

STATE OF COLORADO

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Executive Director and Chief Medical Officer

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

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Colorado Department
of Public Health
and Environment

December 19, 2013

Bob Hea, Vice President
Laramie Energy II, LLC
1512 Larimer Street, Ste 1000
Denver, CO 80202

RE: Certification, Colorado Discharge Permit System – Produced Water Treatment Facilities
Permit Number COG840000 Certification Number: COG840012

Dear Mr. Hea;

Enclosed please find a copy of the permit certification for the Altela Inc. Piceance Treatment facility, which was issued under the Colorado Water Quality Control Act. **Please read the enclosed permit and certification as well as this letter, which outline the requirements under this permit, and the explanation of how certain limitations were developed.** The Division holds the permittee legally liable for all permit requirements.

The Water Quality Control Division (Division) has reviewed the existing permit certification and previous application submitted for the **Altela Piceance** facility and determined that it qualifies for coverage under the CDPS General Permit for **Produced Water Treatment Facilities**. This certification is a conversion from the MINDI general permit certification COG601008. Note that the Division will not renew the MINDI general permit and therefore, this conversion is needed.

The following information describes how the limitations and permit requirements were developed.

Facility Information:

- **Industry Description**

The Altela Piceance facility treats wastewater associated with natural gas extraction activities. This existing facility treats approximately 0.01 million gallons per day (MGD) of wastewater.

This facility may be subject to Colorado Department of Public Health and Environment Solid Waste regulations pertaining to solid waste sites and facilities and may need a Certificate of Designation. The facility may also be subject to permitting by the Air Pollution Control Division. The discharge of treated water to adjacent surface waters requires a discharge permit from the Water Quality Control Division (WQCD). Groundwater discharges are subject to regulation by the Colorado Oil and Gas Conservation Commission.

- **Treatment Facility Description**

The treatment process consists of heating produced water to form steam and then discharge of the condensate. The condensed water is not discharged but rather hauled off site. The maximum anticipated flow rate to be discharged is estimated at 0.01 MGD. To ensure the flow rate is not exceeded, the permitted flow will be set at a rate of 0.011 MGD.

Operator Requirements may be found in Regulation No. 100, Water and Wastewater Facility Operator Certification Requirements.

WQCD permit files for the Altela Piceance facility indicate there are two discharge locations. Discharge point 001A is to an unnamed tributary to the Colorado River. Discharge point 002A is to Helmer Gulch prior to entering the Colorado River.

It should be noted that a review of the WQCD permit file indicates the only month the facility discharged during the previous permit term from April 2008 through October 2013 was right at startup in September 2008. The DMRs indicate "No Discharge" for the remaining months of the permit term. The September 2008 DMR indicated one failure of the WET test.

- **Chemical Usage**

The 2008 application identified no chemicals are added during or after the treatment process. The previous certification; however, indicated that LOSURF -300 Surfactant with naphthalene was used in the production process.

Chemicals deemed acceptable for use in waters that will or may be discharged to waters of the State are acceptable only when used in accordance with all state and federal regulations, and in strict accordance with the manufacturer's site-specific instructions.

Basis of Certification Limitations:

- **Stream Segment Information**

The discharge is to tributaries to the Colorado River, within Segment 04A of the Lower Colorado River Sub-basin, Lower Colorado River Basin, found in the Classifications and Numeric Standards for the Lower Colorado River Basin (Regulation No. 37; last effective update effective September 30, 2013). Segment COLCLC04a is reviewable and is classified for the following beneficial uses: Recreation Class N, Aquatic Life – Class 2 Cold, Water Supply and Agriculture. Both discharge locations 001A and 002A are within Segment COLCLC04a.

The tributaries directly flow to the mainstem of the Colorado River, Segment COLCLC01. The United States Fish and Wildlife Service identified two federally endangered fish species within Segment COLCLC01 immediately above Rifle Creek, the Colorado Pikeminnow and the Razorback Sucker. In addition, the Colorado Pikeminnow is listed as a State Threatened species and the Razorback Sucker is listed as a State Endangered Species.

- **Technology Based Standards**

The limitations for total suspended solids (TSS) are from Regulation No. 62, which apply to all discharges that would be covered under this General Permit.

