

**DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection**

N165224386

FACILITY: Whiting Petroleum West Branch Gas Plant		SRN / ID: N1652
LOCATION: 2251 SIMMONS RD, WEST BRANCH		DISTRICT: Saginaw Bay
CITY: WEST BRANCH		COUNTY: OGEMAW
CONTACT: mark keyes , Environmental Coordinator III		ACTIVITY DATE: 02/05/2014
STAFF: Sharon LeBlanc	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: scheduled site inspection for synthetic minor source. No compliance issues noted at time of inspection. sgl		
RESOLVED COMPLAINTS:		

On Wednesday, February 5, 2014, AQD District Staff conducted a scheduled site inspection at the Whiting Oil & Gas Corporation (Whiting Oil) West Branch Gas Plant (SRN N1652), 2251 Simmons Road, West Branch, Ogemaw County, Michigan. Three Permit to Install (PTI) No.s 709-96, 544-88 and 529-87 are of record for the facility. The facility is reported to be a central processing facility for produced natural gas and natural gas liquids (condensate).

The facility is a synthetic minor for criteria pollutants, and an area source of hazardous air pollutants (HAPs) and based on construction date(s) and other onsite conditions is subject to:

- New Source Performance Standards (NSPS) for Equipment Leaks of VOC from onshore Natural Gas Processing Plants (40 CFR Part 60, Subpart KKK)
- National Emission Standards for Hazardous Air Pollutants (NESHAP) from Oil and NG Production Facilities (40 CFR Part 63, Subpart HH) and
- NESHAP for Stationary Reciprocating Internal Combustion Engines (RICE) (40 CFR Part 63, Subpart ZZZZ) for non-emergency, spark ignited RICE greater than 500 Hp.

It is noted that under Subpart KKK the facility is also subject to components of NSPS Equipment Leaks for VOC in the Synthetic Organic chemicals Manufacturing Industry (40 CFR Part 60, Subpart VV) and General Conditions under Subpart A.

The gas processing facility was operating upon arrival, AQD staff conducted site inspection activities with Mr. Mark Keyes of Whiting Oil and Mr. Brian Osborne of Osborne Production Services.

FACILITY DESCRIPTION

Based on available plat maps, the West Branch Gas Plant is located on a parcel of approximately 82 acres, (not including any easements for traffic or buried lines) approximately 1/2-mile south of the intersection of M-55 and Simmons Road, east of West Branch, Michigan. Adjacent properties include residential, agricultural and oil and gas production fields.

At the time of the initial permit application the facility was owned by Marathon Oil. Ownership changes of record in the District Files included: November 2000 to RSEC, LLC; September 2002 to Whiting Petroleum Corporation; and March 2004 to Whiting Oil and Gas Corporation.

Constructed in 1988, the West Branch Gas Plant is a fenced facility, and operates 24-hours a day, seven days a week. However, it is only manned daily as necessary to observe and document operating conditions, perform necessary maintenance and related tasks. Gas and condensate fluids are extracted from wells drilled into producing reservoirs located in nearby properties/oil fields. The saturated gas is separated at the well location and transmitted through gas gathering lines to the gas processing facility where Natural Gas Liquids (NGLs) and suspended condensates are recovered and stabilized. The remaining gas is dewatered, compressed (by internal combustion driven compressors) and transferred to a sales line. Recently relocated to just outside the facility fence on the sales line is the Michcon/DTE mercaptan station, which injects odorant into the NG line.

A cryogenic process is used to recover the fluids from the gas stream. The NGLs are stored in pressurized tanks and the condensates are stored in fixed roof tanks. The emissions from the fixed roof tanks are recovered by a vapor recovery unit returned back to the low pressure inlet with the over pressure device tied back to the plant flare system. The recovered condensate and NGLs are transported off site for processing. Per District files, the plant does not fractionate NGLs. Saturated water vapor on the low pressure inlet is removed by glycol dehydration and the main gas stream is dewatered by desiccant beds prior to the turbo expander.

