

Report on Hostile Action-Based (HAB) Emergency Preparedness Biennial Exercise Lessons Learned

EXECUTIVE SUMMARY

The HAB exercise requirement has improved licensee and local emergency preparedness (EP) and response, as well as the coordination between licensee and offsite emergency response organizations (ORO). Regardless of the cause of the event or its location, exercising the coordination of emergency response assets improves the responder's competence, capabilities and confidence in the use of their processes, procedures and resources.

This report is a consolidation of exercise observations from the first cycle of HAB exercise demonstrations conducted from 2013 thru 2015. The observations described in this document are intended to enhance the planning, logistics and demonstrations of future HAB exercises. This report does not draw conclusions or make recommendations. This report was provided to Division management to review and assess the report's observations and in consultation with the staff determine if there are any recommendations for areas of improvement that could benefit the conduct of future HAB exercises. Should any recommendations be made, staff will be tasked to create, and implement, an action plan.

The following are highlights of the observations provided in the report.

The engagement of licensees with OROs early in the development of HAB scenarios was noted as a good practice during the HAB pilot phase drills conducted from 2006 thru 2008 and continue to prove beneficial for the evaluated HAB exercise demonstrations. Continuing this increased engagement of OROs in exercise scenario development could help to maintain the improved relationship established, and provide continued opportunities for both licensees and OROs to discuss and better understand the unique challenges faced by each in response to an emergency declaration. Continuing discussions with offsite responders could help the licensee stay current with what capabilities and resources are available to their OROs. Demonstration of these capabilities and resources could be added to future exercise scenarios for added training benefit.

The HAB exercise is not an evaluation of the adequacy of the licensee's Security plan or its' implementation. NEI 06-04 "Guideline for the Development of EP Drill and Exercise Threat-Based Scenarios," (exercise guidance) allows licensees to mostly simulate and script the security support of the exercise. The scripting and simulation of the security response can challenge realistic exercise play and discussions. This potentially limits the opportunities to observe the interface between the security and emergency plans; such as, how the implementing procedures would be interpreted or implement by two players with no scenario scripted knowledge.

The amount of simulated ERO / Security interactions may create an unintended consequence in that the licensee's ERO and Security forces miss an infrequent training opportunity to experience the actual challenge of coordinating activities under HAB event conditions. Examples include:

- Security escort for a damage control team – security officers miss the opportunity to learn and practice how to support a damage control team pre-job brief; i.e., what kind of questions to expect and what could be/would be the likely security restrictions used.

- Security and damage control team coordination – damage control team members miss the opportunity to learn/experience how to work with a security officers' instructions for adhering to the security restrictions created by the scenario.
- Scripting the exercise input for a simulated CAS – this potentially creates an unrealistic discussion in which the CAS has only correct scenario information for input; simulated personnel do not make mistakes or misinterpret information.

The HAB exercise guidance necessitates that the initiating hostile action or terrorist event be a beyond the design basis threat (DBT) and that to resolve the security event and mitigate site damage caused by the attack a coordinated response would be required from:

- operations,
- security,
- the emergency response organization (ERO),
- state and local emergency management first responders, and
- Federal, State and local law enforcement assets

NRC security regulations do not require licensee Security Plans to address potential hostile attacks beyond the DBT. The use of an attack in excess of the DBT identified expected Security actions that are not addressed/considered in Security regulations.

The observations were grouped into five categories: Scenario Development, Exercise Implementation, HAB Training, Incident Command Post (ICP) Coordination/Support, and Communications. As the observations were reviewed and evaluated the three following overarching themes were noted:

- Including OROs early and often in exercise scenario development has benefits beyond the HAB exercise demonstration.
- The currently allowed amount of simulated security support for an HAB exercise may not provide a sufficient demonstration of the security and emergency plan interface.
- There are HAB exercise objectives that include expected actions to be performed by security that are not addressed/considered in security regulations or guidance.

