

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

A199143852

FACILITY: Kalsec, Incorporated		SRN / ID: A1991
LOCATION: 3713 West Main St, KALAMAZOO		DISTRICT: Kalamazoo
CITY: KALAMAZOO		COUNTY: KALAMAZOO
CONTACT: Steve Kuhnert , Safety/Environmental Director		ACTIVITY DATE: 03/28/2018
STAFF: Monica Brothers	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Unannounced scheduled inspection		
RESOLVED COMPLAINTS:		

Staff (Monica Brothers) arrive on-site at 9:30am. I did not see any visible emissions or smell odors off-site upon arrival. I signed in at the security booth and then met with Stephen Kuhnert, the Safety and Environmental Director. He led me to a conference room where Jim Justice, the Vice President of Corporate Responsibility and Resource Management joined us. I asked them a few introductory questions about the facility and whether any major changes have occurred since the last inspection or are being planned for the future. Kalsec makes a variety of spice concentrates and extracts, and also packages and distributes these products. They commenced operations at this location in 1958 and currently have about 300 employees. Kalsec operates 24/7, although, the same processes are not necessarily consistently running from day to day. Processes run are dependent on what product they are making. They make thirty to forty different products per year, with carrots, rosemary, and chili peppers being processed the most. We discussed some changes that Kalsec may be making in the near future. They may be submitting PTI applications for a new 2000-3000 gallon still in Building 200, as well as a replacement baghouse for the silo. The new baghouse will be larger and help with particulate capture while unloading from the silo. Ian Kennedy, Vice President and General Counsel, came in briefly to say hello, and then we got started on the recordkeeping portion of the inspection. After records were reviewed, Steve took me on a tour of the facility.

FGGRIND: In this building, there are two hammer mills, three drying conveyors, hoppers, and destoners, however, the hammer mills are not used much anymore since most of their starting material comes pre-pelletized now. So, now they are using mostly a crumbling machine that turns the pellets into a coarse powder. They also have a roller mill in the building that is used to crush open spices that are in kernel form, like black pepper corns and cloves. This building has two baghouses (#1 is FL43001 and #2 is FL43002), and there are two stacks associated with the baghouses, one that vents downward and the other that vents horizontally. No visible emissions from these stacks were seen during the inspection or recorded in their Visible Emissions log for the past couple of years. They reported a throughput for the grinding operations as 5,207 tons for 2017, with 28lbs of filterable PM10 emissions.

EU41-EXT-01: This building takes the ground material from FGGRIND and uses solvent to extract the oils from the seed material. A screw conveyor takes the material to a hopper, which then deposits it into multiple baskets in the extraction machine (EX41005). Solvent sprays over the baskets of material and they are rotated in the extractor for a length of time specific to the product. The baskets are then dumped into a screw press that squeezes out much of the solvent. After this, the material is heated so that the rest of the solvent can evaporate off of the spent material, which is then taken to the silo. There is a baghouse in this building that is pulsed with steam and vents internally. During the tour, the final tail condenser was reading 12°C. This condenser is grandfathered, and therefore does not have a temperature limit. While looking at records, Steve showed me that they were conducting the required weekly tail condenser temperature readings, and their MAERS report showed that their total VOC emissions for 2017 were 397,014 lbs or 198.5 TPY. They are keeping records of their annual solvent usage.

EU41-EXT-02: This emission unit covers the equipment used to pneumatically convey the spent materials from the extraction processes to the storage silo. The particulate emissions from the vacuum receiver and baghouse are also conveyed to the silo. No visible emissions were seen during the inspection, and Steve showed me the visible emissions records, which also indicated no times of VEs. Their MAERS report showed 5,270 tons throughput of material for this emission unit, with 890.65 lbs PM10 Filterable for the vacuum receiver and 121.28 lbs PM10 Primary for the silo baghouse.

EUDBO63050: This is a 20.4 MMBTU per hour boiler with low NOx burners. Steve showed me the natural gas combustion records for the boiler. He records how much fuel is used daily and then sums this to get

the total for each month. Their MAERS report showed that they used 47.84 MMCF of natural gas in 2017.

