

Air Quality Permit to Install Exemptions – Navigating Meaningful Change, Rule 290/291 and Other Recent Changes

April 25, 2018

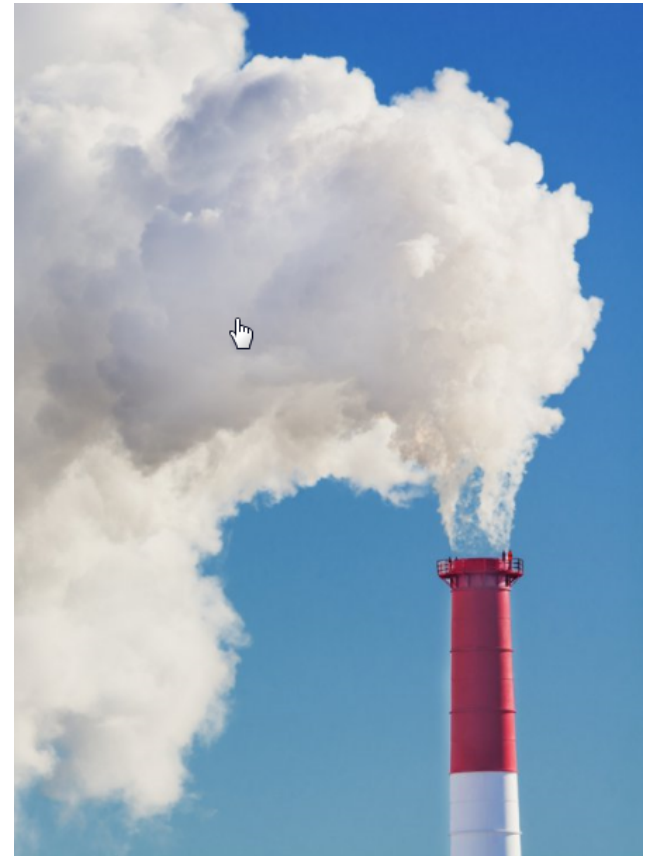
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Today's topics

- “Recent” work with exemptions
- Rule 278 - briefly
- Meaningful change in Rule 285
- Rule 290
- Rule 291
- Recordkeeping
- Future work





Events of Interest

- December 2016 – Promulgation of rules
 - Changes in every rule
- February, 2017 - Submitted “Backlog” SIP
 - includes R290
- September, 2017 – 2nd SIP submittal (draft)
 - includes R291
- January, 2018 – EPA comment period ended for Part 2 SIP “Backlog”

Rule 278



- Gatekeeper
 - PSD/NAA/significant
 - Major HAPs
 - 40 CFR Part 61 NESHAPs
- Baghouse determination
- Limiting Potential

MEANINGFUL CHANGE

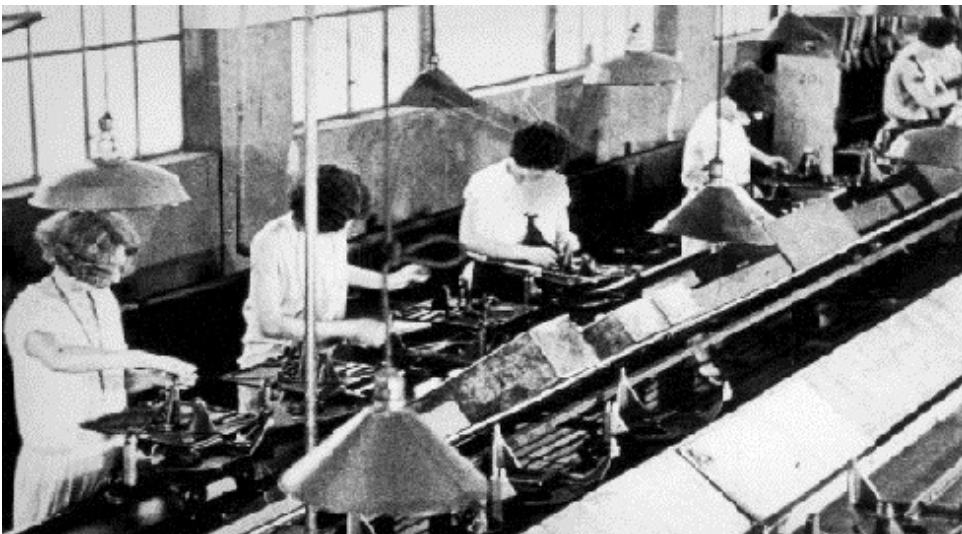


FISHBECK, THOMPSON, CARR & HUBER
engineers | scientists | architects | constructors



RULE 285(2)

- ▶ (b) - Changes that do not involve meaningful increase in TAC emissions or in quality/nature of TAC emissions
- ▶ (c) – Changes can involve limited meaningful increases due to changes in: fuel supply; location; or process not altering quality of nature.
- ▶ (f) – Installing/constructing control equipment that does not result in meaningful change of TACs



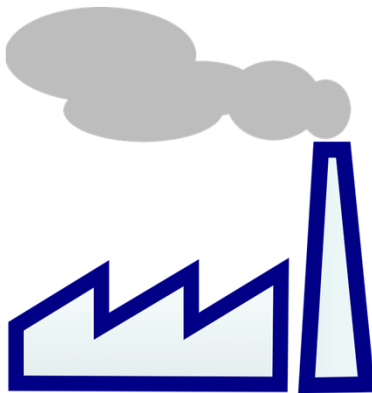
WHAT IS A MEANINGFUL CHANGE

(THE LONG DEFINITION)

- (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 non-cancer 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 C.F.R §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 non-cancer 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 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.
 - (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 non-cancer 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.

SHORT(ER) VERSION

**MEANINGFUL INCREASE IN
QUALITY AND NATURE OR
QUANTITY OF AN AIR
CONTAMINANT**



Increase of 10% or Greater from the baseline of:

- Noncancer Hazard Potential,
- Cancer Hazard Potential, or
- Potential to Emit of TAC

Or a Change that Causes a Permit Exceedance

BASELINE:

PTE of TAC and Hazard Potential based on the Screening Levels established in an approved PTI application after 4/17/92.

MEANINGFUL CHANGE

EXAMPLE



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SEVEN STEP PROCESS ESTABLISHED IN AQD POLICY AND PROCEDURE AQD-025 STEP 1

IDENTIFY TACS REVIEWED DURING PERMITTING

Toxic Air Contaminant	CAS No.
Sec-butyl alcohol	78-92-2
butyl cellosolve	111-76-2
propylene glycol monomethyl ether	108-65-6
MDI	101-68-8
MDI mixed isomers	26447-40-5
n-methylpyrrolidone	872-50-4
Benzene	71-43-2
1,4-Butanediol (BDO)	110-63-4

IDENTIFY TACS AFTER THE PROPOSED CHANGE

Toxic Air Contaminant	CAS No.
Sec-butyl alcohol	78-92-2
butyl cellosolve	111-76-2
propylene glycol monomethyl ether	108-65-6
MDI	101-68-8
MDI mixed isomers	26447-40-5
Isomers of xylene	1330-20-7
Phenanthrene	85-01-8
Toluene	108-88-3
Methylene Chloride	75-09-2
1,4-Butanediol (BDO)	110-63-4