1 BACKGROUND

Following the terrorist events of September 11, 2001 the NRC staff:

- Re-evaluated the EP planning basis.
- Issued orders requiring compensatory measures for nuclear security and safety,
- Observed and evaluated licensee performance of security force-on-force exercises and security-based EP drills and exercises,
- Reviewed current public radiological protective action guidance,
- Discussed security-based EP issues with various stakeholders, including licensees and Federal, State and local government officials.

In light of the new threat environment, the staff concluded that the EP planning basis remained valid, but recognized that security events differed from the accident-initiated events previously used in exercise scenarios. Additional security event information needed from licensees was

identified in NRC Bulletin 2005-02 “Emergency Preparedness and Response Actions for Security-Based Events.” The bulletin requested licensees to provide information on changes that had been made or would be made to: make Security-based emergency action level classifications, make an accelerated NRC notification of an HAB event, determine appropriate onsite protective measures, and adding security-based EP drills and exercises to the training program. In August of 2006 NEI issued NEI 06-04, “Guideline for the Development of EP Drill and Exercise Threat-Based Scenarios,” to provide guidance for conducting HAB drills or exercises.

The intent of the HAB exercise requirement is to evaluate the licensee’s ability to implement their emergency response plan in an unknown security state on-site. It is not an evaluation of the adequacy or implementation of the site’s security plan and does not require a demonstration of the tactical ability of site security and/or offsite law enforcement to regain control of occupied areas. Based on this intent, it was determined that licensees would only need to demonstrate the discussion and coordination of many of the security/ERO interface objectives as opposed to demonstrating the performance of the objectives.

1.2 REGULATORY DISCUSSION

On November 23, 2011 the NRC published a revision to the EP requirements described 10 CFR Part 50.47, “Emergency Plans,” and Appendix E, “Emergency Planning and Preparedness for Production and Utilization Facilities”¹. The revision to 10 CFR 50 Appendix E.IV.F.2.j added a requirement for each licensee to conduct a hostile action exercise for each of its sites no later than December 31, 2015. Implementation of these revised EP requirements was completed in December of 2015.

1.3 NON-POWER REACTORS

10 CFR 50 Appendix E.IV.A.7 defines a “hostile action” as, “...an act directed toward a nuclear power plant or its personnel...,” and only requires nuclear power reactor licensees to ensure that adequate resources are identified to respond to the site during hostile action; therefore, Non-Power Reactors are not required to meet the hostile action event capability requirement.

1.4 NRC TASK FORCE ACTIVITIES

The Federal Emergency Management Agency/U.S. Nuclear Regulatory Commission (FEMA/NRC) EP Steering Committee formed a joint FEMA/NRC HAB Lessons Learned Working Group (WG) tasked to gather lessons learned from the first cycle of HAB exercises. The WG gathered input from stakeholders including licensees, Federal, state, and local agencies in an effort to consolidate as many experiences from this first cycle of exercises as possible. This final report will be shared with stakeholders.

1.5 METHODOLOGY

The WG was comprised of two groups, one lead by NRC headquarters staff and one lead by FEMA headquarters staff. Each group worked through their respective regional counterparts to request lessons learned and observations from the various stakeholders.

- The FEMA headquarters team solicited lessons learned and observations from Regional Assistance Committee Chairs, regional evaluators, and state and local emergency management agencies.
- NRC headquarters solicited lessons learned and observations from regional EP inspectors, licensees, and the Nuclear Energy Institute.

¹ 76 FR 72560

Once the inputs were gathered, the off-site lessons learned and observations were reviewed and categorized by the FEMA headquarters team and the on-site lessons learned and observations were reviewed and categorized by the NRC headquarters team. The NRC and FEMA then combined the results and jointly:

- Presented the draft lessons learned at the Region IV Scheduling Conference, the 2016 Annual FEMA/NRC In-Progress Review Meeting, a public meeting held April 26th 2016, the 2016 National Radiological Emergency Preparedness Conference and the 2016 Nuclear Energy Institute's Emergency Preparedness Forum to discuss the data with stakeholders.
- Created a report detailing the lessons learned.

