

CONSTRUCTION PERMIT OFFICE OF AIR MANAGEMENT

**Central Soya Company, Inc.
413 Cressy Avenue
Remington, Indiana 47977**

This permit is issued to the above mentioned company (herein known as the Permittee) under the provisions of 326 IAC 2-1 and 40 CFR 52.780, with conditions listed on the attached pages.

Construction Permit No.: CP-073-9923-00011	
Issued by: Paul Dubenetzky, Branch Chief Office of Air Management	Issuance Date:

SECTION A SOURCE SUMMARY

This permit is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Management (OAM). The information describing the source contained in conditions A.1 and A.2 are descriptive information and does not constitute enforceable conditions. However, the Permittee should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Permittee to obtain additional permits or seek modification of this permit pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

A.1 General Information

The Permittee owns and operates a food preparation operation that manufactures soybean lecithin and other products.

Responsible Official: Mr. Dale Perman
Source Address: 413 Cressy Avenue, Remington, Indiana 47977
Mailing Address: 413 Cressy Avenue, Remington, Indiana 47977
SIC Code: 2099
County Location: Jasper
County Status: Attainment for all criteria pollutants
Source Status: Part 70 Permit Program
Minor Source, under PSD Rules;

A.2 Emission Units and Pollution Control Equipment Summary

This stationary source consists of the following emission units and pollution control devices:

- (a) One (1) Extractor, with a maximum confidential capacity of lecithin per hour and maximum confidential capacity of ethanol per hour, and transferring to a Miscella tank identified as # 2 and a residue surge tank identified as # 5;
- (b) One (1) Miscella tank identified as # 2,
- (c) One (1) Primary Evaporator, receiving confidential throughput from a Miscella tank # 2, transferring material to a Finishing Evaporators, volatile organic compounds (VOC) reclaimed by a condenser identified as SC_{PF};
- (d) One (1) Finishing Evaporator, receiving a confidential throughput from a Primary Evaporator, volatile organic compounds (VOC) reclaimed by a condenser identified as SC_{PF};
- (e) One (1) Residue Evaporator, receiving a throughput from a residue surge tank # 5, volatile organic compounds (VOC) reclaimed by a condenser identified as SC_R;
- (f) One (1) Ethanol work tank identified as # 1, receiving an alcohol from Condensers identified as SC_{PF} and SC_R;
- (g) One (1) fixed roof dome wet storage tank, storing alcohol, volatile organic compounds (VOC) controlled by a refrigerated vent condenser identified as RVC;

- (h) One (1) fixed roof dome storage tank for storing lecithin;
- (i) One (1) Bulk Container, storing denatured alcohol.

A.3 Part 70 Permit Applicability [326 IAC 2-7-2]

This stationary source is required to have a Part 70 permit by 326 IAC 2-7-2 (Applicability) because:

- (a) It is a major source, as defined in 326 IAC 2-7-1(22);

SECTION B GENERAL CONDITIONS

THIS SECTION OF THE PERMIT IS BEING ISSUED UNDER THE PROVISIONS OF 326 IAC 2-1 AND 40 CFR 52.780, WITH CONDITIONS LISTED BELOW.

Construction Conditions [326 IAC 2-1-3.2]

B.1 General Construction Conditions

- (b) The data and information supplied with the application shall be considered part of this permit. Prior to any proposed change in construction which may affect allowable emissions, the change must be approved by the Office of Air Management (OAM).
- (c) This permit to construct does not relieve the Permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.

B.2 Effective Date of the Permit [IC13-15-5-3]

Pursuant to IC 13-15-5-3, this permit becomes effective upon its issuance.

B.3 Revocation of Permits [326 IAC 2-1-9(b)]

Pursuant to 326 IAC 2-1-9(b)(Revocation of Permits), the Commissioner may revoke this permit if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.

B.4 Permit Review Rules [326 IAC 2]

Notwithstanding Construction Condition (B.5), all requirements and conditions of this construction permit shall remain in effect unless modified in a manner consistent with procedures established for modifications of construction permits pursuant to 326 IAC 2 (Permit Review Rules).

B.5 First Time Operation Permit [326 IAC 2-1-4]

This document shall also become a first-time operation permit pursuant to 326 IAC 2-1-4 (Operating Permits) when, prior to start of operation, the following requirements are met:

- (a) The attached affidavit of construction shall be submitted to the Office of Air Management (OAM), Permit Administration & Development Section, verifying that the facilities were constructed as proposed in the application. The facilities covered in the Construction Permit may begin operating on the date the Affidavit of Construction is postmarked or hand delivered to IDEM.
- (b) If construction is completed in phases; i.e., the entire construction is not done continuously, a separate affidavit must be submitted for each phase of construction. Any permit conditions associated with operation start up dates such as stack testing for New Source Performance Standards (NSPS) shall be applicable to each individual phase.
- (c) Permittee shall receive an Operation Permit Validation Letter from the Chief of the Permit Administration & Development Section and attach it to this document.
- (d) The operation permit will be subject to annual operating permit fees pursuant to 326 IAC 2-7-19 (Fees).
- (e) Pursuant to 326 IAC 2-7-4, the Permittee shall apply for a Title V operating permit within twelve (12) months after the source becomes subject to Title V. This 12-month period starts at the postmarked submission date of the Affidavit of Construction. If the construction is completed in phases, the 12-month period starts at the postmarked submission date of the Affidavit of Construction that triggers the Title V applicability. The operation permit issued shall contain as a minimum the conditions in the Operation Conditions section of this permit.

Operation Conditions

B.6 General Operation Conditions

- (a) The data and information supplied in the application shall be considered part of this permit. Prior to any change in the operation which may result in an increase in allowable emissions exceeding those specified in 326 IAC 2-1-1 (Construction and Operating Permit Requirements), the change must be approved by the Office of Air Management (OAM).
- (b) The Permittee shall comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC13-17) and the rules promulgated thereunder.

B.7. Preventive Maintenance Plan [326 IAC 1-6-3]

If required by specific condition(s) in Section D of this permit, the Permittee shall prepare and maintain Preventive Maintenance Plans (PMP) within ninety (90) days after the Affidavit of Construction is Postmarked, including the following information on each facility:

- (a) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices.
- (b) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions.

- (c) Identification of the replacement parts which will be maintained in inventory for quick replacement.

The preventive maintenance plan shall be submitted to IDEM, OAM upon request and shall be subject to review and approval.

B.8 Transfer of Permit [326 IAC 2-1-6]

Pursuant to 326 IAC 2-1-6 (Transfer of Permits):

- (a) In the event that ownership of a source or facility is changed, the Permittee shall notify OAM, Permit Branch, within thirty (30) days of the change. Notification shall include the date or proposed date of said change.
- (b) The written notification shall be sufficient to transfer the permit from the current owner to the new owner.
- (c) The OAM shall reserve the right to issue a new permit.

B.9 Permit Revocation [326 IAC 2-1-9]

Pursuant to 326 IAC 2-1-9(a)(Revocation of Permits), this permit to construct and operate may be revoked for any of the following causes:

- (a) Violation of any conditions of this permit.
- (b) Failure to disclose all the relevant facts, or misrepresentation in obtaining this permit.
- (c) Changes in regulatory requirements that mandate either a temporary or permanent reduction of discharge of contaminants. However, the amendment of appropriate sections of this permit shall not require revocation of this permit.
- (d) Noncompliance with orders issued pursuant to 326 IAC 1-5 (Episode Alert Levels) to reduce emissions during an air pollution episode.
- (e) For any cause which establishes in the judgment of IDEM, the fact that continuance of this permit is not consistent with purposes of 326 IAC 2-1 (Permit Review Rules).

B.10 Availability of Permit [326 IAC 2-1-3(I)]

Pursuant to 326 IAC 2-1-3(I), the Permittee shall maintain the applicable permit on the premises of the source and shall make this permit available for inspection by the IDEM, or other public official having jurisdiction.

SECTION C SOURCE OPERATION CONDITIONS



Emission Limitations and Standards

C.1 PSD Minor Source Status [326 IAC 2-2] [40 CFR 52.21]

- (a) The total source potential to emit of volatile organic compounds (VOC) is less than 250 tons per year. Therefore the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration) and 40 CFR 52.21 will not apply.

C.2 Notice of Malfunction [326 IAC 1-6-2]

- (a) A record of all malfunctions, including startups or shutdowns of any facility or emission control equipment, which result in violations of applicable air pollution control regulations or applicable emission limitations shall be kept and retained for a period of three (3) years and shall be made available to the Indiana Department of Environmental Management (IDEM), Office of Air Management (OAM) or appointed representative upon request.
- (b) When a malfunction of any facility or emission control equipment occurs which lasts more than one (1) hour, said condition shall be reported to OAM, using the Malfunction Report Forms (2 pages). Notification shall be made by telephone or facsimile, as soon as practicable, but in no event later than four (4) daytime business hours after the beginning of said occurrence.
- (c) Failure to report a malfunction of any emission control equipment shall constitute a violation of 326 IAC 1-6, and any other applicable rules. Information of the scope and expected duration of the malfunction shall be provided, including the items specified in 326 IAC 1-6-2(a)(1) through (6).
- (d) Malfunction is defined as any sudden, unavoidable failure of any air pollution control equipment, process, or combustion or process equipment to operate in a normal and usual manner. [326 IAC 1-2-39]

C.3 Opacity [326 IAC 5-1]

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following, unless otherwise stated in this permit:

- (a) Opacity shall not exceed an average of forty percent (40%), any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

C.4 Fugitive Dust Emissions [326 IAC 6-4]

The Permittee shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4 (Fugitive Dust Emissions). 326 IAC 6-4-2(4) is not federally enforceable.

