

ATTACHMENT D

Control Technology Plan for Bunge Milling's Danville, Illinois Corn Dry Mill Extraction Plant

May, 2006

CONTENTS

SECTION

- 1.0 Introduction
- 2.0 Program Summary
- 3.0 Process Flow Diagrams
- 4.0 Emission Units Requiring Pollution Control Equipment
- 5.0 Engineering Design Criteria for Pollution Control Equipment
- 6.0 Monitoring Parameters for Pollution Control Equipment
- 7.0 Emission Limits
- 8.0 Schedule for Emission Reduction Projects
- 9.0 Procedures for Optimization of Control Equipment and Setting Emission Limits

1.0 Introduction

This Control Technology Plan (CTP) is Attachment D to a Consent Decree signed by Bunge Milling, the United States, and the State of Illinois, among others. This CTP describes the emission reduction program that Bunge Milling shall implement at its corn dry mill extraction plant which it owns and operates in Danville, Illinois (Danville, Illinois Corn Dry Mill Extraction Plant). This CTP contains:

- (a) Identification of all units to be controlled;
- (b) Engineering design criteria for all proposed controls;
- (c) Applicable emission limits for VOC, based on Section 2.0 of this CTP;
- (d) Monitoring parameters for all control equipment;
- (e) A schedule for installation; and
- (f) A procedure for setting emission limits following start-up of emissions control equipment.

2.0 Program Summary

Bunge Milling shall implement a program with the goal of achieving a reduction of volatile organic compound (VOC) emissions from the corn dry mill solvent extraction plant at its Danville, Illinois Corn Dry Mill Extraction Plant.

The VOC emission reduction program consists of a series of projects to improve operation of the solvent extraction system at its corn dry mill extraction plant. The process improvement projects will aid the Danville, Illinois Corn Dry Mill Extraction Plant in lowering overall VOC emissions. For the Danville, Illinois Corn Dry Mill Extraction Plant, Bunge Milling shall complete the following projects: install operational controls on the desolventizer toaster dryer cooler (DT/DC), improve control of hexane temperature to the extractor, and upgrade the mineral oil system. The VOC emission limit will be established pursuant to Section 6.0 and Section 9.0 of this CTP.

3.0 Process Flow Diagrams

This section includes the following flow diagrams:

Diagram 3.1 – General Process

Diagram 3.2 – Upgrade Mineral Oil System

Diagram 3.3 – Improve Control of Hexane Temperature to the Extractor

Diagram 3.1 General Process

The following process block diagram presents a general representation of the solvent extraction process at Bunge Milling's Danville, Illinois Corn Dry Mill Extraction Plant.

