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MEMORANDUM

TO: Air Quality Permitting Staff

FROM: Kenneth Ratzman, Assistant Director
Air Quality Regulation and Planning

DATE: March 1, 2022

SUBJECT: Use of the Risk Screening Worksheet for Long-Term Carcinogenic and Noncarcinogenic Effects and Short-Term Effects to Conduct Facility-Wide Risk Assessments

This memorandum provides guidance on the use of one or more Risk Screening Worksheets for Long-Term Carcinogenic and Noncarcinogenic Effects and Short-Term Effects (RSW) to conduct Facility-Wide Risk Assessments (FWRA).

The RSW can be used as a preliminary alternative to conduct a FWRA for air toxic emissions. However, all RSW completed for this alternative must be submitted to and reviewed and approved by the Department to confirm that they were completed consistent with the procedures of this guidance memorandum.

This guidance does not change the types of source operations or air toxic emission rates that must be included in a FWRA. These will be the same data and inputs, whether the RSW can be used to conduct a FWRA or if a refined FWRA must be conducted. Air toxics that must be included in the FWRA are listed in the RSW and must be consistent with the Operating Permit. Technical Manual 1003 "Guidance on Preparing a Risk Assessment for Air Contaminant Emission," Section 2.3 states:

> The risk screening worksheet can be used as a preliminary alternative to conduct a facility-wide risk assessment for air toxic emissions. It should be noted that this methodology and its results are subject to the review and approval of the Department. For example, if there are multiple stacks releasing an air toxic, the screening worksheet can

be used to assess the cancer and noncancer risks from the facility's emissions of this air toxic by assuming all of the facility's emissions of the air toxic are emitted from each individual stack. Thus, separate risk screening worksheets (one for each stack) must be submitted assuming that all the facility's air toxic emissions are released from each individual stack.

Technical Manual 1003 can be accessed at
https://www.state.nj.us/dep/aqpp/downloads/techman/1003.pdf

The RSW cannot be used in place of a FWRA if:

1) A facility has one or more source operations that emits an air toxic, as listed in the Operating Permit, and any of these source operations are included in any of the following three category types, which are consistent with those listed in the RSW:
   a) Source operations without stacks, such as certain dry cleaners, degreasers, storage tanks, and gasoline stations. Further, source operations that would prohibit a facility's use of the RSW to complete a FWRA include, but are not limited to, the following:
      i. sources that emit fugitive emissions, as defined in Technical Manual 1002, "Guidance on Preparing an Air Quality Modeling Protocol," Section 7.1.2; and
      ii. area sources and volume sources, as described in Sections 7.2.2 and 7.2.3, respectively, in Technical Manual 1002. An example of an area source operation is a landfill. Examples of volume source operations are an open top storage tank and a solid waste transfer facility which could have all or part of its emissions vented through open bay doors. Technical Manual 1002 can be accessed at https://www.state.nj.us/dep/aqpp/downloads/techman/1002.PDF;
   b) Source operations with stacks with a horizontal or downward discharge direction; or
   c) Source operations with stack heights less than 15 feet.

2) The health risk determination of **any** RSW used to determine a facility-wide health risk shows any air toxic to have a carcinogenic risk of greater than 10 in a million or a hazard quotient greater than 1.

   NOTE: The RSW will indicate that there is "FER (Further Evaluation Required)" if any air toxic has a carcinogenic risk of greater than "1.0E-06" or 1 in a million. However, the acceptable facility-wide risk level is a carcinogenic risk of "1.0E-05" (10 in a million) or less. Consequently, "FER" indication and the red highlight color over the air toxic being evaluated should not be used to determine whether the RSW demonstrates a negligible facility-wide health risk.

The attached "Risk Screening Worksheet Example for Significant Sources E1, E2, and E3 Venting to Emission Points PT1, PT2, and PT3" outlines how information in the Operating Permit can be to be organized and input into the RSW to determine the facility-wide health risk. This example assumes that:

1) All significant source operations and discharge points meet RSW guidelines as listed in STEP 1; and

2) All significant source operations have the air toxic emission rates as listed in STEP 2.

