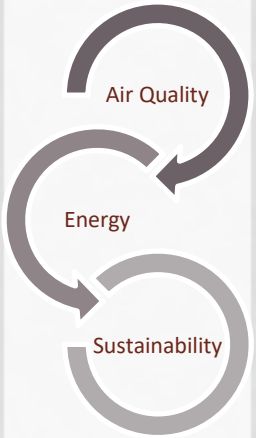
DIVISION OF AIR QUALITY

AIR QUALITY, ENERGY, AND SUSTAINABILITY

PROCEDURE FOR RISK ASSESSMENT

JUNE 4TH, 2021



Connor Lapiska, Bureau of Stationary Sources, Air Quality

SECOND LEVEL RISK ASSESSMENT

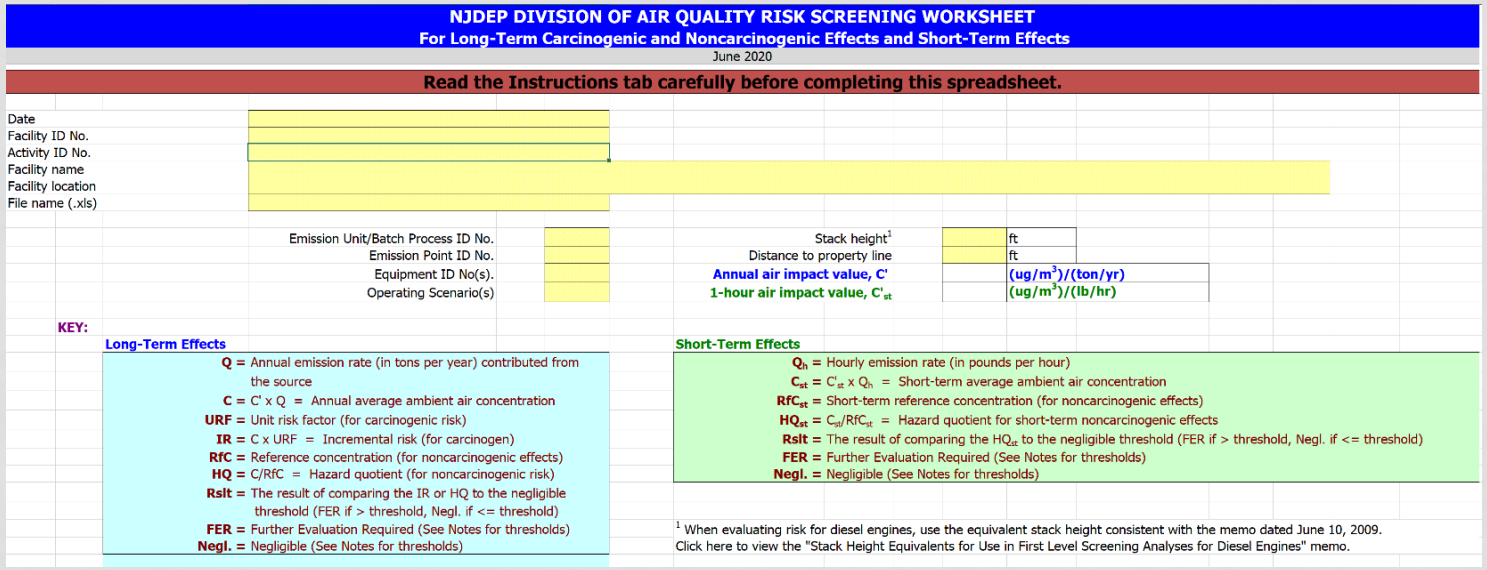
- Second level risk assessment procedure for minor source facilities with an initial application or a modification
- The scope does not include the procedure for facility wide risk assessment
- The scope does not include the risk assessment procedure for major facilities

