/l) by WQCC Regulation No. 41 "The Basic Standards for Ground Water" for the protection of human health and the groundwater aquifer as a drinking water supply. Because nitrite and ammonia can also form nitrate, compliance with the nitrate standard is achieved through imposition of a Total Inorganic Nitrogen (TIN) limit. TIN effectively measures nitrate and its precursors including nitrite and ammonia. The Division established the limit for TIN at Outfall 001A. This deviates from the approach in the site approval which established the point of compliance at the groundwater monitoring wells. The Division made this revision in approach due to the presence of elevated levels of nitrate in the groundwater which results in the absence of assimilative capacity in the groundwater, as discussed in Section III.B.2 of this fact sheet. This change in approach remains consistent with the effluent design criteria for the Cherokee Metropolitan District Water Reclamation Facility that were approved as part of the design approval process which include an ammonia nitrogen concentration of 2.0 mg/l, a nitrate plus nitrite nitrogen concentration of 5.0 mg/l and a TIN concentration of 7.0 mg/l, all as daily maximums to be achieved on a year round basis. This demonstrates that the CMD mechanical treatment facility provides for continuous nitrification and denitrification on a year round basis and incorporates biological nitrogen removal to limit the concentration of total inorganic nitrogen (TIN) contained in the reclaimed water to ensure protection of the aquifer as a drinking water supply.

b. **Total Coliform**—An ultraviolet (UV) disinfection process is incorporated into the Cherokee Metropolitan District Water Reclamation Facility. The design criteria for this disinfection process were established at 200 fecal coliform colonies per 100 milliliters (ml). It is unlikely that this disinfection process will be capable of consistently producing an effluent quality that would comply with the PEL for total coliform at the discharge point from the WWTF (Compliance Point 001A). However, results from the infiltration basin pilot study undertaken by CMD and URS Corporation in 2002 and 2003 demonstrate complete removal of coliform bacteria within the upper reaches of the vadose zone (unsaturated zone). As part of that pilot study, wastewater from the Colorado Springs Utilities (CSU) WWTF was continuously applied to a pilot infiltration basin for a period of approximately 160 days. Samples were collected from lysimeters installed in the vadose zone at depths ranging from 7 to 40 feet and analyzed for total coliform bacteria. Coliform bacteria were not

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detected in any of the lysimeter samples, even though coliforms were present in the applied wastewater at densities as high as 1,600 per 100 ml. This indicates that compliance with the effluent limit for total coliform can be achieved prior to the reclaimed water reaching the groundwater table. Total Coliform removal is expected prior to mixing with groundwater. The compliance point for total coliform is established at the groundwater monitoring wells consistent with the site application approval

c. **pH**—The pH limit is 6.5-8.5, based on Regulation 41. The Cherokee Metropolitan District Water Reclamation Facility is capable of meeting this limit either at Compliance Point 001A, or the down-gradient ground water monitoring and compliance wells. The pH limitation of 6.5 – 8.5 is applied at the down-gradient groundwater monitoring and compliance wells.

d. **Sulfate and Chloride--**The effluent limitation determination established for sulfate and chloride is 250 mg/l for each parameter. On July 26, 2006, CMD collected effluent samples from both the existing CMD and PBH lagoon treatment facilities. These samples were analyzed for chloride and sulfate concentrations. Results of the analyses of these effluent samples were as follows:

	Chloride (mg/l)	Sulfate (mg/l)
CMD lagoon effluent	220	83
Paint Brush Hills lagoon effluent	53	88

The analytical results for the samples from each individual WWTF were mass balanced based upon the anticipated wastewater contribution from each entity at startup of the Cherokee Metropolitan District Water Reclamation Facility. These mass balance calculations indicated an expected effluent quality from the Cherokee Metropolitan District Water Reclamation Facility of 161.1 mg/l for chloride and 84.8 mg/l for sulfate.

The results of this mass balance procedure are a conservative representation of expected effluent quality.. These projections are conservative because both of the existing treatment facilities employ lagoon treatment systems with long detention times and large open water surface areas; whereas the Cherokee Metropolitan District Water Reclamation Facility will be a mechanical type facility incorporating a relatively short detention time and limited open water surface area. Lagoon systems with their large open water surface areas experience significant evaporative losses, especially during the hot summer months. This evaporative effect tends to concentrate inorganic substances, such as chloride and sulfate, resulting in elevated effluent concentrations. The Cherokee Metropolitan District Water Reclamation Facility will have significantly less open water surface area and will experience very limited evaporative losses. Thus, the concentrating effect of the lagoon treatment system will not be present and the expected effluent concentrations would be lower than those predicted by the mass balance procedure.

Upper Black Squirrel Creek aquifer and/or groundwater quality data indicates historic sulfate concentrations in the range of 17 mg/l to 140 mg/l with an average of 49 mg/l and historic chloride concentrations in the range of 6 mg/l to 76 mg/l with an average of 15 mg/l. The Upper Black Squirrel Creek aquifer serves as the base potable water supply for the CMD. Given the relatively low concentrations of sulfate and chloride in the groundwater, it is unlikely that the reclaimed water from the Cherokee Metropolitan District Water Reclamation Facility would contain concentrations of sulfate and chloride which would approach the PEL of 250 mg/l. The limitations for both sulfate and chloride

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are established at the down-gradient groundwater monitoring and compliance wells.

e. **Cyanide and Metals**--Effluent limitations for cyanide and three metals parameters; chromium, iron and lead have been established by the Division in the PEL document. The Division has expressed concern relative to the ability of the Cherokee Metropolitan District Water Reclamation Facility to achieve compliance with the effluent limits established for cyanide and the metals parameters. Therefore, a sampling and analysis program was developed to aid in resolving these concerns for achieving compliance. Generally, the sampling and analysis program developed involved collecting individual effluent samples from the existing CMD and Paint Brush Hills (PBH) WWTFs on a monthly basis. Laboratory analysis of each individual sample was then conducted for cyanide and each of the metals parameters. The analytical results for the samples from each individual WWTF were then mass balanced based upon the anticipated wastewater contribution from each entity at start-up of the Cherokee Metropolitan District Water Reclamation Facility. The results of this mass balance procedure are intended to provide a conservative representation of the expected effluent quality from the Cherokee Metropolitan District Water Reclamation Facility relative to cyanide and the metals parameters. The projection is seen as conservative, because the existing WWTFs are both lagoon systems, whereas the Cherokee Metropolitan District Water Reclamation Facility will employ an activated sludge treatment process that will enable the operators to adjust MLSS concentrations to optimal levels, thereby likely increasing these parameters' concentrations in the biomass while decreasing their levels in the effluent. Groundwater monitoring compliance wells will be established to verify compliance with cyanide and the metals parameters.

The Cherokee Metropolitan District Water Reclamation Facility, which is a mechanical type treatment facility employing biological nitrogen removal, will be capable of producing a better quality effluent in all respects than is currently being produced or could be produced by either of the existing lagoon treatment systems. However, the WQCD and the U.S. EPA takes the position that neither the existing WWTFs nor the Cherokee Metropolitan District Water Reclamation Facility include processes specifically designed for cyanide or metals reduction; therefore, any cyanide or metals reduction would be coincidental and, would be equal to or only slightly better than the existing WWTFs. In view of the above, it is judged that the sampling and analysis program undertaken provides a conservative representation of the anticipated effluent quality from the Cherokee Metropolitan District Water Reclamation Facility relative to cyanide and the metals parameters.

At the time the initial assessment was made, nine samples of the effluent from the existing CMD WWTF had been collected and analyzed for the parameters of concern and eight samples of the effluent from the PBH WWTF had likewise been collected and analyzed. Table 3 shows the expected effluent quality from the Cherokee Metropolitan District Water Reclamation Facility based on a mass balance procedure versus the PELs established for cyanide and each of the metals parameters contained in the PEL determination. As can be seen, the expected effluent concentrations are less than the PELs for all four parameters.

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Table 3
EXPECTED EFFLUENT QUALITY VS.
PRELIMINARY EFFLUENT LIMIT

Parameter	Expected Effluent Concentration (mg/l)	PEL (mg/l)
Cyanide, WAD [1)]	<0.010	0.2
Chromium, Total	<0.025	0.1
Iron, Dissolved	<0.150 [2)]	0.3
Lead, Dissolved	<0.007	0.05

1) WAD = Weak acid dissociable
2) Represents expected effluent concentration of total recoverable iron, dissolved iron fraction would be less

f. **Total Dissolved Solids**—Although Total Dissolved Solids (TDS) were not included in the PEL determination, TDS is a groundwater limitation, pursuant to Regulation No. 41, and pollutant of concern. Therefore, a TDS limitation of 400 mg/l has been incorporated into the permit. The Cherokee Metropolitan District Water Reclamation Facility is expected to meet this limitation at Compliance Point the down-gradient groundwater monitoring and compliance wells. The WQCD has confirmed that the Cherokee Metropolitan District Water Reclamation Facility can meet the TDS limitation of 400 mg/l.

B. Monitoring

1. Influent Monitoring

All monitoring frequencies are based on the WQCD Policy, "Baseline Monitoring Frequency, Sample Type, and Reduced Monitoring Frequency Policy for Industrial and Domestic Wastewater Treatment Facilities" dated May 1, 2007.

Influent sampling location 300I is equipped with a composite sampler and will draw the influent sample from a location upstream of the 18" Parshall flume located in the Headworks Building, Figure 6.

2. Effluent Monitoring

Effluent sampling location 001A is equipped with a composite sampler and will draw the effluent sample from a location downstream of the 18" Parshall flume located in the UV Disinfection Building. Flow entering the Rapid Infiltration Basin Facility is monitored by a magnetic flow meter located in the Flow Measurement and Pressure Regulation Station (001B). Flow data from all three monitoring points is indicated, totalized and recorded by the plant-wide SCADA system, Figure 6.

3. Groundwater Monitoring and Compliance Wells

A total of four (4) Groundwater Monitoring and Compliance Wells (wells) will be utilized at the Rapid Infiltration Basin Facility. Specifically, two (2) existing up-gradient wells and two (2) new down-gradient wells will be installed around the rapid infiltration basins, as shown in Figure 6.

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There are two (2) existing CMD production wells located up-gradient of the rapid infiltration basins, CMD Wells No. 11 and No. 12, which will serve as the up-gradient background wells. These wells, labeled 050A and 050B on Figure 6, are located sufficiently far to the north of the rapid infiltration basins to remain up-gradient and un-affected by the groundwater mound expected from the operation of the rapid infiltration basins. Also, because these wells are completed through the alluvial aquifer and pumped to supply water to the CMD system, they will provide samples that are representative of the groundwater quality immediately up-gradient of the area that could be potentially impacted by the replacement water.

According to Regulation No. 41, the point of compliance for groundwater discharges is a vertical surface at some specified distance hydrologically downgradient from the activity that is being monitored for compliance, and this point must be within the property boundary. As stated in the draft permit, the point of compliance for the WWTF discharges to groundwater is a location between the basins and the property boundary on the downgradient side of the last set of rapid infiltration basins. This means that the quality of any groundwater passing through this vertical surface (as defined by the alignment of the wells) must not be impaired by the discharge from the WWTF.

The wells shall be designed to provide access at different depths to sample the upper groundwater (0 to 5 feet) that passes through this vertical surface for determination of compliance. Subsurface movement of the WWTF effluent from the basins will pass through this vertical surface in two ways. First, the effluent could reach and mix with groundwater and the mixed flow would be sampled from the well for compliance determination. Second, the effluent would reach the well before reaching groundwater and be sampled for compliance determination. The latter could be a flow that is physically separated from the lower natural flow of groundwater. The design of the compliance wells, especially the screened intervals for sampling, must account for the variability in the levels of groundwater as this flow (or flows) crosses the vertical surface.

Since the background depth to groundwater below the basins is about 100 feet when the WWTF begins to discharge, the depth to groundwater at the compliance wells will decrease with time as the discharge creates the predicted groundwater mound. So, depth to groundwater levels at the well locations will initially be 100 feet and then gradually decrease by 20-50 or more over during the first decade of WWTF operation and discharge, according to modeling predictions conducted by CMD.

Given the above, the Division shall require groundwater monitoring and compliance at various elevations within the proposed groundwater monitoring and compliance wells. Specifically, Nested (multiple wells installed in same bore hole) or Clustered (adjacent wells completed and screened to different depths) groundwater monitoring and compliance wells are required that are capable of providing a sample of the treated effluent prior as it reaches the vertical surface. The wells will provide screening at three levels: 5 feet above and below background groundwater level (95-105 feet [L]), 5 feet above and below projected groundwater mound surface (45- 55 feet [U]), and mid-level (70-80 feet [M]). The nested or cluster wells will be at two (2) locations, each one directly downgradient from one of the two basins; identified as 050C and 050D. Note, the letters "L", "M", and "U" mean lower, middle, and upper, respectively in relationship to the screened interval of the wells and the compliance points within the wells.

The Division will base the determination of compliance based on the quality of the groundwater sample taken at each location from the well with the shallowest depth to groundwater. So, the permit will require monitoring and analysis of groundwater from all screened intervals, but the compliance will be based on the sample from the deepest screened interval (95-100 ft) at each of the two locations. When groundwater rises

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and can be sampled from shallower screened intervals, then the permit will be amended to change the compliance requirement to these locations.

C. Reporting

1. Discharge Monitoring Report – The Cherokee Metropolitan District Water Reclamation Facility must submit a Discharge Monitoring Report (DMR) on a monthly basis to the Division. These reports should contain the required summarization of the test results for all parameters and monitoring frequencies shown in Part I.B of the permit. See the permit, Part I.B, C and D for details on such submission.

2. Annual Biosolids Report – The permittee will be required to submit an annual Biosolids Report which includes the results of all biosolids monitoring performed for the year and information on management practices, land application sites, site restrictions and certifications. The Annual Biosolids Report is due by **February 19th** of the following year. Refer to Part I, Section D.3 of the permit.

3. Special Reports – Special reports are required in the event of an upset, bypass, or other noncompliance. Please refer to Part II.A. of the permit for reporting requirements. As above, submittal of these reports to the US Environmental Protection Agency Region VIII is no longer required.

D. Additional Terms and Conditions

1. Signatory Requirements – Signatory requirements for reports and submittals are discussed in Part I, Section D.1 of the permit.

2. Compliance Schedules – No compliance schedules are included in the permit.

3. Industrial Stormwater Evaluation--Stormwater discharges from wastewater treatment facilities with a design flow of 1.0 MGD or more, or that is required to have an approved pretreatment program, are required to be covered by a CDPS Stormwater Discharge Permit Associated with Light Industry Permit or a Stormwater No Exposure Certification in order to be discharged to Waters of the State. If a facility meets these requirements, a permit application or certification must be completed and submitted to the Division at least 30-days prior to beginning operations. Cherokee Metropolitan District Water Reclamation Facility is specifically included under the requirements discussed above. Stormwater permitting issues for this facility will be handled separately by the Division's Stormwater Unit.

E. Economic Reasonableness Evaluation

Section 25-8-503(8) of the revised (June 1985) Colorado Water Quality Control Act required the Division to "determine whether or not any or all of the water quality standard based effluent limitations are reasonably related to the economic, environmental, public health and energy impacts to the public and affected persons, and are in furtherance of the policies set forth in sections 25-8-102 and 25-8-104."

The Colorado Discharge Permit System Regulations, Regulation No. 61, further define this requirement under 61.11 and state: "Where economic, environmental, public health and energy impacts to the public and affected persons have been considered in the classifications and standards setting process, permits written to meet the standards may be presumed to have taken into consideration economic factors unless:

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1. A new permit is issued where the discharge was not in existence at the time of the classification and standards rulemaking, or

2. In the case of a continuing discharge, additional information or factors have emerged that were not anticipated or considered at the time of the classification and standards rulemaking."

The evaluation for this permit shows that this is a new facility not in existence at the time of water quality standards rulemaking. However, based on available data, the resulting water quality standard-based effluent limitations are determined to be reasonably related to the economic, environmental, public health, and energy impacts to the public and affected persons. If the permittee disagrees with this finding, pursuant to 61.11(b)(ii) of the Colorado Discharge Permit System Regulations, the permittee should submit all pertinent information to the Division during the public notice period.

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Figure 1-Location Map

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Figure 2

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LEGEND

CMD	CHEROKEE METROPOLITAN DISTRICT
MSMD	MERIDIAN SERVICE METROPOLITAN DISTRICT
SAFB	SCHRIEVER AIR FORCE BASE

EXHIBIT H-2
SYSTEM OVERVIEW MAP
CHEROKEE METROPOLITAN DISTRICT
CDPS PERMIT APPLICATION

GMS, INC.
CONSULTING ENGINEERS
611 N. WEBER, SUITE 300
COLORADO SPRINGS, COLORADO 80903
JULY 2009

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Figure 3

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Figure 4

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Figure 5

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Figure 6

VII. REFERENCES

A. Colorado Department of Public Health and Environment, Water Quality Control Division Files.

B. "Design Criteria Considered in the Review of Wastewater Treatment Facilities", Policy 96-1, Colorado Department of Public Health and Environment, Water Quality Control Commission, April 2007.

C. Colorado Discharge Permit System Regulations, Regulation No. 61, Colorado Department of Public Health and Environment, Water Quality Control Commission, effective April 30, 2008.

D. Regulations for Effluent Limitations, Regulation No. 62, Colorado Department of Public Health and Environment, Water Quality Control Commission, effective March 30, 2008.

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E. Pretreatment Regulations, Regulation No. 63, Colorado Department of Public Health and Environment, Water Quality Control Commission, effective April 01, 2007.

F. Biosolids Regulation, Regulation No. 64, Colorado Department of Public Health and Environment, Water Quality Control Commission, effective March 01, 2008.

G. Procedural Regulations for Site Applications for Domestic Wastewater Treatment Works, Regulation No. 22, Colorado Department of Public Health and Environment, Water Quality Control Commission, effective June 30, 2004.

H. Regulation Controlling discharges to Storm Sewers, Regulation No. 65, Colorado Department of Public Health and Environment, Water Quality Control Commission, effective May 30, 2008.

I. Water and Wastewater Facility Operator Certification Requirements, Regulation No. 100, Colorado Department of Public Health and Environment, Water Quality Control Commission, effective April 30, 2006.

J. Geohydrology, Water Quality, and Preliminary Simulations of Ground-Water Flow of the Alluvial Aquifer in the Upper Black Squirrel Creek Basin, El Paso County, Colorado; David R. Buckles K. R. Watts, U. S. Geological Survey, 1988.

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Randy T. Ogg
April 26, 2010

VIII. PUBLIC NOTICE COMMENTS

During the public notice period (March 19 through April 18, 2010), written comments on the proposed permit were received from three entities:

> GMS Inc on behalf of the Cherokee Metropolitan District
> MacDougall, Woldridge & Worley, P.C. and Halepaska and Associates on behalf of the Farmer Family. Three letters previously sent to the Division regarding the facility were also provided and requested to be added to the administrative record for the permit.

The comments are available for public review. Summaries of these comments are provided below and followed by the Division's response.

GMS Inc on behalf of the Cherokee Metropolitan District (CMD)

Comment No.1: Effluent Monitoring Locations and Points of Compliance

CMD is confident the WWTF effluent will be in compliance with all of the proposed effluent limits, including the metals limits, at Outfall 001A a significant amount of the time. Relative to total coliform there is a reasonable potential of meeting the effluent limit at the discharge of the WWTF during initial operation when the flow through rate will be significantly below the rated capacity. Since the effluent from the WWTF will be conveyed to the Rapid Infiltration Basin Facility in a closed conduit, there is little likelihood of the WWTF effluent being contaminated after it leaves the WWTF.

It would not appear to be necessary to monitor ground water quality (after the WWTF effluent has mixed with the native ground water) for any parameter if the WWTF effluent was in compliance with the permit limitation for that parameter. CMD sees no benefit to be gained from expending the time, money and effort of sampling the ground water monitoring and compliance wells if the treated effluent already meets discharge permit limitations at the discharge from the WWTF (Outfall 001A).

CMD requests that the effluent monitoring and compliance requirements in the final permit be modified to allow for monitoring of all effluent parameters at Outfall 001A and only require monitoring and analysis of ground water monitoring and compliance well samples for those parameters that exceed the effluent limitations at Outfall 001A.

Response:

As stated, the proposed approach to determine compliance with limitations is not possible under permitting regulations. Between the end of the treatment process and the entrance of wastewater flows into state waters, there can only be one point of compliance for each limitation (as expressed) for each reporting interval. For example, there can be a pH limitation of 6.0-9.0 at one compliance point and a

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pH limitation of 6.5 to 9.0 at another point. However, the location of a compliance point can be changed through the permit amendment process.

Given groundwater monitoring wells will be installed, the comment addresses the need to conduct monitoring at these wells if all effluent limits can be met at Outfall 001A. The Division relies on the site application and design approval process to determine how treatment will be provided to meet effluent limits in a permit for a domestic WWTF. In this case the site application approval established a point of compliance at the monitoring wells for effluent limits established based on groundwater standards, and the design approval was consistent with the site approval. The Division developed this permit with the point of compliance at the wells for effluent limits established based on groundwater standards with the exception of nitrate. The basis for moving the point of compliance for nitrate is explained in the fact sheet, and is consistent with how treatment was demonstrated in the site approval process. While the WWTF will provide advanced treatment, the basis of the compliance point being established at the monitoring wells was uncertainty about the ability to meet all effluent limits at Outfall 001A at design capacity. This uncertainty is reflected by the following sentence in the above CMD comment.

> "CMD is confident the WWTF effluent will be in compliance with all of the proposed effluent limits, including the metals limits, at Outfall 001A a significant amount of the time. "

Compliance points can be adjusted through adequate demonstration of treatment through the site approval process and permit amendment process.

Comment No.2: Total Dissolved Solids (TDS) Limitation

Relative to the numeric limit for TDS, there appears to be a discontinuity in Regulation No. 41 between Table 4 and the Statement of Basis and Purpose. According to Table 4, the TDS limit would be 400 mg/l with a background concentration of less than 320 mg/l and would be 1.25 times the background concentration with background concentrations greater than 320 mg/l. However, the Statement of Basis and Purpose (41.12) states on page 27 in the sixth full paragraph, "If the background concentration is less than 400 mg/l then the maximum allowable concentration of TDS is 500 mg/l. This value is the secondary drinking water standards and is instituted to maintain a high quality water." The rationale presented in the Statement of Basis and Purpose for a 500 mg/l lower limit appears reasonable. Our opinion is that a limit of 500 mg/l or 1.25 times the background, whichever is least restrictive, is appropriate and would be in accordance with the intent of Regulation of No. 41.

The CMD requests that the effluent limitation for TDS in the final permit be revised to 500 mg/l or 1.25 times the background TDS concentration, whichever is least restrictive.

Response:

CMD did not provide information regarding the background concentration of TDS in their permit application. Therefore, the Division does not have data available to establish the background concentration of TDS. The Division's practice is to implement a Total Dissolved Solids (TDS) limitation of 400 mg/l, in accordance with Regulation No. 41, Table 4, TDS Water Quality Standards, when there is no background data for TDS. The Division will consider a different TDS effluent limitation based on background TDS data provided by CMD. CMD has two up-gradient groundwater wells that could be used for collecting data for establishing this background level.

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Comment No.3: Monitoring Frequency for Nitrate and Nitrite

CMD takes exception to the weekly monitoring frequency listed in the tabulation for Outfall 050A and 050B (the up-gradient monitoring wells) in Part I.A.1 of the draft permit.

Division Policy WQP-20 only requires monthly monitoring of ground water monitoring wells. This would be appropriate in that seasonal changes in ground water quality could be expected. However, it is unlikely that these changes in ground water quality would be so rapid as to warrant weekly monitoring. CMD sees no benefit to be gained from expending the time, money and effort of sampling the up-gradient ground water monitoring wells on a weekly basis for nitrate and nitrite. CMD's opinion is that monthly monitoring would provide adequate information relative to changes in background water quality.

The CMD requests that the monitoring frequency for nitrate and nitrite at Outfalls 050A and 050B be changed to monthly in the final permit.

Response:

This is a typographical error in the draft permit. The permit is changed to reflect monthly groundwater monitoring for these parameters.

Comment No.4: Total Coliform Limitations and Reporting

The effluent limitations in Part I.A.1 of the draft permit for Outfalls 050C, 050D, 050E and 050F indicates an effluent limit for total coliform of 1.0 colonies per 100 ml as a 30 day average to be reported monthly. It is our understanding that the total coliform effluent limit is implemented as an annual average. The CMD requests that the effluent limitation table for Outfall 050C, 050D, 050E and 050F be revised accordingly.

Response:

The comment may be referring to text in a previous version of Regulation No. 41.

As stated in Regulation No. 41, The Basic Standards for Ground Water, Table 1, Domestic Water Supply—Human Health Standards, and Footnote a;

> "When the Membrane Filter Technique is used for analysis, the average of all samples taken within thirty days must be less than 1 organism per 100 milliliters of sample. When the Multiple Tube-Fermentation Method is used for analysis, the limit is less than 2.2 org/100 ml."

Therefore, the Division shall implement the 30-day average limitation of 1.0 org/100 ml.

Comment No.5: Sample Type for Oil and Grease

The sample type in the tabulation of effluent limitations for oil and grease at Outfall 001A in Part I.A.1 of the draft permit is listed as grab. Part I.A.1 of the draft permit under the heading "Oil and Grease Monitoring" on page 3 indicates that a grab sample and analytical analysis for oil and grease is only required in the event an oil sheen or floating oil is observed at the point of compliance. No. 19 under Part 1.C defines "visual" as observing the discharge to check for the presents of visible sheen or floating oil.

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CMD requests that the sample type for oil and grease at Outfall 001A in the final permit be revised to Visual and Grab in accordance with the above.

Response:

Regulation No. 62, Regulations for Effluent Limitations, Table (1) Numeric Limitations, footnote 5/; states:

> "A numeric effluent limit will be assigned in permits for discharges to surface waters, however, monitoring for a "visual sheen" will generally be required. Where a visual sheen is detected, the discharger will be required to collect a grab sample and have it analyzed for oil and grease. Monitoring for oil and grease may be required where there is reasonable potential that oil and grease will be present in the effluent at concentrations at or above 10 mg/l."

Oil and grease is included in the Preliminary Effluent Limitations (June 15, 2006), with a numeric limitation of 10 mg/l as a maximum limit. Based on the volume of effluent that the WWTF will be treating, and the various collection systems that will be pumping effluents to the WWTF, the Division believes there is "reasonable potential" that oil and grease could be at or above 10 mg/l. Therefore, oil and grease shall remain in the permit as a pollutant of concern with an effluent limitation of 10 mg/l.

Comment No.6: Installation of Downgradient Monitoring and Compliance Wells

The draft permit states that four (4) new downgradient ground water monitoring and compliance wells are to be installed, but does not specifically address at what point in time these monitoring wells are to be installed and must be operational. Prior to commencing construction of the monitoring wells, it would be prudent to know the exact number, location, depth, and other pertinent requirements associated with monitoring wells. CMD has begun preliminary negotiations with a well driller for installation of the downgradient ground water monitoring and compliance wells. It appears that up to thirty (30) days may be required for construction of these monitoring wells.

The current target date for the WWTF to be ready to accept and process wastewater is June 21, 2010. The start-up of this new WWTF is critical, since the existing WWTF operated by CMD will be shut-down when the new WWTF is operational.

Thus, CMD requests that WQCD to provide confirmation as to the number, location, depth, etc. of the monitoring wells prior to the issuance of the permit and include this information in the permit. Once the pertinent requirements for the monitoring wells have been established, physical construction of the monitoring wells could begin.

Response:

The groundwater monitoring and compliance wells must be installed and operational (i.e., capable of providing a representative groundwater sample and elevation measurement) at the time the WWTF discharges treated effluent into the Rapid Infiltration Basins. The details for these groundwater wells are provided in this Fact Sheet. Also, the Division believes there is sufficient time for CMD to complete the installation of these wells before the projected first discharge to the basins in late June 2010.

