Title V Air Operation Permit Revision
Permit No. 1130005-019-AV

APPLICANT

The applicant for this project is Quantum Resources Management LLC. The applicant's responsible official and mailing address are: Justin Thompson, Environmental Health and Safety Manager, Quantum Resources Management, LLC, St. Regis Gas Treatment Facility and Jay Gas Plant, 5 Houston Center, 1401 McKinney Street, Suite 2400, Houston, Texas 77010.

FACILITY DESCRIPTION

The applicant operates the existing St. Regis Gas Treatment Facility and Jay Gas Plant, which is located in Santa Rosa County at 5415 Oil Plant Road in Jay, Florida.

This facility consists of sulfur recovery plants, oil and gas treating including natural gas dehydration and tri-ethylene glycol (TEG) regeneration, saltwater disposal, and tertiary recovery.

Two Sulfur Recovery Plants (J2 and J3) (EU 034), were built in the early 1970s and precede NSPS requirements but are subject to emission limits in Rule 62-296.409(2), F.A.C. These plants control sulfur emissions from the production and treating of sour crude oil and gas from the Jay Oil Field. Acid gas containing H_2S from oil and gas production is oxidized and reacted to form elemental sulfur by a multi stage Claus process. A minimum of 96% of the H_2S is recovered as elemental sulfur. Unconverted H_2S is thermally oxidized to SO_2 prior to discharge.

The Primary Emergency Flare (FL01) and the Saltwater Disposal System Flare (FL02) (EU 035) were built in the early 1980s. The primary emergency flare includes continuous feed and purge streams with a 26.0 M cubic feet per hour pilot; and the JCSWD system flare, continuous feed streams and a 0.5 M cubic feet per hour pilot stream. SO_2 emissions, limited by Initial Title V Operation permit 1130005-001-AV, are controlled by a smokeless flare tip on each flare with a manual eductor gas system.

A Centaur turbine (EU 037) located at the Jay Central Saltwater Disposal Facility (JCSWD) was constructed in 1983. The natural gas fired turbine is subject to 40 CFR 60 Subpart GG - Stationary Gas Turbines, and 40 CFR 63 Subpart YYYY - Stationary Combustion Turbines, incorporated by reference in Rule 62-204.800(8)(b)41 and 62-204.800(11)(b)81, F.A.C., respectively. In addition this unit is subject to applicable requirements of both 40 CFR 60 and 63 Subpart A - General Provisions.

A 1,000 HP Recompressor 4-stroke rich-burn Engine (EU 038) and Five 1,000 HP Ingersoll-Rand Recompressor Engines (EU 044) each with a heat input of 11.6 MMBtu per hour are all equipped with catalytic converters. The catalytic converters limit the exhaust concentration of formaldehyde, to comply with 40 CFR 63 Subpart ZZZZ - Stationary Reciprocating Internal Combustion Engines. Sulfur Storage Pits (Jay 2 and Jay 3) (EU 039) are used to store molten sulfur. Loading racks transfer the molten sulfur to tanker trucks.

The Glycol Reboiler Condenser Vent (EU 048) used to control HAP and VOC emissions with an air-cooled condenser. Wet natural gas and dry tri-ethylene glycol (TEG) are contacted in an absorber to remove water from the natural gas. TEG is regenerated by heating and vaporizing the water content as steam in the TEG reboiler. Dried TEG is reused in the absorber, while the reboiler vapor is condensed to recover organics. 40 CFR 63 Subpart HH - Oil and Natural Gas Production Facilities, regulates this process, a major source of HAP. The condenser vent stream is now combusted in the flame-zone of the TEG reboiler process heater with a venturi burner. This allows Quantum to be exempt from preparing a design analysis, and conducting performance testing and monitoring.

Various gas fired Process Heaters (Jay 2 and Jay 3 process heater, Jay 2 and Jay 3 stabilizer bottom heaters and Jay plant hot oil heater) (EU 040, 041 and 042) are used throughout the facility and are subject to 40 CFR 63 Subpart DDDDD. The two natural gas-fired Cooper-Bessemer Engines (EU 045 and 046) are existing spark ignition 2 stroke lean burn (2SLB) stationary RICE with a site rating of more than 500 brake HP. These engines do not have to meet the requirements of 40 CFR 63 Subpart ZZZZ, including initial notification requirements, in accordance with 40 CFR 63.6590(b)(3)(i.).

A natural gas-fired Water Flood Turbine (EU 050) is regulated by Rule 62-296.320, F.A.C., and is not subject to 40 CFR 60 Subpart GG, 40 CFR 60 Subpart KKKK, and 40 CFR 63 Subpart YYYY.

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A Natural Gas Liquids Fractionation Unit (EU 052) fractionates natural gas liquids (NGLs) produced from the Jay Oil Field DE-C2 Tower into propane, butane and natural gasoline. Natural gas coming directly from a well contains many NGLs that are commonly removed. NGLs include ethane, propane, butane, iso-butane, and natural gasoline. There are two basic steps to the treatment of NGLs in the natural gas stream. First, the liquids must be extracted from the natural gas. Second, these NGLs must be separated themselves, down to their base components.

This 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 recycled 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 is sent to two existing 630,000 gallon crude oil storage tanks to be mixed with processed crude. The Fractionation Unit is subject to Rules 40 CFR 60 Subpart VVa.

