

Iowa Department of Natural Resources

Draft Title V Operating Permit Fact Sheet

This document has been prepared to fulfill the public participation requirements of 40 CFR Part 70 and 567 Iowa Administrative Code (IAC) 24.107(6). 40 CFR Part 70 contains operating permit regulations pursuant to Title V of the Clean Air Act.

The Iowa Department of Natural Resources (DNR) finds that:

1. Qore, LLC, located at 1194 720th Ave, Eddyville, IA has applied for their initial Title V Operating Permit. The designated responsible official of this facility is Jonathan Razink.
2. Qore LLC is a 1,4-butanediol (BDO) production facility. This facility consists of 7 emission units required to be included in the Title V with potential emissions of:

Pollutant	Abbreviation	Potential Emissions (Tons per Year)
Particulate Matter ($\leq 2.5 \mu\text{m}$)	PM _{2.5}	0.17
Particulate Matter ($\leq 10 \mu\text{m}$)	PM ₁₀	0.17
Particulate Matter	PM	0.17
Sulfur Dioxide	SO ₂	0.01
Nitrogen Oxides	NO _x	5.63
Volatile Organic Compounds	VOC	2.29
Carbon Monoxide	CO	2.96
Lead	Lead	0.00
Hazardous Air Pollutants ⁽¹⁾	HAP	0.04

⁽¹⁾ May include the following: Acetaldehyde, Acrolein, Benzene, 1,3-Butadiene, Formaldehyde, Hydrochloric Acid, Methanol, Naphthalene, Toluene, Xylenes (Mixed Isomers).

Pursuant to 567 IAC 24.101(2), any source that is required to obtain a Title V operating permit solely because of a NESHAP requirement, and which is not a major source, is required to obtain a Title V permit only for the emission unit(s) and related equipment causing the source to be subject to the Title V program. This facility is considered a single stationary source (a major source for HAPs) for the purposes of the NESHAP program with the Cargill, Inc. – Eddyville, IA plant, the Cargill – Vitamin E plant, and the Eddyville Chlor-Alkali plant. There are other emission units at this facility that are not included in the Title V operating permit.

3. Qore, LLC submitted a Title V Operating Permit initial application on February 7, 2025. Based on the information provided in these documents, DNR has made an initial determination that the facility meets all the applicable criteria for the issuance of an operating permit specified in 567 IAC 24.107.
4. DNR has complied with the procedures set forth in 567 IAC 24.107, including those regarding public notice, opportunity for public hearing, and notification of EPA and surrounding state and local air pollution programs.

DNR procedures for reaching a final decision on the draft permit:

1. The public comment period for the draft permit will run from August 14, 2025 through September 13, 2025. During the public comment period, anyone may submit written comments on the permit. Mail signed comments to Derek Wedemeier at the DNR address shown below. The beginning date of this public comment period also serves as the beginning of the U.S. Environmental Protection Agency's (EPA) 45-day review period, provided the EPA does not seek a separate review period.
2. Written requests for a public hearing concerning the permit may also be submitted during the comment period. Any hearing request must state the person's interest in the subject matter, and the nature of the issues proposed to be raised at the hearing. DNR will hold a public hearing upon finding, on the basis of requests, a significant degree of relevant public interest in a draft permit. Mail hearing requests to Derek Wedemeier at the DNR address shown below.
3. DNR will keep a record of the issues raised during the public participation process, and will prepare written responses to all comments received. The comments and responses will be compiled into a responsiveness summary document. After the close of the public comment period, DNR will make a final decision on the initial application. The responsiveness summary and the final permit will be available to the public upon request.

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DNR concludes that:

1. DNR has authority under 455B.133 Code of Iowa to promulgate rules contained in 567 IAC Chapters 21-33, including, but not limited to, rules containing emission limits, providing for compliance schedules, compliance determination methods and issuance of permits.
2. DNR has the authority to issue operating permits for air contaminant sources and to include conditions in such permits under 455B.134 Code of Iowa.
3. The emission limits included in this permit are authorized by 455B.133 Code of Iowa and 567 IAC Chapters 21-33.
4. DNR is required to comply with 567 IAC Chapter 24 in conjunction with issuing a Title V Operating Permit.
5. The issuance of this permit does not preclude the DNR from pursuing enforcement action for any violation.