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Comment No.7: Screened Interval for Downgradient Monitoring and Compliance Wells.

The draft Fact Sheet appears to contain conflicting direction relative to the location of the screened interval for the downgradient ground water monitoring and compliance wells.

- The second paragraph on page 14 of the Rationale document states "Also, these monitor well locations will provide ground water samples that better represents the water quality of the aquifer because they will allow the replacement water to flow through the aquifer a sufficient distance to thoroughly mix with upgradient ground water before sampling." (emphasis added).
- The third paragraph on page 14 of the Rationale document states "To provide representative samples of the downgradient ground water quality, each well will be drilled to approximately 20 feet below the current water table depth and constructed with a 20 foot length of PVC well screen. The target depth for the top of the well screen will be the depth at which the "mounding water table" is estimated and/or projected."
- The fourth paragraph on page 14 of the Rationale document justifies locating the top of the 20 foot length of well screen at the mounding water table elevation based on the assumption that the water table will rise due to ground water mounding beneath the rapid infiltration basins, thus, increasing the depth of submergence over time and placing the well screen interval of each well at approximately the mid-depth of the saturated aquifer zone where there should be adequate mixing of the infiltrated water with the native ground water.

Installation of the screened interval as described in the third paragraph on page 14 of the draft Fact Sheet presents several concerns.

- The first concern relates to establishing the vertical location of the screened interval. Ground water modeling of the alluvial aquifer in the vicinity of the Rapid Infiltration Basin Facility indicates that the height of the ground water mound that will form under the infiltration basins will vary with time and the volume of water applied to the infiltration basins. Under initial operating conditions, the ground water mound height is projected to be approximately 20 feet after 1 year of operation. Under design application conditions, the ground water mound height is projected to be as much as 50 feet after 10 years of operation. Placing the top of the well screen at the depth at which the mounding water table is projected to be after 10 years of operation could result in the entire screened interval being above the mounded water table under initial conditions. This would preclude being able to collect samples under initial conditions.
- Installation of the screened interval above the current native ground water table would also provide no opportunity for the infiltrated water to comingle and mix with the native ground water, thus samples from the monitoring wells would be representative of only the infiltrated water. Such would indicate the quality of the infiltrated water, but would not provide information relative to actual changes in the chemistry of the native ground water. Based on previous discussions with WQCD and our past experience with installation of WQCD required groundwater monitoring wells, our understanding is that the screened interval should extend into the native ground water table such that samples collected represent the comingling and mixing of the infiltrated water and the native ground water.
- Finally, we see no benefit to be gained by drilling the wells to 20 feet below the current water table if the screened interval is to be installed above the current water table.

In the permit application, the CMD suggested the downgradient ground water monitoring and compliance wells be drilled to approximately 20 feet below the current water table depth and constructed with a 20 foot length of well screen located such that the top of the well screen be located at the depth at which the water table is encountered during drilling. It could be argued that installation of the screened interval below the current native ground water table could result in the samples from the monitoring wells being representative of only the native

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ground water. This would be particularly true if mixing of the infiltrated water and native ground water were minimal and the height of the ground water mound was significantly above the elevation of the native ground water table.

As a compromise, CMD requests that the permit to call for the screened interval of the downgradient ground water monitoring and compliance wells (Outfalls 050C, 050D, 050E and 050F) to be installed with ten feet of screen above and ten feet of screen below the current native ground water table. This would provide the opportunity for some mixing and comingling of the infiltrated water and native ground water to occur and thus would provide samples representative of the comingled ground water. It is within this 20 foot interval of the saturated aquifer zone that we would expect the bulk of the mixing of infiltrated water and native ground water to occur. The intent of Regulation No. 41 is to protect the classified beneficial uses of the ground water. Installation of the screened interval as described above, would document that the infiltrated water is not adversely impacting the native ground water to the extent that the designated beneficial uses of the ground water are being jeopardized.

Response:

The Division agrees that the discussion in the draft permit on the downgradient groundwater monitoring and compliance wells requires clarification. Also, based on an evaluation of public comments on the appropriate intervals for screening these wells, the Division has adjusted the nature of these wells to address these comments. These changes are explained in detail below and incorporated into the permit and fact sheet.

According to Regulation No. 41, the point of compliance for groundwater discharges is a vertical surface at some specified distance hydrologically downgradient from the activity that is being monitored for compliance, and this point must be within the property boundary. As stated in the draft permit, the point of compliance for the WWTF discharges to groundwater is a location between the basins and the property boundary on the downgradient side of the last set of rapid infiltration basins. This means that the quality of any groundwater passing through this vertical surface (as defined by the alignment of the wells) must not be impaired by the discharge from the WWTF.

The wells are designed to provide access at different depths to sample the upper groundwater (0 to 5 feet) that passes through this vertical surface for determination of compliance. Subsurface movement of the WWTF effluent from the basins will pass through this vertical surface in two ways. First, the effluent could reach and mix with groundwater and the mixed flow would be sampled from the well for compliance determination. Second, the effluent would reach the well before reaching groundwater and be sampled for compliance determination. The latter could be a flow that is physically separated from the lower natural flow of groundwater.

The design of the compliance wells, especially the screened intervals for sampling, must account for the variability in the levels of groundwater as this flow (or flows) crosses the vertical surface. As stated in CMD comments:

> "Ground water modeling of the alluvial aquifer in the vicinity of the Rapid Infiltration Basin Facility indicates that the height of the ground water mound that will form under the infiltration basins will vary with time and the volume of water applied to the infiltration basins. Under initial operating conditions, the ground water mound height is projected to be approximately 20 feet after one year of operation.

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> Under design application conditions, the ground water mound height is projected to be as much as 50 feet after ten years of operation."

Since the background depth to groundwater below the basins is about 100 feet when the WWTF begins to discharge, the depth to groundwater at the compliance wells will decrease with time as the discharge creates the predicted groundwater mound. So, depth to groundwater levels at the well locations will initially be 100 feet and then gradually decrease by 20-50 or more over during the first decade of WWTF operation and discharge.

Given the above, the Division shall require groundwater monitoring and compliance at various elevations within the proposed groundwater monitoring and compliance wells. Specifically, Nested (multiple wells installed in same bore hole) or Clustered (adjacent wells completed and screened to different depths) groundwater monitoring and compliance wells are required that are capable of providing a sample of the treated effluent prior as it reaches the vertical surface. The wells will provide screening at three levels: 5 feet above and below background groundwater level (95-105 feet), 5 feet above and below projected groundwater mound surface (45- 55 feet), and mid-level (70-80 feet). The nested or cluster wells will be at two locations, each one directly downgradient from one of the two basins.

The Division will base the determination of compliance based on the quality of the groundwater sample taken at each location from the well with the shallowest depth to groundwater. So, the permit will require monitoring and analysis of groundwater from all screened intervals, but the compliance will be based on the sample from the deepest screened interval (95-100 ft) at each of the two locations. When groundwater rises and can be sampled from shallower screened intervals, then the permit will be amended to change the compliance requirement to these locations.

Halepaska and Associates on behalf of the Farmer Family

Comment No.1: Monitor Well Design

According to the fact sheet, the downgradient groundwater monitoring and compliance wells are to be constructed as:

> "To provide representative samples of the down-gradient groundwater quality, each well will be drilled to approximately 20 feet below the current water table depth and constructed with a 20 foot length of PVC well screen. The target depth for the top of the well screen will be the depth at which the "mounding water table" is estimated and/or projected...."

These conditions cannot be met simultaneously. The water table in the vicinity of the proposed downgradient monitor wells (050C, 050D, 050E, 050F) is estimated to rise approximately 25 feet as a result of the operation of the rapid infiltration basins. So if the target depth for the top of the well screen is the top of the mound and the screened interval is 20 feet, then screen will be above the water table initially.

WQCD is requested to consider a better method which is to construct the wells with 40 feet of screen with 10 feet of screen below the current water table and 30 feet of screen above the current water table. This allows for the sampling the upper portion of the water table including the mounding anticipated to occur during the operation of the rapid infiltration basins. If the 20 feet of screen requirement is maintained, then nested wells should be constructed at each monitor location, nested such that a shallow sample from the top of the anticipated mound to 20 feet below the surface and a sample from the level of the current water table can be collected from the alluvial groundwater.

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Response:

Please see previous response to Comment No. 7 from CMD.

Comment No.2: Constituents Monitored

The draft permit requires CMD to collect samples from the downgradient monitor wells monthly and analyze the samples for pH, total coliform, total dissolved solids, total recoverable chromium, weak acid dissociable cyanide, dissolved iron, potentially dissolved lead, chloride, sulfate, and static water elevation. In addition, CMD must analyze the influent and effluent from the treatment plant for the presence of toxic pollutants listed in 40CFR122 Appendix D, Table II at least once every two years, and in Table III at least twice per year.

The analyses conducted by CMD during the pilot testing on the affect of the treated effluent on the groundwater only collected concentration data on fecal and total coliform bacteria, total organic carbon (TOC), total kjeldahl nitrogen (TKN), nitrite, nitrate, cryptosporidum, giardia, and viruses. The testing did not consider the possibility of dissolving constituents from the aquifer matrix caused by placing oxygenated treated effluent with a different pH and a higher TDS into the groundwater aquifer. Experience in injecting water into similar materials to the alluvial aquifer matrix indicates that metals, for example arsenic, may dissolve into the water at levels above the maximum contaminant levels.

The Black Squirrel groundwater aquifer is designated for both domestic and irrigation use. To assure that the water quality remains appropriate for these uses after the introduction of the treated sewage, monitoring for the constituents listed in Table 2 (domestic water quality standards), and Table 3 (agricultural water quality standards) of Regulation No. 41 should be required for each of the downgradient monitor wells and piezometers quarterly for the first two years and then annually. If any toxic pollutant contained in 40CFR122 Appendix D is discovered in the WWTF effluent, then it should be added to the list of compounds analyzed in the downgradient monitor wells.

Response:

Based on experience in permitting and monitoring all domestic WWTF that discharge over 2,000 gallons per day, the Division believes that the parameters listed in the draft permit, both "technology-based" from Regulation No. 62, and "water quality-based" from Regulation No. 41, are representative of a domestic WWTF. In addition to incorporating the Preliminary Effluent Limitations (PELs) into the permit, the Division included TDS at 400 mg/l, and TSS limitations. The Division believes that the monitoring parameters and respective effluent limitations will be protective of groundwater quality uses.

The monitoring for toxic pollutants in the influent and effluent is consistent with requirements in State and Federal pretreatment regulations for surface water discharges and are intended to identify additional pollutants that may have the potential to contribute to an exceedance of a water quality standard. The intent of this requirement is to identify pollutants associated with new or modified discharges from industrial users to the WWTF. The permittee is required to report any parameters identified by the monitoring that are above the method detection limit. The Division will review this information, along with any response by the permittee that may address the presence of the pollutant, including modifications to local limits or other discharge conditions imposed by the permittee on industrial users. The Division may, upon further review of all available information, require additional influent or

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effluent monitoring or pretreatment requirements in accordance with requirements in Part I.A.3 of the permit. In addition, the Division may modify the permit, in accordance with Part II.B.5.a(iv) to impose additional effluent limits for toxic parameters if it is determined the discharge endangers human health or the classified or existing uses of the receiving water.

Comment No.3: Operational Monitoring

Division Policy 96-1 requires a sufficient number of groundwater monitor wells strategically placed to monitor treatment quality, groundwater quality, and overall performance of the infiltration basins. In addition, operational monitoring including continuous monitoring of hydraulic conductivity is necessary to assure proper treatment. However, the permit does not specify data collection to evaluate the performance of the rapid infiltration basins. There are 11 separate infiltration basins that will be operated at various times. The characteristics of the treated sewage may also vary over time. Therefore, treated sewage, with varying characteristics, can be infiltrated at various locations within the facility with the distribution changing with time. In addition, the site testing conducted by CMD's contractors indicated that the infiltration rate varied considerably across a rather small area. This means that the infiltration rate can vary over a wide range between the various basins.

Evaluation of the performance and hydraulic conductivity requires recording the volume of treated sewage delivered to each infiltration basin, the time required for the water to infiltrate into the alluvium, and the resulting change in head measured beneath the infiltration basins. The permit does not require the collection of this data .

Although a continuous recording flow gauge is to be installed at the inlet to the rapid infiltration facility, the amount delivered to each infiltration basin is not required to be recorded. CMD should be required to monitor the performance of each of the 11 basins by recording the amount of treated sewage delivered to each basin, the time required for the treated sewage to infiltrate the alluvium, and the time required for drying the basin. This data should be reported as part of the monthly monitoring report.

Although the permit requires the collection of water level information during the monthly sample collection in the downgradient wells, this data is insufficient to evaluate the operation of the rapid infiltration basins. No piezometers are required to be installed and monitored beneath the rapid infiltration basins. The collection of head data during the operation of the plan and comparison of this data to CMD's predictions on how the basins will operate is necessary to validate the proper operation of the system and to confirm the predictions of no injury to downgradient users . Therefore, the installation of piezometers equipped with recording pressure transducers is an important and necessary requirement. The recommendation is that 3 piezometers be installed, one in the center of each cluster of three infiltration basins (Third Request).

Response:

CMD included a very detailed operational description of their Rapid Infiltration Basins in their Permit Application that were subject to detailed engineering review by WQCD staff before issuance of site and design approval. The permit requires the permittee to properly operate and maintain the rapid infiltration basins as stated in Part II.B.4 of the permit. While the Division has the authority to require more prescriptive operation and maintenance procedures, including performance demonstration and reporting, the Division has determined that these are unnecessary for this permit action. The Division has many other sewage systems that discharge to groundwater through rapid infiltration basins. The Division

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conducts compliance oversight on the proper operation and maintenance provision through the routine inspection process.

MacDougall, Woldridge & Worley, P.C. on behalf of the Farmer Family, Comments requested to be incorporated into the Permit Administrative Record.

Note: These comments were not prepared during the public notice process in response to the contents of the draft permit, but were previously prepared in 2006 and 2009 to address concerns about the proposed discharge facility and the PELs (prepared in June 2006) for the proposed facility. As requested these earlier materials are incorporated into the administrative record. In addition, the Division decided to provide responses to these earlier concerns.

Comment 1. The PELs do not address TDS or Boron.

Response.

Total Dissolved Solids (TDS) - While the PELs did not address TDS, the draft permit did address TDS. The permittee provided a comment on this parameter (see CMD Comment 2, above) and the Division provided a response.

Boron – The Division decided that Boron was not a pollutant of concern during the preparation of the PELs and the draft permit based on the data available. The treated effluent from the permittee's existing WWTF was tested one time for Boron and the concentration was 0.36 mg/l. According to Regulation No. 41, the water-quality standard for Boron is 0.75 mg/l for waters to be used for agricultural irrigation. Specifically, this limitation is to protect the following plants in ascending order of sensitivity: Pecan, Black Walnut, Persian (English) Walnut, Jerusalem Artichoke, Navy Bean, American Elm, Plum, Pear, Apple, Grape (Sultanina and Malaga), Kadota Fig. Persimmon, Cherry, Peach, Apricot, Thomless Blackberry, Orange, Avocado, Grapefruit, Lemon. Where a party can demonstrate that a crop watering use of groundwater is not reasonably expected, the applicable standard for Boron is 5.0 mg/l. The above materials for the permit record only identified corn as the crop and not any of the above Boron-sensitive crops. Thus, the Division decided that the Boron concentration in the treated wastewater would be significantly below the 5.0 mg/l standard and there is no reasonable concern about potential impairment of the water for potential use in irrigation.

The permittee furnished the Division data on the Boron concentrations in the local groundwater below the proposed infiltration basins. Groundwater samples were collected from nine (9) drinking water wells located throughout the Black Squirrel Alluvial Aquifer, in July 2009. Two (2) wells, identified as DW-Well 11-09, and DW-Well 12-09, are the two up-gradient and/or background groundwater monitoring wells identified as 050A and 050B in the CMD Permit. These two wells are used for measuring background groundwater quality parameters. All nine wells were sampled for Boron, with a range of 0.04 mg/l—0.08 mg/l. The results for both up-gradient wells for Boron were 0.05 mg/l. Based on these data, the ambient groundwater quality is below the water quality standard.

The Division decided to require limited monitoring of Boron at Compliance Point 001A to confirm that Boron in the treated effluent from the new plant is not significantly different from the concentration in the one sample.

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Comment 2. The PELs are flawed as they are not based on actual data concerning the concentrations of many of the constituents in the wastewater stream nor has any site-specific data been collected regarding the treatment demonstration of the soils.

Response.

PELs are the first step in the site approval process and are intended to determine the regulatory requirements for a proposed new or increased discharge. The ability for a facility to meet those requirements is evaluated in the site and design approval steps of the process. For proposed facilities actual data is not available for the treated effluent to be discharged and the Division completes an evaluation of the proposed design and operation of the new treatment plant before deciding on the ability of the plant to meet the PELs. Site approval was granted to this facility on the basis that adequate demonstrations had been made that the facility could meet the effluent limits contained in the PELs.

Comment 3. An effective monitoring plan and system is a necessity.

Response. See responses to previous comments regarding monitoring well design.

Comment 4. The interaction of the CMD's treated wastewater with the alluvial matrix during the infiltration may result in an increase of certain constituents in the groundwater, including arsenic, uranium, calcium, sodium, cobalt, etc.

Response. The Water Quality Control Commission (WQCC) has adopted interim standards for 145 organic chemicals that are currently considered of importance relative to protecting groundwater quality and its various beneficial uses. These organic chemicals are listed in Table A of Regulation No. 41. In August 2004, the CMD collected effluent samples from their existing lagoon treatment facility and from the Paint Brush Hills (PBH) lagoon treatment facility. These samples were analyzed for approximately 130 parameters, which included metals and organic chemicals. This testing included analysis for approximately 60 of the 145 organic chemicals contained in Table A. The results of these analyses indicated that, with the exception of Di(2-ethylhexyl)phthalate (DEHP), none of the 60 parameters were detected at concentrations above the method detection limit (MDL).

The results for the other organic chemicals that were analyzed, those not included in Table A, indicate that none of them were detected at concentrations exceeding the MDL. In all analyses, the MDLs were below the groundwater quality standard concentrations listed in Table A of Regulation 41 or respective drinking water MCLs. Based on the organic chemical analyses conducted, it is unlikely that the other parameters listed in Table A would be found present in the WWTF's effluent. In addition, the CMD has had an EPA approved pretreatment program in place since 1997 under which commercial and industrial discharges to the wastewater collection system are regularly monitored and regulated.

The CMD is expected to maintain a proactive program with respect to water quality issues. In the event any constituents are monitored and begin to elevate toward unacceptable concentrations, the CMD will evaluate potential sources of the constituent and the means of limiting its introduction. The CMD has established and maintains an ongoing program of monitoring industrial users to ensure that water quality discharged from them to the wastewater collection system does not represent any unacceptable levels of pollutants of concern.

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Based on the sampling and analysis performed by CMD, and CMD's Pretreatment Program, the Division believes that the reclaimed water (treated effluent) from the CMD Water Reclamation Facility that will be applied to the rapid infiltration basin system, and subsequently migrate into and comingle with native ground water in the Black Squirrel Creek Alluvial Aquifer, will not cause unreasonable impairment of water quality or designated beneficial uses of the groundwater, and will not exceed current ground water quality standards as promulgated by the WQCC.

Other Changes

On March 3, 2010, the Division received an amendment from CMD to the Permit Application requesting a name change from the "Black Squirrel Wastewater Treatment Facility" to the "Cherokee Metropolitan District Water Reclamation Facility." The Division has made this change in the Permit and Fact Sheet.

Based on further evaluation by the Division, it was determined that the regulatory basis identified in the pretreatment requirements in the public noticed permit was not applicable to the Cherokee Metropolitan District Water Reclamation Facility. The requirements were based on authority and conditions of State and EPA pretreatment regulations, 5 CCR 1002-63 and 40 CFR Section 403.8 respectively, that are applicable only to facilities that discharge to surface waters. The pretreatment requirements in Part I.A.3 have been revised to instead be based on authority in 5 CCR 1002-61, that requires practice based effluent limits in CDPS permits when reasonably necessary to achieve effluent limitations and standards. Although the permit language has been revised to address this change in authority, the requirements for implementation by the permittee have remained consistent with those included in the public noticed permit.

The Division corrected an administrative error and modified the permit to express the effluent limits implemented to protect the nitrate standard in groundwater as Total Inorganic Nitrogen (TIN).

Randy Ogg
Permit Writer
May 7, 2010

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COLORADO DISCHARGE PERMIT SYSTEM (CDPS)

RATIONALE FOR AMENDMENT NO. 1

Cherokee Metropolitan District Water Reclamation Facility

CDPS PERMIT NUMBER COX-048348, EL PASO COUNTY

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I. TYPE OF PERMIT	*Major Amendment #1*
II. FACILITY INFORMATION	
A. Facility Type:	*Domestic-Major Municipal, Mechanical Plant*
B. Facility Classification:	*4952 Sewerage Systems* *Class A per Section 100.5.2 of the Water and Wastewater Facility Operator Certification Requirements*
C. Fee Category 1:	*Domestic Wastewater-Mechanical Plant, Category 21, Subcategory 7*
Category Flow Range:	*Sewage from 2,500,00 up to 9,999,999*
Annual Fee:	*$11,410 effective July 1, 2007*
Amendment Fee:	*$307.50*
D. Legal Contact:	*Sean Chamber, General Manager* *Cherokee Metropolitan District* *6250 Palmer Park Blvd.* *Colorado Springs CO 80915-1712* *719-597-5080*
E. Facility Contact:	*Pete Heidebrecht, Certified Operator* *719-597-5080, e-mail pheidebrecht@cherokeemetro.org.*
F. Facility Location:	*19174 Drennan Rd., Colorado Springs, CO 80930* *WWTF Lattitude: 38° 45 12″ N, Longitude: 104° 28 26″ W;* *Rapid Infiltration Basins Lattitude:* *38° 44″ 25 N, Longitude: 104° 24 14″ W*
G. Discharge Point:	*Outfall 001A, following disinfection and prior to mixing with the receiving aquifer* *Outfalls 050C(L), 050D(L) (down-gradient compliance wells)*

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III. PURPOSE OF AMENDMENT

In a letter dated January 27, 2011, Cherokee Metropolitan District (CMD) requested an extension to their compliance schedule included in Part I.3.b.v of their discharge permit concerning actions relative to examination of the pretreatment program local limits. This condition of the permit requires the CMD to submit a technical evaluation of the need to revise or develop local limits by June 1, 2011. In addition, should the CMD find that there is a need to revise or develop local limits; the CMD is to submit the proposed local limits by June 1, 2011.

Evaluation of existing local limits together with an analysis for requirements for new local limits is dependent, in large part, upon the ability of the Water Reclamation Facility to remove constituents of concern. Since this is a new facility, the District did not have any performance data at the time of issuance of this permit. Since the initiation of commissioning the new facility in June 2010, and the progress made toward development of suitable activated sludge operating conditions, the facility has a very limited period of stable operation. The facility has experienced certain slug discharges from a non-residential user which has affected treatment plant operation. In order to properly assess the need for revised and/or new local limits, additional data regarding treatment plant capabilities and performance is necessary.

IV. CHANGES MADE AS A RESULT OF THE AMENDMENT

The Division agrees with changing the compliance schedule. The following language shall be incorporated into the amended permit: "The permittee shall submit to the Division a technical evaluation of the need to revise or develop local limits in accordance with 40 CFR 403.5©, by December 31, 2011. The evaluation shall include, but not be limited to, a consideration of any new or revised numeric and practice-based effluent limits in this permit and water quality standards for the receiving water. If a technical evaluation reveals that development of revision of local limits is necessary, the permittee shall submit the proposed local limits to the Division on or before June 1, 2012, and implement the new local limits within 12 months of approval by the Division."

Permit Writer:
Randy T. Ogg
March 31, 2011

V. PUBLIC NOTICE COMMENTS

There were no public comments received from the public notice period.

Permit Writer
Randy T. Ogg
October 2011

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COLORADO DISCHARGE PERMIT SYSTEM (CDPS)

RATIONALE FOR AMENDMENT NO. 2

Cherokee Metropolitan District Water Reclamation Facility

CDPS PERMIT NUMBER COX-048348, EL PASO COUNTY

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I. TYPE OF PERMIT — Major Amendment #2

II. FACILITY INFORMATION

A. Facility Type: Domestic-Major Municipal, Mechanical Plant

B. Facility Classification: 4952 Sewerage Systems
Class A per Section 100.5.2 of the Water and Wastewater Facility Operator Certification Requirements

C. Fee Category 1: Domestic Wastewater-Mechanical Plant, Category 21, Subcategory 7
Category Flow Range: Sewage from 2,500,00 up to 9,999,999
Annual Fee: $11,410 effective July 1, 2007
Amendment Fee: $307.50

D. Legal Contact: Sean Chamber, General Manager
Cherokee Metropolitan District
6250 Palmer Park Blvd.
Colorado Springs CO 80915-1712
719-597-5080

E. Facility Contact: Pete Heidebrecht, Certified Operator
719-597-5080, e-mail pheidebrecht@cherokeemetro.org.

F. Facility Location: 19174 Drennan Rd., Colorado Springs, CO 80930
WWTF Lattitude: 38° 45 12″ N, Longitude: 104° 28 26″ W;
Rapid Infiltration Basins Lattitude:
38° 44″ 25 N, Longitude: 104° 24 14″ W

G. Discharge Point: Outfall 001A, following disinfection and prior to mixing with the receiving aquifer
Outfalls 050C(L), 050D(L) (down-gradient compliance wells)

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III. PURPOSE OF AMENDMENT

In a letter dated October 18, 2011, Cherokee Metropolitan District Water Reclamation Facility requested an Amendment of CDPS Permit Number COX-048348. Specifically, the request for the amendment included: Compliance Schedule for Total Dissolved Solids as "Report Only" for the duration of the permit; and Compliance Schedule for 85% Removal of BOD and TSS as Report Only from November 1, 2011 through January 1, 2014.

IV. CHANGES MADE AS A RESULT OF THE AMENDMENT

The Water Quality Control Division (Division) denies the request from Cherokee Metropolitan District to amend its permit for a "compliance schedule" for Total Dissolved Solids and 85% removal for BOD and TSS limitations as report only. Therefore, no changes to this permit shall be made.

Background. A preliminary effluent limit (PEL) was issued for discharges from the facility to Upper Black Squirrel Creek alluvial groundwater on June 16, 2006. The PEL included numeric effluent limits and an 85% removal requirement for BOD and TSS. The PEL did not include an effluent limit for TDS.

The facility received site approval in 2006 and design approval in February 2007. Construction of the facility began in 2007. The Division received a permit application for discharges from the facility to Upper Black Squirrel Creek alluvial groundwater on August 21, 2009. The Division published a draft permit for public notice and comment on March 19, 2010, and issued a final permit on May 13, 2010. The final permit became effective on June 12, 2010.

Since a TDS limit was not included in the June 2006 PEL, the ability of the treatment plant to meet the TDS limit was not evaluated during the site and design approval process. During the development of the draft and final permit, however, the Division evaluated whether the effluent limit for TDS could be met. As documented in the Fact Sheet for the final permit, the Division confirmed with the Cherokee Metropolitan District that the facility would be able to meet the TDS limit.

As described in the Division's Compliance Schedule Policy (WQCD, 2010), the use of compliance schedules for new and recommencing discharges is extremely limited:

> Regulation 61.8(3)(n)(iii) states: "The first permit issued to a new source or a new discharger shall contain a schedule of compliance only when necessary to allow a reasonable opportunity to attain compliance with requirements issued or revised after commencement of construction but less than three years before commencement of the relevant discharge."
>
> Regulation 61.8(1)(b)(iii) states: "The Division shall not issue a permit under the following circumstances: . . . (iii) When the imposition of conditions cannot ensure compliance with applicable water quality requirements of all affected States."

