

	Air Quality Division POLICY AND PROCEDURE		DEPARTMENT OF ENVIRONMENTAL QUALITY
Original Effective Date: May 9, 2017	Subject: Permit Exemption for Changes In a Process or Process Equipment That Are Not a Meaningful Change or a Meaningful Increase In Toxic Air Contaminants		Category: <input type="checkbox"/> Internal/Administrative <input checked="" type="checkbox"/> External/Non-Interpretive <input type="checkbox"/> External/Interpretive
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Reformatted Date: N/A	Number: AQD-025	Page: 1 of 14	

A Department of Environmental Quality (DEQ) Policy and Procedure cannot establish regulatory requirements for parties outside of the DEQ. This document provides direction to DEQ staff regarding the implementation of rules and laws administered by the DEQ. It is merely explanatory; does not affect the rights of or procedures and practices available to the public; and does not have the force and effect of law. DEQ staff shall follow the directions contained in this document.

INTRODUCTION:

This procedure discusses the use of Rule 336.1285 (Rule 285) in the Permit to Install (PTI) program, specifically the application of the term "meaningful." There are instances when owner/operators have received a PTI and at a later time they consider making relatively small changes in the permitted process or process equipment. They may apply for a new PTI for the proposed changes or evaluate if the desired changes are allowed under a Rule 285 exemption. This procedure is intended to provide further guidance for those decisions, for owner/operators and for DEQ Air Quality Division (AQD) staff.

AUTHORITY:

Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, requires companies to obtain a PTI for certain sources of air emissions. Under Section 5505(2), rules have been promulgated to establish a PTI program administered by the department. The PTI program is applicable to each new or modified process or process equipment that emits or may emit an air contaminant. Under Section 5505(4), the department has also promulgated rules to exempt certain sources, processes or process equipment, or certain modifications to a source, process or process equipment, from the requirement to obtain a PTI.

In the Air Pollution Control Rules, Part 2 (Air Use Approval), R 336.1278 (Rule 278) excludes certain sources from PTI exemptions specified in R 336.1280 to R 336.1291 (Rules 280 to 291). R 336.1278a (Rule 278a) describes the information necessary for an owner/operator to demonstrate the applicability of a specific exemption listed in Rules 280 to 291.

R 336.1285(2)(b) (Rule 285(2)(b)) provides an exemption from the requirement to obtain a PTI for:

- (b) Changes in a process or process equipment which do not involve installing, constructing, or reconstructing an emission unit and which **do not involve** any meaningful change in

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the quality and nature or any meaningful increase in the quantity of the emission of an air contaminant therefrom. (*emphasis added*)

- (i) Examples of such changes in a process or process equipment include, but are not limited to, the following:

R 336.1285(2)(c) (Rule 285(2)(c)) provides an exemption from the requirement to obtain a PTI for:

- (c) Changes in a process or process equipment that **do not** involve installing, constructing, or reconstructing an emission unit and **that involve** a meaningful change in the quality and nature or a meaningful increase in the quantity of the emission of an air contaminant resulting from any of the following:
- (i) Changes in the supplier or supply of the same type of virgin fuel, such as coal, no. 2 fuel oil, no. 6 fuel oil, or natural gas.
 - (ii) Changes in the location, within the storage area, or configuration of a material storage pile or material handling equipment.
 - (iii) Changes in a process or process equipment to the extent that such changes do not alter the quality and nature, or increase the quantity, of the emission of the air contaminant beyond the level which has been described in and allowed by an approved permit to install, permit to operate, or order of the department. (*emphasis added*)

R 336.1285(2)(f) (Rule 285(2)(f)) provides an exemption from the requirement to obtain a PTI for:

- (f) Installation or construction of air pollution control equipment for an existing process or process equipment if the control equipment itself **does not** actually generate a significant amount of criteria air contaminants as defined in R 336.1119(e) or a meaningful increase in the quantity of the emissions of **toxic air contaminants** or a meaningful change in the quality and nature of **toxic air contaminants**. (*emphasis added*)

R 336.1285(3) (Rule 285(3)) provides definitions of the key terms, "meaningful change in the quality and nature" and "meaningful increase in the quantity of the emissions" of **toxic air contaminants**. The full definitions appear below under "Definitions". It should be emphasized that the Rule 285(3) definitions apply to only **toxic air contaminants (TACs)**. TACs are defined in R 336.1120(f) (Rule 120(f)). These terms are not defined for non-TACs. Both TACs and non-TACs are subject to the exclusions and requirements for the use of Rule 285 exemptions provided in Rules 278 and 278(a), as applicable.

