

**Federal Energy Regulatory Commission**

**Division of Dam Safety and Inspections**

**FERC Security Program for Hydropower Projects**

**Revision 2 (April 17, 2009)**

**DRAFT – April 17, 2009**

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Division of Dam Safety and Inspections  
**FERC Security Program for Hydropower Projects**  
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## SUMMARY OF CHANGES

This version of the FERC Security Program for Hydropower Projects (Revision 2) is the latest change to the Program since it was first revised on 10/15/2002. All changes made from Revision 1 were made as a result of comments and recommendations the FERC received from licensees and other agencies. The following contains a brief discussion of several changes in the Program (minor editorial changes are not identified here):

PAGE	SECTION	DESCRIPTION OF REVISION 2 CHANGES
24	5.4	The Vulnerability Assessment (for a Group 1 dam) is to be reprinted on a 5 year cycle (currently, there is no specified cycle). First round due 12/31/2010.
24	5.4	The Vulnerability Assessment (for a Group 1 dam) is to be updated annually to confirm assumptions (especially related to threat).
23	5.3	To establish a common yardstick for the completion of Vulnerability Assessments, the licensee must consider (at a minimum) the following scenarios: <ul style="list-style-type: none"> <li>• Insider</li> <li>• Vandalism/Theft</li> <li>• Local group (3-5 individuals) w/small arms, &amp; explosives up to 50 pounds of TNT equivalent</li> <li>• Dedicated group (3-5 individuals) w/small arms, vehicles (land and water) &amp; explosives up to 20,000 pounds TNT equivalent</li> <li>• Cyber attack</li> <li>• Any identified local/regional/national/transnational threat groups that are appropriate to the site</li> </ul>
4	3.3.1	The Security Assessment for a Group 1 dam should be incorporated into the full Vulnerability Assessment report, and does not need to be two separate documents.
27	6.4	The Security Assessment (for a Group 2 dam) is to be updated annually to confirm assumptions and as-built conditions. First round due 12/31/2010.
26	6.3	For purposes of measuring security against a threat for the SA, an “intruder” who is not equipped with any special tools should be considered (as a minimum suggestion).
32	7.5	The Security Plan must be reprinted (redone) by 12/31/2010.
29	7.4	An added sub-element to the SP is to define Internal Emergency Response and Recovery (integrating security with EAP procedures).
32	7.5	The Security Plan is to be updated annually, or “as required” (if less than 1 year).
29	7.3	Security Plans for (Group 1 dams) must be tested at least every five years.
28	7.3	Security Plans must be site-specific.
33	8.0	Licensees send an annual certification letter that self-certifies compliance with the VA, SA, and SP requirements, and highlight if any parameters have changed.
6	3.3.3	Requests for permanent recreational closures at Group 3 dams must be validated with a full Vulnerability Assessment (only Group 2 requirements were highlighted in Revision 1, although Group 3 inclusion was implied).
13	3.4.3	Clarification of security memoranda prepared by FERC Engineers.

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**1.0 PURPOSE**

The Division of Dam Safety and Inspections (D2SI) monitors the security programs and measures implemented by dam owners. This document provides guidance to both the FERC licensees/exemptees and staff in the execution of this program.

**2.0 OBJECTIVE**

D2SI conducts periodic security inspections of projects as based on the current threat conditions and as determined by the Attorney General and the Office of Homeland Security in order to insure the security of FERC hydropower projects. These inspections determine if the licensees/exemptees have implemented a security plan appropriate to current threat conditions while remaining flexible enough to address elevated threat conditions. As a special focus of the Dam Safety Inspections, the FERC D2SI Engineer determines if a sufficient level of security is in place to address the known or perceived threat to the region and project at all dams with the potential of causing significant to high consequences if attacked (Security Group 1 and Group 2 Dams; refer to sections 3.3.1 and 3.3.2). Additionally, at least a nominal level of security is suggested for all lower-potential consequence dams (Security Group 3 Dams; refer to section 3.3.3) and will be reviewed periodically when time and resources are available to D2SI. These security inspections are conducted in conjunction with the Dam Safety Inspections over the inspection scheduling cycle, or as special inspections are required.

