



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

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MEMORANDUM TO: William D. Travers,  
Executive Director for Operations (EDO)

FROM: Captain David N. Orrik, USN (Ret.)  
Security Specialist, NRR

SUBJECT: DIFFERING PROFESSIONAL OPINION REGARDING NRC'S  
REDUCTION OF EFFECTIVENESS AND EFFICIENCY IN THE  
"STAFF RECOMMENDATIONS" OF THE FOLLOW-ON OSRE  
PROGRAM FOR NUCLEAR POWER PLANTS

This Differing Professional Opinion (DPO) protests the "staff recommendations" for a follow-on program to the operational safeguards response evaluation (OSRE) program. The "staff recommendations" are forwarded in SECY 99-04 of January 22, 1999. They are weak and non-committal, and will reduce the effectiveness and efficiency of the nuclear power industry's counter-terrorist capability. Specifically, these recommendations would not assure that nuclear power plants can meet the requirements of 10 CFR 73.1 and are capable of protecting against the design basis threat for radiological sabotage.

This DPO also identifies that the NRC commitment to Congressman Edward Markey has not been met. On December 15, 1998, the NRC Chairman stated, in part, to Congressman Markey that, "The goal of the staff's re-evaluation is to identify **more effective and more efficient** methods of testing licensees' contingency response capabilities..." The draft "staff recommendations" are, by far, **less effective and less efficient**.

Two specific alternatives to the "staff recommendations" are provided. The following NRC staff have read and personally support these alternatives: Thomas W. Dexter, Senior Security Inspector, Region IV; Dennis W. Schaefer, Security Inspector, Region IV; A. Bruce Earnest, Security Inspector, Region IV. These safeguards inspectors unanimously agree that the draft "staff recommendations" are, by far, **less effective and less efficient**.

Chronology of Events:

1. In the summer of 1998, the Office of Nuclear Reactor Regulation (NRR) decided to terminate the OSRE program at the end of the fiscal year. It was so terminated. There was no formal, written announcement.
2. In August, 1998, two differing professional views (DPV) were submitted to the Director, NRR, protesting the cancellation.

3. In November, an NRR DPV panel recommended the program be terminated pending resolution of other issues. (This DPO protests this decision of the DPV panel.)
4. In November, the NRC Chairman, learning of the program's cancellation from public, congressional, and administration (National Security Council) sources, directed the staff to reinstate the OSRE program.
5. In December, NRR submitted a proposal for a follow-on program to the OSRE. (This DPO protests part of the "staff recommendations" in the OSRE follow-on program.)
6. The following issues are included in this DPO:
  - A. The decision of the original DPV panel was incorrect and was not responsive to the basic mission of the NRC - To Protect the Health and Safety of the Public.
  - B. The four (4) NRR "staff recommendations" were: (1) Specific only with respect to target-identification, and non-specific as to the actual purpose, criteria, and frequency of the follow-on program; and (2) the "next best thing" to a program cancellation. Unspecified parts of the recommendation include:
    - Eliminating the experience and skills provided by the NRC contractors.
    - Replacing the present 7-person OSRE assessment team with one NRC "observer".
    - Allowing the industry to determine the content and frequency of the evaluation/exercises.

These program-modifications included with the "staff recommendations" would, in effect, replace a strong, expert team evaluation with one person, lacking the necessary, special expertise, to rubber-stamp licensees' self-determined efforts. The draft recommendations are enclosed.

#### Alternatives for NRC's Follow-On Program

Two specific alternatives for a follow-on program are suggested. The first alternative (recommended) retains NRC control of the evaluation, but at the region level, eliminates one NRR FTE/position, and retains the core experience and skills of the contractors.

## BACKGROUND

On August 7, 1998 two DPVs were submitted protesting NRR's decision to eliminate operational safeguards response evaluations (OSREs) at the end of the fiscal year. OSREs focus on the ability of nuclear power plant to protect against a "violent external assault" aimed at causing radiological sabotage (10 CFR 73.1), with equivalent consequences of Chernobyl. In effect, it is the only program NRC has that directly focuses on the terrorist threat against nuclear power plants, whether by overt or surreptitious attack. The heart of this program is nuclear power plant security force demonstrations of their armed response capability in onsite force-on-force exercises. Significant weaknesses were identified in 27 of the 57 plants (or 47%) evaluated to date. "Significant" here means that a real attack would have put the nuclear reactor in jeopardy with the potential for core damage and a radiological release, i.e., an American Chernobyl.

