



Z. Operations and Maintenance Plan

For

Williams Creek Generating Station

Colorado Springs Utilities

Operations and Maintenance Plan

Williams Creek Generating Station

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1 Introduction

1.1 Purpose

The purpose of this Operations and Maintenance (O&M) Plan is to provide details regarding the O&M of the facilities and major equipment associated with the Williams Creek Generating Station (WCGS) to limit or eliminate conditions that may negatively impact the environment and use of surrounding properties.

1.2 Project Overview

The Williams Creek Generating Station (WCGS) will be owned and operated by Colorado Springs Utilities (Utilities), will be responsible for all plant operations, regulatory reporting, and inspections required by federal, state, and local authorities. The proposed 400 Megawatt (MW) generating station will consist of ten (10) simple-cycle natural gas fired combustion turbine generators and associated support facilities and equipment. The generating station will be located on an approximately 160-acre site near Lower Williams Creek, southeast of Fountain, Colorado, in unincorporated El Paso County. The project site is situated east of Williams Creek Road and south of Squirrel Creek Road.

2 General Operational Standards

2.1 Dust and Debris Control

2.1.1 Construction

Construction activities at the Williams Creek Generating Station (WCGS) will have the potential to generate dust and construction-related debris from earthwork, grading, excavation, vehicle traffic, material handling, and site development activities. Dust and debris control measures will be implemented throughout the construction period to minimize impacts on workers, nearby properties, roadways, and the surrounding environment.

Dust suppression activities will include the use of onsite water sources and water trucks to moisten exposed soil, construction areas, haul roads, and other disturbed surfaces as necessary to prevent excessive airborne particulate matter. Additional measures may include limiting vehicle speeds on unpaved surfaces, minimizing the extent and duration of disturbed areas, promptly stabilizing inactive construction areas, and covering or properly storing materials that could become airborne during periods of high winds. All construction ingress and egress points will have track out control mats to eliminate carryout during the construction process.

Dust and debris control requirements will be incorporated into contractor work plans, stormwater management practices, and construction environmental compliance programs. These measures will help maintain safe working conditions, preserve visibility on roadways, protect nearby properties, and minimize environmental impacts during construction.

With implementation of these best management practices, dust and debris generated during construction are expected to be temporary, localized, and effectively controlled throughout the construction period.

2.1.2 Operating

During normal operations, the Williams Creek Generating Station (WCGS) is not expected to generate significant quantities of dust or debris. Once construction is complete, much of the site will consist of permanent structures, paved roadways, graveled surfaces, and stabilized areas, which substantially reduce the potential for airborne dust generation.

Operational debris will primarily consist of routine maintenance materials such as packaging, scrap metal, used filters, insulation, replacement parts, and other non-hazardous waste generated during plant operations and maintenance activities. These materials will be collected, stored in designated areas, and recycled or disposed of at approved facilities in accordance with applicable federal, state, and local regulations.

Good housekeeping practices will be maintained throughout the facility to minimize the accumulation of debris and ensure safe operating conditions. Regular inspections, waste management procedures, and preventive maintenance programs will be implemented to identify and promptly address potential sources of dust or debris.

As a result of the site's permanent improvements, limited ground disturbance during operations, and established housekeeping and maintenance programs, dust and debris generated during normal facility operation are expected to be minimal and are not anticipated to create significant impacts to plant personnel, neighboring properties, or the surrounding community.

2.2 Electromagnetic and Electrical Interference

Operation of the Williams Creek Generating Station (WCGS) will involve the use of electrical generation, high-voltage transmission interconnections, transformers, switchgear, motor control centers, communications equipment, and plant instrumentation systems that may produce localized electromagnetic fields (EMF). These systems will be designed, installed, and operated in accordance with applicable industry standards, electrical codes, and utility requirements to minimize electromagnetic and electrical interference if present.

A separate Appendix will be provided that details the electromagnetic and electrical interference operational concerns.

2.3 Humidity, Heat, Glare, Smoke, or Radiation

2.3.1 Construction

Construction activities at the Williams Creek Generating Station (WCGS) may temporarily expose workers to environmental conditions including heat, low humidity, glare, dust, exhaust emissions, and limited sources of radiation associated with specialized construction equipment and

materials. These conditions will be managed through the implementation of industry-standard safety practices and compliance with applicable Occupational Safety and Health Administration (OSHA) requirements.

