

CAA112(r) INSPECTION REPORT

Name: POET Biorefining – Emmetsburg	
Address: 4724 380 th Street	Date of Inspection: August 9-10, 2022
County: Palo Alto	Case No: 22IA0809
Phone: 712-852-8700	RMP No: 1000 0019 0982
High Risk: No	FRS No: 1100 2057 9907
CAA Title V: No	Program Level: General Duty Clause
Mailing Address: 4724 380 th Street, Emmetsburg, IA 50536	
Process: Storage of natural gasoline condensate (NGC) for use in denaturing ethanol.	

SUMMARY OF OBSERVATIONS

A review of documents pertaining to POET Biorefining – Emmetsburg (POET Biorefining) at 4724 380th Street, Emmetsburg, Iowa (facility), and an inspection at that facility—both with focus on Chemical Accident Prevention Provisions (Title 40 *Code of Federal Regulations* [CFR] Part 68)—has not revealed any preliminary findings.

INTRODUCTION

I, Robert Monnig, Tetra Tech, Inc. (Tetra Tech), as a representative of the U.S. Environmental Protection Agency (EPA), Region 7, inspected the POET Biorefining facility in Emmetsburg, Iowa, on August 9 and 10, 2022. I was accompanied by Jodi Harper of the EPA Region 7. On August 9, 2022, during my inspection of the adjacent POET-DSM facility (POET-DSM Project Liberty, LLC at 3848 470th Street, Emmetsburg, IA), I informed Mr. Steve Carney and Mr. Benjamin Gustafson that I would also be inspecting the POET Biorefining facility.

The inspection occurred to determine if the facility complies with Section 112(r) of the Clean Air Act (CAA), as amended in 1990. EPA's regulations describing how this law is to be implemented are in 40 CFR 68 (CAA). The inspection also included reporting provisions of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA). All attachments cited in this inspection report (Attachments 1 through 5) are also in a folder on the accompanying CD. Folder numbers on the CD correspond to attachment numbers. As an example, Attachment #2 is in Folder #2. The CD itself contains a copy of this inspection report, photographs taken during the inspection, emails between the facility and the compliance inspector, checklists, and completed forms.

HISTORY OF BUSINESS

POET Biorefining is a corn ethanol manufacturing facility located on the southeast side of Emmetsburg, Iowa. The facility manufactures ethanol from corn for use as motor vehicle fuel.

During product load-out into railcars, the facility adds natural gas condensate (NGC) to ethanol to denature it, rendering it unfit for human consumption. The facility stores NGC in a 127,000-gallon, working capacity, floating roof, aboveground storage tank at the facility's tank farm (Tank No. T-805). The facility has documented a maximum intended inventory of 800,100 pounds of NGC.

PERSONS INTERVIEWED AND INDIVIDUAL RESPONSIBILITIES

The following persons were interviewed as part of the inspection process:

Benjamin Gustafson..... Plant Manager, POET
Steve Carney EH&S Specialist, POET

OPENING CONFERENCE

Ms. Harper and I arrived at the POET Biorefining facility at 4724 380th Street, Emmetsburg, Iowa, on August 9, 2022, at approximately 9:00 a.m. We met Mr. Gustafson, Plant Manager of POET, and Mr. Steve Carney, EH&S Specialist of POET. I explained that I was conducting the inspection under authority of the CAA's Chemical Accident Prevention Provisions. I explained that we would need to conduct a walk-through of the process involving use of NGC, taking photographs. I also stated that after completing the walk-through and reviewing all applicable documents, we would conduct an exit interview to explain the findings, provide a receipt for any requested document copies, and answer questions. I then filled out a Notice of Inspection Form (see Attachment 1), and explained that the inspection was for enforcement purposes and that enforcement actions could result from the inspection. Mr. Gustafson signed the Notice of Inspection form.

During the inspection, Mr. Carney and Mr. Gustafson told me that the facility had conducted flammability analysis of various shipments of NGC received by the facility, and that the facility had determined that the National Fire Protection Association (NFPA) flammability hazard rating of the NGC was 3. Mr. Carney and Mr. Gustafson stated that based on this analysis, the facility was planning to deregister the NGC process because the NGC, with an NFPA flammability rating of 3, would not be a Risk Management Plan (RMP)-regulated substance.

