



DEPARTMENT OF
ECOLOGY
State of Washington

PREVENTION OF SIGNIFICANT DETERIORATION (PSD) PERMIT

Issued To:	SGL Automotive Carbon Fibers Lines 3–10 Moses Lake Facility
Facility Location:	8781 Randolph Road NE Moses Lake, Washington 98837
Permit Number:	DRAFT PSD 14-02, Amendment 1
Date of Original Permit Issuance:	
Effective Date of Permit:	

This PSD permit is issued under the authority of the Washington State Clean Air Act, Chapter 70.94 Revised Code of Washington (RCW); the Washington State Department of Ecology (Ecology) regulations for the Prevention of Significant Deterioration (PSD) of air quality as set forth in Washington Administrative Code (WAC) 173-400-700 through 750.

REVIEWED BY:

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TABLE OF CONTENTS

PROJECT SUMMARY	3
APPROVAL CONDITIONS	5
I. EFFECTIVE DATE OF PERMIT	5
II. PERMIT EXPIRATION	6
III. PERMIT NOTIFICATION REQUIREMENTS	7
IV. EQUIPMENT.....	8
V. OPERATING MODES AND LIMITATIONS.....	11
VI. BACT EMISSION LIMITS.....	12
VII. ANNUAL EMISSION LIMITS.....	14
VIII. TESTING REQUIREMENTS	15
IX. COMPLIANCE MONITORING REQUIREMENTS	16
X. RECORDKEEPING REQUIREMENTS	17
XI. REPORTING REQUIREMENTS	19
XII. GENERAL RESTRICTIONS ON FACILITY OPERATIONS	20
XIII. MALFUNCTION AND EXCESS EMISSIONS REPORTING.....	20
XIV. RIGHT OF ENTRY	21
XV. TRANSFER OF OWNERSHIP	21
XVI. ADHERENCE TO APPLICATION AND COMPLIANCE WITH OTHER ENVIRONMENTAL LAWS.....	21
XVII. APPEAL PROCEDURES.....	22
ACRONYMS AND ABBREVIATIONS.....	23

PROJECT SUMMARY

SGL Automotive Carbon Fibers (SGLACF) is proposing to revise the permit authorizing the construction and operation of their automotive carbon fiber facility that is currently located on 110 acres of land in the city of Moses Lake, Washington, in Grant County. On September 25, 2015, SGLACF applied to revise their permit by incorporating 50 emissions units (pre-oxidation electric ovens) and change the emission factors for the eight diesel-fuelled backup emergency generators. Each of the eight lines has the potential to produce 1,760 tons of carbon fiber each year. Each line will include a regenerative thermal oxidizer (RTO) and a thermal oxidizer (TO) to combust organic compounds in the exhaust from the oxidation ovens and carbonization furnaces, respectively. A selective catalytic reduction (SCR) unit will be installed on Lines 3–6 but is not proposed for Lines 7–10. Additionally, eight diesel-fuelled backup emergency power generators and a natural gas generator to power a fire water pump will be installed.

This project will be constructed in six phases.

1. Phase 1 will include the construction of Lines 3–5. Lines 3–5 are already in place and operational.
2. Phase 2 will include the construction of Line 6, its associated support equipment, and a backup emergency diesel generator. Phase 2 is expected to begin construction in December 2017.
3. Phase 3 will include the construction of Line 7, its associated support equipment, and a backup emergency diesel generator. Phase 3 is expected to begin construction in June 2020.
4. Phase 4 will include the construction of Line 8, its associated support equipment, and a backup emergency diesel generator. Phase 4 is expected to begin construction in December 2022.
5. Phase 5 will include the construction of Line 9, its associated support equipment, a backup emergency diesel generator, and a natural gas-fuelled emergency generator for a fire water pump. Phase 5 is expected to begin construction in June 2025.
6. Phase 6 will include the construction of Line 10, its associated support equipment, and a backup emergency diesel generator. Phase 6 is expected to begin construction in December 2027.

OPERATING MODES

This authorization covers the construction and operation of eight carbon fiber production lines (Lines 3, 4, 5, 6, 7, 8, 9, and 10), each consisting of four oxidation ovens with an RTO unit, two furnaces with a TO unit, and a main line stack with Continuous Emission Rate Monitoring

System (CERMS) capable of measuring nitrogen oxides (NO_x) emissions during all modes of operation except for Shutdown. Additionally, Lines 3–6 will include an SCR unit to control NO_x emissions from the ovens. Production Lines 3–6 have six modes of operation and production Lines 7–10 have five modes of operation.

1. Start-up Mode: Start-up Mode has two periods. The first period is defined as the period of time when the ovens are heating up, but have not reached the off-gas reaction temperature of 220°C. No emissions are generated from the ovens or furnaces during this period. The second period is defined as the period of time when the ovens have exceeded the off-gas reaction temperature of 220°C, and process emissions are controlled by the RTOs, but the ovens are not yet to the process recipe temperatures or speeds. Heating the ovens to the recipe temperature is a critical process that is completed in multiple increments over a five- to six-hour period. Emissions during this period are less than Normal Operation Mode and are monitored by the CERMS at each mainline stack. During the oven heat up process, the oxidized carbon fibers from the ovens do not go through the furnaces for carbonization. These oxidized carbon fibers go into boxes as waste. There are no restrictions on operation in this mode.
2. Normal Operation Mode: For each of Lines 3–6, fans pull emissions from the four oxidation ovens and direct them to the RTO where the polyacrylonitrile oxidation reaction byproducts are oxidized before exhausting through an SCR unit installed to reduce NO_x emissions and the 115-foot main line stack. Each SCR has an associated natural gas preheater with a rated capacity of 4.6 million British thermal units per hour (MMBtu/hr). CERMS are installed on the Lines 3–6 main line stacks to measure NO_x emissions. Each RTO has an associated natural gas preheater with a rated capacity of 8.4 MMBtu/hr. Each line also has a backup RTO bed with its own 8.4 MMBtu/hr natural gas preheater.