Title V Operating Permit Notes - Initial

Applicant:	Qore, LLC
SIC Code:	2869
City:	Eddyville
County:	Monroe, Field Office #5
EIQ#:	92-7024
Facility#:	68-09-009
Permit #:	25-TV-00#
Reviewer:	Derek Wedemeier
Date:	**DATE**

Facility Identification

Facility Name:	Qore, LLC
Facility Location:	1194 720 th Ave, Eddyville, IA 52553
Responsible Official:	Jonathan Razink
Phone:	(641) 969-3768

Background:

Qore, formerly known as Cargill Q Plant, constructed a new 1,4-butanediol (BDO) facility in Eddyville, Iowa and began operations on March 20, 2024 according to the Title V Application. The facility submitted the required Title V application on Feb 7, 2025, prior to the 12-month requirement. The facility is subject to the Title V operating permit program based on its co-location with several other Cargill facilities.

The Qore facility produces BDO through fermentation of dextrose. The facility receives dextrose and steam from the Cargill corn mill. It sends its wastewater to the corn mill wastewater treatment plant and receives treated water from the corn mill. No products from Qore are sent to the corn mill. No materials are received to/from Vitamin E or Eddyville Chlor-Alkali directly by Qore.

With the proximity of the plant to the Cargill Inc. – Eddyville, IA plant, the Cargill – Vitamin E plant, and Eddyville Chlor-Alkali, LLC, the facility was determined to be a single-source major source for HAPs for the purposes of the NESHAP program as the four facilities share common control under Cargill and are located within a contiguous area. This permit is being written as a NESHAP-only Title V source. The only units that are included in this Title V permit are NESHAP affected units, as that would be the only basis for having a Title V permit under 567 IAC 24.101(2). There are other emission units, including insignificant units, in the facility that are not included in this permit.

Title V Applicability

Pollutant	Major for Title V?
PM ₁₀	<input type="checkbox"/>
SO ₂	<input type="checkbox"/>
NO _x	<input type="checkbox"/>
VOC	<input type="checkbox"/>
CO	<input type="checkbox"/>
Lead	<input type="checkbox"/>
Individual HAP	<input type="checkbox"/>
Total HAPs	<input type="checkbox"/>

Qore, LLC is a minor source for Title V. The facility is considered to be a Title V source for the NESHAP program and includes only major source NESHAP subject units.

Program Applicability

- PSD: No
- Title V: Yes
- Part 60 NSPS: Yes
 - 40 CFR 60 Subpart A – General Provisions
 - 40 CFR 60 Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines
- Part 61 NESHAP: No
- Major Source of HAPs: Yes
- Part 63 NESHAP: Yes
 - 40 CFR 63 Subpart A – National Emission Standards for Hazardous Air Pollutants for Source Categories – General Provisions
 - 40 CFR 63 Subpart FFFF – National Emission Standards for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing
 - 40 CFR 63 Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines
- Acid Rain: No
- Stratospheric Ozone Protection: Yes
- Prevention of Accidental Releases: No

Emission Estimations

The potential emissions calculations were based off of construction permit limits, AP-42 emission factors, stack test data, mass balance and engineering estimates provided by the facility. The 500ppmv allowable SO₂ SIP limit overestimates the potential emissions. The AP-42 emission factors for SO₂, if available, were used instead and provide a more realistic potential value.

PTE Emission Values*								
PM	PM ₁₀	PM _{2.5}	SO ₂	NO _x	VOC	CO	Lead	Total HAPs
Potential Emissions								
0.17	0.17	0.17	0.01	5.63	2.29	2.96	0.00	0.04
Actual Emissions 2024								
0.01	0.01	0.01	0.00	1.17	0.03	0.15	0.00	0.00

*PTE includes only units subject to Title V

Emission Point Comments

BDO-01: Cummins Emergency Generator Engine

This emergency compression ignition engine is rated at 1490 bhp and is from model year 2024. The facility has requested a 350hr/yr operation limit which has been set as a 12-month rolling average. Per 567 IAC 22.1(2)"w"(3)6 of the small unit exemption, the facility is required to record actual hours of operation. This unit is subject to NSPS IIII and NESHAP ZZZZ.

BDO-02 & BDO-02: Fire Pump 1 & 2 Engines

These model year 2022 compression ignition engines are rated at 510 bhp. Each engine is limited to 500hr of operation per 12-month rolling average. Both engines are subject to the requirements of NSPS IIII and NESHAP ZZZZ.