During the inspection, I reviewed criteria related to flammable mixtures and RMP applicability. According to 40 CFR 68.115(b)(2), the entire weight of a flammable mixture (such as NGC) shall be treated as a regulated substance if it contains 1 percent or greater by weight of a regulated flammable substance, and the flammable mixture itself has an NFPA flammability hazard rating of 4. At the time of the inspection, the facility's NGC process was registered as an RMP Program 3 process, and the facility had last submitted an RMP to EPA on January 8, 2020 (see Attachment 2).

I reviewed NFPA criteria for the flammability hazard ratings of 3 and 4 provided in NFPA 704, *Standards System for the Identification of the Hazards of Materials for Emergency Response*, 2022 edition. The criteria relevant to flammable liquids are:

- An NFPA flammability hazard degree of 4 is assigned to "any liquid or gaseous

material that is liquid while under pressure and has a flash point below 22.8 °C (73°F) and a boiling point below 37.8°C (100°F).”

- An NFPA flammability hazard degree of 3 is assigned to “liquids having a flash point below 22.8°C (73°F) and a boiling point at or above 37.8°C (100°F), and those liquids having a flash point at or above 22.8°C (73°F) and below 37.8°C (100°F).”

I also noted that 40 CFR 68.115(b)(2)(i) states that “boiling point and flash point shall be defined and determined in accordance with NFPA 30, *Flammable and Combustible Liquids Code*.” I noted that NFPA 30, Section 4.3.2 states “for mixtures that do not have a constant boiling point, the 20 percent evaporated point of a distillation performed in accordance with ASTM D86, *Standard Test Method for Distillation of Petroleum Products at Atmospheric Pressure*, shall be considered the boiling point.”

I compared the NFPA flammability criteria to properties of the NGC used in the facility’s process as documented in the facility’s NGC Safety Data Sheet (SDS) and certificates of analysis (COA) provided by the facility. I reviewed the SDS (see Attachment 3) and found that it did not list an NFPA flammability hazard rating, but listed a flash point of -14°C. Mr. Carney showed me COAs for NGC samples collected from various shipments received by the facility. The COAs list measurements of distillation boiling point at 20 percent (%) recovery via ASTM International (ASTM) Method D86 (BP20). I noted that the BP20 on the COAs shown to me were all above 37.8°C (100°F). I obtained copies of three COA certificates (see Attachment 4).

Thus, based on the flash point listed in the SDS and the BP20 measurements, I assessed that the NGC used by the facility has an NFPA flammability hazard rating of 3 and therefore is not an RMP-regulated substance. Based on this assessment, I decided to reference the Region 7 Checklist for General Duty Inspection Under CAA 112(r)(1) during the inspection, and to record my notes and findings on this checklist (see Attachment 1). EPA has published a document, EPA 550-B00-002, dated May 2000, titled “Guidance for Implementation of General Duty Clause Clean Air Act Section 112(r)(1).” This publication is intended solely for guidance of government personnel but is available to the public at EPA’s website. The inspection included a review of facility documents, interviews of staff, a walkthrough of the processes involving NGC, and a post-inspection review of facility documents collected.

HAZARD IDENTIFICATION

I asked if the facility had completed a Process Hazard Analysis (PHA) or a Hazard Review (HR) related to storage and use of NGC. Mr. Carney provided me a copy of an off-site consequence analysis (OCA) related to the facility’s NGC process. The OCA included analyses of a worst-case and alternative case scenarios (see Folder 3).

Mr. Carney provided me a copy of the facility’s SDS for NGC (see Folder 3).

I asked if the facility had established safe upper and lower limits for operating parameters (such as temperatures, pressures, and flows) for processes involving NGC. Mr. Carney showed me a detailed spreadsheet that addressed safe upper and lower limits for temperature and tank level of the NGC process.

FACILITY DESIGN AND MAINTENANCE

Design

I asked if the facility had design documents for equipment that handled NGC. Mr. Carney showed me an as-built document for the NGC storage tank, manuals for the NGC Accuload system, and piping and instrumentation diagrams for the NGC process.

I asked if the facility had identified design codes or standards relevant to equipment handling NGC. Mr. Carney replied that the NGC process had been constructed in 2004 and 2005, and that the NGC storage vessel had been constructed in accordance with American Petroleum Institute (API) Standard 650 – *Welded Tanks for Oil Storage*, 10th edition. Mr. Gustafson told me that the firm Advanced Tank had fabricated the NGC storage vessel on site.