Lines 3–6 each have two furnaces and emissions are routed to a TO that uses water injection to reduce NO_x formation before exhausting through the main line stack. Each TO also has a 4 MMBtu/hr natural gas heater. During this mode, an online tube cleaner will operate to maintain clean heat transfer surfaces in the waste heat recovery boilers associated with each TO.

For each of Lines 7–10, fans pull emissions from the four oxidation ovens and direct them to the RTO where the polyacrylonitrile oxidation reaction byproducts are oxidized before exhausting through the 115-foot main line stack. As with Lines 3–6, each RTO has an associated natural gas preheater with a rated capacity of 8.4 MMBtu/hr. Each line also has a backup RTO bed with its own 8.4 MMBtu/hr natural gas heater. There are no SCR units installed on Lines 7–10. CERMS are installed on Lines 7–10 to measure NO_x emissions.

Lines 7–10 each have two furnaces and emissions are routed to a TO that uses water injection to reduce NO_x formation before exhausting through the main line stack. Each

TO has a 4 MMBtu/hr natural gas heater. During this mode, an online tube cleaner will operate to maintain clean heat transfer surfaces in the waste heat recovery boilers associated with each TO.

3. RTO Bypass Mode: Emissions from the oxidation ovens bypass the RTO and the SCR for Lines 3–6, and exhaust directly to the main line stack. For lines 7–10, the oxidation ovens' emissions bypass the RTO and exhaust directly to the main line stack. Emissions from the Lines 3–10 furnaces are the same as in Normal Operation Mode.
4. SCR Bypass Mode: For Lines 3–6, emissions from the oven are routed through the RTO and either bypass the SCR directly into the main line stack, or continue to be routed through the SCR (when it is not functional) into the main line stack. Furnace emissions during SCR Bypass Mode will continue to be routed through the TO and pass directly to the main line stack. Furnace emissions are the same as in Normal Operation Mode. Only one line may be in SCR Bypass Mode at a time. NO_x emissions from the main stack will continue to be measured by the CERMS. There are no SCRs installed on Lines 7–10.
5. Shutdown Mode: Fans are used to increase air flow and reduce temperatures of the oxidation ovens. Approximately 78 percent of the emissions are routed to the shutdown stacks above the oxidation ovens (one stack for each oven) bypassing the RTO and SCR (for Lines 3–6) and NO_x CERMS (Lines 7–10 do not have SCR units). The remaining 22 percent of emissions are routed to the RTO and SCR (for Lines 3–6) and NO_x CERMS as they would during Normal Operation Mode. Furnace emissions are the same as in Normal Operation Mode.
6. Standby Mode: Emissions during Standby Mode are from the TO and RTO natural gas-fired heaters (4 MMBtu/hr and (2) 8.4 MMBtu/hr per line, respectively), which are operated at a low firing rate to keep the TO and RTO warm. The oxidation ovens and Lines 3–6 SCRs are not operational. There are no restrictions on operation in this mode.

APPROVAL CONDITIONS

Based on the PSD permit application submitted by SGLACF on September 25, 2015, and the technical review performed by Ecology on January 20, 2016, Ecology finds that all requirements for issuance of this PSD permit have been satisfied. Approval of the project is granted subject to the following conditions.

I. EFFECTIVE DATE OF PERMIT

In accordance with WAC 173-400-730(2)(c), the effective date of this PSD permit is one of the following dates.

- A. If no comments requesting a change in the preliminary determination were received: the date of issuance; or

- B. If comments requesting a change in the preliminary determination were received: thirty (30) days after the applicant and the commenters receive the final determination; or
- C. This permit supersedes PSD 14-02 issued on April 13, 2015.

II. PERMIT EXPIRATION

Pursuant to WAC 173-400-730(5), and unless an extension is granted by Ecology prior to expiration, SGLACF's authorization to construct under this PSD permit expires as follows:

- A. Phase 2 (Line 6) of this permit expires, and re-permitting will be required before any further construction activity occurs on the Phase 2 changes, if:
 - 1. Construction of Phase 2 has not commenced (as defined in 40 CFR §52.21(b)(9)) within eighteen (18) months of December 1, 2017; or
 - 2. Construction of Phase 2 is discontinued for a period of eighteen (18) months or more; or
 - 3. Construction of Phase 2 is not completed within a reasonable time.
- B. Phase 3 (Line 7) of this permit expires, and re-permitting will be required before any further construction activity occurs on the Phase 3 changes, if:
 - 1. Construction of Phase 3 has not commenced (as defined in 40 CFR §52.21(b)(9)) within eighteen (18) months of June 1, 2020; or
 - 2. Construction of Phase 3 is discontinued for a period of eighteen (18) months or more; or
 - 3. Construction of Phase 3 is not completed within a reasonable time.
- C. Phase 4 (Line 8) of this permit expires, and re-permitting will be required before any further construction activity occurs on the Phase 4 changes, if:
 - 1. Construction of Phase 4 has not commenced (as defined in 40 CFR §52.21(b)(9)) within eighteen (18) months of December 1, 2022; or
 - 2. Construction of Phase 4 is discontinued for a period of eighteen (18) months or more; or
 - 3. Construction of Phase 4 is not completed within a reasonable time.