STAKEHOLDER INVOLVEMENT:

The AQD Air Toxics Workgroup final report of January 31, 2014, provided the definitions of key terms as shown below. This workgroup included representation from industry, environmental groups, academia, and the state health department. The key term definitions were adopted into

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Rule 285 rule changes on December 20, 2016. These definitions formalize concepts previously addressed in the 1993 AQD guidance and utilized by the AQD from 1993 to 2016.

DEFINITIONS:

Rule 285(3):

- (3) For the purposes of this rule, "meaningful" with respect to toxic air contaminant emissions is defined as follows:
- (i) "Meaningful change in the quality and nature" means a change in the toxic air contaminants emitted that results in an increase in the cancer or noncancer hazard potential that is 10% or greater, or which causes an exceedance of a permit limit. The hazard potential is the value calculated for each toxic air contaminant involved in the proposed change, before and after the proposed change, and it is the potential to emit (hourly averaging time) divided by the initial risk screening level or the adjusted annual initial threshold screening level (ITSL), for each toxic air contaminant and screening level involved in the proposed change. The adjusted annual ITSL is the ITSL that has been adjusted as needed to an annual averaging time utilizing averaging time conversion factors in accordance with the models and procedures in 40 CFR §51.160(f) and Appendix W, adopted by reference in R 336.1902. The percent increase in the hazard potential is determined from the highest cancer and noncancer hazard potential before and after the proposed change. The potential to emit before the proposed change is the baseline potential to emit established in an approved PTI application on or after April 17, 1992, that has not been voided or revoked, unless it has been voided due to incorporation into a renewable operating permit.
 - (ii) "Meaningful increase in the quantity of the emission" means an increase in the potential to emit (hourly averaging time) of a toxic air contaminant that is 10% or greater compared to a baseline potential to emit, or which results in an increase in the cancer or noncancer hazard potential that is 10% or greater, or which causes an exceedance of a permit limit. The baseline is the potential to emit established in an approved permit to install application on or after April 17, 1992 that has not been voided or revoked, unless it has been voided due to incorporation into a renewable operating permit.

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PROCEDURES:

Step	Who	Does What
1	Owner/operator	<u>Obtains a PTI:</u> Obtains a PTI on or after April 17, 1992, the original promulgation date of the air toxics rules. This PTI can be used to establish "baseline" hazard potential values for a subsequent Rule 285 evaluation.
2	Owner/operator	<u>Evaluates the Proposed Change:</u> Evaluates if a proposed change in the permitted process or process equipment qualifies for a permit exemption according to Rules 278 and 278a. If "yes", then evaluate the change in hazard potential for applicability of Rule 285(2)(b), 285(2)(c), or 285(2)(f). The definitions of the key terms in Rule 285(3) are used in this evaluation. The guidance and examples provided in the Appendices of this Policy and Procedure help further demonstrate how to perform the evaluation.
3	Owner/operator	<u>PTI or Exemption:</u> Decides whether to apply for a PTI for the proposed change, or to assume a permit exemption.
4	Owner/operator	<u>If Using Exemption, Rule 278a:</u> If assuming a permit exemption, follow Rule 278a and be able to provide information upon request demonstrating the applicability of the exemption.
5	AQD staff	<u>AQD Exemption Demonstration Requests:</u> At any subsequent time, AQD staff can evaluate if the owner/operator correctly utilized the permit exemption, based on Rules 278, 278a, and 285, and this Policy and Procedure.