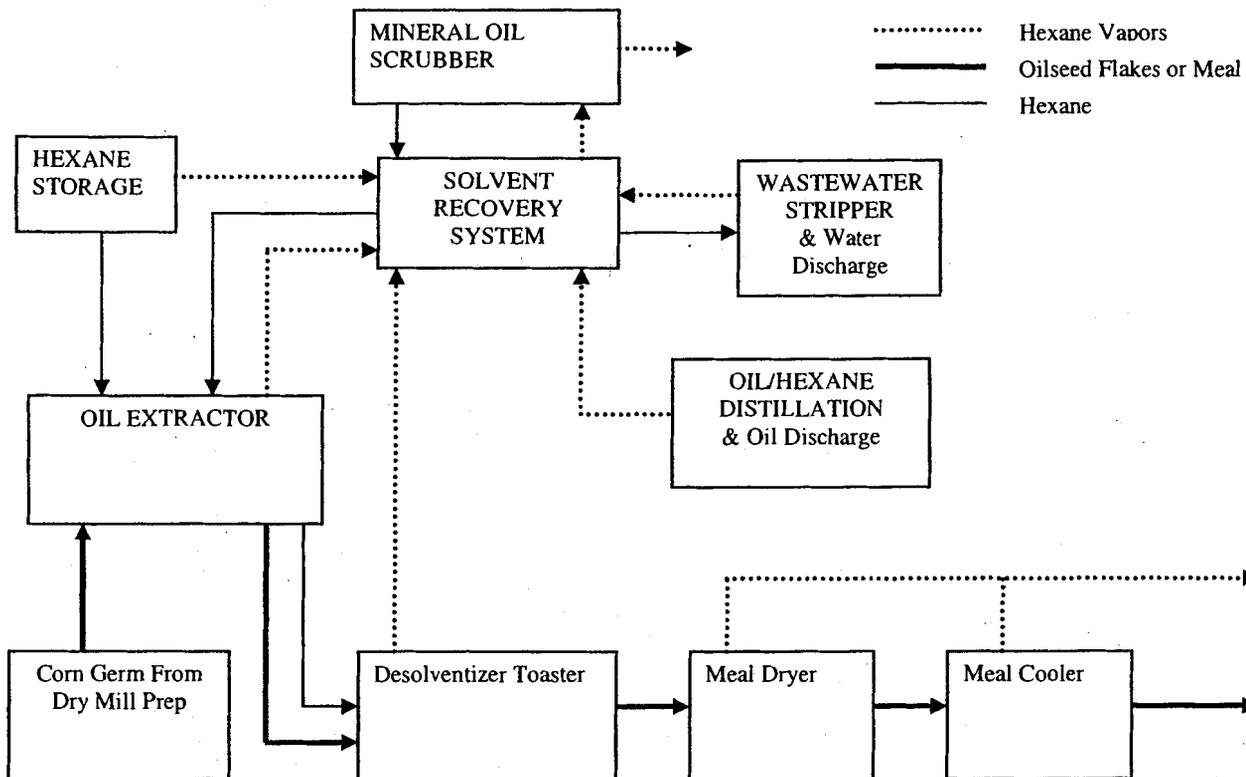
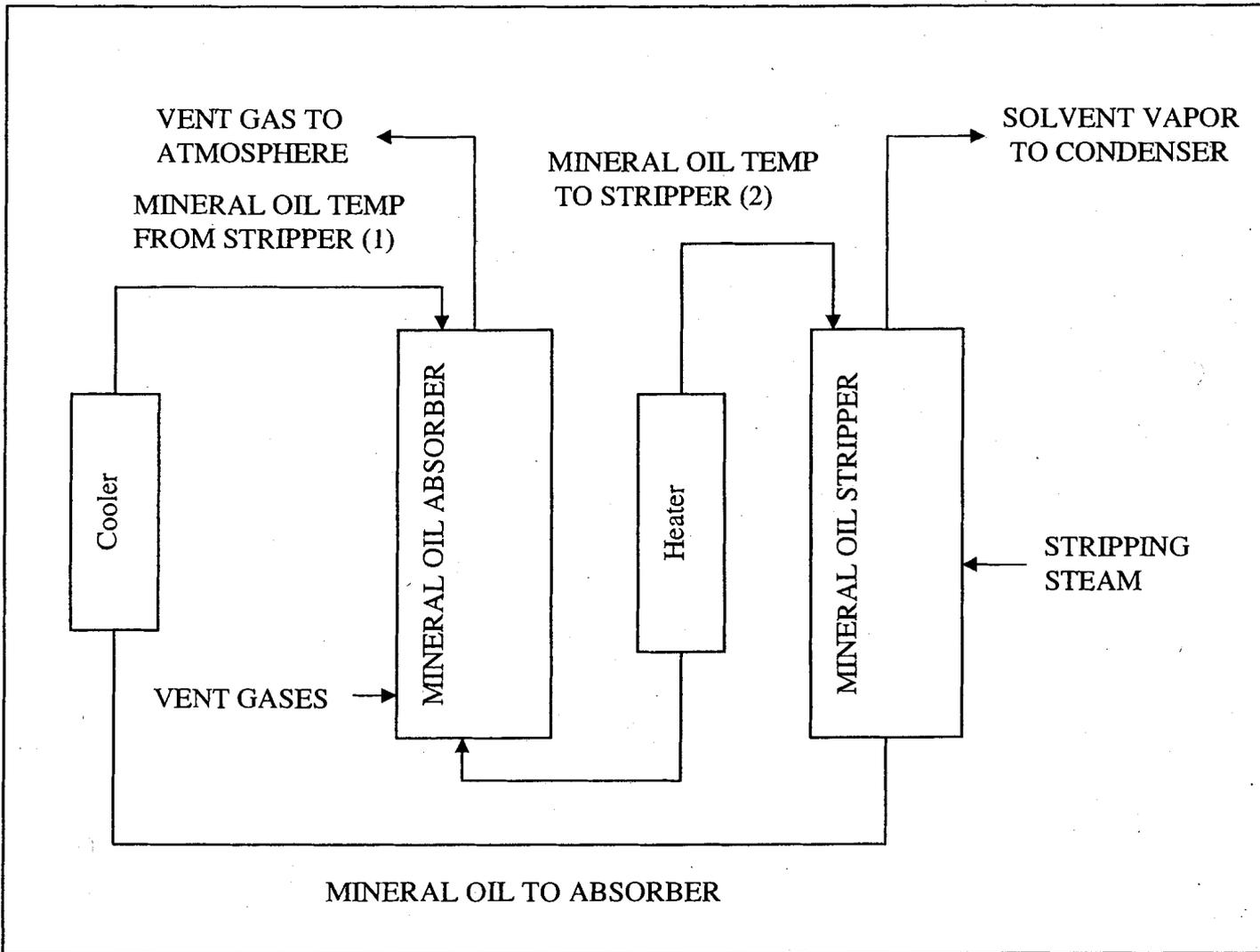