The volume of material being processed at the facility has fluctuated and reduced over time as the reserves in the formation change and are depleted, and as a result of the sale of the various properties by Marathon.

The flow lines that previously transmitted the separated liquids from the well locations to the facility (709-96) and the 20K BBL storage tank (544-88) are currently not in service. The light crude oil produced at the well is separated at the well location and transported directly to market and is no longer received at the facility greatly reducing the liquid volumes processed.

Emission Units (EUs) reported for the site consists of:

- EUHEATER (Natural Gas Process Heaters/Salt Bath Heater),
- EUGLYDEHY (Glycol Dehydrator),
- EUCOMPRLEANBURN (Clean burn Compressor 398 C704),
- EU3408GASCOMPR (Compressor 3408 C707),
- EUCOMPRWCATCONV (Compressor with Catalytic Afterburner/Compressor 399 C703),
- EUFLARE (Emergency Flare) with auto ignite system and thermal camera,
- EUFUGITIVES (Fugitive Emissions from valves and fittings), and
- EUCONDSTGSM LTK (Condensate Storage Tanks)

In addition, the facility consists of; an office, utility building, water well, 3K BBL firewater tank, warehouse, condensate stabilizers, coolers, utility bldg, wet gas compressor, battery of NGL tanks, 20 K barrel condensate tank (out of service), four 400-barrel condensate tanks, slop oil tank and 3K barrel condensate tank (out of service) and condensate loading area.

Permit History –

At the time of the April 21, 2011, site inspection, Whiting Oil Staff inquired as to whether all three permits were still open. It had been their understanding that conditions for one or more of the permits had been incorporated into the newest permit for the facility (709-96). During file review it was noted that a similar inquiry had been made in 2001 with respect to permit 709-96 and 544-86, a review of the permits by District Staff at that time confirmed that equipment covered in 529-87 was not included in permit 709-96.

Permit 529-87 was applied for on July, 13, 1987, and the application package identified minimal emissions for salt bath heater, gas re-compressor, emergency flare, condensate tank and slop oil tank. Special conditions in the referenced permit were limited to conditions associated with fugitive VOCs, and the emergency stack. The permit evaluation sheet indicated that the facility is subject to Subpart KKK and listed that as the primary reason for permitting. The permit to install was approved on August 17, 1987.

A Permit Application for Permit to Install No. 544-88, was submitted on August 12, 1988 by Marathon oil for a proposed 20,000 barrel condensate storage tank and expansion of the existing truck loading

facility. The proposed storage tank was equipped with a fixed roof, and the tank was tied into the existing gas plant flare system. Per the files, the new tank was determined to be subject to Subpart Kb. Permit requirements included but were not limited to venting of various pieces of process equipment and assorted tanks to a vapor recovery and return system or the flare. It was noted that Special Condition #17 was a duplication of requirements regarding flare construction from Special Condition #19 of Permit 529-87. The referenced permit was issued October 31, 1988.

A review of the Permit evaluation for Permit No. 709-96 indicated that the application for the referenced permit was one of a number submitted by the oil and gas industry in response to an October 15, 1996 requirement for permitting. The permits section conducted a streamlined review of the majority of the facilities, including the West Branch Gas Plant, and issued an "opt out permit" limiting the emissions of criteria pollutants, toxic air contaminants and HAP to below major source requirements. The streamlined permit review was based in part on the SCC code for sweet gas production. A requirement for sweet gas production only was included in the reference permit. Permit requirements predominantly centered on emission controls for the facility, but also included a requirement for Subpart KKK emission monitoring as well as stack testing. The permit was issued on December 16, 1996.

Compliance History –

A review of District Files indicated that no complaints are of record for the facility. In addition, no Violation Notices are of record in District Files.

The annual MAERs submittal is of record as having been submitted in a timely fashion since as early as 2004. Annual Emissions reported by the facility are based on MAERS emission factors.

It should be noted that permit 709-96 provided emission factors (Appendix A) to be used internally by the facility to determine total emissions, and permit compliance.