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APPENDIX 1: Steps for Evaluating “Meaningful Change”

The method for determining if there is a meaningful change in the quality and nature or a meaningful increase in the quantity of the TACs emitted can be described as follows:

A. Seven-step process:

1. Identify the TACs for both the existing permitted emission unit and the emission unit after the proposed change.
2. Determine the hourly potential to emit (PTE) in pounds per hour (pph) for each TAC. PTE is defined in R 336.1116(n) (Rule 116(n)).
3. Identify all screening levels (SLs) for all TACs identified in step #1. This includes all ITSLs and Initial Risk Screening Levels (IRSLs).
4. If there are any ITSLs with averaging times (ATs) that are not annual, convert them to adjusted annual average ITSLs (see Table 1 below).
5. Calculate the Hazard Potential (HP) for each SL. $HP = (\text{hourly PTE}) \div (\text{IRSL or adjusted annual average ITSL})$.
6. Find the highest HP for noncancer (based on ITSLs) and the highest HP for cancer (based on IRSLs), for both the existing operation and proposed modification.
7. Determine the percent change in HP for both noncancer and cancer (a $\geq 10\%$ increase in any HP is the criterion for “meaningful”).

B. Additional information:

1. Regardless of the results of the HP comparison, a proposed change is not exempt if it would exceed a permit limit (e.g., a volatile organic compound (VOC) hourly emission rate limit).
2. Owners/operators have the responsibility to maintain records to demonstrate applicability and compliance with any permit exemption rule being utilized. With regard to the exemptions addressed in this Policy and Procedure, the relevant records would likely include the baseline and proposed PTE as well as the baseline SLs and the SLs for the proposed change. Using an exemption is also the responsibility of the owner/operator. The AQD does not have a formal approval process for the usage of exemptions.
3. The baseline for the HP calculation is a “fixed” baseline that is established by the PTI application and review. It is not allowable to change the baseline (i.e., have a “floating” baseline) outside of a PTI review, regardless of any change in SLs over time or any previous change in the process or process equipment that occurred after the “baseline” permit application and review.
4. If the proposed operation involves an ITSL and the baseline permit does not have a baseline noncancer HP, or if the proposed operation involves an IRSL and the baseline permit does not have a baseline cancer HP, then a meaningful change evaluation is not possible and an exemption is not supported with this methodology.
5. If a proposed change involves a TAC without any SL, it still must be accounted for in the HP assessment. The onus is upon the owner/operator to do this. The owner/operator can perform a toxicology literature review and develop their own proposed SL as part of

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their assessment. However, they do so at their own risk because a subsequent the AQD assessment may not align with the value and assessment of the owner/operator. It should not be assumed that AQD will be able to provide SLs upon request in all such situations. The owner/operator may discuss this situation with AQD district staff.

6. A baseline HP remains valid even if it is based on an SL that has changed over time. If the TAC which had a change in the SL appears in both the baseline operation and the proposed operation, then the current SL should be used in the HP calculation for only the proposed scenario.
7. The HP calculations require conversion of any ITSLs that do not have an annual averaging time (AT) to adjusted annual average ITSLs. Table 1 below provides the conversion factors to convert ITSLs with 1-hr, 8-hr, and 24-hr ATs to adjusted annual average ITSLs for use in the HP calculations.

Table 1. Averaging time conversion factors for use in HP calculations

Conversion needed	Calculation, based on AERSCREEN factors ¹	Conversion factor to convert ITSL to adjusted annual average ITSL for HP calculations
1-hr AT ITSL to annual	0.1	ITSL X 0.1
8-hr AT ITSL to annual	$0.1 + 0.9 = 0.11$	ITSL X 0.11
24-hr AT ITSL to annual	$0.1 \div 0.6 = 0.17$	ITSL X 0.17

¹ Averaging time conversion factors in AERSCREEN (EPA, 2011).

Conversion	Conversion factor
1-hr to 8-hr impacts	0.90
1-hr to 24-hr impacts	0.60
1-hr to annual impacts	0.10

Reference: EPA. 2011. AERSCREEN User's Guide. EPA/OAQPS. EPA-454/B-11-001.