The OSRE methodology states that the OSRE team "assumes that significant radiological release would be the objective of power reactor radiological sabotage and uses prevention of significant core damage as an evaluations criterion." The methodology also provides the four sub-criteria that the OSRE team uses to evaluate the licensee's response capability; "the ability of responding officers to arrive at suitable interdicting positions in timely fashion, in sufficient numbers, and appropriately armed and equipped;" Simply put, if a licensee fails to meet the four security sub-criteria, they have a significant weakness in their ability to protect against radiological sabotage. Twenty-seven plants, in 40 exercises, failed to meet these four sub-criteria. Moreover, the strategy and/or execution involved in those exercises were clear and convincing evidence of an inability to protect vital equipment against the design basis threat. These weaknesses occurred despite a 6-12 month advance notification of the OSRE date and (unchanging) schedule of events. Acting under NRR guidance, only the security weaknesses, and not their operational impact, were normally included in the final NRC report. All of these security weaknesses have been corrected.

The "staff recommendations" egregiously misstates/mitigates the failure of the industry to protect critical vital equipment as demonstrated in OSREs. The "staff recommendations" paper states that "the program identified a number of minor weaknesses and some significant weaknesses in licensee performance." (see page 1) This is expanded (on page 3) where it is stated that, "...OSRE teams identified weaknesses at 27 plants; some of these weaknesses related to failures to prevent mock adversary forces from gaining access to vital equipment." In fact, all of weaknesses, not "some", related to a demonstrated inability to prevent mock adversary forces from gaining access to vital equipment which could, if sabotaged, cause core damage and radioactive release. For example, 14 of these plants were unable to prevent mock adversary forces from gaining (simulated) access into reactor containment! That is not a minor weakness. (All weaknesses have since been corrected.) Security forces at twenty seven plants were not able to deny (mock) intruder entry and (simulated) radiological sabotage in one or more onsite exercises.

A second part of this program are "assist visits" to NRC regional inspections of plants. In these inspections, the OSRE team contractors physically challenge/test the perimeter sensors, camera

systems, and access control systems ability to detect and identify attempts to enter the plant undetected. These tests are focused on that part of the design basis threat for radiological sabotage (10 CFR 73.1) that stipulates "...attack by stealth..." The OSRE team has defeated perimeter and access control systems (i.e., were not detected) by unsophisticated - but knowledgeable - means. Most, but not all, of these identified weaknesses have been corrected.

All nuclear power plants write physical security plans (PSPs) to meet federal regulations governing the protection of their plants which NRC approved before the plants were licensed to operate. NRC then, except for OSREs, inspects for compliance with these plans. OSREs however, were intended to be tests of a plant's capability, not its security plan. The criterion for OSREs is regulatory, i.e., the design basis threat for radiological sabotage as defined in 10 CFR 73.1. Regional "assists" however, are based in compliance with the security plan, although challenge testing, utilizing the capabilities of the design basis threat is performed as well. Of the 40 weaknesses identified at 27 of the 57 plants having had an OSRE to date, and the over 600 weaknesses identified in over 30 "assist visits" and in 70 OSRE predecessor evaluations (called Regulatory Effectiveness Reviews, or RERs), over 90% were beyond plan commitments and, therefore, beyond normal NRC compliance measures, e.g., NRC could not cite and fine them. However, all weaknesses in OSREs and RERs were within the scope of the design basis threat and have been corrected. For example, in 54 of the 57 OSREs, the average plant used 82% more armed responders than they commit to in their plan. Therefore, they cannot be cited for a violation of their plan if they reduce their response force to their plan commitment. The Chairman, advised of this situation, decreed that the remaining 11 OSREs would be conducted with the number of responders in the plan. This high frequency of plants with weaknesses occurred after every plant had from 6 to 12 months advance warning of their OSRE date. Plant security directors have advised that they spent from \$140k to \$1.5m getting ready for their OSRE. They sent observers to prior OSREs. They conducted a target analysis, evolved a (new) response strategy, tested and validated it, made physical modifications to delay armed intruders and to protect their responders, and trained and exercised their shift response forces.

This is nothing less than evidence of an abject failure by the nuclear industry to be capable - by themselves - of protecting against radiological sabotage. It took the threat of an OSRE to make them prepare to be "ready", and 47% still were not "ready" to protect against the design basis threat for radiological sabotage. Yet, on page 3 of the "staff recommendations", it is stated that the "...Task Force concludes that the industry can assume more responsibility for performance assessment of tactical response capability, thereby reducing the NRC's role in the assessment while preserving the same level of confidence in the final product." That is not a conclusion; it is a preference (by portions of NRC staff). A conclusion rests on data, events, evidence of some sort. All the evidence since 1982 overwhelmingly demonstrates that, without the pressure of NRC's RERs or OSREs, the nuclear power industry has failed to assure protection against radiological sabotage. And now there is increasing pressure throughout the nuclear power industry to reduce costs, and security forces are taking direct hits; reduction in annual budgets, reductions in number of security officers. A countervailing pressure is necessary.

