

Air Quality

TIER I OPERATING PERMIT

Permittee	P4 Production LLC
Permit Number	T1-2020.0029
Project ID	62761
Facility ID	029-00001
Facility Location	1853 Highway 34 North Soda Springs, ID 83276

Permit Authority

This permit (a) is issued according to the “Rules for the Control of Air Pollution in Idaho” (Rules) (IDAPA 58.01.01.300–386) (b) incorporates all applicable terms and conditions of prior air quality permits issued by the Idaho Department of Environmental Quality (DEQ) for the permitted source, unless the permittee emits toxic pollutants subject to state-only requirements pursuant to IDAPA 58.01.01.210 and the permittee elects not to incorporate those terms and conditions into this operating permit.

The permittee shall comply with the terms and conditions of this permit. The effective date of this permit is the date of signature by DEQ on this cover page.

Date Issued December 23, 2021

Date Expires April 30, 2026

Christina Boulay

Christina Boulay, Permit Writer

Mike Simon

Mike Simon, Stationary Source Bureau Chief

Pages 2 - 19 redacted -- outside the scope of the SIP

Table 4.2 contains only a summary of the requirements that apply to the phosphate ore nodulizing kiln and cooler. Specific permit requirements are listed below.

Table 4.2 Applicable Requirements Summary

Permit Conditions	Parameter	Limit/Standard Summary	Applicable Requirements Reference	Operating, Monitoring, and Recordkeeping Requirements
4.1 ^a	Polonium-210	2 curies/year from kiln or install Hydro-Sonic® Tandem Nozzle Fixed Throat Free Jet Scrubber System and limit total emissions from plant to 4.5 curies/year	40 CFR 61.122	4.1, 4.9-4.16, 4.26
4.2	Kiln and Cooler Emissions Limits	Kiln 30 lb/hr PM ₁₀ 143 lb/hr SO ₂ Cooler 27 lb/hr PM ₁₀ 177 lb/hr SO ₂	PTC No. P-030316	4.3-4.8, 4.17, 4.19-4.22, 4.24-4.26
3.16	Coal-sulfur content	1% by weight	IDAPA 58.01.01.729	3.17
3.7	Visible emissions	20% opacity for no more than three minutes in any 60-minute period	IDAPA 58.01.01.625	3.8, 3.9

a) Permit Condition 4.1 applies only to emissions from the kiln hydrosoneics.

Emission Limits

4.1 Polonium-210 Emission Limit

Emissions of polonium-210 to the ambient air from all calciners and nodulizing kilns at an elemental phosphorus plant shall not exceed a total of 2 curies per year; except that compliance with this standard may be conclusively shown if the elemental phosphorous plant does the following:

- Maintain and operate a Hydro-Sonic® Tandem Nozzle Fixed Throat Free Jet Scrubber System including four scrubber units.
- All four scrubber units are operated continuously with a minimum average over any six-hour period of 40 inches (water column) of pressure drop across each scrubber during calcining of phosphate shale.
- The system is used to scrub emissions from all calciners and/or nodulizing kilns at the plant.
- Total emissions of polonium-210 from the plant do not exceed 4.5 curies per year.
- Alternative operating conditions, which can be shown to achieve an overall removal efficiency for emissions of polonium-210 which is equal to or greater than the efficiency that would be achieved under the operating conditions described in first three bullet items of Permit Condition 4.3, may be used with prior approval of the U. S. Environmental Protection Agency (EPA). A facility shall apply for such approval in writing, and the EPA shall act upon the request within 30 days after receipt of a complete and technically sufficient application.

[40 CFR 61.122]

4.2 Kiln and Cooler Emission Limits

The emissions from the kiln and cooler stacks shall not exceed any emissions rate limit in the following table.

Table 4.3 Kiln and Cooler Emission Limits^(a)

Source Description	PM ₁₀ ^(b)	SO ₂
	lb/hr ^(c)	lb/hr ^(c)
Kiln (total from 4 stacks)	30.0	143
Cooler spray tower	27.0	177

- a) In absence of any other credible evidence, compliance is ensured by complying with permit operating, monitoring, and record keeping requirements.
- b) Particulate matter with an aerodynamic diameter less than or equal to a nominal ten (10) micrometers, including condensable particulate as defined in IDAPA 58.01.01.006.
- c) Pounds per hour, as determined by a test method prescribed by IDAPA 58.01.01.157, EPA reference test method, continuous emission monitoring system (CEMS) data, or DEQ-approved alternative (for SO₂ on a three-hour average).

[PTC No. P-2012.0055, 12/13/2024]

Operating Requirements

4.3 ~~Elemental Phosphorus Operating Requirement~~

~~The owner or operator of each stationary source shall maintain and operate the source, including associated equipment for air pollution control, in a manner consistent with good air pollution control practices for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Administrator, which may include, but is not limited to, monitoring results, review of operating and maintenance procedures, and inspection of the source.~~

~~[40 CFR 61.12(c)]~~

4.4 Equipment Installation

The permittee shall install equipment to measure, or develop methods to determine, the pounds per hour and tons per year of material handled throughout the process.

