



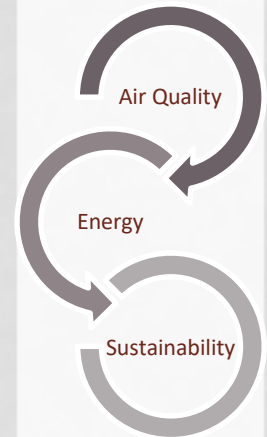
STATE OF NEW JERSEY  
DEPARTMENT OF ENVIRONMENTAL PROTECTION



## DIVISION OF AIR QUALITY AIR QUALITY, ENERGY, AND SUSTAINABILITY

# NEW JERSEY'S EXPANDED APPROACH TO ADDRESSING AIR TOXICS IN PERMITS

NACAA 2020 JOINT PERMITTING &  
ENFORCEMENT WORKSHOP



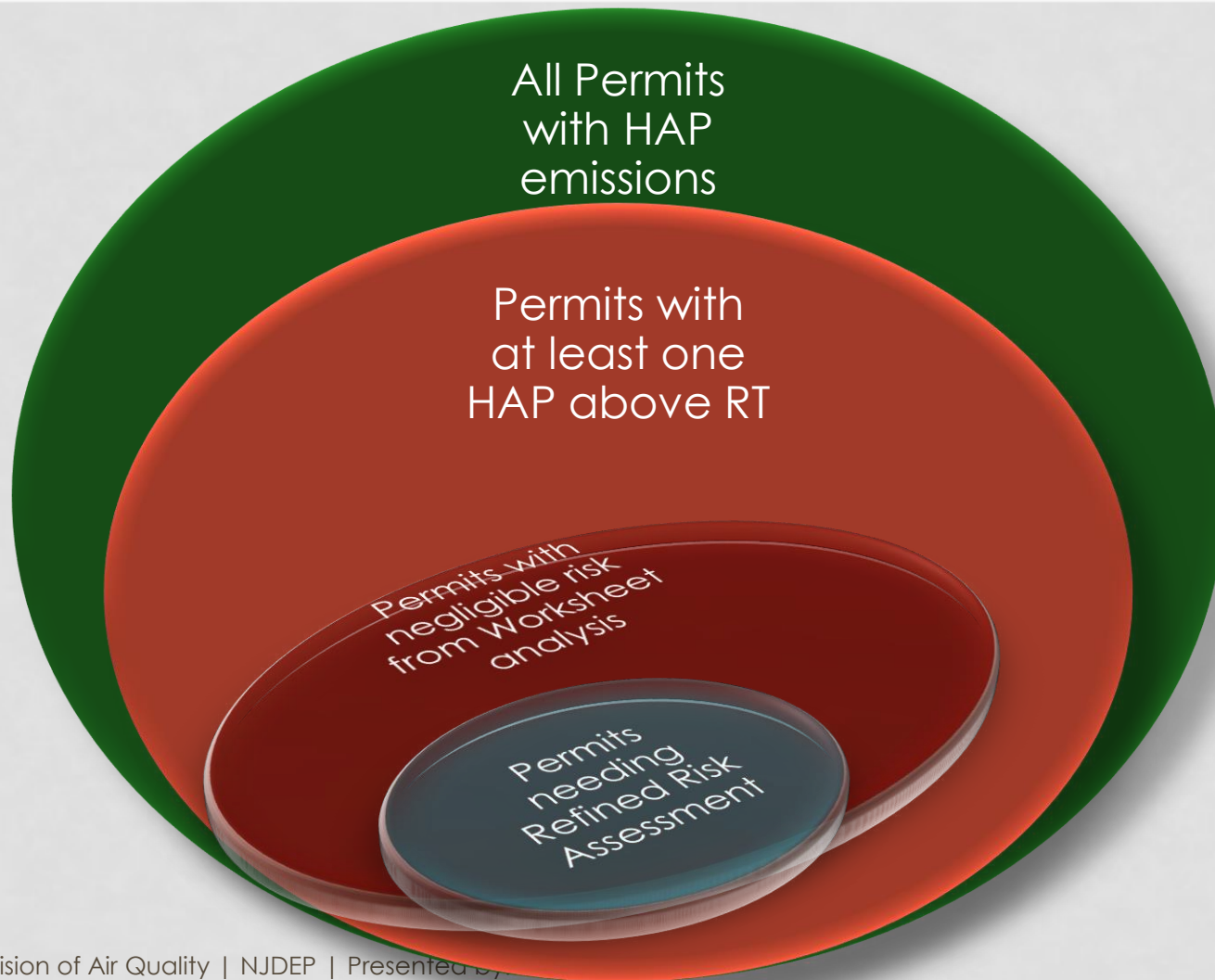
# AIR TOXICS REGULATORY BASIS

- Permitting (Inclusion of Air Toxics & Risk Assessment)
  - N.J.A.C. 7:27-8 (Minor)
  - N.J.A.C. 7:27-22 (Major)
- Air Toxics
  - N.J.A.C. 7:27-17
    - Reporting Thresholds (last updated 2017)
- Technical Manuals
  - TM1002- Guidance on Preparing an Air Quality Modeling Protocol
  - TM1003- Guidance on Preparing a Risk Assessment for Air Contaminant Emissions