2 Going Forward

Licensee planning, scheduling and logistical arrangements with off-site response organizations enhanced the coordination and effectiveness of the HAB response. However, it was recognized that the planning, scheduling and logistics for the development of an HAB scenario would likely challenge the expected scenario confidentiality, and that moving forward this challenge can be expected to continue. NSIR/DPR-ISG-01 "Interim Staff Guidance Emergency Planning For Nuclear Power Plants" addressed this issue by stating that it is acceptable for some ERO members to infer that the pending biennial exercise will be a hostile action scenario as long as specific scenario details (i.e., specific events, timelines, or related information) remain unknown.

Incorporation of HAB specific coordination efforts into normal plume and ingestion exercise preparations could remove the uniqueness as being only associated with HAB scenario development and enhance the exercise preparation process. Examples of these HAB specific coordination efforts include, but are not limited to:

- Adding security, ICP and LLEA numbers to the normal drill and exercise phone number listings;
- Adding the site's security posture information to the drill and exercise plant initial status briefings for all drills and exercises;
- Continuing periodic familiarization tours, training, invitations to participate in licensee drills, exercises and/or table tops;
- Continuing the increased engagement of OROs in exercise scenario development; and,
- Maintaining and improving the HAB related relationships

3 OBSERVATIONS

The following is a summary of NRC and industry observations made during the first cycle of HAB exercise demonstrations and subsequent formal exercise critiques. The observations provide generic information on exercise challenges and good practices.

The observations are grouped into five categories— Scenario Development, Exercise Implementation, HAB Training, Incident Command Post (ICP) Coordination/Support, and Communications. Each observation includes a discussion/examples section to further illustrate the item.

3.1 Scenario Development

a. Observation:

Licensees' engaged OROs early in the scenario development process.

Discussion/Examples:

Licensees' engagement of OROs early in the scenario development process provided opportunities to define, discuss, and understand unique challenges posed by a hostile action event as well as define and practice the use of terms used to assess emergency action levels (e.g., security condition, hostile action, etc.).

b. Observation:

Some scenarios did not create a sense of urgency in assessment and the need for restoration of equipment or systems to prevent or mitigate damage to the fuel in either the reactor or spent fuel pool.

Discussion/Examples:

Scenarios need to present plant conditions that, if not mitigated, would lead to irradiated fuel damage and a potential significant radiological release. The scenario events are expected to create a sense of urgency for the assessment and dispatch of damage control teams to restore equipment and systems need to prevent the release prior to the site being declared safe. If the scenario does not present a sufficient enough threat to require urgent mitigative actions, then there is no justification for the expected immediate dispatch of control teams objective; in fact, without the expected urgency the prudent thing to do would be to take the needed time for Security-LLEA to secure the site and then to send in the repair teams and not what licensees did during the exercise (negative training).

c. Observation:

Site Security was not always involved throughout the whole exercise scenario development; this lead to a lack of realism with Security personnel play, unrealistic timelines with respect to exercise progression and negative training of security personnel.

Discussion/Examples:

Onsite security and offsite law enforcement involvement in the exercise scenario development is needed to ensure a realistic and accurate expected response and interface with operations and the ERO. This involvement is needed to ensure a scenario is developed in which security and or offsite law enforcement perform tasks that support the scenario performance and are reflective of what would be an actual security and or offsite law enforcement response. With an intentional attack by an adversary force, security and offsite law enforcement need to ensure their role includes response actions to an HAB event, such as ensuring:

- The appropriate number of security resources are assigned to protect the licensee's staffed emergency response facilities (ERF) both onsite and offsite.
- The exercise scenario and extent of play reflects that when all known adversaries are reported neutralized, it does not imply the site could not be attacked again and that appropriate security restrictions need to remain or be put in place.
- The conduct of the exercise includes a critique of Security's performance with regard to support of the ERO. Such as:
 - were the appropriate actions taken to support ERO activities;

- were an appropriate number of security resources assigned; and,
- are there any security related procedure corrections or enhancements needed?
- Onsite security restrictions align with offsite law enforcement restrictions. Such as:
 - providing security escorts for field monitoring teams; and,
 - common onsite and offsite field monitoring team expectations for communicating the team's location with the ICP.
- Onsite security and offsite law enforcement are trained on what an HAB event is and what is expected of them in support of the HAB event.
- Avoid/minimize disturbance of crime scene.
- Appropriate instructions for controlling weapons, equipment and safeguards material.

d. Observation:

Alignment of exercise scenario timeline realism with real world expectations.

