

1 **R307. Environmental Quality, Air Quality.**
2 **R307-410. Permits: Emissions Impact Analysis.**
3 **R307-410-1. Purpose.**

4 This rule establishes the procedures and requirements
5 for evaluating the emissions impact of new or modified
6 sources that require an approval order under R307-401 to
7 ensure that the source will not interfere with the
8 attainment or maintenance of any NAAQS[~~as required by 40~~
9 ~~CFR 51.160~~]. The rule also establishes the procedures and
10 requirements for evaluating the emissions impact of
11 hazardous air pollutants. The rule also establishes the
12 procedures for establishing an emission rate based on the
13 good engineering practice stack height as required by 40
14 CFR 51.118.

15

16 **R307-410-2. Definitions.**

17 (1) The following additional definitions apply to
18 R307-410.

19 "Vertically Restricted Emissions Release" means the
20 release of an air contaminant through a stack or opening
21 whose flow is directed in a downward or horizontal
22 direction due to the alignment of the opening or a physical
23 obstruction placed beyond the opening, or at a height which
24 is less than 1.3 times the height of an adjacent building
25 or structure, as measured from ground level.

26 "Vertically Unrestricted Emissions Release" means the
27 release of an air contaminant through a stack or opening
28 whose flow is directed upward without any physical
29 obstruction placed beyond the opening, and at a height
30 which is at least 1.3 times the height of an adjacent
31 building or structure, as measured from ground level.

32 (2) Except as provided in (3) below, the definitions
33 of "stack", "stack in existence", "dispersion technique",
34 "good engineering practice (GEP) stack height", "nearby",
35 "excessive concentration", and "intermittent control system
36 (ICS)" in 40 CFR 51.100(ff) through (kk) and (nn) effective
37 July 1, 2005 are hereby incorporated by reference.

38 (3)-(a) The terms "reviewing authority" and
39 "authority administering the State implementation plan"
40 shall mean the executive secretary.

41 (b) The reference to "40 CFR parts 51 and 52" in 40
42 CFR 51.100(ii)(2)(i) shall be changed to "R307-401, R307-
43 403 and R307-405".

44 (c) The phrase "For sources subject to the prevention of
45 significant deterioration program (40 CFR 51.166 and
46 52.21)" in 40 CFR 51.100(kk)(1) shall be replaced with the

1 phrase "For sources subject to R307-401, R307-403, or R307-
2 405".

3

4 **R307-410-3. Use of Dispersion Models.**

5 All estimates of ambient concentrations derived in
6 meeting the requirements of R307 shall be based on
7 appropriate air quality models, data bases, and other
8 requirements specified in 40 CFR Part 51, Appendix W,
9 (Guideline on Air Quality Models), effective July 1, 2005,
10 which is hereby incorporated by reference. Where an air
11 quality model specified in the Guideline on Air Quality
12 Models or other EPA approved guidance documents is
13 inappropriate, the executive secretary may authorize the
14 modification of the model or substitution of another model.
15 In meeting the requirements of federal law, any
16 modification or substitution will be made only with the
17 written approval of the Administrator, EPA.

18

19 **R307-410-4. Modeling of Criteria Pollutant Impacts in**
20 **Attainment Areas.**

21 Prior to receiving an approval order under R307-401, a
22 new source in an attainment area with a total controlled
23 emission rate per pollutant greater than or equal to
24 amounts specified in Table 1, or a modification to an
25 existing source located in an attainment area which
26 increases the total controlled emission rate per pollutant
27 of the source in an amount greater than or equal to those
28 specified in Table 1, shall conduct air quality modeling,
29 as identified in R307-410-[2]3, to estimate the impact of
30 the new or modified source on air quality unless previously
31 performed air quality modeling for the source indicates
32 that the addition of the proposed emissions increase would
33 not violate a National Ambient Air Quality Standard, as
34 determined by the Executive Secretary.