FGCOMB: This flexible group covers three buildings, 100, 200, and Specialty, along with the tanks in Tank Farm V (four tanks) and seven storage tanks in Tank Farm E. All of these emission units are combined because they all converge at a common stack and have combined emission limits. These buildings are three batch processing areas where oils and oleoresins are processed by liquid/liquid extraction using solvents.

The Specialty Building is where the hops extraction occurs. The hops are sent to Kalsec in a kind of sludge form that is not fluid at room temperature, so they have to first put it through a steamer box to heat it up to a more liquid state. Then it goes into tanks to be combined with various solvents, acids, and bases that precipitate out the unwanted gums and waxes that are naturally in the hops sludge. They conduct this process in twelve 1,500-2,000 gallon tanks in this building. There are multiple process and vent condensers associated with this equipment, along with final condenser HE44006, which was reading 1.4C at the time of the inspection. There is also a condenser, HE44005, in this building that is associated with the centrifuge and was reading 0.4C during the inspection.

The products from the Specialty Building are then taken into Building 100 for further processing and distillation. There are six processing vessels in this building, which includes the hydrogenator. The hydrogenator has a scrubber and a different stack in a separate room (R-103) on one side of the building because it uses hydrogen, and the slurry tank for this equipment has a pressure gauge on the scrubber. The other distillation equipment is a hexane recovery system that distills out hexane so that it can be shipped off as non-hazardous waste. There are also some storage tanks in this room as well. There are various process and vent condensers and two (primary and backup) final tail condensers for the hexane distillation equipment (HE 48121 and HE48122). There is also a condenser (HE48103) associated with the R-103 Vessel (RE48103). During the inspection, both of the final tail condensers seemed to be operating, but HE48121 was reading 22.4C and HE48122 was reading 7.6C. These temperatures are both above the 5.0C limit in their ROP. Steve said that he would check with the operators to see what was going on. Steve said that they recently came out of a shutdown of Building 100 that day and that that may be why the condenser temperatures are not yet where they need to be. When we got back to the conference room after the tour, Steve spoke with an operator who said that the condenser temperatures were below 5.0C earlier that morning, and that he wasn't sure why the temperatures were so high at that time. Steve said that the operators were implementing the Malfunction Abatement Plan and that he would investigate the issue further and let me know more information within the next few days.

Update: Jim Justice emailed me a few days after the inspection and said the following about the high temperature readings on HE48121 and HE48122: "the problem-solving following initiation of the MAP, due to high temperature on the tail condenser on March 28th, found that a chiller pump, was replaced, requiring power to be shut off/isolated. When the power was restored, the pump's variable frequency drive (vfd) reset to a default lower speed setting than was needed for proper cooling operation. The corrective action was to change the default speed setting in the vfd to the higher speed, so that the next time power is disconnected, the pump will return to the proper speed." I will look for this incident to be recorded in their next deviation report.

Building 200 is where the solvent is removed from the products of the extraction processes. There are distillation tanks and some wipe film evaporators in the building that are used to accomplish this. The idea here is to bring the product to a temperature that will evaporate off the solvents but not harm the quality of the final product itself. The wipe film evaporators allow for the least amount of contact time between the product and the heating element, so more delicate products, like their orange coloring they make from carrots, are processed in this equipment. They may have to run certain products through multiple times before all of the solvent is taken out of the product. There are other distillation vessels in this room as well. The PFAUDLER vessels are for small batches, and Steve said that they process turmeric in these most of the time. There are 2 larger distillation vessels (AG49020 and AG49010). This building has two final tail condensers (HE49002 and HE49001), one as a primary unit and the other for backup. Building 200 was shut down at the time of inspection, so the condensers were not operating.

