Indiana New Source Review Reform

Actual-To-Projected-Actual
Applicability Test
IDEM/Office of Air Quality
9-29-04

Actual-to-Projected-Actual Applicability Test

For physical changes or changes in the method of operation, to existing emissions units, at existing major NSR sources, major NSR applicability will be based on the highest emissions increase resulting from the difference between the projected actual emissions from all affected emissions units and the baseline actual emissions from all affected emissions units.

Calculations for this applicability test are done by the owner or operator of the source prior to any actual construction.

Actual-To-Projected-Actual Applicability Test

Step #1: Baseline Actual Emissions

(pre-change emissions)

Step #2: Projected-Actual Emissions

(post-change emissions)

"Baseline Actual Emissions"

326 IAC 2-2-1(e)

- **New Applicability Requirement for existing Non-EUSGUs - Average annual emissions rate based on unit's operation during any consecutive 24-month period in the past 10 years. (Can't include any period earlier than November 15, 1990)**

  See 326 IAC 2-2-1(e)(2) & 326 IAC 2-3-1(d)(2)

- **For existing Electric Utility Steam Generating Units (EUSGUs) (unchanged by NSR Reform) - Baseline actual emissions are based on any consecutive 24-month period within the 5 years immediately preceding the project.**

  See 326 IAC 2-2-1(e)(1) & 326 IAC 2-3-1(d)(1)

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"Baseline Actual Emissions"

EXAMPLE #1

Year	VOC Emissions
1994	75 tpy
1995	**85 tpy**
1996	**95 tpy**
1997	80 tpy
1998	60 tpy
1999	80 tpy
2000	75 tpy
2001	40 tpy
2002	**55 tpy**
2003	**75 tpy**

New Rule: Average annual emissions = 90 tpy

Old Rule: Average annual emissions = 65 tpy

"Baseline Actual Emissions"

EXAMPLE #2

Year	VOC Emissions
1994	75 tpy
1995	50 tpy
1996	55 tpy
1997	60 tpy
1998	60 tpy
1999	65 tpy
2000	60 tpy
2001	40 tpy
2002	**55 tpy**
2003	**75 tpy**

Old rule/ New rule:

Average annual emissions = 65 tpy

"Baseline Actual Emissions"

- **Non-EUSGUs :** no longer allowed to use a more representative period

- **EUSGUs :** may use a different time period if IDEM, OAQ determines it is more representative of normal source operation.

"Baseline Actual Emissions"

- Baseline Actual Emissions will be used for:
  - Determining emissions increase resulting from changes at existing units. 326 IAC 2-2-2(d)(3) & 326 IAC 2-3-2(c)(3)
  - Computing contemporaneous emissions changes. 326 IAC 2-2-1(jj)(1)(B) & 326 IAC 2-3-1(dd)(1)(B)
  - Establishing a PAL. 326 IAC 2-3.4-3(2)

"Baseline Actual Emissions"

- Baseline Actual Emissions are not used for:
  - Determining a source's actual emissions on a particular date as may be used for other NSR related requirements
  - Air quality impacts analyses
  - Computing emissions offsets

The existing definition for actual emissions continues to apply for these requirements.

"Baseline Actual Emissions"

- The owner or operator must have relevant data to support the units operation during the 24-month period selected.
  - The data must adequately describe the operation and associated pollution levels for the emissions units being changed
  - Utilization rate of the equipment
  - Fuels and raw materials used in the operation of the equipment
  - Actual emissions factors

If data is not available to calculate the average annual emissions rate for the 24-month period selected then another 24-month period must be selected for which adequate data exist.

"Baseline Actual Emissions"

- "Project" **326 IAC 2-2-1(qq) & 326 IAC 2-3-1(ll)**
  - A physical change in, or change in the method of operation of, an existing major stationary source

"Baseline Actual Emissions"

- **Existing Non-EUSGUs :** Average annual emissions rate based on unit's operation during any consecutive 24-month period in the past 10 years.

- **Existing EUSGUs :** Average annual emissions rate based on unit's operation during any consecutive 24-month period in the past 5 years.

✓**Use same 24-month period for all emissions units involved in project. But may use different 24-month period for each pollutant. See 326 IAC 2-2-1(e)(2)(D), 326 IAC 2-3-1(d)(2)(D), 326 IAC 2-2-1(e)(1)(C) & 326 IAC 2-3-1(d)(1)(C).**

"Baseline Actual Emissions"

- **Existing Non-EUSGUs :** Average annual emissions rate based on unit's operation during any consecutive 24-month period in the past 10 years.

