

October 19, 2000

MEMORANDUM TO: Glenn Tracy, Chief
Operator Licensing, Human Performance and
Plant Support Branch, NRR

FROM: James R. Creed **/RA/**
Safeguards Program Manager
Division of Reactor Safety

SUBJECT: LESSONS LEARNED - DUANE ARNOLD (DAEC) OSRE

I am forwarding these comments as requested by Mr. Gillespie. The following observations, comments, and suggestions were identified during the initial OSRE under the draft guidance provided in the draft memo you forwarded to Region III on September 6, 2000, entitled "Conduct, Agenda, and Rules of Engagement for Operational Safeguards Response Evaluations." The comments are grouped according to the **bold** headings in that guidance memo.

Lead Office

The "schedule and agenda" for this inspection was finalized the Friday before this inspection began. If a schedule and agenda must be developed (not part of the routine inspection process) it should be **finalized at least a week prior** to the actual start of the inspection.

Due to the current sensitivity of these inspections, I strongly recommend the **NRR Safeguards Section concur in the OSRE inspection plan**. This will insure that the most current thinking or direction about program implementation is being used and that each of the Regions' performance is consistent with the others. Your concurrence will also validate the efficient utilization of NRR resources during these inspections.

Scheduling and Selection Process

This final overall **schedule should be coordinated, discussed and finalized** not later than November 3, 2000. Region III proposes their schedule as the Duane Arnold OSRE conducted September 18 - 22, 2000, and an OSRE at D. C. Cook on January 8 - 12, 2000. Although several other baseline inspections will be done in Region III under the provisions of IP 71130.03 (without force-on-force) as already scheduled, only the two listed above will be "OSREs" done under the provisions of IP 81110 and included force-on-force exercises.

Once the schedule is developed, this section of the guidance should be modified to simply say, "see attached schedule," and **provide a process by which modification to the schedule can be made**, by either NRR or the Regions.

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Because this is a true Team Inspection, each inspection should be **led by a senior security inspector at the GG-14 grade**. The assigned cognizant security inspector should be part of the team.

NRC and industry observers should be kept to a minimum, as they were at Duane Arnold.

Inspection Procedure

This section of the guidance memo should be rewritten as it **lacks the clear detail** needed to develop a specific inspection plan or “schedule and agenda.”

The Inspection Plan agreed upon for DAEC was not IP 81110 and it was not IP 71130.03. It was an “ad hoc” compromise agreed upon between NRR and Region III, on September 21, 2000. NRR Safeguards explain that **only specified sections of IP 81110 may be used**, and that the Regions may **ADD** relevant portions of IP 71130.03 at their discretion as resources permit.

The following is the relevant portion of the final inspection plan for DAEC. We intend to use it for D. C. Cook in January 2001, unless modified.

IP 71130-03-02.01a-e	Inspection Planning
IP 81110-02.02a-b	Preliminary and Onsite Target Analyses
IP 71130-03-02.02a	Intrusion Detection System
IP 81110-02 a-b	Management Overview of Protective Strategy
IP 81110-04 a-c	Table-Top Drills; Contingency Exercises, and Licensee Exercise Critiques
IP 81110-10 a-c	Licensee Management and OSRE Team Meeting
IP 81110-11 a-b	Preliminary Exit Meeting and Exit Meeting
IP 71130-03-02.03	Identification and Resolution of Problems

NRR and Contractor Support

The **role of NRC contractors** prior to, during and after an OSRE **needs to be established or clarified**. The role of the NRC contractors was challenged by the licensee. They variously indicated that the NRC contractors were acting as insiders, possessed more expertise (because of their participation in previous OSREs) than would be possessed by others, and were far more expert in the use of weapons, tactics, and explosives than would be a real threat. During this inspection, our contractors actually (in a very limited way) helped plan the offensive strategy. Guidelines for their participation needs to be established and documented. After discussion, I offer the following three potential roles for your consideration:

Role (A) “Scenario Development.” One NRC contractor should play the role of the “adversary manager” and provide guidance and planning assistance to the actual adversaries. The NRC contractor along with the licensee’s selected adversaries would **jointly develop the evaluation offensive strategy (EOS)**. The “manager” would have no active role, but would assist by providing entry points and targets,

routes of attack, operational instructions or plans, and direction regarding what information was needed from the insider, etc. Guidance should be developed allowing and limiting activities. NRC would then evaluate the adversaries ability to tactically implement the EOS.

Role (B) “Observation and Evaluation.” NRC contractors would provide only entry location and target set goals. The licensee’s selected adversary team would then develop an EOS on their own. **The NRC contractor(s) would then evaluate the adequacy of that EOS to meet established criteria.** All observations would be handled within our current assessment process and provided to the licensee as such. Should the **determination be made that the EOS was not adequate** to provide an adequate demonstration of the licensee’s ability to implement their strategy a decision would be made that the response being demonstrated being run against an inadequate EOS would **NOT be one of the minimum of four required** by the guidance. NRC contractors determined that, based on their NRC OSRE experiences about 25% of the adversary-developed offensive strategies have been adequate and 75% have been inadequate.

Role (C) “Direct Participation.” Let our contractors actually **act as adversaries** with in the limits established in the “OSRE Adversary” document. Their activities would be monitored by licensee controllers.

(NOTE: When discussed with the licensee’s security specialists, our contractors, and managers and directly with the adversary team used during this OSRE, their response to me was unanimously in favor of **Role A.**)

Because this is a true team inspection, it should be planned, led, and team performance evaluated by a **Regional GG-14.** If different from the team leader, the assigned cognizant security inspector for that site should participate.

Adversary Characteristics

The guidance contains no direction on **how conflicts or questions** relative to the OSRE Adversary document **should be resolved** during an inspection. The ad hoc direction we received from NRR on September 14, 2000, as documented in my email dated September 8, 2000, should be incorporated into the written guidance.

The **OSRE Adversary document is inadequate.** It did not address the use of several common tactical techniques, equipment, and capabilities. During this OSRE several commonly available equipment and techniques were not used because they were not on the list and not readily available onsite. This resulted in an unrealistically contrived evaluation process.

The **OSRE Adversary document was in error** in the description of “limited” previous usage of some equipment and techniques. Some of the important adversary characteristics were used several times. Future revision of the OSRE Adversary documents should be

provided to NRC contractors for their review prior to issuance. **The current document was apparently not reviewed by NRC contractors.**

The licensee's contractor stated that, during a **previous OSRE, a member of the OSRE team determined** that the delay time of a specific type of delay barrier was "x" minutes. The NRC contractors and the licensee's contractor decided that the time was more realistically less than "y" minutes. **The OSRE Adversary document must be revised to include delay times of types of barriers.** The OSRE Adversary document should also specify that previous determinations made by licensee or NRC staff are superceded by this document.

Guidance must be established regarding **access to the plant** by adversary team. On one hand guidance says only **tour** offered to public, yet specialized tours are arranged frequently, and may be easily within the ability of an **insider** to arrange.

Guidance must be developed and documented identifying the capabilities "**design basis insider.**" This is an issue that will **likely impact the conduct of each OSRE.** The licensee at DAEC offered that we actually simulated more than one insider. The licensee claimed that NRC used as many as six insiders in this effort: TS Engineers, NRC resident inspector; table tops exercise participants, NRC security inspector; site security director, and the NRC contractors. Once you have developed this interim guidance, OSREs should then be run only with those capabilities.

The OSRE Adversary document or inspection procedure should be modified to indicate that **only equipment, people or procedures described in the security plan can be used** in response. In this case, the licensee had several barriers, covert surveillance devices, etc. that were critical to a successful defense strategy, but were not required to be used. **If the decision has been made that the adversary team must be limited to that which is on a written document, to insure consistency, the same must apply to licensees.**

The licensee did not disclose all elements of their response strategy during preparatory discussions of the licensee's defensive strategy. Full disclosure of all elements of the process must be forthcoming.

Pre-OSRE Meeting (Change to Inspection)

The primary focus of this meeting **should be changed from coordination to inspection.**

A meeting was held at DAEC three days before the OSRE to evaluate and validate the licensee's target sets. The meeting did not address proposed scenarios nor did it focus on the schedule. Although the late timing of this meeting was due to unusual exigencies specific to this inspection, it was clear that this meeting **should occur about a month before** the inspection. The target set (TS) meeting took about eight hours and utilized three NRC inspectors (two NRR engineers and the Senior Resident inspector).

Based on our DAEC experience, **the focus of the pre-OSRE meeting should be changed** to include: (a) validate and agree upon all possible target sets against which scenarios can be run; (b) a discussion of the OSRE Adversary document with the goal of resolving questions at least two weeks prior to the exercise; (c) discussion and finalization of the general inspection plan and schedule; (d) discussion of and establishment of a communications protocol that can be used by either the licensee or NRC to address process questions; and (e) identification of an insider.

I strongly recommend that **scenarios NOT be established** at the pre-OSRE meeting. It seems prudent to allow the adversary team access to the information produced from this effort so they may have a reasonable amount of time (two weeks minimum) to plan their **offensive** scenarios.

Scenarios should be developed by the adversary team, as guided by NRC, and provided to the licensee in sufficient time to allow coordination of their resources and safety planning for controllers. We recommend that our inspection team be directed that the **scenarios should be provided to the licensee by 10:00 am the morning of exercises** that should begin about 5:00 p.m. (about seven hours prior to the exercise). The licensee's corporate director of security thought that the licensee should have four to six days to prepare for the exercise.

At a minimum, this pre-OSRE inspection activity should be conducted by an NRR Safeguards Engineer, the Team Leader, the cognizant security inspector (if different from the Team Leader), one NRC contractor, and the SRI or RI.

This experienced demonstrated that specific **TS criteria of NRC (level of detail) must be provided** to the licensee before this meeting in sufficient time to allow them to develop the information for the meeting.

The observed process was somewhat disjointed and lacked efficiency. Although the process eventually achieved the minimum results necessary, the details of several target sets were not examined. The process for evaluating and/or validating TS should be included in **a separate inspection procedure** that provides guidance and criteria for conducting the evaluation and for documenting the results.

Licensee representatives should **not be requested to initial or sign documents** produced pursuant to the meeting. The documents produced from this meeting (final TS) were variously described as notes, work papers, and not formal commitments. The licensee's engineers were requested to initial those NRC work documents to insure that disagreement regarding the target sets the following week would not occur.

Entrance Meetings

The licensee should be requested (ahead of time) to provide a **list of known drill artificialities** at the entrance meeting.

At DAEC the licensee utilized several pieces of equipment that are not committed to in their security plan. The absence of that equipment would have had a significant adverse affect on their ability to prevent loss of target sets, much like the absence of specific equipment on the OSRE Adversary document would have on the adequacy of the exercise. The **licensee should be informed** that they cannot use equipment that they are not committed to in their security plan. This is consistent with the current guidance relating to limitation placed on adversaries by the OSRE Adversary document and the fiat that only the number of responders stated in their plan could be used.

Exit Meetings

Exit interviews **should be conducted the same as any other Region based inspection exit** and not like previous OSRE exit meetings. This direction was agreed to NRR during this OSRE and should be included in the guidance document.

Observations about the protective strategy, exercise performance, and evaluation results should be run through the **IMC 0610* process** to determine if they are Finding, and if so, should be run through the **IMC 0609 SDP process** and **categorized as such during the exit meeting**. This should be added to the guidance document.

Target Sets

The examination of licensee's target sets **should be inspection effort, not preparation**. An inspection procedure should be written outlining expectations and the type of information to be examined. Criteria for determining the acceptability of the licensee's target sets should be included, and provided to the licensees well in advance.

The effort to evaluate and validate TS appears **best completed by NRR Safeguards Engineers**, assisted by the SRI or RI. Keeping the expertise involving reactor operations as integrated with security and threat related concepts **focused in one or two specialists** fully supports Mr. Collins' Performance Goal of "Increasing efficiency or effectiveness of key NRC processes." Attempting to provided training to 8 or 10 regional SRAs and the use of their limited time to this process is inefficient. Attempting to educate 70 or so SRIs or RIs on the necessary security details also appears inefficient. It also opens opportunity for seventy times the amount of inconsistent application of a significant "Key NRC process." If there can be any **exception to Mr. Collins' edict that NRR will not inspect, it appears that this should be it!**

Additional inspection guidance is needed regarding the "**operator actions**" that must be included in target set documentation.

Credit for Operator Actions

See above. Any operator actions to be considered must be documented as indicated.

Exercise Artificialities

Once established (and provided at 10:00 am) of the day of the exercise, scenarios should not be changed unless a process is followed. The process can be used by only the adversary or the licensee controllers. The process will include the reason for the change, it's impact on the evaluation and an evaluation by the NRC team leader that the inspection goals would still be met. Specific exercise artificialities must be provided during a pre-exercise briefing.

Gave scenarios to Licensee about 1:30 pm, which is too late to efficiently run an exercise at 5:00 pm. Timing was contingent upon completion of table tops. **Table tops should be run a month in advance** of the actual exercise inspection.

The licensee indicated that the adversaries changed entry point and their route to the target sets 15 minutes before the exercise which caused problem for the controllers. The changes were apparently based on the evaluation by the NRC contractors that the selected entry point was unrealistic and would likely result in failure.

Each exercise critique was completed in excruciating detail (i.e., each player and controller describing everything they did). Licensee did it that way because that's what they thought we wanted and that is what their contractor told them we wanted. That's the way it's always been done.

Success Criteria

The last portion of this section should be clarified. It should simply say that any specific performance observations resulting from this inspection work should be evaluated and handled in accordance with the criteria outlined in IMC 0610* and the security portion of IMC 0609, Appendix E.

Significance Determination Process

See above.

Enforcement

No comments

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