SEVEN STEP PROCESS ESTABLISHED IN AQD POLICY AND PROCEDURE AQD-025 STEP 2

IDENTIFY HOURLY PTE FOR BASELINE – FROM THE PERMIT APPLICATION

Emission Unit				Coating Booth
Maximum Usage Rate	Gal/hr			10.0
Toxic Air Contaminant	CAS No.	Coating Density (lb/Gal)	Wt%	Maximum Short Term Emissions (lb/hr)
Sec-butyl alcohol	78-92-2	7.5	0.8%	0.60
butyl cellosolve	111-76-2	7.5	0.6%	0.45
propylene glycol monomethyl	108-65-6	7.5	1.0%	0.72
MDI	101-68-8	7.5	0.0%	0.001
MDI mixed isomers	26447-40-5	7.5	0.0%	0.01
n-methylpyrrolidone	872-50-4	7.5	1.3%	1.00
Benzene	71-43-2	8.5	0.6%	0.50
1,4-Butanediol (BDO)	110-63-4	7.5	0.1%	0.05

CALCULATE THE HOURLY PTE FOR PROPOSED CHANGE

Emission Unit				Coating Booth
Maximum Usage Rate	Gal/hr			10.0
Toxic Air Contaminant	CAS No.	Coating Density (lb/Gal)	Wt%	Maximum Short Term Emissions (lb/hr)
Sec-butyl alcohol	78-92-2	7.8	0.8%	0.65
butyl cellosolve	111-76-2	7.8	0.6%	0.48
propylene glycol monomethyl	108-65-6	7.8	1.0%	0.77
MDI	101-68-8	7.8	0.001%	0.0009
MDI mixed isomers	26447-40-5	7.8	0.01%	0.0076
Isomers of xylene	1330-20-7	7.8	1.4%	1.10
Phenanthrene	85-01-8	7.8	0.0%	0.011
Toluene	108-88-3	7.8	6.4%	5.00
Methylene Chloride	75-09-2	7.8	3.8%	3.00
1,4-Butanediol (BDO)	110-63-4	7.8	0.1%	0.054



SEVEN STEP PROCESS ESTABLISHED IN AQD POLICY AND PROCEDURE AQD-025 STEP 3

IDENTIFY SCREENING LEVELS USED IN APPLICATION

			IRSL	ITSL	
Chemical	CAS	BASELINE PTE (lb/hr)	IRSL (ug/m3)	ITSL (ug/m3)	ITSL Averaging Time
BASELINE IN 2008					
Sec-butyl alcohol	78-92-2	0.60		3,050	8 hr
butyl cellosolve	111-76-2	0.45		13,000	24 hr
propylene glycol monom	108-65-6	0.72		6,000	annual
MDI	101-68-8	1.00E-03		0.60	24 hr
MDI mixed isomers	26447-40-5	7.00E-03		0.60	24 hr
n-methylpyrrolidone	872-50-4	1.00		700	24 hr
Benzene	71-43-2	0.50	0.10	30	24 hr
1,4-Butanediol (BDO)	110-63-4	0.05		15	annual

IDENTIFY CURRENT SCREENING LEVELS FOR PROPOSED CHANGE

			IRSL	ITSL	
Chemical	CAS	PROPOSED PTE (lb/hr)	IRSL (ug/m3)	ITSL (ug/m3)	ITSL Averaging Time
PROPOSED CHANGE					
Sec-butyl alcohol	78-92-2	0.65	-	3,000	8 hr
butyl cellosolve	111-76-2	0.48	-	1,600	annual
propylene glycol monomet	108-65-6	0.77	-	5,400	1 hr
MDI	101-68-8	9.00E-04	-	0.60	annual
MDI mixed isomers	26447-40-5	7.60E-03	-	0.60	24 hr
Isomers of xylene	1330-20-7	1.10	-	390	annual
Phenanthrene	85-01-8	0.01	-	0.10	annual
Toluene	108-88-3	5.00	-	5,000	24 hr
Methylene Chloride	75-09-2	3.00	60	2,000	annual

MICHIGAN AIR TOXICS WEBSITE - http://www.michigan.gov/deq/0,4561,7-135-3310_70487_4105---,00.html



SEVEN STEP PROCESS ESTABLISHED IN AQD POLICY AND PROCEDURE AQD-025 STEP 4

CONVERT ALL SCREENING
LEVELS TO ADJUSTED
ANNUAL AVERAGE

ASL = ITSL X CONVERSION FACTOR

Conversion Factors			
1 hr	8 hr	24 hr	Annual
0.1	0.11	0.17	1

Chemical	CAS	ITSL (ug/m3)	ITSL Averaging Time	ITSL AT conversion factor	Adjusted annual AT ITSL
BASELINE IN 2008					
Sec-butyl alcohol	78-92-2	3,050	8 hr	0.11	336
butyl cellosolve	111-76-2	13,000	24 hr	0.17	2,210
propylene glycol monom	108-65-6	6,000	annual	1.00	6,000
MDI	101-68-8	0.60	24 hr	0.17	0.10
MDI mixed isomers	26447-40-5	0.60	24 hr	0.17	0.10
n-methylpyrrolidone	872-50-4	700	24 hr	0.17	119
Benzene	71-43-2	30	24 hr	0.17	5.10
1,4-Butanediol (BDO)	110-63-4	15	annual	1.00	15
PROPOSED CHANGE					
Sec-butyl alcohol	78-92-2	3,000	8 hr	0.11	330
butyl cellosolve	111-76-2	1,600	annual	1.00	1,600
propylene glycol monom	108-65-6	5,400	1 hr	0.10	540
MDI	101-68-8	0.60	annual	1.00	0.60

AT = Averaging Time



SEVEN STEP PROCESS ESTABLISHED IN AQD POLICY AND PROCEDURE AQD-025 STEP 5

**CALCULATE HAZARD
POTENTIAL(HP) FOR EACH
ADJUSTED SCREENING LEVEL
(ASL)**

$$\text{Hazard Potential (HP)} = \frac{\text{Hourly PTE}}{\text{IRSL}}$$

or

$$\text{Hazard Potential (HP)} = \frac{\text{Hourly PTE}}{\text{ASL}}$$

			IRSL		ITSL
Chemical	CAS	BASELINE PTE (lb/hr)	HP (PTE÷ IRSL)	Adjusted annual AT ITSL	HP (PTE÷ Adjusted ITSL)
BASELINE IN 2008					
Sec-butyl alcohol	78-92-2	0.60	-	336	1.79E-03
butyl cellosolve	111-76-2	0.45	-	2,210	2.04E-04
propylene glycol monom	108-65-6	0.72	-	6,000	1.20E-04
MDI	101-68-8	1.00E-03	-	0.10	9.80E-03
MDI mixed isomers	26447-40-5	7.00E-03	-	0.10	0.07
n-methylpyrrolidone	872-50-4	1.00	-	119	8.40E-03
Benzene	71-43-2	0.50	5.00	5.10	0.10
1,4-Butanediol (BDO)	110-63-4	0.05	-	15	3.33E-03
PROPOSED CHANGE					
Sec-butyl alcohol	78-92-2	0.65	-	330	1.97E-03
butyl cellosolve	111-76-2	0.48	-	1,600	3.00E-04
propylene glycol monom	108-65-6	0.77	-	540	1.43E-03
MDI	101-68-8	9.00E-04	-	0.60	1.50E-03
MDI mixed isomers	26447-40-5	7.60E-03	-	0.10	0.07
Isomers of xylene	1330-20-7	1.10	-	390	2.82E-03
Phenanthrene	85-01-8	0.01	-	0.10	0.11
Toluene	108-88-3	5.00	-	850	5.88E-03
Methylene Chloride	75-09-2	3.00	0.05	2,000	1.50E-03
Methylene Chloride	75-09-2	3.00		1,400	2.14E-03
1,4-Butanediol (BDO)	110-63-4	0.05	-	79	6.84E-04