Discussion/Examples:

Some of the exercise had attack information injects early in the scenarios that had more detail than what would have been realistically available. This does not align with what information would be available to the ERO when it needs specific event information to formulate realistic response actions that could be, or would be, implemented.

3.2 Exercise Implementation

a. Observation:

The exercise demonstrated the level of law enforcement, firefighting and medical emergency response organization participation and coordination with the licensee's ERO.

Discussion/Examples:

The high level of participation and performance by law enforcement, firefighting and emergency medical service organizations in the HAB exercises showed a very good level of cooperation and coordination between the off-site response organizations and the licensee's ERO. The continuation of this outreach and engagement with OROs (outside of the preparation for and execution of the HAB exercise) would provide opportunities to identify additional available ORO resources that could be considered when developing future exercise scenarios. This could result in an increase in the training value of exercises for both onsite and offsite responders.

b. Observation:

The use of real-world ICP locations and staging areas assisted response personnel in assessing the adequacy of specific locations to support needed functions.

Discussion/Examples:

The use of actual ICP locations and staging areas improved the training value of the exercise for response personnel. Using actual locations gave responders the opportunity to assess the adequacy and capabilities of the locations to support the needed functions, as well as recognize any other challenges which could be masked (negative training) if the ICP location were chosen based on ease of exercise accessibility and availability of response resources.

c. Observation:

The simulation of security response impacted exercise play.

Discussion/Examples:

At times, scenarios did not reflect Security's support as it would be for an actual event. Such as:

- Using a sim-cell for the CAS or SAS not outfitted with the same type of equipment & procedures available in actual CAS or SAS;
- Not using the actual terms Security would use in an actual event (e.g. response codes);
- Scripting the CAS and SAS control cell input as opposed to using an actual security player working from the site security procedures;
- Security Shift Supervisor and CAS/SAS not being involved in the selection of a method to protect ERO members during movement – no discussion of safe passage routes; and,
- No discussion of on-going protection of emergency response facilities and staff with Security Shift Supervisor or CAS/SAS.

d. Observation:

Adequacy of post-attack personnel accountability / movement procedures.

Discussion/Examples:

Post-attack personnel accountability and movement procedures may need greater detail or clarification for how the movement of ERO personnel (i.e. damage control teams, field monitoring teams, etc.) will be coordinated and tracked in a post-attack environment. Specifically, but not limited to:

- Coordination with Control Room, ERO emergency director, and LLEA, through ICP;
- Process for activating onsite ERO facilities;
- Travel routes and escorts;
- Methods for delivery of instructions to personnel (plant page announcements, bullhorns, etc.) as well as clarity and completeness of instructions; and,
- Injured/wounded and neutralized officers.

e. Observation:

Adequacy of the demonstration of protocols or procedures for moving offsite personnel to site.

Discussion/Examples:

Demonstrating the process for deploying personnel from offsite locations to the site should include: accounting for where personnel would be coming from/going to; determining the expected departure and arrival times; briefing personnel on the travel path/check-in points defined by security; and, any additional special protocols needed to gain access to the site or protected area. Demonstrating this process would provide an opportunity to assess the appropriate level of support and coordination with:

- The recall/callout of off-duty security officers,

- Security event briefings
- Instructions for how off-duty security officers would obtain needed weapons and equipment;
- How security/law enforcement would brief the site security conditions and travel restriction portions to the personnel; and,
- Offsite law enforcement escort and movement tracking to the designated arrival point.

f. Observation:

Implementation of the 2-person rule impacted ERO response.