**3.0 REQUIREMENTS AND RESPONSIBILITIES**

All Dam Safety Inspections of Security Group 1 and Group 2 Dams include an evaluation of security. These inspections provide an opportunity to review and evaluate the in-place security measures and to monitor and comment on their effectiveness against the current threat conditions that are known to, or perceived by, the licensee/exemptee. In addition, this guidance provides for a nationally-consistent framework in which FERC dam owners can design and implement their security programs.

**3.1 General Requirements**

Security measures implemented at hydropower facilities are the responsibility of the licensee/exemptee. D2SI assists licensees/exemptees when requested, or provides points of contacts to those requesting further information. During the Dam Safety Inspection, D2SI staff monitors actions being taken at FERC dams and comments on these actions specific to the facility. What appear to be deficiencies are discussed with the licensee/exemptee to arrive at a mutually agreed response. Recognizing that the current level of threat or warning may result in

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varying response actions from the licensee/exemptee, the licensee/exemptee may need to strengthen the on-site response during heightened threat conditions, whereas at lower threat conditions, relaxation of some security measures may be appropriate. In addition, the FERC recognizes that the overall level of security will vary due to site-specific conditions.

### **3.2 Licensee/Exemptee Responsibilities**

Licenses/exemptees will be responsible for:

- Security at their projects; Vulnerability or Security Assessments of their projects and Security Plans (as appropriate); security upgrades; and communicating with local law enforcement and nearby dam operators.
- Appropriately augment on-site inspections (“walk-downs”) of project facilities in light of security; pay special attention to suspicious activities and “danger signs” from vulnerable features or potential failure modes, including visual signs of distress and critical dam safety instrumentation readings; “trigger points” for action arising from critical instrumentation are to be defined.
- Maintain a level of awareness of potential threats to the project in the area and region.
- Designate a single point of contact to receive FERC security notifications.
- Designate a contact to FERC for other security related communications, if different from the above contact.
- Ensure that the security contact and dam safety contact for FERC (if they are separate contacts) remain in communication for project responsibilities and operation.
- Involve the responsible security officer/manager, as well as the dam safety/operations manager, in all major security-associated activities for the project site.
- Resolve any security measures that may conflict with License requirements.
- Ensuring the efficient coordination among the procedures contained in various plans, such as the Emergency Action Plan (EAP) and Security Plan (which includes Internal Emergency Response and Rapid Recovery) for applicable Security Grouped projects.
- Establish and maintain open communications with FERC D2SI staff and nearby dam operators regarding suspicious activity and security breaches or incidents, if not expressly restricted by law enforcement agencies; notify FERC Regional Office of any suspicious activity/incidents as soon as practical (usually within one working day).<sup>1</sup>
- Having the security contact and all required security documents available for review by FERC D2SI Engineers, especially during the Dam Safety Inspection.

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<sup>1</sup> Suspicious activity and security incidents at dams are currently submitted by FERC to the US Army Corps of Engineers incident database to assist in national trend analysis. Full participation from FERC dam owners would greatly assist in this endeavor. Alerts derived from this reporting system will be pushed back to the dam owners by the FERC if determined to be noteworthy.

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### **3.3 Licensee/Exemptee Requirements**

The foundation for the FERC Hydropower Security Program are the three security groups (Security Groups 1, 2, and 3) as based on potential dam hazard classification, project size, potential consequences, and installed generation capacity. Licensees were notified of the security groupings of their dams in a letter sent to them on November 21, 2001 and as reiterated on January 16, 2009. This prioritization effort was based on data that were readily available shortly after the 9/11 attacks.

A reevaluation of the Security Group classifications of FERC dams is currently underway utilizing improved assessment methods that were not available in 2001. Factors used to reclassify the dams are the potential consequences if attacked (C value of DAMSVR), the vulnerability of the dam asset (V value), and the likelihood of attack against that asset (L value). These Security Grouping modifications will be conveyed to licensees/exemptees in a letter anticipated to be dated in January of 2010. Dams with a higher potential consequence and vulnerability (as well as being accessible and attractive as a target) will be grouped higher than those with lower potential consequences as paired with their vulnerabilities.

