



State of New Jersey

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DEPARTMENT of ENVIRONMENTAL PROTECTION

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MEMORANDUM

TO: Air Quality Permitting Program Permit Evaluators and Air Quality Evaluation Section Technical Staff

FROM: John Preczewski, P.E., 
Assistant Director, Air Quality Permitting Program (AQPP)

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

DATE: October 26, 2010

This memorandum and attached procedure are meant to clarify the current risk assessment procedures for new or modified equipment. This procedure is consistent with N.J.A.C. 7:27-8.5(a) 4 "Air Quality Impact Analysis" which states,

*An application shall include an air quality impact analysis, conducted in accordance with this section, if: The Department determines that an air quality impact analysis is required for an accurate assessment of the environmental impact of the activities **proposed**.*

The word proposed implies new or modified. Similarly, N.J.A.C. 7:27-22.8(a) 4 (relating to new or modified sources). "Air Quality Simulation Modeling and Risk Assessment" states,

*An applicant for an initial operating permit for a **new** major facility, or for a minor **modification** or significant **modification** to an existing operating permit, shall conduct air quality simulation modeling in accordance with (c) below if: 4. The **application** includes **source operations** which, based on screening procedures published in technical manuals by the Department, have the potential to cause any of the adverse air quality effects listed in (b) 1 through 4 below.*

AQPP is currently developing procedures concerning the determination of facility wide risk. After these procedures are developed, they will be distributed for comment.

This memorandum is not meant to supersede or negate any previously conducted risk assessment or existing risk assessment policies or procedures that are in use for specific source types (e.g. dry cleaning facilities using perchloroethylene as the solvent, gasoline

stations controlled by a proprietary air pollution control device, sources under Batch Plant Technical Manual (1301) or Pilot Plant and Dual Plants Technical Manual (1302). In addition, the provisions of my June 24, 2009 memorandum "Update to Guidance on Determining Health Risks for Diesel Exhaust Particulates from Internal Combustion Engines" are still effective.

Staff is advised to consult with their section chief concerning situations not covered by this memorandum.

c.: Francis Steitz, Chief, Bureau of Air Permits
Joel Leon, Section Chief, Bureau of Technical Services
Bachir Bouzid, Section Chief, Bureau of Air Permits
Robert Kettig, Section Chief, Bureau of Air Permits

PROCEDURES TO CONDUCT RISK ASSESSMENTS FOR NEW OR MODIFIED EQUIPMENT

GENERAL

1. Any application for new or modified equipment must undergo a health risk assessment that includes equipment with any hazardous air pollutant (HAP) emissions over the reporting threshold. (For a more in-depth discussion, see the January 7, 2008, memorandum from John Preczewski, "Reporting Thresholds for Inclusion in Facility Specific Requirements," and Technical Manual 1003 - Guidance on Risk Assessment for Air Contaminant Emissions.)
2. A health risk assessment should be conducted only for new or modified equipment in an application. All new or modified equipment should be evaluated on a collective basis, and not individually. In some cases, new or modified equipment may share a control device or emission point with existing permitted equipment which is not being modified. To determine the potential to emit emission rate of each air contaminant, which will be an input to the health risk assessment for the new or modified equipment, a procedure consistent with N.J.A.C. 7:27-8.12(d)2. should be used. N.J.A.C. 7:27-8.12(d)2 states the following and describes how to determine the air contaminant emissions from an individual piece of equipment which shares a control device: "If two or more separate pieces of equipment are to be vented through the same control apparatus, the relative contribution made by each piece of equipment to the emissions from the control apparatus shall be calculated. Using these relative contributions, the applicant shall calculate each piece of equipment's potential to emit." These emission levels should be documented in the operating scenarios located in the PTE screens in NJEMS. Risk assessment will be conducted only on the portion of emissions attributable to the new or modified equipment.

SPECIFIC AIR PERMIT APPLICATIONS

3. A first-level risk screening assessment will be conducted by the permit evaluator to evaluate the applicant's proposal. During the first level assessment the permit evaluator, in conjunction with the applicant should make all attempts, including adjustments of stack height and distance to the property line, to minimize the risk (adjusted risk level). If the risk level (or adjusted risk level) is lower than the following levels, the risk will be considered negligible and no further health risk assessment needs to be conducted:
 - A. Total carcinogen risk (cancer-causing chemicals) less than 1×10^{-6} (1E-6, or 1 in a million)
 - B. Total noncarcinogen hazard index less than 1

NOTE: Hazard index values less than or equal to 1.5 should be rounded down to 1.