Since this inspection occurred so close to when MAERS reports are due, I got some of their emissions records from Kalsec's MAERS report for 2017. Their material throughput for FGCOMB was 1,418 tons. The storage tank working loss emissions were 1730 lbs or 0.86 tons of VOC (excluding Methylene Chloride) and the rest of the processes emitted 25,606 lbs of VOC (excluding Methylene Chloride), bringing the overall total VOC emissions to 13.67 tons for FGCOMB for 2017. This is well under the 47.3

TPY limit set forth in their ROP. The records for the process emissions of Acetone show that they are way under their limit of 40 TPY and 20 PPH, with 12 month rolling averages around 1.73 TPY. Kalsec has not used Methylene Chloride in over a decade, so no emissions records were seen for this.

Steve showed me the records for the tail condenser temperature readings. There were a few dates that showed temperatures above the 5.0C limit, but they indicated that the MAP was followed in each circumstance. These were also reported in their semi-annual and annual ROP certification reports.

Boilers: Along with the larger boiler in EUPDBO63050, there are three other boilers, EUPDBO63031, which is a 10MMBTU/hr Cleaver Brooks natural gas boiler, and two 4.474MBTU/hr Weil-McLain water boilers used for indoor heating and installed under Rule 282(b)(i). All of the boilers are also subject to 40 CFR, Part 63, Subpart DDDDD, which limits them to burning only gas 1 subcategory fuels, tune-up requirements, and other operational restrictions and recordkeeping and reporting requirements. The MAERS report shows that Boiler 63031 used 2.52 MMCF of natural gas for 2017. These boilers get inspected annually. They are keeping records of fuel usage, hours of operation, and maintenance, and are reporting deviations in their semi-annual and annual ROP certification reports.

Emergency Generators: Kalsec has five generators, three that fall under the 40 CFR, Part 63, Subpart ZZZZ regulation, and two newer ones that fall under the 40 CFR, Part 60, Subpart JJJJ regulation. All of them are spark-ignition, natural gas generators that range from 26-131 HP. Steve gave me a log of the emergency generator usage, as well as the maintenance documents for each generator. They are under the hourly limits for emergency, non-emergency, and testing and maintenance usage. Their MAERS report showed that their gas usage for 2017 was 0.0396 MMCF. During the tour of the facility, Steve took me out to see the newest of their generators, which is subject to Subpart JJJJ. It is located off of their main property and is used by their customer service building. The unit had an hour meter on it, as well as the EPA certification sticker.

FG-RULE 290: This flexible group contains five tanks from Tank Farm E (EU-PDTK-E1, EU-PDTK-E2B, EU-PDTK-E4B, EU-PDTK-E5, and EU-PDTK-E7) that are used by EU41-EXT-01, EU-SILO-TK91001, EUPDAG46039, EUSPCLARIFIER, and EU200FILTER. Kalsec's MAERS report shows that the five tanks emit a total of 1,730 lbs VOC per year (Hexane), which means they're way under their 1000lb/month limit for VOCs. EUSILO has a throughput 5,270 TPY, with VOC (hexane) emissions of 1,481 lbs/year 12-month rolling for December 2017. The highest amount of hexane emitted for one month in 2017 was 305 lbs, which is under their 500 lbs/month limit. EUSPCLARIFIER did not operate in 2017. EU200FILTER has a 343 TPY throughput of various herbs and spices for 2017, with 456 lbs/year VOC(IPA) emissions. They are limited to 500lbs/month, so they are significantly under the limits. EUPDAG46039, the Dry Products Mixer, is a ribbon blender with particulate emissions. The throughput for this mixer is 74.6 tons of various dried spices and herb mixtures for 2017. They have a filter associated with this equipment and are assuming 85% capture efficiency, so the uncontrolled particulate from the mixer is 36.5 lbs PM10/year, and the controlled particulate calculated out to be 5.5 lbsPM10 Filterable/year.

FGCOLDCLEANERS: They have only one parts washer in the maintenance building. It is a SafetyKleen unit that uses Armakleen 4-in-one aqueous cleaner, and heats it to about 110-125F. Their MAERS report showed that their throughput for 2017 was 24 gallons of the cleaning solution, with VOC emissions of 27lbs/year.

I thanked Steve and Jim for their time and left the facility around 2:30pm. Kalsec seemed to be in compliance at the time of this inspection.

NAME *Monika*

DATE 4/9/18

SUPERVISOR *MA 4/10/2018*