The limitations for oil and grease are in accordance with the federal effluent limit guideline developed by EPA for the Oil and Gas Extraction Industry for the protection of Agricultural and Wildlife Water Use in 40 CFR 435 Subpart E. Note, in accordance with Regulation No. 62 at 62.4(2), this federal limit overrides the Colorado limit.

- **Water Quality Standards**

Limitations for metals and inorganics are based on the water quality standards specific to stream segment COLCLC04a. Metals standards are based on the aquatic life Table Value Standards (TVS) which are mostly hardness-based equations. Hardness data was assessed during the Lower Colorado River Basin hearing from Mamm Creek and Alkali Creek. The mean hardness was calculated as 310 mg/l. The resulting TVS at a hardness of 310 mg/l are presented in the table below.

There are two discharge locations from the Altela/Laramie Energy facility. Outfall 001a is located along an unnamed tributary which appears to flow approximately 0.27 miles to its confluence with the Colorado River. Outfall 002a is located adjacent to Helmer Gulch which flows approximately 1.4 miles to its confluence with the Colorado River.

The Division identified a domestic well with a static level of 12 ft about 1.8 miles downstream from the discharge. There are several deep groundwater wells in the vicinity but no shallow wells. The nearest public water supply surface water diversion is 13 miles downstream on the mainstem of the Colorado River. Due to the extreme dilution in the Colorado River, limitations to protect drinking water use will not be applied. Therefore limitations for dissolved iron, sulfate, and manganese will not be applied. Note that limits for manganese based on aquatic life will be applied. Additionally, the 10 mg/l limit for nitrate will not be applied and the 100 mg/l limit based on agricultural uses will be substituted. For total recoverable arsenic, the 10 µg/l limit will be applied since there were no documented water supply uses. Note, the City of Rifle has water supply facilities located in the area; however, water is withdrawn from Beaver Creek rather than Helmer Gulch.

For organic parameters, the Water Supply limits in Regulation No. 31 will be applied.

Temperature reporting will be applied as the treatment process requires heating the produced water to form steam with discharge of the condensate. Elevated temperatures could affect downstream uses; therefore, reporting will be included.

Effluent limits for certification under this general permit are set at the water quality standard without allowances for dilution.

Note that the previous General Permit this facility was certified under the “MINDI” or minimal discharge general permit is being phased out. That permit had very minimal requirements. The Produced Water general permit has far more stringent requirements when compared to the MINDI permit which results in new monitoring requirements and effluent limits for the facility. A compliance schedule has been included to provide time to come into compliance with the new limits.

| Parameter | In-Stream Water Quality Standard | | TVS Formula: | Hardness (mg/l) as CaCO ₃ = 310 |
|--------------------------------|----------------------------------|------------|--|--|
| | Acute | Chronic | | |
| Aluminum, Total Recoverable | Acute | 10071 µg/l | $e^{(1.3695(\ln(\text{hardness}))+1.8308)}$ | |
| | Chronic | 87 µg/l | $e^{(1.3695(\ln(\text{hardness}))-0.1158)}$ | |
| Cadmium, Dissolved | Acute | 7.3 µg/l | $[1.136672-0.041838\ln(\text{hardness})]e^{(0.9151(\ln(\text{hardness}))-3.1485)}$ | |
| | Chronic | 0.99 µg/l | $[1.101672-0.041838\ln(\text{hardness})]e^{(0.7998(\ln(\text{hardness}))-4.4451)}$ | |
| Hexavalent Chromium, Dissolved | Acute | 16 µg/l | Numeric standards provided, formula not applicable | |
| | Chronic | 11 µg/l | Numeric standards provided, formula not applicable | |
| Copper, Dissolved | Acute | 39 µg/l | $e^{(0.9422(\ln(\text{hardness}))-1.7408)}$ | |
| | Chronic | 24 µg/l | $e^{(0.8545(\ln(\text{hardness}))-1.7428)}$ | |
| Lead, Dissolved | Acute | 216 µg/l | $[1.46203-0.145712\ln(\text{hardness})]e^{(1.273(\ln(\text{hardness}))-1.46)}$ | |
| | Chronic | 8.4 µg/l | $[1.46203-0.145712\ln(\text{hardness})]e^{(1.273(\ln(\text{hardness}))-4.705)}$ | |
| Manganese, Dissolved | Acute | 4352 µg/l | $e^{(0.3331(\ln(\text{hardness}))+6.4676)}$ | |
| | Chronic | 2405 µg/l | $e^{(0.3331(\ln(\text{hardness}))+5.8743)}$ | |
| Nickel, Dissolved | Acute | 1219 µg/l | $e^{(0.846(\ln(\text{hardness}))+2.253)}$ | |
| | Chronic | 135 µg/l | $e^{(0.846(\ln(\text{hardness}))+0.0554)}$ | |
| Selenium, Dissolved | Acute | 18.4 µg/l | Numeric standards provided, formula not applicable | |
| | Chronic | 4.6 µg/l | Numeric standards provided, formula not applicable | |
| Silver, Dissolved | Acute | 14 µg/l | $\frac{1}{2} e^{(1.72(\ln(\text{hardness}))-6.52)}$ | |
| | Chronic | 2.2 µg/l | $e^{(1.72(\ln(\text{hardness}))-9.06)}$ | |
| Zinc, Dissolved | Acute | 376 µg/l | $0.978e^{(0.8525(\ln(\text{hardness}))+1.0617)}$ | |
| | Chronic | 326 µg/l | $0.986 e^{(0.8525(\ln(\text{hardness}))+0.9109)}$ | |