- D. Phase 5 (Line 9) of this permit expires, and re-permitting will be required before any further construction activity occurs on the Phase 5 changes, if:
 - 1. Construction of Phase 5 has not commenced (as defined in 40 CFR §52.21(b)(9)) within eighteen (18) months of June 1, 2025; or
 - 2. Construction of Phase 5 is discontinued for a period of eighteen (18) months or more; or
 - 3. Construction of Phase 5 is not completed within a reasonable time.
- E. Phase 6 (Line 10) of this permit expires, and re-permitting will be required before any further construction activity occurs on the Phase 6 changes, if:
 - 1. Construction of Phase 6 has not commenced (as defined in 40 CFR §52.21(b)(9)) within eighteen (18) months of December 1, 2027; or
 - 2. Construction of Phase 6 is discontinued for a period of eighteen (18) months or more; or
 - 3. Construction of Phase 6 is not completed within a reasonable time.
- F. The expiration of SGLACF’s authorization to continue construction of subsequent phases does not affect SGLACF’s authorization to continue construction of previous phases, including existing or in construction equipment, which will remain subject to all applicable requirements of this permit.
- G. The expiration of SGLACF’s authorization to commence construction on an individual phase does not affect SGLACF’s authorization to construct subsequent phases, which will remain subject to all applicable requirements of this permit.
- H. Prior to beginning actual construction on Phases 3–6, SGLACF must submit a revised Best Available Control Technology (BACT) analysis for review and that revised BACT analysis must undergo public involvement review.

III. PERMIT NOTIFICATION REQUIREMENTS

- A. SGLACF must notify Ecology in writing or electronic mail of the date each phase of construction (Phases 2–6) for Lines 6–10 is commenced. Notification must be postmarked or received no later than thirty (30) days after such date.
- B. By June 15 of each year, SGLACF must submit to Ecology, in writing or electronic mail, an annual report containing a brief summary of the construction activities related to the Lines 5–10 projects that have occurred during the previous

calendar year. This reporting obligation will end when SGLACF submits a notification to Ecology, in writing or electronic mail, that all construction activities related to the Lines 3–10 project have been completed. This notification of completion must contain a brief summary of any construction activities related to the Lines 3–10 project that have not been included in a prior annual report.

- C. If SGLACF chooses not to install any phase of this project, they should inform Ecology of this on or before December 1, 2028.

IV. EQUIPMENT

This PSD permit authorizes the construction of the new and modified equipment associated with the Lines 3–10 project, as listed in Table IV-1. However, SGLACF may choose not to construct all the listed equipment.

Table IV-1. Existing and New Equipment Associated with the Lines 3–10 Project		
Unit ID	Equipment Description	Existing or Proposed
Line3OO1	Oxidation Oven	Existing
Line3OO2	Oxidation Oven	Existing
Line3OO3	Oxidation Oven	Existing
Line3OO4	Oxidation Oven	Existing
Line3RTO	Regenerative Thermal Oxidizer	Existing
L3RTOHTR1	8.4 MMBtu/hr natural gas RTO preheater	Existing
L3RTOHTR2	8.4 MMBtu/hr natural gas RTO preheater	Existing
Line3F1	Carbonization Furnace	Existing
Line3F2	Carbonization Furnace	Existing
Line3SCR	Selective Catalytic Reduction	Existing
Line3SCRHTR	4.6 MMBtu/hr natural gas SCR preheater	Existing
Line3TO	Thermal Oxidizer	Existing
L3TOHTR	4 MMBtu/hr natural gas TO preheater	Existing
L3EG	2937 BHP compression/ignition diesel-fuelled emergency power engine	Existing
Line4OO1	Oxidation Oven	Existing
Line4OO2	Oxidation Oven	Existing
Line4OO3	Oxidation Oven	Existing
Line4OO4	Oxidation Oven	Existing
Line4RTO	Regenerative Thermal Oxidizer	Existing
L4RTOHTR1	8.4 MMBtu/hr natural gas RTO preheater	Existing
L4RTOHTR2	8.4 MMBtu/hr natural gas RTO preheater	Existing
Line4F1	Carbonization Furnace	Existing