Diagram 3.2. Process Flow Diagram for Mineral Oil System Upgrade

The following flow diagram presents the proposed volatile organic compound (VOC) control technology.



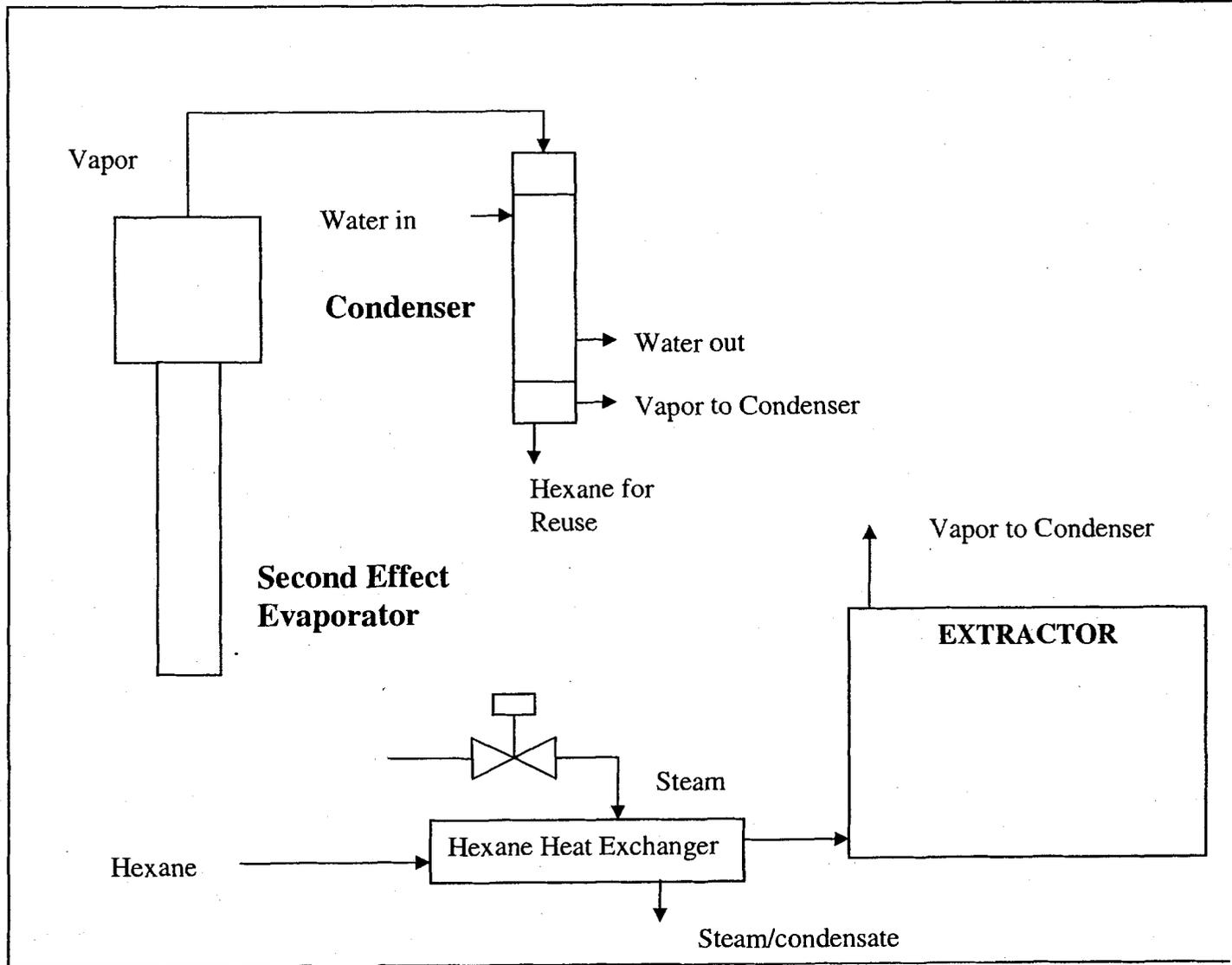
Upgrade Mineral Oil System (MOS)

