



Process Vents and Fugitive Emissions

Document Number: ECS0105A	Standard – Procedure	Facility: Oil Sands
Revision Date: 2017/12/13 Revision: 2 Review Cycle: 3	Document Owner (Title): Director EH&S Environment/IH, Oil Sands	

Purpose/Scope

This standard sets the minimum environmental requirements for operating and monitoring process vents and fugitive emissions. This procedure does not apply to stack emission sources with more rigid prescribed monitoring requirements and emission limits as identified in Table 4.1-B and 4.1-C of Suncor’s Operating Approval 94-02. For additional information on fugitive emissions and the LDAR program, refer to Canadian Council of Ministers of the Environment (CCME)’s Environmental Code of Practice for the Measurement and Control of Fugitive VOC Emissions from Equipment Leaks, October 1993.

Compliance

This document applies to work performed at Suncor Energy operating sites in the Wood Buffalo Region that includes the Oil Sands Site and excludes the In Situ sites (Firebag and MacKay River).

Roles and Responsibilities

The following individuals and groups have the following roles and responsibilities:

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|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Document Owner | <ul style="list-style-type: none">• Ensures this document is reviewed according to the required revision cycle.• Ensures the document is updated to accommodate changes to Suncor, provincial, and federal regulation.• Ensures the document is updated to mitigate risks found as the result of an incident. |
| Document Approver | <ul style="list-style-type: none">• Ensures this standard is necessary and that it aligns with management and company direction. |

References

The following documents are referenced in this standard and are available in the Livelink system.

- [CCME: Environmental Code of Practice for the Measurement and Control of Fugitive VOC Emissions from Equipment Leaks, October 1993.](#)
- Suncor Fugitive Volatile Emissions (FVE) Plan
- [ECS0404A – Upgrading Hydrocarbon, Acid Gas and Sour Water Acid Gas Flares.](#)
- US EPA “Method 21 – Determination of Volatile Organic Compound Leaks” Vol 40, Appendices to Code of Federal Regulation Part 60, July 1, 2009.
- Operating Approval 94-02

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Approved By: Sheila Chernys, Director EH&S Environment and Industrial Hygiene Oil Sands

Terms, Definitions and Acronyms The following terms, definitions and acronyms are used in this standard:

Effluent Stream	means any substance in a gaseous medium released by or from the plant;
Fugitive Emissions	means air contaminant emissions to the atmosphere other than ozone depleting substances originating from a plant source other than a flue, vent, or stack but does not include sources which may occur due to breaks or ruptures in process equipment;
Fugitive VOC Emissions Code	means the Environmental Code of Practice for the Measurement and Control of Fugitive VOC Emissions from Equipment Leaks, October 1993, Publication CCME-EPC-73E, as amended;
LDAR	means a Leak Detection And Repair program;
Leak	(as defined by the CCME Code) is the detection of a VOC concentration of 10,000 ppmv or more from a component of process equipment using a hydrocarbon analyzer;
Repaired	(as defined by the CCME Code) means process equipment that has been adjusted or altered in order to eliminate a leak;
Sour Gas	means any gas stream containing more than 0.025 mole percent of hydrogen sulphide;
Vapour Control System	means a gathering and control system for collecting vapours and gases from specified storage tanks and processing units so as to direct the vapours and gases to subsequent treatment systems;
Volatile Organic Compounds (VOC)	means any organic compound that participates in atmospheric photochemical reactions, that is, any organic compounds other than the following which have been excluded because of their negligible photochemical reactivity: methane, ethane, 1,1,1-trichlorethane, methylene chloride, chlorofluorocarbons (CFCs), fluorocarbons (FCs), hydrochlorofluorocarbons (HCFCs).

Standard

1. Operating Requirements

Item	Description
1.1	Suncor is not authorized to emit fugitive emissions or air contaminants from any sources not specified in the Operating Approval that may cause degradation, harm or adverse effect to natural resources, persons, property, or plant or animal life.
1.2	Upgrading and Extraction shall ensure that fugitive emissions are controlled in accordance with the Suncor Fugitive Volatile Emissions (FVE) Plan.