Ms. Harper and I participated in a walkthrough of the facility's NGC process with Mr. Carney and Mr. Gustafson (see photographs in Attachment 5). We observed the truck offloading station, and I observed that the piping connection for offloading NGC from trucks to the storage vessel was labeled "DENATURANT." We observed the NGC storage vessel (Tank No. T-805), and I noted that the tank was labeled with an NFPA 704 label and that the label indicated a flammability rating of "3." We observed the railcar loadout station where NGC is added to railcar tanks of ethanol.

Maintenance

I inquired whether maintenance procedures had been established for equipment handling NGC. Mr. Carney and Mr. Gustafson showed me a computer-based program called Maximo that the facility uses to generate preventative maintenance work orders. I noted that the Maximo system incorporated established inspection frequencies in the schedule of inspection work orders. I asked about the facility's inspection process for the NGC storage vessel, and Mr. Carney responded that the tank is scheduled for internal inspection every 10 years, and that the floating roof and high-level gauge are inspected annually.

Operations

I asked if the facility uses written standard operating procedures (SOP) for equipment handling NGC. Mr. Carney and Mr. Gustafson showed me various SOPs for the NGC process, including SOPs for loading and unloading operations. I noted that the SOPs addressed initial startup, startup, normal operations, shutdown, and emergency shutdown.

Training

I inquired about employee training related to NGC equipment. Mr. Carney and Mr. Gustafson told me that the facility provides formal safety training and operations training for employees operating the process. They told me that operations training consists of on-the-job training with a competent supervisor and that the employee's manager/supervisor evaluates the employee's

proficiency and must sign off on the employee's training. Mr. Carney also said that employee training is based on the process SOPs, and that training is conducted at least annually.

Managing Change

I asked if the facility had a process for management of change (MOC). Mr. Carney showed me a written MOC program and electronic spreadsheet forms used to document implementation of MOC procedures.

Incident Investigation

I asked if the facility had had any incidents resulting in catastrophic releases of NGC. Mr. Carney and Mr. Gustafson told me that no such releases of NGC had occurred; however, Mr. Carney showed me an incident report the facility had prepared regarding an NGC spill in 2016 when a pump seal failed and NGC leaked into a bermed area. Mr. Carney stated that the facility did not consider this spill a catastrophic release. Mr. Carney showed me the facility's written incident investigation program. I noted that the program calls for initiation of investigation within 48 hours of an incident.

Self-Audits

I asked about self-auditing. Mr. Carney and Mr. Gustafson said that the facility had performed RMP compliance audits in 2018 and 2021. They told me that the firm Protect also conducts third-party audits.

PLANNING

I asked about emergency response planning, and Mr. Carney and Mr. Gustafson showed me the facility's Emergency Response Program and Plan. I noted that the plan identified potential release scenarios (e.g., tornado, spill, fire), and that the plan provided response actions for various accidental release scenarios. The plan addressed coordination with local emergency responders. Mr. Carney told me that employees are training on the plan every January when the facility provides training regarding spills and the facility's Spill Prevention, Control, and Countermeasure (SPCC) plan.

CLOSING CONFERENCE

At the end of the inspection, I reviewed my observations with Mr. Carney and Mr. Gustafson indicating that I had not identified preliminary findings during the inspection; however, I explained that findings could be identified via post-inspection review of the documents obtained. I provided the Confidentiality Notice and the completed Receipt for Samples and Documents form (see Attachment 1). Mr. Gustafson reviewed the receipt for documents first, signed it, and completed the Confidentiality Notice, indicating that the facility would notify the inspector in writing within 5 calendar days regarding any confidentially claim. I then filled out the Notice of Preliminary Findings form (see Attachment 1) and provided it to Mr. Gustafson for review and signature.

Ms. Harper and I departed the facility at approximately 4:00 p.m. on August 10, 2022.

As of the date of this report, I had not received a notice from the facility regarding a confidentiality claim.

This report concludes inspection activities regarding the POET Biorefining facility in Emmetsburg, Iowa.

A handwritten signature in cursive script, reading "Robert Monnig". The signature is written in dark ink and is positioned above a horizontal line.

Robert Monnig
Compliance Inspector

ATTACHMENTS

- 1 – Inspection Forms and Checklists
- 2 – Risk Management Plan (provided by EPA)
- 3 – Safety Data Sheet for Natural Gasoline
- 4 – Natural Gasoline Certificates of Analyses
- 5 – Photographic Log
- CD – Attached to Report