2.3.2 Operating

During normal operations, the Williams Creek Generating Station (WCGS) will expose employees to environmental conditions including heat, low humidity, sunlight glare, noise, and limited sources of non-ionizing radiation associated with electrical equipment. These conditions will be managed through facility design features, operating procedures, maintenance programs, and compliance with applicable OSHA and industry safety standards.

Under normal operating conditions, smoke emissions are not anticipated. Combustion turbines will operate on natural gas and will be equipped with air emissions control systems designed to meet applicable federal, state, and local air quality requirements. Visible emissions, if present, are expected to be limited and associated primarily with startup, shutdown, maintenance activities, or emergency operation of auxiliary equipment such as the black start diesel generator.

No significant sources of ionizing radiation are associated with routine plant operations. Non-ionizing electromagnetic fields generated by electrical equipment, transformers, switchyards, and transmission facilities are common to electric generating stations and are not expected to pose a hazard to employees or the public when operated and maintained in accordance with established safety standards. Any specialized equipment utilizing radioactive sources for instrumentation or testing purposes would be managed in accordance with applicable regulatory requirements and manufacturer recommendations.

Overall, humidity, heat, glare, smoke, and radiation associated with normal plant operations are expected to be limited, controlled, and managed through facility design, operating procedures, employee training, engineering controls, and the use of appropriate PPE. As a result, these conditions are not expected to present significant adverse impacts to plant personnel, neighboring properties, or the surrounding community.

2.4 Noise

During normal operations, the Williams Creek Generating Station (WCGS) will generate noise from combustion turbines, generators, transformers, cooling equipment, pumps, compressors, air handling systems, and other balance-of-plant equipment. The facility has been designed to minimize operational noise using acoustically treated equipment enclosures, exhaust silencers, and other noise attenuation measures.

The combustion turbine generator packages will be housed within weatherproof acoustic enclosures designed to limit equipment noise. The turbine enclosures are designed to achieve an average noise level of approximately 85 dB(A) at a distance of 3 feet (1 meter) from the enclosure surface, which is consistent with industry standards for personnel exposure in industrial settings.

Additional noise reduction features, including intake and exhaust silencing systems, will further reduce sound levels at the facility boundary.

A complete evaluation and detailed noise study shall be presented in a separate Appendix.

2.5 Vibration

During normal operations, the Williams Creek Generating Station (WCGS) will generate minor vibrations associated with the operation of combustion turbines, generators, pumps, motors, compressors, transformers, and other rotating equipment. These vibrations are typical of electric generating facilities and will be controlled through equipment foundation and support design, proper installation, balancing, alignment, and routine maintenance practices.

Major rotating equipment will be mounted on engineered foundations designed to absorb and dampen operational vibrations. Turbine and generator packages are manufactured and tested to operate within established vibration tolerances to ensure equipment reliability, personnel safety, and long-term structural integrity. Vibration monitoring systems will be incorporated into critical equipment to provide continuous condition monitoring and early detection of abnormal operating conditions.

Operational vibrations are expected to remain localized within equipment areas and are not anticipated to cause adverse effects to plant personnel, nearby structures, or surrounding properties. Routine inspections, predictive maintenance programs, and periodic vibration analysis will be utilized to verify equipment continues to operate within manufacturer-specified limits.

2.6 Odor

During normal operations, the Williams Creek Generating Station (WCGS) is not expected to generate significant odors. The facility will utilize natural gas as its primary fuel source, which is a relatively clean-burning fuel that produces minimal odor during combustion. Under normal operating conditions, combustion turbine exhaust emissions are not expected to result in detectable off-site odors.

Wastewater generated by facility operations will be managed through onsite treatment and disposal systems designed to prevent nuisance odors. Chemical storage areas will be maintained in accordance with applicable regulations, manufacturer recommendations, and industry best practices to minimize the potential for odor releases.

3 Operations and Maintenance Plan

WCGS will be staffed 24 hours per day, 7 days per week, utilizing rotating 12-hour shifts. Operations personnel will conduct routine equipment inspections, monitor plant systems, ensure regulatory compliance, and prepare all required operational and environmental reports. The facility will be monitored and operated locally, with dispatch functions coordinated remotely through the Supervisory Control and Data Acquisition (SCADA) system.

