
SIP CONSTRUCTION PERMIT AND TITLE V MINOR MODIFICATION APPLICATION REVIEW

Facility Name: **Cargill's Gainesville Vegetable Oil Mill & Refinery**

City: Gainesville

County: Hall

AIRS #: 04-13-139-00002

Application #: 17637

Date SIP Application Received:

Date Title V Application Received:

Permit No: 2075-139-0002-V-01-5

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Introduction

This narrative is being provided to assist the reader in understanding the content of the referenced SIP permit to construct and proposed operating permit amendment. Complex issues and unusual items are explained in simpler terms and/or greater detail than is sometimes possible in the actual permit. This permit is being issued pursuant to: (1) Sections 391-3-1-.03(1) and 391-3-1-.03(10) of the Georgia Rules for Air Quality Control, (2) Part 70 of Chapter I of Title 40 of the Code of Federal Regulations, and (3) Title V of the Clean Air Act Amendments of 1990. The following narrative is designed to accompany the draft permit and is presented in the same general order as the permit. This narrative is intended only as an adjunct for the reviewer and has no legal standing. Any revisions made to the permit in response to comments received during the EPA review process will be described in an addendum to this narrative.

I. Facility Description

A. Existing Permits

Table 1 below lists the current Title V permit, and all administrative amendments and minor and significant modifications and 502(b)(10) changes. Comments are listed in Table 2 below.

Table 1: Current Title V Permit and Amendments

Permit/Amendment Number	Date of Issuance	Comments	
		Yes	No
2075-139-0002-V-01-0	April 30, 2002	X	
2075-139-0002-V-01-1	April 25, 2003	X	
2075-139-0002-V-01-2	June 8, 2004	X	
2075-139-0002-V-01-3	October 26, 2006	X	
2075-139-0002-V-01-4	September 13, 2006	X	

Table 2: Comments on Specific Permits

Permit Number	Comments
2075-139-0002-V-01-0	Initial issuance of the Title V Permit.
2075-139-0002-V-01-1	Significant Modification Permit Amendment to incorporate the VOC and NOx RACT permit conditions to assure compliance with the State Rules (tt) and (yy) which became effective in May 2003.
2075-139-0002-V-01-2	502(b)(10) Permit Amendment to allow the installation and operation of 100 MMBTU/hr gas-fired Standby Boiler SB1.
2075-139-0002-V-01-3	Significant Modification Permit Amendment to incorporate compliance plan required by 40 CFR 63 Subpart GGGG – Vegetable Oil MACT. Condition 2.2.5 replaces Permit Condition 2.2.5 of Permit Number 2075-139-0002-V-01-1.
2075-139-0002-V-01-4	502(b)(10) Permit Amendment to allow the replacement of the economizer located between the air exhaust from the existing coal-fired Boiler B001, and the entrance to the existing baghouse CAD 1.

B. Regulatory Status

1. PSD/NSR/RACT

The facility is PSD major for PM, PM₁₀, SO₂, CO, VOC and NO_x. The facility has taken limits on the amount of imported crude vegetable oil it will process at the refinery and the hexane concentration in the imported crude oil to avoid PSD review for VOCs. The facility has also limited the hexane consumption at its oil extraction unit in the oil mill.

The coal-fired boiler (Source code B001) was installed in 1980 and is subject to PSD. This boiler has

emission limits for PM and SO2.

Permit Amendment 2075-139-0002-V-01-1 incorporated VOC and NO_x RACT permit conditions to assure compliance with the State Rules (tt) and (yy). A NO_x RACT limit is also specified for the coal-fired boiler NO_x emissions. VOC and NO_x RACT are specified in this amendment for all sources having more than 1 ton/year of VOC and NO_x emissions.

Hall County has recently been designated as a non-attainment area for particulate matter with an aerodynamic diameter less than or equal to 2.5 microns. In accordance with the April 5, 2005 memorandum from Stephen D. Page, US EPA, particulate matter emissions with an aerodynamic diameter less than or equal to 2.5 microns are assumed to equal particulate matter emissions with an aerodynamic diameter less than or equal to 10 microns making Cargill a major source under 40 CFR 51.165.

2. Title V Major Source Status by Pollutant

Table 3: Title V Major Source Status

Pollutant	Is the Pollutant Emitted?	If emitted, what is the facility's Title V status for the Pollutant?		
		Major Source Status	Major Source Requesting SM Status	Non-Major Source Status
PM	Y	✓		
PM ₁₀	Y	✓		
SO ₂	Y	✓		
VOC	Y	✓		
NO _x	Y	✓		
CO	Y	✓		
TRS	N			✓
H ₂ S	N			✓
Individual HAP	Y	✓		
Total HAPs	Y	✓		

II. Proposed Modification

A. Description of Modification

Cargill Inc. proposes to install a 35,000-gallon horizontal underground storage tank (Source ID: X05A) to store liquid solvent. The new tank will replace existing horizontal underground storage tanks X03A and X04A, which are used to store liquid solvent. The proposed storage tank is subject to 40 CFR Part 63, Subpart GGGG – *National Emission Standards for Hazardous Air Pollutants: Solvent Extractions for Vegetable Oil Production*.

