



**Industrial Chemical Security Workshop**  
**Dates: December 6-9, 2016**  
**Location: Pandit Deendayal Petroleum University**

Chemical security best practices can help assure that risks inherent with the use and application of chemicals are minimized to protect the environment, infrastructure, and, most importantly, life. To this end, Oak Ridge National Laboratory (ORNL), on behalf of the U.S. Department of State's Chemical Security Program (CSP), and in collaboration with Pandit Deendayal Petroleum University (PDU) will implement a four-day workshop focused on raising chemical security awareness and facilitating the sharing best practices among the participants. This workshop will have a particular focus on site characterization, vulnerability assessments, and mitigation strategies. On the fourth day, site visits to nearby universities and associated laboratories will allow ORNL SMEs to structure future engagements and serve as technical experts on the ground (tentative).

Workshop objectives:

- Raise general awareness of chemical security principles and best practices
- Illustrate hazard and risk analysis processes through examination of several simulated facilities, both industrial and academic, in small groups
- Discuss low-cost, high-impact security upgrades to address identified vulnerabilities
- Stress the importance of the interconnected nature of chemical security by bringing together a diverse set of individuals from universities, including safety personnel, security personnel, research faculty, and administrators
- Facilitate "train the trainer exercises" to demonstrate how the workshop content can be delivered at home institutions

Targeted audience:

15-25 participants from the chemical industry

10-15 participants from the academic community, including research faculty, teaching professors, and safety and security personnel

3-8 participants from government regulatory agencies



December 6, 2016

Time	Event
830 – 900	Registration and Coffee
900 – 1000	Introduction and Opening Remarks <i>During this session, CSP, ORNL, and PDPU will provide opening remarks. Participants will also be encouraged to introduce themselves and their perspectives and goals of the following four days.</i>
1000 – 1030	International Chemical Security Threats and Mitigation Strategies <i>This will be a presentation largely taken from international documentation, highlighting what threats have been focused on the chemical community as well as successful and unsuccessful prevention measures.</i>
1030 – 1100	Break – Refreshments Served
1100 – 1145	Pre-Event Questionnaire & Discussion <i>Questions will be tailored to gauge participant's interest and knowledge in specific areas, while providing the speakers an understanding of what topics to emphasize. The facilitators will employ an anonymous data collection tool during this process.</i>
1145 – 1230	Safety and Security Synergy (Including Hazards) <i>This session will highlight chemical safety and security overlap and how elements of chemical safety can be used as foundation for implementing chemical security plans/program at an institution.</i>
1230 – 1330	Lunch
1330 – 1415	Chemicals of Specific Concern <i>This session will raise awareness about chemicals of concern to include chemicals likely targeted for theft or diversion, toxic chemicals, and reactive chemicals. It may be tailored based on participant background and facilities.</i>
1415 – 1500	Potential Threats to Materials of Interest <i>This presentation will identify potential threats to chemical facilities, identify chemicals of concern and their risks, discuss adversary characteristic, and discuss the elements of a terrorist attack.</i>
1500 – 1515	Break
1515 – 1600	Graded Approach to Chemicals of Concern <i>This presentation provides an approach to securing numerous chemicals with varying security recommendations assigned to them, within an academic environment.</i>



Time	Event
1600 – 1645	Chemical Security Culture <i>This overview will cover the evolution of chemical safety and security, and development of a strong chemical security model.</i>
1645 – 1700	Day One Wrap-up and Discussion

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December 7, 2016

Time	Event	POC
830 –900	Day One Review	
900 – 1030	<b>Chemical Hazards and Implementing Systems to Minimize Risks</b> <i>This presentation focuses on the distinctions between safety and security in terms of awareness of the hazards associated with chemicals. Participants will complete a basic hazards assessment that will illustrate concepts discussed in the session, as well as provide information used in future tabletop exercises.</i>	
1030 – 1045	Break	
1045 – 1130	<b>Chemical Security Site Characterization Overview and Vulnerability Assessment Introduction</b> <i>This session will illustrate the need to analyze sites holistically, while also incorporating physical security enhancements when identified. It will also establish a basic understanding of the vulnerability assessment (VA) process, how VA is relevant to chemical facilities, and introduce the VA process.</i>	
1130 – 1230	<b>Vulnerability Assessment Tabletop Exercise – Small Industrial Facility and University</b> <i>The participants will examine a simulated small chemical industrial facility layout as well as a university layout to determine potential vulnerabilities and hazards.</i>	
1230 – 1330	Lunch	
1330 – 1430	<b>Vulnerability Assessment Tabletop Exercise Participant Presentations</b> <i>The participants will share their observations of identified vulnerabilities.</i>	
1430 – 1530	<b>Physical Protection Systems Definitions and Concepts</b> <i>This presentation will identify the elements of an effective system, discuss the principles of security, and introduce specific implementation examples.</i>	
1530 – 1545	Break	
1545 – 1645	<b>Physical Protection Table Top Exercise – Small Industrial Facility and University</b> <i>Participants consider low-cost, high-impact upgrades to their facilities. They will then switch groups and identify weaknesses in the systems designed by their peers.</i>	
1645 – 1700	Day Two Wrap-up	



December 8, 2016

Time	Event	POC
830 –900	Day Two Review	
900 – 1030	Site Tour of PDPU Facilities (TBC) <i>The participants will participate in a guided tour of PDPU facilities, discuss existing security systems, and consider additional low-cost, high-impact upgrades.</i>	
1030 – 1045	Break	
1045 – 1130	Transportation Security and Security of Materials Throughout the Supply Chain <i>This presentation relays the high-level concerns regarding the transport security of chemical materials and identifies elements of a transportation security plan for the secure transport of high consequence. We will also address cradle-to-grave management -- procurement, stockpile, Inventory, usage, and waste. This will look at the issue from both a facility perspective, as well as at the state and national level.</i>	
1130 – 1230	Transportation Security Tabletop Exercise <i>The participants will examine a simulated chemical transfer, identifying vulnerabilities and offering alternatives to the proposed activity.</i>	
1230 – 1330	Lunch	
1330 – 1430	Insider Threat and Managing the Human Element of Security <i>This session discusses human influences to be considered when securing chemicals, sites and performing analysis on threats. This is particularly important with institutions with students, visitors and high traffic areas.</i>	
1430 – 1500	India Chemistry Council <i>Participants will be introduced to the mission and goals of Nicer Globe, an Indian Chemistry Council initiative to enable industries to use acclaimed standards, infrastructure, and services for safe and security transportation. We will also introduce the basic principles of Responsible Care, including the Security Code, and discuss applicability in India.</i>	
1500 – 1515	Break	
1515 – 1545	Indian Academic Curriculum Development <i>Participants will hear from a nuclear security professor at Amity University about how she has incorporated security concepts in to her training.</i>	
1545 – 1630	Post-event Questionnaire <i>This activity will allow the participants to see how awareness of chemical security changes perceptions of security.</i>	



Time	Event	POC
1630 – 1700	Day Three Wrap-up, Next Steps Discussion, and Certificates	

### December 9, 2016 – Site Tours

Time	Event
	Meet with Indian POCs
	Tour local chemical industry facility <i>The goal of this outreach is to meet with local chemical professionals and to witness first hand industry practices as they relate to security of chemicals of interest at their chemical facility</i>
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