Table IV-1. Existing and New Equipment Associated with the Lines 3–10 Project		
Unit ID	Equipment Description	Existing or Proposed
Line4F2	Carbonization Furnace	Existing
Line4SCR	Selective Catalytic Reduction	Existing
Line4SCRHTR	4.6 MMBtu/hr natural gas SCR preheater	Existing
Line4TO	Thermal Oxidizer	Existing
L4TOHTR	4 MMBtu/hr natural gas TO preheater	Existing
L4EG	2937 BHP compression/ignition diesel-fuelled emergency power engine	Existing
Line5OO1	Oxidation Oven	Existing
Line5OO2	Oxidation Oven	Existing
Line5OO3	Oxidation Oven	Existing
Line5OO4	Oxidation Oven	Existing
Line5RTO	Regenerative Thermal Oxidizer	Existing
L5RTOHTR1	8.4 MMBtu/hr natural gas RTO preheater	Existing
L5RTOHTR2	8.4 MMBtu/hr natural gas RTO preheater	Existing
Line5F1	Carbonization Furnace	Existing
Line5F2	Carbonization Furnace	Existing
Line5SCR	Selective Catalytic Reduction	Existing
Line5SCRHTR	8.4 MMBtu/hr natural gas SCR preheater	Existing
Line5TO	Thermal Oxidizer	Existing
L5TOHTR	4 MMBtu/hr natural gas TO preheater	Existing
L5EG	2937 BHP compression/ignition diesel-fuelled emergency power engine	Existing
Line6OO1	Oxidation Oven	Proposed
Line6 OO2	Oxidation Oven	Proposed
Line6OO3	Oxidation Oven	Proposed
Line6OO4	Oxidation Oven	Proposed
Line6RTO	Regenerative Thermal Oxidizer	Proposed
L6RTOHTR1	8.4 MMBtu/hr natural gas RTO preheater	Proposed
L6RTOHTR2	8.4 MMBtu/hr natural gas RTO preheater	Proposed
Line6F1	Carbonization Furnace	Proposed
Line6F2	Carbonization Furnace	Proposed
Line6SCR	Selective Catalytic Reduction	Proposed
Line6SCRHTR	4.6 MMBtu/hr natural gas SCR preheater	Proposed
Line6TO	Thermal Oxidizer	Proposed
L6TOHTR	4 MMBtu/hr natural gas TO preheater	Proposed
L6EG	2937 BHP compression/ignition diesel-fuelled emergency power engine	Proposed
Line7OO1	Oxidation Oven	Proposed
Line7OO2	Oxidation Oven	Proposed

Table IV-1. Existing and New Equipment Associated with the Lines 3–10 Project		
Unit ID	Equipment Description	Existing or Proposed
Line7OO3	Oxidation Oven	Proposed
Line7OO4	Oxidation Oven	Proposed
Line7RTO	Regenerative Thermal Oxidizer	Proposed
L7RTOHTR1	8.4 MMBtu/hr natural gas RTO preheater	Proposed
L7RTOHTR2	8.4 MMBtu/hr natural gas RTO preheater	Proposed
Line7F1	Carbonization Furnace	Proposed
Line7F2	Carbonization Furnace	Proposed
Line7TO	Thermal Oxidizer	Proposed
L7TOHTR	4 MMBtu/hr natural gas TO preheater	Proposed
L7EG	2937 BHP compression/ignition diesel-fuelled emergency power engine	Proposed
Line8OO1	Oxidation Oven	Proposed
Line8OO2	Oxidation Oven	Proposed
Line8OO3	Oxidation Oven	Proposed
Line8OO4	Oxidation Oven	Proposed
Line8RTO	Regenerative Thermal Oxidizer	Proposed
L8RTOHTR1	8.4 MMBtu/hr natural gas RTO preheater	Proposed
L8RTOHTR2	8.4 MMBtu/hr natural gas RTO preheater	Proposed
Line8 F1	Carbonization Furnace	Proposed
Line8 F2	Carbonization Furnace	Proposed
Line8TO	Thermal Oxidizer	Proposed
L8TOHTR	4 MMBtu/hr natural gas TO preheater	Proposed
L8EG	2937 BHP compression/ignition diesel-fuelled emergency power engine	Proposed
Line9OO1	Oxidation Oven	Proposed
Line9OO2	Oxidation Oven	Proposed
Line9OO3	Oxidation Oven	Proposed
Line9OO4	Oxidation Oven	Proposed
Line9RTO	Regenerative Thermal Oxidizer	Proposed
L9RTOHTR1	8.4 MMBtu/hr natural gas RTO preheater	Proposed
L9RTOHTR2	8.4 MMBtu/hr natural gas RTO preheater	Proposed
Line9F1	Carbonization Furnace	Proposed
Line9F2	Carbonization Furnace	Proposed
Line9TO	Thermal Oxidizer	Proposed
L9TOHTR	4 MMBtu/hr natural gas TO preheater	Proposed
L9EG	2937 BHP compression/ignition diesel-fuelled emergency power engine	Proposed
FWP2	454 BHP natural gas fuelled internal combustion FWP engine	Proposed
Line10OO1	Oxidation Oven	Proposed

Table IV-1. Existing and New Equipment Associated with the Lines 3–10 Project		
Unit ID	Equipment Description	Existing or Proposed
Line10OO2	Oxidation Oven	Proposed
Line10OO3	Oxidation Oven	Proposed
Line10OO4	Oxidation Oven	Proposed
Line10RTO	Regenerative Thermal Oxidizer	Proposed
L10RTOHTR1	8.4 MMBtu/hr natural gas RTO preheater	Proposed
L10RTOHTR2	8.4 MMBtu/hr natural gas RTO preheater	Proposed
Line10F1	Carbonization Furnace	Proposed
Line10F2	Carbonization Furnace	Proposed
Line10TO	Thermal Oxidizer	Proposed
L10TOHTR	4 MMBtu/hr natural gas TO preheater	Proposed
L10EG	2937 BHP compression/ignition diesel-fuelled emergency power engine	Proposed
Lines 1–10 PPOSO	Fifty, Portable Pre-Oxidation Splicing Ovens	Existing