NESHAP FFFF Applicable Equipment: BDO-21, BDO-21a, BDO-21b & BDO-31

No construction permits are associated with these units because of the small unit exemption. General requirements for NESHAP FFFF Group 2 process wastewater streams have been included in the Title V application as provided by the applicant.

BDO-21, Fermentation Waste Tank, is an 8,450 gallon storage tank with a scrubber that controls ammonia emissions. Ammonia is not a HAP; therefore there are no associated emission limits from the NESHAP. Periodic monitoring does not suggest any additional monitoring requirements for the scrubber. Operating condition 3 requires the permittee to prepare a description of maintenance procedures for management of wastewater as defined by NESHAP FFFF.

BDO-21a, BDO-21b, Byproduct Tanks, are 33,226 gallons. NSPS Kb does not apply because vapor pressure is below 15.0 kPa. According to application documents no tanks at Qore are subject to NSPS Kb.

BDO-31: Process Waste Tank

Potential emissions for this 30,844 gallon tank are controlled by CE-BDO31: Scrubber for PM, PM10, PM2.5 and HCl. Periodic monitoring does not require any additional monitoring because precontrol emission are minor source for PM and HCl. Operating condition 3 requires the permittee

to prepare description of maintenance procedures for management of wastewaters as defined by NESHAP FFFF.

Application documents provided a full justification on FFFF applicability and requirements. Below is a section of the application letter detailing those decisions. This can be found on pages 7-9 of the attachment “Qore Title V Initial App Letter (2025-02-06, final)”.

NESHAP Subpart FFFF – MON

General Applicability and Existing Source Classification

40 CFR 63 Subpart FFFF (NESHAP Subpart FFFF), NESHAP: Miscellaneous Organic Chemical Manufacturing, establishes limitations for miscellaneous organic chemical manufacturing process units (MPCU) located at major sources of HAP. An MPCU is defined by 40 CFR 63.2550 as "all equipment which collectively function to produce a product or isolated intermediate that are materials described in 63.2435(b)." 40 CFR 63.2435(b) provides that an MPCU includes equipment necessary to operate a miscellaneous organic chemical manufacturing process that meets the conditions in (b)(1) through (b)(3). 40 CFR 63.2435(b)(1) includes facilities such as the Qore facility since organic chemicals covered under SIC code 2869 are included. 40 CFR 63.2435(b)(2) requires that the subject MPCU process, use or generate any of the organic HAP listed in Section 112(b) of the Clean Air Act or hydrogen halide and halogen HAP (defined as HCl, HF, and chlorine) to produce an organic chemical. 40 CFR 63.2435(b)(3) specifies that the MPCU is not part of an affected source under another Part 63 subpart with the exception of process vents from 40 CFR 63.100 (Subpart F). The BDO production process utilizes or generate organic HAP listed in Section 112(b) of the Clean Air Act and also HCl during the manufacturing process. NESHAP Subpart FFFF applies to the Qore facility.

The Qore facility is located on the Eddyville complex. The ethanol and citric acid plants located at the Cargill corn mill are regulated as an existing source under NESHAP Subpart FFFF since they were constructed prior to April 4, 2002 and has not been reconstructed as defined in the NESHAP. Since the affected source per 40 CFR 63.2440(b) is the “facility-wide collection of MPCU”, the ethanol and citric acid plants must be considered when determining if the Qore facility is to be considered a new or existing source under NESHAP Subpart FFFF. 40 CFR 63.2440(c) requires a new source to be constructed or reconstructed after April 4, 2002, or be a dedicated MPCU constructed or reconstructed after April 4, 2002 that by itself has potential HAP emissions above the major source thresholds. The November 10, 2003 preamble also clarifies: “New sources are created by reconstructing existing sources, constructing new ‘greenfield’ facilities, or constructing an addition to an existing source that is a dedicated MPCU and has the potential to exceed 10 tpy of an individual HAP or 25 tpy of combined HAP.” (68 Federal Register 63888, November 10, 2003)

The Qore facility is considered a dedicated MPCU. Potential HAP emissions from just the Qore facility are below the HAP major source thresholds. Thus, the Qore facility is considered part of the existing MPCU with the ethanol and citric acid plants unless the reconstruction definition is met. Qore confirmed the project costs are less than the 50% reconstruction threshold, and reconstruction is not triggered. Qore is considered an existing facility with respect to NESHAP Subpart FFFF.