#### **3.3.1 Security Group 1 Dam Requirements**

This section provides a brief summary of Security Group 1 Dam requirements. Refer to sections 5.0, 6.0, 7.0, and 8.0 for in-depth requirement details and definitions of terms.

A Security Group 1 Dam is defined by the level of its Consequence, Vulnerability, and Likelihood of Attack values as derived from the DAMSVR (V2) analysis. The definition of what constitutes a Security Group 1 Dam cannot be included in this open document because the level of potential consequences defined for a specified group of dams should not be publically revealed, but can be provided to the licensee/exemptee during the security inspection. Dams belonging to Security Group 1 will be inspected with a higher level of scrutiny by FERC D2SI. These dams are required to have completed (and have the following security documents on hand during the inspection):

- Vulnerability Assessment (updated annually, and reprinted within the past 5 years).<sup>2</sup> The Vulnerability Assessment for a Group 1 Dam also includes all the details required for a Security Assessment of a Group 2 Dam. A Vulnerability Assessment must also be

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<sup>2</sup> Security Group 1 and Group 2 Dams must have all applicable documents available during all inspections; however the requirement for the annual Security Plan update, the annual Security Assessment update (for the Group 2 Security Assessment), and the five year reprint/annual update (for the Group 1 Vulnerability Assessment), will commence on December 31, 2010 and will be monitored during the 2011 Inspection season and beyond.

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completed to justify requests for permanent licensed facility closures for any Security Grouped dam.

- Security Plan (updated as changes are made to security and/or procedures; at least annually). In addition, the Security Plan for a Security Group 1 Dam must be exercised at a minimum of every five years (at least to the Drill or Tabletop level—refer to the FERC Engineering Guidelines, Chapter 6, EAP for details). The Security Plan must also show how the expected response can be increased as a result of changing threat conditions. The Security Plan must also contain a sub-element (Internal Emergency Response and Rapid Recovery), which shows how security and emergency notification/response actions are integrated and how the project can recover rapidly (refer to section 7.4).
- Annual Security Compliance Certification Letter submitted to FERC that certifies compliance with the Security Group 1 Vulnerability Assessment and Security Plan requirements, highlighting any parameters that have changed from the previous year (effective date of December 31, 2010).

### **3.3.2 Security Group 2 Dam Requirements**

This section provides a brief summary of Security Group 2 Dam requirements. Refer to sections 6.0, 7.0, and 8.0 for in-depth requirement details and definitions of terms.

A Security Group 2 Dam is defined by the level of its Consequence, Vulnerability, and Probability of Loss values as derived from the DAMSVR (V2) analysis. The definition of what constitutes a Security Group 2 Dam cannot be included in this open document because the level of potential consequences defined for a specified group of dams should not be publically revealed, but can be provided to the licensee/exemptee during the security inspection. Dams belonging to Security Group 2 will also be inspected by FERC D2SI Engineers at a high level of awareness, consistent with the potential threat level. These dams are required to have completed (and have the following security documents on hand during the inspection):

- Security Assessment (updated annually by the Licensee/Exemptee).
- Security Plan (updated as changes are made to security and/or procedures; at least annually). The Security Plan must also show how the expected response can be increased to changing threat conditions; however the changes due to varying threat conditions may not be as stringent as for dams of Security Group 1. The Security Plan must also contain a sub-element (Internal Emergency Response and Rapid Recovery), which shows how security and emergency notification/response actions are integrated and how the project can recover rapidly. There is no requirement for exercising a Security Plan for a Group 2 Dam, although an exercise program is strongly encouraged.
- Requests for Permanent Licensed Facility Closures for any Security Group 2 Dam requires a Vulnerability Assessment to justify the closure (refer to section 3.3.4).



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- Annual Security Compliance Certification Letter submitted to FERC that certifies compliance with the Security Group 2 Security Assessment and Security Plan requirements, highlighting any parameters that have changed from the previous year (effective date of December 31, 2010).