SEVEN STEP PROCESS ESTABLISHED IN AQD POLICY AND PROCEDURE AQD-025 STEP 6

**FIND THE MAXIMUM
NONCANCER HP (ITSL) AND
CANCER HP (IRSL) OF
EXISTING AND PROPOSED**

- The ITSLs and IRSLs are looked at separately
- If the Baseline only included review of noncarcinogens, you cannot substitute/add a carcinogen, and vice versa

			IRSL		ITSL					
Chemical	CAS	BASELINE PTE (lb/hr)	IRSL (ug/m3)	HP (PTE÷ IRSL)	ITSL (ug/m3)	ITSL Averaging Time	ITSL AT conversion factor	Adjusted annual AT ITSL	HP (PTE÷ ITSL)	
BASELINE IN 2008										
Sec-butyl alcohol	78-92-2	0.60		-	3,050	8 hr	0.11	336	1.79E-03	
butyl cellosolve	111-76-2	0.45		-	13,000	24 hr	0.17	2,210	2.04E-04	
propylene glycol monom	108-65-6	0.72		-	6,000	annual	1.00	6,000	1.20E-04	
MDI	101-68-8	1.00E-03		-	0.60	24 hr	0.17	0.10	9.80E-03	
MDI mixed isomers	26447-40-5	7.00E-03		-	0.60	24 hr	0.17	0.10	0.07	
n-methylpyrrolidone	872-50-4	1.00		-	700	24 hr	0.17	119	8.40E-03	
Benzene	71-43-2	0.50	0.10	5.00	30	24 hr	0.17	5.10	0.10	
1,4-Butanediol (BDO)	110-63-4	0.05		-	15	annual	1.00	15	3.33E-03	
				-					-	
MAX				5.00					0.10	
			IRSL		ITSL					
Chemical	CAS	PROPOSED PTE (lb/hr)	IRSL (ug/m3)	HP (PTE÷ IRSL)	ITSL (ug/m3)	ITSL Averaging Time	ITSL AT conversion factor	Adjusted annual AT ITSL	HP (PTE÷ ITSL)	
PROPOSED CHANGE										
Sec-butyl alcohol	78-92-2	0.65	-	-	3,000	8 hr	0.11	330	1.97E-03	
butyl cellosolve	111-76-2	0.48	-	-	1,600	annual	1.00	1,600	3.00E-04	
propylene glycol monom	108-65-6	0.77	-	-	5,400	1 hr	0.10	540	1.43E-03	
MDI	101-68-8	9.00E-04	-	-	0.60	annual	1.00	0.60	1.50E-03	
MDI mixed isomers	26447-40-5	7.60E-03	-	-	0.60	24 hr	0.17	0.10	0.07	
Isomers of xylene	1330-20-7	1.10	-	-	390	annual	1.00	390	2.82E-03	
Phenanthrene	85-01-8	0.01	-	-	0.10	annual	1.00	0.10	0.11	
Toluene	108-88-3	5.00	-	-	5,000	24 hr	0.17	850	5.88E-03	
Methylene Chloride	75-09-2	3.00	60	0.05	2,000	annual	1.00	2,000	1.50E-03	
Methylene Chloride	75-09-2	3.00			14,000	1 hr	0.10	1,400	2.14E-03	
1,4-Butanediol (BDO)	110-63-4	0.05	-	-	79	annual	1.00	79	6.84E-04	
				-						
MAX				0.05					0.11	



SEVEN STEP PROCESS ESTABLISHED IN AQD POLICY AND PROCEDURE AQD-025 STEP 7

DETERMINE % CHANGE OF HP

(MUST BE LESS THAN 10% TO NOT BE
MEANINGFUL)

% Change =

$$\frac{(Prop\ HP_{Max} - BL\ HP_{Max})}{BL\ HP_{Max}} \times 100$$

Chemical	CAS	BASELINE PTE (lb/hr)	IRSL (ug/m3)	HP (PTE÷ IRSL)	Change in IRSL	ITSL (ug/m3)	ITSL Averaging Time	ITSL AT conversion factor	Adjusted annual AT ITSL	HP (PTE÷ ITSL)	Change in ITSL
BASELINE IN 2008											
Benzene	71-43-2	0.50	0.10	5.00	NO	30	24 hr	0.17	5.10	0.10	YES
MAX				5.00						0.10	
IRSL											
Chemical	CAS	PROPOSED PTE (lb/hr)	IRSL (ug/m3)	HP (PTE÷ IRSL)	Change in HP	ITSL (ug/m3)	ITSL Averaging Time	ITSL AT conversion factor	Adjusted annual AT ITSL	HP (PTE÷ ITSL)	Change in HP
PROPOSED CHANGE											
Phenanthrene	85-01-8	0.01	-	-	-	0.10	annual	1.00	0.10	0.11	9.14%
Methylene Chloride	75-09-2	3.00	60	0.05	-99.00%	2,000	annual	1.00	2,000	1.50E-03	-98.47%
MAX				0.05	-99.00%					0.11	9.14%



SEVEN STEP PROCESS ESTABLISHED IN AQD POLICY AND PROCEDURE AQD-025

STEP 7

DETERMINE % CHANGE OF
PTE

(MUST BE LESS THAN 10% TO NOT BE
MEANINGFUL)

% Change =

$$\frac{(Prop\ PTE_{Max} - BL\ PTE_{Max})}{BL\ PTE_{Max}} \times 100$$

Chemical	CAS	BASELINE PTE (lb/hr)	EMISSIONS	
			PROPOSED PTE (lb/hr)	CHANGE in Emissions
Sec-butyl alcohol	78-92-2	0.60	0.65	8.33%
butyl cellosolve	111-76-2	0.45	0.48	6.67%
propylene glycol monom	108-65-6	0.72	0.77	6.94%
MDI	101-68-8	1.00E-03	9.00E-04	-10.00%
MDI mixed isomers	26447-40-5	7.00E-03	7.60E-03	8.57%
n-methylpyrrolidone	872-50-4	1.00	-	-100.00%
Benzene	71-43-2	0.50	-	-100.00%
1,4-Butanediol (BDO)	110-63-4	0.05	0.05	8.00%
MAX				8.57%