The proposed TDS limit in the draft permit is considered a limit that was issued or revised after commencement of construction and less than three years before commencement of the relevant discharge. However, given the prohibition of issuing a new permit when conditions cannot ensure compliance with water quality requirements, the Division was considering permit denial if Cherokee Metropolitan District was not able to demonstrate the ability to meet the TDS limit. The Division relied on information provided by the District regarding the Facility's ability to meet the TDS limit to support permit issuance in lieu of permit denial. Under these circumstances, the Division did not further consider the allowance of a compliance schedule for TDS because it was determined to be unnecessary.

The Division did not consider a compliance schedule in the issuance action for the 85% removal requirement for BOD and TSS as this requirement was included in the PEL and addressed in site and design approval. It was presumed that the facility would be able to meet the 85% removal requirement at the commencement of discharge.

Discharges from the Cherokee Water Reclamation Facility Rapid Infiltration Basins to Upper Black Squirrel Creek alluvial groundwater commenced in June 2010. Following commencement of the discharge, the facility has had numerous permit violations for exceedances of effluent limitations and 85% removal

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requirements for BOD and TSS, and the effluent limit for TDS. The request for a permit modification to include a compliance schedule for the 85% removal requirement for BOD and TSS, and the TDS effluent limit was received in October 2011.

Basis for Denial of Permit Modification Request. The Division has determined that discharges from the Cherokee Metropolitan District Water Reclamation Facility Rapid Infiltration Basins to Upper Black Squirrel Creek alluvial groundwater is currently an existing discharge.

The 85% removal requirement for BOD and TSS, and the TDS effluent limit of 400 mg/L remain appropriate conditions for this permit. The 85% Rate of Removal for BOD and TSS are standard limitations in Regulation #62, Regulations for Effluent Limitations. These regulations and limitations are applicable to all domestic wastewater dischargers. The applicable water quality standard for Total Dissolved Solids (TDS) is 400 mg/L, in accordance with Regulation No. 41, The Basic Standards for Ground Water. Secondly, the "Upper Black Squirrel Creek Alluvial Aquifer" is a "designated" aquifer in accordance with Regulation No. 42. The Upper Black Squirrel Creek Alluvial Aquifer is classified as "domestic use-quality and agriculture use-quality." The groundwater quality standards included in Tables 1-4 of the "Basic Standards for Ground Water" 41.0 (5CCR 1002-41) are assigned to all unconfined ground water in the specified area. Table 4 in Regulation No. 41 includes a TDS effluent limitation of 400 mg/L, and is applicable to the Cherokee Metropolitan District Water Reclamation Facility.

On this basis, a compliance schedule is not appropriate at this time for 85% removal for BOD and TSS or for the TDS effluent limitation, as the appropriate permit conditions are not new or more stringent (WQCD, 2010).

In support of this permit modification denial action, the Division evaluated whether the facility would have been eligible for a compliance schedule for TDS at the time of permit issuance if TDS had been more fully characterized by the facility and more complete information had been included in the permit application documenting an inability to meet the proposed limit of 400 mg/L.. This was done to further consider the unique factors in this case in making a compliance schedule appropriateness determination. In this case the Division has determined that the discharge from the Cherokee Metropolitan District Water Reclamation Facility Rapid Infiltration Basins was a new discharger at the time of permit issuance, since the discharge was occurring at a new site (the rapid infiltration basins) to a new water area (groundwater). Therefore, the facility would have been eligible for a compliance schedule for TDS at the time of permit issuance only if the permit required actions to be taken to enable the facility to meet the TDS effluent limit upon commencement of discharge, and prohibited discharge in advance of those actions being completed. Alternatively, if the Division had information substantiating the inability of the facility to meet the effluent limit for TDS upon commencement of discharge, without any countering information regarding steps that could be taken to meet effluent limit upon commencement of discharge, the appropriate course of action would have been to delay permit issuance until such time as new information would be provided to demonstrate the ability to meet the effluent limit. As a result, the Division has determined that new information regarding the inability of the facility to meet the effluent limit for TDS does not factor into the appropriateness determination.

Permit Writer:
Randy T. Ogg
December 28, 2011

V. REFERENCES

A. Colorado Discharge Permit System Regulations, Regulation No. 61, Colorado Department of Public Health and Environment, Water Quality Control Commission, effective April 30, 2008.

B. Policy for Permit Compliance Schedules, Colorado Department Public Health and Environment, Water Quality Control Division Policy Number WPC-Permitting -2, effective December 2, 2010.

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VI. PUBLIC NOTICE COMMENTS

No comments were received during the public notice period, from January 20, 2012 through February 20, 2012. Therefore, no further action is required for this permit amendment.

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Permit File COX-0048348

Randy Ogg

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.
Denver, Colorado 80246-1530
Phone (303) 692-2000
TDD Line (303) 691-7700
Located in Glendale, Colorado

Laboratory Services Division
8100 Lowry Blvd.
Denver, Colorado 80230-6928
(303) 692-3090

http://www.cdphe.state.co.us

Colorado Department of Public Health and Environment

PUEBLO DISTRICT OFFICE
4718 North Elizabeth St. – Suite B
Pueblo, Colorado 81008-2054
Phone (719) 545-4650 FAX (719) 543-8441

June 9, 2008

Kip Petersen, Manager
Cherokee Metropolitan District
6250 Palmer Park Boulevard
Colorado Springs, CO 80915

Subject: Design Approval (Plans and Specifications) for New Wastewater Treatment Facility, Site Application #4823, Cherokee Metropolitan District, El Paso County

Dear Mr. Peterson:

The Water Quality Control Division (the Division) has received the above referenced design documents, which were submitted on your behalf by GMS, Inc. The design documents were reviewed for compliance with Policy 96-1, Design Criteria Considered In The Review of Wastewater Treatment Facilities (the design criteria).

The design documents are associated with the above referenced site application for the Cherokee Metropolitan District's proposed wastewater treatment facility (WWTF), which is specified for a maximum monthly average hydraulic capacity of 4.800 MGD, and an associated organic capacity of 8,835 lbs BOD_5/day. A material and equipment approval for the 24-inch interceptor sewer, 20-inch nonpotable water main, yard piping and appurtenances at the recharge basin facility, and Sequencing Batch Reactor (SBR) equipment was authorized on January 9, 2007. The design review for the recharge facility and 20-inch nonpotable water main was approved on February 21, 2007.

This phase of the project includes the following:

- Installing the Owner furnished equipment for a SBR WWTF.
- Headworks Building, UV Disinfection Building, Digester Building, Solids Handling Building, Operations Building, and Electrical Equipment Building.
- Four SBR basins, two flow equalization basins, three aerobic digester basins, two biosolids day tanks.
- Yard piping, influent and effluent 18-inch Parshall flumes with ultrasonic flow meters, dirt work, asphalt pavement, and various appurtenances associated with the project

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The design documents are approved subject to the following conditions:

1. Chapter 4.6.2 of the design criteria requires that all WWTF shall be furnished a suitable manual that describes the overall operation and maintenance including process operations and controls. Prior to operation of the WWTF, an Operations & Maintenance Manual (O&M Manual) must be developed for the District.
2. In accordance with Regulation No. 100, Water And Wastewater Facility Operators Certification Requirements, this facility is required to be under the supervision of a operator that holds a Class "A" Domestic Wastewater Treatment Facility certification.
3. All change orders and addenda must be submitted to this office in duplicate for approval. Upon approval, one copy will be returned to you.
4. The registered engineer on the project must furnish a statement prior to commencement of operation stating that the facilities were constructed according to the plans, specifications, and change orders approved by the Division.
5. This review does not relieve the owner from compliance with all federal, state, and local government regulations prior to construction nor from responsibility for proper engineering, construction, and operation of the facility.
6. Once bids have been opened, the following documents should be submitted to the Water Quality Control Division, Outreach & Project Assistance Unit project manager :
   - A certified tabulation of all bids received.
   - Proof of advertising indicating circulation dates and time for receipt of bids.
   - A copy of the executed construction contract and schedule. Please note that the contractor must maintain adequate fire and extended coverage, workers' compensation, public liability, property damage and "all risk" builders insurance (including blasting where appropriate) during the construction phase of the contract.
   - Submit completed "FORM A – MBE/WBE SUBCONTRACTOR SOLITATION INFORMATION" as provided in the boilerplate specifications document, including a copy of their MBE/WBE certification.
   - During the construction phase, the borrower and contractor are required to complete "FORM B – MBE/WBE PROCUREMENTS MADE DURING THE QUARTER" as provided in the boilerplate specifications. These forms must be submitted to the Water Quality Control Division Project Manager beginning with the fiscal quarter that the bid is awarded and continuing until the project is completed. These reports must be submitted within 20 days of the end of the Federal fiscal quarter or by January 20, April 20, July 20, and October 20.
   - A final Plan of Operation and a draft Operations and Maintenance Manual is required to be submitted for review and approval by 50% of construction. The final Operations and Maintenance Manual is due for submittal and approval at 90% completion of construction, prior to final payment from the Water Pollution Control Revolving Loan.
7. A pre-construction conference must be held prior to initiating construction to discuss progress payments, change order procedures, progress meetings and compliance with Federal and State

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Regulations e.g., Civil Rights (Title VI), Equal Employment Opportunity, Occupational Safety and Health Administration and the National Historic Preservation Act/Archeological and Historic Preservation Act. Please contact Carolyn Schachterle at 303-692-3551 at your earliest convenience regarding our attendance and suggested agenda.

8. When the facility is estimated to be within 30 days of completion, the Division must be notified. A representative of the Division will schedule a site visit to conduct a final construction inspection.

Attached to this letter you will find a Customer Satisfaction Survey. We would greatly appreciate it if you would take a few moments to complete this survey and return it to us. Simply fill out the form, fold it according to the directions and drop it in the mail. The postage is already paid.

Thank you for your time and cooperation in this matter. If you have any questions, I can be contacted at 719-545-4650, ext. 13, or via email at dave.knope@state.co.us.

Sincerely,

David W. Knope, P.E.
District Engineer
Engineering Section
Water Quality Control Division
Colorado Department of Public Health and Environment

cc: Art Sintas, Cherokee Metropolitan District
Ed Meyer, P.E., GMS, Inc.
Mike McCarthy, El Paso County Department of Health and Environment
Richard Muzzy, Pikes Peak Area Council of Governments
Carl Schueler, El Paso County Development Services Department
Kent Kuster, Engineering Section, WQCD - Denver
Carolyn Schachterle, Outreach and Project Assistance Unit, WQCD – Denver

ec: Greg Worden, P.E., GMS, Inc.
David Akers, P.E., Clean Water Facilities Program, WQCD - Denver
Andrew Ross, Permit Section, WQCD - Denver
Lynn Kimble, Permit Section, WQCD - Denver

dwk

CHEROKEE METROPOLITAN DISTRICT

RESOLUTION 2018 - 03

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE CHEROKEE METROPOLITAN DISTRICT INCLUDING CERTAIN REAL PROPERTY INTO THE BOUNDARIES OF THE DISTRICT

A parcel of land located within Section 15, Township 14 South, Range 64 West of the 6th P.M., El Paso County, Colorado being more particularly described as follows:

The South 1/2 of the Southwest 1/4 of the Northwest 1/4 of Section 15, Township 14 South, Range 64 West of the 6th P.M., El Paso County, Colorado as recorded in Book 5872 at Page 1387, Reception Number, of the records of the Clerk and Recorder, El Paso County, Colorado;

Except Parcel A, as recorded in Reception Number 203108692, of the records of the Clerk and Recorder, El Paso County, Colorado, being further described as follows:

From the Point of Commencement at the west quarter corner of Section 15, thence N89°46'41"E a distance of 30.00 feet to intersect the existing east right-of -way line of Curtis Road for the Point of Beginning.

WHEREAS, a Petition for Inclusion of real property into the Cherokee Metropolitan District ("District") has been received from Dayton & Leah Osborn (Trustees), as owner of the property described in **Exhibit A** attached hereto and incorporated herein;

WHEREAS, said Petition complies with all requirements of C.R.S. § 32-1-401, *et seq.*;

WHEREAS, notice of public hearing on said inclusion has been published in the Ranchland News in the form prescribed by C.R.S. § 32-1-401(1)(b);

WHEREAS, no person showed cause in writing, and no person appeared in person to show cause orally, why the Petition should not be granted;

WHEREAS, it is in the best interests of the property owner and the users of the District to grant the within inclusion.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the Cherokee Metropolitan District as follows:

1. The Petition of Dayton & Leah Osborn (Trustees) for the inclusion of the real property described in **Exhibit A** attached hereto and incorporated herein into the boundaries of said Cherokee Metropolitan District is hereby granted in its entirety.

2. Staff and legal counsel, on behalf of the Board of Directors, are directed to prepare and submit to the District Court in and for the County of El Paso County, State of Colorado, all necessary and appropriate petitions and orders to legally effect the within inclusion.

DONE AND RESOLVED this 13th day of March, 2018.

CHEROKEE METROPOLITAN DISTRICT

By: _____
Janet L. Cederberg, President

ATTEST:

_____
Melody Helton, Secretary

CHEROKEE METROPOLITAN DISTRICT

NOTICE OF PUBLIC HEARING
PETITION FOR INCLUSION

NOTICE IS HEREBY GIVEN that the Board of Directors of the Cherokee Metropolitan District will hold a public hearing at its regular meeting on March 13, 2018 at 1:00 p.m., at the District's offices, located at 6250 Palmer Park Blvd., Colorado Springs, CO 80915 on a Petition for Inclusion, as described below.

Petitioners:
Dayton and Leah Osburn (Trustees)
P.O. Box 154
Chino Hills, CA 91709

General Description of Area Proposed for Exclusion:
A parcel of land located within Section 15, Township 14 South, Range 64 West of the 6th P.M., El Paso County, Colorado being more particularly described as follows:

The South 1/2 of the Southwest 1/4 of the Northwest 1/4 of Section 15, Township 14 South, Range 64 West of the 6th P.M., El Paso County, Colorado as recorded in Book 5872 at Page 1387, Reception Number, of the records of the Clerk and Recorder, El Paso County, Colorado;

Except Parcel A, as recorded in Reception Number 203108692, of the records of the Clerk and Recorder, El Paso County, Colorado, being further described as follows:

From the Point of Commencement at the west quarter corner of Section 15, thence N89°46'41"E a distance of 30.00 feet to intersect the existing east right-of -way line of Curtis Road for the Point of Beginning.

Thence the following four (4) courses:

1. Along said east right-of way line of Curtis Road N00°15'10"W a distance of 656.56 feet to intersect the north line of the aforesaid parcel.
2. Along the north line of said parcel N89°07'42"E a distance of 10.00 feet to intersect a line drawn parallel to and 40.00 feet east of the west line of said Section 15.
3. Along said parallel line S00°15'10"E a distance of 656.39 feet to intersect the south line of the aforesaid parcel.
4. Along said south line S89°52'39"W a distance of 10.00 feet to the Point of Beginning.

#7

NOTICE IS FURTHER GIVEN that all interested persons shall appear at the above designated date, time and place and provide comments on why the Petition for Inclusion should not be granted. Written comments may be submitted by the designated date and time above at the District's offices. Failure of any person within Cherokee Metropolitan District to object shall be taken as assent on his or her part to the Inclusion of the area described above.

Respectfully submitted,
Kurt Schlegel, General Manager

CHEROKEE METROPOLITAN DIST

6250 Palmer Park Blvd, Colorado Springs, CO 80915-1721
Telephone: (719) 597-5080 FAX: (719) 597-5145

PETITION FOR THE INCLUSION OF REAL PROPERTY IN THE CHEROKEE METROPOLITAN DISTRICT

To: The Board of Directors of Cherokee Metropolitan District

The undersigned Petitioner(s): * _____, being the fee owner(s) of the real property hereinafter described, hereby petition(s) that the hereinafter described real property be included in the Cherokee Metropolitan District ("District"), and in support of this Petition state(s) and represent(s) as follows:

1. That such property is capable of being served with facilities of the District.

2. That assent to the inclusion of such property in the District is hereby given by the undersigned, who constitute all the fee owners of such property.

3. That there shall be no withdrawal from this petition after consideration by the Board, nor shall further objections be filed thereto by Petitioner(s).

4. That the inclusion of such property in the District shall be subject to any and all terms and conditions established by the Board and accepted by Petitioner (s) and to all duly promulgated rules, regulations and rates of the District.

5. That the property owned by Petitioner(s) and sought to be included in the District is accurately described as follows:

(see attached Exhibit A for the Legal Description of property)

* DAYTON ORSBURN AND LEAH ORSBURN AS CO-TRUSTEES OF THE JLO TRUST U/T/A DATED AUGUST 1, 1991

PETITIONER

DAYTON ORSBURN
Name

PO BOX 154
Address

CHINO HILLS, CA 91709

Signed

DAYTON ORSBURN, TRUSTEE
Printed Name, Title

PETITIONER

LEAH ORSBURN
Name

PO BOX 154
Address

CHINO HILLS, CA 91709

Leah Orsburn
Signed

LEAH ORSBURN, TRUSTEE
Printed Name, Title

STATE OF COLORADO)
) SS.
COUNTY OF_____)

The foregoing instrument was acknowledged before me this _____ day of _____, 20___, by _____ _____, of _____.

Witness my hand and official seal.

My Commission Expires: _____

_____
Notary Public

PLEASE SEE ATTACHED

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT **CIVIL CODE § 1189**

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California)
County of San Bernardino)

On January 8, 2018 before me, Jennifer N. Vincze, Notary Public
Date *Here Insert Name and Title of the Officer*

personally appeared Dayton Orsburn and Leah Orsburn
Name(s) of Signer(s)

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

JENNIFER N. VINCZE
Commission # 2083451
Notary Public - California
San Bernardino County
My Comm. Expires Oct 24, 2018

Signature _____
Signature of Notary Public

Place Notary Seal Above

OPTIONAL

Though this section is optional, completing this information can deter alteration of the document or fraudulent reattachment of this form to an unintended document.

Description of Attached Document

Title or Type of Document: _____ Document Date: _____

Number of Pages: _____ Signer(s) Other Than Named Above: _____

Capacity(ies) Claimed by Signer(s)

Signer's Name: _____	Signer's Name: _____
☐ Corporate Officer — Title(s): _____	☐ Corporate Officer — Title(s): _____
☐ Partner — ☐ Limited ☐ General	☐ Partner — ☐ Limited ☐ General
☐ Individual ☐ Attorney in Fact	☐ Individual ☐ Attorney in Fact
☐ Trustee ☐ Guardian or Conservator	☐ Trustee ☐ Guardian or Conservator
☐ Other: _____	☐ Other: _____
Signer Is Representing: _____	Signer Is Representing: _____

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APPENDIX F – CORRESPONDENCE WITH CMD
COC No. MC-140514-1

CHEROKEE METROPOLITAN DISTRICT

6250 Palmer Park Blvd., Colorado Springs, CO 80915-2842
Telephone: (719) 597-5080 Fax: (719) 597-5145

June 14, 2018

Ms. Adrienne Angelos, E.I.T.
c/o Element Engineering LLC
12687 W. Cedar Drive
Suite 300
Lakewood, CO 80228

Ms. Angelos,

As requested Cherokee staff have completed the attached Wastewater Receiving Entity Certification for your application to the State regarding the Arrowhead Mobile Home Park.

Cherokee has the capacity at the District's Water Reclamation Facility to receive and treat the wastewater flows anticipated and projected from the Arrowhead Mobile Home Park.

At this time, I am unable to certify that the District's wastewater treatment facility is not in violation of any effluent limits specified in the facility's discharge permit since Cherokee is working to address a Compliance Order on Consent (COC), Number MC-140514-1, with the Colorado Department of Public Health and Environment (CDPHE). Important to note however is that our staff is confident that the anticipated and projected additional flows and loading to be received from the Arrowhead Mobile Home Park will not materially alter the status of the COC.

If I may be of further assistance, please do not hesitate to contact me at your convenience.

Sincerely,

Jonathon Smith
Water & Wastewater Collections Manager

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COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

DIVISION OF ADMINISTRATION

WATER QUALITY CONTROL DIVISION

COMPLIANCE ORDER ON CONSENT **NUMBER: MC-140514-1**

IN THE MATTER OF: **CHEROKEE METROPOLITAN DISTRICT**
CDPS PERMIT NO. COX–048348
EL PASO COUNTY, COLORADO

The Colorado Department of Public Health and Environment ("Department"), through the Water Quality Control Division ("Division"), issues this Compliance Order on Consent ("Consent Order"), pursuant to the Division's authority under §§25-8-602 and 605, C.R.S. of the Colorado Water Quality Control Act ("the Act") §§25-8-101 to 803, C.R.S., and its implementing regulations, with the express consent of Cherokee Metropolitan District ("Cherokee"). The Division and Cherokee may be referred to collectively as "the Parties."

STATEMENT OF PURPOSE

1. The mutual objectives of the Parties in entering into this Consent Order are:

    a. To establish compliance requirements and criteria for the continued operation of Cherokee's Wastewater Reclamation Facility located at or near 19174 Drennan Road, El Paso County, Colorado Springs, Colorado (the "Facility"); and

    b. To resolve, without litigation, the alleged violations of the Act cited herein by the Division, and the associated civil penalties.

DIVISION'S FINDINGS OF FACT AND DETERMINATION OF ALLEGED VIOLATIONS

2. Based upon the Division's investigation into and review of the compliance issues identified herein, and in accordance with §§25-8-602 and 605, C.R.S., the Division has made the following determinations regarding Cherokee, the Facility and Cherokee's compliance with the Act and its Colorado Discharge Permit System ("CDPS") permit.

3. At all times relevant to the alleged violations cited herein, Cherokee was a "Special District" formed in El Paso County, Colorado pursuant to the Colorado Special District Act, §§32-1-101 et seq and 32-4-501 et seq, C.R.S.

4. Cherokee is a "person" as defined by §25-8-103(13), C.R.S. and its implementing permit regulation, 5 CCR 1002-61, §61.2(73).

5. The Facility receives and treats approximately 1.59 million gallons per day of domestic sewage generated from the Cimarron Hills area of Colorado Springs, El Paso County, Colorado and from two (2) contract customers: Meridian Service Metropolitan District and Schriever Air Force Base.

6. The Facility consists of a mechanical treatment plant that includes an extended aeration activated sludge biological process, utilizing four sequencing batch reactors for carbon oxidation, nitrification and denitrification, followed by effluent flow equalization, and ultraviolet disinfection. Waste activated sludge is aerobically digested and dewatered utilizing centrifuges. Treated effluent from the Facility is conveyed to a rapid infiltration basin system, approximately four (4) miles east-southeast, and consisting of ten (10) individual infiltration basins.

7. On August 21, 2009, Cherokee applied for coverage under a CDPS individual ground water discharge permit for Discharges to Ground Water from Domestic Wastewater Treatment Works (the "Permit").

8. On May 13, 2010, the Division issued Cherokee Individual Permit Number COX-048348 authorizing Cherokee to discharge effluent wastewater from the Facility to groundwater under the terms and conditions of the Permit. The Permit became effective on June 12, 2010 and is due to expire May 31, 2015.

9. Cherokee commenced operations at the Facility in June 2010 and has continuously operated since that date.

10. The Permit specifies that Cherokee is authorized to discharge effluent wastewater from the Facility to groundwater (Upper Black Squirrel Alluvial Aquifer). No other discharges are authorized by the Permit. The discharge is subject to the specific effluent limitations and other conditions of the Permit.

11. Groundwater is "state waters" as defined by §25-8-103(19), C.R.S. and its implementing permit regulation, 5 CCR 1002-61, §61.2 (101).

12. Section 61.8, 5 CCR 1002-61, states in part that "A permittee must comply with all the terms and conditions of the permit."

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Failure to Comply with Permit Effluent Limitations

13. Pursuant to Part 1.A.1 of the Permit, the discharge from the Facility at outfalls 001A, 050C(L), and 050D(L) should not have exceeded, among other parameters and limitations not listed herein, the effluent limitations specified below:

Point of Compliance	Effluent Parameters	Discharge Limitations			
		30-Day Average	7-Day Average	Monthly Minimum	Daily Maximum
Outfall 001A	5-Day Biochemical Oxygen Demand ("BOD_5") (mg/L)	30 mg/L	45 mg/L	-	-
Outfall 001A	BOD_5 Removal (%)	-	-	85%	-
Outfall 001A	Total Suspended Solids ("TSS") (mg/L)	30 mg/L	45 mg/L	-	-
Outfall 001A	TSS Removal (%)	-	-	85%	-
Outfall 001A	Total Inorganic Nitrogen ("TIN") (mg/L)	-	-	-	10 mg/L
Outfalls 050C(L) and 050D(L)	Total Dissolved Solids ("TDS") (mg/L)	400 mg/L	-	-	-

Each point of compliance shown in the above table is as directed in CDPS Permit No. COX-048348 effective June 12, 2010:

a) Outfall 001A = The Facility's outfall following ultraviolet radiation disinfection and prior to the effluent being conveyed by pipeline to the rapid infiltration basins and mixing with the receiving water.

b) Outfalls 050C(L) and 050D(L) = Downgradient monitoring wells located within fifteen (15) feet of the southern (downgradient) boundary of the Facility's property where the rapid infiltration basins are located.

14. Pursuant to Part I.D.1 of the Permit, to provide an indication of the quality of the wastewater being discharged into the Upper Black Squirrel Alluvial Aquifer, Cherokee collects specific samples of the effluent at the monitoring locations specified in the Permit. The analytical results of the samples are summarized and reported to the Division via monthly Discharge Monitoring Reports ("DMRs") which include a certification by Cherokee affirming that the information provided therein is true, accurate and complete, to the knowledge and belief of Cherokee.

15. Cherokee's DMRs submitted to the Division include, among other information and data, the effluent concentration summary data for BOD_5, BOD_5 Removal, TSS, TSS Removal, TIN, and TDS which

exceeded the effluent limitations imposed by Part I.A.1 of the Permit. These effluent violations are attached as Exhibit A.

16. BOD_5, BOD_5 Removal, TSS, TSS Removal, TIN, and TDS are each a "pollutant" (or indicator thereof) as defined by §25-8-103(15), C.R.S. and its implementing permit regulation, 5 CCR 1002-61, §61.2 (76).

17. The Permit did not authorize the pollutant discharge levels identified above in paragraph 15 and in Exhibit A and Cherokee does not have any other permits authorizing such discharge into State Waters.

18. Cherokee's failure to comply with the effluent limitations set forth in the Permit and identified above in paragraph 15 and Exhibit A constitutes alleged violations of Part I.A.1 of the Permit.

Cherokee's Position on Alleged Violations

19. Cherokee submitted a request for preliminary effluent limitations ("PELs") for the proposed discharge of the Facility to groundwater through rapid infiltration basins on May 2, 2006. The Division responded with a letter dated June 15, 2006 stating the PELs which would apply to that discharge to groundwater. The PELs presented by the Division in the June 15, 2006 letter did not include TDS as an effluent limit for this discharge. Cherokee accomplished the design and preparation of construction documents in accordance with the PELs set forth in the June 15, 2006 letter. The subsequent site location approval and construction documents approval by the Division for the Facility did not include any statements regarding a requirement for meeting a TDS effluent limit. TDS was presented by the Division as an effluent limit parameter in a draft discharge permit following Cherokee's application for a discharge permit on August 14, 2009. Even though the Facility was not designed or constructed to remove or otherwise control TDS in the effluent, the Division issued a draft permit for public review on March 19, 2010, and a final permit effective June 12, 2010, containing effluent limits for TDS.