[IDAPA 58.01.01.322.06]

4.5 Throughput Limits

The throughput of phosphate ore and other feed through the kiln, measured as input to the kiln, shall not exceed the tons per hour production rate, as a 24-hour average, that is verified through source testing to not exceed the hourly emission limits established in Permit Condition 4.2.

[PTC No. P-2012.0055, 12/13/2024]

4.6 pH Limit

The scrubbing solution pH, as measured in the recirculation tank, shall not be less than 6.1 on a one-hour average.

[PTC No. P-2012.0055, 12/13/2024]

4.7 Hydro-Sonic® Scrubbing System Operation for PM emissions

- When the kiln is in use, the Hydro-Sonic® and LCDA scrubbing system shall be operated continuously to scrub PM and PM₁₀ emissions.
- The six hour average pressure drop across the venturi section of the scrubbing system shall be maintained at or above the pressure drop, in inches of water, established by performance tests that showed compliance with the PM and PM₁₀ emissions limits.
- The three-hour average scrubbing media flow rate shall be maintained at or above the scrubbing media flow rate, in gallons per minute, established by performance tests that showed compliance with the PM and PM₁₀ emissions limits.

[PTC No. P-2012.0055, 12/13/2024]

4.8 Cooler Spray Tower

- ~~When the nodule cooler is in use, the cooler spray tower scrubber shall be operated continuously to scrub PM and PM₁₀ emissions.~~
- ~~The three-hour average scrubbing media flow rate shall be maintained at or above the scrubbing media flow rate, in gallons per minute, as established by performance tests that showed compliance with the PM and PM₁₀ emissions limits.~~

[PTC No. P-2012.0055, 12/13/2024]

Monitoring and Recordkeeping Requirements

4.9 Monitoring of Radionuclide Emissions

~~The owner or operator of any source subject to the emissions standard in Permit Condition 4.1 using a wet scrubbing emission control device shall install, calibrate, maintain, and operate a monitoring device for the continuous measurement and recording of the pressure drop of the gas stream across each scrubber. The monitoring device must be certified by the manufacturer to be accurate within ±250 Pascal (±1 inch of water). The owner or operator of any source subject to the emission standard in Permit Condition 4.1 using a wet scrubbing emission control device shall also install, calibrate, maintain, and operate a monitoring device for the continuous measurement and recording of the scrubber fluid flow rate. These continuous measurement recordings shall be maintained at the source and made available for inspection by the Administrator, or his authorized representative.~~

[40 CFR 61.126]

4.10 Reporting Exemption

~~All facilities designated under 40 CFR 61, Subpart K are exempt from the reporting requirements of 40 CFR 61.10.~~

[40 CFR 61.127]

4.11 Monitoring Requirements Under Subpart A

~~Unless otherwise specified, this section applies to each monitoring system required under each Subpart requiring monitoring.~~

- #### 4.12
- ~~Each owner or operator shall maintain and operate each monitoring system as specified in the applicable Subpart and in a manner consistent with good air pollution control practice for minimizing emissions. Any unavoidable breakdown or malfunction of the monitoring system should be repaired or adjusted as soon as practicable after its occurrence. The Administrator's determination of whether acceptable operating and maintenance procedures are being used will be based on~~

information which may include, but not be limited to, review of operating and maintenance procedures, manufacturer recommendations and specifications, and inspection of the monitoring system.

4.13 When required by 40 CFR Part 61, Subpart K, and at any time the Administrator may require, the owner or operator of a source being monitored shall conduct a performance evaluation of the monitoring system and furnish the Administrator with a copy of a written report of the results within 60 days of the evaluation. Such a performance evaluation shall be conducted according to the applicable specifications and procedures described in 40 CFR Part 61, Subpart K. The owner or operator of the source shall furnish the Administrator with written notification of the date of the performance evaluation at least 30 days before the evaluation is to begin.

4.14 When the effluents from a single source, or from two or more sources subject to the same emissions standards, are combined before being released to the atmosphere, the owner or operator shall install a monitoring system on each effluent or on the combined effluent. If two or more sources are not subject to the same emission standards, the owner or operator shall install a separate monitoring system on each effluent, unless otherwise specified. If the applicable standard is a mass emission standard and the effluent from one source is released to the atmosphere through more than one point, the owner or operator shall install a monitoring system at each emission point unless the installation of fewer systems is approved by the Administrator.

4.15 The owner or operator of each monitoring system shall reduce the monitoring data as specified in 40 CFR Part 61, Subpart K. Monitoring data recorded during periods of unavoidable monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments shall not be included in any data average.