Table 3 – Meaningful Change Evaluation

Meaningful Change Analysis

			IRSL			ITSL						EMISSIONS	
Chemical	CAS	BASLINE PTE (lb/hr)	IRSL (ug/m3)	HP (PTE÷ IRSL)	Change in IRSL	ITSL (ug/m3)	ITSL Averaging Time	ITSL AT conversion factor	Adjusted annual AT ITSL	HP (PTE÷ ITSL)	Change in ITSL	PROPOSED PTE (lb/hr)	CHANGE in Emissions
BASELINE IN 2008													
Sec-butyl alcohol	78-92-2	0.60		-	-	3,050	8 hr	0.11	336	1.79E-03	YES	0.65	8.33%
butyl cellosolve	111-76-2	0.45		-	-	13,000	24 hr	0.17	2,210	2.04E-04	YES	0.48	6.67%
propylene glycol monom	108-65-6	0.72		-	-	6,000	annual	1.00	6,000	1.20E-04	YES	0.77	6.94%
MDI	101-68-8	1.00E-03		-	-	0.60	24 hr	0.17	0.10	9.80E-03	YES	9.00E-04	-10.00%
MDI mixed isomers	26447-40-5	7.00E-03		-	-	0.60	24 hr	0.17	0.10	0.07	NO	7.60E-03	8.57%
n-methylpyrrolidone	872-50-4	1.00		-	-	700	24 hr	0.17	119	8.40E-03	YES	-	-100.00%
Benzene	71-43-2	0.50	0.10	5.00	NO	30	24 hr	0.17	5.10	0.10	YES	-	-100.00%
1,4-Butanediol (BDO)	110-63-4	0.05		-	-	15	annual	1.00	15	3.33E-03	YES	0.05	8.00%
				-	-					-			
MAX				5.00						0.10			8.57%
			IRSL			ITSL						EMISSIONS	
Chemical	CAS	PROPOSED PTE (lb/hr)	IRSL (ug/m3)	HP (PTE÷ IRSL)	Change in HP	ITSL (ug/m3)	ITSL Averaging Time	ITSL AT conversion factor	Adjusted annual AT ITSL	HP (PTE÷ ITSL)	Change in HP	BASLINE PTE (lb/hr)	CHANGE in Emissions
PROPOSED CHANGE													
Sec-butyl alcohol	78-92-2	0.65	-	-	-	3,000	8 hr	0.11	330	1.97E-03	-97.99%	0.60	8.33%
butyl cellosolve	111-76-2	0.48	-	-	-	1,600	annual	1.00	1,600	3.00E-04	-99.69%	0.45	6.67%
propylene glycol monom	108-65-6	0.77	-	-	-	5,400	1 hr	0.10	540	1.43E-03	-98.55%	0.72	6.94%
MDI	101-68-8	9.00E-04	-	-	-	0.60	annual	1.00	0.60	1.50E-03	-98.47%	1.00E-03	-10.00%
MDI mixed isomers	26447-40-5	7.60E-03	-	-	-	0.60	24 hr	0.17	0.10	0.07	-24.00%	7.00E-03	8.57%
Isomers of xylene	1330-20-7	1.10	-	-	-	390	annual	1.00	390	2.82E-03	-97.12%	-	-
Phenanthrene	85-01-8	0.01	-	-	-	0.10	annual	1.00	0.10	0.11	9.14%	-	-
Toluene	108-88-3	5.00	-	-	-	5,000	24 hr	0.17	850	5.88E-03	-94.00%	-	-
Methylene Chloride	75-09-2	3.00	60	0.05	-99.00%	2,000	annual	1.00	2,000	1.50E-03	-98.47%	-	-
Methylene Chloride	75-09-2	3.00				14,000	1 hr	0.10	1,400	2.14E-03	-97.81%	-	-
1,4-Butanediol (BDO)	110-63-4	0.05	-	-	-	79	annual	1.00	79	6.84E-04	-99.30%	0.05	8.00%
MAX				0.05	-99.00%					0.11	9.14%		8.57%



THINGS TO WATCH OUT FOR

WHEN IN DOUBT TALK TO YOUR INSPECTOR

			ITSL						EMISSIONS	
Chemical	CAS	BASELINE PTE (lb/hr)	ITSL (ug/m3)	ITSL Averaging Time	ITSL AT conversion factor	Adjusted annual AT ITSL	HP (PTE+ ITSL)	Change in ITSL	PROPOSED PTE (lb/hr)	CHANGE in Emissions
BASELINE IN 2008										
Sec-butyl alcohol	78-92-2	0.60	3,050	8 hr	0.11	336	1.79E-03	YES	0.65	8.33%
MAX							1.79E-03			8.33%
			ITSL						EMISSIONS	
Chemical	CAS	PROPOSED PTE (lb/hr)	ITSL (ug/m3)	ITSL Averaging Time	ITSL AT conversion factor	Adjusted annual AT ITSL	HP (PTE+ ITSL)	Change in HP	BASELINE PTE (lb/hr)	CHANGE in Emissions
PROPOSED CHANGE										
Sec-butyl alcohol	78-92-2	0.65	3,000	8 hr	0.11	330	1.97E-03	10.14%	0.60	8.33%
MAX							1.97E-03	10.14%		8.33%

		ITSL							EMISSIONS	
Chemical	CAS	PROPOSED PTE (lb/hr)	ITSL (ug/m3)	ITSL Averaging Time	ITSL AT conversion factor	Adjusted annual AT ITSL	HP (PTE+ ITSL)	Change in HP	BASELINE PTE (lb/hr)	CHANGE in Emissions
PROPOSED CHANGE										
Sec-butyl alcohol	78-92-2	0.65	3,000	8 hr	0.11	330	1.97E-03	10.14%	0.60	8.33%
MAX							1.97E-03	10.14%		8.33%

			ITSL						EMISSIONS	
Chemical	CAS	BASELINE PTE (lb/hr)	ITSL (ug/m3)	ITSL Averaging Time	ITSL AT conversion factor	Adjusted annual AT ITSL	HP (PTE+ ITSL)	Change in ITSL	PROPOSED PTE (lb/hr)	CHANGE in Emissions
BASELINE IN 2008										
1,4-Butanediol (BDO)	110-63-4	0.05	15	annual	1.00	15	3.33E-03	YES	0.06	10.00%
MAX							3.33E-03			10.00%
			ITSL						EMISSIONS	
Chemical	CAS	PROPOSED PTE (lb/hr)	ITSL (ug/m3)	ITSL Averaging Time	ITSL AT conversion factor	Adjusted annual AT ITSL	HP (PTE+ ITSL)	Change in HP	BASELINE PTE (lb/hr)	CHANGE in Emissions
PROPOSED CHANGE										
1,4-Butanediol (BDO)	110-63-4	0.06	79	annual	1.00	79	6.96E-04	-79.11%	0.05	10.00%
MAX							6.96E-04	-79.11%		10.00%

		ITSL							EMISSIONS	
Chemical	CAS	PROPOSED PTE (lb/hr)	ITSL (ug/m3)	Averaging Time	ITSL AT conversion factor	Adjusted annual AT ITSL	HP (PTE+ ITSL)	Change in HP	BASELINE PTE (lb/hr)	CHANGE in Emissions
PROPOSED CHANGE										
1,4-Butanediol (BDO)	110-63-4	0.06	79	annual	1.00	79	6.96E-04	-79.11%	0.05	10.00%
MAX							6.96E-04	-79.11%		10.00%

If we were only looking at sec-butyl alcohol, the change in ITSL between the Baseline and Proposed would result in a meaningful increase in Hazard Potential. You may be able to look at 285(2)(c)(iii).

BDO has a decrease in it's ITSL, however if we increased emissions by 10% or more, this would still be considered meaningful. You may be able to look at 285(2)(c)(iii).