RISK SCREENING WORKSHEET EXAMPLE FOR SIGNIFICANT SOURCES E1, E2, AND E3 VENTING TO EMISSION POINTS PT1, PT2, AND PT3

STEP 1 – Verify that the Significant Source Operations, which vent to Emission Points PT1, PT2, and PT3, are not included in a), b), or c) below, as listed in the RSW guidelines:

a) Source operations without stacks, such as certain dry cleaners, degreasers, storage tanks, and gasoline stations. Further, source operations that would prohibit a facility's use of the RSW to complete a FWRA include, but are not limited to, the following:
   i. sources that emit fugitive emissions, as defined in Technical Manual 1002, "Guidance on Preparing an Air Quality Modeling Protocol," Section 7.1.2; and
   ii. area sources and volume sources, as described in Sections 7.2.2 and 7.2.3, respectively, in Technical Manual 1002. An example of an area source operation is a landfill. Examples of volume source operations are an open top storage tank and a solid waste transfer facility which could have all or part of its emissions vented through open bay doors;
b) Sources with stacks with a horizontal or downward discharge direction; or
c) Sources with stack heights less than 15 feet.

STEP 2 – List each Significant Source Operation, its Emission Point, and all air toxics listed in the Operating Permit.

a) Significant Source Operation E1, Emission Point PT1 emits Benzene (1 ton(s) per year-ton/yr, 0.5 pounds per hour- lb/hr), Hydrogen Chloride (1 ton/yr, 0.5 lb/hr), and Toluene (1 ton/yr, 0.5 lb/hr).
b) Significant Source Operation E2, Emission Point PT2 emits Benzene (1 ton/yr, 0.5 lb/hr) and Hydrogen Chloride (1 ton/yr, 0.5 lb/hr).
c) Significant Source Operation E3, Emission Point PT3 emits Benzene (1 ton/yr, 0.5 lb/hr).

STEP 3 – Create a data table for each individual air toxic to calculate the annual and hourly facility-wide totals to be used in the risk screening worksheet.

BENZENE

Significant Source Operation	Stack Emission Point	Annual emission rate (ton/yr)	Hourly emission rate (lb/hr)
E1	PT1	1	0.5
E2	PT2	1	0.5
E3	PT3	1	0.5
Facility-Wide Totals	**PT1, PT2, PT3**	**3**	**1.5**

HYDROGEN CHLORIDE

Significant Source Operation	Stack Emission Point	Annual emission rate (ton/yr)	Hourly emission rate (lb/hr)
E1	PT1	1	0.5
E2	PT2	1	0.5
Facility-Wide Totals	**PT1, PT2**	**2**	**1.0**

TOLUENE

Significant Source Operation	Stack Emission Point	Annual emission rate (ton/yr)	Hourly emission rate (lb/hr)
E1	PT1	1	0.5
Facility-Wide Totals	**PT1**	**1**	**0.5**

STEP 4 – Create a table for each individual emission point using only the air toxics emitted from that emission point and the facility-wide totals from Step 3.

EMISSION POINT PT1

Air Toxics Emitted Through PT1	Facility-Wide Annual Emissions (ton/yr)	Facility-Wide Hourly Emissions (lb/hr)
Benzene	3	1.5
Hydrogen Chloride	2	1.0
Toluene	1	0.5

EMISSION POINT PT2

Air Toxics Emitted Through PT2	Facility-Wide Annual Emissions (ton/yr)	Facility-Wide Hourly Emissions (lb/hr)
Benzene	3	1.5
Hydrogen Chloride	2	1.0

EMISSION POINT PT3

Air Toxics Emitted Through PT3	Facility-Wide Annual Emissions (ton/yr)	Facility-Wide Hourly Emissions (lb/hr)
Benzene	3	1.5

STEP 5 – Use the RSW to determine facility-wide health risks from each Emission Points PT1, PT2, and PT3 by using the facility-wide air toxics listed in the individual contaminant Table(s) in Step 4. The Emission Point's stack heights and distances to the property line entered into the RSW should be consistent with the Operating Permit.

STEP 6 – Determine if any RSW for any of the emission points has a carcinogenic health risk of any air toxic greater than 10 in a million or a long-term or short-term hazard quotient of any air toxic greater than 1.

If yes, the RSW cannot be used to demonstrate the facility-wide health risk.

If no, the RSW can be used to demonstrate the facility-wide health risk as long as all RSW are submitted for review and are approved by the Department.

NOTE: The RSW will indicate that there is "FER (Further Evaluation Required)" if any air toxic has a carcinogenic risk of greater than "1.0E-06" or 1 in a million. However, the acceptable facility-wide risk level is a carcinogenic risk of "1.0E-05" (10 in a million) or less. Consequently, "FER" indication and the red highlight color over the air toxic being evaluated should not be used to determine whether the RSW demonstrates a negligible facility-wide health risk.