Colorado Springs Utilities will be responsible for maintaining the facility and all associated equipment. Qualified subcontractors may be retained to perform specialized maintenance activities when necessary. Colorado Springs Utilities will perform scheduled preventive maintenance in accordance with manufacturer recommendations, warranty requirements, and established maintenance procedures.

Facilities and equipment to be maintained at the generating station are included in the Table below. The listed facilities and equipment are not exhaustive but lists items that require O&M plan details to meet the purpose of this document.

WCGS Facility/Area	Facility Equipment/System
Power Plant	• Combustion Turbine Generators • CEMS • SCR/CO Systems • BSDG • Switchyard
Water Storage and Treatment	• Pump House • Raw and Potable Water Systems • Raw Water Treatment System • Fire Protection System
Zero Liquid Discharge	• ZLD Building • Equalization Basin • Solar Pond
Control Building	• Occupied Spaces • OWTS
Gas Supply	• Gas Gate Station
Site	• Guard Shack • Security • Detention Pond

3.1 Power Plant

3.1.1 Combustion Turbine Generators

Each CTG is equipped with a CO₂ fire protection system with optical flame detection, hydrocarbon sensing, thermal detectors, piping, and nozzles throughout the CTG enclosure. When the system is activated, the CTG shuts down, the primary CO₂ cylinders are discharged in the enclosure. After a time delay and if required, the reserve supply of CO₂ is discharged.

3.1.2 CEMS

Each CTG is equipped with a Continuous Emissions Monitoring System (CEMS) consisting of a nitrogen oxides (NO_x) analyzer, a CO analyzer, an O₂ analyzer, a natural gas fuel flowmeter, and a Data Acquisition and Handling System (DAHS). The CEMS are certified, operated, calibrated, and maintained per 40 CFR Part 60 and 40 CFR Part 75 criteria, as applicable, with additional details found in the Air Quality Management Plan Appendix.

NOx and CO emissions will be monitored with the CEMS, as is anticipated to be required by the future air permit. PM, PM10, PM2.5 and VOC emissions are anticipated to be calculated using CEMS fuel flow data, and emissions factors specified in the future air permit. SO2 emissions are anticipated to be calculated based on CEMS fuel flow data, and fuel quality information, as will be required by 40 CFR Part 75 Appendix D and 40 CFR Part 60 Subpart KKKKa, as applicable.

3.1.3 SCR/CO System

The Water Injection System is provided to control nitrogen oxide (NOx) emissions during normal CTG operation. Demineralized water is injected into the CTG combustor through the engine fuel nozzles, reducing combustion temperatures and thereby lowering NOx formation.

The CTGs are equipped with a circular axial exhaust outlet and connection flange designed to facilitate the in-line installation of ductwork housing the Selective Catalytic Reduction (SCR) and CO catalyst modules, with a transition to an exhaust stack.

WCGS will utilize 19% Aqueous Ammonia supply system required for the SCR. The SCR is an emissions control technology used to reduce nitrogen oxides (NOx) in exhaust gas from the CTGs.

3.1.4 BSDG

WCGS will be equipped with one Black Start Diesel Generator (BSDG) dedicated to a single CTG. The BSDG will provide electrical power to the associated CTG auxiliaries, Balance of Plant (BOP) loads, and supporting systems during a loss of grid power event. This capability will enable the generating station to perform black start operations and safely restore generation under both hot and cold extreme ambient site conditions.

3.1.5 Switchyard

A perimeter fence will encompass the Switchyard which houses transformers and other high voltage electrical equipment required to convey electricity out to the grid. The switchyard will be electrically grounded per IEEE requirements, and the transformers will be positioned on foundations inside appropriately sized spill containments.

3.2 Water Storage and Treatment

3.2.1 Pump House

The Pump House Building is estimated to be approximately 1,800 square feet, single-story, with a 16'-0" estimated eave height. It is anticipated that an F-1 occupancy classification will be required and is detached from other structures on site. The building will require periodic access by O&M personnel. It is anticipated that this building will be heated and ventilated only, with several large louvers provided in the exterior wall. Chemicals and chemical compounds will be stored in this building at the Maximum Allowable Quantity. Spill control, drainage, and containment will be required in rooms and areas where liquid hazards are stored, and incompatible materials will be

separated as required by code. The Pump House building is expected to include a small Communications Room, with most of the building reserved for process equipment.