- Antidegradation**

Because the receiving water is undesignated or “reviewable”, an antidegradation evaluation is applicable to this discharge. In accordance with the Master General Permit COG840000, Regulation No. 31 and the Division’s Antidegradation Significance Determination Guidance Document, water quality based permit limits will be set at the water quality standard and in addition, antidegradation-based limits will be set at the Significant Concentration Threshold (SCT) or in this case at 15% of the water quality standard. The antidegradation-based limits will be implemented at a 2 year rolling average interval. Note that any future renewals of this certification which include additional parameters will also have limits set equal to the SCT. A compliance schedule has been included to provide time to meet the new effluent limits.

In addition to establishing effluent limits at the SCT, Mercury must be evaluated for effluent limits set at the Threshold Load (TL) since it is a bioaccumulative toxic pollutant. The Threshold Load is established based on Baseline Water Quality which in the case of mercury in the Colorado River is non-detect. The Threshold Load is set at 10% of the Baseline Water Quality Load. As detection limits have changed over the years, it is difficult to determine the actual concentration of mercury in the receiving streams at baseline conditions. The Division routinely characterizes water quality parameter concentrations below the Practical Quantitation Level as zero. The Division will not establish an effluent limit set at 10% of zero; therefore, the Division would require an effluent limit set to non-detect for mercury analyses using a PQL of 0.003 µg/l. The mercury analysis PQL is included in Part I Section E (3) of the General Permit COG840000.

Since the antidegradation-based mercury effluent limit was already evaluated at the SCT to be 0.0015 µg/l, the limit evaluated at the TL would be higher at 0.003 µg/l; therefore, the chosen limit in the permit will be the 0.0015 µg/l. Note, the Division also evaluated using half the detection limit to establish a baseline water quality concentration. The limit set at 10% of that baseline load was also still higher than the 0.0015 µg/l SCT limit.

- Total Maximum Daily Loads (TMDLs)**

The entire portion of Stream Segment COLCLC04a is on the State’s 303(d) list of impaired waters for selenium. In addition, the Alkali Creek portion is listed for *e.coli*, copper, total recoverable iron, lead and zinc. The Altela/Laramie Energy discharge is not to the Alkali Creek watershed and therefore is currently unaffected by the additional listings; therefore, only selenium requirements will be included in the permit for development of TMDLs.

- **Salinity – Colorado River Basin Regulations**

As the discharge is to the Colorado River basin, reduced salt loading is required through Regulation No. 39 and its' implementing requirements in Regulation No. 61. For industrial sources, the no-salt discharge requirement may be waived where the salt load reaching the mainstem of the Colorado River is less than 1 ton per day, or 350 tons per year. In addition, the maximum TDS concentration considered to be fresh water is 500 mg/l for discharges to the Colorado River. See Regulation No. 61.8(2)(l)(i)(A) for more information.

- **Narrative Standards**

Section 31.11(1)(a)(iv) of The Basic Standards and Methodologies for Surface Waters (Regulation No. 31) includes the narrative standard that State surface waters shall be free of substances that are harmful to the beneficial uses or toxic to humans, animals, plants, or aquatic life.