The Jay Plant Hot Oil Heater (EU 042) supplies heat to the Natural Gas Liquids Fractionation Unit. An unregulated emissions unit (EU 047) consisting of two 630,000 gallon fixed roof processed crude oil storage tanks are used by the fractionation unit, increasing the throughput to the storage tanks to approximately 69,300,000 gallons per year combined. These tanks were constructed in the early 1970's and pre-date NSPS requirements. Also included in this permit are miscellaneous unregulated/insignificant emissions units and/or activities.

Based on the Title V permit revision application received August 7, 2014, this facility is a major source of hazardous air pollutants (HAP).

The Quantum St. Regis Gas Treatment Facility and Jay Gas Plant is considered a major stationary source for Prevention of Significant Deterioration (PSD). The facility belongs to one of the 28 PSD-major facility categories as a Sulfur Recovery Plant and its potential emissions of VOC, SO_2, NO_X and CO are greater than 100 tons per year. Any future modifications and/or construction must be evaluated with respect to the preconstruction review requirements of Rule 62-212.300(1) - (3), F.A.C.

Also included in this permit are miscellaneous unregulated/insignificant emissions units and/or activities.

PROJECT DESCRIPTION

The purpose of this permitting project is to revise the existing Title V permit for the above referenced facility by incorporating permit 1130005-018-AC which authorized the removal of natural gas throughput limits for the Glycol Reboiler Vent (Emissions Unit (EU) 048) and the Natural Gas Liquids Fractionation Unit (EU 052).

The Tri-Ethylene Glycol (TEG) Dehydration Unit removes water from wet natural gas from the field. The Glycol Reboiler used to vent only through a condenser to control VOC and HAPs emissions. The natural gas flow rate was a vital part of calculating emissions using the GRI-GLYCalc computer program and the natural gas flow rate limit was established based on the capabilities of the condenser control system. The facility chose in 2003 to demonstrate compliance with the Maximum Achievable Control Technology (MACT) Standard for Oil and Natural Gas Production by installing a venturi burner in the reboiler section of the Tri-Ethylene Glycol Dehydration Unit to combust the gases from the glycol reboiler condenser vent. The emissions that occur now from the Tri-Ethylene Glycol Dehydration Unit are mostly the fugitive emissions from components (valves, pumps flanges and pressure relief valves, etc.). Emissions are thus not based now on process flow rates but are calculated based on emissions factors, types, and number of components. A change in inlet gas flow throughput does not result in changes to the calculated emissions rates. The process rate limit of 90 MMscf per day is no longer applicable and is thus being removed.

Natural gas coming directly from a well contains many natural gas liquids, including ethane, propane, butane, iso-butane, and natural gasoline. The liquids are extracted from the natural gas and then these natural gas liquids are separated (fractionated) down to their base components by fractional distillation in column distillers

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in the Natural Gas Fractionation Unit. The Natural Gas Fractionation Unit is a closed-vent system. Any gases left over after the products (propane, stable gasoline, butane, and isobutene) are extracted are re-introduced into the well field to help keep the field pressure. The only emissions that occur are limited to the fugitive emissions from components (valves, pumps flanges and pressure relief valves, etc.). Emissions are not based on process flow rates but are calculated based on emissions factors, types, and number of components. A change in inlet gas flow throughput does not result in changes to the calculated emissions rates. The limit of the process rate of 90 MMscf per day to the Natural Gas Fractionation Unit was originally imposed to be consistent with the same limitation that has existed for years for the Tri-Ethylene Glycol Dehydration Unit. The process rate limit of 90 MMscf per day is no longer applicable and is thus being removed.

PROCESSING SCHEDULE AND RELATED DOCUMENTS

Renewed Title V Air Operation Permit issued January 17, 2011
Application for a Title V Air Operation Permit Revision received August 7, 2014
Additional Information Request dated August 15, 2014
Additional Information Response received November 18, 2014
Notice of Intent to Issue Air Permit issued December 22, 2014
Public Notice Published **[Month day, year]**

PRIMARY REGULATORY REQUIREMENTS

Title III: The facility is identified as a major source of hazardous air pollutants (HAP).

Title V: The facility is a Title V major source of air pollution in accordance with Chapter 62-213, Florida Administrative Code (F.A.C.).

PSD: The facility is a Prevention of Significant Deterioration (PSD)-major stationary source of air pollution in accordance with Rule 62-212.400, F.A.C.

NSPS: The facility does operate units subject to the New Source Performance Standards (NSPS) of 40 Code of Federal Regulations (CFR) 60.

NESHAP: The facility does operate units subject to the National Emissions Standards for Hazardous Air Pollutants (NESHAP) of 40 CFR 63.

CAIR: The facility is not subject to the Clean Air Interstate Rule (CAIR) set forth in Rule 62-296.470, F.A.C.

CAM: Compliance Assurance Monitoring (CAM) does not apply to any of the units at the facility.

PROJECT REVIEW

This is a revision to Title V renewal permit 1130005-012-AV, effective January 17, 2011, to incorporate permit 1130005-018-AC which authorized the removal of natural gas throughput limits for the Glycol Reboiler Vent EU 048) and the Natural Gas Liquids Fractionation Unit (EU 052).

CONCLUSION

This project revises Title V air operation permit No. 1130005-012-AV, which was issued on January 17, 2011. This Title V air operation permit revision is issued under the provisions of Chapter 403, Florida Statues (F.S.), and Chapters 62-4, 62-210 and 62-213, F.A.C.

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