V. OPERATING MODES AND LIMITATIONS

- A. Start-up Mode: There are no restrictions for operating in this mode. Records of time operating in this mode must be recorded as Normal Operation Mode in accordance with Approval Condition X.
- B. Normal Operation Mode: There are no restrictions for operating in this mode. Records of time operating in this mode must be kept in accordance with Approval Condition X.
- C. RTO Bypass Mode: RTO Bypass Mode is limited to a combined total from Lines 3–10 of 1½ hours per calendar day and for each line a total of 4½ hours per 12-month rolling period. Records of time operating in this mode must be kept in accordance with Approval Condition X.
- D. SCR Bypass Mode: SCR Bypass Mode is limited to 100 hours per 12-month rolling period for each line (3–6). No more than one line may operate in SCR Bypass Mode at a time. Records of time operating in this mode must be kept in accordance with Approval Condition X.
- E. Shutdown Mode: Shutdown Mode for Lines 3–10 is limited to 90 seconds per occurrence and 9.13 hours per 12-month rolling period for each line. Records of time operating in this mode must be kept in accordance with Approval Condition X.

- F. Standby Mode: There are no restrictions for operating in this mode. Records of time operating in this mode must be kept in accordance with Approval Condition X.
- G. 2,937 bhp Emergency Generators: Operation of the eight diesel-fuelled emergency generators is limited to an aggregate of 136 hours of operation per year. During reliability and performance testing no more than one generator engine may operate concurrently. Records of time operating in this mode must be kept in accordance with Approval Condition X.
- H. 454 bhp Fire Water Pump Engine: Operation of the fire water pump emergency generator engine is limited to 38 hours per 12-month rolling period. Records of time operating in this mode must be kept in accordance with Approval Condition X.
- I. A non-resettable hour meter shall be installed on each power generator and emergency fire water pump engine.
- J. All diesel-fuelled compression ignition engines must be fuelled by ultra-low sulfur diesel fuel with a sulfur content of no more than 0.0015 percent by weight.

VI. BACT EMISSION LIMITS

- A. Consistent with requirements of 40 CFR §52.21(j)(2), the following limitations apply to emissions from the SGLACF Lines 3–10 project:
 - 1. Emissions from each main line stack are limited to the following from Lines 3–10 (unless otherwise noted) when operating in Normal Operation Mode.

Pollutant	Emission Limit	Avg. Period
NO _x Lines 3–6*	8.5 lb/hr	One hour
NO _x Lines 7–10	17.9 lb/hr	One hour
PM (filterable)	1.1 lb/hr	One hour
PM ₁₀ /PM _{2.5} Lines 3–6	3.0 lb/hr	One hour
PM ₁₀ /PM _{2.5} Lines 7–10	2.0 lb/hr	One hour
VOC (as propane)	1.7lb/hr	One hour
*This limit is not a BACT limit. It is considered "other."		

- 2. Emissions from each main line stack for Lines 3–6 are limited to the following when operating in SCR Bypass Mode.

Table VI-2. SCR Bypass Mode Emissions		
Pollutant	Emission Limit	Avg. Period
NO _x	17.9 lb/hr	One hour
PM (filterable)	1.1 lb/hr	One hour
PM ₁₀ /PM _{2.5}	2.0 lb/hr	One hour
VOC (as propane)	1.7 lb/hr	One hour

3. Emissions from each main line stack for Lines 3–10 (unless otherwise noted) are limited to the following when operating in Shutdown Mode.

Table VI-3. Shutdown Mode Emissions		
Pollutant	Emission Limit	Avg. Period
NO _x Lines 3–6	8.5 lb/hr	One hour
NO _x Lines 7–10	17.9 lb/hr	One hour
PM (filterable)	1.1 lb/hr	One hour
PM ₁₀ /PM _{2.5} Lines 3 – 6	3.0 lb/hr	One hour
PM ₁₀ /PM _{2.5} Lines 7–10	2.0 lb/hr	One hour
VOC (as propane)	7.1 lb/hr	One hour

4. Emissions from each main line stack for Lines 3–10 are limited to the following when operating in RTO Bypass Mode.

Table VI-4. RTO Bypass Mode		
Pollutant	Emission Limit	Avg. Period
NO _x	8.5 lb/hr	One hour
PM (filterable)	1.1 lb/hr	One hour
PM ₁₀ /PM _{2.5}	2.0 lb/hr	One hour
VOC (as propane)	8.6 lb/hr	One hour

5. Emissions from each of the eight 2,937 bhp compression ignition diesel-fuelled emergency power engines (L3EG, L4EG, L5EG, L6EG, L7EG, L8EG, L9EG, and L10EG) must not exceed the emission limits listed in the table below unless in diesel engine Start-up Mode. The following table lists the engines' normal operational emission limits.

Table VI-5. Diesel Generator Normal Mode Emissions	
Pollutant	Emission Factor
NO _x	0.75 g/hp-hr
PM ₁₀ /PM _{2.5}	0.034 g/hp-hr
VOC	0.18 g/hp-hr

6. Emissions from each of the eight 2,937 bhp compression ignition diesel-fuelled emergency power engines (L3EG, L4EG, L5EG, L6EG, L7EG, L8EG, L9EG, and L10EG) generated during diesel engine Start-up Mode must be quantified and included in the NO_x monthly and 12-month rolling total as required in Approval Condition XI. Start-up Mode is defined as, and limited to, the first 10 minutes of operation. The following table lists the emission factor to use when quantifying diesel engine Start-up Mode emissions.

