



New Mexico Environment Department Testimony in EIB 21-27 (R)

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Section 20.2.50.114 – Compressor Seals



Overview of Compressors

- Compressors are used to compress gas for processing and moving through pipelines.
- Compressors increase the pressure of natural gas and transport the gas in pipelines from the production site, through the processing and supply chain, and to the consumer.
- Vented emissions from compressors occur from seals (wet seal compressors) or packing surrounding the mechanical compression components (reciprocating compressors) of the compressor.
- Emissions typically increase over time as the compressor components begin to wear and degrade.



Emissions Standards for Compressors

- ❑ Existing centrifugal compressors - control VOC emissions from wet seal fluid degassing systems by at least 95 percent within two years of the effective date of Part 50.
- ❑ New centrifugal compressors - control VOC emissions from wet seal fluid degassing systems by at least 95 percent upon startup
- ❑ Emissions must be captured and routed through a closed vent system to a control device, recovery system, fuel cell, or a process stream.



Emissions Standards for Compressors

- Existing reciprocating compressors -
 - replace rod packing every 26,000 hours of operation or every 36 months, whichever is later; or
 - collect VOC emissions from the rod packing and route to a control device
- New reciprocating compressors –
 - replace rod packing after 26,000 hours of operation or every 36 months, whichever is later; or
 - collect VOC emissions from the rod packing and route to a control device upon startup.



Basis for Rule Requirements for Compressors

Compressor Seals on Centrifugal Compressors

- NSPS Subpart OOOOa
 - requires that owners and operators reduce methane and VOC emissions from each centrifugal compressor wet seal fluid degassing system by 95%
- Federal rule requires the wet seal degassing system be equipped with a cover and closed vent system that routes the gas to a control system or a process



Basis for Rule Requirements for Compressors

Compressor Seals on Reciprocating Compressors

□ NSPS Subpart OOOOa

- requires that owners and operators replace the rod packing every 26,000 hours or prior to 36 months from the date of the most recent rod packing replacement.

□ NSPS Subpart OOOOa

- requires that owners and operators collect emissions from the rod packing and route to a process through a closed vent system.



Emission Reductions and Cost Estimates

- NMED estimates an overall emission reduction of 5,325 tpy of VOC from 2,612 reciprocating compressors by increasing the rod packing replacement frequency from every 4 years to every 3 years.
- These emission reductions for reciprocating compressors are achieved at an estimated cost effectiveness of \$1,085/ton VOC.
- NMED estimates an overall emission reduction of 2,087 tpy of VOC from 116 centrifugal compressors by requiring emissions from wet seal degassing systems be routed to a process or control with 95% efficiency.
- These emission reductions for reciprocating compressors are achieved at an estimated cost effectiveness of \$320/year.



Comments Received

- NMED received several comments from Industry Parties:
 - ▣ Delete the section entirely
 - ▣ Exempt transmission compressor stations from the requirements of this section
 - ▣ Clarify the rule only covers centrifugal compressors with wet seals
 - ▣ Remove the requirement to control emissions from the rod packing under negative pressure
 - ▣ Delete the requirement to install an EMT
 - ▣ Clarify the requirement is to reduce emissions by 95%
 - ▣ Other minor edits



Proposed Revisions - Applicability

20.2.50.114 COMPRESSOR SEALS:

A. Applicability:

(1) Centrifugal compressors using wet seals and located at tank batteries, gathering and boosting ~~sites~~stations, and natural gas processing plants, ~~or transmission compressor stations~~ are subject to the requirements of 20.2.50.114 NMAC. Centrifugal compressors located at wellhead sites and transmission compressor stations are not subject to the requirements of 20.2.50.114 NMAC.

(2) Reciprocating compressors located at tank batteries, gathering and boosting ~~sites~~stations, and natural gas processing plants, ~~or transmission compressor stations~~ are subject to the requirements of 20.2.50.114 NMAC. ~~Reciprocating compressors located at wellhead sites~~ and transmission compressor stations are not subject to the requirements of 20.2.50.114 NMAC.

B. Emission standards:

(1) The owner or operator of an existing centrifugal compressor with wet seals shall control VOC emissions from a centrifugal compressor wet seal fluid degassing system by at least ninety-five percent within two years of the effective date of this Part. Emissions shall be captured and routed via a closed vent system to a control device, recovery system, fuel cell, or a process stream.

(2) The owner or operator of an existing reciprocating compressor shall, either:

(a) replace the reciprocating compressor rod packing after every 26,000 hours of compressor operation or every 36 months, whichever is reached later. The owner or operator shall begin counting the hours of compressor operation toward the first replacement of the rod packing upon the effective date of this Part; or

(b) beginning no later than two years from the effective date of this Part, collect emissions from the rod packing, ~~under negative pressure~~ and route them via a closed vent system to a control device, recovery system, fuel cell, or a process stream.