### **3.3.3 Security Group 3 Dam Requirements**

A Security Group 3 Dam is defined as any FERC dam not meeting the definitions of Security Group 1 or Group 2 Dams. The definition of what constitutes a Security Group 3 Dam cannot be included in this open document because the level of potential consequences defined for a specified group of dams should not be publically revealed, but can be provided to the licensee/exemptee during the security inspection. Dams belonging to Security Group 3 will be inspected by FERC D2SI Engineers as these dams come up for scheduled Dam Safety Inspections, ranging from 1 to 3 years. There are no security document requirements, however a Security Assessment and Security Plan are highly recommended, and shall be at the discretion of the licensee/exemptee. Security will be highly dependent upon the opinions of the licensee/exemptee. FERC recommendations for Security Group 3 Dams are expected to be minimal.

- Requests for Permanent Licensed Facility Closures for any Security Group 3 Dam requires a Vulnerability Assessment to justify the closure (refer to section 3.3.4).

Although some FERC dams are exempted from EAP requirements, it is suggested that some consideration be given to the emergency response arising from security breaches at dams without an EAP, and that pertinent contact numbers for law enforcement agencies be placed in the Project's Contact List.

### **3.3.4 Licensee/Exemptee License and Recreational Responsibilities**

Interruptions to recreational and project use due to security concerns are to be minimized to the greatest extent possible. Temporary (30-day or less) restrictions may be appropriate in certain circumstances without prior approval of FERC D2SI, as long as the FERC Regional Office is notified as soon as practical (usually within one working day). Measures affecting recreation and project use in excess of a 30-day duration must be coordinated with the FERC Regional Office prior to implementation.

**Requests for permanent facility closures due to security concerns require the completion and sharing of a Vulnerability Assessment to evaluate the conditions and determine whether the permanent closure is justified, or whether modifications to project use plans are more appropriate. The existing Security Group 1 Vulnerability Assessment**

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**must be used to justify this request. For a Security Group 2 or 3 Dam, a special (full) Vulnerability Assessment must be completed and used to justify if permanent licensed facility closure is appropriate.**

### **3.3.5 Unconstructed Projects**

The licensee/exemptee requirements as described in section 3.3.1 to 3.3.3 (above) for unconstructed projects must be completed no later than 60 days before the initial filling of the project reservoir begins.

### **3.3.6 Unlicensed Constructed Projects**

An unlicensed constructed project (existing dam or other appurtenant structures) is one where an application for license has been filed or one that has been determined to be jurisdictional by the Commission. Such projects must have the requirements as described in section 3.3 completed no later than the earliest of: 1) six months after the date the license application is filed; 2) six months after the Commission issues an order determining that licensing is required, or; 3) a date specified by the Commission or its authorized representative.

### **3.3.7 Projects with Dams Not Owned by the Applicant/Licensee/Exemptee**

When the applicant/licensee/exemptee is not the owner of the dam nor is otherwise responsible for the maintenance, operation, and monitoring of the dam, the applicant/licensee/exemptee is to coordinate with the dam owner to ensure that security is appropriately addressed. If the owner of the dam (not subject to the FERC dam safety regulations) refuses to cooperate with the applicant/licensee/exemptee, then the appropriate Federal or State Dam Safety Official will be contacted and a meeting moderated by the FERC will be established to resolve the situation.

### **3.3.8 Summary of Security Group Requirements**

The requirements for FERC dams are summarized in the following table.

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<b>Requirement</b>	<b>Security Group 1</b>	<b>Security Group 2</b>	<b>Security Group 3</b>
Security Assessment (SA)	Yes <sup>1</sup>	Yes <sup>1</sup>	No <sup>2</sup>
Vulnerability Assessment (VA)	Yes <sup>1,5</sup>	No <sup>2,5</sup>	No <sup>5</sup>
Security Plan (SP) <sup>3</sup>	Yes <sup>1</sup>	Yes <sup>1</sup>	No <sup>2</sup>
Internal Emergency Response and Rapid Recovery	Yes <sup>4</sup>	Yes <sup>4</sup>	No <sup>2</sup>
Annual Security Compliance Certification Letter	Yes	Yes	No

<sup>1</sup> Update requirements: VA – annual update/reprint every 5 years; SP – annual update, or as required; SA – annual update (the SA is included within the VA for a Security Group 1 Dam).