Table VI-6. Diesel Generator Start-up Mode Emissions	
Pollutant	Emission Factor
NO _x	6.8 g/hp-hr

7. Emissions from the 454 bhp compression ignition fire water pump engine (FWP2) must be quantified and included in the NO_x monthly and 12-month rolling total as required in Approval Condition XI. The following table lists the emission factor to use when quantifying the fire water pump engine emissions.

Table VI-7. FWP Emissions	
Pollutant	Emission Factor
NO _x	2.0 lb/hr
PM (filterable)	0.04 lb/hr
PM _{2.5} /PM ₁₀	0.08 lb/hr
VOC	1.00 lb/hr

VII. ANNUAL EMISSION LIMITS

- A. Consistent with the requirements of 40 CFR §52.21(k)(1), SGLACF shall not discharge or cause the discharge of NO_x, PM (filterable), PM₁₀, PM_{2.5}, or VOC emissions from Lines 3–10 and their associated equipment, in excess of the following quantities, including emissions during periods of start-up, shutdown, and malfunction.

Table VII-1. Annual Emissions	
Pollutant	Emission Limits
NO _x	467 tons per 12-month rolling period
PM (filterable)	39 tons per 12-month rolling period
PM ₁₀ /PM _{2.5}	90 tons per 12-month rolling period
VOC	60 tons per 12-month rolling period

VIII. TESTING REQUIREMENTS

- A. The following testing is required to demonstrate compliance with the emission limits in Approval Condition VI.A.1. for each production line (3–10) while operating in Normal Operation Mode.

Table IX-1. Performance and Compliance Testing			
Pollutant	Test Method	Initial Performance Test	Ongoing Compliance Test Frequency
NO _x	40 CFR 60 Appendix A Method 7E or 40 CFR 63 Appendix A Method 320	Required within 180 days of start-up.	Annually
PM (filterable)	40 CFR 60 Appendix A Method 5	Required within 180 days of start-up.	Every 5 years
PM ₁₀	40 CFR 60 Appendix A Method 5, or Method 201A, and Method 202	Required within 180 days of start-up.	Every 2 years
PM _{2.5}	40 CFR 60 Appendix A Method 5, or Method 201A, and Method 202	Required within 180 days of start-up.	Every 2 years
VOC (as propane)	40 CFR 60 Appendix A Method 25 A	Required within 180 days of start-up.	Annually

- B. Testing must be performed at the times and frequencies specified in this Approval Order. A request to change compliance test frequency may be submitted by SGLACF once they have demonstrated compliance in previous tests with stable emissions below all authorized limits. Requests to change compliance test frequency must be submitted in writing, and approved in writing by Ecology.
- C. Testing must utilize the test methods identified in Approval Condition VIII.A. unless an alternative method is requested by SGLACF and approved by Ecology in writing.

- D. Testing Logistics: SGLACF must provide testable emission points, sampling ports, safe access to sampling points and ports, and utilities for sampling and testing.
- E. Throughput during Testing: During testing, the process must be operated at a minimum of ninety percent (90%) of the rated line capacity for process lines with less than 12 months operating history, or 90 to 110 percent of the maximum daily process rate recorded during the preceding 12-month period for lines operated for 12 months or more. Operation of the process during testing outside of the specified range may be proposed, but may result in an operational restriction that will be amended to this permit.
- F. Submittal of Test Plan: A written test protocol that includes a description of the equipment to be tested, the process and control device operating information to be collected during the test, and the sampling and analytical method(s) proposed, must be submitted to Ecology at least 30 calendar days prior to the start of any required performance test.
- G. Notification of Inability to Conduct Test: If SGLACF is unable to conduct any test as scheduled, Ecology must be notified at least 24 hours before the test at the address listed in Approval Condition XI.B, or by telephone.
- H. Plant Operator during Testing: The plant process equipment must be operated and controlled by normal plant operators during the period when the testers are on-site to conduct testing and during actual testing.
- I. Testing Results: The results of all initial performance testing and all other periodic testing must be sent to Ecology at the address listed in Approval Condition XI.B. One copy of the completed test report must be submitted to Ecology no later than 60 days after the last day of the testing, 75 days for EPA Reference Method 202 PM test reports.

IX. COMPLIANCE MONITORING REQUIREMENTS

- A. Compliance with 12-month rolling NO_x limit contained in Approval Condition VII shall be determined by utilizing valid CERMS data for each production line. Should CERMS data not be available then the 8.5 lb/hr emission factor for Lines 3–6 and 17.9 lb/hr emission factor for Lines 7–10 must be used. Records shall be kept in accordance with Approval Condition X.
- B. SGLACF must install and operate a CERMS on each main line stack that measures actual NO_x emission concentrations, emission rates, and stack flow rates during all operational modes (Normal Operation, RTO Bypass, SCR Bypass, Standby, and Shutdown). The CERMS must meet the requirements of

Performance Specifications 2 and 6 contained in 40 CFR Part 60, Appendix B, and quality control/quality assurance requirements of 40 CFR Part 60, Appendix F as in effect on March 10, 2015.