20. In response to the TIN discharge permit violations occurring in early 2011, Cherokee's initial investigations indicated that the anoxic treatment periods may not have been long enough and the process may be carbon deficient. Cherokee implemented process changes to increase the anoxic treatment periods and experimented with feeding supplemental carbon, in the form of methanol, during the anoxic periods. These process modifications initially showed positive results, with the effluent TIN concentration steadily dropping from 34.0 mg/L in March 2011 to 11.8 mg/L in June 2011. Cherokee was in the process of installing equipment that would allow methanol to be fed on a more consistent basis to improve the performance of the denitrification process in June 2011 when the Division informed Cherokee that adding methanol would likely be a change in the treatment process and therefore require an amendment to the site location approval and design, plan and specification review and approval by the Division. Cherokee advocated the immediate implementation of a methanol feed and expressed its concern to the Division that the effluent would not be in compliance with the TIN limitation until process modifications could be implemented. Cherokee's *Pilot/Full Scale Demonstration Project – Methanol Addition as a Carbon Source* was authorized by the Division on May 24, 2012 and Cherokee commenced operation of the demonstration project on June 15, 2012. If a mechanism was in place that allowed the Division to immediately authorize the implementation of Cherokee's methanol feed in early July 2011, the TIN limitation exceedences that occurred from July 2011 through June 2012 might have been avoided.

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21. The Division finds that Cherokee's position statement, including the additional statements documented in CMD's January 17, 2014 letter to the Division, are not entirely consistent with the information gathered in the course of the Division's inspections and investigation of the incidents described herein and the inclusion of Cherokee's position statement in this order should not be construed to constitute any admission or agreement by the Division as to the content of the position statement.

ORDER AND AGREEMENT

22. Based on the foregoing factual and legal determinations, pursuant to its authority under §§25-8-602 and 605, C.R.S., and in satisfaction of the alleged violations cited herein, the Division orders Cherokee to comply with all provisions of this Consent Order, including all requirements set forth below.

23. Cherokee agrees to the terms and conditions of this Consent Order. Cherokee agrees that this Consent Order constitutes a notice of alleged violation and an order issued pursuant to §§25-8-602 and 605, C.R.S., and is an enforceable requirement of the Act. Cherokee also agrees not to challenge directly or collaterally, in any judicial or administrative proceeding brought by the Division or by Cherokee against the Division:

    a. The issuance of this Consent Order;
    b. The factual and legal determinations made by the Division herein; and
    c. The Division's authority to bring, or the court's jurisdiction to hear, any action to enforce the terms of this Consent Order under the Act.

24. Notwithstanding the above, Cherokee does not admit to any of the factual or legal determinations made by the Division herein, and any action undertaken by Cherokee pursuant to this Consent Order shall not constitute evidence of fault and liability by Cherokee with respect to the conditions of the Facility.

Compliance Actions and Requirements

25. Cherokee shall immediately implement measures to attain compliance with the Colorado Water Quality Control Act and the terms and conditions of the Permit.

Schedule to Meet Total Inorganic Nitrogen Effluent Limit

26. Cherokee implemented a *Pilot/Full Scale Demonstration Project-Methanol Addition as a Carbon Source* ("Demonstration Project"), as initially authorized by the Division on May 24, 2012 with a subsequent authorization for an extension to December 31, 2013. The full-scale Demonstration Project was intended to provide for the addition of supplemental carbon to improve the denitrification process, modify the manner in which air delivery to the pre-react basin is accomplished to enhance anoxic conditions and provide for internal recycle in the aeration basin to the pre-react zone. Cherokee submitted a request to the Division to continue the Demonstration Project past December 31, 2013 to September 30, 2014. On November 26, 2013, the Division extended authorization to operate the Demonstration Project to May 24, 2014, which is two years after the initial authorization to operate the Demonstration Project.

27. On July 17, 2013, Cherokee submitted an Application for Amendment of an Existing Site Location Approval to incorporate modifications to the activated sludge system to enhance and improve performance of the denitrification process. The Division approved the Application for Amendment on September 27, 2013. The Amendment authorized Cherokee to proceed with implementation of permanent improvements for application of methanol as a supplemental carbon source to enhance the denitrification process at the Facility.

28. In accordance with the Division's WPC Policy DR-1, Cherokee submitted a Process Design Report ("PDR") to the Division on November 26, 2013, addressing the permanent improvements to the Facility to facilitate the addition of methanol as a supplemental carbon source. By April 30, 2014, Cherokee shall submit a certification of the design and construction documents (plans and specifications) in accordance with the "streamlined design review process" specified by Water Quality Control Commission ("WQCC") Regulation No. 22.

29. Upon receipt and acceptance of the certification of design and construction documents submitted by Cherokee for the Facility improvements to add supplemental carbon referenced in Paragraph 28, the Division will provide Cherokee authorization to continue the Demonstration Project until August 31, 2014 during which time Cherokee will implement the permanent improvements to the Facility.

30. Within sixty (60) days of the Division's approval of the PDR and the plans and specifications for the new preliminary treatment facility, Cherokee shall initiate construction of the new preliminary treatment facility. Cherokee shall submit quarterly progress reports to the Division outlining the progress of the preliminary treatment facility construction. At a minimum, each report shall outline activities undertaken in the current reporting period and planned activities for the next three (3) months to remain in compliance with this Consent Order.

Schedule to Meet Total Dissolved Solids Effluent Limit

31. Within thirty (30) days of the effective date of this Consent Order, Cherokee shall commence a technical assessment of the suitability and effectiveness of accomplishing Total Dissolved Solids ("TDS") removal in its source water supply as a means of controlling TDS discharge from the Facility. This will include blending with new source water supplies presently being developed and source water treatment. The assessment of alternative approaches for TDS control will also include evaluation of TDS control at the Facility's biological process discharge. Additionally, Cherokee shall prepare a summary report of the findings of the assessment of the suitability and effectiveness of accomplishing TDS removal in its source water supply and submit this report to the Division.

32. Within one hundred eighty (180) days of the effective date of this Consent Order, Cherokee shall complete the assessment of technically feasible approaches to control TDS in the Facility's effluent, as required by Paragraph 31 of this Consent Order addressing financial and cost-benefit impacts, operational impacts with particular attention to the requirements for management of residuals from the TDS control processes, legal issues and impacts from conditions of well permits, decrees and other water resource management and use agreements, water use efficiency, institutional constraints and other identified issues which will influence the selection of a TDS control strategy for implementation. Additionally, Cherokee shall prepare a summary report of the findings of the assessment described in this paragraph and submit to the Division.

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33. Within two hundred ten (210) calendar days of the effective date of this Consent Order, Cherokee shall submit to the Division an implementation plan for a selected TDS control strategy, as addressed in Paragraphs 31 and 32. The submitted plan shall become a condition of this Consent Order and Cherokee shall comply with the plan as submitted unless notified by the Division, in writing within sixty (60) calendar days of the submittal, that modifications or an alternate plan or program is appropriate. If the Division imposes modifications or an alternate plan or program, it shall also become a condition of this Consent Order.

34. Within sixty (60) days of the effective date of this Consent Order, Cherokee shall submit a summary report of the review and an update of the dynamic groundwater model of the Black Squirrel Creek alluvial aquifer in the vicinity of the rapid infiltration basins to which the Facility discharges. Cherokee shall analyze the variation in the groundwater phreatic surface as a result of application of treated wastewater in the rapid infiltration basins and pumping of production wells upstream and downstream, and laterally from the rapid infiltration basins.

35. Within thirty (30) days of the effective date of this Consent Order, Cherokee shall complete development of a customer education program expressed as Best Management Practices to maximize the efficiency of home water softeners for purposes of minimizing wastewater generated from the ion exchange resin regeneration process. The primary means of education will be through Cherokee's customer newsletter. Outreach and educational tools shall also be developed for implementation of Best Management Practices for TDS control in nonresidential wastewater contributions. Cherokee shall publish the consumer education program in the customer newsletter no less than semi-annually.

36. Within forty-five (45) days of the effective date of this Consent Order, Cherokee shall develop design and construction documents for new groundwater monitoring wells at or near Cherokee's property boundary and submit to the Division for approval. Within one hundred twenty (120) days following Division approval of the new groundwater monitoring well location's design and construction documents, Cherokee shall complete construction of the modified groundwater monitoring system.

37. Within one hundred eighty (180) days of the effective date of this Consent Order, Cherokee shall complete an assessment of the local limits in its pretreatment program addressing TDS and other constituents of concern in accordance with USEPA Region 8 guidance for development of local limits. Additionally, within two hundred ten (210) days of the effective date of this Consent Order, Cherokee shall prepare a summary report of the findings of the assessment and submit to the Division.

38. All documents submitted under this Consent Order shall use the same titles as stated in this Consent Order, and shall reference both the number of this Consent Order and the number of the paragraph pursuant to which the document is required. No plan submitted for Division approval under this Consent Order may be implemented unless and until written approval is received from the Division except as otherwise specified or provided herein. Any approval by the Division of a plan submitted under this Consent Order is effective upon receipt by Cherokee. All approved plans, including all procedures and schedules contained in the plans, are hereby incorporated into this Consent Order, and shall constitute enforceable requirements under the Act.

CIVIL PENALTY AND SUPPLEMENTAL ENVIRONMENTAL PROJECTS

39. Based upon the application of the Division's Civil Penalty Policy (May 1, 1993), and consistent with Departmental policies for violations of the Act, the Division has determined that a penalty of Sixty Three Thousand Seven Hundred Twenty Dollars ($63,720.00) is appropriate for the violations cited herein.

40. Through the application of the criteria set forth in the Colorado Department of Public Health and Environment's Final Agency-Wide Policy on Settling Administrative and/or Civil Penalties Against Eligible Governmental Entities, the Division has determined the entire penalty can be mitigated through the completion of the following Supplemental Environmental Projects ("SEPs") identified by Cherokee and which are valued at Sixty Nine Thousand Seven Hundred Seventy Five Dollars ($69,775.00).

41. Cherokee shall undertake the following SEPs, which the Parties agree are intended to secure significant environmental or public health protection and improvements.

42. Cherokee shall spend no less than Sixty Nine Thousand Seven Hundred Seventy Five Dollars ($69,775.00) on the implementation and completion of energy efficiency/pollution prevention upgrades within the Cherokee service area in El Paso County. The combination of the first and third party SEPs are further described in Exhibit B. If Cherokee completes the energy efficiency/pollution prevention upgrades specified in Exhibit B and does not expend the full Sixty Nine Thousand Seven Hundred Seventy Five Dollars ($69,775.00), Cherokee may propose an alternate SEP for Division review and approval that accounts for the remaining balance. The alternate SEP proposal shall be submitted to the Division by December 1, 2014.

43. Cherokee shall not deduct the expenses associated with the implementation of the above-described SEPs for any tax purpose or otherwise obtain any favorable tax treatment of such payment or project.

44. Cherokee hereby certifies that, as of the date of this Consent Order, it is not under any existing legal obligation to perform or develop the SEPs. Cherokee further certifies that it has not received, and will not receive, credit in any other enforcement action for the SEPs. In the event that Cherokee has, or will receive credit under any other legal obligation for the SEPs, Cherokee shall pay Sixty Three Thousand Seven Hundred Twenty Dollars ($63,720.00) to the Division as a civil penalty within thirty (30) calendar days of receipt of a demand for payment by the Division. Method of payment shall be by certified or cashier's check drawn to the order of the "Colorado Department of Public Health and Environment," and delivered to:

    Michael Harris
    Colorado Department of Public Health and Environment
    Water Quality Control Division
    Mail Code: WQCD-CWE-B2
    4300 Cherry Creek Drive South
    Denver, Colorado 80246-1530

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45. The SEPs must be completed to the satisfaction of the Division by November 30, 2014, and must be operated for the useful life of the SEPs. In the event that Cherokee fails to comply with any of the terms or provisions of this Consent Order relating to the performance of the SEPs, Cherokee shall be liable for penalties as follows:

    a. Payment of a penalty in the amount of Sixty Three Thousand Seven Hundred Twenty Dollars ($63,720.00). The Division, in its sole discretion, may elect to reduce this penalty for environmental benefits created by the partial performance of the SEPs.

    b. Cherokee shall pay this penalty within thirty (30) calendar days of receipt of written demand by the Division. Method of payment shall be as specified in paragraph 44 above.

46. Cherokee shall submit SEP Completion Reports for each SEP to the Division by December 30, 2014. The SEP Completion Reports shall contain the following information:

    a. A detailed description of the SEPs as implemented;
    b. A description of any operating problems encountered and the solutions thereto;
    c. Itemized costs, documented by copies of purchase orders and receipts or canceled checks or other forms of proof of payment;
    d. Certification that the SEPs have been fully implemented pursuant to the provisions of this Consent Order; and
    e. A description of the environmental and public health benefits resulting from implementation of the SEPs (with quantification of the benefits and pollutant reductions, if feasible).

47. Failure to submit the SEP Completion Reports with the required information, or any periodic report, shall be deemed a violation of this Consent Order.

48. Cherokee shall include the following language in any public statement, oral or written, making reference to the SEPs: "This project was undertaken in connection with the settlement of an enforcement action taken by the Colorado Department of Public Health and Environment for alleged violations of the Colorado Water Quality Control Act."

SCOPE AND EFFECT OF CONSENT ORDER

49. The Parties agree and acknowledge that this Consent Order constitutes a full and final settlement of the alleged violations cited herein.

50. This Consent Order is subject to the Division's "Public Notification of Administrative Enforcement Actions Policy," which includes a thirty-day public comment period. The Division and Cherokee each reserve the right to withdraw consent to this Consent Order if comments received during the thirty-day period result in any proposed modification to the Consent Order.

51. This Consent Order constitutes a final agency action upon a determination by the Division following the public comment period. Any violation of the provisions of this Consent Order by Cherokee, including any false certifications, shall be a violation of a final order or action of the Division for the

purpose of §25-8-608, C.R.S., and may result in the assessment of civil penalties of up to ten thousand dollars per day for each day during which such violation occurs.

52. The Parties' obligations under this Consent Order are limited to the matters expressly stated herein or in approved submissions required hereunder. All submissions made pursuant to this Consent Order are incorporated into this Consent Order and become enforceable under the terms of this Consent Order as of the date of approval by the Division.

53. The Division's approval of any submission, standard, or action under this Consent Order shall not constitute a defense to, or an excuse for, any prior violation of the Act, or any subsequent violation of any requirement of this Consent Order or the Act.

54. Notwithstanding paragraph 24 above, the alleged violations described in this Consent Order will constitute part of Cherokee's compliance history for purposes where such history is relevant. This includes considering the alleged violations described above in assessing a penalty for any subsequent violations against Cherokee. Cherokee agrees not to challenge the use of the cited alleged violations for any such purpose.

55. This Consent Order does not relieve Cherokee from complying with all applicable Federal, State, and/or local laws in fulfillment of its obligations hereunder and shall obtain all necessary approvals and/or permits to conduct the activities required by this Consent Order. The Division makes no representation with respect to approvals and/or permits required by Federal, State, or local laws other than those specifically referred to herein.

LIMITATIONS, RELEASES AND RESERVATION OF RIGHTS AND LIABILITY

56. Upon the effective date of this Consent Order, and during its term, this Consent Order shall stand in lieu of any other enforcement action by the Division with respect to the specific instances of alleged violations cited herein. The Division reserves the right to bring any action to enforce this Consent Order, including actions for penalties or the collection thereof, and/or injunctive relief.

57. This Consent Order does not grant any release of liability for any violations not specifically cited herein.

58. Nothing in this Consent Order shall preclude the Division from imposing additional requirements in the event that new information is discovered that indicates such requirements are necessary to protect human health or the environment.

59. Upon the effective date of this Consent Order, Cherokee releases and covenants not to sue the State of Colorado or its employees, agents or representatives as to all common law or statutory claims or counterclaims arising from, or relating to, the alleged violations of the Act specifically addressed herein.

60. Cherokee shall not seek to hold the State of Colorado or its employees, agents or representatives liable for any injuries or damages to persons or property resulting from acts or omissions of Cherokee, or those acting for or on behalf of Cherokee, including its officers, employees, agents, successors, representatives, contractors, consultants or attorneys in carrying out activities pursuant to

this Consent Order. Cherokee shall not hold out the State of Colorado or its employees, agents or representatives as a party to any contract entered into by Cherokee in carrying out activities pursuant to this Consent Order. Nothing in this Consent Order shall constitute an express or implied waiver of immunity otherwise applicable to the State of Colorado, its employees, agents or representatives.

OFFSITE ACCESS

61. To the extent any plan submitted by Cherokee requires access to property not owned or controlled by Cherokee, Cherokee shall use its best efforts to obtain site access from the present owners of such property to conduct required activities and to allow Division access to such property to oversee such activities. In the event that site access is not obtained when necessary, Cherokee shall notify the Division in writing regarding its best efforts and its failure to obtain such access.

SITE ACCESS AND SAMPLING

62. The Division shall be authorized to oversee any and all work being performed under this Consent Order. The Division shall be authorized access to the Facility property at any time work is being conducted pursuant to this Consent Order, and during reasonable business hours during any period work is not being conducted, for the purposes of determining Cherokee's compliance with the Act, the Regulations, and this Consent Order. The Division shall be authorized to inspect work sites, operating and field logs, contracts, purchasing/shipping records, and other relevant records and documents relating to this Consent Order or any requirement under this Consent Order and to interview Cherokee personnel and contractors performing work required by this Consent Order. Nothing in this paragraph limits or impairs the Division's statutory authorities to enter and inspect the Facility.

63. The Division may conduct any tests necessary to ensure compliance with this Consent Order and to verify the data submitted by Cherokee. Cherokee shall notify the Division in writing of any sampling activities undertaken pursuant to any plan or requirement of this Consent Order a minimum of seventy-two (72) hours prior to the sampling being conducted, and shall provide split samples to the Division upon request.

64. Cherokee shall notify the Division in writing of any excavation, construction (including the construction of monitoring wells) or other investigatory or remedial activities undertaken pursuant to any plan or requirement of this Consent Order a minimum of seventy-two (72) hours prior to beginning the excavation, construction, or required activity. Cherokee shall provide the Division any blue print, diagram, construction or other permits for any construction activity undertaken pursuant to this Consent Order upon request.

FORCE MAJEURE

65. Cherokee shall perform the requirements of this Consent Order within the schedules and time limits set forth herein and in any approved plan unless the performance is prevented or delayed by events that constitute a force majeure. A force majeure is defined as any event arising from causes which are not reasonably foreseeable, which are beyond the control of Cherokee, and which cannot be overcome by due diligence.

66. Within seventy-two (72) hours of the time that Cherokee knows or has reason to know of the occurrence of any event which Cherokee has reason to believe may prevent Cherokee from timely compliance with any requirement under this Consent Order; Cherokee shall provide verbal notification to the Division. Within seven (7) calendar days of the time that Cherokee knows or has reason to know of the occurrence of such event, Cherokee shall submit to the Division a written description of the event causing the delay, the reasons for and the expected duration of the delay, and actions which will be taken to mitigate the duration of the delay.

67. The burden of proving that any delay was caused by a force majeure shall at all times rest with Cherokee. If the Division agrees that a force majeure has occurred, the Division will so notify Cherokee. The Division will also approve or disapprove of Cherokee's proposed actions for mitigating the delay. If the Division does not agree that a force majeure has occurred, or if the Division disapproves of Cherokee's proposed actions for mitigating the delay, it shall provide a written explanation of its determination to Cherokee. Pursuant to the Dispute Resolution section, within fifteen (15) calendar days of receipt of the explanation, Cherokee may file an objection.

68. Delay in the achievement of one requirement shall not necessarily justify or excuse delay in the achievement of subsequent requirements. In the event any performance under this Consent Order is found to have been delayed by a force majeure, Cherokee shall perform the requirements of this Consent Order that were delayed by the force majeure with all due diligence.

DISPUTE RESOLUTION

69. If the Division determines that that a violation of this Consent Order has occurred, that a force majeure has not occurred; that the actions taken by Cherokee to mitigate the delay caused by a force majeure are inadequate; that Cherokee's Notice of Completion should be rejected pursuant to paragraph 75, or that the Cherokee's SEP Completion Report submitted pursuant to paragraph 46 is deficient, the Division shall provide a written explanation of its determination to Cherokee. Within fifteen (15) calendar days of receipt of the Division's determination, Cherokee shall:

    a. Submit a notice of acceptance of the determination; or
    b. Submit a notice of dispute of the determination.

    If Cherokee fails to submit either of the above notices within the specified time, it will be deemed to have accepted the Division's determination.

70. If the Division disapproves or approves with modifications any original or revised plan submitted by Cherokee pursuant to this Consent Order, the Division shall provide a written explanation of the disapproval or approval with modifications. Within fifteen (15) calendar days of receipt of the Division's approval with modifications or disapproval of the plan, Cherokee shall:

    a. In the case of an approval with modifications only, submit a notice of acceptance of the plan as modified and begin to implement the modified plan;

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b. In the case of disapproval only, submit a revised plan for Division review and approval. Cherokee may not select this option if the Division has included in its disapproval an alternate plan that shall be implemented by Cherokee; or

c. Submit a notice of dispute of the disapproval or approval with modifications.

If Cherokee fails to do any of the above within the specified time, Cherokee shall be deemed to have failed to comply with the Consent Order, and the Division may bring an enforcement action, including an assessment of penalties.

71. If Cherokee submits a revised plan, the plan shall respond adequately to each of the issues raised in the Division's written explanation of the disapproval or approval with modifications. The Division may determine that failure to respond adequately to each of the issues raised in the Division's written explanation constitutes a violation of this Consent Order. The Division shall notify Cherokee in writing of its approval, approval with modifications, or disapproval of the revised plan. If the Division disapproves the revised plan, it may include in its disapproval a plan for implementation by Cherokee. Such disapproval and plan shall be deemed effective and subject to appeal in accordance with the Act and the Colorado State Administrative Procedures Act, §§ 24-4-101 through 108, C.R.S. (the "APA"), unless Cherokee submits a notice of dispute, pursuant to paragraph 70 above, of the Division's disapproval and plan for implementation. All requirements and schedules of the Division's plan shall not become effective pending resolution of the dispute.

NOTICES

72. Unless otherwise specified, any report, notice or other communication required under the Consent Order shall be sent to:

For the Division:

Colorado Department of Public Health and Environment
Water Quality Control Division / WQCD-CWE-B2
Attention: Michael Harris
4300 Cherry Creek Drive South
Denver, Colorado 80246-1530
Telephone: 303.692.3598
E-mail: michael.harris@state.co.us

For Cherokee Metropolitan District:

Cherokee Metropolitan District
Attention: Sean Chambers, General Manager
6250 Palmer Park Boulevard
Colorado Springs, Colorado 80915
Telephone: 719.597.5080
E-mail: schambers@cherokeemetro.org

OBLIGATIONS UNAFFECTED BY BANKRUPTCY

73. The obligations set forth herein are based on the Division's police and regulatory authority. These obligations require specific performance by Cherokee of corrective actions carefully designed to prevent on-going or future harm to public health or the environment, or both. Enforcement of these obligations is not stayed by a petition in bankruptcy. Cherokee agrees that the penalties set forth in this Consent Order are not in compensation of actual pecuniary loss. Further, the obligations imposed by this Consent Order are necessary for Cherokee and the Facility to achieve and maintain compliance with State law.

MODIFICATIONS

74. This Consent Order may be modified only upon mutual written agreement of the Parties.

COMPLETION OF REQUIRED ACTIONS

75. Cherokee shall submit a Notice of Completion to the Division upon satisfactory completion of all requirements of this Consent Order. The Division shall either accept or reject Cherokee's Notice of Completion in writing within thirty (30) calendar days of receipt. If the Division rejects Cherokee's Notice of Completion, it shall include in its notice a statement identifying the requirements that the Division considers incomplete or not satisfactorily performed and a schedule for completion. Cherokee shall, within fifteen (15) calendar days of receipt of the Division's rejection, either:

    a. Submit a notice of acceptance of the determination; or
    b. Submit a notice of dispute.

    If Cherokee fails to submit either of the above notices within the specified time, it will be deemed to have accepted the Division's determination.

NOTICE OF EFFECTIVE DATE

76. This Consent Order shall be fully effective, enforceable and constitute a final agency action upon notice from the Division following closure of the public comment period referenced in paragraph 50.

BINDING EFFECT AND AUTHORIZATION TO SIGN

77. This Consent Order is binding upon Cherokee and its officials, employees, agents, representatives, successors in interest, and assigns. The undersigned warrant that they are authorized to legally bind their respective principals to this Consent Order. Cherokee agrees to provide a copy of this Consent Order to any contractors and other agents performing work pursuant to this Consent Order and require such agents to comply with the requirements of this Consent Order. In the event that a party does not sign this Consent Order within thirty (30) calendar days of the other party's signature, this

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Consent Order becomes null and void. This Consent Order may be executed in multiple counterparts, each of which shall be deemed an original, but all of which shall constitute one and the same Consent Order.