- **Existing EUSGUs :** Average annual emissions rate based on unit's operation during any consecutive 24-month period in the past 5 years.

  ✓**The average rate shall include fugitive emissions to the extent quantifiable and emissions associated with startups, shutdowns, and malfunctions to the extent they are affected by the project. See 326 IAC 2-2-1(e)(2)(A), 326 IAC 2-3-1(d)(2)(A), 326 IAC 2-2-1(e)(1)(A) & 326 IAC 2-3-1(d)(1)(A).**

"Baseline Actual Emissions"

- **Existing Non-EUSGUs :** Average annual emissions rate based on unit's operation during any consecutive 24-month period in the past 10 years.

- **Existing EUSGUs :** Average annual emissions rate based on unit's operation during any consecutive 24-month period in the past 5 years.

  ✓**Reduce for any non-compliant emissions, i.e., exceeded unit's allowable emissions rate. See 326 IAC 2-2-1(e)(2)(B), 326 IAC 2-3-1(d)(2)(B), 326 IAC 2-2-1(e)(1)(B) & 326 IAC 2-3-1(d)(1)(B).**

"Baseline Actual Emissions"

- **Existing Non-EUSGUs :** Average annual emissions rate based on unit's operation during any consecutive 24-month period in the past 10 years.

- **Existing EUSGUs :** Average annual emissions rate based on unit's operation during any consecutive 24-month period in the past 5 years.

  ✓ **Adjust annual emissions rate for non-operative portion of 24-month period. [See 67 FR p. 80196, Dec. 31, 2002.]**

"Baseline Actual Emissions"

- If a unit did not exist during the 24-month period, count that units emissions rate as zero for that full period of time.

- If a unit operated for only a portion of the 24-month period, calculate its average annual emissions rate using zero for that portion of the time when the unit was not in operation.

- For new emissions units (a unit that has existed for less than 2 years) that will be changed by the project, the baseline actual emissions rate is zero if the unit has not yet begun operation and equal to the unit's PTE once it has begun operation.

"Baseline Actual Emissions"

- **Existing Non-EUSGUs :** Average annual emissions based on unit's operation during any consecutive 24-month period in the past 10 years.

- **Existing EUSGUs :** Average annual emissions rate based on unit's operation during any consecutive 24-month period in the past 5 years.

  - ✓**Adjust average annual rate to reflect current emissions control requirements. See 326 IAC 2-2-1(e)(2)(C) & 326 IAC 2-3-1(d)(2)(C).**

"Baseline Actual Emissions"

EXAMPLE #3

Year	VOC Emissions
1994	750 tpy
1995	**850 tpy**
1996	**950 tpy**
1997	800 tpy
1998	70 tpy
1999	60 tpy
2000	65 tpy
2001	60 tpy
2002	**70 tpy**
2003	**65 tpy**

New Rule: Average annual emissions = 900 tpy.

Adjusted baseline = 900 x 0.10 = 90 tpy.

Requirement for Thermal Oxidizer; controls VOC emissions by 90%

Old Rule: Average annual emissions = 68 tpy

"Baseline Actual Emissions"

EXAMPLE #4

Year	VOC Emissions
1994	750 tpy
1995	**850 tpy**
1996	**950 tpy**
1997	800 tpy
1998	60 tpy
1999	65 tpy
2000	85 tpy
2001	80 tpy
2002	**90 tpy**
2003	**95tpy**

Average annual emissions = 900 tpy.

Adjusted baseline = 900 x 0.10 = 90 tpy.

Requirement for Thermal Oxidizer; controls VOC emissions by 90%

Old Rule: Average annual emissions = 93 tpy

"Baseline Actual Emissions"

Adjustment to Baseline Calculation

An adjustment to the baseline calculation is required if any legally enforceable emissions limitation or operating restriction (including but not limited to a State or Federal requirement, such as RACT, BACT, LAER, NSPS, NESHAP, etc.) currently applies to the unit being changed.

"Baseline Actual Emissions"

Adjustment to Baseline Calculation

An adjustment should also be made for such things as a more stringent fuel-use requirement (type or amount of fuel), sulfur-in-fuel limit, etc. (In most cases these will already be current requirements in their existing operating permit.)

"Baseline Actual Emissions"

Adjustment to Baseline Calculation

Voluntary reductions resulting in enforceable restrictions (e.g., use of clean fuel or lower-polluting raw material to acquire creditable reductions for netting) also must be considered for adjustment of baseline. (In most cases these will already be current requirements in their existing operating permit.)