- Review PTI applications carefully and be aware of carcinogenic TACs that passed based on SRLS; future changes in IRSLS and PTE could exempt you from using any of the meaningful change exemptions – see example 9 in MDEQ guidance document.

- REMEMBER - If the Baseline PTI application only included review of noncarcinogens, you cannot substitute/add a carcinogen, and vice versa
- The baseline only changes when you submit a new PTI application; always review the changes against the baseline, even if a previous meaningful change analysis was completed.

Rule 290 (and Rule 291)

1st

**Define your emission unit
and**

**Define your activity
then Confirm Rule 278**



Controlled vs. Uncontrolled

- Controlled
500 lbs/month and 10 lbs/month for certain TACs
- Uncontrolled
1,000 lbs/month and 20 lbs/month for certain TACs
- Must use controlled/uncontrolled status for the entire assessment*
 - * with the exception of limited noncarcinogenic particulate

VOC's and Rule 122(f)

...“noncarcinogenic volatile organic compounds or noncarcinogenic materials that are listed in R 336.122(f)”...

336.122(f) "Volatile organic compound" means any compound of carbon or mixture of compounds of carbon that participates in photochemical reactions, excluding the following materials, all of which have been determined by the United States Environmental Protection Agency to have negligible photochemical reactivity:

- (i) Carbon monoxide.*
- (ii) Carbon dioxide.*
- (iii)*

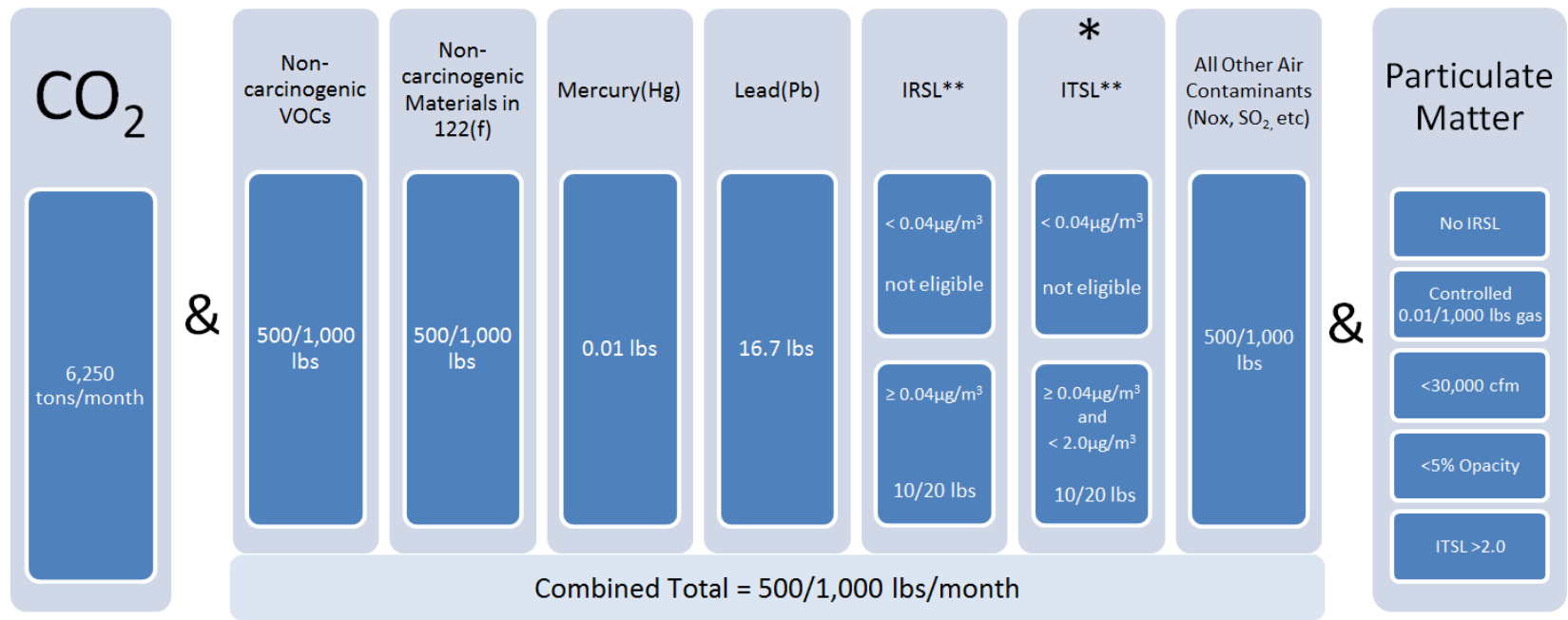


ITSL or IRSL = SL

- “ITSL” = Initial Threshold Screening Level;
- “IRSL” = Initial Risk Screening Level;
- Located online
 - www.michigan.gov/air
 - View by CAS No., alphabetical or query

<u>CAS Number</u>	<u>Chemical Name</u>	<u>Notes</u>	<u>Status</u>	<u>ITSL (µg/m³)</u>	<u>Averaging Time</u>	<u>Second ITSL (µg/m³)</u>	<u>Second ITSL Avg Time</u>	<u>IRSL (µg/m³)</u>	<u>SRSL (µg/m³)</u>	<u>Carc Avg Time</u>
94962	2-ethyl-1,3-hexanediol		FINAL	30	annual					
106865	1,2-epoxy-4-vinylcyclohexane		FINAL	6	annual					
108872	methylcyclohexane		FINAL	16000	8 hr					
110543	n-hexane		FINAL	700	annual					
110827	cyclohexane		FINAL	6000	24 hr					
319846	alpha-hexachlorocyclohexane		FINAL					0.0006	0.006	annual
589344	3-methylhexane		FINAL	3500	8 hr					
591764	2-methylhexane		FINAL	3500	8 hr					

Rule 290 “Bins”



- * Evaluate noncarcinogenic VOCs and noncarcinogenic materials in 122(f) before this bin
- ** If multiple screening levels, assess in all applicable bins (...but don't double count)

My new process

(A preposterous case study)

- I've defined the Emission Unit and Project
- I looked at Rule 278
- I use a control device for part of it
- My emissions
 - Particulate, toluene, hexane, acetone, aniline, HCL, NOx