- **Agricultural Protection**

For protection of Agricultural uses, the interpretation of these conditions (i.e., "no harm to plants" and "no harm to the beneficial uses") and how they were to be applied in permits were contemplated by the Division as part of an Agricultural Work Group, and culminated in the most recent policy entitled Implementing Narrative Standards in Discharge Permits for the Protection of Irrigated Crops (hereafter the Narrative Standards policy). There are no identified agricultural diversions in the short stretch of Helmer Gulch below the discharge and the available dilution at the Colorado River is greater than 100:1; therefore, this policy is not applied.

- **Reasonable Potential**

Data needs to be gathered in order to determine reasonable potential for parameters to be present in the discharge. Parameters requiring data to make a definitive evaluation will have a Report only requirement. Parameters known to be present in the discharge will be limited throughout this permit term. This includes data provided by the permittee in the fall of 2008 which identified multiple organic compounds in the discharge.

- **Whole Effluent Toxicity**

This discharge may contain metals and/or salts at concentrations that may be toxic to aquatic life, as well as organics found in the treated water or applied in the chemical usage. Chronic WET testing will be required. The IWC for this permit is 100%, which represents a wastewater concentration of 100 % effluent to 0% receiving stream. This IWC correlates to chronic WET testing.

General Information:

- **Permit Action Fees** - The Annual Fee for this certification is \$2150 [Category 12, Subcategory 2 Manufacturing and Other Industry per CRS 25-8-502] and is invoiced every July. Do Not Pay This Now. The initial invoice will be prorated and sent to the legal contact shortly.
- **Changes to the Certification** – Any changes that need to be made to the certification page – changes in outfalls, monitoring requirements, etc., must be submitted using the "Permit and Certification Modification form" available on our website: coloradowaterpermits.com, and signed by the legal contact.
- **Discharge Monitoring Report (DMR)** - forms will be mailed out within the next month. Reports must be submitted **monthly** as long as the certification is in effect. The permittee shall provide the Division with any additional monitoring data on the permitted discharge collected for entities other than the Division. This will be supplied to the Division within 48 hours of the receipt of the data by the permittee. If forms have not been received, please contact the Division at 303-692-3517.
- **Sampling Requirements** - Sampling shall occur at a point after treatment, or after the implementation of any Best Management Practices (BMPs). If BMPs or treatment are not implemented, sampling shall occur where the discharge leaves control of the permittee, and prior to entering the receiving stream or prior to discharge to land. Samples must be representative of what is entering the receiving stream.
- **Termination requirements** - For termination of permit coverage, the permittee must initiate this by sending the "CDPS Permits and Authorization Termination Form." This form is available on the Division's web site and must be signed by the legal contact.
- **Certification Records Information** - The following information is what the Division records show for this certification. For any changes to Contacts – Legal, Local, Billing, or DMR – a "Notice of Change of Contacts form" must be submitted to the Division. This form is available on the Division's web site and must be signed by the legal contact.

Facility: Altela Piceance WTF
Industrial Activities: Oil and Gas Extraction

Garfield County
SIC Code:1300

Legal Contact *Receives all legal documentation, pertaining to the permit certification. [including invoice; is contacted for any questions relating to the facility; and receives DMRs.]*

Bob Hea, Vice President
Laramie Energy II, LLC
1512 Larimer Street, Ste 1000
Denver, CO 80202

Phone number: 303-339-4000
Email:

Matthew Bruff
Chief Development Officer
Altela, Inc.
5350 S. Roslyn St.
Englewood, CO 80111

Phone number: 303-993-1950
Email: matthew.bruff@altelainc.com

Facility Contact *Contacted for general inquiries regarding the facility*

Matthew Bruff
Chief Development Officer
Altela, Inc.
5350 S. Roslyn St.
Englewood, CO 80111

Phone number: 303-993-1950
Email: matthew.bruff@altelainc.com

Billing Contact

Same as legal contact above

Phone number:
Email:

DMR Contact

Same as facility contact above

Phone number:
Email:

If you have any other questions please contact me at 303-692-6318.

Sincerely,



Susan Applegate,
Assessment Based Permits Unit
WATER QUALITY CONTROL DIVISION

Enclosures: Certification page; General Permit

xc: Garfield County, Local County Health Department
COGCC Alex Fischer, Colorado Oil and Gas Conservation Commission
Field Services Section, WQCD
Permit File: COG840012