Discussion/Examples:

Licensee emergency response procedures have implemented a 2-person rule that requires at least two personnel for any travel within the protected area during a security event. There is no 2-person regulatory requirement specific to EP describing this need. The only 2-person rule regulation is described in security regulation 10 CFR 73.55 (g)(4)(ii) which states, in part, that in response to a site-specific credible threat or site specific credible threat information, implement a 2-person (line-of-sight) rule for all personnel in vital areas so that no one individual is permitted access to a vital area. SFAQ 15-02 “NEI 03-12, and Regulatory Guide 5.76 Insider Mitigation (2-person)” was submitted and the answer, in part, describes the implementation of the 2-person rule as only applicable to vital area access after determining that the 2-person Rule is the appropriate response to counter the site-specific credible threat or credible threat information.

3.3 HAB Training

a. Observation:

Control room staff familiarity with security procedures and the impact on the implementation of 10 CFR 50.54(x) & (y).

Discussion/Examples:

The periodic use of security scenarios during licensed operator requalification training would improve control room operators familiarity and understanding of security procedures. The additional exposure could also identify any needed procedure revisions or enhancements. Additional observations noted concerns with:

- The level of detail documented in the process for invoking 10 CFR 50.54(x) and (y);
- Whether or not the procedure descriptions of responsibilities for Operations, Security and the ERO are sufficient to effectively implement 10 CFR 50.54(x) and (y);
- Not practicing implementation of 10 CFR 50.54(x) and (y) in operations training.

b. Observation:

Hostile action readiness and capabilities level of integration into the EP program.

Discussion/Examples:

There has been significant effort expended in developing the capabilities necessary to successfully conduct an HAB exercise; procedures were revised; new procedures were developed; new checklists were developed; additional training was performed; new equipment

was added; etc. These items should be integrated into a licensee's EP program to maintain ERO proficiency with the new skills and capabilities, and to support knowledge management. The following were noted as possible topics to be integrated into ERO training, drills and exercise efforts:

- Use of the procedures and checklists developed in support an HAB event;
- Use of the new equipment added to EP inventories;
- Schedule HAB drills/exercises periodically throughout the 8- year exercise cycle;
- Include HAB event response in licensed operator simulator training;
- Include security supervision in operator simulator training;
- Invite OROs/LLEAs to observe operator simulator training; and.
- Provide opportunities for ERO management to demonstrate their role in the dispatch and tracking of ERO personnel to the site, and the expected actions of dispatched ERO personnel during an HAB event.

3.4 Incident Command Post (ICP) Coordination/Support

a. Observation:

The use of competent, capable and experienced Incident Commanders (ICs) and ICP liaisons showed a common belief in the level of importance of the HAB exercise demonstrations.

Discussion/Examples:

A key objective of the HAB exercise is the coordination with offsite first responders to mitigate the onsite events. This coordination is normally the responsibility of the IC. Noted practices that supported and demonstrated this strong coordination included:

- The licensee's choice of capable and experienced ICP liaisons to the IC in key plant areas of security, operations, and health physics; and,
- The use of pre-assembled kits containing user aids, such as site maps, to support the liaison briefing of ICP personnel and display significant plant information.

b. Observation:

Exercise prestaging made personnel, equipment or other resources available prior to when they would be truly available.

Discussion/Examples:

The short duration of exercises necessitates the pre-staging of personnel, equipment and other resources to ensure sufficient time is available to:

- make personnel participation worthwhile,
- provide suitable practice using equipment, and
- identify and make appropriate use of all available resources.

However, making personnel, equipment, and other resources available before they would realistically be available during an actual event could constrain the overall effectiveness of the training. Realism is necessary to properly demonstrate decision making skills that would be of substantial impact during an actual event, and needed program enhancements could go unrealized if available resources and associated timelines are not realistically incorporated.

3.5 Communications

a. Observation:

Coordination of communications between multiple facilities and using a commonly understood language.

Discussion/Examples:

Coordination of communications and establishing a commonly understood language for those communications is a routine challenge in the conduct of all EP drills and exercises. The addition of the ICP and alternate ERFs created additional groups through which communications need to be coordinated. Additional challenges were also presented by the need for all players to use universally understood terminology. Some of the challenges associated with communications included:

- Terms used by Security and law enforcement;
- Informing/coordinating ERO damage control team movements/actions with the ICP;
- Field Monitoring Teams (FMTs) were dispatched without ICP coordination; and,
- Credentialing of FMT personnel.

b. Observation:

Effective tracking and communication of priorities to all ERFs.

