

New Jersey Department of Environmental Protection
Bureau of Release Prevention

Inherently Safer Technology (IST) Frequently Asked Questions

Issued June 25, 2008

The Department's IST rules, N.J.A.C. 7:31-3.6 and 4.12, were adopted and published in the May 5, 2008 New Jersey Register. The IST rules require all facilities subject to the Toxic Catastrophe Prevention Act (TCPA) Program rules to submit an IST review report to the Department by September 2, 2008. The Department held a workshop open to the public on June 17, 2008. The following questions have been asked regarding compliance with the IST rule requirements, and the Department's responses are provided:

- 1- Are the IST review reports completed under the Best Practices Standards at TCPA Chemical Sector Facilities ("Best Practices Standards" or BPS, November 21, 2005) required to be submitted to the Department?

All facilities subject to TCPA including facilities subject to the Best Practices Standards (BPS) are required to submit an IST review report to the Department by September 2, 2008. The facilities subject to the BPS may submit the IST review report completed under the BPS to comply with this requirement.

- 2- If a facility subject to the BPS is required to perform a five year update of the Hazard Review or the Process Hazard Analysis with Risk Assessment (PHA/RA) in 2008, is it required to update the IST review report?

The first IST review update is not required until two years after the date of the initial IST review. However, if the Hazard Review or the PHA/RA must be updated for a major change in the process during the two years, the IST review must also be updated. Therefore, assuming the facility does not have any major changes, the IST review update will be due with the next update of the Hazard Review or PHA/RA which would be in 2013.

- 3- Is there any other legislation in New Jersey requiring cost effectiveness analysis?

Yes, New Jersey facilities may be required to perform cost effectiveness analysis under both Federal and State regulations other than the TCPA rules. For example, Federal and State air pollution control regulations require cost effectiveness analysis in the course of determining Best Available Control Technology (BACT), or State of The Art (SOTA) control technology to minimize emissions of air contaminants.

- 4- Can the PHA team perform IST reviews, or is there a requirement to form a separate PHA team and a separate IST team?

The PHA team must include team members with expertise in engineering and process operations, and at least one employee who has experience and knowledge specific to the process being evaluated. Also, one member of the team must be knowledgeable in the specific process hazard analysis methodology being used. The IST team members must have expertise in environmental health and safety, chemistry, design and engineering, process controls and instrumentation, maintenance, production and operations, and chemical process safety.

Therefore, provided the PHA team members have the expertise required for the IST team members, the PHA team can also function as the IST team. If the PHA team members do not possess all of the expertise required for the IST team members, the PHA team can be supplemented with members having the required IST team expertise to form the IST team.

- 5- Are the facilities required to analyze the cost of not implementing the IST?

If any IST is claimed to be infeasible due to economic reasons a quantitative justification must be provided. In this quantitative justification the difference in costs without and with the IST would be presented. For example, the implementation of the IST may decrease regulatory compliance costs, liability insurance costs, labor costs, maintenance costs, etc. Any reduction in costs would be accounted for along with any increase in costs.

- 6- What is meant by the term qualified expert?

Qualified experts are members of the IST team with expertise in environmental health and safety, chemistry, design and engineering, process controls and instrumentation, maintenance, production and operations, and chemical process safety. The members of the IST team must have these responsibilities in their job description, they must have experience and knowledge to perform these responsibilities, and they must have been determined to be successful in the performance of these responsibilities by their employer.

- 7- How long will it take the Department to review the IST review reports?

The review of the IST review reports performed under the Best Practices Standards was completed in three months. The Department intends to complete these evaluations in a similar time frame, but depending on the changing workload, staffing levels and priorities of the Department, this time period may change.

- 8- Who selects the employee that participates to the IST review team?

The employees that participate to the PHA and IST team must have the specific knowledge and experience stated in the team requirements. Therefore, for facilities with union representation, the selection can be made collaboratively between the management and the union. However, the ultimate responsibility to comply with the

TCPA and the methods chosen to achieve such is that of the owner or operator of the facility.

9- How will confidentiality be handled?