Modify and improve the existing MOS, including system controls.

The Mineral Oil Temperature from Stripper (1) (see Diagram 3.2 above) will be maintained at a maximum operating temperature of 100°F under normal operating conditions.

The Mineral Oil Temperature to Stripper (2) (see Diagram 3.2 above) will be maintained at a minimum operating temperature of 215°F under normal operating conditions.

Diagram 3.3 Improve Control of Hexane Temperature to the Extractor.
The following flow diagram presents the proposed VOC control technology.



Improve Control of Hexane Temperature to the Extractor

Modify and improve heating of hexane to the extractor by isolating the uncontrolled Second Effect Evaporator vapor from the extractor and adding a steam hexane heater to regulate temperature of hexane to the Extractor.

4.0 Emission Units Requiring Pollution Control Equipment

The following emission units and control equipment have been designated as affected units in the Consent Decree and have emission limits requiring either pollution control technology or alternative projects designed to reduce emissions. Changes to the requirements listed in the following table may be considered non-material modifications under Paragraph 5.b. of the Consent Decree, provided Bunge Milling (1) achieves the emission limits specified in this CTP and the Consent Decree for the Danville, Illinois Corn Dry Mill Extraction Plant and (2) obtains prior written approval of the change(s) from EPA and the Illinois Environmental Protection Agency (IEPA) as provided in Paragraph 5.b. of the Consent Decree.

Emission Unit Description	Control Equipment/Optimization Description
Desolventizer Toaster/Dryer Cooler (DT/DC)	Install Operational Controls on DT/DC (VOC)
Mineral Oil System	Upgrade Mineral Oil System (VOC)
Extractor	Improve Control of Hexane Temperature (VOC)

5.0 Engineering Design Criteria for Pollution Control Equipment

Bunge Milling shall report any deviation from the design criteria listed below in the semi-annual reports required by Paragraph 47 of the Consent Decree and as required under other state and federal rules. Note that the specific design criteria listed here are preliminary and subject to change pending development of additional data. Changes to the requirements listed in the following table may be considered non-material modifications under Paragraph 5.b. of the Consent Decree, provided Bunge Milling (1) achieves the emission limits specified in this CTP and the Consent Decree for the Danville, Illinois Corn Dry Mill Extraction Plant and (2) obtains prior written approval of the change(s) from EPA and IEPA as provided in Paragraph 5.b. of the Consent Decree.

Emission Unit Description	Control Equipment/Optimization Description	Design Criteria Targets
DT/DC	Install Operational Controls on DT/DC (VOC)	Maximum Dome Pressure \leq 9 inches water gauge Minimum Temperature of Discharge Meal \geq 200°F
Mineral Oil System	Upgrade Mineral Oil System (VOC)	See Section 6.0
Extractor	Improve Control of Hexane Temperature (VOC)	Hexane Temperature to Extractor 135°F to 145°F

6.0 Monitoring Parameters for Pollution Control Equipment

Beginning no more than 30 days following startup of the control equipment described below or thirty days from lodging of the Consent Decree, whichever is later, Bunge Milling shall monitor the parameters listed below. Changes to the requirements listed in the following table may be considered non-material modifications under Paragraph 5.b. of the Consent Decree, provided Bunge Milling (1) achieves the emission limits specified in this CTP and the Consent Decree for the Danville, Illinois Corn Dry Mill Extraction Plant and (2) obtains prior written approval of the change(s) from EPA and IEPA as provided in Paragraph 5.b. of the Consent Decree.