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APPENDIX 2: Examples

Example 1: Substitution of a baseline TAC carcinogen with a proposed TAC carcinogen.
Baseline and Proposal: Carcinogen A had an IRSL of 1 µg/m³ (annual AT) and a PTE of 0.01 pph, according to a 1993 permit application that underwent permit review and resulted in permit issuance without a limit for this substance. It is proposed that carcinogen A be replaced by carcinogen B, with an IRSL of 0.08 µg/m³ and a PTE of 0.00087 pph.

TAC	PTE (pph)	IRSL (ug/m ³)	ITSL (ug/m ³)	AT	ITSL AT conversion factor	Adjusted annual AT ITSL	HP (PTE ÷ IRSL or annual ITSL)
Baseline:							
A	0.01	1.		Annual			0.01
Proposed:							
B	0.00087	0.08		Annual			0.0109

Assessment:

% Increase in HP = $[(0.0109 - 0.01) \div 0.01] \times 100 = 9\%$ increase in HP

The baseline was established by permit application and review after the air toxics rules were promulgated on 4/17/92, and an IRSL was in place at that time. The baseline HP is the hourly PTE ÷ the IRSL; the baseline HP = 0.01. The proposed HP is 0.0109. The proposed change represents a 9% increase in the HP. This change is not "meaningful".

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Example 2: Substitution of baseline noncarcinogens with a proposed emission of a different noncarcinogen; the baseline HP is based on an ITSL that has decreased over time.

Baseline and Proposal: Three noncarcinogenic VOCs were listed in a 2005 permit application. The permit application was approved with a permit limit on total VOCs, but with no limit on these specific VOCs. The company now proposes to change from these VOCs to a different single VOC in the process; the permit limit for total VOCs would not be exceeded. The baseline was established with a highest HP value of 10. In 2008, the ITSL for the highest HP (TAC "A") had a 10-fold decrease in the ITSL (annual average). The proposed VOC has a HP value of 15.

TAC	PTE (pph)	IRSL (ug/m ³)	ITSL (ug/m ³)	AT	ITSL AT conversion factor	Adjusted annual AT ITSL	HP (PTE + IRSL or annual ITSL)
Baseline:							
A	100		10	Annual	1	10	10
B	0.5		0.5	8-hr	0.11	0.055	9.1
C	0.1		10	1-hr	0.1	1	0.1
Proposed:							
D	9.9		3.9	24-hr	0.17	0.66	15

Assessment:

% Increase in HP = $[(15 - 10) + 10] \times 100 = 50\%$ increase in HP.

The baseline HP remains at 10, despite the change over time of the ITSL for the HP driver (TAC "A"). The baseline HP is established at the time of the baseline permit application and review; it does not change over time outside of any permit review if the SLs change. Therefore, the proposed change represents a 50% increase in the baseline HP, which is meaningful; it would not be exempt from permitting under Rules 285(2)(b) or 285(2)(f).

To determine if this change may be exempt under Rule 285(2)(c)(iii), more specific information should be considered, including more information about the permit application and review process, other permit conditions, and the basis for the resulting permit limit for VOCs. This determination would benefit from a discussion with AQD district staff.

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Example 3: Substitution of a baseline carcinogen with a proposed noncarcinogen.

Baseline and Proposal: The baseline involved three carcinogens only, all with permit limits. The highest carcinogenicity HP is 10. The proposal is to replace those with one noncarcinogen, with a noncarcinogenicity HP of 10.

Assessment: There is no baseline noncancer HP, and the Rule 285(3) definitions do not allow calculations of HP change between carcinogens and noncarcinogens. The proposed change is not exempt from permitting under Rules 285(2)(b) or 285(2)(f). It is also not exempt under Rule 285(2)(c)(iii) because the permit limits do not describe and allow the proposed change in the quality and nature of the TACs.

Example 4: Proposed process change for an emission unit permitted before 1992.