35

36

TABLE 1

37

| 38 POLLUTANT | EMISSIONS |
|---|-------------------|
| 39 sulfur dioxide | 40 tons per year |
| 40 oxides of nitrogen | 40 tons per year |
| 41 PM10 - fugitive emissions 42 and fugitive dust | 5 tons per year |
| 43 PM10 - non-fugitive emissions 44 or non-fugitive dust | 15 tons per year |
| 45 carbon monoxide | 100 tons per year |
| 46 lead | 0.6 tons per year |

47

1 **R307-410-5. Documentation of Ambient Air Impacts for**
2 **Hazardous Air Pollutants.**

3 (1) Prior to receiving an approval order under R307-
4 401, a source shall provide documentation of increases in
5 emissions of hazardous air pollutants as required under (c)
6 below for all installations not exempt under (a) below.

7 (a) Exempted Installations.

8 (i) The requirements of R307-410-5 do not apply to
9 installations which are subject to or are scheduled to be
10 subject to an emission standard promulgated under 42 U.S.C.
11 7412 at the time a notice of intent is submitted, except as
12 defined in (ii) below. This exemption does not affect
13 requirements otherwise applicable to the source, including
14 requirements under R307-401.

15 (ii) The executive secretary may, upon making a
16 written determination that the delay in the implementation
17 of an emission standard under R307-214-2, that incorporates
18 40 CFR Part 63, might reasonably be expected to pose an
19 unacceptable risk to public health, require, on a case-by-
20 case basis, notice of intent documentation of emissions
21 consistent with (c) below.

22 (A) The executive secretary will notify the source
23 in writing of the preliminary decision to require some or
24 all of the documentation listed in (c) below.

25 (B) The source may respond in writing within thirty
26 days of receipt of the notice, or such longer period as the
27 executive secretary approves.

28 (C) In making a final determination, the executive
29 secretary will document objective bases for the
30 determination, which may include public information and
31 studies, documented public comment, the applicant's written
32 response, the physical and chemical properties of
33 emissions, and ambient monitoring data.

34 (b) Lead Compounds Exemption. The requirements of
35 R307-410-5 do not apply to emissions of lead compounds.
36 Lead compounds shall be evaluated pursuant to requirements
37 of R307-410-4.

38 (c) Submittal Requirements.

39 (i) Each applicant's notice of intent shall include:

40 (A) the estimated maximum pounds per hour emission
41 rate increase from each affected installation,

42 (B) the type of release, whether the release flow is
43 vertically restricted or unrestricted, the maximum release
44 duration in minutes per hour, the release height measured
45 from the ground, the height of any adjacent building or
46 structure, the shortest distance between the release point
47 and any area defined as "ambient air" under 40 CFR 50.1(e),

1 effective July 1, 2005, which is hereby incorporated by
 2 reference for each installation for which the source
 3 proposes an emissions increase,

4 (C) the emission threshold value, calculated to be
 5 the applicable threshold limit value - time weighted
 6 average (TLV-TWA) or the threshold limit value - ceiling
 7 (TLV-C) multiplied by the appropriate emission threshold
 8 factor listed in Table 2, except in the case of arsenic,
 9 benzene, beryllium, and ethylene oxide which shall be
 10 calculated using chronic emission threshold factors, and
 11 formaldehyde, which shall be calculated using an acute
 12 emission threshold factor. For acute hazardous air
 13 pollutant releases having a duration period less than one
 14 hour, this maximum pounds per hour emission rate shall be
 15 consistent with an identical operating process having a
 16 continuous release for a one-hour period.

17
 18 TABLE 2

19 EMISSION THRESHOLD FACTORS FOR HAZARDOUS AIR POLLUTANTS
 20 (cubic meter pounds per milligram hour)

21
 22 VERTICALLY-RESTRICTED AND FUGITIVE EMISSION RELEASE POINTS

23
 24 DISTANCE TO

| 25 PROPERTY BOUNDARY | ACUTE | CHRONIC | CARCINOGENIC |
|----------------------|-------|---------|--------------|
| 26 20 Meters or less | 0.038 | 0.051 | 0.017 |
| 27 21 - 50 Meters | 0.051 | 0.066 | 0.022 |
| 28 51 - 100 Meters | 0.092 | 0.123 | 0.041 |
| 29 Beyond 100 Meters | 0.180 | 0.269 | 0.090 |