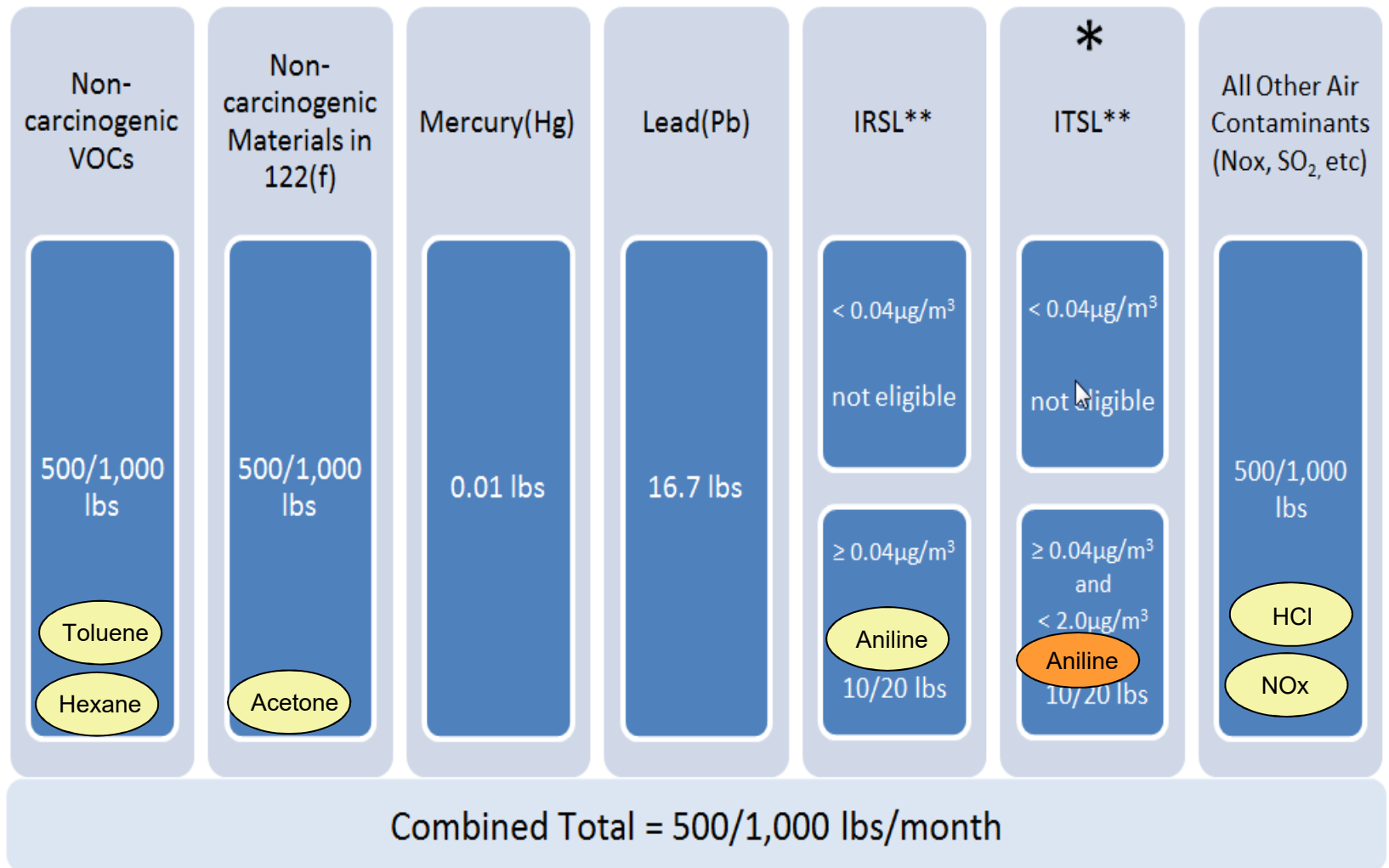
Particulate

Rule 290(2)(a)(iii)

- You can emit previously discussed pollutants in (i) and (ii) AND the particulate allowed by this portion of R290
- Requirements...
 - Particulate without IRSL
 - Control - 0.01lbs of particulate/1,000 lbs exhaust gas
 - $\leq 30,000$ acfm
 - Visible emissions must be $\leq 5\%$ opacity
 - ITSL must be $> 2 \text{ ug/m}^3$

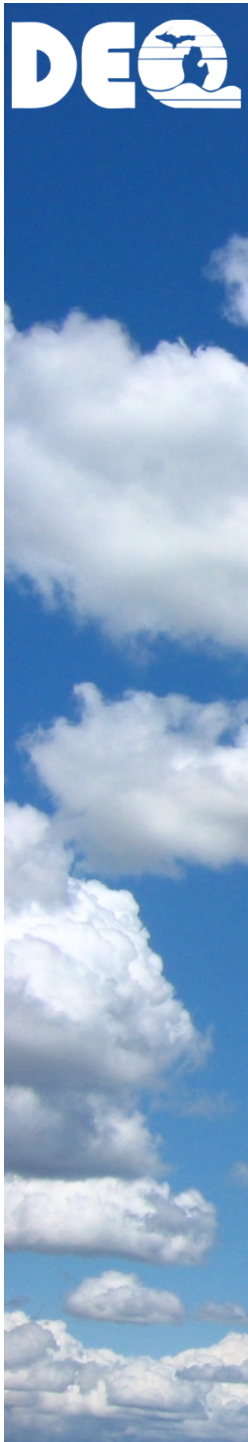


Rule 290



* Evaluate noncarcinogenic VOCs and noncarcinogenic materials in 122(f) before this bin

** If multiple screening levels, assess in all applicable bins (...but don't double count)



Rule 290

Flowchart





Rule 291

Overview

- New(ish) Exemption
- Based on potential emissions
- No ongoing recordkeeping
- Unlike R290, it allows small amounts of TACs < 0.04 ug/m³

Toxics Test

Rule 291 (2)(a)-(d)

Step 1

Applies to ITSLs and IRSLS

TACs

$\geq 0.04\mu\text{g}/\text{m}^3$ and
 $< 2.0\mu\text{g}/\text{m}^3$

< 0.12
tons /year

TACs

$\geq 0.005\mu\text{g}/\text{m}^3$ and
 $< 0.04\mu\text{g}/\text{m}^3$

<0.06
tons/year

TACs

$< 0.005\mu\text{g}/\text{m}^3$

<0.006
tons/year

Asbestos and/or
Subtilisin Proteolytic
enzymes

NO
EMISSIONS



Table 23

Step 2

Air Contaminant	Potential Emissions Not to be Exceeded
CO ₂ equivalent	75,000 tons per year
CO	10 tons per year
NO _x	10 tons per year
SO ₂	10 tons per year
VOC (as defined in R 336.1122)	5 tons per year
PM	10 tons per year
PM-10	5 tons per year
PM-2.5	3 tons per year
Lead	0.1 tons per year
Fluorides	1 ton per year
Sulfuric acid mist	0.12 tons per year
Hydrogen sulfide	2 tons per year
Total reduced sulfur	2 tons per year
Reduced sulfur compounds	2 tons per year
Total mercury	0.12 pounds per year
Total toxic air contaminants not listed in table 23 with any screening level	5 tons per year
Total air contaminants not listed in table 23 that are non-carcinogenic and do not have a screening level	6 tons per year

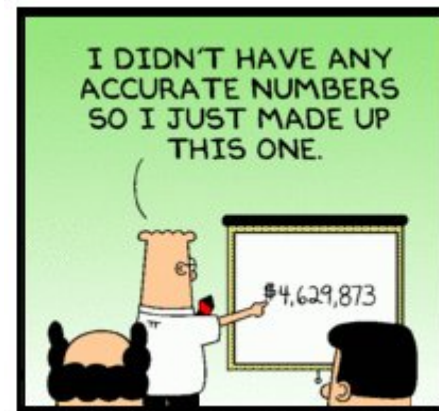
Table 23 (Criteria, etc.)

- Total TACs not listed in Table 23 with any screening level
 - ✓ Not a VOC in Rule 336.1122(f)
- Total air contaminants not listed in Table 23 that are non-carcinogenic and do not have a screening level
 - ✓ Not a TAC in Rule 336.1120(f)

My other new process

(A 2nd preposterous case study)

- Define Emission Unit and Project
- Rule 278?
- Calculate PTE
- Emissions:
 - Toluene, 2 tons
 - Methylene chloride, 2 tons
 - Methane, 1 ton



DOCUMENTATION/RECORDS

DO I NEED IT



FISHBECK, THOMPSON, CARR & HUBER
engineers | scientists | architects | constructors

RULE 278a(2)



STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
GRAND RAPIDS DISTRICT OFFICE



THE DEQ CAN (AND DOES) REQUEST SOURCES TO PROVIDE DETERMINATIONS

BEING PREPARED WITH A DETERMINATION
CAN MAKE INSPECTIONS, OR GETTING THE
REQUEST GO SMOOTHER.