# TYPES OF APPLICATIONS

- Initial Permit
- Modification
- Renewal of Title V Permit

# LEVELS OF RISK ASSESSMENT FOR PERMITS WITH HAPS



# 1<sup>ST</sup> OPTION FOR RISK ASSESSMENT: RISK SCREENING WORKSHEETS

- Excel spreadsheet embedded with formulas and analyses from both TM1002 and TM1003
  - Variables: stack height, distance to property line, and emission rate (tpy; lbs/hr)
  - Parameter limitations: stack height, discharge direction, etc.
- Two current versions
  - Generic: Any type of source operation which emits air toxics
  - Stationary non-road diesel engines
- **Developing additional worksheets for combustion sources**

K14																		
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**NJDEP DIVISION OF AIR QUALITY RISK SCREENING WORKSHEET**  
**For Long-Term Carcinogenic and Noncarcinogenic Effects and Short-Term Effects**  
 August 2018

**Read the Instructions tab carefully before completing this spreadsheet.**

7	Date																	
8	Facility ID No.																	
9	Activity ID No.																	
10	Facility name																	
11	Facility location																	
12	File name (.xls)																	

14	Emission Unit/Batch Process ID No.		Stack height <sup>1</sup>		ft
15	Emission Point ID No.		Distance to property line		ft
16	Equipment ID No(s).		Annual air impact value, C'		(ug/m <sup>3</sup> )/(ton/yr)
17	Operating Scenario(s)		24-hour air impact value, C' <sub>st</sub>		(ug/m <sup>3</sup> )/(lb/hr)

**KEY:**

**Long-Term Effects**

**Q** = Annual emission rate (in tons per year) contributed from the source

**C** = C' x Q = Annual average ambient air concentration

**URF** = Unit risk factor (for carcinogenic risk)

**IR** = C x URF = Incremental risk (for carcinogen)

**RfC** = Reference concentration (for noncarcinogenic effects)

**HQ** = C/RfC = Hazard quotient (for noncarcinogenic risk)

**Rslt** = The result of comparing the IR or HQ to the negligible threshold (FER if > threshold, Negl. if <= threshold)

**FER** = Further Evaluation Required (See Notes for thresholds)

**Negl.** = Negligible (See Notes for thresholds)

**Short-Term Effects**

**Q<sub>h</sub>** = Hourly emission rate (in pounds per hour)

**C<sub>st</sub>** = C'<sub>st</sub> x Q<sub>h</sub> = Short-term average ambient air concentration

**RfC<sub>st</sub>** = Short-term reference concentration (for noncarcinogenic effects)

**HQ<sub>st</sub>** = C<sub>st</sub>/RfC<sub>st</sub> = Hazard quotient for short-term noncarcinogenic effects

**Rslt** = The result of comparing the HQ<sub>st</sub> to the negligible threshold (FER if > threshold, Negl. if <= threshold)

**FER** = Further Evaluation Required (See Notes for thresholds)

**Negl.** = Negligible (See Notes for thresholds)

<sup>1</sup> When evaluating risk for diesel engines, use the equivalent stack height consistent with the memo dated June 10, 2009. Click here to view the "Stack Height Equivalents for Use in First Level Screening Analyses for Diesel Engines" memo.

H A P	CAS No.	Air Toxic	LONG-TERM EFFECTS							SHORT-TERM EFFECTS					
			Q (ton/yr)	C (ug/m <sup>3</sup> )	URF [(ug/m <sup>3</sup> ) <sup>-1</sup> ]	IR	Rslt	RfC (ug/m <sup>3</sup> )	HQ	Rslt	Q <sub>h</sub> (lb/hr)	C <sub>st</sub> (ug/m <sup>3</sup> )	RfC <sub>st</sub> (ug/m <sup>3</sup> )	HQ <sub>st</sub>	Rslt
1	*	75070 Acetaldehyde			2.2E-06				9						
2	*	60355 Acetamide			2.0E-05										
3		67641 Acetone						31000					62000		
4		75865 Acetone cyanohydrin						2							
5	*	75058 Acetonitrile						60							
6	*	98862 Acetophenone						0.02							
7	*	53963 Acetaminofluorene (2-)			1.3E-03										

