



United States Environmental Protection Agency
Region 7
Enforcement and Compliance Assurance Division

Air Branch

Air Branch Inspection Report
Unannounced Partial Compliance Evaluation
Cargill- Wichita (Soybean Mill)
1401 N. Mosley Avenue
Wichita, Kansas, 67214
FRS# 110001307121

Mailing address:
Same as above

Inspection Date(s):
July 24 & 25, 2024

**AVERY
BOWERS**

Digitally signed by
AVERY BOWERS
Date: 2024.10.23
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Avery Bowers, Inspector, ECAD, Air Branch

Authorized for Release by:

**TRACEY
CASBURN**

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- A – Cargill-Wichita field photographs (35 pages)
- B – Cargill-Wichita FLIR video log (1 page)
- C – CBI documents (2 pages)

**This Contents page shows all the sections contained in this report
and provides a clear indication of the end of this report.**

INSPECTION OVERVIEW

INSPECTION OBJECTIVE

The objective of the partial compliance evaluation (PCE) inspection was to determine compliance of the facility with the Clean Air Act (CAA), specifically those requirements listed in **Table 1**.

Table 1. APPLICABLE PERMIT CONDITIONS, REGULATIONS AND STANDARDS	
Code of Federal Regulation	Standard Name
40 CFR Part 63	Subpart A, General Provisions
40 CFR Part 63	Subpart GGGG, National Emission Standards for Hazardous Air Pollutants: Solvent Extraction for Vegetable Oil Production

Table 2 lists the inspection team members.

Table 2. PROJECT TEAM MEMBERS		
Team Member	Organization	Project Role
Avery Bowers	EPA Region 7, ECAD, Air Branch	Lead inspector
Jonathan Boyd	EPA Region 7, ECAD, Air Branch	Field team member

FACILITY CONTACT INFORMATION

Table 3 lists the primary facility contacts in order of contact during the inspection.

Table 3. FACILITY CONTACT INFORMATION		
Name, Title	Phone No.	Email Address
Maggie LaRue, Environmental Health and Safety (EHS) Specialist	(620) 212-3923	Maggie_LaRue@cargill.com
Ryan Volz, EHS Specialist	Did not obtain during inspection	Did not obtain during inspection
Tim Sprick, Biodiesel Superintendent	(316) 292-2344	Tim_Sprick@cargill.com
Nolan Gade, Process Engineer	Did not obtain during inspection	Did not obtain during inspection
Carlos Rodriguez, Elevator Mill Load Team Lead	Did not obtain during inspection	Did not obtain during inspection
Sarah Moeller, Crush Superintendent	Did not obtain during inspection	Did not obtain during inspection

FACILITY OVERVIEW

Cargill-Wichita Soybean Oil Refinery (Cargill) was originally a grain elevator. Cargill, Inc., purchased the grain operation in 1961 and has remained the parent company. The facility was initially permitted as a soybean crush plant and oil extractor. On November 13, 2017, the facility was permitted to operate a biodiesel process co-located with the soybean crush

process. The facility can handle roughly 38.5 million bushels of soybeans annually. The facility produces about 100 million gallons of biodiesel per year. It operates 24-hours a day and employs about 70 people. There are two shifts each day: 7 a.m. to 7 p.m. and 7 p.m. to 7 a.m.

The last onsite compliance monitoring activity at the facility was on October 24, 2023, and consisted of a FCE inspection conducted by the Kansas Department of Health and Environment (KDHE). KDHE completed two Title V certification reviews on February 2, 2023, and February 22, 2024.

According to EPA's Environment and Compliance History Online (ECHO) website, there has been no formal enforcement at this facility within the last five years from either the EPA or KDHE.

According to Cargill's Title V operating permit issued by KDHE on May 7, 2021, the facility is subject to the regulations and standards subject to review during this inspection as noted in **Table 1**.

FACILITY OPERATIONS SUMMARY

There are several activities that occur on-site. At the soybean processing plant, soybeans arrive (**Appendix A**, IMG_0290.JPG), and while some are stored in the silos (**Appendix A**, IMG-0291.JPG), the others proceed to other processes where they are separated from the bean solid and the bean hull. The beans are prepared for oil extraction. According to the Title V operating permit, the oil extraction process:

"includes a grain elevator, bean dryer, bean cleaner, cracking and hulling system, and flaking. Oil is extracted from the bean solids, and the de-oiled solids are then processed into meal. Meal processing includes a toaster, dryer, cooler, and grinding system.