FOR CHEROKEE METROPOLITAN DISTRICT:

Date: May 9, 2014

Sean Chambers, General Manager

FOR THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT:

Date: 5/14/14

Steven H. Gunderson, Director
WATER QUALITY CONTROL DIVISION

Report #: CAEVRBX004
Created Date: March 2, 2012
Approved By:

EXHIBIT A

Colorado Department of Public Health and Environment

Water Quality Control Division

Effluent Violation Report

Date of Report: 4/21/14

*** Query Name:Effluent Data ***

Monitoring Period End Date From: 5/1/2010 12:00:00 AM
Monitoring Period End Date To: 4/21/2014 12:00:00 AM
Outfalls: (Optional)
Enter NPDES ID: (Optional)
Primary Permit SIC Code: (Optional)
Major/Minor (Enter "Major" or "Minor") (Enter * to select all) *
Matching NPDES ID: (Optional)COX048348
Parameter Desc: (Optional)
Enter Primary Permit SIC Code Not Equal to: (Optional)

Permit #	COX048348
Facility Name	CHEROKEE METRO DISTRICT WATER RECLAMATION FACILITY
Permit Name	Cherokee Metro District

Permit Status	Major/Minor Ind.	County	Primary SIC Code	Water Body:	Groundwater
Effective	Major	El Paso	4952		

NPDES ID	Outfall	Mon Pd Start Date	Mon Pd End Date	Parameter	Rpted Value	Unit Desc	Limit Value	Stat Base Desc	% Exceed	Viol Code	NODI Code	RNC Detect Code	RNC Resolve Code
COX048348	001A	7/1/10	7/31/10	00310 - BOD, 5-day, 20 deg. C	=47	mg/L	30	30DA AVG	57	E90			
COX048348	001A	7/1/10	7/31/10	00310 - BOD, 5-day, 20 deg. C	=47	mg/L	45	MX 7D AV	4	E90			
COX048348	001A	7/1/10	7/31/10	00640 - Nitrogen, inorganic total	=28.1	mg/L	10	DAILY MX	181	E90		R	2
COX048348	001A	7/1/10	7/31/10	81010 - BOD, 5-day, percent removal	=65.4	%	85	MO AV MN	131	E90			
COX048348	001A	7/1/10	7/31/10	81011 - Solids, suspended percent removal	=68.8	%	85	MO AV MN	108	E90			
COX048348	001A	8/1/10	8/31/10	00640 - Nitrogen, inorganic total	=33.8	mg/L	10	DAILY MX	238	E90		R	2
COX048348	001A	8/1/10	8/31/10	81010 - BOD, 5-day, percent removal	=76	%	85	MO AV MN	60	E90			
COX048348	001A	9/1/10	9/30/10	00640 - Nitrogen, inorganic total	=17.41	mg/L	10	DAILY MX	74	E90		R	2
COX048348	001A	9/1/10	9/30/10	81010 - BOD, 5-day, percent removal	=80	%	85	MO AV MN	33	E90			
COX048348	001A	10/1/10	10/31/10	00640 - Nitrogen, inorganic total	=12.64	mg/L	10	DAILY MX	26	E90		U	2
COX048348	001A	10/1/10	10/31/10	81010 - BOD, 5-day, percent removal	=80	%	85	MO AV MN	33	E90			
COX048348	001A	10/1/10	10/31/10	81011 - Solids, suspended percent removal	=83	%	85	MO AV MN	13	E90			
COX048348	001A	11/1/10	11/30/10	00310 - BOD, 5-day, 20 deg. C	=36.5	mg/L	30	30DA AVG	22	E90			

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Report #: CAEVRBX004
Created Date: March 2, 2012
Approved By:

EXHIBIT A

Colorado Department of Public Health and Environment

Water Quality Control Division

Effluent Violation Report

Date of Report: 4/21/14

*** Query Name.Effluent Data ***

Monitoring Period End Date From 5/1/2010 12:00.00 AM
Monitoring Period End Date To. 4/21/2014 12 00:00 AM
Outfalls (Optional)
Enter NPDES ID: (Optional)
Primary Permit SIC Code: (Optional)
Major/Minor (Enter "Major" or "Minor") (Enter * to select all) *
Matching NPDES ID: (Optional)COX048348
Parameter Desc (Optional)
Enter Primary Permit SIC Code Not Equal to: (Optional)

NPDES ID	Outfall	Mon Pd Start Date	Mon Pd End Date	Parameter	Rpted Value	Unit Desc	Limit Value	Stat Base Desc	% Exceed	Viol Code	NODI Code	RNC Detect Code	RNC Resolve Code
COX048348	001A	11/1/10	11/30/10	00640 - Nitrogen, inorganic total	=10.5	mg/L	10	DAILY MX	5	E90		U	2
COX048348	001A	2/1/11	2/28/11	00310 - BOD, 5-day, 20 deg. C	=34	mg/L	30	30DA AVG	13	E90			
(048348	001A	2/1/11	2/28/11	00640 - Nitrogen, inorganic total	=21.53	mg/L	10	DAILY MX	115	E90		R	2
COX048348	001A	2/1/11	2/28/11	81010 - BOD, 5-day, percent removal	=84	%	85	MO AV MN	7	E90			
COX048348	001A	3/1/11	3/31/11	00310 - BOD, 5-day, 20 deg. C	=69	mg/L	30	30DA AVG	130	E90			
COX048348	001A	3/1/11	3/31/11	00310 - BOD, 5-day, 20 deg. C	=69	mg/L	45	MX 7D AV	53	E90			
COX048348	001A	3/1/11	3/31/11	00530 - Solids, total suspended	=32	mg/L	30	30DA AVG	7	E90			
COX048348	001A	3/1/11	3/31/11	00640 - Nitrogen, inorganic total	=34.02	mg/L	10	DAILY MX	240	E90		R	2
COX048348	001A	3/1/11	3/31/11	81010 - BOD, 5-day, percent removal	=84	%	85	MO AV MN	7	E90			
COX048348	001A	4/1/11	4/30/11	00640 - Nitrogen, inorganic total	=21.3	mg/L	10	DAILY MX	113	E90		R	2
COX048348	001A	5/1/11	5/31/11	00640 - Nitrogen, inorganic total	=12.2	mg/L	10	DAILY MX	22	E90		U	2
(048348	001A	6/1/11	6/30/11	00640 - Nitrogen, inorganic total	=11.8	mg/L	10	DAILY MX	18	E90		U	2
COX048348	001A	7/1/11	7/31/11	00640 - Nitrogen, inorganic total	=18.8	mg/L	10	DAILY MX	88	E90		R	2
COX048348	001A	8/1/11	8/31/11	00640 - Nitrogen, inorganic total	=20.9	mg/L	10	DAILY MX	109	E90		R	2
COX048348	001A	9/1/11	9/30/11	00640 - Nitrogen, inorganic total	=20	mg/L	10	DAILY MX	100	E90		R	2
COX048348	001A	10/1/11	10/31/11	00640 - Nitrogen, inorganic total	=20.9	mg/L	10	DAILY MX	109	E90		R	2
COX048348	001A	1/1/12	1/31/12	00640 - Nitrogen, inorganic total	=19	mg/L	10	DAILY MX	90	E90		R	2
COX048348	001A	2/1/12	2/29/12	00640 - Nitrogen, inorganic total	=12.99	mg/L	10	DAILY MX	30	E90		H	2

Report #: CAEVRBX004
Created Date: March 2, 2012
Approved By:

EXHIBIT A

Colorado Department of Public Health and Environment

Water Quality Control Division

Effluent Violation Report

Date of Report: 4/21/14

*** Query Name:Effluent Data ***

Monitoring Period End Date From: 5/1/2010 12:00:00 AM
Monitoring Period End Date To: 4/21/2014 12:00:00 AM
Outfalls: (Optional)
Enter NPDES ID: (Optional)
Primary Permit SIC Code: (Optional)
Major/Minor (Enter "Major" or "Minor") (Enter * to select all) *
Matching NPDES ID: (Optional)COX048348
Parameter Desc: (Optional)
Enter Primary Permit SIC Code Not Equal to: (Optional)

NPDES ID	Outfall	Mon Pd Start Date	Mon Pd End Date	Parameter	Rpted Value	Unit Desc	Limit Value	Stat Base Desc	% Exceed	Viol Code	NODI Code	RNC Detect Code	RNC Resolve Code
COX048348	001A	3/1/12	3/31/12	00640 - Nitrogen, inorganic total	=11.42	mg/L	10	DAILY MX	14	E90		H	2
COX048348	001A	4/1/12	4/30/12	00640 - Nitrogen, inorganic total	=16.48	mg/L	10	DAILY MX	65	E90		R	2
COX048348	001A	5/1/12	5/31/12	00640 - Nitrogen, inorganic total	=11.8	mg/L	10	DAILY MX	18	E90		H	2
COX048348	001A	7/1/12	7/31/12	00640 - Nitrogen, inorganic total	=13.4	mg/L	10	DAILY MX	34	E90		U	2
COX048348	001A	8/1/12	8/31/12	00640 - Nitrogen, inorganic total	=12.5	mg/L	10	DAILY MX	25	E90		U	2
COX048348	001A	10/1/12	10/31/12	00640 - Nitrogen, inorganic total	=20	mg/L	10	DAILY MX	100	E90		R	2
COX048348	001A	11/1/12	11/30/12	00640 - Nitrogen, inorganic total	=18	mg/L	10	DAILY MX	80	E90		R	2
COX048348	001A	12/1/12	12/31/12	00640 - Nitrogen, inorganic total	=13	mg/L	10	DAILY MX	30	E90		U	2
COX048348	001A	1/1/13	1/31/13	00640 - Nitrogen, inorganic total	=22	mg/L	10	DAILY MX	120	E90		R	2
COX048348	001A	2/1/13	2/28/13	00640 - Nitrogen, inorganic total	=23	mg/L	10	DAILY MX	130	E90		R	2
COX048348	001A	3/1/13	3/31/13	00640 - Nitrogen, inorganic total	=17	mg/L	10	DAILY MX	70	E90		R	2
COX048348	050CC	7/1/10	7/31/10	70295 - Solids, total dissolved	=2000	mg/L	400	30DA AVG	400	E90		T	1
COX048348	050CC	10/1/10	10/31/10	70295 - Solids, total dissolved	=762	mg/L	400	30DA AVG	91	E90		T	1
COX048348	050CC	11/1/10	11/30/10	70295 - Solids, total dissolved	=752	mg/L	400	30DA AVG	88	E90		T	1
COX048348	050CC	12/1/10	12/31/10	70295 - Solids, total dissolved	=680	mg/L	400	30DA AVG	70	E90		T	1
COX048348	050CC	1/1/11	1/31/11	70295 - Solids, total dissolved	=624	mg/L	400	30DA AVG	56	E90		T	1
COX048348	050CC	2/1/11	2/28/11	70295 - Solids, total dissolved	=642	mg/L	400	30DA AVG	61	E90		T	1
COX048348	050CC	3/1/11	3/31/11	70295 - Solids, total dissolved	=694	mg/L	400	30DA AVG	74	E90		T	1

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Report #: CAEVRBX004
Created Date: March 2, 2012
Approved By:

EXHIBIT A
Colorado Department of Public Health and Environment
Water Quality Control Division
Effluent Violation Report

Date of Report: 4/21/14

*** Query Name.Effluent Data ***

Monitoring Period End Date From: 5/1/2010 12.00.00 AM
Monitoring Period End Date To: 4/21/2014 12.00:00 AM
Outfalls (Optional)
Enter NPDES ID: (Optional)
Primary Permit SIC Code: (Optional)
Major/Minor (Enter "Major" or "Minor") (Enter * to select all) *
Matching NPDES ID: (Optional)COX048348
Parameter Desc: (Optional)
Enter Primary Permit SIC Code Not Equal to (Optional)

NPDES ID	Outfall	Mon Pd Start Date	Mon Pd End Date	Parameter	Rpted Value	Unit Desc	Limit Value	Stat Base Desc	% Exceed	Viol Code	NODI Code	RNC Detect Code	RNC Resolve Code
COX048348	050CC	4/1/11	4/30/11	70295 - Solids, total dissolved	=664	mg/L	400	30DA AVG	66	E90		T	1
COX048348	050CC	5/1/11	5/31/11	70295 - Solids, total dissolved	=653	mg/L	400	30DA AVG	63	E90		T	1
:048348	050CC	6/1/11	6/30/11	70295 - Solids, total dissolved	=666	mg/L	400	30DA AVG	67	E90		T	1
COX048348	050CC	7/1/11	7/31/11	70295 - Solids, total dissolved	=704	mg/L	400	30DA AVG	76	E90		T	1
COX048348	050CC	8/1/11	8/31/11	70295 - Solids, total dissolved	=637	mg/L	400	30DA AVG	59	E90		T	1
COX048348	050CC	9/1/11	9/30/11	70295 - Solids, total dissolved	=658	mg/L	400	30DA AVG	65	E90		T	1
COX048348	050CC	10/1/11	10/31/11	70295 - Solids, total dissolved	=600	mg/L	400	30DA AVG	50	E90		T	1
COX048348	050CC	11/1/11	11/30/11	70295 - Solids, total dissolved	=645	mg/L	400	30DA AVG	61	E90		T	1
COX048348	050CC	12/1/11	12/31/11	70295 - Solids, total dissolved	=678	mg/L	400	30DA AVG	70	E90		T	1
COX048348	050CC	1/1/12	1/31/12	70295 - Solids, total dissolved	=654	mg/L	400	30DA AVG	64	E90		T	1
COX048348	050CC	2/1/12	2/29/12	70295 - Solids, total dissolved	=671	mg/L	400	30DA AVG	68	E90		T	1
:048348	050CC	3/1/12	3/31/12	70295 - Solids, total dissolved	=682	mg/L	400	30DA AVG	71	E90		T	1
COX048348	050CC	4/1/12	4/30/12	70295 - Solids, total dissolved	=669	mg/L	400	30DA AVG	67	E90		T	1
COX048348	050CC	5/1/12	5/31/12	70295 - Solids, total dissolved	=732	mg/L	400	30DA AVG	83	E90		T	1
COX048348	050CC	6/1/12	6/30/12	70295 - Solids, total dissolved	=656	mg/L	400	30DA AVG	64	E90		T	1
COX048348	050CC	7/1/12	7/31/12	70295 - Solids, total dissolved	=667	mg/L	400	30DA AVG	67	E90		T	1
COX048348	050CC	8/1/12	8/31/12	70295 - Solids, total dissolved	=672	mg/L	400	30DA AVG	68	E90		T	1
COX048348	050CC	9/1/12	9/30/12	70295 - Solids, total dissolved	=654	mg/L	400	30DA AVG	64	E90		T	1

Report #: CAEVRBX004

Created Date: March 2, 2012

Approved By:

EXHIBIT A

Colorado Department of Public Health and Environment

Water Quality Control Division

Effluent Violation Report

Date of Report: 4/21/14

*** Query Name:Effluent Data ***

Monitoring Period End Date From: 5/1/2010 12:00:00 AM
Monitoring Period End Date To: 4/21/2014 12:00:00 AM
Outfalls: (Optional)
Enter NPDES ID: (Optional)
Primary Permit SIC Code: (Optional)
Major/Minor (Enter "Major" or "Minor") (Enter * to select all) *
Matching NPDES ID: (Optional)COX048348
Parameter Desc: (Optional)
Enter Primary Permit SIC Code Not Equal to: (Optional)

NPDES ID	Outfall	Mon Pd Start Date	Mon Pd End Date	Parameter	Rpted Value	Unit Desc	Limit Value	Stat Base Desc	% Exceed	Viol Code	NODI Code	RNC Detect Code	RNC Resolve Code
COX048348	050CC	10/1/12	10/31/12	70295 - Solids, total dissolved	=617	mg/L	400	30DA AVG	54	E90		T	1
COX048348	050CC	11/1/12	11/30/12	70295 - Solids, total dissolved	=605	mg/L	400	30DA AVG	51	E90		T	1
COX048348	050CC	12/1/12	12/31/12	70295 - Solids, total dissolved	=610	mg/L	400	30DA AVG	53	E90		T	1
COX048348	050CC	1/1/13	1/31/13	70295 - Solids, total dissolved	=610	mg/L	400	30DA AVG	53	E90		T	1
COX048348	050CC	2/1/13	2/28/13	70295 - Solids, total dissolved	=606	mg/L	400	30DA AVG	52	E90		T	1
COX048348	050CC	3/1/13	3/31/13	70295 - Solids, total dissolved	=638	mg/L	400	30DA AVG	60	E90		T	1
COX048348	050CC	4/1/13	4/30/13	70295 - Solids, total dissolved	=573	mg/L	400	30DA AVG	43	E90		T	1
COX048348	050CC	5/1/13	5/31/13	70295 - Solids, total dissolved	=643	mg/L	400	30DA AVG	61	E90		T	1
COX048348	050CC	6/1/13	6/30/13	70295 - Solids, total dissolved	=567	mg/L	400	30DA AVG	42	E90		T	1
COX048348	050CC	7/1/13	7/31/13	70295 - Solids, total dissolved	=605	mg/L	400	30DA AVG	51	E90		T	1
COX048348	050CC	8/1/13	8/31/13	70295 - Solids, total dissolved	=510	mg/L	400	30DA AVG	28	E90		C	1
COX048348	050CC	9/1/13	9/30/13	70295 - Solids, total dissolved	=422	mg/L	400	30DA AVG	6	E90		C	1
COX048348	050CC	10/1/13	10/31/13	70295 - Solids, total dissolved	=444	mg/L	400	30DA AVG	11	E90		C	1
COX048348	050CC	11/1/13	11/30/13	70295 - Solids, total dissolved	=504	mg/L	400	30DA AVG	26	E90		C	1
COX048348	050CC	12/1/13	12/31/13	70295 - Solids, total dissolved	=442	mg/L	400	30DA AVG	11	E90		C	1
COX048348	050CC	1/1/14	1/31/14	70295 - Solids, total dissolved	=476	mg/L	400	30DA AVG	19	E90			
COX048348	050CC	2/1/14	2/28/14	70295 - Solids, total dissolved	=496	mg/L	400	30DA AVG	24	E90			
COX048348	050DD	7/1/10	7/31/10	70295 - Solids, total dissolved	=2000	mg/L	400	30DA AVG	400	E90		T	1

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Report #: CAEVRBX004
Created Date: March 2, 2012
Approved By:

EXHIBIT A

Colorado Department of Public Health and Environment

Water Quality Control Division

Effluent Violation Report

Date of Report: 4/21/14

*** Query Name Effluent Data ***

Monitoring Period End Date From: 5/1/2010 12 00:00 AM
Monitoring Period End Date To 4/21/2014 12 00 00 AM
Outfalls (Optional)
Enter NPDES ID (Optional)
Primary Permit SIC Code (Optional)
Major/Minor (Enter "Major" or "Minor") (Enter * to select all) *
Matching NPDES ID (Optional)COX048348
Parameter Desc: (Optional)
Enter Primary Permit SIC Code Not Equal to (Optional)

NPDES ID	Outfall	Mon Pd Start Date	Mon Pd End Date	Parameter	Rpted Value	Unit Desc	Limit Value	Stat Base Desc	% Exceed	Viol Code	NODI Code	RNC Detect Code	RNC Resolve Code
COX048348	050DD	10/1/10	10/31/10	70295 - Solids, total dissolved	=786	mg/L	400	30DA AVG	97	E90		T	1
COX048348	050DD	11/1/10	11/30/10	70295 - Solids, total dissolved	=618	mg/L	400	30DA AVG	55	E90		T	1
X048348	050DD	12/1/10	12/31/10	70295 - Solids, total dissolved	=672	mg/L	400	30DA AVG	68	E90		T	1
COX048348	050DD	1/1/11	1/31/11	70295 - Solids, total dissolved	=774	mg/L	400	30DA AVG	94	E90		T	1
COX048348	050DD	2/1/11	2/28/11	70295 - Solids, total dissolved	=638	mg/L	400	30DA AVG	60	E90		T	1
COX048348	050DD	3/1/11	3/31/11	70295 - Solids, total dissolved	=692	mg/L	400	30DA AVG	73	E90		T	1
COX048348	050DD	4/1/11	4/30/11	70295 - Solids, total dissolved	=674	mg/L	400	30DA AVG	69	E90		T	1
COX048348	050DD	5/1/11	5/31/11	70295 - Solids, total dissolved	=725	mg/L	400	30DA AVG	81	E90		T	1
COX048348	050DD	6/1/11	6/30/11	70295 - Solids, total dissolved	=702	mg/L	400	30DA AVG	76	E90		T	1
COX048348	050DD	7/1/11	7/31/11	70295 - Solids, total dissolved	=734	mg/L	400	30DA AVG	84	E90		T	1
COX048348	050DD	8/1/11	8/31/11	70295 - Solids, total dissolved	=670	mg/L	400	30DA AVG	68	E90		T	1
(048348	050DD	9/1/11	9/30/11	70295 - Solids, total dissolved	=684	mg/L	400	30DA AVG	71	E90		T	1
COX048348	050DD	10/1/11	10/31/11	70295 - Solids, total dissolved	=746	mg/L	400	30DA AVG	87	E90		T	1
COX048348	050DD	11/1/11	11/30/11	70295 - Solids, total dissolved	=707	mg/L	400	30DA AVG	77	E90		T	1
COX048348	050DD	12/1/11	12/31/11	70295 - Solids, total dissolved	=714	mg/L	400	30DA AVG	79	E90		T	1
COX048348	050DD	1/1/12	1/31/12	70295 - Solids, total dissolved	=692	mg/L	400	30DA AVG	73	E90		T	1
COX048348	050DD	2/1/12	2/29/12	70295 - Solids, total dissolved	=706	mg/L	400	30DA AVG	77	E90		T	1
COX048348	050DD	3/1/12	3/31/12	70295 - Solids, total dissolved	=682	mg/L	400	30DA AVG	71	E90		T	1

Report #: CAEVRBX004
Created Date: March 2, 2012
Approved By:

EXHIBIT A

Colorado Department of Public Health and Environment

Water Quality Control Division

Effluent Violation Report

Date of Report: 4/21/14

*** Query Name:Effluent Data ***

Monitoring Period End Date From: 5/1/2010 12:00:00 AM
Monitoring Period End Date To: 4/21/2014 12:00:00 AM
Outfalls: (Optional)
Enter NPDES ID: (Optional)
Primary Permit SIC Code: (Optional)
Major/Minor (Enter "Major" or "Minor") (Enter * to select all) *
Matching NPDES ID: (Optional)COX048348
Parameter Desc: (Optional)
Enter Primary Permit SIC Code Not Equal to: (Optional)

NPDES ID	Outfall	Mon Pd Start Date	Mon Pd End Date	Parameter	Rpted Value	Unit Desc	Limit Value	Stat Base Desc	% Exceed	Viol Code	NODI Code	RNC Detect Code	RNC Resolve Code
COX048348	050DD	4/1/12	4/30/12	70295 - Solids, total dissolved	=656	mg/L	400	30DA AVG	64	E90		T	1
COX048348	050DD	5/1/12	5/31/12	70295 - Solids, total dissolved	=669	mg/L	400	30DA AVG	67	E90		T	1
COX048348	050DD	6/1/12	6/30/12	70295 - Solids, total dissolved	=630	mg/L	400	30DA AVG	58	E90		T	1
COX048348	050DD	7/1/12	7/31/12	70295 - Solids, total dissolved	=697	mg/L	400	30DA AVG	74	E90		T	1
COX048348	050DD	8/1/12	8/31/12	70295 - Solids, total dissolved	=605	mg/L	400	30DA AVG	51	E90		T	1
COX048348	050DD	9/1/12	9/30/12	70295 - Solids, total dissolved	=544	mg/L	400	30DA AVG	36	E90		V	1
COX048348	050DD	10/1/12	10/31/12	70295 - Solids, total dissolved	=689	mg/L	400	30DA AVG	72	E90		T	1
COX048348	050DD	11/1/12	11/30/12	70295 - Solids, total dissolved	=695	mg/L	400	30DA AVG	74	E90		T	1
COX048348	050DD	12/1/12	12/31/12	70295 - Solids, total dissolved	=706	mg/L	400	30DA AVG	77	E90		T	1
COX048348	050DD	1/1/13	1/31/13	70295 - Solids, total dissolved	=651	mg/L	400	30DA AVG	63	E90		T	1
COX048348	050DD	2/1/13	2/28/13	70295 - Solids, total dissolved	=580	mg/L	400	30DA AVG	45	E90		T	1
COX048348	050DD	3/1/13	3/31/13	70295 - Solids, total dissolved	=629	mg/L	400	30DA AVG	57	E90		T	1
COX048348	050DD	4/1/13	4/30/13	70295 - Solids, total dissolved	=608	mg/L	400	30DA AVG	52	E90		T	1
COX048348	050DD	5/1/13	5/31/13	70295 - Solids, total dissolved	=634	mg/L	400	30DA AVG	59	E90		T	1
COX048348	050DD	6/1/13	6/30/13	70295 - Solids, total dissolved	=595	mg/L	400	30DA AVG	49	E90		T	1
COX048348	050DD	7/1/13	7/31/13	70295 - Solids, total dissolved	=614	mg/L	400	30DA AVG	54	E90		T	1
COX048348	050DD	8/1/13	8/31/13	70295 - Solids, total dissolved	=641	mg/L	400	30DA AVG	60	E90		T	1
COX048348	050DD	9/1/13	9/30/13	70295 - Solids, total dissolved	=597	mg/L	400	30DA AVG	49	E90		T	1

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Report #: CAEVRBX004
Created Date: March 2, 2012
Approved By:

EXHIBIT A

Colorado Department of Public Health and Environment

Water Quality Control Division

Effluent Violation Report

Date of Report: 4/21/14

*** Query Name:Effluent Data ***

Monitoring Period End Date From. 5/1/2010 12:00:00 AM
Monitoring Period End Date To: 4/21/2014 12:00.00 AM
Outfalls: (Optional)
Enter NPDES ID. (Optional)
Primary Permit SIC Code: (Optional)
Major/Minor (Enter "Major" or "Minor") (Enter * to select all) *
Matching NPDES ID: (Optional)COX048348
Parameter Desc: (Optional)
Enter Primary Permit SIC Code Not Equal to (Optional)

NPDES ID	Outfall	Mon Pd Start Date	Mon Pd End Date	Parameter	Rpted Value	Unit Desc	Limit Value	Stat Base Desc	% Exceed	Viol Code	NODI Code	RNC Detect Code	RNC Resolve Code
COX048348	050DD	10/1/13	10/31/13	70295 - Solids, total dissolved	=572	mg/L	400	30DA AVG	43	E90		T	1
COX048348	050DD	11/1/13	11/30/13	70295 - Solids, total dissolved	=549	mg/L	400	30DA AVG	37	E90		V	1
X048348	050DD	12/1/13	12/31/13	70295 - Solids, total dissolved	=492	mg/L	400	30DA AVG	23	E90		V	1
COX048348	050DD	1/1/14	1/31/14	70295 - Solids, total dissolved	=515	mg/L	400	30DA AVG	29	E90			
COX048348	050DD	2/1/14	2/28/14	70295 - Solids, total dissolved	=496	mg/L	400	30DA AVG	24	E90			

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EXHIBIT B

SUPPLEMENTAL ENVIRONMENTAL PROJECTS (SEP) FIRST PARTY PROPOSAL/AGREEMENT FORM

The Regulated Entity, identified below, submits the following SEP application to the Colorado Department of Public Health and Environment (the Department) for consideration.

Enforcement Action Information	Cherokee Metropolitan District Case No.: ~~MC-14XXXX~~ MC-140514-1
Regulated Entity Project Manager	Sean Chambers, General Manager Cherokee Metropolitan District 6250 Palmer Park Boulevard Colorado Springs, CO 80915 Office Telephone: 719-597-5080 E-mail Address: SChambers@cherokeemetro.org
CDPHE Contact Person	Rachel Wilson-Roussel, Supplemental Environmental Projects Coordinator, 303-692-2976, rachel.wilson-roussel@state.co.us -and- Mike Harris, WQCD Compliance and Enforcement Unit Manager, 303-692-3598, michael.harris@state.co.us
Geographical Area to Benefit Most Directly From Project	Cherokee Metropolitan District Street Light Service Area located in unincorporated El Paso County, Colorado
Project Name	LED Exterior Lighting Project
Project Type	**First Party**
SEP Category	Pollution Prevention
Project Summary	The Cherokee Metropolitan District (CMD) LED Lighting Project will replace a portion of the existing exterior lighting fixtures serving CMD facilities which use metal halide (mercury vapor and high pressure sodium) lamp technology with light emitting diode (LED) lamp assemblies. The LED lamp assemblies will be applied to certain fixtures at the CMD office and maintenance building and at the clubhouse and maintenance facility of the Cherokee Ridge Golf Course that are energized during all non-daylight hours each day of the year.

EXHIBIT B

Project Description	As detailed in Attachment CMD-1, this project would replace 19 high pressure sodium (HPS) or mercury vapor pole and wall mounted lights with LED lamp assemblies with 18 LED lamps, using less than one half of the energy for an equivalent light output. The intent is to replace nine (9) existing pole mounted 400 watt lamp fixtures at public parking and exterior work areas at the District's facilities. Five pole mounted fixtures will be retrofitted at the CMD office and maintenance shop. Four pole mounted fixtures will be retrofitted at the public parking lot at the Cherokee Ridge Golf Course. Nine (9) 400 watt, eight (8) existing wall mounted fixtures (70 to 400 watts each) and two (2) 70 watt mercury vapor lamps (mast mounted) will be replaced with LED lamp assemblies that have a comparable light output. The 400 watt lamps would be replaced with an 85 watt LED assembly and the other wall and mast mounted fixtures would be replaced with one 30 or 50 watt LED assembly at each location. The two (2) 70 watt mercury vapor lamps at the Terminal Ave. Pump Station will be replaced with one (1) LED lamp assembly. The objective is to reduce energy consumption by over 50% which would reduce the carbon footprint relative to lights presently in use. Existing lamps have a design life of no more than 40,000 hours while LED lamps are anticipated to have a useful life of at least 100,000 hours. This increase in lamp life reduces the District's cost of service to its constituents for independent contractor service and expenditures for electric energy. Implementation would consist of design, procurement and installation. Fixture selection for this retrofit project will be those fixtures which are normally continuously energized during all non-daylight hours.
Expected Environmental and/or Public Health Benefits	Refer to Attachment CMD-1 for a tabulation of the lighting fixture locations, characteristics and expected environmental impacts and benefits. Summary: Annual Estimated Energy Savings = 21,500 kWh Annual Estimated Energy Cost Savings = $1,726 Annual Estimated Maintenance Cost Savings = $338 Discussion: This project would reduce energy consumption by over 21,500 kWh per year. This represents an annual reduction of 12.9 to 25.8 tons of CO_2 depending on generation mix. All of the lamps proposed for retrofitting in this First Party SEP are provided power from Colorado Springs Utilities, billed directly to the Cherokee Metropolitan District in accordance with the current commercial rate tariff. There is an annual energy cost savings of $1,726 to be realized under the current rates and assumptions of use recited in Attachment CMD-1. This cost savings will be directly reflected as a reduction in the Cherokee Metropolitan District (CMD) cost of service to its constituents. It is a comparatively small incremental reduction as the total CMD use of funds for operations in 2013 was approximately $10,300,000 exclusive of capital improvements and additions, renewals and replacements. Maintenance requirements will be reduced by more than 50% based on the expected useful added life cycle of the LED lamp assemblies noted above, recognizing reductions in maintenance vehicle use and disposal of MH lamps. The proposed LED lamp assemblies are rated at a useful life of 100,000. The estimated savings in reduced maintenance cost due to the longer useful life of the LED light assemblies likewise will be reflected in a reduced cost of service to the District's constituents. The annual savings in maintenance cost as a result of this SEP are not significant in relation to the District's total expenditures for operations reflected above.