# 2<sup>ND</sup> OPTION FOR RISK ASSESSMENT

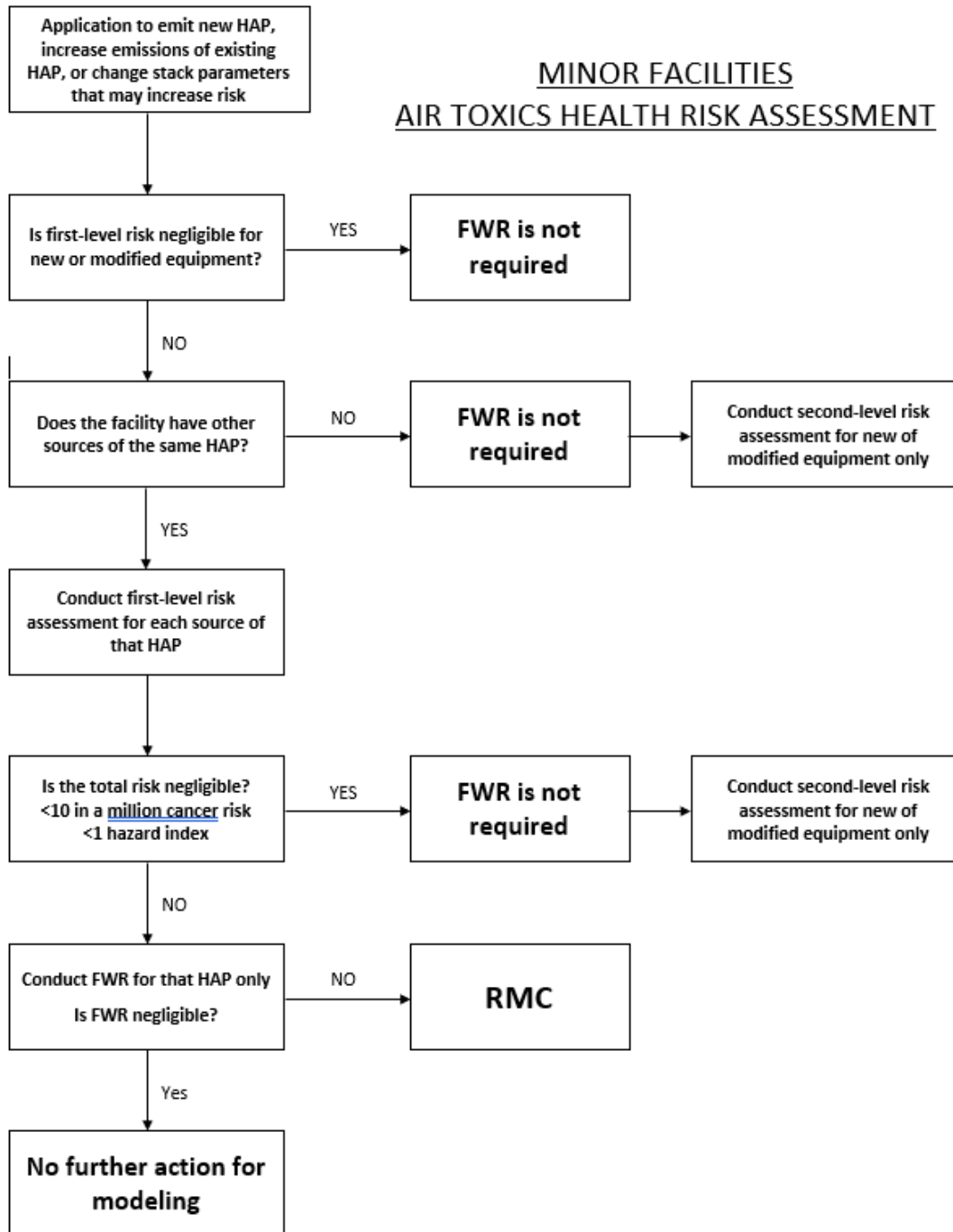
- Refined air quality modeling
  - TM1002 & TM1003
- Risk Management Committee
  - Refined assessment shows significant risk
  - Permitting, Evaluation, and Enforcement
  - Evaluate concerns and possible options
  - Ask facility for possible additional steps to minimize risk
  - Risk Minimization Plan
    - Applicant must submit proposed measures within one year for Department review
    - Plan to include:
      - Feasibility and costs of each reduction measure
      - Proposed changes to the permit
      - Schedule for implementation
      - Estimated emission reductions
      - Risk assessment

# TYPES OF RISK ASSESSMENTS

- Single Source
- Facility Wide



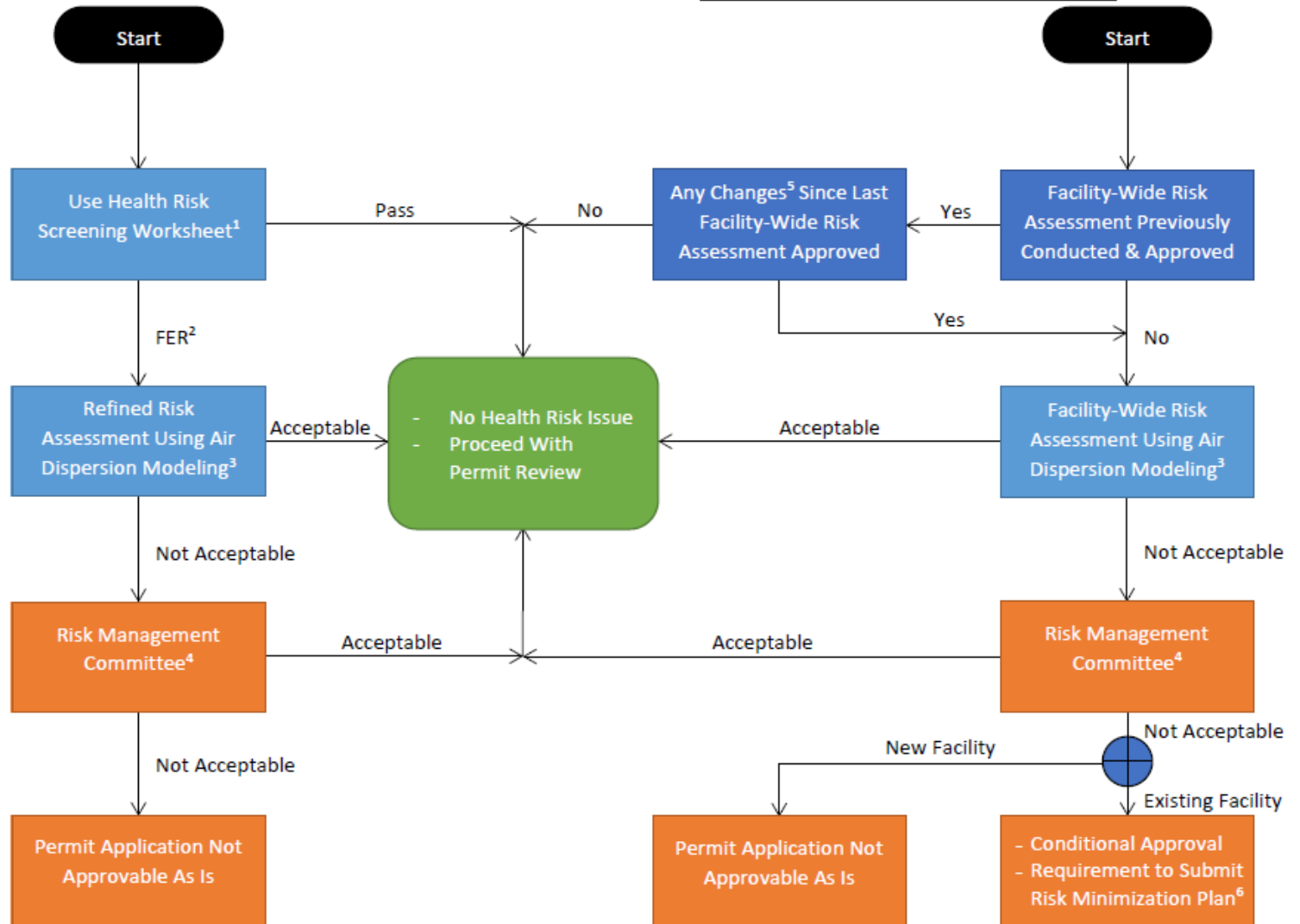
**MINOR FACILITIES**  
**AIR TOXICS HEALTH RISK ASSESSMENT**



## TITLE V AIR PERMITS AIR TOXICS HEALTH RISK ASSESSMENT

### MODIFICATION APPLICATIONS

### INITIAL AND RENEWAL APPLICATIONS



<sup>1</sup> Risk Assessment Worksheet available at <http://www.state.nj.us/dep/acpp/risk.html>

<sup>2</sup> FER = Further Evaluation Required

<sup>3</sup> Air Dispersion Modeling consistent with a protocol reviewed and approved by the Department

<sup>4</sup> Department internal committee to review each application on a case-by-case basis

<sup>5</sup> Changes to Air Toxics emissions, stack or property line parameters, health risk unit factors or nearest receptor

<sup>6</sup> Plan must include Dispersion Modeling showing Acceptable health risk consistent with Technical Manual 1003

# CHALLENGES: FACILITY WIDE

- Timeliness
- Resources
- Permit Reconciliation
- Storage Tanks

# QUESTIONS

