

Joint venture companies



Controlled Document

LNG Canada Black Smoke Emissions Report

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1. Executive Summary

This report has been prepared in response to BC Energy Regulator (BCER) General Order 2026-0032-01 and presents LNG Canada's review of black smoke flaring events, including the identification of underlying root causes and measures to prevent recurrence.

Since April 22, 2026, LNG Canada has reported all black smoke flaring events exceeding 15 minutes in duration in accordance with Requirements #1 and #2 of General Order 2026-0032-01.

LNG Canada conducted a detailed review of each reported black smoke event and performed root cause analyses to identify the underlying causes. All instances of black smoke are related to flaring events associated with one of the five flare scenarios: Emergency, Facility Trip, Facility Start up, Maintenance, and Process upset. Underlying root causes for each of the flaring scenario have been identified along with focus area to address the underlying root cause of the black smoke. LNG Canada has developed preventative measures specifically for each focus area to reduce the likelihood of future black smoke events. These preventative measures ranging from internal operating and maintenance procedural changes / updates to reflect learnings from past events, engineering studies and modifications to further increase the reliability of the facility and/or reducing likelihood of flaring, to capital project to replace the warm wet flare tip.

LNG Canada believes this report fulfills the requirements of Requirement #3 of General Order 2026-0032-01. Should additional information or clarification be required, please contact the LNG Canada team.

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2. List of Acronyms & Definitions

AGRU	Acid Gas Removal Unit – warm end gas treatment unit (U1100) to remove CO ₂ and H ₂ S along some BTEX from the feed gas stream
BOG	Boil Off Gas – flashed Nitrogen / Methane from the LNG storage tank
CWHE	Coil Wound Heat Exchangers – specific type of heat exchanger used for cryogenic application due to compact design
FCD	Flare – cold dry – flare header dedicated to handle cold hydrocarbon that contains no water and poses no freezing risk in the flare system
FLP	Flare – low pressure & storage – flare header designed with minimal back pressure for low pressure system reliefs
FWW	Flare – Warm Wet – flare header dedicated to handle warm hydrocarbon that may contains water
LNG	Liquefied Natural Gas – natural gas that has been liquefied, typically stored in atmospheric tank at cryogenic temperatures
LNGFR	Liquefied Natural Gas Facility Regulation. It is a British Columbia regulation administered by the BC Energy Regulator (BCER) that establishes requirements for LNG facilities.
MCHE	Main Cryogenic Heat Exchanger – the main heat exchanger used to liquefy natural gas into LNG
NGL	Natural gas liquids – liquid hydrocarbon when natural gas is cooled down, typically refer to ethane, propane, butane+ components
MR	Mixed refrigerant – main refrigerant used for the liquefaction of natural gas into LNG inside the main cryogenic heat exchanger
PMR	Pre-Mixed refrigerant – refrigerant used for the pre-cooling of natural gas and partial condensation of the Mixed Refrigerant

3. Background

There have been number of instances of reportable visible emissions from LNG Canada facility since initial start up. This report is prepared pursuant to BCER General Order 2026-0032-01 to identify the underlying root causes of the emission of black smoke and measures to prevent the emission of black smoke.

4. Regulatory Requirements and Permit Conditions

LNG Canada received its Facility Permit (File No. 9709124) on December 22, 2015. The latest version of the facility permit can be found at <https://www.bc-er.ca/what-we-regulate/major-projects/lng-facilities/lng-canada/>

Condition 38 and 41 of LNGC facility permit provides permission and regulation on black smoke emissions during operations of LNG Canada Facility.

Condition 38: Subject to section 18(3) of the LNGFR the Permit Holder must design, maintain and operate flares and incinerators so that flaring, other than flaring for emergency purposes, does not result in:

1. the emission of black smoke during normal operations; or
2. the emission of black smoke during process upsets that exceed a period or periods aggregating more than 15 minutes in any two-hour period.

Condition 41: The Permit Holder must implement the measures set out in the Flaring Management Report.

As per LNG Canada Facility Permit definition:

Normal operations excludes emergency conditions and commissioning.

Emergency conditions involve activation of facility safety systems that could lead to emergency flaring. Emergency flaring occurs when safety controls within the LNG facility are enacted to depressurize equipment to avoid possible injury or property loss resulting from explosion, fire or catastrophic equipment failure.

