# TECHNICAL EVALUATION
# &
# PRELIMINARY DETERMINATION

## APPLICANT

Quantum Resources Management, LLC
5 Houston Center, 1401 McKinney Street, Suite 2700
Houston, Texas 77010

St. Regis Gas Treatment Facility and Jay Gas Plant
Facility ID No. 1130005

## PROJECT

Project No. 1130005-015-AC
Application for Title V Source Air Construction Permit
Natural Gas Liquids Fractionation Unit Project

## COUNTY

Santa Rosa, Florida

## PERMITTING AUTHORITY

Florida Department of Environmental Protection
Air Resource Section
Northwest District Office
160 W. Government Street, Suite 308
Pensacola, Florida 32502-5740

April 1, 2013

## 1. GENERAL PROJECT INFORMATION

### Air Pollution Regulations

Projects at stationary sources with the potential to emit air pollution are subject to the applicable environmental laws specified in Section 403 of the Florida Statutes (F.S.). The statutes authorize the Department of Environmental Protection (Department) to establish regulations regarding air quality as part of the Florida Administrative Code (F.A.C.), which includes the following applicable chapters: 62-4 (Permits); 62-204 (Air Pollution Control - General Provisions); 62-210 (Stationary Sources - General Requirements); 62-212 (Stationary Sources - Preconstruction Review); 62-213 (Operation Permits for Major Sources of Air Pollution); 62-296 (Stationary Sources - Emission Standards); and 62-297 (Stationary Sources - Emissions Monitoring). Specifically, air construction permits are required pursuant to Rules 62-4, 62-210 and 62-212, F.A.C.

In addition, the U. S. Environmental Protection Agency (EPA) establishes air quality regulations in Title 40 of the Code of Federal Regulations (CFR). Part 60 specifies New Source Performance Standards (NSPS) for numerous industrial categories. Part 61 specifies National Emission Standards for Hazardous Air Pollutants (NESHAP) based on specific pollutants. Part 63 specifies NESHAP based on the Maximum Achievable Control Technology (MACT) for numerous industrial categories. The Department adopts these federal regulations on a quarterly basis in Rule 62-204.800, F.A.C.

### Glossary of Common Terms

Because of the technical nature of the project, the permit contains numerous acronyms and abbreviations, which are defined in Appendix A of this permit.

### Facility Description and Location

Quantum Resources Management, LLC is an existing oil and gas production and natural gas processing facility, which is categorized under Standard Industrial Classification Codes No. 1311, Crude Petroleum and Natural Gas, and 1321, Natural Gas Liquids. The facility is located in Santa Rosa County at 5415 Oil Plant Road in Jay, Florida. The UTM coordinates of the existing facility are Zone 17, 482.8 km East, and 3425.6 km North. This site is in an area that is in attainment (or designated as unclassifiable) for all air pollutants subject to state and federal Ambient Air Quality Standards (AAQS).

### Facility Regulatory Categories

- The facility is a major source of hazardous air pollutants (HAP).
- The facility has no units subject to the acid rain provisions of the Clean Air Act.
- The facility is a Title V major source of air pollution in accordance with Chapter 213, F.A.C.
- The facility is a major stationary source in accordance with Rule 62-212.400, F.A.C. for the Prevention of Significant Deterioration (PSD) of Air Quality.

### Project Description

This project is for the construction of a Natural Gas Liquids Fractionation Unit to fractionate natural gas liquids produced from the Jay Oil Field DE-C2 Tower into propane, butane and natural gasoline. Natural gas coming directly from a well contains many natural gas liquids (NGLs) that are commonly removed. NGLs include ethane, propane, butane, iso-butane, and natural gasoline. There are two basic steps to the treatment of natural gas liquids in the natural gas stream. First, the liquids must be extracted from the natural gas. Second, these natural gas liquids must be separated themselves, down to their base components.

The skid mounted Natural Gas Liquids Fractionation Unit consists of a depropanizer, a debutanizer, accumulators (propane and debutanizer), condensers (propane and butane), reboilers (depropanizer and debutanizer), pumps (depropanizer reflux and debutanizer reflux) and an R-G cooler. A molecular sieve helps purify gas going to the fractionation unit by removing sulfur compounds. Propane and butane not meeting sales specifications are

recyled by use of an off-spec pressurized gas vessel. Natural gas from the Natural Gas Liquids Fractionation Unit is returned to the field to aid in further oil recovery. Propane, butane and natural gasoline are temporarily stored on-site for off-site sales. The natural gasoline produced will be sent to two existing 630,000 gallon crude oil storage tanks to be mixed with processed crude.