"Assist visits" by the OSRE team are, however, conducted/led by regional inspectors who are allowed to inspect only for compliance (with the security plan). As a result, weaknesses identified by the team (using the capabilities of the design basis threat) frequently fall into the category of "beyond security plan commitment." Therefore, correction of these is not required!

There have been threats against nuclear power plants. NRC has also just eliminated \$400,00 for NRC's portion of the jointly funded NRC/Department of Energy (DOE) Communicated Threat Credibility Assessment Team (CAT). The CAT has been a long-established, effective program for responding to certain threats involving NRC licensed facilities. The CAT provided a mechanism for coordinating with DOE and the Federal Bureau of Investigation (FBI) during a nuclear threat response. NRC has a long standing commitment to the FBI in a Memorandum of Agreement. Both DOE and the FBI wrote strong letters of protest that urged the NRC to restore funding, support and participation. Further, this action flies in the face of significantly increased Federal emphasis and commitment of resources and money to respond to threats and incidents involving chemical, biological, nuclear, and radioactive materials, i.e., weapons of mass destruction. An NRC panel, responding to a DPV, recommended NRC resume "full-fledged participation" in the CAT but "vigorously pursue alternative funding mechanisms"... In yet another action, NRC staff has degraded its capability to assure proper analysis and action in the arena of anti-terrorism. This is just another example of the low priority that NRC places on anti-terrorism.

The Government Accounting Office (GAO), in their 1977 report to Congress titled, "Security at Nuclear Powerplants — At Best, Inadequate," also noted the inadequacy of plants' security plans and recommended that NRC should (inter alia);

"Authorize and encourage inspectors to go beyond approved security plans when appraising security systems and implement a timely procedure for correcting deficiencies" and,  
 "Develop and implement additional procedures to provide greater assurance that inspections are consistently thorough and make unannounced inspections."

Licensee security plans have been demonstrated to NOT be sufficient, and may never be. Compliance (with security plans) has been demonstrated over 17 years of testing to be an insufficient tool. GAO noted that in 1977, and it has been thoroughly documented by the over 150 inspection results noted above that took place between 1982 and 1999. In view of this, the NRC should reconsider its misleading April 2, 1998 response to the Justice Department's (DOJ) "5-year Inter-Agency Counter-Terrorism and Technology Crime Plan Survey." Item B1 called for the following to be addressed: "Deterrence, prevention or response to physical attacks on critical U.S. Infrastructures." The NRC response was; "Commercial power reactor facilities are required by NRC to protect against radiological sabotage. Fuel facilities which possess NNNM must protect against theft of material. As such, NRC regulations require the development, maintenance, and implementation of contingency plans for response to malevolent events." This infers that the contingency plans provide adequate "deterrence, prevention, or response..." Yet 27 of 57 nuclear power plants were not able to demonstrate - by their own efforts - that they could provide adequate response "to physical attacks on critical U.S. infrastructure." And the

question comes to mind; for how many years had that situation existed?

Further, all of these inspections were announced well in advance. They were, however, consistent. All of the 57 OSREs to date have had the same basic schedule of events (times varied, not events). And all were tested with the same design basis threat. However, the test did not utilize the full capabilities of the design basis threat as stated in the regulations; NRR management had also placed other (unwritten) restrictions on the threat.

The OSRE team on site consists of 7 people to enable the team to evaluate the efforts of several attackers going to several locations (targets), the many responders coming from different, scattered positions to different interdicting positions, and the command and control from security and operations. A (simulated) attack on a nuclear power plant is a very fast moving and complicated event. To evaluate these attack/defense scenarios, the OSRE team consists of: 2 security specialists and 1 nuclear engineer (for target analysis) from NRR, 1 NRC regional security inspector, and 3 contractors. The very nature of these (simulated) violent exercises requires specialized experience and training in the core evaluators. Each of the contractors has had 8 to 14 years of intense specialized military training and exercising, and field operations in the elements involved in OSREs and regional "assist visits." They are experienced in small force combat tactics, communications, command and control, use and capability of automatic and military weapons and explosives, explosive entry, ballistics, and barrier penetration. The NRC provides them with training in perimeter sensor and access control equipment, although they provide the physical skills - and age - to perform challenge testing in these areas. Also, because of their previous training and qualifications, we are able to conduct annual training and field testing at a government site in areas, e.g., ballistics and explosive entry, to keep abreast of the latest modifications that licensees have made to their plant. For example, how much of a time delay did the plant gain by a specific hardening of a portal? Did they delay "adversaries" long enough to enable security officers to reach an interdicting position?