The IST review reports prepared under the Best Practices Standards are privileged and confidential information pursuant to paragraph 12 of the BPS and will continue to be privileged and confidential when submitted to the Department. Owners or operators may file a claim with the Department to withhold from public disclosure the IST review reports submitted pursuant to TCPA rules following the requirements and procedures outlined at N.J.A.C. 7:31-10. The claim must be made at the time the report is submitted to the Department.

10- If the covered process is the storage area, is an IST review required for other equipment that is not part of the covered process where the EHS is used?

IST review is not required for equipment that is not subject to TCPA rules. However, it is recommended that IST review be performed for all equipment where an EHS is used as normal business practice.

11- If the best IST is implemented, is it required to do an infeasibility analyses for the other identified IST?

Infeasibility justification is required for any IST the owner or operator determines to be infeasible. For example, the owner or operator may identify ten ISTs to eliminate a given hazard. The owner or operator may find all ten of the ISTs feasible and decide to implement only one of them. In that case, the owner or operator would not be required to present an infeasibility justification. It would be necessary to provide an explanation as to why a specific IST option was selected over other feasible alternatives. If the owner or operator determines that five of the ten ISTs would be infeasible to implement at their facility, then they would have to present an infeasibility justification for the five ISTs. Any IST that is identified without an infeasibility justification would be considered feasible. However, there is no mandate in the rule to implement IST's when they are found to be feasible.

12- Can the IST alternatives to minimize or eliminate a given hazard for which there is no estimated offsite impact be deemed infeasible due to the estimated lack of offsite impact?

The lack of estimated offsite impact for a given hazard is irrelevant to the justification of infeasibility for a specific IST that would reduce or eliminate that hazard. As stated at N.J.A.C.7:31-3.6(f)7 and 4.12(f)7, the infeasibility justification must be based on environmental, public health and safety, legal, technological, and economic factors. For example, if an IST alternative would increase the risk from an identified hazard, or would shift the risk to another location where the risk may be the same or higher this IST alternative may be considered to be infeasible. However, in a situation where there

is no estimated offsite impact from a given hazard and the IST under consideration would reduce or eliminate the hazard without increasing or shifting the risk to another location, then that IST would be considered to be feasible.

- 13- The IST review report is due to be submitted by September 2, 2008. Suppose the owner or operator completes the evaluation and does identify IST alternatives but is not able to complete the evaluation of the feasibility by the due date. Could the owner or operator state in the IST review report that the IST alternative is being considered with further investigation?

The IST review reports must be submitted by September 2, 2008. The report must include a list of IST already present in the covered process; a list of additional ISTs identified; a list of additional ISTs selected to be implemented and a schedule for their implementation; and a list of inherently safer technologies determined to be infeasible with justification of the infeasibility determination. Upon receipt of the report, any IST that is not determined to be infeasible and having the required justification would be considered to be feasible. Based on the experience with the IST review reports that were completed under the Best Practices Standards with the same 120 day deadline, the Department expects that the determination of feasibility and IST review reports will be completed by September 2, 2008. However, if an owner or operator makes a determination that additional ISTs are infeasible subsequent to the submittal of the report; this finding may be submitted to the Department as a supplement to the initial IST review report. Similarly, if an owner or operator decides to implement additional ISTs subsequent to the report submittal, a supplement to the report can be submitted.

- 14- What if the owner or operator identifies an IST alternative to be feasible but does not plan to implement it?

There is no rule requirement that mandates the implementation of IST.

- 15- How should the methodology of the IST review be identified in the report?

The rule does not specify any required methodology to conduct the IST review. The four IST principles of minimization, substitution, moderation, and simplification must be evaluated in the covered process from beginning to end. This could be completed using analysis tools such as checklists, an independent process hazard analysis (PHA) approach, or an approach integrating the IST review into every PHA study. In the IST review report, the owner or operator must give a brief description of the approach used.

It should be noted that the rule also requires that the questions asked and answered to address the four IST principles are included in the IST review report. This includes the detailed analysis to identify potential IST alternatives through the entire covered process. This information is included in the checklist sheets or worksheets (similar to hazard analysis worksheets) completed for the IST review. These completed checklists or worksheets can be submitted to comply with this requirement.

- 16- Do all IST alternatives for the process have to be evaluated?

All of the identified IST must be evaluated to determine whether they are feasible or infeasible. The report must include an infeasibility justification for the ISTs that are found to be infeasible.