Baseline and Proposal: The emission unit at this source has not undergone a permit review since the air toxics rules were promulgated on 4/17/92. They propose to replace a mixture that could be calculated to have a carcinogen HP of 10 and a noncarcinogen HP of 15 (based on the present-day IRSL and ITSL, respectively) with a mixture that has no carcinogens and a noncarcinogen HP of 10.

Assessment: Since a baseline was not established via permit review under the air toxics rules, it cannot be assumed that the historical or the proposed emissions provide the required level of public health protection established by the air toxics rules. In other words, the acceptability of the historical emissions and impacts are unclear, based on the air toxics rules' benchmarks of acceptability. Therefore, there is no baseline HP established, and there is no support for utilizing an exemption on the basis that the proposed change is not meaningful.

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Example 5: Substitution of a baseline noncarcinogen with a proposed noncarcinogen; the baseline ITSL has increased over time.

Baseline and Proposal: A baseline was established in a 2000 permit application, which resulted in permit limits for each of the TACs. The 2 noncarcinogens had a highest HP of 100, posed by chemical A. Since that time (in 2010), the ITSL was increased by a factor of 10; as a result, the HP using that current ITSL *could* be recalculated to be 10. The proposed change would involve 2 different noncarcinogens, with a highest HP of 109.

TAC	PTE (pph)	IRSL (ug/m ³)	ITSL (ug/m ³)	AT	ITSL AT conversion factor	Adjusted annual AT ITSL	HP (PTE + IRSL or annual ITSL)
Baseline:							
A	20		0.2	Annual	1	0.2	100
B	10		20	8-hr	0.11	2.2	4.5
Proposed:							
C	109		1	Annual	1	1	109
D	300		300	1-hr	0.1	30	10

Assessment:

% Increase in HP = $[(109 - 100) \div 100] \times 100 = 9\%$ increase

This proposed change represents a 9% increase in the baseline HP (from 100 to 109). This is not meaningful; it meets the exemption Rules 285(2)(b) and 285(2)(f) from permitting. It is not appropriate to re-calculate the baseline HP for chemical A using the current ITSL. The baseline established in 2000 is still valid, even though the ITSL for chemical A has increased over time.

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Example 6: Multiple rounds of exemptions over time.

Baseline and Proposal: A coating operation was permitted in 2000 with a permit limit for total VOCs and a permit limit for one noncarcinogenic TAC "A" which also provides the highest baseline HP. All of the VOCs were noncarcinogenic. The baseline HP is 10. In 2015, they made a change in the coating, replacing these VOCs with three other noncarcinogenic VOC TACs. They did not exceed their VOC limit with this change. The highest HP for the 2015 change is 2. They qualified for the Rule 285(2)(b) exemption in 2015, and they did not apply for a permit. Currently, they propose to make another change in the coating, switching to two different noncarcinogenic VOCs; the highest HP is 8. Again, the VOC permit limit would not be exceeded.

TAC	PTE (pph)	IRSL (ug/m ³)	ITSL (ug/m ³)	AT	ITSL AT conversion factor	Adjusted annual AT ITSL	HP (PTE ÷ IRSL or annual ITSL)
Baseline:							
A	220		200	8-hr	0.11	22	10
(Process change in 2015, exempt from permitting):							
B	66		300	8-hr	0.11	33	2
C	20		20	Annual	1	20	1
D	25		50	Annual	1	50	0.5
Proposed currently:							
E	220		250	8-hr	0.11	27.5	8
F	200		40	Annual	1	40	5

Assessment:

% Change in HP = $[(8 - 10) \div 10] \times 100 = -20\% = 20\%$ decrease in HP.

For the current evaluation, the baseline HP is still 10. It did not change to 2 with the coating change in 2015, because they did not undergo permitting (if they had applied for and obtained a permit in 2015, which would have re-set the baseline). Therefore, the current proposed coating change, with a HP of 8 (a reduction from a baseline HP of 10), meets the exemption from permitting for TACs under Rule 285(2)(b).

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Example 7: A meaningful change which is still exempted.