The Jay Plant Hot Oil Heater (EU 042), which has not operated since 2008, will be restarted to supply heat to the Natural Gas Liquids Fractionation Unit. Eleven new insignificant emissions units and/or activities are added and two removed.

### Processing Schedule

December 21, 2012 Received the application for a minor source air pollution construction permit.

January 17, 2013 Requested additional information.

February 14, 2013 Received additional information; application complete.

## 2. PSD APPLICABILITY

### General PSD Applicability

For areas currently in attainment with the state and federal AAQS or areas otherwise designated as unclassifiable, the Department regulates major stationary sources of air pollution in accordance with Florida's PSD preconstruction review program as defined in Rule 62-212.400, F.A.C. Under preconstruction review, the Department first must determine if a project is subject to the PSD requirements ("PSD applicability review") and, if so, must conduct a PSD preconstruction review. A PSD applicability review is required for projects at new and existing major stationary sources. In addition, proposed projects at existing minor sources are subject to a PSD applicability review to determine whether potential emissions *from the proposed project itself* will exceed the PSD major stationary source thresholds. A facility is considered a major stationary source with respect to PSD if it emits or has the potential to emit:

- 250 tons per year or more of any regulated air pollutant; or
- 100 tons per year or more of any regulated air pollutant and the facility belongs to one of the following 28 PSD-major facility categories: fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input, coal cleaning plants (with thermal dryers), Kraft pulp mills, portland cement plants, primary zinc smelters, iron and steel mill plants, primary aluminum ore reduction plants, primary copper smelters, municipal incinerators capable of charging more than 250 tons of refuse per day, hydrofluoric, sulfuric, and nitric acid plants, petroleum refineries, lime plants, phosphate rock processing plants, coke oven batteries, sulfur recovery plants, carbon black plants (furnace process), primary lead smelters, fuel conversion plants, sintering plants, secondary metal production plants, chemical process plants, fossil fuel boilers (or combinations thereof) totaling more than 250 million British thermal units per hour heat input, petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels, taconite ore processing plants, glass fiber processing plants and charcoal production plants.

Once it is determined that a project is subject to PSD preconstruction review, the project emissions are compared to the "significant emission rates" defined in Rule 62-210.200, F.A.C. for the following pollutants: carbon monoxide (CO); nitrogen oxides ($NO_X$); sulfur dioxide ($SO_2$); particulate matter (PM); particulate matter with a mean particle diameter of 10 microns or less ($PM_{10}$); volatile organic compounds (VOC); lead (Pb); fluorides (Fl); sulfuric acid mist (SAM); hydrogen sulfide ($H_2S$); total reduced sulfur (TRS), including $H_2S$; reduced sulfur compounds, including $H_2S$; municipal waste combustor organics measured as total tetra- through octa-chlorinated dibenzo-p-dioxins and dibenzofurans; municipal waste combustor metals measured as particulate matter; municipal waste combustor acid gases measured as $SO_2$ and hydrogen chloride (HCl); municipal solid waste landfills emissions measured as non-methane organic compounds (NMOC); and mercury (Hg). In addition, significant emissions rate also means any emissions rate or any net emissions increase associated with a major

stationary source or major modification which would construct within 10 kilometers of a Class I area and have an impact on such area equal to or greater than 1 $\mu g/m^3$, 24-hour average.

If the potential emission exceeds the defined significant emissions rate of a PSD pollutant, the project is considered "significant" for the pollutant and the applicant must employ the Best Available Control Technology (BACT) to minimize the emissions and evaluate the air quality impacts. Although a facility or project may be *major* with respect to PSD for only one regulated pollutant, it may be required to install BACT controls for several "significant" regulated pollutants.

**PSD Applicability for Project**

**TABLE TO SHOW POTENTIAL EMISSIONS, AND ACTUAL EMISSIONS (BASELINE, PROJECTED, AND EXCLUDED DEMAND GROWTH)**

| Pollutant (TPY) | Facility-Wide Potential Emissions | Baseline Actual Emissions (BAE) for project | Projected Actual Emissions (PAE) for project | Emissions Increase for project | Significant Emissions Rate | Subject to PSD |
|---|---|---|---|---|---|---|
| **CO** | 119 | 20.20 | 20.00 | (0.20) | 100 | **No** |
| **$NO_X$** | 344 | 24.10 | 23.80 | (0.30) | 40 | **No** |
| **PM** | 12 | 1.83 | 1.81 | (0.02) | 25 | **No** |
| **$PM_{10}$** | | | | | 15 | |
| **$PM_{2.5}$** | | | | | 10 | |
| **$SO_2$** | 3229 | 15.70 | 0.14 | (15.56) | 40 | **No** |
| **VOC** | 219 | 81.40 | 98.50 | 17.1 | 40 | **No** |
| **$CO_2e$** | | | | | 75,000 | |
| **$H_2S$** | 12 | | | | | |