Despite being subject to NESHAP Subpart FFFF, many of the emission units associated with the BDO production process do not meet specific affected equipment definitions or have no requirements under NESHAP Subpart FFFF. Therefore, Qore understands such units are not required to be included in the Title V operating permit application as significant units and sought IDNR’s concurrence in a November 2024 pre-application determination request. Please refer to that submittal for the discussion related to

inapplicability of requirements as the following discussion is limited to only the significant units required to be included in the Title V application due to NOCS reporting requirements under NESHAP Subpart FFFF. (Easy Air Pre-Application Submittal 63319)

Note since the pre-application determination request was submitted, Cargill has determined that some of the units listed in it as continuous process vents or storage tanks are more appropriately classified as surge control vessels (Separation Tanks BDO-22, BDO-24, BDO-26, BDO-27, BDO-28, BDO-29, BDO-30; Distillation Tanks BDO-35, BDO-36, BDO-39; Broth Tanks BDO-19, BDO-20). 40 CFR 63.2550 defines a surge control vessel as "feed drums, recycle drums, and intermediate vessels as part of any continuous operation. Surge control vessels are used within an MCPU when in-process storage, mixing, or management of flowrates or volumes is needed to introduce material into continuous operations." Surge control vessels only have requirements if they meet the Group 1 storage tank capacity and vapor pressure thresholds per 40 CFR 63.2450(r). Group 1 storage tanks must have a capacity greater than or equal to 10,000 gallons storing a material with a maximum true vapor pressure of total HAP greater than or equal to 6.9 kPa for existing sources per 40 CFR 63.2550. Each of these units is below the 10,000-gallon capacity threshold and/or is storing a material below the noted maximum true vapor pressure of total HAP. Therefore, they remain insignificant activities with respect to the Title V program since they have no requirements under 40 CFR 63 Subpart FFFF.

Wastewater Streams or Other Open Streams

40 CFR 63.2485(a) specifies the applicable requirements of Table 7 of the subpart must be met for wastewater streams and open liquid streams. 40 CFR 63.2550 defines wastewater as "water discarded from the MCPU or control device through a POD and that contains either an annual average concentration of compounds in tables 8 and 9 to this subpart of at least 5 ppmw and has an annual average flowrate of 0.02 liters/minute or greater, or an annual average concentration of compounds in tables 8 and 9 of this subpart of at least 10,000 ppmw at any flowrate."

Engineering data indicate methanol and possibly other listed HAP (e.g., acrolein, acetaldehyde) are present in some wastewater streams, in total concentration greater than 5 ppmw but well below 10,000 ppmw. 40 CFR 63.2485(c) provides requirements to be classified as a Group 1 wastewater stream. At the total HAP concentration, the Group 1 wastewater stream definition is not met. As Group 2 wastewater streams, there are no emission control requirements specified by NESHAP Subpart FFFF. For streams with total listed HAP concentrations of less than 5 ppmw, the definition of wastewater is not met, and no requirements apply under NESHAP Subpart FFFF.

For streams meeting the wastewater stream definition, Qore meets the maintenance wastewater requirements as applicable in 40 CFR 63.105 for any maintenance wastewaters containing HAP in Tables 8 and 9 of NESHAP Subpart FFFF. The requirements include an evaluation and development of a plan describing the maintenance procedures for managing the wastewaters generated from emptying and purging equipment during temporary shutdowns and other routine maintenance. Qore is addressing these requirements.

Qore does not have any streams meeting the "liquid streams in open systems" since such streams are either classified as Group 2 wastewater streams or do not meet the definition of wastewater. The requirements in 40 CFR 63.2485(l) will not apply.

Qore has identified tanks as wastewater tanks at the facility. These wastewater tanks handle Group 2 wastewater streams, have a fixed roof, and do not heat or treat the wastewater contained within. NESHAP Subpart FFFF does not require any controls for wastewater tanks handling Group 2 wastewater streams. Information regarding these tanks is required to be included in the Notification of

Compliance Status (NOCS) per 40 CFR 63.132(a)(3) and 63.146(b)(1). Thus, IDNR advised Qore they must be considered Title V significant sources due to the recordkeeping and NOCS reporting requirement.¹⁹ The subject tanks include:

- Fermentation Waste Tank (BDO-21)
- Viscous Byproduct Tank (BDO-21a)
- Viscous Byproduct Tank (BDO-21b)
- Process Waste Tank (BDO-31)