- C. The calibration drift test procedure must be performed prior to any automatic or manual adjustments made to the CERMS calibration or zero settings in accordance with Performance Specification 2, Section 6, 40 CFR Part 60, Appendix B.
- D. The CERMS on each line must meet the Continuous Emission Monitoring System operating requirements contained in WAC 173-400-105(7) as in effect on March 10, 2015.
- E. Relative Accuracy Test Audits (RATA) must be performed once every four calendar quarters and cylinder gas audits (CGA) must be conducted in three of four calendar quarters on the CERMS for each line. The RATA and CGA must be conducted in accordance with 40 CFR Part 60, Appendix B and Appendix F. The RATA must meet the testing requirements in Approval Conditions VIII.A through VIII.I. Data assessment reports as contained in Appendix F must be submitted to Ecology quarterly.
- F. CERMS must be installed and operational upon start-up of each line. CERMS must meet all applicable performance specifications within 45 days of start-up of each line as identified in Appendix B and Appendix F (see Approval Condition IX.E.).

X. RECORDKEEPING REQUIREMENTS

All required records must be kept on-site and made available for inspection by Ecology upon request. The records must be organized in a readily accessible manner and cover a minimum of the most recent 60-month period. The records to be kept must include the following:

- A. Monthly and 12-month rolling total records of facility-wide NO_x emissions.
 - 1. NO_x emissions during periods of CERMS non-operation must be calculated and included in monthly and 12-month rolling facility-wide totals.
 - 2. NO_x emissions during Shutdown Mode must be the total of the calculated NO_x value from the bypass stacks using an emission factor of 8.5 lb/hr (0.00236 lb/sec) plus the NO_x as measured by the CERMS.
 - 3. NO_x emissions from the eight 2,937 bhp diesel-fuelled compression ignition emergency power engines must be calculated using the values contained in

Approval Condition VI.A.5. and VI.A.6. unless representative facility source test data is available.

4. NO_x emissions from the fire water pump engine (FWP2) shall be calculated using the emission factors specified in Approval Condition VIA.7.
- B. Monthly and 12-month rolling total records of facility-wide PM, PM₁₀/PM_{2.5}, and VOC emissions must be kept to demonstrate compliance with Table VII-1.
- C. Monthly, and 12-month rolling records of the duration of operation in Normal Operation Mode must be kept for each line. Records of hours of operation in Start-up Mode will be recorded as Normal Operation Mode.
- D. Daily records of the date, time, cause, and duration (in minutes) of operation in RTO Bypass Mode must be kept for each line. Daily records must be used to calculate monthly and 12-month rolling total time in RTO Bypass Mode for each production line.
- E. Daily records of the date and duration (in seconds) of operation in Shutdown Mode must be kept for each line. Daily records must be used to calculate monthly and 12-month rolling total time in Shutdown Mode for each line.
- F. 12-month rolling records of operation in Standby Mode must be kept for each line.
- G. Daily records of the date, time, cause, and duration (in hours) of operation in SCR Bypass Mode must be kept for Lines 3–6. Daily records must be used to calculate monthly and 12-month rolling total time in SCR Bypass Mode for each production line. These records must also identify if more than one line is in SCR Bypass Mode at a time.
- H. Records of CERMS operations must be kept to demonstrate compliance with Approval Condition IX.D.
- I. Daily, monthly, and 12-month rolling totals of the hours of operation for each diesel-fuelled emergency power generator shall be kept, and monthly and 12-month rolling totals of the hours of operation for the natural gas-fuelled emergency fire water pump emergency engine shall be kept to demonstrate compliance with Approval Conditions V.G. and V.H. Records must also identify if more than one diesel-fuelled generator engines operate concurrently in reliability and performance testing modes.

- J. Records of sulfur content for each shipment of diesel fuel, based on bill of lading, must be kept.
- K. Compliance and performance test reports.
- L. Operation and Maintenance (O&M) records for the process and air pollution control equipment listed in Table IV.1.

XI. REPORTING REQUIREMENTS

- A. SGLACF shall submit semi-annual reports of facility-wide emission limits to demonstrate compliance with the emission limits identified in Approval Condition V.II. The reports shall be submitted to Ecology every six months, by July 31, for the January through June reports and by January 31 for the July through December reports. These reports must include parameters used for calculating emissions, including duration for each line in operating modes other than Normal Operation Mode. The report must include:
 - 1. The number of hours that each line operated in each mode during each month of the reporting period, the emission factors used, and 12-month rolling total emissions for each pollutant.
 - 2. The number of valid hours of monitoring data that each CERMS recovered.
 - 3. The date, time period, and cause of each failure to meet the data recovery requirements of Approval Condition IX.D. and any actions taken to ensure adequate collection of such data.
 - 4. The date, time period, and cause of each failure to recover valid hourly monitoring data for at least 90 percent of the hours that each line operated each day.
 - 5. The date, time period, and cause of each failure to recover valid hourly monitoring data for at least 95 percent of the hours that the equipment (required to be monitored) is operated during each calendar month except for periods of monitoring system downtime, provided that the owner or operator demonstrated that the downtime was not a result of inadequate design, operation, or maintenance, or any other reasonable preventable condition, and any necessary repairs to the monitoring system are conducted in a timely manner.
 - 6. The results of all cylinder gas audits conducted during the month.
 - 7. A certification of truth, accuracy, and completeness signed by a responsible official of SGLACF.