To become proficient and expert (more so than the licensee being evaluated) in all of these takes considerable time - years - as well as annual retraining and field testing. There are some NRC personnel with prior relevant military experience, but they are in the minority and approaching retirement age. Our contractors are recognized in the industry as expert in these areas, in fact more expert than the licensees. They provide instant credibility to OSRE findings. NRC inspectors have neither the long and relevant experience and training of the contractors, nor the physical abilities necessary to challenge perimeter systems and to run, climb with, and observe, mock terrorists or responders in OSRE exercises.

The OSRE team and the OSRE process, besides being recognized as expert and effective by the U.S. nuclear industry, has received the ultimate compliment; it is being copied. The nuclear regulatory agencies of the governments of five other countries, after their representative have observed an OSRE or regional assist, are copying all or parts of it.

I learned of the elimination of the OSRE program in the summer (1998) by word of mouth from my Division Director. NRR had just crossed it out of their budget. There was no written cancellation or notification.

My August 1998 DPV was formally supported by 9 NRC regional security inspectors, three of whom also saw fit to submit their own DPV protesting the elimination of the OSRE program.

The NRR panel, in November 1998, recommended terminating the program pending review of the kind of program needed in this anti-terrorism arena.

The Chairman, learning of the program elimination in November from the media promptly directed the NRC to reinstate the program, and called for a review of what was needed. The "goal of the (NRC) staff's re-evaluation", as stated by the NRC Chairman in a December 15, 1998 letter to Congressman Edward Markey, "is to identify more effective and more efficient methods of testing licensees' contingency response capabilities..." The NRC has a staff of over 2,000 people and a budget of about \$500m; the OSRE program normally costs 3 full-time people (now reduced by NRR to 2 full-time and one part-time - about 20%), a contract of \$90k per year, and about \$20k for field-testing. The "product" can be measured in terms of 57 nuclear power plants that now should be able to demonstrate the ability to protect against the design basis threat. Questions to consider are:

- (1) In view of the considerable efforts that virtually all plants took before their OSRE, how many nuclear plants would have "significant weaknesses" identified in their OSRE - beyond the 27 that did - if the OSRE had been unannounced?
- (2) Since the full DBT was not utilized during the first 57 OSREs, should not it be utilized in the next eleven and in the succeeding OSRE-replacement?
- (2) What will NRC do in the future to counter the ubiquitous, increasingly intense pressure in the nuclear power industry to cut security costs, especially personnel costs?
- (3) Why "fix" something that isn't broken? The OSRE program and concept costs the NRC very little, and is "facilitating" a drastically higher level of protection at nuclear power plants than existed when the industry was left to "regulate themselves".

## THE FUTURE

NRR, in December 1998, submitted a recommendation for a follow on program. This "staff recommendation" was only the position of NRR management - which terminated the program in the budget process, and is planning on terminating the \$90k contract - and four task force member of NRR staff, none of whom signed a DPV protesting the OSRE termination. None of the NRC inspectors who did sign a DPV participated in the draft NRR recommendations.

The first two recommendations are specific with respect to target-identification, and are appropriate and needed. However, the 3<sup>rd</sup> and 4<sup>th</sup> recommendations are non-specific as to the actual purpose, criteria, and frequency of the follow-on program. It appears to be the "next best

(i.e., worst) thing" to eliminating the OSRE program, if that is the intent. Although not specifically mentioned in the recommendation, the plan includes: canceling the OSRE contract, eliminating the experience and skills the contractors provide (that NRC does not have), replacing the present 7-person assessment team with one NRC "inspector", and allowing the industry to determine the content and frequency of the evaluation. I submit that the recommendation does not commit NRC to a meaningful, strong course of action. It would, if implemented, result in a meaningless NRC rubber-stamping of whatever the industry decided it could afford. It does not take the terrorist threat seriously. While recommendations 1 and 2 actually require licensee action, numbers 3 and 4 talk about considering and developing changes but would allow licensee control and NRC observation (not control) of exercise content and prosecution.

