

Measuring Progress in Chemical Safety



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Topics of Discussion

- Why Measure Progress?
- Safety Performance Indicators (SPI) and an LEPC example
- EPA Example: Measuring Progress in Preparedness
- Where do we go from here?

Why Measure Progress?

- SERCs and LEPCs have an important role to play in chemical safety
- Tell the story of your success to stakeholders (i.e. the public, Congress, Federal Agencies, other SERCs/LEPCs)
- Support Funding
- Check whether actions taken to address risks achieve desired outcomes
- Identify what else needs to be done or changes that need to be made
- Help establish priorities
 - ◆ Critical given limited resources

The *Guidance on Developing Safety Performance Indicators (SPIs)* is a tool which can be used to measure the success of your EPCRA program.



Guidance Document and Web site

Guidance Document



PDF available on OECD Web site at: www.oecd.org/ehs

OECD SPI Web site



<http://oecdsafetyindicators.org/>

Web site Capabilities

- SERCs and LEPCs can use Web site to:
 - ◆ Select & customize Targets & Indicators & develop specialized SPI Program
 - ◆ Create account & save preferences (individual log-ins)
 - ◆ Export "My Targets & Indicators" for further refinement
- Online reference of terms, annexes & other critical information

How to Develop an SPI Program (Chapter 2)

- Step 1: Establish the SPI Team
- Step 2: Identify the Key Issues of Concern
- Step 3: Define Outcome Indicator(s) & Related Metrics
- Step 4: Define Activities Indicator(s) & Related Metrics
- Step 5: Collect the Data & Report Indicator Results
- Step 6: Act on Findings from SPIs
- Step 7: Evaluate & Refine SPIs



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School Lab Cleanup Project

Overview

- Parents of students from the local high school, who are also members of the LEPC, discover storage of chemicals in the school lab while visiting the school during a parent/teacher conference. Upon researching this further, the parents discovered that if these chemicals are not stored and handled properly, they can create a substantial hazard to students and first responders in the event of fire or spill. The parents have approached the school and LEPCs to work together to ensure processes are in place for the proper storage and handling of these chemicals and identify a mechanism to evaluate these processes.

Example Application

Example Step 1 : Identify team

- The LEPC requested representatives of the LEPC, fire department, and other relevant regulatory agency meet with the school principal and science faculty to determine the appropriate team members to:
 - ◆ Identify the current procedures for appropriate storage and handling of hazardous chemicals in school labs and
 - ◆ Develop activities and measures for evaluating the successfulness of these procedures.

Example Application

Example Step 2: Identify issues of concern

- Following discussions among the team members, it was agreed that the key issues of concern included:
 - ◆ Appropriate procedures for the safe storage and handling of hazardous chemical in school to protect the students and
 - ◆ Reducing the risks of a chemical accident resulting from the inappropriate storage and handling of chemicals.

Example Application

Example Step 3: Define desired outcomes and metrics

- The team determined that success of this effort would include:
 - ◆ elimination of unused, outdated and hazardous chemicals from the school lab,
 - ◆ All teachers and students who use the hazardous chemical are properly educated regarding the hazards presented and how to handle those chemicals, and
 - ◆ the institution of programs to prevent re-accumulation of chemicals as well as procedures and training to continued proper storage and use of hazardous chemicals.
- The metrics would include: teachers and students educated on procedures and institution of inventory control programs as measured by no chemical accidents resulting from misuse of hazardous chemicals.

Example Application

Example Step 4: Define activities and metrics

- The team reviewed the outcome indicators in order to determine the appropriate activity indicators which would best show whether the goal desired was being met. Based on that review, the following activity indicators and metrics were chosen:
 - ◆ quantify and type of old, leaking, and inappropriate hazardous chemicals initially removed from the school;
 - ◆ Percentage of teachers and students trained on the appropriate storage and handling of hazardous chemicals;
 - ◆ Re-inspection every term to determine if inappropriate chemicals are present.

Example Application

Example Step 5: Collect data and report results

- The team decided that, as a first step, they would take an inventory of the amount and location of the hazardous chemicals and remove those that were a risk to the students and community. This information would be reported to the school, LEPC, and public via a public meeting and report explaining what was removed, what risks were presented and how it was disposed.
- The team also decided to institute procedures on the safe handling and storage of hazardous chemicals as well as a training program for teachers and students. These procedures would be reviewed by the science faculty and re-evaluated each term to determine if the procedures are being understood and followed and whether changes need to be made. The following data will be collected and reviewed:
 - ◆ Number of teachers/students trained on the procedures and competence of the teachers/students based on post-training testing.
 - ◆ Number of times procedures are not followed which will be tracked using log book sign in, observations by teachers of students using the chemicals, and number of accidents which occur due to misuse of the chemicals.

Example Application

Example Step 6: Act on findings

- The team agreed that each term, reports would be submitted to the school superintendent, PTA, student body, and LEPC with the results of the tracking of the activity indicators on inventory practices and chemical accidents.
- These reports would be reviewed by the LEPC/fire department and school administration and faculty to determine if changes need to be made in the procedures and/or the training program.

Example Application

Example Step 7: Evaluate and refine indicators

- At the end of each school year, the team would meet with the LEPC and PTA in order to review the project outcome and activity indicators to determine if they need to be revised or eliminated and whether new indicators need to be developed and implemented based on the results of the previous year and experienced gained in implementing the safety performance indicator program.

Applying Safety Performance Indicators to Emergency Preparedness



HOW WE GOT STARTED

- In 1998 EPA's Chemical Emergency Response Personnel--On Scene Coordinators (OSCs) identified a need to promote consistency across geographic regions in preparedness activity related to chemical spills
- They established criteria for 10 critical elements of the Chemical Emergency Response Program
- Annual reviews provided assessment of progress in implementation of criteria

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Core ER ELEMENTS

- Element 1: Incident Notification & Mobilization
- Element 2: EPA Regional & National Response Assets
- Element 3: Professional Development, Training & Exercises
- Element 4: Health & Safety
- Element 5: Public Information & Community Involvement
- Element 6: External Response Assets
- Element 7: Field Capabilities
- Element 8: Information & Data Management
- Element 9: Regional Operations Center Logistics
- Element 10: Acquisition Management

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ISSUES

- Self Assessment versus Review Team
- Building a common understanding of criteria
- Misunderstanding/misuse of scores
- Flexibility to reflect changing circumstances

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BENEFITS

- Increased attention to emergency preparedness
- Program is now about EPA's National Approach to Response (Core NAR)
- Cross-trained workforce
- Improved policies/procedures
- Emergency Responder attention to measurement of progress—desire to measure outcomes
- Other members of the Chemical Safety Community interested in measurement of progress

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FUTURE

- Develop outcome measures for emergency response activities. Examples:
 - ★ Human exposures avoided.
 - ★ Public Satisfaction
- Develop a core program for chemical accident prevention and EPA activities to support EPCRA

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LESSONS LEARNED

- Keep it simple
- Development of performance indicators is an iterative process
- It was helpful to start with activity indicators and later consider outcome indicators

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Next Steps for SERCs, LEPCs, and EPA

- Several States are already piloting measurement programs
- EPA wants to support SERCs/LEPC efforts
 - ◆ Continue partnership with NASTTPO and DOT
 - ◆ Assist in sharing best practices
 - ◆ Potential for additional guidance
- Eventually, we hope to have national measurements for EPA and also for combined efforts

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