30
 31 VERTICALLY-UNRESTRICTED EMISSION RELEASE POINTS

32
 33 DISTANCE TO

| 34 PROPERTY BOUNDARY | ACUTE | CHRONIC | CARCINOGENIC |
|----------------------|-------|---------|--------------|
| 35 50 Meters or less | 0.154 | 0.198 | 0.066 |
| 36 51 - 100 Meters | 0.224 | 0.244 | 0.081 |
| 37 Beyond 100 Meters | 0.310 | 0.368 | 0.123 |

38
 39 (ii) A source with a proposed maximum pounds per hour
 40 emissions increase equal to or greater than the emissions
 41 threshold value shall include documentation of a comparison
 42 of the estimated ambient concentration of the proposed
 43 emissions with the applicable toxic screening level
 44 specified in (d) below.

45 (iii) A source with an estimated ambient
 46 concentration equal to or greater than the toxic screening
 47 level shall provide additional documentation regarding the

1 impact of the proposed emissions. The executive secretary
2 may require such documentation to include, but not be
3 limited to:

4 (A) a description of symptoms and adverse health
5 effects that can be caused by the hazardous air pollutant,

6 (B) the exposure conditions or dose that is
7 sufficient to cause the adverse health effects,

8 (C) a description of the human population or other
9 biological species which could be exposed to the estimated
10 concentration,

11 (D) an evaluation of land use for the impacted areas,

12 (E) the environmental fate and persistency.

13 (d) Toxic Screening Levels and Averaging Periods.

14 (i) The toxic screening level for an acute hazardous
15 air pollutant is 1/10th the value of the TLV-C, and the
16 applicable averaging period shall be:

17 (A) one hour for emissions releases having a duration
18 period of one hour or greater,

19 (B) one hour for emission releases having a duration
20 period less than one hour if the emission rate used in the
21 model is consistent with an identical operating process
22 having a continuous release for a one-hour period or more,
23 or

24 (C) the dispersion model's shortest averaging period
25 when using an applicable model capable of estimating
26 ambient concentrations for periods of less than one hour.

27 (ii) The toxic screening level for a chronic hazardous
28 air pollutant is 1/30th the value of the TLV- TWA, and the
29 applicable averaging period shall be 24 hours.

30 (iii) The toxic screening level for all carcinogenic
31 hazardous air pollutants is 1/90 the value of the TLV-TWA,
32 and the applicable averaging period shall be 24 hours,
33 except in the case of formaldehyde which shall be evaluated
34 consistent with (d)(i) above and arsenic, benzene,
35 beryllium, and ethylene oxide which shall be evaluated
36 consistent with (d)(ii) above.

37
38 **R307-410-6. Stack Heights and Dispersion Techniques.**

39 (1) The degree of emission limitation required of any
40 source for control of any air contaminant to include
41 determinations made under R307-401, R307-403 and R307-405,
42 must not be affected by so much of any source's stack
43 height that exceeds good engineering practice or by any
44 other dispersion technique except as provided in (2) below.
45 This does not restrict, in any manner, the actual stack
46 height of any source.

47 (2) The provisions in R307-410-6 shall not apply to:

1 (a) stack heights in existence, or dispersion
2 techniques implemented on or before December 31, 1970,
3 except where pollutants are being emitted from such stacks
4 or using such dispersion techniques by sources which were
5 constructed or reconstructed, or for which major
6 modifications were carried out after December 31, 1970; or

7 (b) coal-fired steam electric generating units
8 subject to the provisions of Section 118 of the Clean Air
9 Act, which commenced operation before July 1, 1957, and
10 whose stacks were constructed under a construction contract
11 awarded before February 8, 1974.

12 (3) The executive secretary may require the source
13 owner or operator to provide a demonstration that the
14 source stack height meets good engineering practice as
15 required by R307-410-6.

16
17 **KEY: air pollution, modeling, hazardous air pollutant,**
18 **stack height**

19 **2006**

20 **Notice of Continuation: August 11, 2003**

21 **19-2-104**

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