The most recent Full Compliance Evaluations (FCE) for the facility were completed on February 18, 2004 and April 21, 2011. The facility was reported as being in compliance with its applicable requirements in 2004. As the result of the April 21, 2011 inspection, it was determined that the vapor return required for the condensate tank had not been installed. The facility corrected the issue in August 2011.

COMPLIANCE EVALUATION

A compliance evaluation was prepared based on conditions stated in the three (3) above referenced permits.

Operational Status – At the time of the site inspection, all equipment was operating.

Special conditions associated with permit No. 529-87 requires that the facility is not operated unless the leak detection and maintenance plan specified under Subpart KKK has been implemented and is maintained. A leak detection and maintenance plan is in place for the facility, the facility monitors appropriate valves and fittings per the plan and the records are maintained as required.

Special conditions associated with permit no. 544-88 require that all emergency relief valves, all storage tanks and all dehydrators are vented to a flare, an incinerator or a vapor recovery system. The facility has a flare in place as the pollution control device which meets the permit requirements. In addition, the referenced permit required a vapor return system to be employed in the load out of all brine and condensate storage tanks (Special Condition #20). At the time of the inspection Whiting staff reported that all the appropriate equipment were vented to the flare, and that vapor return lines were in place for the loadouts as required by permit.

Special condition 21 requires the installation and maintenance of fencing, warning signs and/or other measures to prevent entrance of unauthorized individuals onto plant property and buildings. As previously noted, the facility is fenced and appropriate signs are in place.

Material Limits – Special conditions associated with permit No. 544-88 does not allow for substitution of any raw materials to those described in the application, which would result in an appreciable change in the quality or quantity of an emission without prior notification to the district. Changes in raw materials processed at the facility are limited to natural changes as the formation is depleted, and would be in compliance with the condition. No wells have been added to those already permitted for the facility.

Special condition No. 24 of Permit 709-96 limits the facility to processing only sweet gas as defined in Rule 119. Permit 709-96 also requires monthly records of oil and gas processed at the facility (special condition 17). The facility is in compliance with both conditions.

Operational Limits –Special conditions associated with permit No. 544-88 also prohibit the use of the equipment to process wells other than those specified in the permit application without prior notification to the AQD. No compliance issue exists.

Special conditions under Permit No. 709-96, require the proper maintenance of all components of the process equipment (special condition #19). Staff reported that equipment maintenance is subcontracted out, and that all equipment components are properly maintained. Maintenance schedules and documentation are available electronically.

Special condition #20 requires crude oil or condensate storage tanks having a capacity equal to or greater than 952 barrels and having a true vapor pressure of greater than 1.5 psia to have a pollution control device installed and operating. Per Staff, both tanks that would be over the 952 barrel threshold are presently out of service, and have vapor pressure integrities of less than 1 psia, so the condition is not applicable.

Special condition #21 allows for bypass of the control device for a period not to exceed 48 hours per even nor more than a total of 144 hours per calendar year. The flare onsite meets the requirement, and the system is constructed such that there is no bypass of the flare. Should the flare not be operating the station goes into a “shut-in” status.

Emission Points – Potential emission points associated with the facility include fugitive dust associated with vehicular traffic on the unpaved road, fugitive VOCs associated with the various process valves and fittings which are monitored under Subpart KKK, and gases from the condensate tanks that vent out the flared. The emissions monitoring plan for the facility is revised annually.

Special conditions associated with permit No. 529-87 require that no visible emissions from the NG processing facility and the flare occur. Stack requirements of a maximum diameter of 12-inches in diameter, an exit point not less than 80 feet above land surface and an unobstructed discharge. Available onsite records reported that the total stack height is apx. 90 feet, with a diameter of 10 plus-inches at the exit point. The flame at the end of the flare was a conservative size, and no emissions were visible.