B. Emissions Change

According to Application 17637, the proposed Storage Tank X05A will replace existing Storage Tanks X03A and X04A, however the annual throughput of solvent hexane will not change. Therefore, only emission changes associated with this modification, installation of Storage Tank X05A, were assessed.

Table 4: Emissions Change Due to Modification

Pollutant	Is the Pollutant Emitted?	Net Actual Emissions Increase (Decrease) (tpy)	Net Potential Emissions Increase (Decrease) (tpy)
PM	N	0	0
PM ₁₀	N	0	0
SO ₂	N	0	0
VOC	Y	0.225	0.225
NO _x	N	0	0
CO	N	0	0
TRS	N	0	0
H ₂ S	N	0	0
Individual HAP (n-hexane)	Y	0.146	0.146
Total HAPs	Y	0.225	0.225

Note: Emission estimates are as provided in the permit application 17637. See this document for an explanation on of how emissions were determined and what emission factors were used.

C. PSD/NSR Applicability

This modification does not constitute a major modification under PSD/NSR since potential emissions from Storage Tank X05A are below the applicable significance pollutant emissions thresholds.

III. Facility Wide Requirements

A. Emission and Operating Caps

Storage Tank X05A is subject to existing facility-wide emission and/or operating caps associated with 40 CFR Part 63, Subpart GGGG – *National Emission Standards for Hazardous Air Pollutants: Solvent Extractions for Vegetable Oil Production*. This modification does not result in the addition, removal, or modification of any facility-wide emission and/or operating caps.

B. Applicable Rules and Regulations

Storage Tank X05A is subject to existing facility-wide rules and regulations 40 CFR Part 63, Subpart GGGG – *National Emission Standards for Hazardous Air Pollutants: Solvent Extractions for Vegetable Oil Production*. This modification does not result in the addition, removal, or modification of any facility-wide applicable rules and/or regulations.

C. Compliance Status

The facility is currently in compliance with all applicable Federal and State air regulations and permit conditions.

D. Operational Flexibility

There is no request for facility-wide operational flexibility associated with this modification.

E. Permit Conditions

No permit conditions were added, deleted, or modified in Section 2.0 of the Permit as a result of this modification.

IV. Regulated Equipment Requirements

A. Brief Process Description

Storage Tank X05A is a 35,000-gallon horizontal underground storage tank which will be used to store liquid solvent. The new tank will replace existing horizontal underground storage tanks X03A and X04A, which are used to store liquid solvent.

B. Equipment List for the Process

3.1.1 Additional Emission Units

Emission Units		Specific Limitations/Requirements		Air Pollution Control Devices	
ID No.	Description	Applicable Requirements/Standards	Corresponding Permit Conditions	ID No.	Description
X05A	35,000-Gallon Horizontal Underground Liquid Solvent Storage Tank	40 CFR Part 63, Subpart GGGG 391-3-1-.02(2)(vv)	3.4.13, 3.5.1, 5.2.8, 5.2.9, 5.2.11, 6.2.1, 6.2.9, 6.2.12, 6.2.13, 6.2.23, 6.2.24	NA	None

C. Equipment & Rule Applicability

- Emission and Operating Caps –

This modification does not result in the addition, removal, or modification of any equipment emission and/or operating caps.

- Applicable Rules and Regulations –

Cargill submitted a No Permit Required (NPR) application for the installation of Storage Tank X05A as it believed that the installation of this equipment qualified as an exemption under Georgia Rule 391-3-1-.03(6)(i)(3) which would exempt cumulative modifications not covered in an existing permit to an existing permitted facility where the combined emission increases (excluding any contemporaneous emission decreases, i.e., “netting” is not allowed) for all nonexempt modified activities are below the ten (10) tons per year of nitrogen oxides or VOCs except as noted in the regulation and two (2) tons per year total with a fifteen (15) pound per day maximum emission of any single hazardous air pollutant and less than five (5) tons per year of any combination of hazardous air pollutants. However the cumulative modification exemption cannot be used in this case since a source category exemption already exists for Storage Tank X05A.

Georgia Rule 391-3-1-.03(6)(c)7. exempts all chemical storage tanks used to store a chemical with a true vapor pressure of less than or equal to ten (10) millimeters of mercury. Cargill estimates that the proposed liquid solvent contains sixty-five percent n-hexane by weight. The vapor pressure of pure n-hexane at sixty-eight degrees Fahrenheit is 150 millimeters of mercury. Although Application 17637 indicates that the maximum storage temperature is approximately sixty-one degrees Fahrenheit, it can be reasoned that, even at this storage temperature, the vapor pressure of the liquid solvent is well above the vapor pressure value to qualify for the exemption. Therefore, Storage Tank X05A is deemed a significant source, thus requiring a SIP construction permit and a modification to Cargill's existing Title V permit.

Part 60, Chapter I, Title 40 of the Code of Federal Regulations (40 CFR Part 60) New Source Performance Standards (NSPS) Subpart Kb – Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984

This regulation applies to a storage vessel with a capacity greater than or equal to 75 cubic meters (m³) that is used to store volatile organic liquids (VOL) for which construction, reconstruction, or modification is commenced after July 23, 1984 [40 CFR 60.110b(a)]. However, because Storage Tank X05A is subject to 40 CFR Part 63, Subpart GGGG, it is not subject to 40 CFR Part 60, Subpart Kb [40 CFR 60.110b(d)(8)].

Part 63, Chapter I, Title 40 of the Code of Federal Regulations (40 CFR Part 63) National Emission Standards for Hazardous Air Pollutants (NESHAP) Subpart GGGG – Standards for Solvent Extractions for Vegetable Oil Production

This regulation is applicable to Cargill's manufacturing process as previously discussed in the narratives associated with Permit Numbers 2075-139-0002-01-0, 2075-139-0002-01-1, and 2075-139-0002-01-3. Please refer to these documents.

The installation of Storage Tank X05A does not qualify as a *significant modification* under *40 CFR Part 63, Subpart GGGG* since it: (1) does not significantly affect solvent losses from the vegetable oil production process; (2) The fixed capital cost of the new components do not represent a significant percentage of the fixed capital cost of building a comparable new vegetable oil production process; (3) The fixed capital cost of the new equipment does not constitute reconstruction as defined in §63.2; and (4) Examples of significant modifications include replacement of or major changes to solvent recovery equipment such as extractors, desolventizer-toasters/dryer-coolers, flash desolventizers, and distillation equipment associated with the mineral oil system, and equipment affecting desolventizing efficiency and steady-state operation of the vegetable oil production process such as flaking mills, oilseed heating and conditioning equipment, and cracking mills [40 CFR 63.2872(c)]. The addition of Storage Tank X05A does not change Cargill's source status [40 CFR 63.2833(c) and (d)]. Storage Tank X05A must be operated in a manner consistent with 40 CFR Part 63, Subpart GGGG to ensure facility compliance with this rule.

Georgia Rule 391-3-1-.02(2)(vv) – Volatile Organic Liquid Handling and Storage

Georgia Rule 391-3-1-.02(2)(vv) is applicable to Storage Tank X05A since Cargill is subject to Georgia Rule (tt). This regulation requires Storage Tank X05A to be equipped with submerged fill pipes.

Georgia Air Toxics Guidelines Assessment

Toxics Assessment associated with the proposed Storage Tank X05A was not conducted, as there should be no increase in toxic emissions if the annual throughput of liquid solvent for proposed Tank X05A remains unchanged from current Tanks X03A and X04A (111,367 gallons) as Cargill proposes. According to Application 17637, with the proposed annual throughput, n-hexane emissions are estimated to be approximately 450 pounds per year [0.225 tons per year, 1.23 pounds per day]. This only holds true if Storage Tanks X03A and X04A are taken out of service when Storage Tank X05A is installed.

D. Compliance Status

The facility equipment is currently in compliance with all applicable Federal and State air regulations and permit conditions.

E. Operational Flexibility

There is no request for operational flexibility associated with this modification.

F. Permit Conditions

Permit Condition 3.4.13 was added to address applicability of Georgia Rule vv to Storage Tank X05A. Permit Condition 3.5.1 was added to require that Cargill take Storage Tanks X03A and X04A out of service once Storage Tank X05A is installed.

V. Testing Requirements (with Associated Record Keeping and Reporting)

No testing requirements were added, removed, or modified as a result of this modification.

VI. Monitoring Requirements (with Associated Record Keeping and Reporting)

No monitoring requirements were added, removed, or modified as a result of this modification.

VII. Other Record Keeping and Reporting Requirements

The Division wishes to know when Storage Tank X05A is installed and Storage Tanks X03A and X04A are taken out of service. Therefore Permit Conditions 6.2.23 and 6.2.24 require reporting this information. No record keeping or reporting requirements were removed or modified as a result of this modification.

VIII. Specific Requirements

A. Operational Flexibility

There is no request for operational flexibility associated with this modification.

B. Alternative Requirements

There is no request for alternative requirements associated with this modification.

C. Insignificant Activities

There are no requests to add insignificant activities associated with this modification.

D. Temporary Sources

No temporary sources were added as a part of this modification.

E. Short-Term Activities

No short-time activities were added as a part of this modification.

F. Compliance Schedule/Progress Reports

No compliance schedule/progress reports are added as part of this modification.

G. Emissions Trading

No emissions trading associated with this modification.

H. Acid Rain Requirements

These modifications do not change the source's applicability.

I. Prevention of Accidental Releases

These modifications do not change the source's applicability.

J. Stratospheric Ozone Protection Requirements

These modifications do not change the source's applicability.

K. Pollution Prevention

There are no pollution prevention projects associated with this modification.

L. Specific Conditions

There are no specific conditions associated with this modification.

Addendum to Narrative

The 45-day EPA review started on December 18, 2007 and ended on February 1, 2008. Comments were not received by the Division.