(For further details see “Risk Screening Policy and Second-Level Screening,” accessible at <http://www.nj.gov/dep/aqpp/downloads/risk/2LEVEL.pdf>)

4. If the risk level (or adjusted risk level) is greater than A or B above, a second-level risk assessment must be performed. The applicants should be given the choice by the permit evaluator to either perform the second-level risk assessment themselves or to have BTS perform the assessment. In either case Technical Manuals 1002 and 1003 must be used to prepare the protocols. Applicants who decide to perform the assessment will be advised by the permit evaluator to submit the protocol to the BTS Section Chief. If the applicant requests that BTS perform the assessment, the applicant must submit the information necessary to conduct the assessment to the BAP Section Chief. The BAP Section Chief will forward the following information to the BTS Section Chief with the request to perform the second-level risk assessment:
 - A. A site survey, as defined in Technical Manual 1002, which must include, at a minimum, the following:
 - i. A depiction of the site, drawn to scale (with the scale indicated);
 - ii. Location of all proposed emission points (stacks, vents, etc.), all buildings and structures on-site, and facility property line;
 - iii. Location of buildings and structures immediately adjacent to the applicant's property, if they are located near the proposed emission points;
 - iv. Height, width, and length of all buildings and structures;
 - v. An indication of true north. (If plant north is shown on the plot plan, the relationship between true north and plant north must be provided.); and
 - vi. A scaled map with the location of nearby residences and other sensitive receptors, such as hospitals, nursing homes, schools, and day care centers.
 - B. The section(s) of the application that describes the new source operations or proposed modifications.
 - C. Information on each source operation’s stack parameters and the hourly and annual emission rates of all hazardous air pollutants.

BTS will then determine whether, given the unique elements of the permit application, the risk calculated during the first-level risk screening assessment is negligible. If the risk is negligible, the BTS Section Chief will notify the BAP Section Chief by email that no second-level risk assessment is necessary, and that no fee needs to be assessed for this determination.

If the second-level risk assessment is necessary, the BTS Section Chief will assign an air quality modeler to conduct the review of the second-level risk assessment.

The air quality modeler will contact the facility by phone or email regarding any questions or clarifications and with a deadline for response. The air quality modeler should notify the permit evaluator of the request. The permit evaluator will update NJEMS Activity Tracker indicating the request for additional information.

If the air quality modeler is unable to obtain the necessary information or the applicant has been generally unresponsive, the air quality modeler will request the permit evaluator to send a deficiency letter giving the applicant 30 days to respond to the information request or risk a permit denial. The denial for a preconstruction permit application would be made pursuant to N.J.A.C. 7:27-8.14(c) which states:

The Department may deny an application for a preconstruction permit or certificate if the applicant fails to provide all information requested by the Department within 30 days after the request, or within a longer response period if approved in writing by the Department. If an application is denied, the applicant may reapply, and the new application shall meet all application requirements, including the fee requirement.

The denial for an operating permit application would be made pursuant to N.J.A.C. 7:27-22.3(ff) which states:

The Department may deny an application for an initial operating permit, minor modification, significant modification, or renewal, if the applicant fails to provide all information requested by the Department within 30 days after the request, or within a longer response period if approved in writing by the Department.

All written correspondence sent by the Department and all applicable information submitted by the applicant will be posted in the corresponding NJEMS activity.

BTS will inform BAP administrative staff that a fee needs to be assessed for the second level risk assessment.

5. If BTS determines that the second-level risk assessment's calculated maximum cancer risk and/or hazard index are not negligible, the Risk Management Committee (RMC) will meet to determine whether all risk minimization strategies have been considered for feasibility and implementation. In addition to the maximum off-site cancer risk and hazard index, unique characteristics of the application, the nature of the HAP under consideration, and the maximum predicted risk at each sensitive receptor (such as a home or school) will be considered in the RMC's case-by-case decision.
6. If the RMC determines that the risk is negligible, the BTS Section Chief will issue a memorandum summarizing the RMC determination and indicating that no further review of the potential health risk is needed.

7. If the RMC determines that the risk is not negligible, an initial RMC recommendation will be forwarded to the permit evaluator. The permit evaluator will be responsible for forwarding these recommendations to the facility, and then providing the facility's feedback to the RMC.
8. The RMC will review the information provided by the facility. Based on the RMC final recommendations, BTS will either
 - a. Issue a memorandum indicating that there is no further review of the potential health risk needed; or
 - b. Issue a final decision that the potential health risk results in a contravention of other criteria established by the Department to protect human health and welfare and the environment and recommend, in a memorandum from the BTS Chief, that the application be denied.
9. The RMC will record all decisions made, and include all factors and circumstances that were considered. A written copy of each decision will be drafted and maintained by the BTS Section Chief. Upper management will be consulted when appropriate.