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EXHIBIT B

	Existing high pressure sodium and mercury vapor lamps removed from the District's facilities will be reused if possible and mercury vapor lamps will be disposed of using federal guidelines.

Project Budget

Refer to the Budget Discussion below and Attachment CMD-1.

Category	Description	Cost
Personnel - Salaries, Wages. (Include rates and # of hrs.)	CMD Superintendent-Direct time spent on project management, evaluation of contractor proposals & management of accounts payable: 30 hrs @ $60	$ 1,800
Materials and Supplies		
Equipment		
Contractors/ Subcontractors	Electrical contractor labor, equipment and materials	$11,361
	GMS, Inc. Engineering Consultants	$ 2,500
Other Direct Costs	Publication of Request for proposals; Final report to CMD constituents	$ 800
	Total:	**$16,461**

Budget Discussion

- Describe how all costs were determined and how they relate to the project. All project costs must be clearly and solely attributable to the proposed SEP and cannot include administrative overhead or indirect expenses.
  - The project costs have been developed from electrical contractor quotations for work at the Cherokee Ridge Golf Course and extrapolated to work at the CMD office and maintenance facility. The project budget does not include any general and administrative overhead or indirect expenses. It includes only costs directly associated with performance/implementation of the project. Refer to Attachment CMD-2.
- Quantify any financial or other benefit (i.e. maintenance costs) to the regulated entity resulting from the implementation of this project.
  - The estimated total annual cost savings from this project is $2,064 (including $1,726 in energy costs and $338 in maintenance costs) providing an 8 year payback period. The savings in energy costs at the CMD facilities will directly impact the cost of service to the CMD constituents.
- Describe the availability of funding for this project from sources other than SEP contributors. Include sources of funding, secured and applied for, directly related to this SEP.
  - The funding for this project will be provided solely by the regulated entity, the CMD. No other funding source will be available or utilized.

This project as developed will not be completed without this funding. Replacements will be converted as part of routine maintenance or capital upgrades without LED lighting.

Project Schedule

Activities and Deliverables	Staff Responsible	Due Date
Proposed Start Date	Art Sintas, Superintendent, Cherokee Metropolitan District (CMD)	Within 30 days of the effective date of the Consent Order
Solicit and receive contractor proposals for labor, equipment and materials	Project Manager, GMS, Inc., Consulting Engineers	May 5, 2014
Award contract for retrofit of MH fixtures with LED lamp assemblies	Board of Directors, CMD	June 11, 2014

	Initiate construction contract implementation, commence LED lamp assembly installations	Electrical Contractor TBD	July 7, 2014
	Biannual Status Report Due Date	CMD Superintendent & GMS, Inc. Project Manager	July 30, 2014
	Projected Completion Date	CMD Superintendent & GMS, Inc. Project Manager	November 30, 2014
	SEP Completion Report Due	CMD Superintendent & GMS, Inc. Project Manager	December 30, 2014
Reporting Requirements	<u>Biannual Status Reports</u> The CMD will submit a semiannual project status report to the Department's SEP Coordinator. Status reports will include the following information reported on the Department's Status Report Form: • A description of activities completed to date; • A budget summary table listing funds expended to date by budget category; and • A discussion of any anticipated changes to the project scope or timeline. <u>SEP Completion Report</u> The SEP Completion report will be submitted within 30 days of project completion and contain at a minimum: • A detailed description of the project as implemented; • A summary table identifying project deliverables and tasks along with the associated completion date; • A description of any operating problems encountered and the solutions thereto; • A full expense accounting including itemized costs, documented by copies of purchase orders, contracts, receipts or canceled checks; • Certification and demonstration that the SEP has been fully implemented pursuant to the provisions of the Settlement Agreement aka Compliance Order on Consent and this SEP Agreement; • A description of the environmental and public health benefits resulting from implementation of the SEP along with **quantification** of the outcomes and benefits; Additional information will include: • Examples of brochures, educational or outreach materials developed or produced as part of the SEP; and • Photographs documenting the project.		

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EXHIBIT B

Other Relevant Information	The CMD will execute this project using competitively procured proposals from qualified electrical contractors. The cost of the contractors work and any other direct project related costs will be documented and reported to CDPHE in the Final SEP Report. The CMD proposes to apply the cost of this project at a ratio of 1.5 to 1 to the monetary penalty agreed with the Colorado Department of Public Health and Environment. With an estimated project cost of $16,461, the offset to the monetary penalty assessed with be $10,974. This project is not required by any local land use regulation, building code or utility purveyor requirement. The CMD's constituents will realize the benefit of reduced cost of energy for lighting the public facilities of the District. There will be a reduced greenhouse gas (CO_2) emission as the result of reduced energy required to service the District facilities.
Has the applicant entered into any prior commitments to fund or implement this project, voluntary or otherwise? If yes, please explain.	No

ATTACHMENT CMD-1

EXHIBIT B

Cherokee Metropolitan District
2012-2014 Compliance Order
FIRST PARTY SEP - LED Lamp Replacement SEP at CMD Facilities

								Total	
Current Fixture									
Type	Metal Halide Mercury Vapor Pump Station	Metal Halide Pole-HPS Office-Parking	Metal Halide Pole-HPS CRGC	Metal Halide Wall-HPS Office-Vehicle Doors	Metal Halide Wall-HPS Office-Vehicle Doors	Metal Halide Wall-HPS CRGC-Storage	Metal Halide Wall-HPS CRGC-West Deck		
Watt Rating	70x2	400	400	150	70	400	70		
Power Consumption (watts)	173	468	468	185	94	468	94		
Proposed Fixture									
Type	LED	LED	LED	LED	LED	LED	LED		
Wattage	50	85	85	50	30	85	50		
Power Consumption (watts)	38	58	58	38	27	58	38		
Quantity	1	5	4	4	2	1	1	18	
Annual Estimated Energy Savings (kWh)									
Power Consumption (watts)									
Current Fixture	173	468	468	185	94	468	94		
Proposed Fixture	38	58	58	38	27	58	38		
Energy Savings (watts/fixture)	135	410	410	147	67	410	56		
Annual Operating Hours (1)	4,289	4,289	4,289	4,289	4,289	4,289	4,289		
Energy Savings (kWh/fixture)	579	1,758	1,758	630	287	1,758	240		
Quantity	1	5	4	4	2	1	1		
Annual Est. Energy Savings (kWh)	579	8,792	7,034	2,522	575	1,758	240	21500	$ 0.766 =$/kWh Reduced
Annual Estimated Energy Cost Savings									
Annual Est Energy Savings (kWh)	579	8,792	7,034	2,522	575	1,758	240		
Energy Cost ($/kWh) (2)	$0.0803	$0.0803	$0 0803	$0.0803	$0.0803	$0.0803	$0.0803		
Annual Est. Energy Cost Savings (3)	$46 49	$705.99	$564.79	$202.50	$46.15	$141.20	$19.29	$1,726 41	
Annual Estimated Maintenance Cost Savings									
Current Fixture									
Lamp Replacement Cost	$407 50	$402 50	$402.50	$397.50	$392.50	$402.50	$392 50		
Estimated Lamp Life (hours)	40,000	40,000	40,000	40,000	40,000	40,000	40,000		
Annual Operating Hours (1)	4,289	4,289	4,289	4,289	4,289	4,289	4,289		
Lamp Replacement Interval (yrs)	9 33	9 33	9.33	9.33	9.33	9.33	9 33		
Annual Replacement Cost per Fixture	$43.69	$43.16	$43.16	$42.62	$42.08	$43 16	$42 08		
Quantity	1	5	4	4	2	1	1		
Total Annual Replacement Cost	$43.69	$215.78	$172 62	$170 48	$84.17	$43.16	$42.08	$771.98	
Proposed Fixture									
Lamp Replacement Cost	$557.50	$577.50	$577 50	$557 50	$502.50	$577.50	$557.50		
Estimated Lamp Life (hours)	100,000	100,000	100,000	100,000	100,000	100,000	100,000		
Annual Operating Hours (1)	4,289	4,289	4,289	4,289	4,289	4,289	4,289		
Lamp Replacement Interval (yrs)	23 32	23.32	23 32	23 32	23.32	23.32	23.32		
Annual Replacement Cost per Fixture	$23.91	$24.77	$24 77	$23 91	$21.55	$24.77	$23.91		
Quantity	1	5	4	4	2	1	1		
Total Annual Replacement Cost (3)	$23.91	$123.84	$99.07	$95 64	$43.10	$24.77	$23 91		
Annual Est. Maintenance Cost Savings	$19 78	$91.94	$73.55	$74.84	$41.06	$18.39	$18 17	$337.74	

(1) Based on average operating time of 11 75 hours per day
Winter solstice = 4 45 pm to 6 45 am (MST) = 14 hrs, Summer solstice = 8 45pm to 6 15 am (MDT) = 9 5 hrs, Avg = 11 75 hrs

(2) Energy Cost Calculation Based on CSU Rates to CMD Sept 2013

Access Charge ($/kWh) = $0 0532
Supply Charge ($/kWh) = $0 0269
Electric Cost Adjustment (ECA) ($/kWh) = -$0 0010
Capacity Charge ($/kWh) = $0 0012
Energy Cost ($/kWh) = $0 0803

(3) CSU's rate tariff for street lights is based on Charge per pole per month The current charges, as of Jan 1, 2014, for 100 watt fixtures are
100 Watt Metal Halide (MH) - Ornamental = $12 42, Current Annual User Charge = $4,769 28
100 Watt Equivalent LED - Ornamental = $12 14, Future Annual User Charge with LED Retrofit = $4,661 76, $107 52 per year less than existing MH based charge

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EXHIBIT B

SUPPLEMENTAL ENVIRONMENTAL PROJECTS (SEP) FIRST PARTY PROPOSAL/AGREEMENT

The regulated entity, identified below, submits the following SEP application to the Colorado Department of Public Health and Environment (the department) for SEP consideration.

Enforcement Action Information	Cherokee Metropolitan District Case No.: ~~MC-14xxxx-x~~ MC-140514-1
Regulated Entity Contact Information	Sean Chambers, General Manager Cherokee Metropolitan District 6250 Palmer Park Boulevard Colorado Springs, CO 80915 Office Phone: 719-597-5080 E-mail Address: SChambers@cherokeemetro.org
CDPHE Contact Person	Rachel Wilson-Roussel, Supplemental Environmental Projects Coordinator, 303-692-2976, rachel.wilson-roussel@state.co.us -and- Mike Harris, WQCD Compliance and Enforcement Unit Manager, 303-692-3598, michael.harris@state.co.us
Geographical Area to Benefit Most Directly From Project	Westerly portion of Cherokee Metropolitan District Street Light Service Area provided electric power by Colorado Springs Utilities
Project Title	LED Streetlight Project
Project Type	**First Party SEP**
SEP Category	Pollution Prevention
Project Summary	This project would replace 41 existing high pressure sodium or mercury vapor (metal halide) streetlight lamps with high efficiency LED lamps. Energy consumption would be reduced by over 50 percent and the driving public and impacted pedestrians would have improved lighting. Hazard exposure to lighting maintenance personnel would be reduced because of longer LED lamp life.

Project Description	This project would replace forty-one (41) 100 watt high pressure sodium (HPS) or mercury vapor ornamental exterior light fixtures with LED lamp assemblies using less than one half of the energy for an equivalent light output. The locations selected for consideration in this project include a residential collector street (Piros Drive) at a school campus, 100 watt fixtures on Palmer Park Boulevard west of Peterson Road and street lights in the Cimarron Industrial Park. In addition, 100 watt fixtures at Hathaway Drive and Peterson Road between Palmer Park Blvd and Galley Road are considered in this project. The objective is to reduce energy consumption by over 50% which would reduce the carbon footprint relative to lights presently in use. Existing lamps have a design life of 40,000 hours while LED lamps are anticipated to last 100,000 hours. This increase in lamp life reduces maintenance vehicle usage for replacement and lowers maintenance crew exposure to vehicle hazards while working in the roadway. Implementation would consist of design, permitting, materials ordering and installation. Colorado Springs Utilities Energy Services Division will coordinate and administer the project with all labor, equipment and materials being furnished by and through Colorado Springs Utilities. This will be done initially with a unit priced, time and materials work order arrangement between CSU and CMD. The work order will be jointly developed and administered by CSU and CMD to fit the desired expenditure with the greatest benefit to the Cherokee Metropolitan District service area.
Expected Environmental and/or Public Health Benefits	**Calculated Benefits:** Refer to Attachment CSU-1 for a demonstration of the estimated annual energy and energy consumption cost savings from this SEP. This attachment also shows the calculated annual savings in maintenance costs as a result of implementation of this SEP. Summary: Annual Estimated Energy Savings = 10,709 kWh Annual Calculated Energy Cost Savings = $860 Annual Calculated Maintenance Cost Savings = $1,009 These cost savings would only be realized if CMD was paying the energy consumption charges and maintenance costs directly. However, CMD pays Colorado Springs Utilities on a per lamp per month basis. See actual benefits discussion below. **Actual Benefits:** This project will reduce energy consumption by approximately 10,709 kWh per year. This represents an annual reduction of 7 to 13 tons of CO_2 depending on generation mix. Maintenance vehicle use and associated CO_2 production will be reduced by more than 50% based on the expected lamp life extension noted above. If the existing metal halide lamps have an effective service life of 40,000 hours, the maintenance vehicle and labor requirements may well be 60% less when this SEP using LED lamp assemblies is implemented. The major environmental benefit of this SEP is the reduction in energy consumption and the related environmental effects from power generation with fossil fuels. Because CMD pays for streetlights on a per lamp per month basis, the calculated cost savings from lower energy consumption and maintenance costs listed above will **not** be realized. CMD's **actual cost savings** will be approximately **$142.20** per year from the implementation of this SEP. Additional details can be found in the Budget Discussion section. Existing high pressure sodium lamp heads removed from the system will be reused if possible and mercury vapor lamps will be disposed of using federal guidelines. Existing

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EXHIBIT B

mercury vapor lamps have been and will be permanently removed from service in the CSU system.

Project Budget

Refer to Attachment CSU-2 for the preliminary work order and contract with Colorado Springs Utilities.

Budget Category	Description	SEP Funds	Matching Funds	Total Cost
Personnel (Salaries, Wages)	Lineman, apprentice, barricading, supervision, reporting	$9,555		$9,555
Materials and Supplies	100 watt equivalent LED fixtures	$10,257		$10,257
Major Equipment	Bucket truck, material truck	$492		$492
Contractors/ Subcontractors	NONE – Install by Colorado Springs Utilities	$0		$0
Other Direct Costs	Minor materials used and disposal of existing MH Lamps			
	Total:	**$20,304**	**$0**	**$20,304**

Budget Discussion

Note: Budget based on Colorado Springs Utilities preliminary contract issued March 20, 2014. See Attachment CSU-2.

The comparatively low annual energy expenditures avoided with implementation of this SEP are a result of the selection of 100 watt rated lamps for retrofitting in the project. The 100 watt fixtures were selected because, under the current rate tariff, this is the only street light installation resulting in a user charge equal to or less than that for metal halide lamp installations. The District has sought to avoid an increase in on-going operations cost as a result of this SEP. Please refer to the footnotes on Attachment CSU-1.

Although Colorado Springs Utilities has indicated the unit charge for LED street light installations will likely be reduced in the future, the amount and schedule or timing of that possible rate reduction is undefined. Thus, the District deems it most prudent to pursue retrofitting those installations which will not immediately adversely impact the District cost of service to its customers.

As of January 1, 2014, the rate for high pressure sodium and LED lamp assemblies was $12.42 and $12.14 per month per pole respectively for ornamental pole installations. The current rate schedule provides for the 100 watt equivalent LED lamps on an "ornamental" pole to be $3.36 per year per pole less cost to the District than the existing 100 watt metal halide installations.

The classification of "ornamental" installations includes the common aluminum pole with either a mast arm or top mounted luminaire. The "Colonial" fixture identified in Attachment CSU-1 is a top mounted luminaire in a hooded four-sided fixture requiring a LED lamp assembly having a current retail cost exceeding that for a similar "cobrahead" fixture.

This project as developed will not be completed without this funding. Replacements will be covered as part of routine capital upgrades without LED lighting in accordance with current tariffs. There are no local land use regulations, CMD service plan requirements or regulations of the electric utility which requires the CMD to initiate this project.

EXHIBIT B

	Activities	Staff Responsible	Date
Project Schedule and Work Plan	Project Start Date	Colorado Springs Utilities (CSU), Energy Services Division	May 19, 2014
	Material delivery	CSU, Energy Services Division	July 31, 2014
	Status Report(s) Due to CDPHE	CMD Superintendent & GMS, Inc. Project Manager	August 15, 2014
	Projected Completion Date	CSU and CMD Superintendent	November 30, 2014
	SEP Completion Report Due to CDPHE	CMD Superintendent & GMS, Inc. Project Manager	December 20, 2014
Other Relevant Information	This project is not required by any local land use regulation, building code or utility purveyor requirement. The CMD's constituents will not immediately realize the benefit of reduced cost of energy for lighting in the District until CSU accomplishes a cost of service study with the latest in LED lamp technology considered. There will be reduced greenhouse gas (CO_2) emissions as the result of reduced energy required to service the District facilities		
Reporting Requirements	Biannual Status Reports The CMD SEP Administrator will submit a biannual project status report to the department's SEP Coordinator. Status reports will include the following information: • A description of activities completed to date; • A budget summary table listing funds expended to date by budget category; and • A discussion of any anticipated changes to the project scope or timeline. Final SEP Completion Report The SEP Completion report will be submitted within 30 days of project completion and contain at a minimum: • A detailed description of the project as implemented; • A summary table identifying project deliverables and tasks along with the associated completion date; • A description of any operating problems encountered and the solutions thereto; • A full expense accounting including itemized costs, documented by copies of purchase orders, contracts, receipts or canceled checks; • Certification and demonstration that the SEP has been fully implemented pursuant to the provisions of the Settlement Agreement aka Compliance Order on Consent and this SEP Agreement; • A description of the environmental and public health benefits resulting from implementation of the SEP along with **quantification** of the outcomes and benefits; • Examples of brochures, educational or outreach materials developed or produced as part of the SEP; and • Photographs documenting the project.		

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ATTACHMENT CSU-1
EXHIBIT B

Cherokee Metropolitan District
2012-2014 Compliance Order
LED Lamp Replacement SEP

Current Fixture			Total			
Type	Metal Halide Cobrahead	Metal Halide Colonial				
Watt Rating	100	100				
Power Consumption (watts)	127	118				
Proposed Fixture						
Type	LED Cobrahead	LED Colonial				
Wattage						
Power Consumption (watts)	66	58				
Quantity	37	4	41			
Annual Estimated Energy Savings (kWh)						
Power Consumption (watts)						
Current Fixture	127	118				
Proposed Fixture	66	58				
Energy Savings (watts/fixture)	61	60				
Annual Operating Hours (1)	4,289	4,289				
Energy Savings (kWh/fixture)	262	257				
Quantity	37	4				
Annual Est. Energy Savings (kWh)	9,680	1,029	10,709	129%	$ 1.896	=$/KWH Reduction
Annual Estimated Energy Cost Savings						
Annual Est. Energy Savings (kWh)	9,680	1,029				
Energy Cost ($/kWh) (2)	$0.0803	$0.0803				
Annual Est. Energy Cost Savings (3)	$777.28	$82.65	$859.93			
Annual Estimated Maintenance Cost Savings						
Current Fixture						
Lamp Replacement Cost	$412.50	$462.50				
Estimated Lamp Life (hours)	40,000	40,000				
Annual Operating Hours (1)	4,289	4,289				
Lamp Replacement Interval (yrs)	9.33	9.33				
Annual Replacement Cost per Fixture	$44.23	$49.59				
Quantity	37	4				
Total Annual Replacement Cost	$1,636.43	$198.35				
Proposed Fixture						
Lamp Replacement Cost	$450.00	$650.00				
Estimated Lamp Life (hours)	100,000	100,000				
Annual Operating Hours (1)	4,289	4,289				
Lamp Replacement Interval (yrs)	23.32	23.32				
Annual Replacement Cost per Fixture	$19.30	$27.88				
Quantity	37	4				
Total Annual Replacement Cost (3)	$714.08	$111.51				
Annual Est. Maintenance Cost Savings	$922.35	$86.85	$1,009.20			

(1) Based on average operating time of 11.75 hours per day
Winter soltice = 4:45 pm to 6:45 am (MST) = 14 hrs; Summer soltice = 8:45pm to 6:15 am (MDT) = 9.5 hrs;

(2) Energy Cost Calculation Based on CSU Rates to CMD Sept 2013

Access Charge ($/kWh) = $0.0532
Supply Charge ($/kWh) = $0.0269
Electric Cost Adjustment (ECA) ($/kWh) = -$0.0010
Capacity Charge ($/kWh) = $0.0012
Energy Cost ($/kWh) = $0.0803

(3) CSU's rate tariff for street lights is based on Charge per pole per month. The current charges, as of Jan 1, 2014, for 100 watt fixtures are:

100 Watt Metal Halide (MH) - Ornamental = $12.42; Current Annual User Charge = $4,769.28

100 Watt Equivalent LED - Ornamental = $12.14; Future Annual User Charge with LED Retrofit = $5,972.88; $142.20 per year less than existing MH based charge.

EXHIBIT B

ATTACHMENT CSU-2

Colorado Springs Utilities
Contract for Time and Material
Third Party Billing

WHEREAS, the undersigned Applicant requests Springs Utilities (SU), to provide labor, services, materials and equipment, as described below, or on exhibits or addenda attached hereto and incorporated herein by reference for Applicant s benefit at the location commonly known as: **CHEROKEE METROPOLITAN DISTRICT.**

IT IS HEREBY AGREED that Applicant shall deposit with SU on or before **05/04/2014,** as a condition precedent to SU s obligation to provide said labor, services, materials and equipment, the sum of **$20,303.55**, which is the estimated cost of said labor, services, materials and equipment. This estimated sum is based upon a preliminary survey and analysis of the project as described by the Applicant. It is understood and agreed that the above estimated cost is subject to revision based upon the actual cost, as determined by SU after completion of the project. Applicant agrees to pay the actual cost of the project in full, as determined by SU, within ten (10) days after completion of the project and final billing. In the event the deposit is determined to be greater than the actual cost, as finally determined, SU shall refund the difference within thirty (30) days of completion of the project and final billing. In the event Applicant fails to pay the actual cost within ten (10) days after final billing, SU shall have the right to recover the actual costs, damages, including incidental and consequential damages, costs of collection, attorney s fees and interest on the amount owing at the statutory rate under Colorado law.

SU, its employees and agents, shall have the right to enter upon the Applicant s property, as described below, at all reasonable hours as necessary to provide the labor, services, materials and equipment described herein.

Applicant warrants and represents to SU that the individual executing this Contract on behalf of the Applicant has authority to bind the Applicant, its successors and assigns.

The laws of the State of Colorado shall apply to this Contract for Time and Material and the construction or enforcement thereof.

In the event the Applicant requests a modification to the labor, materials, services and equipment described below, or in the event it is necessary for SU to perform additional or other labor, services, materials and equipment to complete the project, the Applicant agrees to pay for the additional costs and payment thereof will be made in accordance with the terms of this Contract. The Applicant or the Applicant s representative shall execute a contract addendum describing additional labor, services, materials and equipment as requested or required by SU, upon request of SU. SU shall have discretion to require additional amounts be paid, or the entire cost of additional labor, services, materials and equipment be paid prior to commencement of work on such additions or modifications.

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EXHIBIT B

Location of Job: **CHEROKEE METROPOLITAN DISTRICT**

Type of Service Requested: **REPLACE 41 STREETLIGHT LUMINAIRES WITH LED LUMINAIRES**

Charges

Total Material including credit and handling charges		$0.00
Total Labor Charges		$9,554.96
Total Tool & Vehicle Charges		$491.59
Total		$10,046.55
Additional Charges	+	$10,257.00
Total Job Cost		$20,303.55
Customer Credit	-	$0.00
Total Amount Due		$20,303.55

Special instructions on billing:

Ginny Halvorson Energy Services

Applicant

20-Mar-2014
Date

By: _____
Title

2680028-01
Work Order Number

Company Name

Address

City, State, Zip Code

Date

Phone Number

FE-16
7/25/95

EXHIBIT B

SUPPLEMENTAL ENVIRONMENTAL PROJECTS (SEP) FIRST PARTY PROPOSAL/AGREEMENT

The regulated entity, identified below, submits the following SEP application to the Colorado Department of Public Health and Environment (the department) for SEP consideration.

Enforcement Action Information	Cherokee Metropolitan District Case No.: ~~MC-14xxxx-x~~ MC-140514-1
Regulated Entity Contact Information	Sean Chambers, General Manager Cherokee Metropolitan District 6250 Palmer Park Boulevard Colorado Springs, CO 80915 Office Phone: 719-597-5080 E-mail address: SChambers@cherokeemetro.org
CDPHE Contact Person	Rachel Wilson-Roussel, Supplemental Environmental Projects Coordinator, 303-692-2976, rachel.wilson-roussel@state.co.us -and- Mike Harris, WQCD Compliance and Enforcement Unit Manager, 303-692-3598, michael.harris@state.co.us
Geographical Area to Benefit Most Directly From Project	Easterly portion of Cherokee Metropolitan District Street Light Service Area provided electric power by Mountain View Electric Association
Project Title	LED Streetlight Project
Project Type	**First Party SEP**
SEP Category	Pollution Reduction, Public Health and Safety
Project Summary	This project would replace 15 existing high pressure sodium or mercury vapor (metal halide) streetlight lamps with high efficiency LED lamp assemblies. Energy consumption would be reduced by approximately 60 percent and the driving public and impacted pedestrians would have improved lighting. Hazard exposure to lighting maintenance personnel would be reduced because of longer LED lamp life.