- B. Other reports must be submitted within 30 days following the end of the calendar year, unless otherwise specified by Ecology, to the following address:

Washington State Department of Ecology
Air Quality Program
4601 N. Monroe Street
Spokane, WA 99205-1295

XII. GENERAL RESTRICTIONS ON FACILITY OPERATIONS

- A. At all times, SGLACF must, to the extent practicable, maintain and operate all process and any associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions.
- B. Determination of whether acceptable operating and maintenance procedures are being used for the facility will be based on information available to Ecology, EPA, and/or their authorized representatives, which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.

XIII. MALFUNCTION AND EXCESS EMISSIONS REPORTING

- A. SGLACF must notify Ecology in writing, postmarked or received no later than thirty (30) days after the end of the month in which a malfunction is discovered, of any malfunction of air pollution control equipment, process equipment, or of a process, which results in an increase in emissions above the allowable emission limits of this permit. This notification must include a description of the malfunctioning equipment, process equipment or process, the date and time of the initial malfunction (if known), the period of time over which emissions were increased due to the malfunction, the cause of the malfunction (if known), the estimated resultant excess emissions, and any corrective actions taken to mitigate emissions and restore normal operations.
1. For reporting purposes, “malfunction” means any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or of a process to operate in a normal or usual manner as described in this permit that results in a deviation of any permit condition.
 2. Compliance with the malfunction notification requirements, as applicable, will not excuse or otherwise constitute a defense to any violation of this PSD permit or any law or regulation such malfunction may cause.

XIV. RIGHT OF ENTRY

Section 114 of the federal Clean Air Act, 42 U.S.C. §7414, RCW 70.94.200, and WAC 173-400-105(3) provide authorized representatives of EPA and Ecology certain rights to enter and inspect the source. Refusal by SGLACF to allow such entry and inspection may be a violation of the federal Clean Air Act and/or the RCW subject to penalty as provided in those statutes. Pursuant to these statutes, authorized representatives of EPA and Ecology upon the presentation of credentials:

- A. Have a right of entry to, upon, or through any premises of SGLACF's or any premises in which any records this permit requires SGLACF to maintain are located.
- B. Have the right, at reasonable times, to access and copy any records this permit requires SGLACF to maintain.
- C. Have the right, at reasonable times, to inspect any monitoring equipment or method required by this permit.
- D. Have the right, at reasonable times, to sample any emissions that SGLACF is required to sample under this permit.

XV. TRANSFER OF OWNERSHIP

- A. In the event of any changes in control or ownership of facilities to be constructed, this PSD permit will be binding on all subsequent owners and operators. SGLACF must notify the succeeding owner and operator of the existence of this PSD permit and its conditions by letter, a copy of which must be forwarded to Ecology at the address specified in Approval Condition XI.B.

XVI. ADHERENCE TO APPLICATION AND COMPLIANCE WITH OTHER ENVIRONMENTAL LAWS

- A. Pursuant to 40 CFR §52.21(r) (1), SGLACF must construct and operate the proposed emissions units in accordance with this PSD permit and the application on which this permit is based.
- B. Pursuant to 40 CFR §52.21(r)(3), this PSD permit must not relieve SGLACF of the responsibility to comply fully with applicable provisions of the State Implementation Plan and any other requirements under local, state, or federal law.
- C. Any applicant who fails to submit any relevant facts or who has submitted materially incorrect relevant information in a permit application must, upon

becoming aware of such failure, or incorrect submittal, promptly submit such supplementary facts or corrected information.

- D. To the extent provided by 40 CFR §52.12(c), for the purpose of establishing whether or not SGLACF has violated or is in violation of any requirement of this permit, nothing in this permit must preclude the use, including the exclusive use, of any credible evidence or information relevant to whether SGLACF would have been in compliance with applicable requirements if the appropriate performance or reference test or procedure had been performed.

XVII. APPEAL PROCEDURES

This PSD permit, or any conditions contained in it, may be appealed to:

The Pollution Control Hearings Board (PCHB) as provided in Chapter 43.21B RCW and Chapter 371-08 WAC.

ACRONYMS AND ABBREVIATIONS

BACT	Best Available Control Technology
CERMS	Continuous Emission Rate Monitoring System
CFR	Code of Federal Regulations
CGA	cylinder gas audits
Ecology	Washington State Department of Ecology
EPA	United States Environmental Protection Agency
lb	pound(s)
lb/hr	pound(s) per hour
MMBtu/hr	million British thermal units per hour
NO _x	nitrogen oxides
O&M	Operation & Maintenance
PCHB	Pollution Control Hearings Board
PM	particulate matter
PM ₁₀	particulate matter less than 10 micrometers in diameter
PM _{2.5}	particulate matter less than 2.5 micrometers in diameter
PSD	Prevention of Significant Deterioration of Air Quality
RATA	Relative Accuracy Test Audits
RCW	Revised Code of Washington
RTO	regenerative thermal oxidizer
SCR	selective catalytic reduction
SGLACF	SGL Automotive Carbon Fibers
TO	thermal oxidizer
tpy	tons per year
U.S.C.	United States Code
VOC	volatile organic compounds
WAC	Washington Administrative Code