Process upset means deviations that require the operator to take measures that prevent safety or production loss and preempt activation of safety systems. Process upset excludes safety systems activation.

Additionally, compliance must be followed with the order GENERAL ORDER 2026-0032-01 issued to LNG Canada under Section 49 Energy Resource Activities Act (ERAA) to voluntarily self-disclose all instances of the emission of black smoke flaring that exceeded 15 minutes in duration.

5. Black Smoke Reporting

Since April 22, 2026, LNG Canada reported all 20 instances of the emission of black smoke flaring that exceeded 15 minutes in duration, in compliance with the GENERAL ORDER 2026-0032-01, Requirement #1 and #2.

Each report contained the Andium camera reports, flaring starting and ending dates and times, reason for flaring, assessments of whether the black smoke event occurred during normal operations, process upset, or for emergency purposes, immediate actions taken and corrective and preventative measures.

6. Assessment of the flaring events and underlying causes

LNG Canada asset team have reviewed each black smoke event and assessed the individual underlying root causes for each event.

6.1. Flaring Scenarios and Root Cause

While the specific condition for each flare event varies, all the black smoke events recorded so far can be categorized into below flaring scenarios:

Flaring Scenario	Permit Classification	Description of the Flaring Scenario	Root Cause	Focus Area
Emergency	Emergency	Flaring event occurs during an emergency or activation of safety system. A false positive activation of safety system is still deemed an emergency as the safety system is still activated.	Each emergency is unique and can involve a wide range of flaring conditions; therefore, smokeless performance of the flare tip cannot be guaranteed for all emergency flaring scenarios.	
Facility Shutdown / Trips	Emergency	Flaring event caused by unplanned facility / train shutdown.	- Consequential trip of acid gas incinerator and flash gas compressor following unplanned train trip resulting in flaring through warm wet flare (FWW). Inadequate assist gas management due to unavailability of flow meters caused black smoke. - Consequential Liquid refrigerant accumulation in critical equipment following unplanned train trip necessitating evacuation via cold dry flare (FCD) to normalize the equipment before start-up caused black smoke. - Sub-optimal operating mode resulted in flaring through warm wet flare (FWW) caused black smoke due to inadequate performance of the tip.	- Further Improve system reliability to minimize consequential trip after liquefaction train trip - Minimize refrigerant accumulation and flaring post trip - Minimize flaring from inlet / AGRU post trip - Improve warm wet flare tip performance

Facility Start Up	Emergency	Flaring event occur during planned facility / train restart after a trip. By design LNG Canada startup will require, for a short time, continuous flaring as the facility going through transient start up condition.	• Flaring, via warm wet flare (FWW), required to bring warm end on spec caused black smoke due to inadequate performance of the warm wet flare tip discovered during early operation. • Simultaneous flaring of warm LNG and heavy liquid molecules from blow case, via liquid burners, caused black smoke.	• Minimize flaring during start up • Minimize liquid drop out to FCD KO drum and simultaneous blow case sequence during start up • Improve warm wet flare tip performance
Planned and Unplanned Maintenance	Process Upset	Flaring event occur during maintenance activity where equipment (vessels, pumps, compressor, piping components, etc) are hydrocarbon freed to allow safe work execution, followed by O2 free and inert back to process condition before start up.	• Refrigerant compressors / Expanders / Pumps are required to be inerted using N2 for planned maintenance activity of start-up strainer removal. Flaring of heavier molecules (C2, C3) along with N2, via cold dry flare (FCD) caused black smoke. • Acid gas is routed to warm wet flare (FWW) during acid gas incinerator maintenance. Inadequate assist gas management due to unavailability of flow meters caused black smoke.	• Minimize flaring of refrigerant loop during maintenance • Further Improve overall system reliability of the acid gas incinerator
Process Upset	Process Upset	Flaring event occur during process instability, and process condition exceeds normal operating condition require additional intervention to prevent safety or production upset and pre-empt activation of safety systems.	• Tie-in sequence which require subsequent flaring / depressurization of refrigerant to FCD caused black smoke. • Consequential contamination of PMR refrigerant via external seal gas following prolonged train trip necessitating flaring via cold dry flare (FCD) during restart of the train caused black smoke. • Process upset in Stabilization unit (U-2000) overhead compressor necessitating flaring via cold dry flare (FCD) caused black smoke.	• Minimize upset to MR/PMR compressor from external seal gas • Improve U-2000 overall process stability / controllability