<sup>2</sup> Although not required, this item is strongly encouraged.

<sup>3</sup> The SP must address how the licensee/exemptee is handling the recommended security upgrades identified in either the Vulnerability Assessment and/or Security Assessment, as applied to the site specifically. An SP for a Security Group 1 Dam (and suggested for Group 2 Dams) must be exercised at least every 5 years.

<sup>4</sup> Internal Emergency Response and Rapid Recovery is a sub-element of the Security Plan and discusses procedures to use to transition between a security incident and the emergency notification/response activities and how to rapidly recover from shutdown (refer to section 7.4).

<sup>5</sup> A Vulnerability Assessment must be completed prior to the FERC approval of requests for permanent closures of recreational or other project facilities.

### **3.4 FERC Responsibilities**

#### **3.4.1 FERC Security Program Responsibilities**

D2SI administers this Program by providing guidance and direction on all matters of security program management. The Regional Engineers are responsible for the execution and implementation of this program within their jurisdiction. Through the use of their engineers, the following is a list (although not all inclusive) of duties necessary to effectively carry out this program:

- Maintain a master list of Security Groupings of Dams under the jurisdiction of D2SI.
- Establish and maintain communications with other federal and state agencies responsible for Dam Safety and Security.
- Participate in the DHS Dams Sector Government Coordinating Council activities and coordinate with the Dams Sector (Private) Coordinating Council.
- Contribute to the national database of suspicious incidents at US dams, and pass along

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pertinent threat information derived from the database to FERC staff and FERC dam owners.

- Maintain positive control of any and all security related FERC memos compiled and developed as a result of this program.
- Provide in-house guidance and training to FERC Engineers.
- Maintain and update this security program periodically to keep current with federal and security best practices within the industry.
- Notify the licensee/exemptee via letter of their upcoming security inspection and requirements based on the Grouping Categorization of the project. (Note: the letter will indicate that the responsible individual and documents for security at that project be present during the on-site inspection.)
- Conduct meetings and perform an inspection with licensees/exemptees to discuss/review the security program.
- Review, monitor, audit, recommend, and evaluate security measures at projects as part of regularly scheduled Dam Safety Inspections.
- Review if the actions of the Emergency Action Plan (EAP) and Security Plan for all projects that have those documents are compatible.
- Review all required security documentation as required by the security classification of the dam.
- Where required, become familiar with identified vulnerabilities of the dam.
- Review the thoroughness and periodic security assessments conducted by the licensees/exemptees as required under the security classification of the dam.
- Facilitate communication on matters of threat alerts and threat information from other federal agencies, nearby licensees/exemptees, and similar sized projects throughout FERC jurisdiction.
- Complete a Project Security Memorandum, with the DAMSVR assessment and the Security Checklist as memo appendices, for Group 1 and 2 Dams.
- Protect information regarding security at projects from public disclosure.
- Review security measures for conflicts with License requirements.

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### **3.4.2 FERC Engineer Responsibilities for Dam Safety Inspections**

The FERC Engineer is the responsible security agent for D2SI on all matters regarding this security program with the licensee/exemptee representative. During the Dam Safety Inspection, security matters are discussed with the appropriate licensee/exemptee personnel. The person responsible for security at the facility, or other appropriate personnel, is to be present during these security discussions and inspection. **The letter to the licensee/exemptee notifying them of the upcoming inspection will clearly state that the security representative attend the security portion of the inspection and have all security documentation with him/her.** Guidance recommendations in conducting security document review and inspections are discussed in the next section.