3.2.2 Raw and Potable Water Systems

WCGS will utilize a 6.5-million-gallon (MG) raw water storage tank as the primary water source for the generating station. Raw water will be treated and processed into potable water, which will be stored in a 10,000-gallon potable water storage tank. The potable water system will provide potable water service and supply emergency shower and eyewash stations located throughout the generating station.

3.2.3 Raw Water Treatment System

A reverse osmosis (RO) treatment system will draw water from the 6.5 MG raw water storage tank to produce demineralized water for combustion turbine operations. The treated demineralized water will be stored in a 1 MG demineralized water storage tank and utilized by the CTGs.

3.2.4 Fire Protection System

WCGS will also include a dedicated fire protection system consisting of a site-wide fire loop supplied by the 6.5 MG raw water storage tank. Fire protection will be provided through an electric-driven fire pump and a backup diesel-driven fire pump to ensure reliable water delivery during emergency conditions and loss of normal power. The fire protection system shall be installed and maintained in accordance with all applicable NFPA requirements.

3.3 Zero Liquid Discharge

3.3.1 Zero Liquid Discharge Building

The Zero Liquid Discharge (ZLD) Building is estimated to be approximately 7,700 square feet, single-story, with an estimated 16'-0" low eave height. It is anticipated that an H-3/H-4 occupancy classification will be required and will be detached from other structures on site. The building will be segregated into two sections, an administrative space and plant process space. The building will require periodic access by O&M personnel and the administrative space will be designed as an occupied area. It is anticipated that the plant process space will be heated and ventilated only, with several large louvers provided in the exterior wall. Spill control, drainage, and containment will be required in rooms and areas where liquid hazards are stored, and incompatible materials will be separated as required by code.

3.3.2 Equalization Basin

All industrial liquid waste streams, primarily effluent from the RO system, will be collected in an equalization basin before being routed to the ZLD building for processing. Treated water (distillate) from the ZLD system will be returned to the 6.5 MG raw water storage tank for reuse within the plant, minimizing overall water consumption.

3.3.3 Solar Ponds

Residual liquid waste generated by the ZLD process will be directed to one of two solar ponds, where water will be removed through natural evaporation, leaving concentrated solids for appropriate management and disposal, eliminating liquid waste discharge.

3.4 Control Building

3.4.1 Occupied Spaces

The Control Building, housing Administrative Offices, Control Room Area, Shop, and Warehousing are estimated to be approximately 13,530 square feet. The primary building entrance will be located on the East side, with parking provided along the south side of the building. Dedicated access points serving the Warehouse, Shop, and the Control Room will be located separately from the primary entrance. It is anticipated that the Administration and Control Room Area will be climate controlled, and the Warehouse and Shop will be heated and ventilated only. The building is expected to be one story with a 15'-0" low eave height on the Admin/Control portion of the building and 30'-0" eave height on the Warehouse/Shop side designed to provide a minimum of for 20'-0" clear height between the finished floor and building structure. Any chemicals or compounds classified as hazards within the building will not exceed the allowable limits of a control area.

3.4.2 OWTS

Domestic wastewater will be managed through an On-site Wastewater Treatment System designed to provide treatment and disposal in accordance with applicable regulatory requirements.

3.5 Gas Supply

3.5.1 Gas Gate Station

Natural gas for the generating station will be supplied by a Utilities gas supplier, Tallgrass, through an on-site gas gate station located within the 160-acre WCGS project area.

3.6 Site

3.6.1 Guard Shack

The Guard Shack will be a prefabricated building and will be situated in a location to monitor and control site access and egress. The building will be mounted on a raised curb island, protected by bollards with an automated gate arm across both the access and egress drives.

3.6.2 Security

The entire 160-acre generating station will be enclosed by a perimeter fence with systematically spaced lighting and security cameras. Accessways will be provided along the full internal perimeter of the fence for security roving operations. Security personnel will be staffed 24/7.

3.6.3 Detention Pond

An on-site detention pond will be used for management of stormwater throughout the 160-acre generating station. The design of the detention pond shall meet the requirements of the El Paso

County ECM. O&M plans will adhere to the provisions of and detailed in the Stormwater Management Plan.