The oil from the soybeans is processed in an oil desolventization system. The crude soybean oil is then transferred to the biodiesel manufacturing process. The biodiesel manufacturing process involves the reaction between methanol, crude soybean oil, and a sodium methoxide catalyst to produce an ester rich phase and a glycerin rich phase. The ester rich phase from the reactor is dried to produce a final product known as biodiesel or fatty acid methyl ester in addition with a methanol bearing aqueous solution. The glycerin rich phase from the reactor is washed with a dilute solution of hydrochloric acid in an acidulation process to produce a glycerin stream and a fatty matter stream (mainly biodiesel). The streams are routed to a rectification column to produce dried methanol, final fatty matter considered biodiesel and glycerin. The facility's major air emissions are a result of raw bean processing, meal processing, extraction/desolventization, and biodiesel production."

The flaking process is shown in **Appendix A**, IMG_0296.JPG, and the meal process is shown in **Appendix A**, IMG_0294.JPG.

FIELD ACTIVITIES SUMMARY

Mr. Boyd and I arrived near the facility on July 24, 2024, at 8:40 a.m. and completed a drive by surveillance inspection from 8:41 a.m. until 9:00 a.m. We did observe steam coming from the boilers but no other visible emissions. From 9:00 a.m. until 9:40 a.m. we used the Forward Looking Infrared (FLIR) camera to observe different areas of the facility. Figure 1 depicts the areas of where my FLIR videos were created (**Appendix B**).

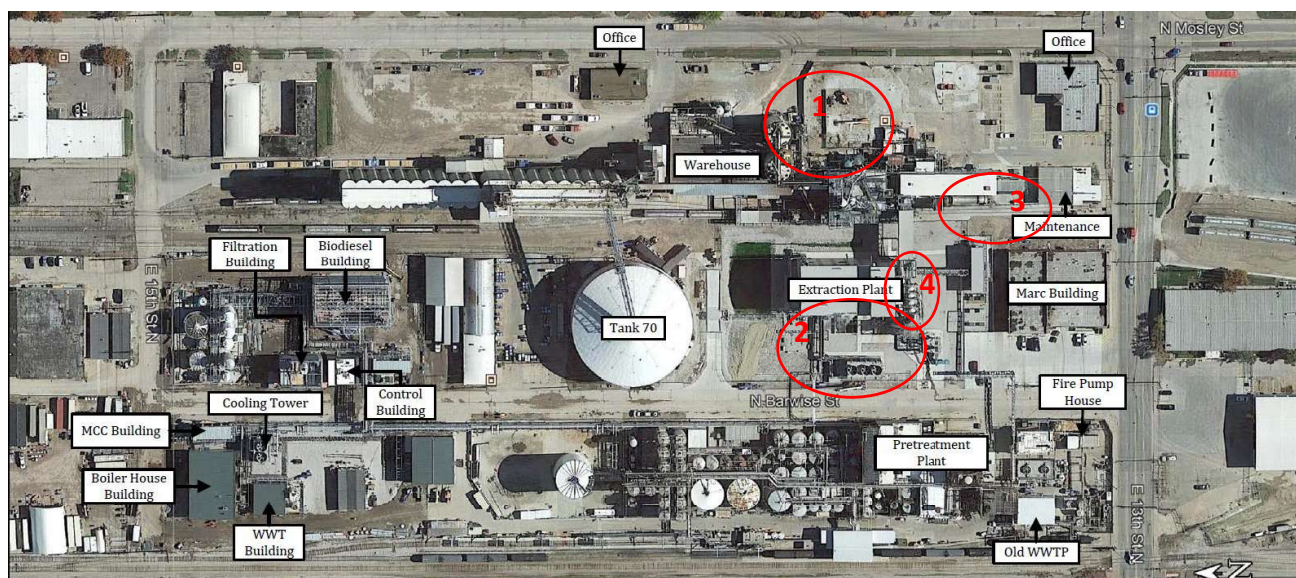


Figure 1. Areas that I recorded FLIR videos.

Mr. Boyd and I made entry at the main office at 9:44 a.m. We had to sign in at the office, read the safety agreement form, and signed it before we could proceed into the facility office. I introduced myself and Mr. Boyd, presented my credentials, and provided my business card to Maggie LaRue. Ms. LaRue directed us to the conference room, and Mr. Volz arrived at 9:59 a.m. Ms. LaRue left, and when she returned at 10:03 a.m., Mr. Sprick was with her. Mr. Sprick explained that the manager of the plant, John White, was out of town. I conducted an opening conference during which I explained that the purpose of the visit was to conduct an inspection to determine compliance with the CAA, specifically, to determine compliance with the regulations and standards listed in **Table 1**. I explained that after asking for some general business information, I would observe process units, emission units, control equipment, take sample videos using the intrinsically safe FLIR camera, and review associated records demonstrating compliance with 40 CFR Part 63 Subpart GGGG regulation requirements. I explained to all the employees in the conference room that the facility would have an opportunity to make a claim of business confidentiality at the end of the inspection.

