Prepared on behalf of:

Williams Four Corners, LLC
Ignacio Gas Processing Plant
E&P Waste Facility
Durango, CO

COGCC Form 28 Attachments

Ignacio Gas Plant
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Durango, CO

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Prepared by:

Animas Environmental Services, LLC
624 E. Comanche
Farmington, New Mexico 87401

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1.0 Facility Description

The Williams Ignacio Gas Plant (facility) is located approximately 15 miles southeast of Durango, Colorado and 1.75 miles west of the Durango-La Plata County Airport, on property owned by Williams Four Corners, LLC (Williams). The legal description of the facility is: SE ¼ Sec 35 and SW ¼ Sec 36, T 34N, R 9W, La Plata County Colorado. The latitude and longitude of the facility are: N 37° 08' 35.002" and W 107° 47' 06.001". A topographic location map and a facility map (based on a 2009 aerial photo) are included as Figure 1 and Figure 2, respectively.

General processes at the facility include gas treating, dehydration, and compression. A detailed description of facility processes is included within the Operations Manual (see Appendix A). One component of the facility waste stream is process water which is collected throughout the facility by a series of open drains, sumps, and manholes. Once collected, the waste water passes through an oil-water separation system and then is evaporated within two lined ponds with a combined capacity of 312,043 barrels (bbls). A detailed description of the waste water collection and evaporation system is included in the Waste Water Operations Plan.

2.0 Adjacent Land Uses

The facility is located in a rural and agricultural area that is sparsely populated with a few farm houses, cattle pens, and other natural gas processing facilities. The facility is bordered in all directions by privately owned land. The subject property is further described as being located on the border-land of the Southern Ute Indian Reservation.

3.0 Local Geology

Based on the 1:500,000 scale digital geologic map of the area (Green, G.N., 1992, The digital geologic map of Colorado in ARC/INFO format: U.S. Geological Survey, Open-File Report OFR-92-507, http://pubs.usgs.gov/of/ofr-92-0507/), viewed at the COGCC online GIS viewer (http://www.oil-gas.state.co.us/infosys/Maps/LoadMap.cfm), local geology consists of a terrace deposit of Quaternary alluvium overlying sandstones of the Eocene San Jose Formation. The ground surface of the terrace deposits slopes gradually to the south and west at grades between 3 and 8 percent.

According to the NRCS Web Soil Survey (websoilsurvey.nrcs.usda.gov), soil at the facility is mapped as the Witt loam soil unit. This soil unit developed from a calcareous silty loess parent material and is commonly a linear-shaped soil found on mesa tops. The Witt loam is a well drained soil, having few or no restrictive units within the upper 80 inches of the soil profile.

Based on data from eight groundwater monitoring wells located at the facility, the average depth to groundwater is 27 feet below surface grade. This shallow aquifer appears to be perched within the alluvium overlying the confining San Jose sandstone.

4.0 Emergency Response Plan

In the event of an immediate threat to human health and the environment, please refer to the Emergency Response Plan for the Ignacio Gas Processing Plant (Document 12.01-ADM-002). maintained at the Ignacio office. A copy of the plan is provided in Appendix B.

5.0 Waste Water Operating Plan

Facility specific operating procedure for the waste water system is provided in Appendix A. This document was prepared and is maintained by Williams Four Corners, LLC.

6.0 Evaporation Pond Closure Plan

At the end of the life of the evaporation ponds, Williams will restore the pond areas to match the surrounding environment. This closure plan describes the methods that will be used to restore the ponds areas, and consists of the following steps:

- Dewatering
- Sediment Characterization
- Structure removal
- Re-grading
- Revegetation

6.1 Dewatering

The first phase of actual reclamation will be the dewatering of the impoundments to allow equipment access to the ponds. Any water remaining in the waste water system, including ponds, storage tanks, and piping will be sampled and characterized for contaminants of concern specific to the requirements of the final disposal facility. Following characterization, all waste water will be pumped from the waste water system into appropriate transports for disposal at an approved waste treatment facility (to be determined upon completion of the water assay) per Rule 907.

