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MEMORANDUM TO: Chairman Diaz
Commissioner McGaffigan
Commissioner Merrifield

FROM: William D. Travers */RA/*
Executive Director for Operations

SUBJECT: INTEGRATED PLAN FOR MITIGATION STRATEGIES FOR POTENTIAL SECURITY VULNERABILITIES AND RESPONSE TO STAFF REQUIREMENTS MEMORANDUM M030411C DATED MAY 14, 2003

Attachment 1 is a list of Commission-directed actions and recommendations to the staff in Staff Requirements Memorandum (SRM) M030411C, with the status of the staff's activities in response to them.

The subject plan (Attachment 2) was prepared by the multioffice Vulnerability Assessment Team (VAT), which includes members from the Offices of Nuclear Reactor Regulation (NRR), Nuclear Material Safety and Safeguards (NMSS), Nuclear Regulatory Research (RES), and Nuclear Security and Incident Response (NSIR). The document describes the staff's plan to identify credible security vulnerabilities, assess the consequences if the vulnerabilities were exploited, and develop preventive or mitigative actions that can be reasonably and effectively implemented.

The approach the staff uses for performing a risk-informed assessment of potential vulnerabilities and mitigative strategies is described in the February 4, 2003, "Guidance for Performing Engineering Vulnerability Assessments." The staff approach includes characterization of threats, facility response analysis (including barrier analysis and systems response analysis), and consequence analysis to determine the likely range of consequences of a deliberate attack on an NRC-regulated facility or activity. The assessments will provide risk-integrated findings to support risk-informed regulatory decisions.

The plan covers the full range of NRC-licensed facilities and activities. The staff will periodically update the plan as new activities are identified, as existing activities are completed, and major milestones are achieved. Some of the significant activities that are already or soon to be completed include the following:

- the "Guidance for Performing Engineering Vulnerability Assessments" discussed above
- a report on the consequences of radioactive materials of concern used as radiological dispersal or exposure devices
- a revision of NUREG/CR-6190, "Protection Against Malevolent Use of Vehicles at Nuclear Power Plants"
- vulnerability assessment report on the use of explosives on irradiators

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The Commissioners

- site visits to four power plants in preparation for developing a cyber self assessment methodology
- a series of "white" papers describing aspects of the aircraft vulnerability study

Attachment 3 contains the threat-vulnerability matrices required by SRM M030411C in response to the April 11, 2003, closed meeting with the Commission on security issues. The matrices indicate task completion dates, threats that are being analyzed, and the results in terms of likelihood and realistic consequences. As activities progress, the staff will periodically update the matrices to inform the Commission of new results. The Commission will also be informed as preventive or mitigative strategies are developed for credible and significant vulnerabilities.

The SRM also directed the staff to become cognizant of vulnerability assessments being conducted by other government agencies and to inform the Commission how the work by other agencies is being integrated into our activities. The staff has met with varying levels of the Department of Homeland Security (DHS) to understand the role DHS intends to play in coordinating vulnerability assessment research among various sectors of the government. The NRC is represented, by staff who are also on the VAT, on a number of inter-government groups with functions related to developing vulnerability assessments or related tools. Attachment 4 describes the staff's participation in the various interagency groups and activities. These activities are coordinated by the multioffice VAT. The staff plans more coordination and liaison in this area so NRC can make maximum, effective use of studies being conducted by other government agencies. Examples of these interactions include:

- NSIR and the RES have been actively participating in the Counterterrorism Technical Support Office's Technical Support Working Group since 2000. The NRC and nuclear power industry are using methodologies and tools developed by the group.
- (S)
- NSIR has been coordinating with the Defense Threat Reduction Agency (DTRA) on DTRA's radiological dispersal device (RDD) project being conducted at Sandia National Laboratory
- NSIR, RES, and NRR have been working with the INFOSEC Research Council (IRC), the North American Electric Reliability Council (NERC), and the Federal Energy Regulatory Commission (FERC). Intrusion detection, information technology tools, and FERC's cyber protection rule all are used to inform NRC's activities.

The staff has also been working with the industry on some vulnerability-related topics:

- The staff briefed the Nuclear Energy Institute (NEI) and other industry representatives on the NRC's aircraft studies.
- The staff and NRC contractors visited plant sites for the aircraft and cyber studies and force-on-force exercises.
- NEI observed vulnerability testing and attended the Advisory Committee on Reactor Safeguards (ACRS) subcommittee meeting at Sandia National Laboratory.
- The staff briefed the National Organization of Test, Research, and Training Reactors (TRTR) owners group.
- The staff had the U.S. Army Corps of Engineers brief industry representatives on the attributes of the revised design basis threat.