All monitoring data collected shall be recorded and maintained on-site. Any deviation from monitoring frequency, record keeping and/or range shall be reported in the semi-annual reports required by Paragraph 47 of the Consent Decree and as required under other state and federal rules.

Emission Unit Description	Control Equipment / Optimization Description	Parameter Monitored	Compliance Operating Range/Limit	Monitoring Frequency
DT/DC	Install Operational Controls on DT/DC (VOC)	Pressure Inside Dome Temperature of Discharge Meal	≤ 9 inches water gauge $\geq 200^{\circ}\text{F}$	Once per operational day
Mineral Oil System	Upgrade Mineral Oil System (VOC)	Hot Mineral Oil Temperature Cold Mineral Oil Temperature	$\geq 215^{\circ}\text{F}$ $\leq 100^{\circ}\text{F}$	Once per operational day
Extractor	Improve Control of Hexane Temperature (VOC)	Hexane Temperature to Extractor	135°F to 145°F	Once per operational day

7.0 Emission Limits

Bunge Milling shall comply with the emissions limits in the table below pursuant to this CTP and the Consent Decree. Bunge Milling shall report any deviation from emission limits in the semi-annual reports required by Paragraph 47 of the Consent Decree and as required under other state and federal rules.

Emission Unit Description	Control Equipment / Optimization Description	Pollutant	Emission Limit(s)
DT/DC	Install Operational Controls on DT/DC (VOC)	VOC	Solvent Loss Ratio ⁽¹⁾
Mineral Oil System	Upgrade Mineral Oil System (VOC)	VOC	Solvent Loss Ratio ⁽¹⁾
Extractor	Improve Control of Hexane Temperature (VOC)	VOC	Solvent Loss Ratio ⁽¹⁾

⁽¹⁾ See Section 9.0 of this CTP.

8.0 Schedules for Emission Reduction Projects

Bunge Milling shall report any deviation from the applicable schedules in the semi-annual reports required by Paragraph 47 of the Consent Decree and as required under other state and federal rules.

The following schedule implements Paragraphs 19 and 20 of the Consent Decree:

Emission Reduction Project	Schedule
Install Operational Controls on DT/DC (VOC)	December 31, 2005
Upgrade Mineral Oil System (VOC)	December 31, 2007
Improve Control of Hexane Temperature to the Extractor (VOC)	December 31, 2007

9.0 Procedures for Optimization of Control Equipment and Setting Emission Limits

9.1 VOC Emissions Limit

Bunge Milling shall comply with a final VOC solvent loss ratio (SLR) limit of 0.7 gallon of solvent loss per ton of crush (gal/ton) based on HAP content as set forth in Paragraph 36(d) of the Consent Decree. Bunge Milling's compliance with the final SLR limit for its Danville, Illinois Corn Dry Mill Extraction Plant shall be determined in accordance with 40 C.F.R. Part 63, Subpart GGGG, with the following exceptions: (1) monitoring and recordkeeping of solvent losses shall be conducted daily; (2) solvent losses and quantities of oilseed processed during startup and shutdown periods shall not be excluded in determining solvent losses; and (3) records shall be kept in a similar format as the table in Section 9.4, below, that show total solvent losses, solvent losses during malfunction periods, and adjusted solvent losses (i.e., total solvent losses minus malfunction losses) monthly and on a 12-month rolling basis.