I asked the facility about its self-reported deviations from the annual reports submitted to the EPA; the facility stated it would provide the work orders for the deviations later in the inspection.

The inspection team was given the first half of the facility tour by Mr. Sprick and Ms. LaRue. Prior to leaving the office for the tour, Mr. Sprick stated that only intrinsically safe equipment could be taken on the tour. I was asked not to wear my high visibility jacket, to wear my hard hat, gloves, and ear plugs because it was part of the facility's safety protocol. Mr. Boyd and I followed the safety instructions, and we left for the facility tour at 11:00 a.m. We observed the soybean toaster, dryer, cooler, grinding system, and then walked around the extraction plant. I used the intrinsically safe camera to take photos of the extraction area. We broke for lunch at 11:35 a.m. and returned to doing the inspection at 12:36 p.m.

When we arrived, Mr. Gade showed us the work order submitted for the meal filter (emission point 14) deviation that the facility self-reported in its 2023 annual compliance report. We continued the facility tour with Mr. Sprick and Ms. LaRue. We observed the parts washer and went into the extraction process building. Mr. Rodriguez joined us on the tour to show us the bean loading and storage area. We continued the tour and observed the bean receiving, transfer to silos, and the flaking process. At the flaking process building, I took a FLIR video of the extraction process.

At 1:50 p.m. we went to the conference room to do the records review. I asked questions regarding the certificate of analysis (COA) for the solvent brought in by the facility, the type of soybeans used, how the operation limits were established, the construction permits submitted for new equipment, and the facility's written plan for complying with Subpart GGGG. The information obtained is described in the observation section of this report. I asked the facility to either collect, or have them email me, the written plan and excel sheets of the data we were discussing, but the facility employees said they could not provide me copies without approval from legal counsel.

Although I had requested to observe the biodiesel plant earlier, the facility stated that its "safety protocols" prevented me from seeing it during the facility tour. I did not ask for further detail or explanation about what safety protocol they were invoking. At 3:52 p.m., we were allowed to visit the biodiesel plant. I observed the biodiesel plant using the intrinsically safe FLIR camera but did not record any videos because everything appeared to be okay. I told the facility employees I would return in the morning to complete the records review. Mr. Boyd and I left the facility at 4:22 p.m.

On July 25, 2024, Mr. Boyd and I arrived at the facility at 9:45 a.m. We signed in, read the safety form, signed the form, and went to the conference room. Mr. Sprick, Ms. LaRue, and Ms.

Moeller were in the room waiting for us. I continued the records review at 9:49 a.m. I finished the records review at 10:29 a.m. During the records review, I asked again for hard copies or an emailed copy of the information we were discussing. The facility would not email or let me leave with any copies of its records because the employees still had not heard from legal counsel.

I conducted the closing conference. I noted that the facility was missing example logs of how data will be recorded (40 CFR § 63.2851 (a)(6)), the site-specific temperature and pressure operating limits for the desolventizing and oil distillation units associated with solvent recovery, and their basis (40 CFR § 63.2851 (a)(8)(i)). The facility did not feel comfortable signing the CBI form. I did not issue a notice of preliminary findings but reiterated two missing items from the facility's compliance plan. Mr. Boyd and I departed the facility after the closing conference concluded.

I sent two separate emails on August 8, 2024, and August 26, 2024, for the documents I requested while I was on-site. Ms. LaRue responded with the documents in an email on August 26, 2024. Some of the content was claimed as CBI-such as solvent received and production tracking excel spreadsheets (Appendix C).

Site sampling activities are described in the **Measurement and/or Sampling Activities** section below.

Observations and potential findings from the facility tour, records review, and sampling/measurement activities are noted in the **Investigation Observation and Potential Findings** section below.

Measurement and/or Sampling Activities

I conducted field measurements during the onsite inspection using the intrinsically safe FLIR camera. **Table 4** summarizes field measurement and field sampling activities.

All environmental measurement activities were performed in accordance with the EPA Region 7 quality system. I followed manufacturer and EPA processes for instrument calibration; instrument calibration was documented through the EPA contractors which can be found at the Technology and Learning Center.

Table 4 summarizes field measurement activities.

Table 4. FIELD MEASUREMENT ACTIVITIES			
Location Identifier	Date(s) and Time	Method and/or Procedure ¹ , and Equipment	Measurer Name
Boiler in crush plant facing north	7/24/2024 9:20 a.m.	Region 7 procedure: <i>FLIR ThermoCAM™ GasFindIR, GF320, and Similar Infrared Cameras,</i> Equipment: Teledyne, GX320, and Serial No. 10400138	Avery Bowers
Looking at stacks at the extraction building facing north	7/24/2024 9:36 a.m.	Region 7 procedure: <i>FLIR ThermoCAM™ GasFindIR, GF320, and Similar Infrared Cameras,</i> Equipment: Teledyne, GX320, and Serial No. 10400138	Avery Bowers
Looking at stack from soybean conditioner near the maintenance building facing northeast	7/24/2024 9:39 a.m.	Region 7 procedure: <i>FLIR ThermoCAM™ GasFindIR, GF320, and Similar Infrared Cameras,</i> Equipment: Teledyne, GX320, and Serial No. 10400138	Avery Bowers
Looking at meal dryer stacks 1-4 (extraction plant) from across the rooftop of flaker building facing west/northwest	7/24/2024 1:48 p.m.	Region 7 procedure: <i>FLIR ThermoCAM™ GasFindIR, GF320, and Similar Infrared Cameras,</i> Equipment: Teledyne, GX320, and Serial No. 10400138	Avery Bowers
¹ The current version of each procedure, at the time of the investigation, was followed.			

INVESTIGATION OBSERVATIONS AND POTENTIAL FINDINGS

Ambient weather, site conditions, and field activities were documented in the field records. All photographs are attached as **Appendix A**. I made the following observations during the inspection. I discussed all observations with facility representatives during the closeout meeting unless otherwise noted in the observation description.

These observations are not final compliance determinations. The EPA Region 7 Air Branch case review team will make the final compliance determinations based on its review of this report and other technical, regulatory, and facility information.

Emission Units (EU)-041-18, -041-19, -041-20, -041-21, -TKSOLV-001, -TKSOLV-002, -SOLVENT-LOSS are subject to **40 CFR Part 63 Subpart GGGG**.

Cargill is subject to this subpart because it meets all the criteria listed in 40 CFR § 63.2832. The facility operates a vegetable oil production process that is a major source of Hazardous Air Pollutants (HAP) emissions or is collocated within a plant site with other sources that are individually or collectively a major source of HAP emissions.

Per 40 CFR § 62.2840 the facility must limit the number of gallons of HAP lost per ton of oilseed processed and must calculate a compliance ratio which compares the actual HAP loss to the

facility's allowable HAP loss for the previous 12 operating months using the equation listed in the regulation. 40 CFR § 63.2840(c) states the ratio must be less than 1.00.

Per 40 CFR § 63.2851 the facility must demonstrate compliance through a written plan. While on-site, I reviewed the facility's written plan. During the closing conference, I noted that the facility was missing two items from the plan: 1) example logs of how data will be recorded (40 CFR § 63.2851 (a)(6)) and 2) the site-specific temperature and pressure operating limits for the desolventizing and oil distillation units associated with solvent recovery, and their basis (40 CFR § 63.2851 (a)(8)(i)). The plan was submitted to me via email on August 26, 2024, and I was able to determine that the plan included how to calculate solvent loss and quantity of oilseed processed. Ms. LaRue also submitted the excel sheets, which the facility claimed as confidential, of the solvent received and production tracking. On September 20, 2024, during a video call, the facility confirmed the calculations used to obtain the solvent loss ratio. For the January 2023 – December 2023 calendar year, the data showed that the facility's solvent-loss ratio fluctuated between 0.48 - 0.52 which was below the 1.00 threshold.

I reviewed the facility's startup, shutdown, and malfunction plan required by 40 CFR § 63.2852. During the inspection, Mr. Sprick stated that a malfunction is treated similarly to a shutdown, so the plans are the same.

The facility is properly submitting the reports required in 40 CFR § 63.2861. Prior to my inspection, I reviewed the annual reports and the deviations the facility self-reported. In the facility's Title V operating permit, the facility is required to comply with the volatile organic compound emission limits through the solvent-loss ratio. The permit states that the solvent-loss ratio cannot be greater than the Best Available Control Technology Demonstration limit of 0.14 gallons of solvent per ton of soybean seeds processed during any consecutive twelve (12) month period. In the annual report submitted for the reporting periods covering January 1, 2022 – December 31, 2022, and January 1, 2023 - December 31, 2023, the facility's solvent-loss ratio was exceeded with values of .143 and .142. The facility submitted proper documentation to KDHE, and a corrective action plan was initiated per the Title V requirements.

End of report.