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Some of these activities are also discussed in Attachment 4.

Questions regarding this memorandum or its attachments should be directed to Scott Morris, DNS/NSIR, at (301) 415-7083.

cc: SECY
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Attachments:

1. Status of SRM M030411C Actions and Recommendations
2. Integrated Plan of Mitigation Strategies for Potential Security Vulnerabilities at Licensed Nuclear Facilities and Activities, Revision 0
3. Threat-Vulnerability Matrices
4. Vulnerability Assessment Interactions

The Commissioners

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Attachment 1

ACTIONS FROM 4/11/03 CLOSED COMMISSION MEETING

SRM ACTION	OFFICE	STATUS
1. The staff should rename this effort "Integrated Plan of Mitigation Strategies for Potential Security Vulnerabilities (MSPSV)"	NSIR	Completed
2. The staff should prepare unclassified and safeguards-level versions of reports containing the results of the assessments of potential vulnerabilities and, if necessary, mitigation strategies. The unclassified reports should be made available to the public and the safeguards reports should be made available to the affected licensees after Commission approval.	All	White papers being developed on preliminary and final results to inform the EDO/Commission; classified, SGI, and unclassified/non-SGI versions for sharing with public and licensees.
3. The staff should make a threat vulnerability matrix that provides...expected completion dates.	All	Threat Vulnerability Matrix Table 1
4. The staff should make a threat vulnerability matrix that provides what threat was analyzed, the results of the analysis, in terms of both likelihood and realistic consequences.	All	NSIR (cyber)—Threat Vulnerability Matrix Table 2 NMSS—Threat Vulnerability Matrices Tables 4, 6, 7 NRR—Threat Vulnerability Matrix Table 5 RES—Threat Vulnerability Matrix Table 3
5. The staff should make a threat vulnerability matrix that provides..., if appropriate, insights on the effectiveness of current or proposed mitigation strategies.	All	TBD—as preventive and mitigative actions are developed.
[redacted] Ex 2	RES	Within scope of RES's analysis for aircraft.
7. The vulnerability matrix should be updated periodically as the research effort continues.	All	Continuing

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Attachment 1

ACTIONS FROM 4/11/03 CLOSED COMMISSION MEETING

SRM ACTION	OFFICE	STATUS
8. The Commission directs the staff to continue to seek peer review in other areas of its vulnerability assessment work. To the maximum extent practical, EPRI and affected licensees should be included in the peer review.	RES	RES developing plan for peer reviews.
9. The staff should not rely only on the use of conservative collective dose models to assess latent cancer health effects from low doses of radiation. the staff should utilize a range of potential latent cancer health effects estimates from low levels of radiation taking into account existing epidemiological studies.	RES	RES is developing a proposal.
10. The staff should become cognizant of vulnerability assessments associated with NRC regulated activities performed by other government agencies, including DOE, NNSA, and DTRA and share the work NRC is performing in an effort to prevent duplication of work.	NSIR	Participating on several interagency groups such as Technical Support Working Group (TSWG); Information Research Council; North American Electric Reliability Council; DIA; DTRA; DOE VA working group. Meetings with other countries.
11. The staff [should] report to the Commission how work performed by other agencies is being integrated into our activities.	NSIR	Developed draft CIPP action plan; expect to incorporate into integrated plan.
12. The Commission requests a demonstration of the Joint Conflict and Tactical Simulation Software (JCATS).	NSIR	Coordinating with contractor to demo.

Vulnerability Assessment Interactions

The Vulnerability Assessment Team utilizes the staff's intergovernmental interactions in the vulnerability assessment area to integrate common methodologies and philosophies when overseeing activities being accomplished at or for the NRC. These intergovernmental interactions serve to ensure that the NRC is aware of vulnerability assessment practices used by other Federal agencies and internationally. Identifying and preventing duplication of efforts and building on other Federal activities is also an added benefit of these interactions. The staff has met with varying levels of the Department of Homeland Security (DHS) to understand the role DHS intends to play in coordinating vulnerability assessment research among all sectors of the Government. The staff plans more coordination and liaison in this area so NRC can make maximum, effective use of studies being conducted by other Government agencies. The NRC has obtained vulnerability assessment methodologies and tools from the Department of Energy, Coast Guard, Federal Bureau of Investigation, Department of Defense, and the International Atomic Energy Agency. The following are descriptions of some of the many contacts the staff maintains with other agencies and the industry regarding vulnerability activities.