9.2 Malfunctions. Bunge Milling may apply the provisions of 40 C.F.R. Part 63, Subpart GGGG, pertaining to malfunction periods at its Danville, Illinois Corn Dry Mill Extraction Plant only when both of the conditions in subparagraphs (i) and (ii) are met:

(i) The malfunction results in a total plant shutdown. For purposes of the Consent Decree, a "total plant shutdown" means a shutdown of the solvent extraction system; and

(ii) The total amount of solvent loss to which the provisions of 40 C.F.R. Part 63 Subpart GGGG relating to malfunctions is applied in a rolling 12-month period does not exceed the Allowable Malfunction Volume as defined below. The Allowable Malfunction Volume in gallons is equal to the plant's 12-month crush capacity times its interim or final VOC SLR limit (as defined in this CTP) times 0.024, as follows:

Allowable Malfunction Volume (gal) =
 12-month crush capacity (tons) * Interim or Final VOC SLR limit, as defined in this CTP (gal/ton) *
 0.024

The term "crush capacity" of the Danville, Illinois Corn Dry Mill Extraction Plant shall be based on the design capacity for such plant that has been certified by Bunge Milling as required by Paragraph 31.a of the Consent Decree.

For purposes of this CTP D, design capacity is the "maximum permitted crush capacity" that a plant is allowed to process in a given time period under its operating permit; or, if no limit is included in the operating permit, the plant's maximum daily capacity, as demonstrated during the previous five years. This number is expressed as "tons of crush per day."

At all other times, Bunge Milling must include all solvent losses when determining compliance with its final VOC SLR limit.

During a malfunction period, Bunge Milling shall comply with the Startup, Shutdown, Malfunction ("SSM") Plan as required under Subpart GGGG for the plant. The total solvent loss corresponding to a malfunction period will be calculated as the difference in the solvent inventory, as defined in 40 C.F.R. § 63.2862(c)(1), for the day before the malfunction period began and the solvent inventory on the day the plant resumes normal operations.

9.3 Root Cause Analysis for VOC Malfunction Events

General Provisions. Pursuant to Paragraph 21 of the Consent Decree, and as described below, Bunge Milling shall implement a program, for a period of 24 months following entry of the Consent Decree, to investigate the cause of VOC malfunction incidents occurring during that time period, to take reasonable steps to correct the conditions that cause or contribute to such malfunction incidents, and to minimize malfunction incidents.

Investigation and Reporting (Root Cause Analysis). By no later than forty-five (45) days following the end of a malfunction incident at the Danville, Illinois Corn Dry Mill Extraction Plant, Bunge Milling shall prepare a report to be kept at its Danville, Illinois facility that sets forth the following:

- a. The date and time that the malfunction incident started and ended. To the extent that the malfunction incident involved multiple releases either within a 24-hour period or within subsequent, contiguous, non-overlapping 24-hour periods, Bunge Milling will set forth the starting and ending dates and times of each release;
- b. An estimate of the quantity of VOCs/HAPs that was emitted and the calculations that were used to determine that quantity;
- c. The steps, if any, that Bunge Milling took to limit the duration and/or quantity of VOCs/HAPs emissions associated with the malfunction incident; and
- d. A detailed analysis that sets forth the Root Cause and all contributing causes of that malfunction incident, to the extent determinable.

Corrective Action. In response to any malfunction incident occurring after the entry of the Consent Decree, Bunge Milling shall take, as expeditiously as practicable, such interim and/or long-term corrective actions, if any, as are consistent with the general provisions above and good engineering practice to minimize the likelihood of a recurrence of the Root Cause and all contributing causes of that malfunction incident.

Nothing in this CTP will be construed to limit the right of Bunge Milling to take such corrective actions as it deems necessary and appropriate immediately following a malfunction incident or in the period during preparation of any reports required under this CTP.

9.4 Solvent Loss Record Table

Date	Total Crush (tons)		Total Solvent Loss (gallons)		Malfunction Period Solvent Loss (gallons)		Adjusted Solvent Loss ^a (gallons)		SLR ^b (gal/ton)
	Monthly	12-Month Rolling	Monthly	12-Month Rolling	Monthly	12-Month Rolling	Monthly	12-Month Rolling	12-Month Rolling
Month -Year									

^a - Adjusted Solvent Loss is equal to Total Solvent Loss minus Malfunction Period Solvent Loss.

^b - Solvent Loss Ratio is equal to 12-month rolling Adjusted Solvent Loss divided by 12-Month Rolling Total Crush. Compliance determination for each plant is based on 12-Month Rolling SLR value compared to Final VOC SLR Limit.