January 4, 2018

Subject: Request for records required by R 336.1278(a)

Certain processes and process equipment may be exempt from obtaining an air use permit to install per R 336.1201. To be eligible for an exemption listed in R 336.1280 through R 336.1291 of Michigan's Air Pollution Control Rules, any person owning or operating an exempt process or exempt process equipment shall be able to provide information demonstrating the applicability of the exemption. Per R 336.1278(a), this demonstration should be provided within 30 days of a written request by the AQD, and should include the following information:

- A description of the exempt process or process equipment, including date of installation.
- The specific exemption being used by the process or process equipment.
- An analysis demonstrating that R 336.1278 does not apply to the process or process equipment.
- Records required per R 336.1278(a) in addition to any other records required within a specific exemption.

Michigan's Air Pollution Control Rules can be accessed through the internet at www.michigan.gov/deqair. Under the "News & Info" tab, click on "State Air Laws and Rules" at the bottom right side of the window, then click on the "Air Pollution Control Rules". In addition, the Environmental Assistance Center is available to answer questions at 1-800-662-9278. Also, for your convenience, a copy of the Permit to Install Exemption Handbook has been enclosed with this letter.

Thank you for the cooperation that has been extended to the AQD throughout this process. As noted above, the AQD is expecting a response within 30 days of the receipt of this letter. If you have any questions regarding the actions necessary to demonstrate compliance at the facilities mentioned above, you may call me at the number listed below.

Sincerely,



Slide 35

SLK7

Sue Kuieck, 4/24/2018



EMISSION UNIT INVENTORY – EXISTING SOURCES

- ▶ Document the equipment you have on-site
- ▶ Walk the facility
 - ▶ Emissions sources - stacks, small dust collectors, booths, etc.
 - ▶ Internally vented sources - cold cleaners or other tanks, sanding, grinding, gluing etc.
 - ▶ Identify permitted equipment as well
- ▶ Create a Spreadsheet

Emission Unit Inventory

COMPANY

ANYWHERE, MI

Equipment/Process	Emission Unit ID (if applicable)	Emission Unit Description	Control Equipment
Production Floor			
Coating Line	EUCoatingLine	Plastic Parts Coating Line	RTO
Sanding/Fixing Area	NA	Anode Line foil cutting slitting	Donaldson Torit DFO-2-4 (internally vented) Dust Collector
Repair Booth	EURepair	Small Coating Booth for repairing parts	--
Boiler Room/Area			
Boiler 1	EUBOILER1	59.9 MMBTU/hr natural gas-fired boiler	Low NOX Burners
Thermal Fluid Heater	NA	5.0 MMBTU/hr natural gas-fired heater	--
Cooling Tower	NA	Cooling tower	--
R&D			
R&D Testing		R&D testing process	--
R&D Thermal Fluid Heater		0.2 MMBTU/hr natural gas-fired heater for R&D Mixer	--
Other Facility			
TANK FARM	NA	NMP and Recovered NMP Storage tanks	--
Comfort Heating	NA	Miscellaneous natural gas fired heaters	--
Generator	NA	100 kW Kohler Power Systems natural gas-fired emergency generator	--

What Permits and Exemptions Apply to Processes at the Facility

Emissions Unit Inventory
COMPANY
ANYWHERE, MI

Equipment/ Process	Emission Unit ID (if applicable)	Emission Unit Description	Control Equipment	Installation Date	Applicable Exemption at Time of Installation or Permitted	Notes
Production Floor						
Coating Line	EUCoating Line	Plastic Parts Coating Line	RTG	7/1/2017	PTI XXX-16	Permit issued 01/01/2017
Sanding/Fixi ng Area	NA	Angle line foil cutting sitting	Donaldson Torit DFO-2- 4 Dust Collector	7/1/2000	Rule 285(l)(vi)(B)	5 CFM Dust Collector
Repair Booth	EUREPAIR	Small Coating Booth for repairing parts	NA	7/1/2007	Rule 285(l)(vi)(B) 285(l)(2)(c)	less than 200 gal/mo Record: Monthly Coating Use Dry Filter System Manufacturer Spec or develop own plan
Boiler Room/Area						
Boiler 1	EUBOILER 1	59.9 MMBTU/hr natural gas-fired boiler	NOX Burners	4/1/2011	PTI XXX - 10	Permit Issued 01/01/2011
Thermal Fluid Heater	NA	5.0 MMBTU/hr natural gas-fired heater	--	7/1/2000	Rule 282(b)(i)	
Cooling Tower	NA	Cooling tower	--	7/1/1990	Rule 280(d)	Process water does not come into contact with air.
R&D Area						
R&D Testing		R&D testing process	--	7/1/1990	Rule 283(a)	R & D Processes
R&D Thermal Fluid Heater		0.2 MMBTU/hr natural gas-fired heater for R&D Mixer	--	7/1/1990	Rule 283(a) Rule 282(b)(i)	
Other Facility						
TANK FARM	NA	NMP and Recovered NMP Storage tanks 20,000 gal	--	7/1/2000	Rule 284(i)	TANK farm is Exempt
Comfort Heating	NA	Miscellaneous natural gas fired heaters	--	7/1/1990	Rule 282(b)(i)	
Generator	NA	100 kW Kohler natural gas emergency generator	--	7/1/2002	Rule 285(g)	NESHAP ZZZZ

SATISFIES

278a(1)(a) & (b)

EXEMPTIONS CITED IN EMISSION INVENTORY

R 336.1282 Permit to Install Exemptions; Furnaces, Ovens, and Heaters.

Rule 282. The requirement of R 336.1201(1) to obtain a permit to install does not apply to any of the following:

- (b) Fuel-burning equipment which is used for space heating, service water heating, electric power generation, oil and gas production or processing, or indirect heating and which burns only the following fuels:
 - (i) Sweet natural gas, synthetic gas, liquefied petroleum gas, or a combination thereof and the equipment has a rated heat input capacity of not more than 50,000,000 Btu per hour.

R 336.1285 Permit to Install Exemptions; Miscellaneous.

Rule 285. The requirement of R 336.1201(1) to obtain a permit to install does not apply to any of the following:

- (g) Internal combustion engines that have less than 10,000,000 Btu/hour maximum heat input.

R 336.1285 Permit to Install Exemptions; Miscellaneous.

Rule 285. The requirement of R 336.1201(1) to obtain a permit to install does not apply to any of the following:

- (i) The following equipment and any exhaust system or collector exclusively serving the equipment:
 - (vi) Equipment for carving, cutting, routing, turning, drilling, machining, sawing, surface grinding, sanding, planing, buffing, sand blast cleaning, shot blasting, shot peening, or polishing ceramic artwork, leather, metals, graphite, plastics, concrete, rubber, paper stock, wood, or wood products which meets any of the following:
 - (A) Equipment used on a nonproduction basis.
 - (B) Equipment has emissions that are released only into the general in-plant environment.
 - (C) Equipment has externally vented emissions controlled by an appropriately designed and operated fabric filter collector that, for all specified operations with metal, is preceded by a mechanical ~~precleaner~~.

R 336.1284 Permit to Install Exemptions; Containers.

Rule 284. Except as specified in R 336.1278, the requirement of R 336.1201(1) to obtain a permit to install does not apply to containers, reservoirs, or tanks used exclusively for any of the following:

- (i) Storage or transfer operations of volatile organic compounds or noncarcinogenic liquids in a vessel that has a capacity of not more than 40,000 gallons where the contents have a true vapor pressure of not more than 1.5 ~~psia~~ at the actual storage conditions.

R 336.1283 Permit to Install Exemptions; Testing and Inspection Equipment.

Rule 283. (1) The requirement of R 336.1201(1) to obtain a permit to install does not apply to any of the following:

- (a) Pilot processes or process equipment utilizing T-BACT used for any of the following:
 - (i) Chemical analysis.
 - (ii) Physical analysis.
 - (iii) Empirical research.

DOCUMENT THE EMISSIONS FROM YOUR EXEMPT SOURCES

FOR EACH PROJECT/ACTIVITY

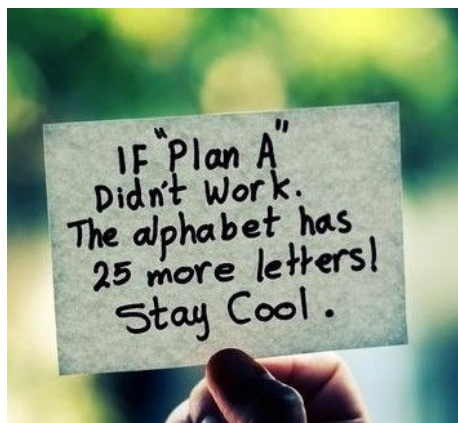
Project Emission Summary						
Company, Location						
Pollutant	Boiler Annual Emissions (tpy)	Generator Annual Emissions (tpy)	Annual Emissions (tpy)	Significant Emission Rate	Exceeds SER?	PSD Major Source Threshold
CO	9.02	2.63	11.65	100	No	100/250
NO _x	10.74	4.81	15.55	40	No	100/250
PM	0.20	0.15	0.35	25	No	100/250
PM ₁₀	0.82	0.13	0.94	15	No	100/250
PM _{2.5}	0.82	0.12	0.94	10	No	100/250
SO ₂	0.06	0.00	0.07	40	No	100/250
VOC	0.59	0.19	0.78	40	No	100/250
CO ₂	12,809.00	368.52	13,177.52	See CO ₂ e		
CH ₄	0.24	0.02	0.26			
N ₂ O	0.02	0.00	0.03			
CO ₂ e	12,822.23	369.86	13,192.09	75,000	No	NA
Lead	0.00	-	0.00	0.6	No	NA
Fluorides	-	-	-	3.0	No	NA
H ₂ S	-	-	-	10.0	No	NA
H ₂ SO ₄	-	-	-	7	No	NA
Largest Single HAP (n-hexane)	1.93E-01	-	0.19	NA	NA	NA
Aggregate HAPs	2.03E-01	3.53E-03	0.21	NA	NA	NA

Demonstrate that the following do not apply to your exempt activity (Rule 278)

- PSD
- Nonattainment NSR
- Emissions above Significant
- New or Reconstructed major sources of HAP (part 63)
- Construction or modification of Part 61 NESHAP sources

DON'T FORGET RULE 278a(2)

TO MAINTAIN OTHER RECORDS
REQUIRED BY EXEMPTIONS OR
OTHER STANDARDS



Exemptions with Recordkeeping Requirements

- Multiple Rules - Operate Control Device in accordance with Manufacturer's Specifications or develop your own.
- Rule 285(2)(a)-(c) – Meaningful Change
- Rule 287(2)(c) – Document Monthly Coating Usage
- Rule 290 – Document Monthly Emissions of Air Contaminants
- Rule 291 – Document Potential to Emit

Final thoughts and Planned activities

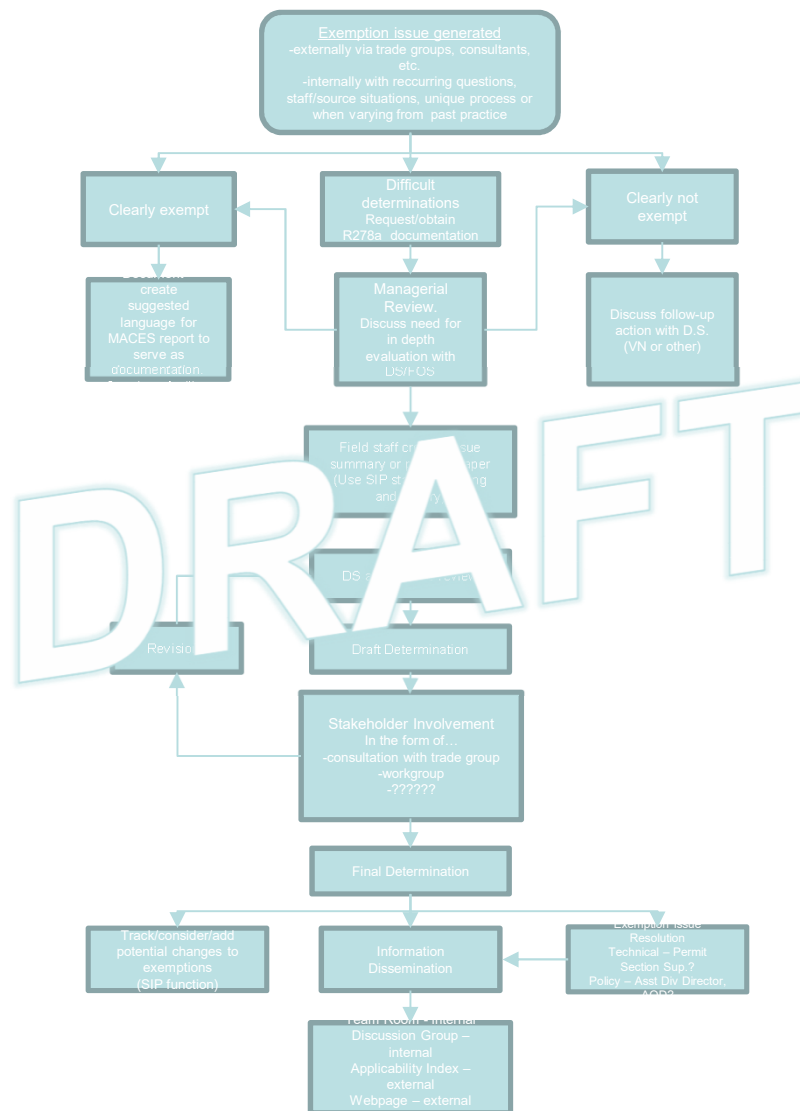
- Talk to your inspector; working on consistency tools
- More “Meaningful change” guidance?
- New R290 Guidance from PAO; internal resources



Rule 290, Rule 291,
Meaningful Change...

- Applicability Determinations? FAQs?
Rule 291 “helpers”?
- Point outward?

“Controversial” Determinations



Thank You

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