6.2 Pond Sediment Characterization

Once de-watered, samples of the pond sediment will be taken and analyzed in accordance with Rule 910.b.(3). Surrounding soils shall also be analyzed in accordance with rule 910.b.(3).E. If

sediments appear to have been affected by hydrocarbon wastes (as determined by visual observations) additional analysis per Rule 910.b.(3).F shall also be used. If the sediment is found to be under allowable concentrations as described in Table 910-1 (attached below), the sediment shall be stock piled for use during reshaping activities. If the sediment is found to exceed values of Table 910-1, the sediment shall be disposed of at an appropriate off-site waste disposal facility as described in Rule 907.

TABLE 910-1	
Toluene	**85 mg/kg[2]**
Ethylbenzene	**100 mg/kg[2]**
Xylenes (total	**175 mg/kg[2]**
Acenaphthene	**1,000 mg/kg[2]**
Anthracene	**1,000 mg/kg[2]**
Benzo(A)anthracene	**0.22 mg/kg[2]**
Benzo(B)fluoranthene	**0.22 mg/kg[2]**
Benzo(K)fluoranthene	**2.2 mg/kg[2]**
Benzo(A)pyrene	**0.022 mg/kg[2]**
Chrysene	**22 mg/kg[2]**
Dibenzo(A,H)anthracene	**0.022 mg/kg[2]**
Fluoranthene	**1,000 mg/kg[2]**
Fluorene	**1,000 mg/kg[2]**
Indeno(1,2,3,C,D)pyrene	**0.22 mg/kg[2]**
Napthalene	**23 mg/kg[2]**
Pyrene	**1,000 mg/kg[2]**
Organic Compounds in Ground Water	
Benzene	**5 µg/l[3]**
Toluene	**560 to 1,000 µg/l[3]**
Ethylbenzene	**700 µg/l[3]**
Xylenes (Total)	**1,400 to 10,000 µg/l[3,4]**
Inorganics in Soils	
Electrical Conductivity (EC)	**<4 mmhos/cm or 2x background**
Sodium Adsorption Ratio (SAR)	**<12[5]**
pH	**6-9**
Inorganics in Ground Water	
Total Dissolved Solids (TDS)	**<1.25 x background[3]**
Chlorides	**<1.25 x background[3]**
Sulfates	**<1.25 x background[3]**
Metals in Soils	
Arsenic	**0.39 mg/kg[2]**
Barium (LDNR True Total Barium)	**15,000 mg/kg[2]**
Boron (Hot Water Soluble)	**2 mg/l[3]**
Cadmium	**70 mg/kg[3,6]**
Chromium (III)	**120,000 mg/kg[2]**
Chromium (VI)	**23 mg/kg[2,6]**
Copper	**3,100 mg/kg[2]**
Lead (inorganic)	**400 mg/kg[2]**
Mercury	**23 mg/kg[2]**
Nickel (soluble salts)	**1,600 mg/kg[2,6]**
Selenium	**390 mg/kg[2,6]**
Silver	**390 mg/kg[2]**
Zinc	**23,000 mg/kg[2,6]**
Liquid Hydrocarbons in Soils and Ground Water	
Liquid hydrocarbons including condensate and oil	**Below detection level**

6.3 Structure Removal

6.3.1 Tanks and equipment

Tanks and piping associated the waste water system will be decommissioned, cleaned and removed from the site. Underground pipe will be properly cleaned and appropriately abandoned in place. Buried utility locating services will be notified of the location of abandoned piping and informed that the abandoned pipe has been properly cleaned and closed.

Groundwater monitoring wells will be removed in accordance with well abandonment and reporting requirements of the Office of the State Engineer.

6.3.2 Pond Lining

Following removal of any remnant sediment contained in the pond, the synthetic liner will be removed. The liner will be cut into pieces suitable for transport and disposed of at a nearby permitted solid waste disposal facility. Upon removal of the pond synthetic liner, the underlying geo-synthetic liner will be inspected for hydration. In areas where the geo-synthetic liner is hydrated, it will be assumed that leakage may have occurred through the synthetic liner and the hydrated geo-synthetic liner material and underlying foundation soils will be sampled. Analytical parameters will include BTEX, TPH, sodium absorption ratio (SAR), electrical conductivity(EC) and pH (all sampling costs are addressed under Miscellaneous Closure Activities in the attached cost estimate). The extent of any leakage (into the geo-synthetic liner or beyond into underlying sediments) will be characterized and materials impacted above Table 910-1 standards will be excavated for off-site disposal. Complete records of any off-site disposal of impacted materials will be retained for at least five years. As-Built Drawings are included in Appendix C.

6.3.3 Post-Excavation Soil Sampling

Following the removal of any impacted materials for disposal, samples will be collected for laboratory analysis to confirm compliance with the Table 910-1 standards (sampling costs addressed under Miscellaneous Closure Activities in the attached cost estimate). Samples will be analyzed for BTEX, TPH, SAR, EC and pH. In the event that any additional impacted materials are identified during this sampling effort, those materials will be handled as described in Section 6.3.2 above.

6.4 Re-grading

Re-grading will be performed along the ponds side walls so as to match the existing topography to the best extent possible. A crown of natural soil, using previously stock-piled soil from the pond's construction, and from the ponds side walls shall be used to build the soil crown. The cap shall be graded to prevent the accumulation of surface water.

6.5 Re-vegetation

Plant species selected for re-vegetation will be of local origin and selected for their ability to survive site characteristics. Factors that will be evaluated when selecting plant species shall include: drought tolerance, rooting depth, hardiness, palatability, seed availability, stabilization ability, ease of propagation, and longevity. Seedbed preparation will be performed by standard agricultural equipment and follow normal practices. Following planting, the success of revegetation will be monitored to assure successful reclamation.

6.6 Storm Water Management

Storm water Best Management Practices (BMPs) will be utilized to minimize impacts from erosion. Appropriate engineered storm water control features will be placed in and around the reclaimed area to control storm water flow. Costs related to storm water BMP's are included under General Closure Activities in the attached cost estimate.

6.7 Post Closure Activities

Quarterly inspections will be completed the first year following pond closure and annual inspections will be completed for the next four years. These inspections will evaluate post-closure soil stability and the effectiveness of re-vegetation efforts. Deficiencies encountered during the inspections will be remediated. Inspections and remediation activities, if required, will be documented.

6.8 Estimated Closure Costs

Item	Unit Quantity	Unit	Unit Cost	Item Cost
General Closure Activities				
Removal/Disposal of 60 mil HDPE/GCL	0.0	CY	$0.00	$60,000.00
Regrading of Site (including 2 dozers, trackhoe, associated personnel)	60.0	days	$12,000.00	$720,000.00
Topsoil placement	10.0	acres	$5,000.00	$50,000.00
Other materials: (soil ammendments)	10.0	acre	$200.00	$2,000.00
seed, hydromulch and fertilize	10.0	acre	$2,500.00	$25,000.00
Stromwater BMPs	1.0	Lump Sum	$25,000.00	$25,000.00
Removal/Decomissioning of monitoring wells	9	per well	$2,500.00	$22,500.00
General Closure Costs Subtotal				**$904,500.00**
Misc. Closure Activities				
Initial Assessment Soil sampling (BTEX, TPH, SAR, pH, and EC)	10	samples	$ 500.00	$ 5,000.00
Impacted Soil Excavation/Removal/Disposal (estimated)	1	lump sum	$ 150,000.00	$ 150,000.00
verification soil sampling (BTEX, TPH, SAR, pH, and EC)	10	samples	$ 500.00	$ 5,000.00
Misc. Closure Costs Subtotal				**$ 160,000.00**
Engineering Management				
Construction Inspection/Oversight (full time)	60	days	$1,700.00	$102,000.00
Surveying	10	hrs	$200.00	$2,000.00
Other:				$0.00
Engineering Management Costs Subtotal				**$104,000.00**
CLOSURE COST ESTIMATE SUBTOTAL				**$1,168,500.00**
*ADMINISTRATIVE COST (10%)	0	LS	0%	$116,850
*CONTINGENCY (20%)	0.0	LS	0%	$233,700
CLOSURE COST ESTIMATE TOTAL				**$ 1,519,050.00**