Proposed Revisions - Emission Standards

(3) The owner or operator of a new centrifugal compressor with wet seals shall control VOC emissions from the centrifugal compressor wet seal fluid degassing system by at least ninety-~~five~~^{eight} percent upon startup. Emissions shall be captured and routed via a closed vent system to a control device, recovery system, fuel cell, or process stream.

(4) The owner or operator of a new reciprocating compressor shall, upon startup, either:

- (a) replace the reciprocating compressor rod packing after every 26,000 hours of compressor operation, or every 36 months, whichever is reached later; or
- (b) collect emissions from the rod packing ~~under negative pressure~~ and route them via a closed vent system to a control device, a recovery system, fuel cell, or a process stream.

~~(5) The owner or operator of a centrifugal or reciprocating compressor shall install an EMT on the compressor in accordance with 20.2.50.112 NMAC.~~

(56) The owner or operator complying with the emission standards in Subsection B of 20.2.50.114 NMAC through use of a control device shall comply with the control device requirements in 20.2.50.115 NMAC.



Proposed Revisions - Monitoring

C. Monitoring requirements:

(1) The owner or operator of a centrifugal compressor complying with Paragraph (1) or (3) of Subsection B of 20.2.50.114 NMAC shall maintain a closed vent system encompassing the wet seal fluid degassing system that complies with the monitoring requirements in 20.2.50.115 NMAC.

(2) The owner or operator of a reciprocating compressor complying with Subparagraph (a) of Paragraph (2) or Subparagraph (a) of Paragraph (4) of Subsection B of 20.2.50.114 NMAC shall continuously monitor the hours of operation with a non-resettable hour meter and track the number of hours since initial startup or since the previous reciprocating compressor rod packing replacement.

(3) The owner or operator of a reciprocating compressor complying with Subparagraph (b) of Paragraph (2) or Subparagraph (b) of Paragraph (4) of Subsection B of 20.2.50.114 NMAC shall monitor the rod packing emissions collection system semiannually to ensure that it operates ~~under negative pressure~~ as designed and routes emissions through a closed vent system to a control device, recovery system, fuel cell, or process stream.

(4) The owner or operator of a centrifugal or reciprocating compressor complying with the requirements in Subsection B of 20.2.50.114 NMAC through use of a closed vent system or control device shall comply with the monitoring requirements in 20.2.50.115 NMAC.

(5) The owner or operator of a centrifugal or reciprocating compressor shall comply with the monitoring requirements in 20.2.50.112 NMAC.



Proposed Revisions – Recordkeeping

D. Recordkeeping requirements:

(1) The owner or operator of a centrifugal compressor using a wet seal fluid degassing system shall maintain a record of the following:

- (a) the location (latitude and longitude) of the centrifugal compressor;
- (b) the date of construction, reconstruction, or modification of the centrifugal compressor;
- (c) the monitoring required in Subsection C of 20.2.50.114 NMAC, including the time and date of the monitoring, the ~~personnel~~ person(s) conducting the monitoring, a description of any problem observed during the monitoring, and a description of any corrective action taken; and
- (d) the type, make, model, and unique identification number or equivalent identifier ~~number~~ of a control device used to comply with the control requirements in Subsection B of 20.2.50.114 NMAC.

(2) The owner or operator of a reciprocating compressor shall maintain a record of the following:

- (a) the location (latitude and longitude) of the reciprocating compressor;
- (b) the date of construction, reconstruction, or modification of the reciprocating compressor; and
- (c) the monitoring required in Subsection C of 20.2.50.114 NMAC, including:
 - (i) the number of hours of operation since the effective date, initial startup after the effective date, or the last rod packing replacement, as applicable;
 - (ii) data showing the effectiveness of ~~the records of pressure in~~ the rod packing emissions collection system, as applicable; and



Proposed Revisions –Recordkeeping

(iii) the time and date of the inspection, the ~~personnel~~person(s) conducting the inspection, ~~a notation of which checks required in Subsection C of 20.2.50.114 NMAC were completed,~~ a description of any problems observed during the inspection, and a description ~~and date~~ of corrective actions taken.

(3) The owner or operator of a centrifugal or reciprocating compressor complying with the requirements in Subsection B of 20.2.50.114 NMAC through use of a control device or closed vent system shall comply with the recordkeeping requirements in 20.2.50.115 NMAC.

(4) The owner or operator of a centrifugal or reciprocating compressor shall comply with the recordkeeping requirements in 20.2.50.112 NMAC.

E. Reporting requirements: The owner or operator of a centrifugal or reciprocating compressor shall comply with the reporting requirements in 20.2.50.112 NMAC.

[20.2.50.114 NM–C - N, XX/XX/2021]