#### **3.4.2.1 Preparation for the Security Inspection**

The Engineer must be as knowledgeable as possible about the project that will be inspected, and the engineering and dam safety experience of the D2SI Engineers will greatly assist in this need. Prior to the inspection, the following office activities provide solid background material for the inspection (other activities will be needed on a case-by-case basis):

- Review and become familiar with all the technical aspects of the project.
- Review the Potential Failure Modes, keeping in mind how a potential adversary could exploit those vulnerabilities.
- Review the Emergency Action Plan to gain an understanding of the responding agencies involved (including law enforcement) and the potential effects (Consequences) of (whole or partial) dam failure. Consider the effects of discrete feature destruction, such as one or more spillway gates, etc. and how those effects differ from full dam breach consequences.
- Through FERC training, understand how different types of dams and their associated structures can be compromised by various reasonable means (explosive, non-explosive, control-manipulation, etc.)
- Consider how an adversary could gain access from off-site to on-site (land and water).
- Complete (or review an existing) DAMSVR analysis of the project (see section 3.4.3.3 for details).
- Review the previous year's project FERC Security Checklist and Project Security Memorandum (comparing the previous year's data with this year's data will assist in identifying any changes made in the field).
- Confirm with the licensee/exemptee that their security representative and security documents will be available for review during the inspection, or at a special meeting.

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### **3.4.2.2 Conducting the Security Inspection**

The Dam Safety Inspection provides the opportunity for the D2SI Engineer to (1) talk to the licensee/exemptee about their security, (2) review all security documents prepared by the licensee/exemptee, (3) observe the physical security features, and operational procedures that are used at the site, and (4) record all the observations made during the inspection. This inspection completed by the Engineer will help guide their efforts in evaluating the overall effectiveness of the licensee/exemptee security plan. The following field activities provide solid background material for the inspection (other activities will be needed on a case-by-case basis, and no single list can be all-inclusive):

- Talk to the security representative and the dam operating personnel to obtain a general overview of how the organization views and handles security concerns. Determine if there is clear instruction and communication between the security representative (Corporate Security) and operational personnel. Determine if roles are clearly established and if everyone “knows what is expected of them” in consideration to security.
- Determine if contact information for responding agencies (police, or other) are clearly posted.
- Determine if operating personnel are aware of all plans and procedures for security, such as how to handle a bomb threat, what activities are permissible for varying levels of threat alerts, etc.
- Determine if operating personnel know what to look for that may be “out of the ordinary”. This is often referred to as a “suspicious incident”, which could include such activities as adversary surveillance, tests of security, illicit intelligence-gathering, and pre-attack rehearsals, etc., which may lead up to an actual attack. (Consider physical and cyber attack methods.)
- Determine if there is a consistent chain of communication between the field personnel and others within their organization and responding personnel (similar to communications for an EAP).
- Review any required and/or related security documentation. These documents are to include Vulnerability Assessments, Security Assessments, and Security Plans (which includes Internal Emergency Response and Rapid Recovery). (Security documentation requirements are listed in sections 5.0, 6.0, 7.0, and 8.0.) Become familiar with the documents to obtain an understanding of how the licensee/exemptee security system is designed to work.
- Determine if there are provisions for improving security on a temporary basis for increased levels of threat.

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- Review any Recommendations that were made in the self-assessment documents (SA, or VA) and determine the status. Ask for a Plan and Schedule, or resolution of outstanding Recommendations. Ensure that these Recommendations have been implemented and incorporated into the site Security Plan.
- Ensure that all required documents are up to date and (if Group 1) that the Security Plan has been tested within the last five years.
- Confirm your estimations made in the preparatory phase of potential Consequences for the destruction/damage of the dam(s) and appurtenant critical structures (**Table 1 of DAMSVR**).
- Inspect the project to identify all critical assets (features) that are important to the operation of the project. Determine if those assets are vulnerable to a “reasonable worst-case scenario” and determine what consequences would arise from the destruction of those assets. This includes the dam proper and all appurtenant critical structures (**Table 2 of DAMSVR**).
- Determine how accessible (and visible) the dam(s) and appurtenant critical structures are (**Table 3 of DAMSVR**).
- Question the licensee/exemptee about the perceived threat (local, regional, national) (**Table 6 of DAMSVR**).
- Observe the effectiveness of the security in place as per the current state of threat and the consistency of those observations with the Security Plan guidance (**Table 7 of DAMSVR**).
- Ensure that the Security Plan includes all upgrades to physical and operational security (that it is up to date).
- