RISK SCREENING WORKSHEET
-UPDATE -

- New Risk Screening Worksheet was posted June 30, 2020
- The new version was proposed for public comment on May 8, 2019
- Public Period initially closed June 10, 2019

Check the NJDEP website for Updates

https://www.state.nj.us/dep/aqpp/risk.html
Risk Screening Tools

Estimating Risk from Air Toxics

The NJDEP Air Quality Permitting Program uses risk assessment to evaluate potential effects on public health from facilities seeking permits to emit air toxics. An overview of the risk assessment process can be found in Technical Manual 1003, which also includes details on preparing a risk assessment. However, many permit applications can be evaluated using a risk screening worksheet. Information on risk assessment for various types of emissions can be found below.

- Procedures to Conduct Risk Assessments to Determine the Incremental Health Risks from New or Modified Equipment

<table>
<thead>
<tr>
<th>Description</th>
<th>Format</th>
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<tbody>
<tr>
<td>Cancer Risk Screening Worksheet for Nonroad Diesel Engines</td>
<td>MS Excel</td>
<td>7/15</td>
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<tr>
<td>Development of the Risk Screening Worksheet for Nonroad Diesel Engines</td>
<td>Adobe Pdf</td>
<td>7/15</td>
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<tr>
<td>Revisions to the NJDEP/DAQ Risk Screening Worksheet</td>
<td>Adobe Pdf</td>
<td>6/20</td>
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<tr>
<td>NJDEP Division of Air Quality Risk Screening Worksheet for Long-Term Carcinogenic and Noncarcinogenic Effects and Short-Term Effects</td>
<td>Adobe Pdf</td>
<td>6/20</td>
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<tr>
<td>Methodology and Assumptions Used to Generate the Revised Level-1 Air Impact Values</td>
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<td>Risk Screening Policy and Second-Level Risk Screening</td>
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<td>6/07</td>
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<tr>
<td>Toxicity Values for Inhalation Exposure</td>
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<tr>
<td>Risk Screening for PAH/POM</td>
<td>Adobe Pdf</td>
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</table>
New Jersey Department of Environmental Protection
Division of Air Quality
Bureau of Evaluation and Planning
Air Quality Evaluation Section

REVISIONS TO THE NJDEP/DAQ INHALATION TOXICITY VALUES
AND THE RISK SCREENING WORKSHEET
June 2020

The NJDEP Division of Air Quality list of inhalation toxicity values and the risk screening worksheet have been updated.

Specific changes to the unit risk factors (URFs), long-term reference concentrations (RfCs), and short-term RfCs are noted below. The revisions are incorporated into the list of “Toxicity Values for Inhalation Exposure,” dated June 2020. This replaces the list dated August 2018. The list, which includes references, can be found at www.nj.gov/dep/aqpp/risk.html.

* Changes implemented on June 2020.

Unit Risk Factors

Changes (all values are in units “per µg/m”):
- Benzo(a)pyrene – Changed from 1.1E-3 (Cal 11) to 6.0E-4 (IRIS) *
- Ethylene oxide – Changed from 3E-3 (IRIS) to 5E-3 (IRIS) *
- Nickel and compounds – Changed from 2.4E-4 (IRIS) to 4.8E-4 (IRIS) *
- Tetrachloroethylene – Changed from 5.9E-6 (Cal 11) to 6.1E-6 (Cal 18) *
- Ethylene oxide – Changed from 8.8E-5 (Cal 11) to 3E-3 (IRIS)
- Chloroprene – Corrected from 3E-4 (IRIS) to 5E-4 (IRIS)
- 1,4-Dioxane - Changed from 7.7E-6 (IRIS) to 5E-6 (IRIS)
- Hexachloroethane – Changed from 4E-6 (IRIS, deleted) to 1.1E-5 (Cal 15b)
- Methylene chloride – Changed from 4.7E-7 (IRIS) to 1.3E-8 (IRIS)
- Trichloroethylene – Changed from 2E-6 (Cal 11) to 4.9E-6 (IRIS)
### JUNE 2020 RISK SCREENING WORKSHEET

**NJDEP DIVISION OF AIR QUALITY RISK SCREENING WORKSHEET**

*For Long-Term Carcinogenic and Noncarcinogenic Effects and Short-Term Effects*

**June 2020**

Read the Instructions tab carefully before completing this spreadsheet.

#### Date
- Facility ID No.
- Activity ID No.
- Facility location
- File name (.xls)

#### Key:
- **Long Term Effects**
  - \( Q \) = Annual emission rate (in tons per year) contributed from the source
  - \( C \) = \( C \times Q \) = Annual average ambient air concentration
  - \( URF \) = Unit risk factor (for carcinogenic risk)
  - \( IR \) = \( C \times URF \) = Incremental risk (for carcinogen)
  - \( RIC \) = Reference concentration (for noncarcinogenic effects)
  - \( HQ \) = \( C/RIC \) = Hazard quotient (for noncarcinogenic risk)
  - \( Rslt \) = The result of comparing the IR or HQ to the negligible threshold (FER if \( IR > HQ \), Negl. if \( IR < HQ \))
  - \( FER \) = Further Evaluation Required (See Notes for thresholds)
  - Negl. = Negligible (See Notes for thresholds)

#### Short Term Effects
- \( Q_{SA} \) = Hourly emission rate (in pounds per hour)
- \( C_{a} \times Q_{SA} \) = Short-term average ambient air concentration
- \( RFCh \) = Short-term reference concentration (for noncarcinogenic effects)
- \( HQ_{a} \) = \( C_{a}/RFCh \) = Hazard quotient for short-term noncarcinogenic effects
- \( Rslt \) = The result of comparing the \( HQ_{a} \) to the negligible threshold (FER if \( HQ_{a} > threshold \), Negl. if \( HQ_{a} < threshold \))
- \( FER \) = Further Evaluation Required (See Notes for thresholds)
- Negl. = Negligible (See Notes for thresholds)

\*When evaluating risk for diesel engines, use the equivalent stack height consistent with the memo dated June 16, 2009. Click here to view the "Stack Height Equivalents for Use in First Level Screening Analysis for Diesel Engines" memo.

#### Table

<table>
<thead>
<tr>
<th>HAP</th>
<th>CAS No.</th>
<th>Air Toxic</th>
<th>( Q ) (ton/yr)</th>
<th>( C ) (ug/m³)</th>
<th>( URF ) ([ug/m³]⁻¹)</th>
<th>( IR )</th>
<th>( RIC ) (ug/m³)</th>
<th>( HQ )</th>
<th>( Rslt )</th>
<th>( Q_{SA} ) (lb/hr)</th>
<th>( C_{a} ) (ug/m³)</th>
<th>( RFCh ) (ug/m³)</th>
<th>( HQ_{a} )</th>
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<td>2.5</td>
<td>470</td>
<td>67800</td>
<td>1.3E-03</td>
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<td>0.02</td>
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<td>470</td>
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<td>1.3E-03</td>
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<td>Negl.</td>
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# TOXICITY VALUES FOR INHALATION EXPOSURE

New Jersey Department of Environmental Protection  
Division of Air Quality  
Bureau of Evaluation and Planning - Air Quality Evaluation Section  

**TOXICITY VALUES FOR INHALATION EXPOSURE**  
June 2020

<table>
<thead>
<tr>
<th>CAS No.</th>
<th>Air Toxic</th>
<th>Unit Risk Factor (URF)</th>
<th>Benchmark Concentration</th>
<th>Cancer Class</th>
<th>Reference Concentration (RfC)</th>
<th>RfC Source</th>
<th>Short-Term RfC Source</th>
<th>Short-Term RfC</th>
<th>Comment</th>
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<td>1.1E-05 9.7E-01</td>
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<td>S2 28 IRIS</td>
<td>3</td>
<td>IRIS 6</td>
<td>Cal 14</td>
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<td>Cal 14</td>
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<td>3</td>
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<td>Cal 14</td>
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<td>3</td>
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<td>Cal 14</td>
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<tr>
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<td>1.0E-04 2.0E-01</td>
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<td>Cal 14</td>
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</tbody>
</table>

* Denotes substance is no longer in use.

**Notes:**
- ATSDR: American Association of Medical Colleges (AAMC).
- USEPA: United States Environmental Protection Agency (USEPA).
- CAHRS: California Air Resources Board (CARB).
- PHS: Public Health Service (PHS).
- NIOSH: National Institute for Occupational Safety and Health (NIOSH).

**References:**
- USEPA 1998.
- ATSDR 2000.
- CARB 2002.
- NIOSH 2003.
- PHS 2004.
- USEPA 2005.

**For more information, please contact:**
- Division of Air Quality  
  NJDEP  
  Presented by: Nicholle Worland
The Bureau of Stationary Sources is responsible for permitting stationary sources of air pollution (e.g., factories, power plants, etc.) - both old sources (those already constructed) and newer facilities - to ensure they do not adversely affect air quality in your neighborhood or anywhere in the state.

To accomplish this, the staff of BoSS reviews air pollution control permit applications, evaluates air quality impact and health risks.

**Program Update**

- Final Revised Risk Screening Worksheet for Long-Term Carcinogenic and Noncarcinogenic Effects and Short-Term Effects - June 2020

  - Risk Screening Worksheet Response to Comments Document
  - Final Revised Risk Screening Worksheet Fact Sheet

- Continental Shelf Air Rules Adoption
  - General Permit GP-009B

- Minor Air Facilities Fee Schedule – Effective 1/1/2020-12/31/2024
June 2020

The Notice of Revisions to the NJDEP Division of Air Quality Risk Screening Worksheet for Long-Term Carcinogenic and Non-carcinogenic Effects and Short-Term Effects (RSW) as Listed in Technical Manual 1003 “Guidance on Preparing a Risk Assessment for Air Contaminant Emissions” was posted on May 7, 2019 on the Department’s website at http://www.state.nj.us/dep/aqpp under “Program Update” and at http://www.nj.gov/dep/haep under “What’s New.” In addition, the Notice of Revision was announced in a May 7, 2019 Air Quality Regulation Listserv email and discussed at the June 7, 2019 Industrial Stakeholder Groups (ISG) meeting in Trenton. The deadline in the Notice of Revisions for submission of comments was June 10, 2019. The Department announced at the ISG meeting that additional comments submitted after this deadline would be accepted and evaluated.

Summary of Public Comments and Agency Responses

The following individuals provided written comments:

1. Toby Hanna, P.E., ERM
2. Ray Cantor, New Jersey Business and Industry Association (NJBA)
3. Karen DeChristopher, Western Fumigation
4. Stephen Anthonavage, Camden International Commodities Terminal
5. Kip Walk, Bloomin Chocolate
6. Hugo van der Goes, Cocoa Merchants Association of America
7. Matthew Brauner, Brauner International Corporation
8. Tim McPherson, Douglas Products

1. COMMENT: NJDEP should provide more detail on the background methodology of the revised RSW so that the affected community is able to comment fully. Although the methodology used in the proposed RSW was included in Technical Manual 1003, which was referenced in the May 7, 2019 email, the Technical Manual 1003 has been removed. NJDEP should provide more detail on the background methodology so the affected community is able to comment fully.

Fact Sheet

June 29th, 2020

FACT SHEET

Revision to NJDEP Division of Air Quality Risk Screening Worksheet for Carcinogenic Effects and Non-carcinogenic Long-Term and Short-Term Effects (Worksheet) as Listed in Technical Manual 1003 “Guidance on Preparing a Risk Assessment for Air Contaminant Emissions”

NOTE: The final revised Worksheet is available on the Department’s website at https://www.state.nj.us/dep/aqpp/risk.html. This Worksheet is an optional tool that regulated facilities can use to demonstrate negligible risk without conducting a refined risk assessment, pursuant to N.J.A.C. 7:27-8.5, for Preconstruction Permits, and N.J.A.C. 7:27-22.8, for Operating Permits. Facilities may choose to initially determine health risks with a refined risk assessment and not use the Worksheet.

The following outlines the changes to the final revised Worksheet along with background information used to support the change:

1. The minimum stack height for sources to use the Worksheet has been raised from 10 feet to 15 feet.

The Department concluded that source operations with stack heights less than 15 feet should not use the Worksheet and should have their potential health risks evaluated on a case-by-case basis. Stacks heights less than 15 feet do not provide sufficient dispersion and, therefore, would require refined risk assessment.

The change to the stack height restriction should not significantly impact the average time and resources needed to obtain an Air Pollution Control Permit as most stacks are already above 15 feet tall.
RISK SCREENING WORKSHEET – UPDATE –

• Revisions Made

• Minimum stack height raised from 10 to 15 feet

• Carbonyl sulfide, and 1-bromopropane (n-propyl bromide) have been added to the Worksheet

• Change from proposal: Sulfuryl Fluoride not added – will be added when California EPA finalizes their standard, anticipated early 2021

• Revised Toxicity Values 12 additional Air Toxics
RISK SCREENING WORKSHEET
-UPDATE-

- Updated RSW output is more protective of public health than previous RSW
  - Resulting from updated meteorological data and AERMOD program
  - Updated toxicity values
CONTACT INFORMATION

Air Quality - Bureau of Evaluation & Planning (BEP)

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Email : nicholle.worland@dep.nj.gov