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Item	Description
1.3	Upgrading shall ensure that sour gas effluent streams produced in the Upgrading facilities processing units (specifically the amine treatment units and sour water stripper units) shall be processed through the sulphur recovery plants except during time periods that the streams are authorized to be flared, as per ECS0404A – Upgrading Hydrocarbon, Acid Gas and Sour Water Acid Gas Flares.
1.4	Upgrading shall ensure that vapours and gases from the NRU, secondary extraction vents, and the STF storage tanks are collected and treated in the Vapour Recovery Unit for removal of hydrogen sulphide, hydrocarbons, and mercaptans.
1.5	Upgrading shall ensure that the materials stored in tanks that vent directly to atmosphere (storage tanks 8D-1, 8D-2, 10D-4, 20D-10/11/12/13, 20D-30, 20D-32 and 20D-36, 20D-57 and 20D-58) are restricted to the materials specified in the Operating Approval 94-02.
1.6	Upgrading shall ensure that NTF TVP values shall not exceed licenced limits, as per Operating Approval 94-02.
1.7	The repair of any leaks detected during the annual LDAR sampling campaign (Section 2.3) must be initiated by the affected operating area within 5 working days and completed within 15 days unless a plant shutdown is required, or the number of components requiring repair exceeds the current capability of the maintenance resources (a record of these exceptions and when they were corrected should be maintained).

2. Monitoring Requirements

Item	Description
2.1	Upgrading and Extraction shall ensure that fugitive VOC emissions from the plant are monitored annually in accordance with LDAR requirements from the CCME Code referenced in this document, and with the Suncor FVE Plan as defined in the Operating Approval 94-02, clause 4.1.50.
2.2	Process equipment components that must be monitored as part of the FVE Plan include block valves, control valves, pump seals, compressor seals, pressure relief valves, equipment and piping flanges and connectors, open-ended lines, and sampling connections.
2.3	Upgrading and Extraction shall maintain an inventory of the pieces of equipment or equipment components that are potential leak sources as defined in Section 2.2. These sources shall be categorized by type.
2.4	Environmental Affairs shall maintain an inventory of total emissions from sources listed in Section 2.3 over the past 10 years, through annual report information.

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Item	Description
2.5	Emissions will be monitored using a portable hydrocarbon analyzer that meets the performance specifications given in US EPA "Method 21 – Determination of Volatile Organic Compound Leaks" Vol 40, Appendices to Code of Federal Regulation Part 60, July 1, 2009.
2.6	The leak frequency should be less than 10% for pump seal and compressor seal groups, and less than 2% for all other groups of components;
2.7	If the leak frequency is less than 2% for a group of components in two or more successive LDAR campaigns, then statistical sampling may be used for that component. If the leak frequency exceeds 2% for a group of components, then all components in the group must be tested.
2.8	Statistical sampling as defined in the CCME Code must be authorized in writing annually by Alberta Environment and Water based on the testing results of the previous campaign. Upgrading and Extraction shall summarize the monitoring results annually for submission to AEW.

End of Standard

Summary of Changes

Rev No.	Section Changed	Revision Made
2	Purpose/Scope	Removed reference to ENP0300A, ENP0303A, ENP0403A and ENP0404A as there is no record of these document numbers.
2	Purpose/Scope	Removed reference mentioning that more complete information on emissions from storage tanks and secondary extraction (Plants 4/16/87) are found in Standard ECS0204A - Vapour Control and NRU Operation since this document was archived in August 2016. It was determined that this document is no longer needed as it is part of RC Tool.
2	Standard	In Section 1.3, updated document reference from ENP0404A to ECS0404A.
2	Standard	In Sections 1.3, 1.5, 1.6, removed reference to ECS0204A.
2	Standard	In Section 1.5, removed reference to tanks 4D-1 and 4D-7 for tanks venting to atmosphere.
2	Standard	Removed Section 1.8 which referenced ECS0107A

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Approved By: Sheila Chernys, Director EH&S Environment and Industrial Hygiene Oil Sands



The following individuals have approved and signed this document.

UserName: Sheila Chernys (schernys)

Title: Dir OS Enviro & Reg

Date: Wednesday, 13 December 2017, 08:34 AM Mountain Time

Meaning: Approver 1 Signed

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