4.16 The owner or operator shall maintain records of monitoring data, monitoring system calibration checks, and the occurrence and duration of any period during which the monitoring system is malfunctioning or inoperative. These records shall be maintained at the source for a minimum of two years and made available, upon request, for inspection by the Administrator. Monitoring shall be conducted as set forth in this section and the applicable Subpart unless the Administrator:

- Specifies or approves the use of the specified monitoring requirements and procedures with minor changes in methodology; or approves the use of alternatives to any monitoring requirements or procedures.
- If the Administrator finds reasonable grounds to dispute the results obtained by an alternative monitoring method, the Administrator may require the monitoring requirements and procedures specified in this part.

{40 CFR 61.14}

4.17 Compliance Test

The permittee shall conduct a compliance test on the kiln venturi scrubber stacks and the nodule cooler spray tower in accordance with the procedures outlined in 40 CFR 60, Appendix A, Method 5 or a Department approved alternative method.

{HDAPA 58.01.01.322.09}

4.18 Coal Sulfur Content

The permittee shall maintain documentation of supplier verification of coal sulfur content. The documentation shall be kept for a period of five years and shall be made available to the Department representatives upon request.

{HDAPA 58.01.01.322.06}

4.19 Operating Parameter Recordkeeping

The permittee shall maintain records containing the following:

- The average hourly throughput of the process on a monthly basis.
- The calculated monthly emissions from the process.
- The hours of operation for each month and for the previous consecutive 12-month period.
- These records shall be maintained in accordance with Permit Condition 3.25.

[IDAPA 58.01.01.322.06]

4.20 Operations and Maintenance Manual

The permittee shall have developed an O&M manual for the Hydro-Sonic® scrubber system, the LCDA system, and the cooler spray tower system which describes the procedures that will be followed to comply with the general provisions for these systems. The manual shall be updated as needed to reflect any change in operating parameters from the most recent performance test that demonstrated compliance. This manual shall remain onsite at all times and shall be made available to Department representatives upon request.

[PTC No. P-2012.0055, 12/13/2024]

4.21 Hydro-Sonic® Scrubber Monitoring

- The permittee shall monitor and record the pH of the scrubbing solution in the recirculation tank after scrubbing at least once per hour when the system is operating. If more than one reading is taken each hour, the readings for that hour may be averaged to show compliance with the pH limit. The readings shall be taken in evenly-spaced time increments.
- The permittee shall monitor and record the pressure drop across the venturi section of the scrubbing system for each of the Hydro-Sonic® scrubbers once per hour and determine the 3 hour rolling average pressure drop. If more than one reading is taken each hour, the readings for that hour may be averaged to show compliance with the pressure drop limit. The readings shall be taken in evenly-spaced time increments.
- The permittee shall monitor and record the total scrubbing media flow rate, in gallons per minute, across each of the Hydro-Sonic® scrubbers once per hour and determine the 3 hour rolling average scrubbing media flow rate. If more than one reading is taken each hour, the readings for that hour may be averaged to show compliance with the flow rate limit. The readings shall be taken in evenly-spaced time increments.

[PTC No. P-2012.0055, 12/13/2024]

4.22 Cooler Spray Tower Monitoring

~~The permittee shall monitor and record the scrubbing media flow rate, in gallons per minute, across the cooler spray tower once per hour. If more than one reading is taken each hour, the readings for that hour may be averaged to show compliance with the flow rate limit. The readings shall be taken in evenly-spaced time increments.~~

[PTC No. P-2012.0055, 12/13/2024]

4.23 Throughput Monitoring

~~The permittee shall monitor and record the daily and monthly throughput of phosphate ore and other feed to the kiln when the system is operating.~~

[PTC No. P-2012.0055, 12/13/2024]

4.24 PM and PM₁₀ Performance Tests for Kiln Hydro-Sonic® Scrubbers and Cooler Spray Tower

~~The permittee shall conduct performance tests to measure PM and PM₁₀ emissions from the kiln Hydro-Sonic® scrubbers and the cooler spray tower according to the schedule in this permit~~

Pages 25 - 69 redacted -- outside the scope of the SIP

- ~~Any administrative authority or judicial remedy available to prevent or terminate emergencies or imminent and substantial dangers;~~
- ~~The liability of a permittee for any violation of applicable requirements prior to or at the time of permit issuance;~~
- ~~The applicable requirements of the acid rain program, consistent with 42 U.S.C. Section 7651(g)(a); and~~
- ~~The ability of EPA to obtain information from a source pursuant to Section 114 of the CAA; or the ability of DEQ to obtain information from a source pursuant to Idaho Code §39-108 and IDAPA 58.01.01.122.~~