6.2. Summary of all black smoke events and associated flaring scenario

There have been 20 black smoke events for the period between April 22nd and July 31st, the count of black smoke events by month and the categorisation of the flaring scenario:

Month	Number of Black Smoke Events	Categorisation / Flaring scenarios
April	4	Emergency (1) Facility Trip (1) Facility Start Up (1) Maintenance (1)
May	3	Facility Trip (2) Facility Start Up (1)
June	3	Process Upset (1) Maintenance (2)
July	10	Emergency (1) Maintenance (4) Facility Trip (1) Process Upset (1) Facility Startup (3)
Total	20	Emergency (2) Facility Trip (4) Facility Start Up (5) Maintenance (7) Process Upset (2)

7. Prevention Measures

Since April 22, 2026, LNG Canada team has implemented number of prevention measures to minimize the black smoke during flaring.

- The incinerator operating envelope was expanded to improve system reliability. This measure was to minimize incinerator trip during process upset, which has caused black smoke during acid gas flaring. This measure was implemented by June 8th, 2026, and have shown significant improvement in the incinerator reliability
- Controller setpoints were reviewed and verified to minimize flaring from inlet/AGRU post trip, which was a focus area for minimizing black smoke during flaring post facility shutdown/trip. This measure was implemented by June 1st, 2026.
- Linearization of the U-1200 regeneration gas flow control valves to minimize the process swing during heating and cooling cycles, which have caused flaring through FWW especially during plant trip condition. This measure was implemented by August 5th, 2026.
- Additional measures were completed by May 2026 to minimize flaring during start up. This includes:
 - Optimize start up sequence to minimize the flaring duration for warm wet flare (FWW)
 - Reduce the flow rate required for warm end stabilization by further reduce the turndown limit of the equipment
 - Reduce the flow rate required for the cold end pre-cooling by further challenge the turndown limit of the CWHEs and through operating experiences.
 - Streamline the start up sequence to further reduce the flaring duration to cold dry flare (FCD) / Liquid burner during cold restart.
 - Further minimization of concurrent blow case sequence during final MCHE cooldown. This includes review and optimize the V-1401 operating condition (pressure / temperature) during start up to minimize liquid drop out and update the blow case operating mode / sequence along with optimize purge timer duration.

To further address the black smoke root causes and focus areas summarized in Section 6, LNG Canada will implement additional technical solutions listed below. Each prevention measure is assessed for its effectiveness and impact against black smoke reduction. LNG Canada have prioritized the high impacted actions so far and will continue to progress all actions:

Table 1 – Black Smoke Focus Area and Prevention Measures

Root Cause	Focus Area	Prevention Measures	Impact to Black Smoke Reduction	Implementation Status	Additional Information
Flaring post facility shutdown/trip	Improve system reliability to minimize consequential trip after liquefaction train trip	1. Expand the incinerator operating envelope to minimize trips	High	Completed	
		2. Review and resolve incinerator dynamic response to prevent trip following train trip	Med	In Progress	Extensive engineering review required along with vendor study to assess improvement opportunities for incinerator dynamic response during train trip
		3. Review and resolve flash gas compressor dynamic response to prevent trip following train trip	Low	In Progress	Extensive engineering review required along with vendor study to assess improvement opportunities for flash gas compressor dynamic response during train trip
		4. Improve assist gas management to minimize the black smoke potential for low volume flaring scenarios of flash gas compressor and Incinerator trip.	High	In Progress	Ongoing challenges with flow meters, possible procurement of new flow meter required
	Minimize refrigerant accumulation and flaring post trip	5. Review MCHE current trip sequence to minimize refrigerant accumulation following train trip	High	In Progress	Requires further engineering assessment and follows the LNG Canada MOC work process to implement the change