FIRST STEPS WHEN AN APPLICATION IS RECEIVED

- Before an application can be assessed for risk, the application must be deemed administratively and technically complete
- Administrative completeness consists of:
  - Responsible Official certification as defined by N.J.A.C. 7:27-1.4 and compliant with 7:27-1.39
  - Correct contacts for the Air Permit Information Contact, Fee and Billing Contact, and the Responsible Official
  - A complete RADIUS file
- Technical completeness consists of:
  - Verifiable emission calculations and their corresponding rates correctly filled out on the Potential to Emit tables
  - Equipment and or facility specific supporting information as needed
  - Demonstrated compliance with all State and Federal regulations, and/or SOTA, if applicable

BEGINNING RISK ASSESSMENT

- If the application is emitting a new HAP, increasing the emissions of an existing HAP, or changing stack parameters in a manner that may increase risk, then risk must be assessed using the primary level 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 name
Facility location
File name (.xls)

Emission Unit/Batch Process ID No.
Emission Point ID No.
Equipment ID No(s).
Operating Scenario(s)

Stack height[1] — ft
Distance to property line — ft
Annual air impact value, C' — **(ug/m^3)/(ton/yr)**
1-hour air impact value, C'$_{st}$ — **(ug/m^3)/(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)
RsIt = 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_h = Hourly emission rate (in pounds per hour)
C_{st} = C'_{st} x Q_h = Short-term average ambient air concentration
RfC_{st} = Short-term reference concentration (for noncarcinogenic effects)
HQ_{st} = C_{st}/RfC_{st} = Hazard quotient for short-term noncarcinogenic effects
RsIt = The result of comparing the HQ_{st} to the negligible threshold (FER if > threshold, Negl. if <= threshold)
FER = Further Evaluation Required (See Notes for thresholds)
Negl. = Negligible (See Notes for thresholds)

[1] 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.

PRIMARY LEVEL RISK ASSESSMENT WORKSHEET

- The primary level risk assessment worksheet may only be used for the piece of equipment if:
  - The emission point is a point source;
  - The discharge direction is upwards; and
  - The stack height is 15 feet or higher
- Emission rates are entered for both hourly and annual rates for each individual HAP, along with the stack height and distance to property line
- If the primary level risk assessment worksheet results in a Further Evaluation Required (FER) determination or if the worksheet cannot be used for the above-mentioned reasons, then second level risk assessment must be performed

BEGINNING SECOND LEVEL RISK ASSESSMENT

- During the first level assessment, the permit evaluator and the applicant should make all attempts to minimize the risk, including adjustments of stack height and distance to the property line
- If risk minimization is not successful and the primary level risk assessment worksheet indicates that further evaluation is required for one or more compounds, the facility has two options:
  - The facility may request that the Bureau of Evaluation and Planning conduct the modeling exercise by submitting a detailed facility plot plan or site survey
  - The facility may conduct the modeling exercise themselves by submitting a modeling protocol prepared in accordance with Technical Manuals 1002 and 1003
- All requested information should be supplied before second level risk assessment is initiated

DEPARTMENT PROCEDURE

- The permit writer will draft a memo that requests a secondary level risk assessment from the Bureau of Evaluation and Planning
- The memo is sent by the permitting Section Chief to the Bureau of Evaluation and Planning
- The application is assigned to a member of the modeling staff for review
- Any other information may be requested if there are questions or comments from the modeling staff
  - Some comments may require revisions to the permit application

MODELING RESULTS AND FINAL DECISIONS

- Either the facility or the Department will compile a summary of the modeling results that state the predicted health impacts of the new or modified equipment
- Steps for addressing significant risks will be discussed in a following presentation
- Risk levels considered non-negligible will be referred to a joint Risk Management Committee to discuss if the permit is acceptable or if risk minimization procedures are required
- Based on the Risk Management Committee's final recommendations, the Bureau of Evaluation and Planning will either
  - Issue an internal memorandum indicating that there is no further review of the potential health risk needed; or
  - Issue a final decision that the potential health risk results in a contravention of criteria established by the Department to protect human health, welfare, and the environment and the Department will begin to work with the facility to minimize impacts.

QUESTIONS