~~{Idaho Code §39-108 and 112; IDAPA 58.01.01.122; IDAPA 58.01.01.322.15.m; IDAPA 58.01.01.325; IDAPA 58.01.01.381.04, 382.04, 383.05, 384.03, 385.03; 40 CFR 70.6(f)}~~

Compliance Schedule and Progress Reports

~~13.21~~ The permittee must comply with the following:

- ~~For each applicable requirement for which the source is not in compliance, the permittee must comply with the compliance schedule incorporated in this permit.~~
- ~~For each applicable requirement that will become effective during the term of this permit and that provides a detailed compliance schedule, the permittee must comply with such requirements in accordance with the detailed schedule.~~
- ~~For each applicable requirement that will become effective during the term of this permit that does not contain a more detailed schedule, the permittee must meet such requirements on a timely basis.~~
- ~~For each applicable requirement with which the permittee is in compliance, the permittee must continue to comply with such requirements.~~

~~{IDAPA 58.01.01.322.10; IDAPA 58.01.01.314.9; IDAPA 58.01.01.314.10; 40 CFR 70.6(e)(3) and (4)}~~

Periodic Compliance Certification

~~13.22~~ The permittee must submit compliance certifications during the term of the permit for each emissions unit to DEQ and the EPA as follows:

- The compliance certifications for all emissions units must be submitted annually from January 1 to December 31 or more frequently if specified by the underlying applicable requirement or elsewhere in this permit by DEQ.
- The initial compliance certification for each emissions unit must address all of the terms and conditions contained in the Tier I operating permit that are applicable to such emissions unit, including emissions limitations, standards, and work practices;
- The compliance certification must be in an itemized form providing the following information (provided that the identification of applicable information may cross-reference the permit or previous reports as applicable):
 - The identification of each term or condition of the Tier I operating permit that is the basis of the certification;
 - The identification of the method(s) or other means used by the permittee for determining the compliance status with each term and condition during the certification period. Such methods and other means must include, at a minimum, the methods and means required under Subsections 322.06, 322.07, and 322.08;
 - The status of compliance with the terms and conditions of the Tier I operating permit for the period covered by the certification, including whether compliance during the period was continuous or intermittent. The certification must be based on the method or means designated in Subsection 322.11.c.ii above. The certification must identify each deviation and take it into account in the compliance certification. The certification must also identify as possible exceptions to compliance any periods during which compliance is

required and in which an excursion or exceedance as defined under 40 CFR Part 64 occurred; and

- Such information as DEQ may require to determine the compliance status of the emissions unit.

13.23 All original compliance certifications must be submitted to DEQ and a copy of all compliance certifications must be submitted to the EPA.

[IDAPA 58.01.01.322.11; 40 CFR 70.6(c)(5)(iii) as amended, 62 Fed. Reg. 54900, 54946 (10/22/1997); 40 CFR 70.6(c)(5)(iv)]

False Statements

13.24 Persons are prohibited from knowingly making any false statement, representation, or certification in any form, notice, or report required under this permit or any applicable rule or order in force pursuant thereto.

[IDAPA 58.01.01.125]

No Tampering

13.25 Persons are prohibited from knowingly interfering with any monitoring device or method required under this permit or any applicable rule or order in force pursuant thereto.

[IDAPA 58.01.01.126]

Semiannual Monitoring Reports

13.26 In addition to all applicable reporting requirements identified in this permit, the permittee must submit reports of any required monitoring at least every six months. The permittee's semiannual reporting periods must be from January 1 to June 30 and July 1 to December 31. All instances of deviations from this operating permit's requirements must be clearly identified in the report. The semiannual reports must be submitted to DEQ within 30 days of the end of the specified reporting period.

[IDAPA 58.01.01.322.15.q; IDAPA 58.01.01.322.08.e; 40 CFR 70.6(a)(3)(iii)]

Reporting Deviations and Excess Emissions

13.27 The permittee must promptly report all deviations from permit requirements including upset conditions, their probable cause, and any corrective actions or preventive measures taken. For excess emissions, the report must be made in accordance with IDAPA 58.01.01.130-136. For all other deviations, the report must be made in accordance with IDAPA 58.01.01.322.08.e, unless otherwise specified in this permit.

[IDAPA 58.01.01.322.15.q; IDAPA 58.01.01.135; 40 CFR 70.6(a)(3)(iii)]

Permit Revision Not Required

13.28 No permit revision is required under any approved economic incentives, marketable permits, emissions trading, and other similar programs or processes for changes that are provided for in the permit.

[IDAPA 58.01.01.322.05.b; 40 CFR 70.6(a)(8)]

Emergency

13.29 In accordance with IDAPA 58.01.01.332, an "emergency", as defined in IDAPA 58.01.01.008, constitutes an affirmative defense to an action brought for noncompliance with such technology-based emissions limitation if the conditions of IDAPA 58.01.01.332.02 are met.

[IDAPA 58.01.01.332.01; 40 CFR 70.6(g)]