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EXHIBIT B

Project Description	This project would replace no less than 15 metal halide street light luminaires with LED lamp assemblies using less than one half of the energy for an equivalent light output. The intent is to replace existing 400 watt fixtures with LED heads that have a comparable light output. The locations to be selected are along major and minor arterial roadways and collector streets where the public roadway users may have the maximum benefit from the project. The objective is to reduce energy consumption by approximately 60% which would reduce the carbon footprint relative to lights presently in use. Existing lamps have a design life of 40,000 hours while LED lamps are anticipated to last 100,000 hours. This increase in lamp life reduces maintenance vehicle usage for replacement and lowers maintenance crew exposure to vehicle hazards while working in the roadway. Implementation would consist of design, permitting, materials ordering and installation. The Mountain View Electric Association (MVEA) will implement the project with all labor, equipment and materials being furnished by and through MVEA. This will be done initially with a unit priced, time and materials work order arrangement between MVEA and CMD. The work order will be jointly developed and administered by MVEA and CMD to fit the desired expenditure with the greatest benefit to the Cherokee Metropolitan District service area.
Expected Environmental and/or Public Health Benefits	**Calculated Benefits:** Refer to Attachment MVEA-1 for a demonstration of the estimated annual energy and energy consumption cost savings from this SEP. This Attachment MVEA-1 also shows the calculated annual savings in maintenance costs as a result of implementation of this SEP. **Summary:** Annual Estimated Energy Savings = 15,214 kWh Annual Calculated Energy Cost Savings = $1,655 See Below Annual Calculated Maintenance Cost Savings = $366 The calculated cost savings would only be realized if CMD was paying the energy consumption charges and maintenance costs directly. However, CMD pays Mountain View Electric on a per lamp per month basis. See actual benefits discussion below. **Actual Benefits** This project will reduce energy consumption by approximately 15,214 kWh per year. This represents an annual reduction of 9.1 to 18.3 tons of CO_2 depending on generation mix. Maintenance vehicle usage and associated CO_2 production will be reduced by more than 50% based on the expected lamp assembly life extension noted above. The MVEA does not presently have a different tariff for LED street lighting. Based on discussions with the MVEA management and Directors, there will be a rate study accomplished in the near future. In the meantime, as this SEP is implemented by the MVEA, the current rate tariff for street lighting will apply. This is a unit charge per pole, without a direct relationship to energy consumption. While there is not expected to be any actual cost savings as a result of this SEP, there will be an energy consumption reduction with implementation of this SEP. The reduction in maintenance vehicle operation should be reasonably directly proportional to the difference in service life for the LED lamp assemblies as compared to the metal halide lamps. Based on comparative service life cycles of 40,000 and 100,000 hours respectively for metal halide and LEDs, the maintenance vehicle operation will be reduced more than 50 percent.

EXHIBIT B

Existing high pressure sodium lamp heads removed from the system will be reused if possible and mercury vapor lamps will be disposed of using federal guidelines. Mercury vapor lamps will be removed from service in the MVEA public street and security lighting system.

Project Budget

Refer to Attachment MVEA-1

Budget Category	Description	SEP Funds	Matching Funds (if any)	Total Cost
Personnel (Salaries, Wages)	Lineman, apprentice, barricading, supervision, reporting	$2,720		$2,720
Materials and Supplies	20– 400 watt equivalent LED pole mounted fixtures	$9,750		$9,750
Major Equipment	Bucket truck, material truck	$1,000		$1,000
Contractors/ Subcontractors	NONE – Install by MVEA staff using MVEA equipment	$0		$0
Other Direct Costs	Minor materials used and disposal of existing MH Lamps	$400		$400
	Total:	$13,870	**$0**	$13,870

Budget Discussion

Note: Budget based on $650 per lamp with MVEA engineering and procurement support.

The project budget for this SEP to be implemented by the MVEA was based on the unit cost of retrofitting similar existing metal halide street light installations as presented by the EPCDOT. As the final work order is developed with the MVEA, the scope of work will be adjusted to provide for an expenditure conforming to the requirements of the CDPHE. In general, the scope of work will be adjusted if necessary to provide for a monetary contribution to this "first party" project in an amount no less than that shown in the referenced budget.

As indicated in the discussion of environmental benefits of this SEP, there is no known financial benefit to the Cherokee Metropolitan District. As of this time, the MVEA will be assessing the same user charges for the LED street lights as are now billed for the metal halide installations. The MVEA has indicted they will be doing a rate study to assess the cost of the LED street light installations. There is no indication if the resulting user charge will be less or more than that assessed for metal halide street light installations.

This project as developed will not be completed without this funding. Replacements will be covered as part of routine capital upgrades without LED lighting in accordance with current tariffs. There are no local land use regulations, CMD service plan requirements or regulations of the electric utility which requires the CMD to initiate this project.

Project Schedule and Work Plan

Activities	Staff Responsible	Date
Project Start Date	Cherokee/ MVEA	May 5, 2014
Material delivery	MVEA	July 1, 2014
Status Report(s) Due to CDPHE	CMD Superintendent & GMS, Inc. Project Manager	August 15, 2014
Projected Completion Date	MVEA and CMD Superintendent	November 30, 2014

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EXHIBIT B

	SEP Completion Report Due to CDPHE	CMD Superintendent & GMS, Inc. Project Manager	December 20, 2014
Other Relevant Information	This project is not required by any local land use regulation, building code or utility purveyor requirement. The CMD's constituents will not immediately realize the benefit of reduced cost of energy for lighting in the District until MVEA accomplishes a cost of service study with the latest in LED lamp technology considered. There will be reduced greenhouse gas (CO_2) emissions as the result of reduced energy required to service the District facilities		
Reporting Requirements	<u>Biannual Status Reports</u> The CMD SEP Administrators will submit a biannual project status report to the department's SEP Coordinator. Status reports will include the following information: • A description of activities completed to date; • A budget summary table listing funds expended to date by budget category; and • A discussion of any anticipated changes to the project scope or timeline. <u>Final SEP Completion Report</u> The SEP Completion report will be submitted within 30 days of project completion and contain at a minimum: • A detailed description of the project as implemented; • A summary table identifying project deliverables and tasks along with the associated completion date; • A description of any operating problems encountered and the solutions thereto; • A full expense accounting including itemized costs, documented by copies of purchase orders, contracts, receipts or canceled checks; • Certification and demonstration that the SEP has been fully implemented pursuant to the provisions of the Settlement Agreement and this SEP Agreement; • A description of the environmental and public health benefits resulting from implementation of the SEP along with **quantification** of the outcomes and benefits; • Examples of brochures, educational or outreach materials developed or produced as part of the SEP; and • Photographs documenting the project.		

EXHIBIT B

ATTACHMENT MVEA-1

Cherokee Metropolitan District
2012-2014 Compliance Order
Mountain View Electric Association (MVEA) LED Lamp Replacement SEP - 04/15/14

Current Fixture			
Type	Metal Halide Cobrahead		
Watt Rating	400		
Power Consumption (watts)-EPCDOT Data	400		
Proposed Fixture			
Type	LED Cobrahead		
Watt Rating	400		
Power Consumption (watts)	163.5		
Quantity	15		
Annual Estimated Energy Savings (kWh)			
Power Consumption (watts)			
Current Fixture	400		
Proposed Fixture	163.5		
Energy Savings (watts/fixture)	236.5		
Annual Operating Hours (1)	4,289		
Energy Savings (kWh/fixture)	1,014		
Quantity	15		
Annual Est. Energy Savings (kWh)(4)	15,214	$ 0.912	=$/kWh Reduced
Annual Estimated Energy Cost Savings			
Annual Est. Energy Savings (kWh)	$15,214		
Energy Cost ($/kWh) (2)	$0.1088		
Annual Est. Energy Cost Savings	$1,655		
Annual Estimated Maintenance Cost Savings			
Current Fixture			
Lamp Replacement Cost	$412.50		
Estimated Lamp Life (hours)	40,000		
Annual Operating Hours (1)	4,289		
Lamp Replacement Interval (yrs)	9.33		
Annual Replacement Cost per Fixture	$44.23		
Quantity	15		
Total Annual Replacement Cost(4)	$663.42		
Proposed Fixture			
Lamp Replacement Cost(3)	$462.50		
Estimated Lamp Life (hours)	100,000		
Annual Operating Hours (1)	4,289		
Lamp Replacement Interval (yrs)	23.32		
Annual Replacement Cost per Fixture	$19.84		
Quantity	15		
Total Annual Replacement Cost(4)	$297.53		
Annual Est. Maintenance Cost Savings(4)	$365.88		

(1) Based on average operating time of 11.75 hours per day
Winter soltice = 4:45 pm to 6:45 am (MST) = 14 hrs; Summer soltice = 8:45pm to 6:15 am (MDT) = 9.5 hrs; Avg = 11.75 hrs

(2) Comparative MVEA Rates for Commercial General Power = $0.0725 per kWh Plus Grid Access and Demand Charges
MVEA Small Power Rate schedule, per kWh = $0.1088

(3) LED Replacement Lamp Cost =$125; Equipment Cost =$150 per hour; Labor Cost = $75 per hour; 1.5 hours to replace lamp

(4) MVEA's rate tariff for street lights is based on charge per pole per month. The current charges, as of Jan 1, 2014, for 400 watt fixtures are:
400 Watt Metal Halide (MH) = $18.90; Current Annual User Charge = $3,402
400 Watt Equivalent LED rate has not been established pending rate study by MVEA; For purposes of SEP evaluation, assume LED rate tariff is equal to MH rate tariff.
400 Watt Equivalent LED = $18.90, Future Annual User Charge with LED Retrofit = $3,402, $0.00 per year less than existing MH based charge.

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EXHIBIT B

SUPPLEMENTAL ENVIRONMENTAL PROJECTS (SEP) THIRD PARTY PROPOSAL/AGREEMENT

The regulated entity, identified below, submits the following SEP application to the Colorado Department of Public Health and Environment (the department) for SEP consideration.

Enforcement Action Information	Cherokee Metropolitan District Case No.: ~~MC-14xxxx-x:~~ MC-140514-1	
Regulated Entity Contact Information	Sean Chambers, General Manager Cherokee Metropolitan District 6250 Palmer Park Boulevard Colorado Springs, CO 80915 719-597-5080 SChambers@cherokeemetro.org	
Third Party SEP Administrator Contact	Mr. John Clack El Paso County Department of Public Services 3275 Akers Drive Colorado Springs, CO 80922 Office Phone: 719-520-6851 E-mail address: JohnClack@elpasoco.com	Type of organization: Non–profit* ____ Government __X_ *If non-profit, please attach a copy of your 501c(3) exemption to this SEP Agreement.
CDPHE Contact Person	Rachel Wilson-Roussel, Supplemental Environmental Projects Coordinator, 303-692-2976, rachel.wilson-roussel@state.co.us -and- Mike Harris, WQCD Compliance and Enforcement Unit Manager, 303-692-3598, michael.harris@state.co.us	
Geographical Area to Benefit Most Directly From Project	Cherokee Metropolitan District Street Light Service Area	
Project Title	LED Streetlight Project	
Project Type	**Third Party SEP Donation**	
SEP Category	Pollution Reduction, Public Health and Safety	
Project Summary	This project would replace existing 22 high pressure sodium or mercury vapor (metal halide) streetlight lamps with high efficiency LED lamps. Energy consumption would be reduced by approximately 58 percent, the driving public and impacted pedestrians would have improved lighting. Hazard exposure to lighting maintenance personnel would be reduced because of longer LED lamp life.	

EXHIBIT B

Project Description	This project would replace twenty-two (22) 400 watt high pressure sodium (HPS) or mercury vapor street light fixtures with LED lamp assemblies using less than one half of the energy for an equivalent light output. The locations selected for consideration in this project include the following Constitution Avenue and Marksheffel Road – Four fixtures Constitution Avenue and Piros Drive – Two fixtures Peterson Road and Piros Drive – Three fixtures Peterson Road and Palmer Park Boulevard – Four fixtures Galley Road and Hathaway Drive – Four fixtures Peterson Road and Galley Road – Three fixtures Peterson Road and Omaha Boulevard – One fixture Palmer Park Boulevard and Winnebago Drive – One fixture The objective is to reduce energy consumption by approximately 58% which would reduce the carbon footprint relative to lights presently in use. Existing lamps have a design life of 24,000 hours while LED lamps are anticipated to last 100,000 hours. This increase in lamp life reduces maintenance vehicle usage for replacement and lowers maintenance crew exposure to vehicle hazards while working in the roadway. Implementation would consist of design, permitting, materials ordering and installation. The El Paso County Department of Public Services, Transportation Division, will coordinate and administer the project with all labor, equipment and materials being furnished by and through El Paso County (EPC). This will be done initially with a unit priced, time and materials work order arrangement between EPC and CMD. The work order will be jointly developed and administered by EPC and CMD to fit the desired expenditure.
Expected Environmental and/or Public Health Benefits	Refer to Attachment EPC-1 for a demonstration of the estimated annual energy and power cost savings from this SEP. This Attachment EPC-1 also shows the estimated annual savings in maintenance costs as a result of implementation of this SEP. Summary: Annual Estimated Energy Savings = 22,145 kWh Annual Estimated Energy Cost Savings = $2,237 Annual Estimated Maintenance Cost Savings = $1,028 Payback period: ~ 5.9 years Discussion: This project would reduce estimated energy consumption by 22,145 kWh per year. This represents an annual reduction of 13.3 to 26.6 tons of CO_2 depending on generation mix. Maintenance vehicle usage and associated CO_2 production will be reduced by more than 50% based on the expected life extension noted above. The EPC Department of Transportation has provided information on common replacement lamps for existing HPS fixtures reflecting a useful life of 23,000 hours. The proposed LED lamp assemblies are rated at a useful life of 100,000. Based on this ratio, there will be a reduction of 77% in the frequency or unit use of maintenance equipment when the LED assemblies are put into service. There are 16 of the 22 lamps located in the Mountain View Electric Association service area with 6 of the lamps provided power from Colorado Springs Utilities. Using a weighted energy user charge rate for the 22 lamps proposed for retrofitting, there is an annual energy cost savings of $2,237 realized. This cost savings will not be passed on

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EXHIBIT B

to the Cherokee Metropolitan District as the subject street lighting fixtures are owned, operated and maintained by El Paso County, completely independent of the Cherokee Metropolitan District street lighting system. The estimated savings in reduced maintenance cost due to the longer useful life of the LED light assemblies likewise will not be passed on to the District's constituents. The energy cost savings are projected from the respective power companies' commercial energy charges applicable in their service areas. The basis of charge to EPC is on a per light basis in accordance with the applicable tariffs.

The District's constituents will not necessarily realize and cost benefits from this SEP but will be supporting the benefits of reduced energy consumption and generation of greenhouse gases and improved lighting of public spaces.

Existing high pressure sodium lamp heads removed from the system will be reused if possible and mercury vapor lamps will be disposed of using federal guidelines.

Project Budget

Budget Category	Description	SEP Funds	Matching Funds (if any)	Total Cost
Personnel (Salaries, Wages)	Lineman, apprentice, barricading, supervision, reporting	$3,640		$3,640
Materials and Supplies	22 – 400 watt equivalent pole mounted LED fixtures	$13,300		$13,300
Major Equipment	Bucket truck, material truck	$1,800		$1,800
Contractors/ Subcontractors	NONE – Install by El Paso County personnel & equipment	$0		$0
Other Direct Costs	Minor materials used and disposal of existing MH Lamps	$400		$400
	Total:	**$19,140**	**$0**	**$19,140**

Budget Discussion

This project as developed will not be completed without this funding. Replacements will be covered as part of routine capital upgrades without LED lighting. The project budget total was provided by the El Paso County (EPC) Public Services Department in an electronic mail message of February 15, 2014 from the EPC Project Manager, Mr. John Clack. Refer to Attachment EPC-2. The itemization given above is to be refined with EPC if necessary and will be itemized at project close-out.

Project Schedule and Work Plan

Activities	Staff Responsible	Date
SEP Donation of $19,140 from Cherokee Metro District to Third Party SEP Administrator, El Paso County	CMD Board of Directors, General Manager & Superintendent	Within 30 days of the effective date of this SEP Agreement.
Project Start Date	El Paso County Department of Public Services (EPC)	May 15, 2014
Material delivery	El Paso County Department of Public Services	July 16, 2014

EXHIBIT B

	Status Report(s) Due to CDPHE	CMD Superintendent & GMS, Inc. Project Manager	August 15, 2014
	Projected Completion Date	EPC and CMD Superintendent	November 30, 2014
	SEP Completion Report Due to CDPHE	CMD Superintendent & GMS, Inc. Project Manager	December 20, 2014
Other Relevant Information	This project is not required by any local land use regulation, building code or utility purveyor requirement. The CMD's constituents will not realize the benefit of reduced cost of energy for lighting in the District. There will be reduced greenhouse gas (CO_2) emissions as the result of reduced energy required to service the District facilities and improved lighting will enhance vehicular traffic and pedestrian safety.		
Reporting Requirements	<u>Biannual Status Reports</u> The CMD and EPC SEP Administrator will submit a biannual project status report to the department's SEP Coordinator. Status reports will include the following information: • A description of activities completed to date; • A budget summary table listing funds expended to date by budget category; and • A discussion of any anticipated changes to the project scope or timeline. <u>Final SEP Completion Report</u> The SEP Completion report will be submitted within 30 days of project completion and contain at a minimum: • A detailed description of the project as implemented; • A summary table identifying project deliverables and tasks along with the associated completion date; • A description of any operating problems encountered and the solutions thereto; • A full expense accounting including itemized costs, documented by copies of purchase orders, contracts, receipts or canceled checks; • Certification and demonstration that the SEP has been fully implemented pursuant to the provisions of the Settlement Agreement and this SEP Agreement; • A description of the environmental and public health benefits resulting from implementation of the SEP along with **quantification** of the outcomes and benefits; • Examples of brochures, educational or outreach materials developed or produced as part of the SEP; and • Photographs documenting the project.		

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EXHIBIT B

ATTACHMENT EPC-1

Cherokee Metropolitan District
2012-2014 Compliance Order
El Paso County Public Services Dept. LED Lamp Replacement SEP

Current Fixture			
Type	Metal Halide Cobrahead		
Watt Rating	400		
Power Consumption (watts)-EPCDOT Data	400		
Proposed Fixture			
Type	LED Cobrahead		
Watt Rating-Equivalency per EPCDOT	400		
Power Consumption (watts)	165.3		
Quantity	22		
Annual Estimated Energy Savings (kWh)			
Power Consumption (watts)			
Current Fixture	400		
Proposed Fixture	165.3		
Energy Savings (watts/fixture)	234.7		
Annual Operating Hours (1)	4,289		
Energy Savings (kWh/fixture)	1,007		
Quantity	22		
Annual Est. Energy Savings (kWh)	22,145	$ 0.864	=$/KWH Reduced
Annual Estimated Energy Cost Savings			
Annual Est. Energy Savings (kWh)	22,144.53		
Energy Cost ($/kWh) (5)	$0.1010		
Annual Est. Energy Cost Savings	$2,236.72		
Annual Estimated Maintenance Cost Savings			
Current Fixture			
Lamp Replacement Cost (4)	$372.50		
Estimated Lamp Life (hours)	24,000		
Annual Operating Hours (1)	4,289		
Lamp Replacement Interval (yrs)	5.60		
Annual Replacement Cost per Fixture	$66.56		
Quantity	22		
Total Annual Replacement Cost	$1,464.43		
Proposed Fixture			
Lamp Replacement Cost(6)	$462.50		
Estimated Lamp Life (hours)	100,000		
Annual Operating Hours (1)	4,289		
Lamp Replacement Interval (yrs)	23.32		
Annual Replacement Cost per Fixture	$19.84		
Quantity	22		
Total Annual Replacement Cost	$436.38		
Annual Est. Maintenance Cost Savings	$1,028.05		

(1) Based on average operating time of 11.75 hours per day
Winter soltice = 4:45 pm to 6:45 am (MST) = 14 hrs; Summer soltice = 8:45pm to 6:15 am (MDT) = 9.5 hrs; Avg = 11.75 hrs

(2) Energy Cost Calculation Based on CSU Rates to CMD Sept 2013

Access Charge ($/kWh) =	$0.0532
Supply Charge ($/kWh) =	$0.0269
Electric Cost Adjustment (ECA) ($/kWh) =	-$0.0010
Capacity Charge ($/kWh) =	$0.0012
Energy Cost ($/kWh) =	$0.0803

Weighted blend of CSU & MVEA=((16/22)*0.10877)+((6/22)*0.0803)

(3) Comparative MVEA Rates for Commercial General Power = $0.0725 per kWh Plus Grid Access and Demand Charges
MVEA Small Power Rate schedule = $0.10877 per kWh;

(4) Lamp Cost =$35; Equipment Cost =$150 per hour; Labor Cost = $75 per hour; 1.5 hours to replace lamp

(5) Weighted blend of CSU & MVEA= $0.10101

(6) Lamp Cost =$125; Equipment Cost =$150 per hour; Labor Cost = $75 per hour; 1.5 hours to replace lamp

ATTACHMENT EPC-2

From: John Clack [JohnClack@elpasoco.com]
Sent: Saturday, February 15, 2014 6:15 AM
To: 'rjsams@gmsengr.com'
Cc: Andre Brackin; Troy Wiitala; Steve Barden
Subject: RE: street lights.doc
Roger,

Here is our estimate for the LED street lamps that would be purchased by Cherokee Metro District. These are listed by priority.

Constitution & Marksheffel Rd	4 lights	$3,480
Peterson & Palmer Park	4 lights	$3,480
Galley & Hathaway	4 lights	$3,480
Peterson & Galley	3 lights	$2,610
Constitution & Piros Dr	2 lights	$1,740
Peterson & Piros Dr	3 lights	$2,610
Palmer Park & Winnebago	1 light	$870
Peterson & Omaha	1 light	$870
Total	22 lights	$19,140

I understand our crews would install. Would we be responsible for purchasing the lights and then get reimbursed? If so, we will need to go out to bid using our regular process. Let me know if you need any additional information.

Thanks,
John

From: Roger Sams [mailto:rjsams@gmsengr.com]
Sent: Monday, December 09, 2013 9:46 AM
To: John Clack
Subject: RE: street lights.doc

John:

Thanks to you and other EPC staff for pulling this information together for us. We, and the CMD, would like to consider funding replacement of existing lamps with LED lamp assemblies at the locations listed as part of the Supplemental Environmental Project (SEP) the District is arranging with the Colorado Department of Health & Environment (CDPHE). We will also be working directly with Colorado Springs Utilities and MVEA on some locations where those respective utilities are responsible for operation and maintenance with the CMD paying for the energy costs. The District will have about $50,000 to $55,000 to put into this project for all parts and pieces with all three responsible agencies.

First, it would be greatly appreciated if the EPC Public Service Department could provide a proposal for replacement of the existing lamp assemblies as described at the locations listed below. Please itemize the proposal by intersection as we may not be able to do all of them within this project. We would appreciate your input as to priorities where LED lamps would yield the most public benefit. We would agree with making Constitution and Marksheffel a top priority if EPC would concur.

The schedule for this work is presently proposed to commence April 1, 2014 and be completed by November 30, 2014. The start date could just be the ordering of materials; physical replacement would not necessarily have to start at that time.

We need to refine the CMD proposal to the CDPHE by responsible third party, i.e. CSU, MVEA and EPC, so getting us the proposal as soon as possible would be greatly appreciated. We trust the EPC experience with the

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LED lamp installation at Constitution and Peterson will be useful in making the proposal for the 2014 work in the CMD service area.

Thank you again. Please let me know if you have any questions or desire additional information.

Roger J. Sams, P.E.
GMS, Inc.
611 North Weber Street, Suite 300
Colorado Springs, CO. 80903
Phone: 719-475-2935
Fax: 719-475-2938
Email: rjsams@gmsengr.com

From: John Clack [mailto:JohnClack@elpasoco.com]
Sent: Monday, December 09, 2013 9:04 AM
To: rjsams@gmsengr.com
Subject: FW: street lights.doc

Roger,

Attached the El Paso County maintained street lights within the Cherokee Metro District's area. I verified with Frank Biggerstaff that these are all non-LED street lights. Please let me know if you have any questions or need additional information.

Thanks,
John Clack
719-520-6851

From: Ed Braun
Sent: Tuesday, December 03, 2013 7:09 AM
To: John Clack
Subject: FW: street lights.doc

John,

Attached are the numbers for the luminaries for GMS, all within Cherokee's district.

Edgar Braun
Inspection Supervisor
El Paso County PSD
719-520-6869, Cell 719-339-5205

From: Frank Biggerstaff
Sent: Monday, December 02, 2013 4:50 PM
To: Ed Braun; Steve Barden
Subject: FW: street lights.doc

Inform you ask for.

Frank

From: Joe Ashe
Sent: Monday, December 02, 2013 4:10 PM
To: Frank Biggerstaff
Subject: street lights.doc

EXHIBIT B

Intersection	# Street Lights
Constitution & Marksheffel Rd	4
Constitution & Piros Dr	2
Peterson & Piros Dr	3
Peterson & Palmer Park	4
Palmer Park & Winnebago	1
Peterson & Omaha	1
Peterson & Galley	3
Galley & Hathaway	4
Total	22

APPENDIX G – AGENCY REVIEW TRANSMITTALS

ELEMENT ENGINEERING LLC
DILIGENT • INNOVATIVE • RESPONSIVE

TRANSMITTAL FORM

To:	CDPHE WQCD – Engineering Section	Date:	June 15, 2018
	4300 Cherry Creek Drive South	Re:	Arrowhead Mobile Home Park
	Denver, CO 80246-1530	Job No.:	00013.0001
Attn:	Ms. Amy Zimmerman	From:	Nicholaus P. Marcotte, P.E.
		Phone:	(303) 378-2969

Via:

☐ Mail ☐ Fax ☐ FedEx ☒ Courier ☐ Other

Item List:

Copies	Description
2	Arrowhead Mobile Home Park 22.7 Site Application
2	Arrowhead Mobile Home Park Basis of Design Report
2	Arrowhead Mobile Home Park 100% Plans and Specifications

These are transmitted:

☒ For your approval ☐ For your use

☐ As requested ☒ For review and comment

Remarks

ELEMENT ENGINEERING LLC
DILIGENT • INNOVATIVE • RESPONSIVE

TRANSMITTAL FORM

To:	El Paso County Administrator	Date:	June 15, 2018
	200 S. Cascade Ave., Suite 100	Re:	Arrowhead Mobile Home Park 22.7 Site Application
	Colorado Springs, CO 80903-2202	Job No.:	00013.0001
Attn:		From:	Nicholaus P. Marcotte, P.E.
		Phone:	(303) 378-2969

Via:

☐ Mail ☐ Fax ☐ FedEx ☒ Courier ☐ Other

Item List:

Copies	Description
1	Arrowhead Mobile Home Park 22.7 Site Application

These are transmitted:

☐ For your approval ☐ For your use

☐ As requested ☒ For review and comment

Remarks
CDPHE Regulation 22 requires that a copy of the attached 22.7 site application be provided to the county for review and comment. After reviewing please forward comments, if any, by email at nmarcotte@elementengineering.net. If you have no comments please sign at the indicated location on the attached form and email a scan of the form to the listed email address.

ELEMENT ENGINEERING LLC
DILIGENT • INNOVATIVE • RESPONSIVE

TRANSMITTAL FORM

To:	El Paso County Dept. of Public Health	Date:	June 15, 2018
	1675 W. Garden of the Gods Rd. #2044	Re:	Arrowhead Mobile Home Park 22.7 Site Application
	Colorado Springs, CO 80907-2202	Job No.:	00013.0001
Attn:		From:	Nicholaus P. Marcotte, P.E.
		Phone:	(303) 378-2969

Via:

☐ Mail ☐ Fax ☐ FedEx ☒ Courier ☐ Other

Item List:

Copies	Description
1	Arrowhead Mobile Home Park 22.7 Site Application

These are transmitted:

☐ For your approval ☐ For your use

☐ As requested ☒ For review and comment

Remarks
CDPHE Regulation 22 requires that a copy of the attached 22.7 site application be provided to the county for review and comment. After reviewing please forward comments, if any, by email at nmarcotte@elementengineering.net. If you have no comments please sign at the indicated location on the attached form and email a scan of the form to the listed email address.