C.5 Operation of Equipment

All air pollution control equipment listed in this permit and used to comply with an applicable requirement shall be operated at all times that the emission units vented to the control equipment are in operation.

Testing Requirements

C.6 Performance Testing [326 IAC 3-6]

(a) All testing shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures), except as provided elsewhere in this permit, utilizing methods approved by IDEM, OAM.

A test protocol, except as provided elsewhere in this permit, shall be submitted to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Management
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

no later than thirty-five (35) days prior to the intended test date. The Permittee shall submit a notice of the actual test date to the above address so that it is received at least two weeks prior to the test date.

(b) All test reports must be received by IDEM, OAM within forty-five (45) days after the completion of the testing. An extension may be granted by the Commissioner, if the source submits to IDEM, OAM, a reasonable written explanation within five (5) days prior to the end of the initial forty-five (45) day period.

The documentation submitted by the Permittee does not require certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

Compliance Monitoring Requirements

C.7 Compliance Monitoring [326 IAC 2-1-3]

Compliance with applicable requirements shall be documented as required by this permit. The Permittee shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment, no more than ninety (90) days after the date the Affidavit of Construction is postmarked. If due to circumstances beyond its control, this schedule cannot be met, the Permittee may extend compliance schedule an additional ninety (90) days provided the Permittee notifies:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Management
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

in writing, prior to the end of the initial ninety (90) day compliance schedule, with full justification of the reasons for the inability to meet this date.

The notification which shall be submitted by the Permittee does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

C.8 Monitoring Methods [326 IAC 3]

Any monitoring or testing performed to meet the applicable requirements of this permit shall be performed according to the provisions of 326 IAC 3, 40 CFR 60, Appendix A, or other approved methods as specified in this permit.

C.9 Pressure Gauge Specifications

Whenever a condition in this permit requires the measurement of pressure drop across any part of the unit or its control device, the gauge employed shall have a scale such that the expected normal reading shall be no less than twenty percent (20%) of full scale and be accurate within plus or minus two percent ($\pm 2\%$) of full scale reading.

Corrective Actions and Response Steps

C.10 Emergency Reduction Plans [326 IAC 1-5-2] [326 IAC 1-5-3]

Pursuant to 326 IAC 1-5-2 (Emergency Reduction Plans; Submission):

- (a) The Permittee shall prepare written emergency reduction plans (ERPs) consistent with safe operating procedures.
- (b) These ERPs shall be submitted for approval to:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Management
100 North Senate Avenue, P.O. Box 6015
Indianapolis, Indiana 46206-6015

within ninety (90) days after the date of issuance of this permit.

The ERP does not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

- (c) If the ERP is disapproved by IDEM, OAM, the Permittee shall have an additional thirty (30) days to resolve the differences and submit an approvable ERP.
- (d) These ERPs shall state those actions that will be taken, when each episode level is declared, to reduce or eliminate emissions of the appropriate air pollutants.

- (e) Said ERPs shall also identify the sources of air pollutants, the approximate amount of reduction of the pollutants, and a brief description of the manner in which the reduction will be achieved.
- (f) Upon direct notification by IDEM, OAM, that a specific air pollution episode level is in effect, the Permittee shall immediately put into effect the actions stipulated in the approved ERP for the appropriate episode level. [326 IAC 1-5-3]

C.11 Actions Related to Noncompliance Demonstrated by a Stack Test [326 IAC 2-1-3]

- (a) When the results of a stack test performed in conformance with Section C - Performance Testing, of this permit exceed the level specified in any condition of this permit, the Permittee shall take appropriate corrective actions. The Permittee shall submit a description of these corrective actions to IDEM, OAM, within thirty (30) days of receipt of the test results. The Permittee shall take appropriate action to minimize emissions from the affected facility while the corrective actions are being implemented. IDEM, OAM shall notify the Permittee within thirty (30) days, if the corrective actions taken are deficient. The Permittee shall submit a description of additional corrective actions taken to IDEM, OAM within thirty (30) days of receipt of the notice of deficiency. IDEM, OAM reserves the authority to use enforcement activities to resolve noncompliant stack tests.
- (b) A retest to demonstrate compliance shall be performed within one hundred twenty (120) days of receipt of the original test results. Should the Permittee demonstrate to IDEM, OAM that retesting in one-hundred and twenty (120) days is not practicable, IDEM, OAM may extend the retesting deadline. Failure of the second test to demonstrate compliance with the appropriate permit conditions may be grounds for immediate revocation of the permit to operate the affected facility.

The documents submitted pursuant to this condition do not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

Record Keeping and Reporting Requirements

C.12 Emission Statement [326 IAC 2-6]

- (a) The Permittee shall submit an annual emission statement certified pursuant to the requirements of 326 IAC 2-6, that must be received by July 1 of each year and must comply with the minimum requirements specified in 326 IAC 2-6-4. The annual emission statement shall meet the following requirements:
 - (1) Indicate actual emissions of criteria pollutants from the source, in compliance with 326 IAC 2-6 (Emission Reporting);
 - (2) Indicate actual emissions of other regulated pollutants from the source, for purposes of Part 70 fee assessment.
- (b) The annual emission statement covers the twelve (12) consecutive month time period starting January 1 and ending December 31. The annual emission statement must be submitted to:

Indiana Department of Environmental Management
Technical Support and Modeling Section, Office of Air Management
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

- (c) The annual emission statement required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAM, on or before the date it is due.

C.13 Monitoring Data Availability [326 IAC 2-1-3]

- (a) With the exception of performance tests conducted in accordance with Section C-Performance Testing, all observations, sampling, maintenance procedures, and record keeping, required as a condition of this permit shall be performed at all times the equipment is operating at normal representative conditions.
- (b) As an alternative to the observations, sampling, maintenance procedures, and record keeping of subsection (a) above, when the equipment listed in Section D of this permit is not operating, the Permittee shall either record the fact that the equipment is shut down or perform the observations, sampling, maintenance procedures, and record keeping that would otherwise be required by this permit.
- (c) If the equipment is operating but abnormal conditions prevail, additional observations and sampling should be taken with a record made of the nature of the abnormality.
- (d) If for reasons beyond its control, the operator fails to make required observations, sampling, maintenance procedures, or record keeping, reasons for this must be recorded.
- (e) At its discretion, IDEM may excuse such failure providing adequate justification is documented and such failures do not exceed five percent (5%) of the operating time in any quarter.
- (f) Temporary, unscheduled unavailability of staff qualified to perform the required observations, sampling, maintenance procedures, or record keeping shall be considered a valid reason for failure to perform the requirements stated in (a) above.

C.14 General Record Keeping Requirements [326 IAC 2-1-3]

- (a) Records of all required monitoring data and support information shall be retained for a period of at least five (5) years from the date of monitoring sample, measurement, report, or application. These records shall be kept at the source location for a minimum of three (3) years and available upon the request of an IDEM, OAM, representative. The records may be stored elsewhere for the remaining two (2) years as long as they are available upon request. If the Commissioner makes a written request for records to the Permittee, the Permittee shall furnish the records to the Commissioner within a reasonable time.

- (b) Records of required monitoring information shall include, where applicable:
 - (1) The date, place, and time of sampling or measurements;
 - (2) The dates analyses were performed;
 - (3) The company or entity performing the analyses;
 - (4) The analytic techniques or methods used;
 - (5) The results of such analyses; and
 - (6) The operating conditions existing at the time of sampling or measurement.

- (c) Support information shall include, where applicable:
 - (1) Copies of all reports required by this permit;
 - (2) All original strip chart recordings for continuous monitoring instrumentation;
 - (3) All calibration and maintenance records;
 - (4) Records of preventive maintenance shall be sufficient to demonstrate that improper maintenance did not cause or contribute to a violation of any limitation on emissions or potential to emit. To be relied upon subsequent to any such violation, these records may include, but are not limited to: work orders, parts inventories, and operator's standard operating procedures. All records shall briefly describe what maintenance and response steps were taken and indicate who performed the tasks.

- (d) All record keeping requirements not already legally required shall be implemented within ninety (90) days after the Affidavit of Construction is postmarked.

C.15 General Reporting Requirements [326 IAC 2-1-3]

- (a) The report required by any specific conditions in Section D of this permit shall be submitted to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Management
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

- (b) Unless otherwise specified in this permit, any notice, report, or other submission required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAM, on or before the date it is due.

- (c) Unless otherwise specified in this permit, any quarterly report shall be submitted within thirty (30) days of the end of the reporting period.
- (d) Any corrective actions or response steps taken as a result of each deviation must be clearly identified in such reports.
- (e) The first report shall cover the period commencing on the date of Affidavit of Construction of this permit post marked and ending on the last day of the reporting period.