Interactions With Other Agencies and Governments

1. **April 2000 NRC Reactor Safeguards Section sponsored a symposium titled "Risk Informing Security"**

Participants included personnel from the industry, Nuclear Energy Institute (NEI), the national laboratories (Idaho, Sandia, and Lawrence Livermore), and the Department of Energy. Presentations were given on the vulnerability analysis (VA) methodology used at nuclear facilities, automated VA tools, performance testing to obtain statistical confidence in VA numbers at a site, available VA training, and VA work being performed for other Federal agencies and other countries.

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Ex5

2. **Counterterrorism Technical Support Office's Technical Support Working Group (TSWG)**

NSIR and RES have been actively participating in two of the seven subgroups of this interagency working group since 2000. Representation on the Infrastructure Protection and Physical Protection Subgroups has been maintained. The focus of the support office and working group is to identify requirements (preferably common to more than one agency), and procure and field counter-terrorism "tools" in the next 2 years.

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Ex5

Vulnerability Assessment Interactions

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3. INFOSEC Research Council (IRC)

NSIR and RES have been involved since 2000. The IRC is a consortium of 30 Federal agencies. They discuss their ongoing research and development projects.

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4. North American Electric Reliability Council (NERC)

Established in 1968 to ensure that the bulk electric system in North America is reliable, adequate and secure, NSIR has been regularly interacting with NERC since September 11, 2001. Clearances have been granted to NERC personnel through the FBI; this has facilitated information sharing with the NRC. NERC coordinates the sharing of the NSIR's cyber assessments at power reactors, the NRC Homeland Security Advisory System for power reactor licensees, and other pertinent documents and information.

Ex.5 [ ] Ex5

5. Federal Energy Regulatory Commission (FERC)

NSIR and NRR have been coordinating with FERC since late 2002. The industry and NEI are now commenting on FERC's proposed rule, which covers cyber protection for all electric generating stations. Personnel from NERC are also involved.

Ex.5 [ ] Ex5

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7. **Department of Energy (DOE)**

NSIR has begun working with DOE's International Programs Office to assist in performing power reactor VAs at several sites. NSIR is also working with the DOE vulnerability assessment working group in Germantown.

Ex.5 [ ] Ex5

8. **Defense Threat Reduction Agency (DTRA)**

DTRA recently briefed NSIR staff on a $2.1M radiological dispersal device (RDD) project underway at Sandia National Laboratory.

Ex.5 [ ] Ex5

9. **International Atomic Energy Agency (IAEA)**

NSIR staff has worked with an international group at the IAEA in Vienna, Austria, to develop a guidance document for power reactor VAs that uses both security and safety analysis methodologies. The document is titled "Guidelines for the Self-Assessment of Sabotage Induced Risk of Nuclear Installations" and is scheduled for publication in 2003.

NSIR is assisting the IAEA in developing mitigative measures for cyber security at nuclear power plants. This activity will result in a future guideline. A preliminary meeting was held in November 2002 in Vienna, Austria, to discuss ongoing actions and lessons learned and to establish the requirement for such a guideline.

Ex.5 [ ] Ex5

10. **Aircraft Studies**

RES has met with representatives of Germany, France, Canada, and the United Kingdom to discuss each country's respective efforts.

Ex.5 [ ] Ex5

Interactions With Industry

1. **Cyber Assessments at Power Reactors Project**

This NSIR project has been coordinated with NEI and the industry since its inception. In October 2002, a workshop sponsored by the NRC was held in Rockville, MD, to discuss the project and lessons learned from industry and to chart a path forward. NSIR staff with

 Portions Ex 5

contractors visited four sites during the project with excellent cooperation and participation from the licensees' management and staff. The project is scheduled for completion in 2003.

Ex.5 [ ] Ex5

2. **Aircraft Studies**

RES and NEI have met to discuss each other's aircraft studies. NEI attended the meeting between the Security Subcommittee of the ACRS and Sandia National Laboratory on Sandia's aircraft VA efforts for RES. Representatives from NEI and the Electric Power Research Institute observed aircraft impact tests conducted by Sandia for RES's aircraft vulnerability assessment contract.

Ex.5 [ ] Ex5

3. **US Army Corps of Engineers (USACE) Update to NUREG 6190**

The NRC had the USACE brief industry on the contents and application of NUREG/CR-6190, "Protection Against the Malevolent Use of Vehicles at Nuclear Power Plants."

Ex. 5 [ ] Ex5

4. **Power Reactor Force-on-Force Program**

NSIR has held several meetings with industry to discuss lessons learned and the path forward. Each exercise imparts information to the affected licensee.

Ex.5 [.....] Ex5

5. **National Organization of Test, Research, and Training Reactors (TRTR)**

NRR participates in meetings of the TRTR, which represents research reactor facilities across the Nation from government, major universities, national laboratories, and industry. The meetings offer a forum for the NRC to discuss VA efforts with owners and operators of research and test reactors.

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