"Baseline Actual Emissions"

Summary of Adjustment to Baseline Calculation

When the average annual emissions rate originally calculated is still legally achievable then your baseline actual emissions will be the same as the average annual emissions rate calculated for the 24-month period. If it is not, you must adjust it downward so that it does not reflect emissions that are no longer legally allowed.

Step 2: Projected Actual Emissions

Non-EUSGUs & EUSGUs

"Projected Actual Emissions"

326 IAC 2-2-1(rr) & 326 IAC 2-3-1(mm)

The owner or operator must project changed unit's maximum actual annual emissions for any one of the 5-years after the change,

OR

any one of the 10-years after the change (if the change involves an increase in the emissions unit's PTE or capacity).

"Projected Actual Emissions"

326 IAC 2-2-1(rr) & 326 IAC 2-3-1(mm)

- "Projected actual emissions" --**The first year begins on the day the emissions unit resumes regular operation following the change and includes the 12 months after this date.**

"Projected Actual Emissions"

326 IAC 2-2-1(rr) & 326 IAC 2-3-1(mm)

A unit's projected emissions rate is calculated as the product of

(1) The hourly emissions rate -

- Based on unit's post-change operational capabilities;
- Taking into account the legally enforceable restrictions that could affect the hourly rate.

(2) The projected level of utilization, based on –

- Unit's historical annual utilization rate
- Available information about unit's likely post-change capacity utilization.

"Projected Actual Emissions"

326 IAC 2-2-1(rr) & 326 IAC 2-3-1(mm)

In projecting the future utilization level, the owner or operator should consider both the expected and highest projections of the business activity that could be expected to be achieved and that are consistent with information the company publishes for business-related purposes.

"Projected Actual Emissions"

326 IAC 2-2-1(rr) & 326 IAC 2-3-1(mm)

The owner or operator may adjust the projection to exclude any portion of the emissions increase that the changed unit(s)

-- could have accommodated during the 24-month baseline period,

AND

-- is unrelated to the change.

"Projected Actual Emissions"

Could Have Accommodated / Increased Utilization

- There should be a causal link between the proposed change and any post-change increase in emissions.

- When increase in utilization is in response to an independent factor, the increased utilization cannot be said to result from the change.

"Projected Actual Emissions"

EXAMPLE #1

An emissions unit operates 4160 hrs/yr

Following the change, the highest rate at which it will emit NOx is 45 lbs/hr

The projected actual emissions are:

45 lbs/hr X 4160 hrs/yr X 1 ton/2000 lbs = 93.6 tons

Prior to the change the unit emitted NOx at 40 lbs/hr

40 lbs/hr X 4160 hrs/yr X 1 ton/2000 lbs = 83.2 tons

Since the excluded emissions equal the baseline actual emissions the projected increase is:

93.6 tons/yr – 83.2 tons/yr = 10.4 tons/yr

Recordkeeping and Reporting

“Reasonable Possibility”

- Not defined in the rules

- However, if under the past actual to future potential applicability test a significant emissions increase will occur then there is a “reasonable possibility”

Recordkeeping and Reporting

When there is a reasonable possibility that the project could result in a significant emissions increase AND the owner or operator elects to calculate projected actual emissions,* The owner or operator of EUSGUs and non-EUSGUs must document and maintain records of certain information.

*** In lieu of using projected actual emissions, the owner or operator may elect to use the emissions unit's potential to emit.**

Recordkeeping and Reporting

Source Obligation 326 IAC 2-2-8 & 326 IAC 2-3-2(m)

When there is a reasonable possibility that the project could result in a significant emissions increase the following must be documented and maintained before beginning actual construction of the project:

(1) A description of the project

(2) Identification of any emissions unit whose emissions of a regulated NSR pollutant could be affected by the project

(3) A description of the applicability test used to determine that the project is not a major modification including baseline actual emissions, projected actual emissions, the amount of emissions excluded, why they were excluded and any netting calculations.

Recordkeeping and Reporting

For any modified unit, owner or operator must –

-- Monitor emissions of any regulated NSR pollutant that could increase as a result of project;

-- Calculate & maintain record of annual emissions (tpy) for 5 (or 10*) years following resumption of unit's regular operation;

***If the project increases the design capacity or PTE.**

Recordkeeping and Reporting

Source Obligation 326 IAC 2-2-8 & 326 IAC 2-3-2(m)

EUSGUs must provide a copy of this information to IDEM, OAQ before beginning actual construction.

(1) A description of the project

(2) Identification of any emissions unit whose emissions of a regulated NSR pollutant could be affected by the project

(3) A description of the applicability test used to determine that the project is not a major modification including baseline actual emissions, projected actual emissions, the amount of emissions excluded, why they were excluded and any netting calculations.

Recordkeeping and Reporting

Source Obligation 326 IAC 2-2-8 & 326 IAC 2-3-2(m)

EUSGUs must submit a report to IDEM, OAQ within sixty (60) days after the end of each year during which records must be kept.

- **Copy of tracked emissions**

Recordkeeping and Reporting

Source Obligation 326 IAC 2-2-8 & 326 IAC 2-3-2(m)

Non-EUSGUs must submit reports to IDEM, OAQ if the annual emissions from the project exceed the baseline actual emissions by a significant amount and the emissions differ from the preconstruction projection as documented.

- **Copy of tracked emissions**
- **May include explanation of why emissions exceeded projection**

Recordkeeping and Reporting

Remember!

The criteria that "there is a reasonable possibility that the project could result in a significant emissions increase" must be addressed despite the fact that the source is projecting an insignificant emissions increase as a result of the changes being made.

Thus, recordkeeping/reporting requirements apply if the source could have a significant emissions increase (based on reasonable possibility), *even though* the source has projected that a significant emissions increase will not occur (based on expected projections).

Recordkeeping and Reporting

	Pre-construction Notification	Recordkeeping	Reporting
EUSGUs	Yes	Yes	Annual (5 or 10 Yrs)
Non-EUSGUs	No	Yes	Only if Projection Exceeded

Recordkeeping and Reporting

For all modified emissions units, the owner or operator must make required information available for review upon request by IDEM, OAQ or general public.

[See 326 IAC 2-2-8(c) & 326 IAC 2-3-2(m)(6)]

Applicability Test

EXAMPLE

Modification at Plant ABC

Assumptions: Existing Major Source, Attainment Area, VOC Emissions

(Plant ABC began operations in late 2001)

Year*	VOC Actual Emissions
2002	125 tpy
2003	135 tpy
2004	155 tpy (projected)
2005	155 tpy (projected)
2006	160 tpy (projected)
2007	160 tpy (projected)
2008	165 tpy (projected)

Future Potential To Emit:

300 tpy VOC

Applicability Test (Old)

EXAMPLE

Modification at Plant ABC

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* Plant ABC began operations in late 2001

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2008	165 tpy (projected)

Future Potential To Emit:

300 tpy VOC

Current Rule

past actual (130 tpy) vs. future PTE (300 tpy)

Proposed Increase = **170 tpy [>40 tpy]**

Net emissions increase = 170 tpy [>40 tpy]

Modification subject to PSD

Applicability Test (New)

EXAMPLE

Modification at Plant ABC

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* Plant ABC began operations in late 2001

Year*	VOC Actual Emissions
2002	125 tpy
2003	135 tpy
2004	155 tpy (projected)
2005	155 tpy (projected)
2006	160 tpy (projected)
2007	160 tpy (projected)
2008	165 tpy (projected)

Future Potential To Emit:

300 tpy VOC

New Rule

Baseline actual emissions (130 tpy) vs. projected actual (165 tpy)

Projected Increase = **35 tpy [< 40 tpy]**

MINOR MODIFICATION

Permit Content

NSR Reform is about major NSR applicability. In most cases the changes or modifications made at the source will still trigger minor NSR permitting.

Since all major NSR sources are also Part 70 sources, source modifications will be done pursuant to Part 70 source and permit modification requirements.

Permit Content (cont..d)

A section will be added to the TSD addressing the source has determined that major NSR is not applicable by using the actual-to-projected-actual applicability test. IDEM, OAQ will not state that we have checked these calculations and found them to be correct.

A condition will be added to Section C of the Part 70 permit for major NSR sources addressing the "Source Obligation" requirements related to using the actual-to-projected-actual applicability test.

Applicability Tests

Actual to Potential Applicability Test

Generally used for projects involving new emissions units but can be used for changes to existing emissions units

Actual to Projected Actual Applicability Test

Only used for changes at existing emissions units

Clean Unit Test

Used for existing emissions units with clean unit status

Hybrid Applicability Test

Used for projects involving combinations of new emissions units, existing emissions units and clean units. The Hybrid Test involves using the appropriate applicability test for the type of emissions unit and summing the increases.

Enforcement

If an owner or operator is subsequently determined not to have met the obligations of these new rules, they will be subject to any applicable enforcement provisions (including the possibility of citizens' suits) under the applicable sections of the CAA.

Sanctions for violations of these provisions may include monetary penalties of up to $27,500 per day of violation, as well as the possibility of injunctive relief, which may include the requirement to install air pollution controls.

IDEM/OAQ Contact for Actual-To-Projected-Actual Applicability Test

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