		6. Provide in-train PMR transfer capability from drain vessel back to the accumulator to minimize PMR flaring	High	In Progress	Requires engineering assessment and follows the LNG Canada MOC work process to implement the change
	Minimize flaring from inlet / AGRU post trip	7. Review / verify controller setpoints around AGRU to prevent flaring post train trip	High	Completed	
		8. Review the BOG flaring route during total plant trip to determine best flare path (to either FLP or FWW) during total facility shutdown	Med	In Progress	Requires further engineering assessment to determine which flare header (FWW vs FLP) is most suitable to handle BOG flaring post full plant trip
Facility Start Up	Minimize flaring during start up	9. Minimize flow (turndown) and duration required to warm wet flare (FWW) during restart.	High	Completed	
		10. Minimize flow (turndown) and duration to cold dry flare (FCD) during restart.	High	Completed	
	Minimize liquid drop out to FCD KO drum and minimize concurrent blow case sequence during start up	11. Review V-1401 operating condition (pressure/temperature) during start up to minimize liquid drop out	High	Completed	
		12. Automation of the blow case sequence during start up and purge timer adjustment	High	Completed	
		13. Update and implement operating instruction for improved operation of the liquid burner during start up.	High	In Progress	
	Improve warm wet flare tip performance	14. Long term FWW tip re-design and replacement	High	In Progress	Ongoing brownfield project
		15. Deliver feasibility of brownfield projects to further minimize flaring and black smoke.	Med	In Progress	On going brownfield opportunity framing

Maintenance	Minimize flaring of refrigerant loop during maintenance	16. Limit the rate of Nitrogen depressurization into FCD during maintenance to minimize black smoke	Med	In Progress	Also need to include LHV requirement, balance the goal of flare minimization
	Further Improve overall system reliability of the acid gas incinerator	Same action as No. 1 and 2 above			
Process Upset	Minimize upset to MR/PMR compressor from external seal gas	17. Update operating procedure on when / how long external seal gas should be used while compressor is offline / tied-out	Med	In Progress	
		18. Ensure refrigerant composition is correct prior to start up to minimize concurrent flaring.	Med	In Progress	
	Improve U-2000 overall process stability / controllability	19. Deploy advanced process control to further stabilize U-2000	Low	In Progress	U-2000 is prioritized for stability and flare minimization. Complex system requires extensive engineering study and assessment

8. Closure

LNG Canada believes that this report addresses and fulfils Requirement #3 of General Order 2026-0032-01. LNG Canada will continue to monitor and strive to improve / minimize flare events. Events leading to black smoke will be investigated and any learnings / improvement will be continuously applied. Should additional information or clarification be required, please contact the LNG Canada team.

Appendix A – Detailed Assessment and Root Cause for the black smoke events

Date	From	To	Description of event	Flaring Scenario	Permit Classification	LNGC Technical Assessment for Black Smoke	Prevention Measures	Additional Information
26-Apr-26	20:40	21:40	Blacksmoke caused by an emergency activation of PRV 114PRV 015A on the Train 1 Pre Mixed Refrigerant (PMR) system, located downstream of the PMR accumulator	Emergency	Emergency	1. Event initiated by premature activation of a pressure relief valve (PRV). PRV are commonly used throughout industry to provide ultiamte over pressure safeguards. While premature activation of PRVs can happen, this typically is a rare event. 2. Flaring of refrigerant (C2/C3) typically causes black smoke	None - Emergency scenario - pre-mature lifting of PRV is not expected during normal operation	
27-Apr-26	12:16	14:16	Planned maintenance was undertaken to take Train 2 Sting 3 out of service for a supercore change out cause Black smoke exceeding 15 minutes duration	Planned Maintenance	Process Upset	1. Depressurization / purging is part of normal maintenance activity 2. Compressor pressure / Inventory was minimized prior to depressurization 3. Black smoke caused by flaring of refrigerant mixed with Nitrogen as part of the dynamic purge step	1. Review the rate of nitrogen / refrigerant purge into the FCD during inerting step to minimize black smoke	Also need to include LHV requirement, balance the goal of flare minimization
28-Apr-26	11:36	20:32	Unplanned Emergency trip of Train 1 String 1 due to acoustic alarm in the turbine combustor system	Facility Trip	Emergency	1. Event initiated by GT acoustic alarm - although undesired and shall be minimized, facility tripping is unavoidable part of facility operation. 2. Controller setpoint for 114PIC-0132 was set too close to the train settle out pressure resulted in continuous flaring. 3. Process fluid relieved to flare header is natural gas, known performance deficiency in the FWW tip	1. Increase the Pressure controller set point - COMPLETED 2. Review and tune controller to prevent pressure spikes during regeneration cycle - COMPLETED 3. FWW Flare Tip redesign & replacement	Ongoing brownfield project for FWW tip redesign
29-Apr-26	12:30	21:15	Planned flaring event associated with Train 1 cold restart after emergency trip 28th April, flaring and intermittent black smoke from the Cold Dry Flare (FCD) and Spare Flare as part of normal and controlled start-up activities of Train	Facility Restart	Emergency	1. FWW black smoke during start up - known performance deficiency in the FWW tip 2. In addition to the start up flaring, PMR was contaminated with excessive C1 from the compressor seal gas. This resulted in flaring of the PMR was in conjection of train start up, refrigerant (C2/C3) flaring causes black smoke	1. FWW Flare Tip redesign & replacement 2. Review the PMR compressor external seal gas line up during trip / shutdown to minimize refrigerant contamination while perserving compressor seal integrity 3. Ensure refrigerant composition is correct prior to start up to minimize concurrent flaring	Ongoing brownfield project for FWW tip redesign
6-May-26	19:07	21:10	Train 1 trip caused the flare valve in AGRU unit to send gas to warm wet flare/spare flare header for ~36 mins (7:07 PM to 7:43 PM) causing the black smoke from spare flare tip	Facility Trip	Emergency	1. Process fluid relieved to FWW flare header is natural gas, known performance deficiency in the FWW tip 2. While flaring from AGRU post trip is undesirale - operator response within 36 min is aligned with typical operator response time 3. Incorrect flow set point to the AGRU overhead flow controller, post trip the controller tried to maintain flow (while train is down) resulted in flow to FWW	1. Part of the known FWW performance deficiency 2. Review / verify controller setpoint s around AGRU to prevent flaring post trip - COMPLETED	Ongoing brownfield project for FWW tip redesign
5/9/2026 to 5/10/2026	9:07	16:07	This flaring and black smoke event was associated with the cold restart of Train 1 and the black smoke was primarily driven by warm-end readiness activities required during the Train 1 start-up sequence. The black smoke event also included flaring related to the drainage of MR and PMR liquids that had accumulated following the Train 1 trip. The unavailability of the PMR drain pump further contributed to the need to manage these liquids through flaring. Under these operating conditions, intermittent visible smoke was observed during the flaring period.	Facility Restart	Emergency	1. in addition to the start up flaring, liquid PMR / MR accumulated in the CWHE was drained and subsequently flared 2. Internal transfer of PMR from drain system back to the PMR accumulator was not part of the original design	1. Engineer internal transfer route to transfer PMR from drain drum back to the PMR accumulator	Engineering assesment for the change, MOC process needs to be followed to implment the change
5/30/2026 and 5/31/2026	9:48	20:00	Unplanned trip following a power outage, resulting in both LNG production trains and associated equipment shutting down and causing flaring as part of normal safety response systems. Post trip start up flaring	Facility Restart	Emergency	1. in addition to the start up flaring, liquid PMR / MR accumulated in the CWHE was drained and subsequently flared 2. Internal transfer of PMR from drain system back to the PMR accumulator was not part of the original design	1. Engineer internal transfer route to transfer PMR from drain drum back to the PMR accumulator	Engineering assesment for the change, MOC process needs to be followed to implment the change
2-Jun-26	5:53	6:32	black smoke event was associated with the Process Upset from U-2000 caused by high temperature in the unit due to rapid ramp down of String 1 gas leak in turbine enclosure	Process Upset	Process Upset	1. Very rapid ramp down of Train 1 production from 210 kg/s to 116 kg/s in ~25 min 2. This led to the temperature oscillation in V-1401 from -50 to -55 before warming back up to -45 3. Process fluctuation led to rapid feed fluctuation to U-2000 and resulted in flaring in U-2000	1. Prioritize U-2000 as part of the ongoing Advanced Process Control initiative to improve the process tuning and system response	Ongoing APC initiative, U-2000 complex dynamics

Date	From	To	Description of event	Flaring Scenario	Permit Classification	LNGC Technical Assessment for Black Smoke	Prevention Measures	Additional Information
6/10/2026-6/11/2026	9:43	14:00	Train 1 Planned maintenance of LNG Expander defrost, draining and purging of suction strainer removal. This resulted in flaring from Cold Dry Flare (FCD) and intermittent black smoke. Flaring is anticipated to occur till June 16.	Planned Maintenance	Process Upset	1. Expander defrosting is part of planned maintenance activity 2. defrost rate was kept around ~2.5 kg/s 3. Flaring is LNG / Defrost gas	1. Review the maintenance purge rate for maintenance to minimize black smoke	Also need to include LHV requirement, balance the goal of flare minimization
6/11/2026-6/12/2026	6:47	11:51	The event occurred in connection with the Train 1 LNG Expander defrosting, draining, and purging activities undertaken on 10 June 2026 to support suction strainer removal	Planned Maintenance	Process Upset	1. Expander defrosting is part of planned maintenance activity 2. defrost rate was kept around ~2.5 kg/s 3. Flaring is LNG / Defrost gas	1. Review the maintenance purge rate for maintenance to minimize black smoke	Also need to include LHV requirement, balance the goal of flare minimization
6-Jul-26	8:00	14:58	LNG Canada planned String 2 maintenance activities and needed to flare for fuel gas purging and MR/PMR compressor venting. Black smoke was caused during the planned firmware upgrade of the input card while String 2 was stopped for a super core swap, an unexpected controller reboot occurred. This resulted in compressor depressurization due to inadvertent opening of the emergency depressurization (EDP) valve during the system software update.	Emergency	Emergency	1. This is a false positive initiation for the trip & vent from the Mark VI controller 2. Flaring of refrigerant (c2 / c3) of MR and PMR leading to black smoke	None - Emergency scenario -card failure during firmware upgrade leading to trip with vent	
14-Jul-26	5:06	7:11	Black smoke was observed from the spare flare beginning at approximately 5:00 a.m. while off-gases were being routed to the spare flare due to the unavailability of the Train 2 incinerator on July 14, 2026	Planned Maintenance	Process Upset	1. This is due to planned maintenance shutting down Train 2 acid gas incinerator	1. Improve assist gas management to minimize the black smoke potential for low volume flaring scenarios of flash gas compressor and Incinerator trip.	ongoing challenges with flow meters. Possible procurement of new flow meter required
16-Jul-26	10:55	18:21	Intermittent black smoke was generated from the Cold Dry Flare (FCD) during the controlled depressurization and draining of the Pre mixed refrigerants (PMR) and Mixed refrigerants (MR) compressor systems associated with Train 1 String 1 maintenance activities	Planned Maintenance	Process Upset	1. Depressurization / purging is part of normal maintenance activity 2. Compressor pressure / Inventory was minimized prior to depressurization 3. Black smoke caused by flaring of refrigerant mixed with Nitrogen as part of the dynamic purge step	1. Review the rate of nitrogen / refrigerant purge into the FCD during inerting step to minimize black smoke	Also need to include LHV requirement, balance the goal of flare minimization
17-Jul-26	18:29	22:33	Intermittent black smoke was generated from the FCD flare during the controlled depressurization and draining of the PMR and MR compressor systems associated with Train 2 String 4 unplanned maintenance activities	Unplanned Maintenance	Process Upset	1. Depressurization / purging is part of normal maintenance activity 2. Compressor pressure / Inventory was minimized prior to depressurization 3. Black smoke caused by flaring of refrigerant mixed with Nitrogen as part of the dynamic purge step	1. Review the rate of nitrogen / refrigerant purge into the FCD during inerting step to minimize black smoke	Also need to include LHV requirement, balance the goal of flare minimization
18-Jul-26	6:58	20:55	Intermittent black smoke was generated from the FCD flare during the controlled depressurization and draining of the PMR and MR compressor systems associated with Train 2 String 4 unplanned maintenance activities	Unplanned Maintenance	Process Upset	1. Depressurization / purging is part of normal maintenance activity 2. Compressor pressure / Inventory was minimized prior to depressurization 3. Black smoke caused by flaring of refrigerant mixed with Nitrogen as part of the dynamic purge step	1. Review the rate of nitrogen / refrigerant purge into the FCD during inerting step to minimize black smoke	Also need to include LHV requirement, balance the goal of flare minimization
23-Jul-26	13:57	22:37	Intermittent black smoke was generated from the FCD and Spare flare during Train 2 String 3 and Train 1 String 2 tripped due to power fluctuations caused by external grid instability related to forest fires in the province triggered the fan trips due to the equipment's sensitivity to electrical disturbances. The black smoke occurred as process hydrocarbons were routed to the flare during these activities.	Facility Trip	Emergency	1. Trip initiated due to grid instability causing both Train 1 and 2 to trip 2. Frequent flaring from AGRU overhead to FWW due to inlet header pressure fluctuation 3. Main inlet valve were closed, cause of header fluctuation is BOG	1. Review the preferred flow path of BOG and possible re-route BOG to FLP instead of FWW	Requires further engineering assessment to determine which flare header (FWW vs FLP) is most suitable to handle BOG flaring post full plant trip
25-Jul-26	6:18	20:57	Intermittent black smoke was generated from the FCD and Liquid Burner during Train 1 String 2 restart after the trip of Train 1 due to power fluctuations caused by external grid instability related to forest fires in the province triggered the fan trips due to the equipment's sensitivity to electrical disturbances. The black smoke occurred as process hydrocarbons were routed to the flare during these activities.	Facility Restart	Emergency	1. FWW black smoke during start up - known performance deficiency in the FWW tip 2. in addition to the start up flaring, liquid PMR / MR accumulated in the CWHE was drained and subsequently flared 3. Internal transfer of PMR from drain system back to the PMR accumulator was not part of the original design	1. FWW Flare Tip redesign & replacement 2. Update and implement operating instrument for improved operation of the liquid burner during start up 3. Engineer internal transfer route to transfer PMR from drain drum back to the PMR accumulator 4. Minimize refrigerant drop out post train trip	Ongoing brownfield project for FWW tip redesign Engineering assesment for the PMR in train transfer and MCHE trip sequence for refrigerant drop out minimization. MOC process needs to be followed to implment the change

Date	From	To	Description of event	Flaring Scenario	Permit Classification	LNGC Technical Assessment for Black Smoke	Prevention Measures	Additional Information
26-Jul-26	9:31	19:58	Intermittent black smoke was generated from the Cold Dry Flare (FCD) flare system during Train 1 and Train 2 restart after the trip due to power fluctuations caused by external grid instability related to forest fires in the province triggered the fan trips due to the equipment's sensitivity to electrical disturbances. The black smoke occurred as process hydrocarbons were routed to the flare during these activities.	Facility Restart	Emergency	1. FWW black smoke during start up - known performance deficiency in the FWW tip 2. Concurrent FCD blow case sequence during the MCHE final cooldown 3. in addition to the start up flaring, liquid PMR accumulated in the CWHE was drained and subsequently flared 4. Internal transfer of PMR from drain system back to the PMR accumulator was not part of the original design	1. FWW Flare Tip redesign & replacement 2. Update and implement operating instrument for improved operation of the liquid burner during start up 3. Engineer internal transfer route to transfer PMR from drain drum back to the PMR accumulator 4. Minimize refrigerant drop out post train trip	Ongoing brownfield project for FWW tip redesign Engineering assesment for the PMR in train transfer and MCHE trip sequence for refrigerant drop out minimization. MOC process needs to be followed to implment the change
28-Jul-26	6:57	21:35	Intermittent flaring and black smoke occurred from the Cold Dry Flare (FCD) while Train 2 was shut down. Venting from the Mixed Refrigerant (MR) and Premixed Refrigerant (PMR) compressor seal systems was required because the compressor casings remained pressurized following the shutdown.	Process Upset	Process Upset	1. Flaring from Train 1 String 1 due to excessive pressure build up in the MR compressor during compressor tie-in sequence. 2. IA supply to HCV was disconnect resulted in discharge HCV not operable during tie-in	1. Facility Maintenance / isolation gap - not black smoke event specific - to be addressed within the organization	
29-Jul-26	7:26	18:46	Intermittent flaring and black smoke occurred from the Cold Dry Flare (FCD) and Liquid Burners during Train 2 String 4 start-up. The black smoke occurred as process hydrocarbons were routed to the flare during these activities. Liquid Burner black smoke due to blow case testing which is part of safe start-up sequence.	Facility Restart	Emergency	1. FWW black smoke during start up - known performance deficiency in the FWW tip 2. Concurrent FCD blow case sequence during the MCHE final cooldown	1. FWW Flare Tip redesign & replacement 2. Update and implement operating instrument for improved operation of the liquid burner during start up	Ongoing brownfield project for FWW tip redesign