This facility is a major source for PSD because it emits more than 250 tons per year of $SO_2$ and $NO_X$. A PSD applicability analysis for the proposed project used the "baseline actual-to-projected actual" emissions comparison allowed by Rule 62-212.400(2)(a)1., F.A.C. The emissions comparison shows all emissions increases due to the project are less than PSD significant emissions rates for this type of facility. This project is not subject to PSD preconstruction review. There are no contemporaneous emissions from recent projects.

## 3. APPLICATION REVIEW

### Application Fee

Title V Facility - no application fee required.

### Discussion of Emissions

To establish facility-wide PTE I used the most recent Title V permit, 1130005-012-AV.

| EU/Pollutant | $SO_2$ | $NO_X$ | VOC | CO | PM | HAPS | $H_2S$ |
|---|---|---|---|---|---|---|---|
| 034 - J2, J3 Sulfur Recovery | 2490.00 | 19.40 | | 16.30 | | 0.35 | |
| 035 - 2 Flares | 730.00 | 26.80 | 1.47 | 22.50 | 2.00 | 0.20 | |
| 040 - 2 Process Heaters | 0.29 | 48.50 | 2.70 | 40.70 | 3.70 | 0.87 | |
| 037 - 3600 HP Solar Turbine | 0.64 | 60.20 | 0.40 | 15.40 | 1.20 | 0.13 | |
| 043 - 14300HP Waterflood Gas Turbine | 2.30 | 171.00 | 1.40 | 15.00 | 4.50 | 0.50 | |
| 038 - 1 Recompressor Engine | 0.03 | 18.40 | 1.37 | 8.90 | 1.00 | 0.03 | |
| 039 - 2 Sulfur Pits | 5.94 | | | | | | 12.30 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 047 – 2 Processed Crude Oil Tanks | | | 81.10 | | | | |
| 048 – Glycol Reboiler Vent | | | 2.20 | | | 0.55 | |
| 049 – Fugitive Emissions | | | 128.30 | | | | |
| TOTAL | 3229.20 | 344.30 | 218.94 | 118.80 | 12.40 | 2.63 | 12.30 |

This project has three emissions units having emissions changes as follows:

a. For the Fractionation Unit (EU 052) there are potential emissions of 1.07 tpy of VOC estimated from leaks (pumps, flanges, valves, pressure relief valves, etc.). These emissions are included in the projected actual emissions (PAE) in the Table above.

b. Jay Plant Hot Oil Heater (EU 047)

| Pollutant (TPY) | Baseline Actual (2004/2005) Emissions (tpy) [process fuel] | Projected Actual Emissions (tpy) [pipeline natural gas] | Actual Emissions Increase (tpy) |
|---|---|---|---|
| **CO** | 20.20 | 20.00 | (0.20) |
| **$NO_X$** | 24.10 | 23.80 | (0.30) |
| **PM** | 1.83 | 1.81 | (0.02) |
| **$SO_2$** | 15.70 | 0.14 | (15.56) |
| **VOC** | 1.32 | 1.31 | 0.01 |
| **$CO_2e$** | | 28.575 | |

c. Crude Oil Storage Tanks (EU 047)

| Pollutant (TPY) | Baseline Actual (2004/2005) Emissions (tpy) | Projected Actual Emissions (tpy) | Actual Emissions Increase (tpy) |
|---|---|---|---|
| **VOC** | 81.40 | 97.40 | 16.00 |

**State Requirements**

N.A.

**Federal NSPS Provisions**

40 CFR 60 Subpart VVa - Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006

40 CFR 60 Subpart OOOO - Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution

**Federal NESHAP Provisions**

N.A.

**Other Federal Provisions**

40 CFR 98 Subpart NN - Suppliers of Natural Gas and Natural Gas Liquids (annually report greenhouse gas emissions)

**Other Draft Permit Requirements**

N.A.

## 4. PRELIMINARY DETERMINATION

The Department makes a preliminary determination that the proposed project will comply with all applicable state and federal air pollution regulations as conditioned by the draft permit. This determination is based on a technical review of the complete application, reasonable assurances provided by the applicant, and the conditions specified in the draft permit. Rick Prusa is the project engineer responsible for reviewing the application and drafting the permit. Additional details of this analysis may be obtained by contacting the project engineer at 850/595-0634 or rick.prusa@dep.state.fl.us.