Special conditions associated with permit No. 544-88 required that no visible emissions would be associated with the condensate storage tank or flare, and that the 20K barrel condensate storage tank will not be operated unless the flare is installed and operating properly. As previously noted, the flare with auto ignition is installed, and appropriate tanks and lines are vented to the flare, in compliance with the permits. No visible emissions were noted for either the condensate storage tank or flare as part of the most recent site inspection.

Special conditions 13 and 14 associated with Permit No. 709-96 set limits annual emission limits (89 tons for a 12 month rolling time period) for CO, VOC, and NOx, as well as annual emission limits of individual HAPs (9 tons based on 12-month rolling time period) and total HAPs (22.5 tons based on 12-month rolling time period) for the facility. Requirements for calculating actual emissions for the above referenced pollutants are specified under special condition 15 of permit no. 709-96. Records reviewed indicated that the annual emissions for the contaminants of concern are well below permit limits and that the calculations used the emission factors specified in the permit.

Actual emission levels for the pollutants specified are also under permit No. 709-96 required to be

reported annually to the AQD (special condition 18). This requirement is met in the annual submission of MAERS .

Monitoring, Testing and Record Keeping – Records are maintained by the company for the minimum 2 year periods required under the referenced permits. Data collection is in part collected in the form of handwritten daily logs which are input into electronic records.

No stack testing is required under the permits unless requested by the AQD. None is of record for the facility.

Special conditions associated with permit No. 529-87 and 709-96 require monitoring and recording of emissions and operating information required to comply with Subparts A and KKK with records to be maintained for a period of 2 years. The required activities are conducted under a leak detection monitoring and maintenance plan. The work is subcontracted, and records available for review in general compliance with permit conditions.

Special conditions associated with permit no. 544-88 required the monitoring and recording of emissions and operating information as required to comply with Subparts A and Kb (Volatile Organic Liquid Storage Vessels). Whiting staff indicated that the required monitoring is part of their facility

Special conditions 16 and 17 associated with Permit No. 709-96 requires that the owner or operator of the facility monitor, record and maintain records of;

- monthly fuel consumption (MMcf),
- monthly crude/condensate throughput to the tanks (bbls),
- monthly hydrocarbon liquid trucked (bbls)
- glycol circulated thru the dehydrator (GPM), and
- monthly reports of oil and gas processed at the facility

It should be noted that glycol use in (GPM) is determined by documenting pump size and the number of pump strokes for time period. The data is collected daily and the manufacturer data sheets are used to determine the GPM.

In addition Permit No. 709-96 requires the calculation of the actual emission levels for CO, NOx, VOC and HAPs based on a 12-month rolling time period, using the emission factors provided in Appendix A of the referenced permit. Data maintained by the facility confirmed that the data is maintained monthly, and that the required emissions are calculated monthly based on the emission factors in Appendix A.

Special condition 19 associated with Permit No. 709-96 requires that the owner or operator shall conduct all necessary maintenance and make all necessary attempts to keep all components of the process equipment in proper operating condition at all times, and shall maintain a log of all significant maintenance activities conducted and all repairs made to the equipment. Whiting staff indicated that the equipment is on a routine maintenance schedule and that facility operation and maintenance activities are conducted by subcontractors, and records are maintained electronically for review, and for a minimum of 2-plus years in compliance with permit conditions.

SUMMARY

On Wednesday, February 5, 2014, AQD District Staff conducted a scheduled site inspection at the Whiting Oil & Gas Corporation (Whiting Oil) West Branch Gas Plant (SRN N1652), 2251 Simmons Road, West Branch, Ogemaw County, Michigan. Three Permit to Install (PTI) No.s 709-96, 544-88 and 529-87 are of record for the facility. The facility is reported to be a central processing facility for produced natural gas and natural gas liquids (condensate).

The facility is a synthetic minor for criteria pollutants, and an area source of hazardous air pollutants (HAPs). Based on information obtained and reviewed as part of this compliance inspection, the facility has been determined to be in general compliance with permit conditions.

NAME Sharon L. Helton

DATE 3/6/2014

SUPERVISOR C. Dine