ELEMENT ENGINEERING LLC
DILIGENT • INNOVATIVE • RESPONSIVE

TRANSMITTAL FORM

To:	Pikes Peak Area Council of Governments	Date:	June 15, 2018
	15 South 7th Street	Re:	Arrowhead Mobile Home Park
	Colorado Springs, CO 80905	Job No.:	00013.0001
Attn:	Water Quality Management Committee	From:	Nicholaus P. Marcotte, P.E.
		Phone:	(303) 378-2969

Via:

☐ Mail ☐ Fax ☐ FedEx ☒ Courier ☐ Other

Item List:

Copies	Description
1	Arrowhead Mobile Home Park 22.7 Site Application

These are transmitted:

☐ For your approval ☐ For your use

☐ As requested ☒ For review and comment

Remarks
CDPHE Regulation 22 requires that a copy of the attached 22.7 site application be provided to the local council of government for review and comment. After reviewing please forward comments, if any, by email at nmarcotte@elementengineering.net. If you have no comments please sign at the indicated location on the attached form and email a scan of the form to the listed email address.

ATTACHMENT – CONSTRUCTION PLANS

CONSTRUCTION PLANS

ARROWHEAD MOBILE HOME PARK
LIFT STATION

SECTION 15, TOWNSHIP 14 SOUTH, RANGE 64 WEST OF THE SIXTH P.M.

PREPARED FOR:

ARROWHEAD MOBILE HOME PARK
DAYTON AND LEAH ORSBURN, CO-TRUSTEES
909.576.1324
P.O. BOX 154
CHINO HILLS, CA 91709

EMERGENCY CONTACT: RHONDA FOLDEN, PARK MANAGER
719.683.2727

ENGINEERING

ELEMENT ENGINEERING, LLC
NICHOLAUS P. MARCOTTE, P.E. #47164
12687 W. CEDAR DRIVE, SUITE 300
LAKEWOOD, CO 80228
720.749.4165

VICINITY MAP
NOT TO SCALE

AREA MAP
NOT TO SCALE

SHEET INDEX:

CIVIL

C1	COVER SHEET
C2	GENERAL NOTES
C3	EXISTING CONDITIONS
C4	SITE PLAN
C5	LIFT STATION DETAILS
C6	DETAILS

NOTE:
THESE PLANS ARE CONCEPT IN NATURE AND PREPARED IN SUPPORT OF A BASIS OF DESIGN REPORT SUBMITTAL.

ELEMENT ENGINEERING LLC
12687 W. CEDAR DRIVE, SUITE 300
LAKEWOOD, CO 80228
720.749.4165
WWW.ELEMENTENGINEERING.NET

REVISIONS

NO.	DESCRIPTION	DATE	BY
1	100% PLANS	05/18	NPM

LIFT STATION - CONSOLIDATION

COVER SHEET

ARROWHEAD MOBILE HOME PARK
7575 NORTH CURTIS ROAD
COLORADO SPRINGS, CO 80930

PREPARED UNDER THE DIRECT SUPERVISION OF

FOR AND ON BEHALF OF
ELEMENT ENGINEERING, LLC

DATE
JUNE 2018

JOB NUMBER
0013.0001

SCALE
NTS

DRAWING NAME
COVER

SHEET
C1 OF C6

GENERAL NOTES (ALL CONSTRUCTION):

1. ALL MATERIALS AND WORKMANSHIP SHALL BE IN CONFORMANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS AS APPLICABLE WITH EL PASO COUNTY, COLORADO STANDARDS AND SPECIFICATIONS AS APPLICABLE. THE CONTRACTOR SHALL HAVE IN HIS POSSESSION AT ALL TIMES ONE (1) SIGNED COPY OF THE PLANS, SPECIFICATIONS, AND THE MOST CURRENT COPY OF THE SPECIFICATIONS AND REGULATIONS AS APPROVED BY THE APPROPRIATE GOVERNING AGENCY. THE CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL FOR ANY VARIANCE TO THE ABOVE MENTIONED DOCUMENTS.

2. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PARK OF ANY PROBLEM IN CONFORMING TO THE APPROVED PLANS FOR ANY ELEMENT OF THE PROPOSED IMPROVEMENTS PRIOR TO ITS CONSTRUCTION.

3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE APPROPRIATE GOVERNING AGENCIES AT LEAST 48 HOURS PRIOR TO START OF ANY CONSTRUCTION. IF WORK IS SUSPENDED FOR ANY PERIOD OF TIME AFTER INITIAL START-UP, THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE GOVERNMENT AGENCIES 48 HOURS PRIOR TO RESTART.

4. THE CONTRACTOR SHALL NOTIFY ALL PUBLIC UTILITY COMPANIES AND DETERMINE THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO PROCEEDING WITH CONSTRUCTION. ALL WORK PERFORMED IN THE AREA OF PUBLIC UTILITIES SHALL BE PERFORMED ACCORDING TO THE REQUIREMENTS OF THESE AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ANY EXISTING UTILITY (INCLUDING DEPTH) WHICH MAY CONFLICT WITH THE PROPOSED CONSTRUCTION. THE CONTRACTOR SHALL PROTECT, AT HIS OWN EXPENSE, ALL EXISTING UTILITIES AND BE RESPONSIBLE FOR THEIR REPAIR IF THEY ARE DAMAGED DURING CONSTRUCTION.

   ALL KNOWN EXISTING UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS ON THE PLANS. THE ACTUAL LOCATION MAY VARY FROM THE PLANS, ESPECIALLY IN THE CASE OF UNDERGROUND UTILITIES. WHENEVER THE CONTRACTOR DISCOVERS A DISCREPANCY IN LOCATIONS, HE SHALL CONTACT THE PARK AND THE GOVERNING AUTHORITY IMMEDIATELY.

5. PRIOR TO BEGINNING THE WORK, THE CONTRACTOR SHALL OBTAIN ANY WRITTEN AGREEMENTS FOR INGRESS AND EGRESS TO THE WORK FROM ADJACENT PRIVATE PROPERTY WHICH SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.

6. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS AT AND ADJACENT TO THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THE CONTRACTOR SHALL PROVIDE THE FOLLOWING, BUT NOT LIMITED TO, ALL LIGHTS, SIGNS, BARRICADES, FLAGMEN, OR OTHER DEVICES NECESSARY TO PROVIDE FOR PUBLIC SAFETY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.

7. ALL EXCAVATIONS SHALL MEET CURRENT OSHA GUIDELINES.

8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND REPLACEMENT OF ALL MATERIALS DISTURBED WITHIN DEDICATED RIGHTS-OF-WAYS AND ALL MATERIALS AND WORKMANSHIP SHALL MEET THE CONSTRUCTION STANDARDS OF THE PARK, AS APPLICABLE.

9. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR THE PROPER FUNCTIONING OF THE IMPROVEMENTS FOR A MINIMUM OF TWO (2) YEARS FROM THE DATE OF INITIAL ACCEPTANCE OF THE IMPROVEMENTS BY ARROWHEAD MOBILE HOME PARK. ANY FAILURE DURING THIS PERIOD OF GUARANTEE SHALL BE REMEDIED BY THE CONTRACTOR TO THE SATISFACTION OF THE PARK AND AT NO EXPENSE TO ANY OF THE AGENCIES.

10. ALL MATERIALS AND WORKMANSHIP SHALL BE SUBJECT TO INSPECTION BY ARROWHEAD MOBILE HOME PARK. THE PARK RESERVES THE RIGHT TO ACCEPT OR REJECT ANY SUCH MATERIALS AND WORKMANSHIP THAT DOES NOT CONFORM TO ITS STANDARDS AND SPECIFICATIONS.

11. THE CONTRACTOR SHALL NOTIFY THE PARK OWNERS A MINIMUM OF 48 HOURS AND A MAXIMUM OF 96 HOURS PRIOR TO STARTING CONSTRUCTION.

12. ACCESS MUST BE MAINTAINED FOR ALL EMERGENCY VEHICLES, BUSINESSES, CITIZENS AND DELIVERIES AT ALL TIMES DURING CONSTRUCTION.

13. NO PAVING OR CONCRETE WORK OF ANY KIND SHALL START UNTIL ALL SUBGRADE COMPACTION TESTS ARE TAKEN AND ACCEPTED AND A PROOFROLL IS PERFORMED AND ALL AREAS PASS BY THE PARK.

14. ALL SUBGRADE MATERIAL SHALL BE COMPACTED TO A MINIMUM OF 95% OF THE MAXIMUM STANDARD PROCTOR DENSITY PER ASTM D-698 AT A MOISTURE CONTENT PER THE RECOMMENDATION OF THE TESTING AGENCY.

15. THE CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTING AND MAINTAINING EROSION AND SEDIMENT CONTROL MEASURES AT ALL TIMES DURING CONSTRUCTION.

16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING ALL DISTURBED SURFACES AND RELATED STRUCTURES, INCLUDING, BUT NOT LIMITED TO, DRIVEWAYS, CURBS, GUTTERS, WALKS, GRASS AREAS AND BITUMINOUS PAVEMENTS TO ORIGINAL CONDITIONS (OR BETTER). THE PARK AND THE CONTRACTOR SHALL COORDINATE THE DOCUMENTATION OF EXISTING GRADES, CONDITIONS, AND OTHER INFORMATION PRIOR TO ALL CONSTRUCTION ACTIVITIES. SITE RESTORATION SHALL BE CONSIDERED INCIDENTAL TO THE WORK AND WILL NOT BE PAID FOR SEPARATELY, UNLESS OTHERWISE PROVIDED FOR IN THE BID SCHEDULE.

17. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY FIELD CONDITION NOT CONSISTENT WITH THE DRAWINGS OR CONTRACT DOCUMENTS.

18. THE CONTRACTOR IS RESPONSIBLE FOR SAVING AND PROTECTING ALL EXISTING TREES AND VEGETATION WHERE REMOVAL FOR CONSTRUCTION IS NOT MANDATORY. ALL TREES TO BE REMOVED OR RELOCATED WILL BE MARKED BY THE PARK PRIOR TO REMOVAL.

19. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACCEPTANCE AND CONTROL OF ALL FLOWS INCLUDING STORM FLOWS IN AND ENTERING THE WORK AREA, OFF-SITE DRAINAGE FLOWS, AND GROUNDWATER FLOWS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO STRUCTURES, LOSS OF TOPSOIL, AND LOSS OF SEED CAUSED BY FLOWS UNTIL THE PROJECT IS ACCEPTED BY THE PARK. ALL WORK SHALL BE COMPLETED IN DRY CONDITIONS.

20. THE CONTRACTOR SHALL BE RESPONSIBLE TO CLEAN UP ANY TRASH OR MUD ON THE SITE OR ADJACENT STREETS AS A RESULT OF CONSTRUCTION. ALSO, THE CONTROL OF DUST DUE TO CONSTRUCTION ACTIVITIES IS MANDATORY.

21. THE CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL AS REQUIRED BY THE PARK. THE CONTRACTOR SHALL PROVIDE A TRAFFIC CONTROL PLAN TO THE PARK FOR REVIEW PRIOR TO CONSTRUCTION AND SHALL OBTAIN ANY NECESSARY PERMITS AND APPROVALS FROM THE PARK AS REQUIRED PRIOR TO CONSTRUCTION.

SANITARY SEWER NOTES:

1. ALL DIRECT BURY SEWER MAINS SHALL BE PVC.

2. SEWER LINES SHALL BE 10 FEET FROM WATER LINES EXCEPT WHEN CROSSING EACH OTHER. FOR SEWER LINES WHICH CROSS LESS THAN 1 ½ FEET VERTICALLY FROM WATER LINES, THE CLOSEST SANITARY SEWER JOINT SHALL BE A MINIMUM OF 6 FEET FROM THE CROSSING.

3. ALL MANHOLES SHALL BE WATER TIGHT PRECAST CONCRETE, A MINIMUM OF 48 INCH IN DIAMETER WITH ECCENTRIC CONE, 24 INCH CAST IRON RING (8" DEPTH) AND COVER, UNLESS OTHERWISE SPECIFIED. CONCRETE ADJUSTMENT RINGS SHALL BE USED FOR ADJUSTMENT TO MATCH FINAL PAVEMENT ELEVATIONS AND SET IN MASTIC TO OBTAIN A WATER TIGHT SEAL. CONCRETE ADJUSTMENT RINGS SHALL BE 4" MINIMUM IN DEPTH TO ELIMINATE MULTIPLE JOINTS.

4. SEWER RIM ELEVATIONS SHOWN ARE APPROXIMATE ONLY AND ARE NOT TO BE TAKEN AS FINAL ELEVATIONS.

5. THE CONTRACTOR TO VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF ALL TIE IN POINTS PRIOR TO CONSTRUCTION AND PROVIDE THE DATA TO THE ENGINEER PRIOR TO CONSTRUCTION.

6. PIPE BEDDING SHALL BE CLASS "B" AND SHALL CONFORM TO ASTM C-33 OR D-448 GRADATION NO. 6 OR NO. 67. SQUEEGEE BEDDING IS PREFERRED. BEDDING DEPTH SHALL BE 6" UNDER AND AROUND THE SIDES OF THE PIPE AND 12" OVER THE PIPE. CONSOLIDATION IN PIPE ZONE SHALL BE BY HAND TAMPING.

7. AT LEAST 5 DAYS PRIOR TO THE START OF CONSTRUCTION, A PRE-CONSTRUCTION MEETING WILL BE HELD AT THE PARK'S OFFICE AND ATTENDED BY THE CONTRACTOR AND REPRESENTATIVES OF THE OTHER APPROVING AGENCIES. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE PARK ENGINEER TO SCHEDULE THIS MEETING.

8. THE CONTRACTOR WILL IDENTIFY THE HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR WILL REPORT ANY DISCREPANCIES TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION.

9. THE CONTRACTOR SHALL HAVE IN THEIR POSSESSION AT ALL TIMES ONE SIGNED COPY OF PLANS APPROVED BY THE PARK AND THE PARK'S ENGINEER. THESE PLANS WILL ALSO INCLUDE ALL ADDENDUMS OR REVISIONS WHICH HAVE BEEN REVIEWED AND APPROVED BY THE PARK AND THE PARK ENGINEER.

10. ALL MANHOLES SHALL HAVE SHAPED INVERTS.

11. ALL FORCE MAINS SHALL BE TESTED PRIOR TO INITIAL ACCEPTANCE OR ANY CONNECTION.

12. ALUMINUM FOIL WARNING TAPE SHALL BE USED FOR ALL NEW DIRECT BURY SEWER MAINS. THE TAPE WILL BE INSTALLED 2' BELOW FINISHED GRADE. TAPE MUST BE GREEN IN COLOR.

13. ALL BARREL SECTIONS OF MANHOLES SHALL BE GROUTED INSIDE AT JOINTS.

14. IF SEWAGE BYPASS PUMPING IS NECESSARY, THE CONTRACTOR WILL SUPPLY AND MONITOR THE PUMP DURING THE ENTIRE PUMPING PERIOD. A BACK-UP PUMP WILL BE ONSITE FOR USE IF NECESSARY. BYPASS HOSE SHALL BE PROTECTED FROM TRAFFIC DAMAGE USING APPROVED APPARATUS. FOR ALL SEWAGE BYPASS PUMPING. THE CONTRACTOR WILL HAVE CONTINUOUS ON SITE MONITORING OF PUMPING OPERATIONS.

15. SHOULD TRENCH DEWATERING BECOME NECESSARY, THE CONTRACTOR WILL OBTAIN ALL REQUIRED PERMITS AND SUPPLY THE PUMPS REQUIRED AT NO ADDITIONAL COST TO THE OWNER.

16. ALL MANHOLE AND SANITARY SEWER MAIN TESTING SHALL BE WITNESSED BY A REPRESENTATIVE OF THE PARK. A MINIMUM OF 24 HOURS ADVANCED NOTICE IS REQUIRED PRIOR TO TESTING.

17. ALL MANHOLE/VAULT EXTERIOR JOINTS SHALL BE WRAPPED IN 12-INCH WIDE CONSEAL CS 212 OR APPROVED EQUIVALENT.

TESTING AND INSPECTION NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT ALL REQUIRED OR NECESSARY INSPECTIONS ARE COMPLETED BY AUTHORIZED INSPECTORS PRIOR TO PROCEEDING WITH THE SUBSEQUENT WORK WHICH COVERS OR THAT IS DEPENDENT ON THE WORK TO BE INSPECTED. FAILURE TO OBTAIN NECESSARY INSPECTION(S) AND APPROVAL(S) SHALL RESULT IN THE CONTRACTOR BEING FULLY RESPONSIBLE FOR ANY ISSUES ARISING FROM UN-INSPECTED WORK.

2. CONTRACTOR TO SIMULATE PERMITTED HYDRAULIC FLOW FOR MINIMUM OF SIX (6) HOURS AND MINIMUM FLOW FOR (6) HOURS TO FILTER LIFT STATION AND FILTER DURING TESTING.

ABBREVIATIONS

ARVB	AIR RELIEF VACUMBREAKER VALVE	MH	MANHOLE
BEG	BELOW EXISTING GRADE	N	NORTH
BFV	BUTTERFLY VALVE	NE	NORTHEAST
℄	CENTERLINE	NW	NORTHWEST
CMP	CORRUGATED METAL PIPE	OH	OVERHEAD
DIA. OR ø	DIAMETER	PVC	POLYVINYL CHLORIDE
E	EAST	RAD OR R	RADIUS
EA	EACH	RPP	REINFORCED POLYPROPYLENE
ELEC	ELECTRICAL LINE	S	SOUTH
EOA	EDGE OF ASPHALT	SE	SOUTHEAST
EXIST. OR EX.	EXISTING	SW	SOUTHWEST
INV	INVERT	T.O.P.	TOP OF PIPE
L.P.	LOW POINT	UON	UNLESS OTHERWISE NOTED
FM	FORCE MAIN		

CIVIL/ARCHITECTURAL/PROCESS SYMBOLS LIBRARY

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REVISIONS

NO.	DESCRIPTION	DATE	BY
1	100% PLANS	05/18	NPM

LIFT STATION - CONSOLIDATION

GENERAL NOTES

ARROWHEAD MOBILE HOME PARK
375 NORTH CURTIS ROAD
COLORADO SPRINGS, CO 80930

PREPARED UNDER THE DIRECT SUPERVISION OF

FOR AND ON BEHALF OF
ELEMENT ENGINEERING, LLC

DATE
JUNE 2018

JOB NUMBER
0013.0001

SCALE
NTS

DRAWING NAME
NOTES

SHEET
C2 OF C6

LEGEND

- FOUND SECTION CORNER AS NOTED
- FOUND PROPERTY CORNER AS NOTED
- SET CONTROL POINT AS NOTED
- UTILITY POLE
- GUY WIRE
- ELECTRIC TRANSFORMER
- TELEPHONE PEDESTAL
- CLEAN-OUT
- UNDERGROUND GAS SIGN
- (R) RECORD BEARING AND DISTANCE
- (M) MEASURED BEARING AND DISTANCE
- OHE — OVERHEAD UTILITY LINE
- UT — UNDERGROUND TETEPHONE LINE
- [-] [-] — BARB WIRE FENCE
- X X — WOOD FENCE
- CONCRETE SURFACE
- ASPHALT SURFACE

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LIFT STATION - CONSOLIDATION

EXISTING CONDITIONS

ARROWHEAD MOBILE HOME PARK
75 NORTH CURTIS ROAD
COLORADO SPRINGS, CO 80930

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SCALE
AS SHOWN

DRAWING NAME
EXIST

SHEET
C3 OF C6

NOTES:

1. FORCE MAIN IS SLOPED AT A CONSTANT GRADE UP TO TIE-IN LOCATION TO AVOID LOCALIZED HIGH SPOTS.
2. CONTRACTOR TO CONFIRM LOCATIONS AND ELEVATIONS OF ALL TIE-IN LOCATIONS PRIOR TO CONSTRUCTION.
3. CONTRACTOR MAY SUBSTITUTE SCH 80 PVC WITH HDPE FOR FORCE MAIN.
4. CONTRACTOR RESPONSIBLE FOR ALL PERMITS INCLUDING ROAD CUT. CONTRACTOR TO SUPPLY REQUIRED TRAFFIC CONTROL.
5. EXISTING UTILITIES TO BE PROTECTED. LOCATION SHOWN MAY NOT BE ACCURATE.
6. CONTROLS AND ELECTRICAL BY OTHERS.
7. FOLLOW ALL MANUFACTURER'S RECOMMENDATIONS AND REQUIREMENTS FOR INSTALL AND STARTUP.

DETAIL 1: SCALE 1" = 5'

DETAIL 2: SCALE 1" = 10'

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LIFT STATION - CONSOLIDATION

SITE PLAN

ARROWHEAD MOBILE HOME PARK
2575 ARPEL DRIVE, ROAD 5
COLORADO SPRINGS, CO 80930

PREPARED UNDER THE DIRECT SUPERVISION OF

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SCALE
AS SHOWN

DRAWING NAME
SITE

SHEET
C4 OF C6

C / C5 C5 — WET WELL PROFILE VIEW
1" = 1'

A / C5 C5 — WET WELL ACCESS PLAN VIEW
1" = 1'

B / C5 C5 — WET WELL PLAN VIEW
1" = 1'

NOTES:
1. LIFT STATION SHALL BE EQUIPPED WITH AUTO DIALER TO ALARM STAFF OF LIFT STATION ALARM CONDITIONS. CONTRACTOR RESPONSIBLE FOR AUTO DIALER CONNECTION
2. LIFT STATION PANEL SHALL BE EQUIPPED WITH TRANSFER SWITCH TO CONNECT TO A PORTABLE GENERATOR
3. PEAK HOUR FLOW INTO LIFT STATION = 20.8 GPM
4. DESIGN PUMPING FLOW = 35 GPM
5. DESIGN POINT SHALL BE ACHIEVED USING VARIABLE FREQUENCY DRIVE (TDH = 54.8 FT) OR CREATION OF ARTIFICIAL HEAD BY PARTIALLY CLOSED VALVE (TDH = 76 FT)

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LIFT STATION - CONSOLIDATION

LIFT STATION DETAILS

ARROWHEAD MOBILE HOME PARK
75 NORTH CURTIS ROAD
COLORADO SPRINGS, CO 80930

PREPARED UNDER THE DIRECT SUPERVISION OF

FOR AND ON BEHALF OF ELEMENT ENGINEERING, LLC

DATE: JUNE 2018
JOB NUMBER: 0013.0001
SCALE: 1" = 1'
DRAWING NAME: LS DETAIL
SHEET: C5 OF C6

MANHOLE ID:
ID = 4' FOR SEWER MAIN DIAMETERS < 15"
ID = 5' FOR SEWER MAIN DIAMETERS 15"–36"
ID = 6' FOR SEWER MAIN DIAMETERS 42"–48"

NOTE:
MANHOLE/VAULT EXTERIOR JOINTS SHALL BE WRAPPED IN 12" WIDE CONSEAL JOINT WRAP CS 212.

SANITARY SEWER MANHOLE (CIP BASE)

Scale: *NONE*	Date: *SEPTEMBER 2015*
Revised:	Detail: *SS–4*

MANHOLE ID:
ID = 4' FOR SEWER MAIN DIAMETERS < 15"
ID = 5' FOR SEWER MAIN DIAMETERS 15"–36"
ID = 6' FOR SEWER MAIN DIAMETERS 42"–48"

NOTE: MANHOLE/VAULT EXTERIOR JOINTS SHALL BE WRAPPED IN 12" WIDE CONSEAL JOINT WRAP CS 212. ALL INTERIOR JOINTS AND RISER RINGS MUST BE GROUTED.

SANITARY SEWER MANHOLE (PRECAST BASE)

Scale: *NONE*	Date: *SEPTEMBER 2015*
Revised:	Detail: *SS–5*

NOTE:MANHOLE/VAULT BARREL SECTIONS WILL REQUIRE AN EXTERIOR COATING OF TNEMEC SERIES 46–465 OR APPROVED EQUIVALENT IF GROUNDWATER IS ENCOUNTERED IN THE TRENCH.

TYPICAL MH BASE CHANNELIZATION

Scale: *NONE*	Date:
Revised:	Detail:

TABLE IV MIN. DEPTH OF BEDDING MAT'L. BELOW BOTTOM OF PIPE			
PIPE SIZE–D*	d_1	d_2	d_3
18" & SMALLER	4"	6"	6"
21" TO 36"	6"	6"	6"
42" TO 60"	6"	6"	6"
66" TO 96"	8"	9"	9"
104" & LARGER	12"	12"	12"

B_d=SPECIFIED TRENCH WIDTH AT A POINT 12" ABOVE CROWN (MAX. ALLOWANCE)
B_c=PIPE O.D.
D =PIPE I.D.
d_1, d_2, d_3=DEPTH OF BEDDING MATERIAL BELOW BOTTOM OF PIPE.

NOTES:
3.1 BELL HOLES SHALL BE EXCAVATED AT ALL BELL AND SPIGOT JOINTS.
3.2 BEDDING TRENCH BACKFILL TO BE COMPACTED TO 90% DENSITY, AASHTO T–180 IN OPEN AREAS AND 95% DENSITY AASHTO T–99 IN ALL PUBLIC R.O.W.

IDEAL TRENCH CONDITIONS
15" DIA. & SMALLER
N.T.S.

CLASS "B" BEDDING MATERIAL SHALL CONSIST OF A WELL GRADED MIXTURE OF MINERAL AGGREGATE. THE AGGREGATE SHALL BE SQUEEGEE WITH A MAXIMUM AMOUNT OF FINES PASSING A NO. 200 SCREEN NOT TO EXCEED 5% BY WEIGHT. THE AGGREGATE SHALL COMPLY WITH ASTM C–33 OR ASTM D–448, GRADATION #6 OR #67. IF THE EXCAVATION FOR BEDDING IS BELOW THE WATER TABLE, THE SUB–BEDDING MATERIAL SHALL CONSIST OF 3/4–INCH TO 1–1/2–INCH CRUSHED ROCK.

SANITARY SEWER PIPE BEDDING DETAIL

MANHOLE WALL PENETRATION DETAIL

NOTES:

1. FOR FIELD CORED PENETRATIONS, LEAK SEAL IS REQUIRED.

NOTES:

1. ON 16" AND 20" TRANSMISSION MAINS, ALL BENDS SHALL BE BOTH RODDED AND KICKBLOCKED.
2. BEARING SURFACES SHOWN IN CHART ARE MIN.
3. BASED ON 150 PSI INTERNAL PIPE PRESSURE PLUS WATER HAMMER.
   4", 6", 8" AND 12" WATER HAMMER = 110 PSI
   16", 20" AND 24" WATER HAMMER = 70 PSI
4. BASED ON 3,000 PSF SOIL BEARING CAPACITY.
5. ALL VALVES, TEES, BENDS AND PLUGS SHALL BE BOTH RODDED AND KICKBLOCKED.

MINIMUM BEARING SURFACE AREA
(IN SQUARE FEET)

SIZE OF PIPE	BENDS				TEE OR DEAD END
	11 1/4°	22 1/2°	45°	90°	
4"	1.00	1.00	1.00	N/A	1.50
6"	1.00	1.25	2.25	N/A	3.00
8"	1.00	2.00	4.00	N/A	5.25
12"	2.25	4.50	8.75	N/A	11.25
16"	3.75	7.50	14.50	27.00	19.00
20"	5.00	10.00	19.50	35.50	25.00
24"	7.00	14.00	27.75	51.00	36.00

CONCRETE KICKBLOCKS BEARING SURFACES & INSTALLATION

METER VAULT DETAIL

NOTES:

1. OPTIONAL PROVIDE FLANGED SPOOL TO MATCH METER DIMENSIONS TO ALLOW REMOVAL OF FLOW METER.
2. DIMENSIONS SHOWN ARE REQUIRED UPSTREAM AND DOWNSTREAM DIAMETERS OF STRAIGHT PIPE.
3. DETAIL FOR SCHEMATIC PURPOSES ONLY, CONFIRM DIMENSIONS AND FITTINGS AS NECESSARY.
4. INSTALL METER PER MANUFACTURER'S REQUIREMENTS.
5. FLOW METER 18" MIN ABOVE MANHOLE FLOOR.

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SCALE: 1" = 1'
DRAWING NAME: DETAILS
SHEET: C6 OF C6