I offer two, alternative plans-of-action. They commit the NRC to take action to compel the industry to demonstrate the capability to protect against the DBT. Rule changes may be required to meet NRC's proper role and responsibility. Both alternatives would continue OSREs until all plants had had an initial OSRE. However, in accordance with the Chairman's direction, all OSREs would henceforth require plants to use the number of armed responders they commit to in their physical security plans. The plants would also be required to specify - and commit to - any physical changes made to the plant to assist their effort to protect public health and safety. The entire DBT will be used, unlike now, and other restrictions would be reconsidered.

Both of these alternatives would not require any additional assets. In fact, alternative one would allow NRR to complete their ongoing reduction of security persons dedicated to the OSRE program to one (from two). Nor would it require that all regional inspectors be trained or experienced in the elements involved in OSREs and regional assists to become as proficient and expert as our contractors (and more so than the licensee personnel being evaluated). However, some of this specialized training would undoubtedly be of value for our regional inspectors.



## ALTERNATIVE FOLLOW-ON PROGRAMS TO THE OSRE

Both alternatives would continue OSREs until all plants had had an initial OSRE. However, in accordance with the Chairman's direction, all OSREs would henceforth require plants to use the number of armed responders they commit to in their physical security plans. The plants would also be required to specify - and commit to - any physical changes made to the plant to assist their effort to protect public health and safety. The entire DBT will be used, unlike now, and other restrictions would be reconsidered.

Alternative #1. (Recommended) The regional inspectors will request a "regional assist" for an inspection. The assist will be provided by two HQ personnel (one security, one nuclear engineer) and three expert, experienced contractors, as currently is the case. However, the regional assist would include sufficient force-on-force exercises to ensure that the licensee demonstrate their ability to interdict the design basis threat as defined in 10 CFR 73.1 Physical testing of the perimeter protection system (i.e., the intrusion detection system and the alarm assessment system) and access control systems (e.g. metal detectors) would continue to be part of the regional assist. Including these in an assist will evaluate the licensee's capability against both the violent overt attack and the surreptitious attack by the design basis threat. This type of assist shall be done at least once every 3 years. (This will mean a continuation of about 20-24 evaluations per year.) Failure to demonstrate an interdiction capability or satisfactory detection or assessment capabilities will result in an order to correct or a violation. All testing would be based on the capability of the design basis threat. Physical security plan commitments would be required to meet the challenge of the design basis threat and performance statements in the (revised) regulations

Alternative #2.. Continue the NRC headquarters OSRE team and program as it exists. Require plants to demonstrate the ability to interdict the DBT in an OSRE tailored for each site. Failure to do so will result in an order to correct or a violation (of 10 CFR73.55(a)). All licensees shall be also required to exercise their shift response forces and their site protection system on an annual basis for training and self-validation of their interdiction capability. The site protection system, including delay barriers and responder protection measures shall be included in their security plan. As a separate measure, "regional assists", which focus on the perimeter protection system, will continue to be conducted at the same frequency as OSREs, i.e., each plant would be visited every 7 years by the OSRE team for a capability readiness evaluation and also for the perimeter, etc., regional assist testing. Testing for both evaluations will emphasize the capability of the DBT (in contrast to the artificial limitations imposed in some security plans). The regional assist would also include table-top, time-line drills and may include one (or more) force-on-force exercises as an interim evaluation of the licensee's interdiction capability.

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#### EXPERIENCE:

USNAVY. 24 years. Was Frogman (Seal); Commanded a Destroyer; Combat duty in Vietnam War included one year, in-country as advisor to VNN "Junk" and River Assault Group units, and six months Naval Offshore Gunline (Destroyer); Directed U.S. Navy world-wide programs for safety & security of tactical nuclear weapons and for the security of conventional ordnance (AA&E program) and related R&D programs; Has had specialized combat and weapons training (military and civilian); and other shipboard duty; Fleet Commander staff, Board of Directors, Navy PG School Foundation.

USNRC. Hired in 1984 for 2-year term, extended in 1986, permanent status in 1987, promoted in 1988 (accretion of duties); High performance awards in '85, 90, 92, 95, & 98; RER/OSRE Team Leader 1988 to present; Have been to over 70 nuclear power plants (including ALL of those currently active in USA) with the RER/OSRE programs at least once (most twice). Have trained on physical security systems at Sandia National Laboratory and at equipment manufacturers' assembly and test facilities.

#### EDUCATION.

Graduate of, Bronx High School of Science (New York City), Columbia College (AB), Naval Postgraduate School (MS), Naval War College.

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