Baseline and Proposal: An emission unit was permitted in 2005 with a permit limit for a carcinogen. In 2010, process equipment changes are made which would only slightly change the emissions; however, the IRSL decreased from 1 ug/m³ in 2005 to 0.5 ug/m³ in 2010. Even though the PTE increases only slightly, the lower IRSL results in a doubling (102% increase) of the HP.

TAC	PTE (pph)	IRSL (ug/m ³)	ITSL (ug/m ³)	AT	ITSL AT conversion factor	Adjusted annual AT ITSL	HP (PTE ÷ IRSL or annual ITSL)
Baseline:							
A	100	1		Annual			100
Proposed:							
A	101	0.5		Annual			202

Assessment:

% Increase in HP = $[(202 - 100) \div 100] \times 100 = 102\%$ increase.

This change results in a 102% increase in the HP which is meaningful. However, the change is not beyond the level described in and allowed by an approved PTI, and is exempt under Rule 285(2)(c)(iii).

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Example 8: Proposed increase in the quantity of emission of a TAC.

Baseline and Proposal: A source was permitted in 1995 for an emission of chemical A. A permit limit was not included for chemical A in the permit. The operator would like to increase production by 10%, resulting in a 10% increase in the emission of chemical A. There has been no change in the SL for chemical A over time.

TAC	PTE (pph)	IRSL (ug/m ³)	ITSL (ug/m ³)	AT	ITSL AT conversion factor	Adjusted annual AT ITSL	HP (PTE ÷ IRSL or annual ITSL)
Baseline:							
A	10		1	Annual	1	1	10
Proposed:							
A	11		1	Annual	1	1	11

Assessment:

% Increase in HP = $[(11 - 10) \div 10] \times 100 = 10\%$ increase.

The baseline is set by the emission rate as stated in the permit application, regardless of whether or not there is a permit limit. The modeling performed by the applicant and the AQD in 1995 showed that the modeled maximum ambient air impact was only 50% of the ITSL. Nevertheless, the baseline HP of 10 would be increased by 10% in the proposal, therefore the proposal is regarded as a meaningful increase in emission and it is not exempt under Rules 285(2)(b) or 285(2)(f). The owner/operator may choose to discuss with AQD staff if an exemption under Rule 285(2)(c)(iii) may be considered appropriate, based on additional information regarding the existing permit.

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Example 9: Proposed increase in the quantity of emission of a TAC; the IRSL has decreased over time.

Baseline and Proposal: A source was permitted in 2010 for a process with an emission of carcinogen A. They now propose a 5% increase in the process emission of this chemical. The IRSL was reduced in 2011 from 0.1 $\mu\text{g}/\text{m}^3$ to 0.01 $\mu\text{g}/\text{m}^3$.

TAC	PTE (pph)	IRSL ($\mu\text{g}/\text{m}^3$)	ITSL ($\mu\text{g}/\text{m}^3$)	AT	ITSL AT conversion factor	Adjusted annual AT ITSL	HP (PTE + IRSL or annual ITSL)
Baseline:							
A	10	0.1		Annual			100
Proposed:							
A	10.5	0.01		Annual			1050

Assessment:

$\% \text{ Increase in HP} = [(1050 - 100) \div (100)] \times 100 = 950\% \text{ increase.}$

The baseline was approvable in the PTI because the source complied with the Secondary Risk Screening Level (SRSL); the modeled impact exceeded the IRSL, but only by 5-fold, indicating that the SRSL was not exceeded. The baseline HP, which is based on the IRSL, is 100. An increase in emissions of only 5% would qualify for the exemption if there was no change in the IRSL. However, the IRSL has decreased, and the change in HP must be accounted for in the evaluation of whether or not the change is meaningful. The proposal is associated with a 950% increase in the HP, utilizing the current IRSL for the "proposed" HP calculation; this is a meaningful increase and it is not exempt under Rules 285(2)(b), 285(2)(c)(iii), or 285(2)(f).

DIVISION/OFFICE/SECTION/UNIT CHIEF APPROVAL:



 Lynn Fiedler, Division Director, Air Quality Division