Discussion/Examples:

New ERF's were required to support the demonstration of the HAB response capabilities. This complicated the task of aligning site priorities and ensuring a common understanding such that time critical actions were not missed or delayed. A tabletop drill/exercise was suggested to identify any needed revisions or enhancements to communication processes, and to ensure they address the following questions:

- who is in charge;
- who is responsible for setting priorities;
- who has the needed assets/resources and where they are;
- what are the current security restrictions for personnel movement;
- who is the source of the task;
- what is the expected communication method;
- what is the communications system being used

c. Observation

Activation of the security bridge line with the NRC.

Discussion/Examples

10 CFR 50.72(c)(3), 10 CFR 50.54 (hh)(1)(ii) and 10 CFR 73.71(b)(1) describe the events when the NRC may request a licensee to maintain an open and continuous communication channel with the NRC Operations Center. Licensees need to ensure that either the emergency plan or the security plan provide for a communicator to maintain this continuous communication line during an HAB event. Regulatory Issue Summary 2009-10 "Communications Between the NRC and Reactor Licensees During Emergencies and Significant Incidents" provides additional

information on initiating and maintaining continuous open communications lines, and also describes the types of information the NRC may request from licensees during an emergency.

In one exercise, it was observed that the security bridge line with NRC was not established for at least an hour and 24 minutes after being requested. When the shift manager contacted the security shift supervisor (SSS) to request a security officer to establish the security bridge with NRC, the SSS stated he had no one available and did not immediately recommend an alternate course of action to get the bridge established.

d. Observation:

The Joint Information Center (JIC) preventing the potential release of sensitive and safeguards information.

Discussion/Examples:

The potential to release security sensitive or safeguards information to the public in an HAB event necessitates that licensees coordinate with law enforcement public information resources. The JIC is responsible for ensuring that they do not release information that compromises the situation or aids the adversary. HAB exercise guidance states there is no need to include sensitive or safeguards information in the scenario and cautions against their inclusion. However, because the use of security sensitive and safeguards information controls is relatively infrequent for many ERO and ORO members, additional guidance and controls for its handling would be of benefit, such as:

- incorporating additional training and job aids that describe what is considered sensitive and safeguards information;
- development of procedural protocols for vetting news releases for sensitive and safeguards information;
- establishing controls to prevent posting of sensitive and safeguards information on WebEOC; and,
- providing guidance on information that can and cannot be released to the media during a security event.

e. Observation:

Impact of social media posts.

Discussion/Examples:

An HAB event is likely to draw public attention from the start, especially if there are large smoke plumes, sounds of gun fire or numerous emergency response vehicles responding to the site. Social media posts are should be expected to occur. This was recently demonstrated on May 9th, 2015, during an actual event at Indian Point Energy Center. At 5:50 p.m. a transformer fire was detected by onsite personnel. By 5:58 p.m., the first tweet was made by the public describing a huge explosion and smoke at Indian Point; three minutes before the control room declared a notice of unusual event at 6:01 p.m.. By 6:06 p.m., photos of smoke rising from Indian Point were already posted on Twitter. The speed at which social media information now travels should prompt licensees to consider necessary changes to current processes used to disseminate public information.

References

NRC Bulletin 2005-02 "Emergency Preparedness and Response Actions for Security-Based Events." (ADAMS Accession No. ML051740058)

IN 2007-12, "Tactical Communications Interoperability between Nuclear Power Reactor Licensees and First Responders," dated March 15, 2007 (ADAMS Accession No. ML070710233).

Nuclear Energy Institute (NEI) 06-04, Rev. 2, Appendix A, "Exercise and Exercise Objectives", dated August 2011 (ADAMS Accession No. ML12125A341)

Regulatory Guide 1.214, "Response Strategies for Potential Aircraft Threats," dated July 2009 (ADAMS Accession No. ML091740646).

RIS 2009-10, "Communications Between the NRC and Reactor Licensee During Emergencies and Significant Events". (ADAMS Accession No. ML091480101)