SECTION D.1 FACILITY OPERATION CONDITIONS

- (a) One (1) Extractor, with a maximum confidential capacity of lecithin per hour and maximum confidential capacity of ethanol per hour, and transferring to a Miscella tank identified as # 2 and a residue surge tank identified as # 5;
- (b) One (1) Miscella tank identified as # 2,
- (c) One (1) Primary Evaporator, receiving confidential throughput from a Miscella tank # 2, transferring material to a Finishing Evaporators, volatile organic compounds (VOC) reclaimed by a condenser identified as SC_{PF};
- (d) One (1) Finishing Evaporator, receiving a confidential throughput from a Primary Evaporator, volatile organic compounds (VOC) reclaimed by a condenser identified as SC_{PF};
- (e) One (1) Residue Evaporator, receiving a throughput from a residue surge tank # 5, volatile organic compounds (VOC) reclaimed by a condenser identified as SC_R;
- (f) One (1) Ethanol work tank identified as # 1, receiving an alcohol from Condensers identified as SC_{PF} and SC_R;
- (g) One (1) fixed roof dome wet storage tank, storing alcohol, volatile organic compounds (VOC) controlled by a refrigerated vent condenser identified as RVC;
- (h) One (1) fixed roof dome storage tank for storing lecithin;
- (i) One (1) Bulk Container, storing denatured alcohol.

Emission Limitations and Standards

D.1.1 New Air Toxics Control Rule [326 IAC 2-1-3.4 & 40 CFR 63.55, Subpart B]; and General Provisions Relating to VOC Rules: General Reduction Requirements for New Facilities [326 IAC 8-1-6]

That pursuant to 326 IAC 2-1-3.4 & 40 CFR 63.55, Subpart B (New Air Toxics Control Rule); and 326 IAC 8-1-6, VOC (ethanol & methanol) emissions from the lecithin process shall comply with the Best Available Control Technology (BACT) and Maximum Achievable Control Technology (MACT) as follows:

(a) The Control Technology for the lecithin extraction process shall be as follows:

Facility / Process	Control Description	VOC Emission Limit
Vent gas from Lecithin Process	Refrigerated Vent Condenser	2.60 lb. VOC/ ton of lecithin
Overall solvent losses	None	6.60 lb. solvent/ton of lecithin

(b) Best Available Control Technology (BACT) and Maximum Achievable Control Technology (MACT) for the fugitive volatile organic compounds (VOC) loss shall include an enhanced inspection, maintenance, and repair program. Within 60 days of achieving full production, but in no case later than 180 days after initial startup, the Permittee shall institute the following enhanced inspection, maintenance, and repair program for the solvent extraction portion of the installation.

Table 1	
Equipment	Leak Standard
Pumps	500 ppm
Valves	500 ppm
Pressure relief Devices	500 ppm
Flanges, Connectors, and Seals	10,000 ppm

(i) The Permittee shall immediately tag all detected leaks with a weatherproof and readily visible identification tag with a distinct number. Once a leaking component is detected, first-attempt repairs must be done within five days and be completed within 15 days of detecting the leaking components. If the repair can not be accomplished within 15 days, then the Permittee shall send a notice of inability to repair to the OAM within 20 days of detecting the leak. The notice must be received by the Compliance Data Section, Office of Air Management, 100 North Senate Avenue, P. O. Box 6015, Indianapolis, Indiana 46206-6015 within 20 days after the leak was detected. At a minimum the notice shall include the following:

- (1) Equipment, operator, and instrument identification number;
- (2) Date of leak detection;
- (3) Measured concentration (ppm) and background (ppm);
- (4) Leak identification number associated with the corresponding tag;
- (5) Reason of inability to repair within 5 to 15 days of detection,

D.1.2 Preventive Maintenance Plan

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for the lecithin process and the refrigerated vent condenser (RVC).

Compliance Determination Requirements

D.1.3 Testing Requirements [326 IAC 2-1-3]

- (a) That pursuant to 326 IAC 3-1-2 (Construction and Operating Permit Requirements) compliance stack tests shall be performed for the refrigerated vent condenser and volatile organic compounds (VOC) emission limit in Condition D.1.1 within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up. The Permittee shall perform VOC testing utilizing Methods 25 (40 CFR 60, Appendix A) or other methods as approved by the Commissioner. In addition to these requirements, IDEM may require compliance testing when necessary to determine if the facility is in compliance.
- (b) The refrigerated vent condenser shall operate at all times the lecithin extraction process is in operation at an average refrigerant flow rate, and temperature to be determined at the time of the VOC compliance test.
- (c) The Permittee shall determine compliance with the standards in Condition D.1.1 (b) Table 1 by using the procedures of 40 CFR Part 60, Appendix A, Method 21. The instrument shall be calibrated before each day of its use by the procedures as specified in Method 21. A leak is defined as an instrument reading of 500 ppm above background or greater, except for flanges, and connectors where a leak is defined as 10,000 ppm above background.

D.1.4 Leak Detection and Repair (LDAR) Program [326 IAC 2-1-3]

That pursuant to 326 IAC 2-1-3(i)(8) the following is required:

- (a) For pumps
 - (i) For the first year:
 - (A) weekly visual check for leakage; and
 - (B) semi-annual organic vapor analyzer inspection (leak definition = 500 ppm above background concentrations).
 - (ii) After the first year:
 - (A) weekly visual check for leakage;
 - (B) annual organic vapor analyzer inspection (leak definition = 500 ppm above background concentrations);
 - (iii) when a unit has a leak detected during an annual organic vapor analyzer inspection, the frequency of organic vapor analyzer inspections shall become semi-annual;
 - (iv) when that unit has no leak detected for two (2) consecutive semi-annual vapor analyzer inspections, the frequency of the inspections shall return to annual.

- (b) For valves
 - (i) For the first year:
 - (A) semi-annual organic vapor analyzer inspection (leak definition = 500 ppm above background concentrations).
 - (ii) After the first year:
 - (A) annual organic vapor analyzer inspection (leak definition = 500 ppm above background concentrations);
 - (B) when a unit has a leak detected during an annual organic vapor analyzer inspection, the frequency of organic vapor analyzer inspections shall become semi-annual; and
 - (C) when that unit has no leak detected for two (2) consecutive semi-annual vapor analyzer inspections, the frequency of the inspections shall return to annual.
- (c) For pressure relief devices:
 - (i) No later than five (5) calendar days after a pressure release, the pressure release device shall be monitored to confirm conditions of no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background concentrations. Any pressure relief device that is equipped with a closed vent system capable of capturing and transporting leakage through the pressure relief device to a control device is exempt from the above requirement.
- (d) For connectors, flanges, and seals, the annual organic vapor analyzer inspections shall be made (leak definition = 10,000 ppm above background concentrations).

Compliance Monitoring Requirements

D.1.5 Refrigerated Vent Condenser Operating Requirements

- (a) The Permittee shall monitor and record the refrigerant flow rate, and temperature at least once per day. This may be accomplished by using an electronic data management system (EDMS) or by taking manual readings. The Preventive Maintenance Plan for the refrigerated vent condenser shall contain troubleshooting contingency and corrective actions for when the refrigerant flow rate, and temperature readings are outside of the normal range for any one reading.
- (b) The instruments used for determining the flow rate, and temperature shall be subject to approval by IDEM, OAM, and shall be calibrated at least once every six (6) months.
- (c) The gauge employed to take the refrigerant flow, and temperature across the refrigerated vent condenser shall have a scale such that the expected normal reading shall be no less than 20 percent of full scale and be accurate within $\pm 10\%$ of full scale reading. The instrument shall be quality assured and maintained as specified by the vendor.

- (d) In the event that a refrigerated condenser's failure has been observed, an inspection will be conducted. Based upon the findings of the inspection, any corrective actions will be devised within eight (8) hours of discovery and will include a timetable for completion.

Record Keeping and Reporting Requirements

D.1.6 Record Keeping Requirements

- (a) To document compliance with Condition D.1.1(a), the Permittee shall maintain records the total volatile organic compounds (VOC) emissions calculated monthly from solvent loss, lecithin processed, and their ratio (in pounds of VOC per ton of lecithin processed).
- (b) To document compliance with Conditions D.1.1(b) and D.1.4, the Permittee shall maintain records of the following to verify compliance with the enhanced inspection, maintenance, and repair program.
 - (A) equipment inspected;
 - (B) date of inspection; and
 - (C) determination of whether a leak was detected.

If a leak is detected, the Permittee shall record the following information to verify compliance with the enhanced inspection, maintenance, and repair program.

- (A) the equipment, operator, and instrument identification number;
 - (B) measured concentration;
 - (C) leak identification number associated with the corresponding tag;
 - (D) date of repair;
 - (E) reason for non-repair if unable to repair within 5 to 15 days of detection;
 - (F) maintenance recheck if repaired-date, concentration, background, and
 - (G) any appropriate comments.
- (c) To document compliance with Condition D.1.5, the Permittee shall maintain records of the refrigerant flow rate and temperature across the vent condenser.
 - (d) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

MALFUNCTION REPORT

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR MANAGEMENT
FAX NUMBER - 317 233-5967**

**This form should only be used to report malfunctions applicable to Rule 326 IAC 1-6
and to qualify for the exemption under 326 IAC 1-6-4.**

THIS FACILITY MEETS THE APPLICABILITY REQUIREMENTS BECAUSE: IT HAS POTENTIAL TO EMIT 25 LBS/HR PARTICULATES ? _____, 100 LBS/HR VOC ? _____, 100 LBS/HR SULFUR DIOXIDE ? _____ OR 2000 LBS/HR OF ANY OTHER POLLUTANT ? _____ EMISSIONS FROM MALFUNCTIONING CONTROL EQUIPMENT OR PROCESS EQUIPMENT CAUSED EMISSIONS IN EXCESS OF APPLICABLE LIMITATION _____.

THIS MALFUNCTION RESULTED IN A VIOLATION OF: 326 IAC _____ OR, PERMIT CONDITION # _____ AND/OR PERMIT LIMIT OF _____

THIS INCIDENT MEETS THE DEFINITION OF 'MALFUNCTION' AS LISTED ON REVERSE SIDE ? Y N

THIS MALFUNCTION IS OR WILL BE LONGER THAN THE ONE (1) HOUR REPORTING REQUIREMENT ? Y N

COMPANY: Central Soya Company, Inc. PHONE NO. (219) 261- 2124

LOCATION: (CITY AND COUNTY): 413 Cressy Avenue, Remington, Indiana 47977

PERMIT NO. 073-9923 AFS PLANT ID: 073-00011 AFS POINT ID: _____ INSP: Eric P. Courtright
CONTROL/PROCESS DEVICE WHICH MALFUNCTIONED AND REASON: _____

DATE/TIME MALFUNCTION STARTED: ____/____/ 19____ ____ AM / PM

ESTIMATED HOURS OF OPERATION WITH MALFUNCTION CONDITION: _____

DATE/TIME CONTROL EQUIPMENT BACK-IN SERVICE ____/____/ 19____ _____ AM/PM

TYPE OF POLLUTANTS EMITTED: TSP, PM-10, SO2, VOC, OTHER: _____

ESTIMATED AMOUNT OF POLLUTANT EMITTED DURING MALFUNCTION: _____

MEASURES TAKEN TO MINIMIZE EMISSIONS: _____

REASONS WHY FACILITY CANNOT BE SHUTDOWN DURING REPAIRS: _____

CONTINUED OPERATION REQUIRED TO PROVIDE ESSENTIAL* SERVICES: _____

CONTINUED OPERATION NECESSARY TO PREVENT INJURY TO PERSONS: _____

CONTINUED OPERATION NECESSARY TO PREVENT SEVERE DAMAGE TO EQUIPMENT: _____

INTERIM CONTROL MEASURES: (IF APPLICABLE) _____

MALFUNCTION REPORTED BY: _____ TITLE: _____
(SIGNATURE IF FAXED)

MALFUNCTION RECORDED BY: _____
DATE: _____ TIME: _____

**Please note - This form should only be used to report malfunctions
applicable to Rule 326 IAC 1-6 and to qualify for
the exemption under 326 IAC 1-6-4.**

326 IAC 1-6-1 Applicability of rule

Sec. 1. The requirements of this rule (326 IAC 1-6) shall apply to the owner or operator of any facility which has the potential to emit twenty-five (25) pounds per hour of particulates, one hundred (100) pounds per hour of volatile organic compounds or SO₂, or two thousand (2,000) pounds per hour of any other pollutant; or to the owner or operator of any facility with emission control equipment which suffers a malfunction that causes emissions in excess of the applicable limitation.

326 IAC 1-2-39 “Malfunction” definition

Sec. 39. Any sudden, unavoidable failure of any air pollution control equipment, process, or combustion or process equipment to operate in a normal and usual manner. (Air Pollution Control Board; 326 IAC 1-2-39; filed Mar 10, 1988, 1:20 p.m. : 11 IR 2373)

***Essential services** are interpreted to mean those operations, such as, the providing of electricity by power plants. Continued operation solely for the economic benefit of the owner or operator shall not be sufficient reason why a facility cannot be shutdown during a control equipment shutdown.

If this item is checked on the front, please explain rationale:

Indiana Department of Environmental Management Office of Air Management

Technical Support Document (TSD) for New Construction and Operation

Source Background and Description

Source Name: Central Soya Company, Inc.
Source Location: 413 Cressy Avenue, Remington, Indiana 47977
County: Jasper
Construction Permit No.: CP-073-9923-00011
SIC Code: 2099
Permit Reviewer: Manoj P. Patel

The Office of Air Management (OAM) has reviewed an application from Central Soya Company, Inc. relating to the construction and operation of a lecithin manufacturing plant, consisting of the following equipment:

- (a) One (1) Extractor, with a maximum confidential capacity of lecithin per hour and maximum confidential capacity of ethanol per hour, and transferring to a miscella tank identified as # 2 and a residue surge tank identified as # 5;
- (b) One (1) Miscella tank identified as # 2,
- (c) One (1) Primary Evaporator, receiving confidential throughput from a miscella tank # 2, transferring material to a Finishing Evaporators, volatile organic compounds (VOC) reclaimed by a condenser identified as SC_{PF};
- (d) One (1) Finishing Evaporator, receiving a confidential throughput from a Primary Evaporator, volatile organic compounds (VOC) reclaimed by a condenser identified as SC_{PF};
- (e) One (1) Residue Evaporator, receiving a throughput from a residue surge tank # 5, volatile organic compounds (VOC) reclaimed by a condenser identified as SC_R;
- (f) One (1) Ethanol wok tank identified as # 1, receiving an alcohol from Condensers identified as SC_{PF} and SC_R;
- (g) One (1) fixed roof dome wet storage tank, storing alcohol, volatile organic compounds (VOC) controlled by a refrigerated vent condenser identified as RVC;
- (h) One (1) fixed roof dome storage tank for storing lecithin;
- (i) One (1) Bulk Container, storing denatured alcohol.

Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (°F)
S ₄	Refrigerated Vent Condenser	36	0.33	100	0

Recommendation

The staff recommends to the Commissioner that the construction and operation be approved. This recommendation is based on the following facts and conditions:

Information, unless otherwise stated, used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on July 8, 1998, with additional information received on August 25, October 7, 1998.

Emissions Calculations

- (a) See Appendix B through D (Emissions Calculation Spreadsheets) for detailed calculations of tanks.
- (b) Appendix E (confidential) provides facility wide VOC calculations.

Total Potential and Allowable Emissions

Indiana Permit Allowable Emissions Definition (after compliance with applicable rules, based on 8,760 hours of operation per year at rated capacity):

Pollutant	Allowable Emissions (tons/year)	Potential Emissions (tons/year)
Particulate Matter (PM)	0.0	0.0
Particulate Matter (PM10)	0.0	0.0
Sulfur Dioxide (SO ₂)	0.0	0.0
Volatile Organic Compounds (VOC)	1183.0	1183.0
Carbon Monoxide (CO)	0.0	0.0
Nitrogen Oxides (NO _x)	0.0	0.0
Single Hazardous Air Pollutant (HAP)	159.0	159.0
Combination of HAPs	159.0	159.0

- (a) The potential VOC emissions before control are the same as the allowable emissions, therefore, the potential emissions before control are used for the permitting determination.

- (b) Allowable emissions (as defined in the Indiana Rule) of volatile organic compounds (VOC) are greater than 25 tons per year. Therefore, pursuant to 326 IAC 2-1, Sections 1 and 3, a construction permit is required.
- (c) Allowable emissions (as defined in the Indiana Rule) of a single hazardous air pollutant (HAP) are greater than 10 tons per year and/or the allowable emissions of any combination of the HAPs are greater than 25 tons per year. Therefore, pursuant to 326 IAC 2-1, a construction permit is required.

County Attainment Status

- (a) Volatile organic compounds (VOC) are precursors for the formation of ozone. Therefore, VOC emissions are considered when evaluating the rule applicability relating to the ozone standards. Jasper County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NOx emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

Source Status

Existing Source PSD, Part 70 or FESOP Definition (emissions after controls, based on 8,760 hours of operation per year at rated capacity and/ or as otherwise limited):

Pollutant	Emissions (tons/yr)
PM	0.10
PM10	0.10
SO ₂	0.10
VOC	16.80
CO	5.40
NO _x	21.50

- (a) This existing source is **not** a major stationary source because no attainment regulated pollutant is emitted at a rate of 250 tons per year or more, and it is not in one of the 28 listed source categories.
- (b) These emissions were based on Facility Quick Look Report, dated April 1, 1998.

Proposed Modification

PTE from the proposed modification (based on 8,760 hours of operation per year at rated capacity including an enforceable emission control and production limit, where applicable):

Pollutant	PM (ton/yr)	PM10 (ton/yr)	SO ₂ (ton/yr)	VOC* (ton/yr)	CO (ton/yr)	NO _x (ton/yr)
Proposed Modification	0.0	0.0	0.0	12.25	0.0	0.0
PSD Threshold Level	250	250	250	250	250	250

* - 11.80 tons/year (vent condenser stack) + 0.45 ton/year (tanks VOC emissions)

This modification to an existing minor stationary source is not major because the emission increase is less than the PSD significant level. Therefore, pursuant to 326 IAC 2-2, and 40 CFR 52.21, the PSD requirements do not apply.

Part 70 Permit Determination

326 IAC 2-7 (Part 70 Permit Program)

This existing source, including the emissions from this permit **CP-073-9923-00011**, is now subject to the Part 70 Permit requirements because the potential to emit (PTE) of:

- (a) each criteria pollutant is more than 100 tons per year,
- (b) a single hazardous air pollutant (HAP) is more than 10 tons per year, and
- (c) any combination of HAPs is more than 25 tons/year.

This existing source shall apply for a Part 70 (Title V) operating permit within twelve (12) months after this source becomes subject to Title V.

Federal Rule Applicability

- (a) The tanks identified as #1, #2, #3, #4, and #5 are not subject to the New Source Performance Standard, 326 IAC 12, (40 CFR Part 60.112b, Subpart Kb), because each storage tank has a capacity of less than 40 cubic meters.
- (b) The National Emissions Standards for Hazardous Air Pollutants (NESHAP) 326 IAC 14 and 40 CFR Part 63 do not apply to the facilities covered in this permit.

State Rule Applicability

326 IAC 2-6 (Emission Reporting)

This facility is subject to 326 IAC 2-6 (Emission Reporting), because the source has potential to emit carbon monoxide (CO), volatile organic compounds (VOC), oxides of nitrogen (NO_x), particulate matter (PM₁₀), or sulfur dioxide (SO_x) into the ambient air at levels equal to or greater than one hundred (100) tons per year.

326 IAC 8-4-3 Petroleum Sources: petroleum liquid storage facilities

The storage tanks identified as #1, #2, #3, #4 and #5 are not subject to this rule, because the storage tanks do not store any petroleum liquid and have their capacities less than 39,000 gallons and true vapor pressure less than 10.5 kPa.

326 IAC 8-1-6 (General Provision Relating to VOC Rules: General Reduction Requirements for New Facilities)

The lecithin process is subject to this rule, because new facilities (as of January 1, 1980), which have potential emissions of 25 tons or more per year, located anywhere in the state, which are not otherwise regulated by other provisions of 326 IAC 8, shall reduce VOC emissions using the best available control technology (BACT).

Best Available Control Technology (BACT) for VOC:

Best Available Control Technology (BACT) analysis for the lecithin process, submitted by Central Soya Company, Inc., was conducted in accordance with the "Top Down BACT Guidance from U.S. EPA." This analysis evaluated the feasibility of combustion control methods and reclamation methods.

The RACT / BACT / LAER Clearinghouse Comparison:

The objective of this search was to identify a similar process using the same pollutant (ethanol) and determine what control device or method was used to reduce VOC emissions. An Initial search quarry was run using the Central Soya's Standard Industrial Classification (SIC) Code of 2099. There were no matching facilities using the search criteria. The next search query was performed using a broader SIC Code of 20. The search produced the following facilities:

Source Name	RBLC ID.	Process Description	Pollutant / VOC Emission Limit	BACT	Comment
Archer Daniels Midland Co. Processing	MO-0047	Soyabean Extraction	Hexane (0.25 gal./ton bean)	Mineral Oil Scrubber	PSD-BACT, Compliance to be determined by measuring hexane loss
Archer Daniels Midland Company	GA-0062	Vegetable Oil Production	Hexane (2.93 lb. Hexane/ton soybeans)	Condenser and Mineral Oil Scrubber	PSD-BACT
Southern Soya Corporation	SC-0035	Solvent Extraction System	Hexane 0.0010 lb. VOC/lb. Soybean	Mineral Oil Scrubber	LAER, (100% Capture & 99% removal)
Cargill, Inc.	IA-0029	Corn Oil Extraction	Hexane (2700 lb./day)	Mineral Oil Scrubber	PSD-BACT (95% Efficiency)
Central Soya Company, Inc.		Lecithin Production	Acetone	Carbon Adsorption	BACT-other (97% Recovery)
Florida Distillers	KY-0059	Fermentation, Wine Vinegar	Ethanol	78.0 tons VOC / year	BACT -other

Add-on Controls

Organic compounds are usually oxidized at temperatures ranging from 120 F to 2,200 F, depending on their composition and the desired destruction efficiency. When complete combustion is achieved, carbon dioxide and water vapors result as products. Turbulent mixing and combustion chamber retention times of 0.50 to 1.0 seconds are necessary to obtain high destruction efficiencies. Combustion control technologies include: catalytic incineration, recuperative thermal incineration, and regenerative thermal incineration. The national Fire Protection Association (NFPA) standards for extraction plants require that any flame operations (e.g. incinerators) be located at least 100 feet away from the processing area. These standards also preclude direct vapor pathways to flame operations.

(1) Catalytic Incineration:

The process stream is heated by a burner to incineration temperature. The gas then passes through a catalyst, which enhance the destruction of the VOCs by decreasing the amount of energy required for incineration and lowering the fuel requirements over a standard flame. The catalytic incineration method is **not** a feasible method because of the safety concerns.

(2) Recuperative Thermal Incineration

The filtered airstreams enter the incinerator and are preheated by a gas-to-gas heat exchanger. The preheated air stream is then further heated to the incineration temperature, causing combustion of the VOCs. The resulting "hot exhaust gas" is passed back through the gas-to-gas heat exchanger to preheat the incoming pollutant gas stream, and then is vented to stack. The thermal incineration is a preferable method for emission streams containing a minimum of 20 ppm of combustible VOCs but less than 25% of the lower explosive limit (LEL) of the pollutant. If higher concentrations due to upset conditions are present, additional air (otherwise known as dilution air) may be required to eliminate the explosive hazard. Thermal incinerators do not efficiently adjust to highly variable process exhaust flow rates due to poor mixing and varying residence times. Varying concentrations may also cause wide fluctuations of the combustion chamber temperature, adversely affecting the destruction efficiency. The lecithin process is subject to variable vent flow rates during startups and shutdowns. This is **not** a feasible method because of some operation and safety concerns.

(3) Regenerative Thermal Incineration

The regenerative thermal incinerator operates similarly to a recuperative thermal incinerator. The one difference is the method of preheating the pollutant stream before it enters the combustion chamber. Regenerative thermal incineration utilizes heat-recovery chambers filled with irregularly shaped ceramic material as a heat transfer medium as compared to a gas-to-gas heat exchanger commonly found in recuperative thermal incineration systems. The pollutant stream enters a primary heat recovery chamber and is preheated by a ceramic material. After destruction, the high temperature exhaust flows through the first heat-recovery chamber and heats its ceramic material. Regenerative thermal incineration is applicable over the same range of concentrations as recuperative thermal incineration and has the same LEL requirements. This is **not** a feasible method because of some operation and safety concerns.

(4) Condensation:

Condensation is the separation of volatile organic compounds (VOC) from an emission stream by either increasing the system pressure or lowering the system temperature below the dew point of the VOC vapor. When condensers are used for air pollution control, they usually operate at the pressure of the emission stream. A refrigeration unit may be required, depending on the temperature necessary to condensate the VOCs from the emission stream. The emission stream enters a heat exchanger, usually of shell-and-tube design, and encounters the cold surface of the tube carrying the refrigerant. The emission stream temperature drops to the dew point of its VOC constituents. The VOC liquefies and drops out of the emission stream.

The "cleaned" emission stream is then vented to the stack while condensed solvent is collected for reuse or disposal. Condensate systems are recommended for emission streams containing between 5,000 and 10,000 ppm. Condensation is affected significantly by the number and nature of the constituents in the emission stream. The greater the variance of components, the greater the range of temperatures that must be maintained to achieve condensation. The effectiveness of a refrigerated vent condenser is considered to be 97.0%. **This option is technically feasible.**

(5) Absorption

Absorption refers to the selective transfer of material from a gas to a contacting fluid. The separation principle involved is the preferential solubility of a gaseous component in the liquid. Gas absorption involves the diffusion of material from a gas through gas-liquid interface and ultimate dispersion in the liquid. Dispersion or solution of the absorbed material in the liquid may be accomplished by the chemical reaction. The effectiveness of the Absorption is considered to be 95% with much higher concentration of the pollutant entering the system. The lower concentration of the pollutant is not technically feasible. The lecithin process has the flow rate of 50 cfm. Therefore, this option is **not** a technically feasible.

(6) Carbon Adsorption

Carbon adsorption is the predominant method used for adsorption of VOC streams. The vent gases are cooled as far as practical before entering the carbon adsorption system to minimize the thermal loading on the carbon. These systems, when operating as designed, efficiently removed solvent from the main vent system. The adsorption of volatile organic compounds (such as ethanol) on activated carbon generates heat equivalent to the latent heat of vaporization for the compound being adsorbed. Under the condition listed above, the heat generated by adsorption can accumulate in the bed, causing the temperature to rise to the point where ignition will occur. Good design and control can eliminate overheating the carbon bed, but when the requirement or control fails, overheating will occur. This makes the carbon absorbers a potential source of ignition. While fires caused by overheating are usually contained by the adsorber vessel, the vessel is directly connected to the process by duct-work which allows a flame-path back to the process, creating an unacceptable risk of an explosion. The most likely time for fire to occur in the adsorber is during process upsets when solvent vapor will fill the duct connecting the process to the adsorber. This option is **not** technically feasible because of the safety concerns.

VOC BACT Conclusions:

The Office of Air Management (OAM) has determined from the analysis that BACT for the lecithin process is as follows:

- (a) Best Available Control Technology (BACT) for the lecithin vent gas; and overall solvent losses shall be as follows:

Facility / Process	Control Description	VOC Emission Limit
Vent gas from Lecithin Process	Refrigerated Vent Condenser	2.60 lb. VOC/ ton of lecithin
Overall solvent losses	None	6.60 lb. Solvent/ton of lecithin

- (b) Best Available Control Technology (BACT) for the fugitive volatile organic compounds (VOC) loss shall include an enhanced inspection, maintenance, and repair program. Within 60 days of achieving full production, but in no case later than 180 days after initial startup, the Permittee shall institute the following enhanced inspection, maintenance, and repair program for the solvent extraction portion of the installation.

Table 1	
Equipment	Leak Standard
Pumps	500 ppm
Valves	500 ppm
Pressure relief Devices	500 ppm
Flanges, Connectors, and Seals	10,000 ppm

- (i) The Permittee shall determine compliance with the standards in Table 1 by using the procedures of 40 CFR Part 60, Appendix A, Method 21. The instrument shall be calibrated before each day of its use by the procedures as specified in Method 21. A leak is defined as an instrument reading of 500 ppm above background or greater, except for flanges, and connectors where a leak is defined as 10,000 ppm above background.
- (ii) The Permittee shall immediately tag all detected leaks with a weatherproof and readily visible identification tag with a distinct number. Once a leaking component is detected, first-attempt repairs must be done within five days and be completed within 15 days of detecting the leaking components. If the repair cannot be accomplished within 15 days, then the Permittee shall send a notice of inability to repair to the OAM within 20 days of detecting the leak. The notice must be received by the Technical Support and Modeling, Office of Air Management, 100 North Senate Avenue, P. O. Box 6015, Indianapolis, Indiana 46206-6015 within 20 days after the leak was detected. At a minimum the notice shall include the following:
- (1) Equipment, operator, and instrument identification number;
 - (2) Date of leak detection;
 - (c) Measured concentration (ppm) and background (ppm);
 - (d) Leak identification number associated with the corresponding tag;
 - (e) Reason of inability to repair within 5 to 15 days of detection,
- (iii) The Permittee shall maintain records of the following to verify compliance with the enhanced inspection, maintenance, and repair program.
- (1) equipment inspected;
 - (2) date of inspection; and
 - (3) determination of whether a leak was detected.

- (iv) If a leak is detected, the Permittee shall record the following information to verify compliance with the enhanced inspection, maintenance, and repair program.
- (1) the equipment, operator, and instrument identification number;
 - (2) measured concentration;
 - (3) leak identification number associated with the corresponding tag;
 - (4) date of repair;
 - (5) reason for non-repair if unable to repair within 5 to 15 days of detection;
 - (6) maintenance recheck if repaired-date, concentration, background, and
 - (7) any appropriate comments.

326 IAC 2-1-3.4 (New Source Toxic Control Rule)

This rule applies to the lecithin process because the process has a potential emissions of more than ten (10) tons per year of any hazardous air pollutant or twenty-five (25) tons of any combination of hazardous air pollutants which are listed in Section 112(b) of the Clean Air Act. The BACT determined pursuant to rule 326 IAC 8-1-6 will satisfy the requirements of this rule because there is no better control than this in similar sources.

Air Toxic Emissions

Indiana presently requests applicants to provide information on emissions of the 188 hazardous air pollutants set out in the Clean Air Act Amendments of 1990. These pollutants are either carcinogenic or otherwise considered toxic and are commonly used by industries. They are listed as air toxics on the Office of Air Management (OAM) Construction Permit Application Form Y.

- (a) This modification will emit levels of air toxics more than those which constitute a major source according to Section 112 of the 1990 Amendments to Clean Air Act.
- (b) See attached spreadsheets for detailed air toxic calculations.

Conclusion

The construction of this lecithin processing operation will be subject to the conditions of the attached proposed **Construction Permit No. CP-073-9923-00011**.

Indiana Department of Environmental Management Office of Air Management

Addendum to the Technical Support Document for New Construction and Operation

Source Name: Central Soya Company, Inc.
 Source Location: 413 Cressy Avenue, Remington, Indiana 47977
 County: Jasper
 Construction Permit No.: CP-073-9923-00011
 SIC Code: 2099
 Permit Reviewer: Manoj P. Patel

On December 7, 1998, the Office of Air Management (OAM) had a notice published in the Rensselaer Republican, Rensselaer, Indiana, stating that Central Soya Company, Inc. had applied for a construction permit to construct and operate a lecithin manufacturing operation with refrigerated vent condenser as air pollution control. The notice also stated that OAM proposed to issue a permit for this installation and provided information on how the public could review the proposed permit and other documentation. Finally, the notice informed interested parties that there was a period of thirty (30) days to provide comments on whether or not this permit should be issued as proposed.

On January 5, 1999, Central Soya Company submitted comments on the proposed construction permit. The summary of the comments and corresponding responses is as follows (deleted language in ~~strikeout~~, add language in **bold**):

Comment 1:

Section A.1 (General Information), The Responsible Official should be Mr. Dale Perman.

Response 1:

Section A.1 (General Information), The Responsible Official has been revised as follows:

Responsible Official: Mr. ~~David B. Smith~~ **Dale Perman**

Comment 2:

Subsection (f) of section A.2 (Emission Units and Pollution Control Equipment Summary), should be corrected to read as "ethanol work tank"

Response 2:

Subsection (f) of section A.2 (Emission Units and Pollution Control Equipment Summary), has been revised to read as follows:

- (f) One (1) Ethanol **work** tank identified as # 1, receiving an alcohol from Condensers identified as SC_{PF} and SC_R;

Comment 3:

Subsection (a) of section D.1.5 (Refrigerated Vent Condenser Operating Requirements), should be added to clarify the method used for recording information the following sentence.

"This may be accomplished by using an electronic data management system (EDMS) or by taking manual readings."

Response 3:

The Office of Air Management (OAM) agrees with the source and subsection (a) of condition D.1.5 (Refrigerated Vent Condenser Operating Requirements) has been revised to read as follows:

- (a) The Permittee shall monitor and record the refrigerant flow rate, and temperature at least once per day. **This may be accomplished by using an electronic data management system (EDMS) or by taking manual readings.** The Preventive Maintenance Plan for the refrigerated vent condenser shall contain troubleshooting contingency and corrective actions for when the refrigerant flow rate, and temperature readings are outside of the normal range for any one reading.

Comment 4:

Subsection (a) of Condition D.1.6 (Record keeping Requirements) specifies how compliance with permit condition D.1.1(a) is to be documented. Condition D.1.1(a) establishes an emission limit for the process vent of 2.60 lb. VOC per ton of lecithin processed and an overall solvent loss of 6.60 lb. of solvent per ton of lecithin processed. Central Soya believes the intent of permit condition D.1.6(a) is to document compliance with overall solvent losses. Therefore, we suggest that the wording of permit condition be revised to the following:

"To document compliance with condition D.1.1(a), the Permittee shall maintain records of the total volatile organic compounds (VOC) emissions calculated monthly from solvent loss, lecithin processed, and their ratio (in pounds of VOC per ton of lecithin processed)"

Response 4:

Condition D.1.6 (a) has been revised as follows:

- (a) To document compliance with Condition D.1.1(a), the Permittee shall maintain records the total volatile organic compounds (VOC) emissions ~~from the main vent shall be~~ calculated monthly from solvent loss, lecithin processed, and their ratio (in pounds of VOC per ton of lecithin processed).

Upon further review, the OAM has made the following changes to the final Construction permit (changes are bolded for emphasis):

Condition C.3 (Opacity), on page 9 of 21 of the final permit has been changed as follows (delete language in ~~strikeout~~, add language in **bold**):

C.3 Opacity [326 IAC 5-1]

Pursuant to 326 IAC 5-1-2 (~~Visible Emissions~~ **Opacity** Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemptions), ~~visible emissions opacity~~ shall meet the following, unless otherwise stated in this permit:

- (a) ~~Visible emissions~~ **Opacity** shall not exceed an average of forty percent (40%) ~~opacity in twenty-four (24) consecutive readings, any one (1) six (6) minute averaging period~~ as determined in 326 IAC 5-1-4.
- (b) ~~Visible emissions~~ **Opacity** shall not exceed sixty percent (60%) ~~opacity~~ for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) ~~as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1)~~

Central Soya Company, Inc.
Remington, Indiana
Permit Reviewer: Manoj P. Patel

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minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

Appendix A: VOC Emissions Calculation

Company Name: Central soya Company, Inc.
Plant Location: 413 Cressy Avenue, Remington, Indiana 47977
County: Jasper
Permit: CP-073-9923-00011
Permit Reviewer: Manoj P. Patel
Date: October 21, 1998

Identification

Identification No.: #1(Work)
City: Remington
State: IN
Company: Central Soya Company, Inc.
Type of Tank: Vertical Fixed Roof
Description: Verticle Fixed Roof Tank

Tank Dimensions

Shell Height (ft): 10.0
Diameter (ft): 7.0
Liquid Height (ft): 10.0
Avg. Liquid Height (ft): 9.5
Volume (gallons): 2879
Turnovers: 938.0
Net Throughput (gal/yr): 2700502

Paint Characteristics

Shell Color/Shade: White/White
Shell Condition: Good
Roof Color/Shade: White/White
Roof Condition: Good

Roof Characteristics

Type: Dome
Height (ft): 0.00
Radius (ft) (Dome Roof): 7.00
Slope (ft/ft) (Cone Roof): 0.00

Breather Vent Settings

Vacuum Setting (psig): -0.03
 Pressure Setting (psig): 0.03

Meteorological Data Used in Emission Calculations: Indianapolis, Indiana (Avg Atmospheric Pressure = 14.7 psia)

Mixture/Component	Daily Liquid Surf. Temperatures (deg F)				Liquid Bulk Temp. (deg F)	Vapor Pressures (psia)		Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
	Month	Avg.	Min.	Max.		Min.	Max.					
Ethyl alcohol	All	53.68	48.73	58.63	52.12	0.5279	0.4424	0.6275	46.070		46.07	Option 2: A=8.3210, B=1718.210, C=237.520

Annual Emission Calculations

Standing Losses (lb): 2.8038
 Vapor Space Volume (cu ft): 37.72
 Vapor Density (lb/cu ft): 0.0044
 Vapor Space Expansion Factor: 0.047393
 Vented Vapor Saturation Factor: 0.973309

Tank Vapor Space Volume

Vapor Space Volume (cu ft): 37.72
 Tank Diameter (ft): 7.0
 Vapor Space Outage (ft): 0.98
 Tank Shell Height (ft): 10.0
 Average Liquid Height (ft): 9.5
 Roof Outage (ft): 0.48

Roof Outage (Dome Roof)

Roof Outage (ft): 0.48
 Dome Radius (ft): 7
 Shell Radius (ft): 3.5

Vapor Density

Vapor Density (lb/cu ft): 0.0044

Vapor Molecular Weight (lb/lb-mole): 46.07
Vapor Pressure at Daily Average Liquid
Surface Temperature (psia): 0.527899
Daily Avg. Liquid Surface Temp.(deg. R): 513.35
Daily Average Ambient Temp. (deg. R): 511.77
Ideal Gas Constant R
(psia cuft /(lb-mole-deg R)): 10.731
Liquid Bulk Temperature (deg. R): 511.79
Tank Paint Solar Absorptance (Shell): 0.17
Tank Paint Solar Absorptance (Roof): 0.17
Daily Total Solar Insolation
Factor (Btu/sqft! day): 1165.00

Vapor Space Expansion Factor
Vapor Space Expansion Factor: 0.047393
Daily Vapor Temperature Range (deg.R): 19.80
Daily Vapor Pressure Range (psia): 0.185039
Breather Vent Press. Setting Range(psia): 0.06
Vapor Pressure at Daily Average Liquid
Surface Temperature (psia): 0.527899
Vapor Pressure at Daily Minimum Liquid
Surface Temperature (psia): 0.442425
Vapor Pressure at Daily Maximum Liquid
Surface Temperature (psia): 0.627464
Daily Avg. Liquid Surface Temp. (deg R): 513.35
Daily Min. Liquid Surface Temp. (deg R): 508.40
Daily Max. Liquid Surface Temp. (deg R): 518.30
Daily Ambient Temp. Range (deg.R): 19.80

Annual Emission Calculations
Vented Vapor Saturation Factor
Vented Vapor Saturation Factor: 0.97
Vapor Pressure at Daily Average Liquid
Surface Temperature (psia): 0.53
Vapor Space Outage (ft): 0.98

Working Losses (lb):	310.6384
Vapor Molecular Weight (lb/lb-mole):	46.070000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.527899
Annual Net Throughput (gal/yr):	2700502
Turnover Factor:	0.1987
Maximum Liquid Volume (cuft):	385
Maximum Liquid Height (ft):	10.0
Tank Diameter (ft):	7.0
Working Loss Product Factor:	1.00
 Total Losses (lb):	 313.44

Annual Emissions Report

Liquid Contents	Losses (lbs.):		Total
	Standing	Working	
Ethyl alcohol	2.80	310.64	313.44
Total:	2.80	310.64	313.44

Appendix B: VOC Emissions Calculation

Company Name: Central soya Company, Inc.
Plant Location: 413 Cressy Avenue, Remington, Indiana 47977
County: Jasper
Permit: CP-073-9923-00011
Permit Reviewer: Manoj P. Patel
Date: October 21, 1998

Identification

Identification No.: # 2 (Miscella)
City: Remington
State: IN
Company: Central Soya Company, Inc.
Type of Tank: Vertical Fixed Roof
Description: Verticle Fixed Roof Tank

Tank Dimensions

Shell Height (ft): 10.0
Diameter (ft): 5.0
Liquid Height (ft): 10.0
Avg. Liquid Height (ft): 9.5
Volume (gallons): 1469
Turnovers: 1837.0
Net Throughput (gal/yr): 2698553

Paint Characteristics

Shell Color/Shade: White/White
Shell Condition: Good
Roof Color/Shade: White/White
Roof Condition: Good

Roof Characteristics

Type: Dome
Height (ft): 0.00
Radius (ft) (Dome Roof): 5.00
Slope (ft/ft) (Cone Roof): 0.00

Breather Vent Settings

Vacuum Setting (psig): -0.03
 Pressure Setting (psig): 0.03

Meteorological Data Used in Emission Calculations: Indianapolis, Indiana (Avg Atmospheric Pressure = 14.7 psia)

Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F)		Liquid Temp. Max.	Bulk Vapor Pressures (psia) (deg F)	Avg.	Min.	Max.	Mol. Weight	Mass Fract.	Vapor Mass Fract.	Liquid Mol. Weight	Vapor Basis for Vapor Pressure Calculations
		Avg.	Min.										
----- Ethyl alcohol	All	53.68	48.73	58.63	52.12	0.5279	0.4424	0.6275	46.070			46.07	Option 2: A=8.3210, B=1718.210, C=237.520

Annual Emission Calculations

Standing Losses (lb): 1.2349
 Vapor Space Volume (cu ft): 16.55
 Vapor Density (lb/cu ft): 0.0044
 Vapor Space Expansion Factor: 0.047393
 Vented Vapor Saturation Factor: 0.976959

Tank Vapor Space Volume
 Vapor Space Volume (cu ft): 16.55
 Tank Diameter (ft): 5.0
 Vapor Space Outage (ft): 0.84
 Tank Shell Height (ft): 10.0
 Average Liquid Height (ft): 9.5
 Roof Outage (ft): 0.34

Roof Outage (Dome Roof)
 Roof Outage (ft): 0.34
 Dome Radius (ft): 5
 Shell Radius (ft): 2.5

Vapor Density
 Vapor Density (lb/cu ft): 0.0044

Vapor Molecular Weight (lb/lb-mole):	46.070000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.527899
Daily Avg. Liquid Surface Temp.(deg. R):	513.35
Daily Average Ambient Temp. (deg. R):	511.77
Ideal Gas Constant R (psia cuft /(lb-mole-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	511.79
Tank Paint Solar Absorptance (Shell):	0.17
Tank Paint Solar Absorptance (Roof):	0.17
Daily Total Solar Insolation Factor (Btu/sqft! day):	1165.00

Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.047393
Daily Vapor Temperature Range (deg.R):	19.80
Daily Vapor Pressure Range (psia):	0.185039
Breather Vent Press. Setting Range(psia):	0.06
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.527899
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.442425
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.627464
Daily Avg. Liquid Surface Temp. (deg R):	513.35
Daily Min. Liquid Surface Temp. (deg R):	508.40
Daily Max. Liquid Surface Temp. (deg R):	518.30
Daily Ambient Temp. Range (deg.R):	19.80

Annual Emission Calculations	
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.976959
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.527899

Vapor Space Outage (ft):	0.84
Working Losses (lb):	285.9530
Vapor Molecular Weight (lb/lb-mole):	46.07
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.527899
Annual Net Throughput (gal/yr):	2698553
Turnover Factor:	0.1830
Maximum Liquid Volume (cuft):	196
Maximum Liquid Height (ft):	10.0
Tank Diameter (ft):	5.0
Working Loss Product Factor:	1.00
Total Losses (lb):	287.19

Annual Emissions Report

Liquid Contents	Losses (lbs.):		Total
	Standing	Working	
Ethyl alcohol	1.23	285.95	287.19
Total:	1.23	285.95	287.19

Appendix C: VOC Emissions Calculation

Company Name: Central soya Company, Inc.
Plant Location: 413 Cressy Avenue, Remington, Indiana 47977
County: Jasper
Permit: CP-073-9923-00011
Permit Reviewer: Manoj P. Patel
Date: October 21, 1998

Identification

Identification No.: #3(Wet)
City: Remington
State: IN
Company: Central Soya Company, Inc.
Type of Tank: Vertical Fixed Roof
Description: Verticle Fixed Roof Tank

Tank Dimensions

Shell Height (ft): 8.0
Diameter (ft): 5.0
Liquid Height (ft): 8.0
Avg. Liquid Height (ft): 7.5
Volume (gallons): 1175
Turnovers: 1025.0
Net Throughput (gal/yr): 1204375

Paint Characteristics

Shell Color/Shade: White/White
Shell Condition: Good
Roof Color/Shade: White/White
Roof Condition: Good

Roof Characteristics

Type: Dome
Height (ft): 0.00
Radius (ft) (Dome Roof): 5.00
Slope (ft/ft) (Cone Roof): 0.0000

Breather Vent Settings

Vacuum Setting (psig): -0.03
 Pressure Setting (psig): 0.03

Meteorological Data Used in Emission Calculations: Indianapolis, Indiana (Avg Atmospheric Pressure = 14.7 psia)

Mixture	Month	Daily Liquid Surf. Temperatures (deg F)			Bulk Temp. (deg F)	Vapor Pressures (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Liquid Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Ethyl alcohol	All	53.68	48.73	58.63	52.12	0.5279	0.4424	0.6275	46.070			46.07	Option 2: A=8.3210, B=1718.210, C=237.520

Annual Emission Calculations

Standing Losses (lb): 1.2349
 Vapor Space Volume (cu ft): 16.55
 Vapor Density (lb/cu ft): 0.0044
 Vapor Space Expansion Factor: 0.047393
 Vented Vapor Saturation Factor: 0.976959

Tank Vapor Space Volume
 Vapor Space Volume (cu ft): 16.55
 Tank Diameter (ft): 5.0
 Vapor Space Outage (ft): 0.84
 Tank Shell Height (ft): 8.0
 Average Liquid Height (ft): 7.5
 Roof Outage (ft): 0.34

Roof Outage (Dome Roof)
 Roof Outage (ft): 0.34
 Dome Radius (ft): 5
 Shell Radius (ft): 2.5

Vapor Density
 Vapor Density (lb/cu ft): 0.0044

Vapor Molecular Weight (lb/lb-mole):	46.07	
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.527899	
Daily Avg. Liquid Surface Temp.(deg. R):	513.35	
Daily Average Ambient Temp. (deg. R):	511.77	
Ideal Gas Constant R (psia cuft /(lb-mole-deg R)):		10.731
Liquid Bulk Temperature (deg. R):	511.79	
Tank Paint Solar Absorptance (Shell):	0.17	
Tank Paint Solar Absorptance (Roof):	0.17	
Daily Total Solar Insolation Factor (Btu/sqft! day):	1165.00	

Vapor Space Expansion Factor		
Vapor Space Expansion Factor:	0.047393	
Daily Vapor Temperature Range (deg.R):	19.80	
Daily Vapor Pressure Range (psia):	0.185039	
Breather Vent Press. Setting Range(psia):	0.06	
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.527899	
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.442425	
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.627464	
Daily Avg. Liquid Surface Temp. (deg R):	513.35	
Daily Min. Liquid Surface Temp. (deg R):	508.40	
Daily Max. Liquid Surface Temp. (deg R):	518.30	
Daily Ambient Temp. Range (deg.R):	19.80	

Annual Emission Calculations		
Vented Vapor Saturation Factor		
Vented Vapor Saturation Factor:	0.976959	
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.527899	
Vapor Space Outage (ft):	0.84	

Working Losses (lb):	136.6476
Vapor Molecular Weight (lb/lb-mole):	46.070000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.527899
Annual Net Throughput (gal/yr):	1204375
Turnover Factor:	0.1959
Maximum Liquid Volume (cuft):	157
Maximum Liquid Height (ft):	8.0
Tank Diameter (ft):	5.0
Working Loss Product Factor:	1.00
 Total Losses (lb):	 137.88

Annual Emissions Report

Liquid Contents	Losses (lbs.):		
	Standing	Working	Total
----- Ethyl alcohol	1.23	136.65	137.88
Total:	1.23	136.65	137.88

Appendix D: VOC Emissions Calculation

Company Name: Central soya Company, Inc.
Plant Location: 413 Cressy Avenue, Remington, Indiana 47977
County: Jasper
Permit: CP-073-9923-00011
Permit Reviewer: Manoj P. Patel
Date: October 21, 1998

Identification

Identification No.: # 1 (Residue)
City: Remington
State: IN
Company: Central Soya Company, Inc.
Type of Tank: Vertical Fixed Roof
Description: Verticle Fixed Roof Tank

Tank Dimensions

Shell Height (ft): 10.0
Diameter (ft): 5.0
Liquid Height (ft): 10.0
Avg. Liquid Height (ft): 9.5
Volume (gallons): 1469
Turnovers: 980.0
Net Throughput (gal/yr): 1,800,000

Paint Characteristics

Shell Color/Shade: White/White
Shell Condition: Good
Roof Color/Shade: White/White
Roof Condition: Good

Roof Characteristics

Type: Dome
Height (ft): 0.00
Radius (ft) (Dome Roof): 5.00
Slope (ft/ft) (Cone Roof): 0.00

Breather Vent Settings

Vacuum Setting (psig): -0.03
 Pressure Setting (psig): 0.03

Meteorological Data Used in Emission Calculations: Indianapolis, Indiana (Avg Atmospheric Pressure = 14.7 psia)

Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F)		Liquid Temp. Max.	Bulk Vapor Pressures (psia) (deg F)	Avg.	Min.	Max.	Mol. Weight	Mass Fract.	Vapor Mass Fract.	Liquid Mol. Weight	Vapor Basis for Vapor Pressure Calculations
		Avg.	Min.										
----- Ethyl alcohol	All	53.68	48.73	58.63	52.12	0.5279	0.4424	0.6275	46.070			46.07	Option 2: A=8.3210, B=1718.210, C=237.520

Annual Emission Calculations

Standing Losses (lb): 1.2349
 Vapor Space Volume (cu ft): 16.55
 Vapor Density (lb/cu ft): 0.0044
 Vapor Space Expansion Factor: 0.047393
 Vented Vapor Saturation Factor: 0.976959

Tank Vapor Space Volume
 Vapor Space Volume (cu ft): 16.55
 Tank Diameter (ft): 5.0
 Vapor Space Outage (ft): 0.84
 Tank Shell Height (ft): 10.0
 Average Liquid Height (ft): 9.5
 Roof Outage (ft): 0.34

Roof Outage (Dome Roof)
 Roof Outage (ft): 0.34
 Dome Radius (ft): 5
 Shell Radius (ft): 2.5

Vapor Density
 Vapor Density (lb/cu ft): 0.0044

Vapor Molecular Weight (lb/lb-mole):	46.070000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.527899
Daily Avg. Liquid Surface Temp.(deg. R):	513.35
Daily Average Ambient Temp. (deg. R):	511.77
Ideal Gas Constant R (psia cuft /(lb-mole-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	511.79
Tank Paint Solar Absorptance (Shell):	0.17
Tank Paint Solar Absorptance (Roof):	0.17
Daily Total Solar Insolation Factor (Btu/sqft! day):	1165.00

Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.047393
Daily Vapor Temperature Range (deg.R):	19.80
Daily Vapor Pressure Range (psia):	0.185039
Breather Vent Press. Setting Range(psia):	0.06
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.527899
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.442425
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.627464
Daily Avg. Liquid Surface Temp. (deg R):	513.35
Daily Min. Liquid Surface Temp. (deg R):	508.40
Daily Max. Liquid Surface Temp. (deg R):	518.30
Daily Ambient Temp. Range (deg.R):	19.80

Annual Emission Calculations	
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.976959
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.527899

Vapor Space Outage (ft):	0.84
Working Losses (lb):	285.9530
Vapor Molecular Weight (lb/lb-mole):	46.07
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.527899
Annual Net Throughput (gal/yr):	2698553
Turnover Factor:	0.1830
Maximum Liquid Volume (cuft):	196
Maximum Liquid Height (ft):	10.0
Tank Diameter (ft):	5.0
Working Loss Product Factor:	1.00
Total Losses (lb):	191.0

Annual Emissions Report

Liquid Contents	Losses (lbs.):		Total
	Standing	Working	
Ethyl alcohol	0.80	190.20	191.0
Total:	0.80	190.20	191.0

Appendix E: Emission Calculations

Company Name: Central Soya Company, Inc.
Address City IN Zip: 413 Cressy Avenue, Remington, Indiana 47977
CP: 073-9923-00011
Plt ID: 073-00011
Reviewer: Manoj P. Patel
Date: 10/22/198

Process	Uncontrolled VOC Emissions		C.E.	Controlled VOC Emissions		VOC Losses	
	lbs./hr	Tons/year		lbs./hr	tons/year	lbs./hr	
Process Vent	260	1138.8	99.00%	2.6	11.388	2.6	11.388
Fugitive	1	4.38	0.00%	1.00	4.38	1.00	4.38
Residual in Product	0	0	0.00%	0.00	0	1.00	4.38
Residual in Lecithin Residue	0	0	0.00%	0.00	0	2.00	8.76
						Total Losses:	28.91

Methodology:

Emissions are based on the an engineering evaluation of the process.

The two raw material of this process are soybean lecithin and ethanol-based extraction solvent.

The extraction solvent is ethanol denatured with methanol, ratio of 10 gal methanol /100 gal ethanol

Uncontrolled (Potential) emissions (tons/year) = uncontrolled emissions (lbs./hr) * 4.38

Controlled Emissions (tons/year) = Uncontrolled emissions (lbs./hr)*(1-C.E.)*4.38

VOC losses from residual in product & residual in lecithin residue are derived from the inventory mass balance.

VOC Emissions: (tons/year)	11.4
VOC Losses (tons/year):	17.6
Total (tons/year):	29.00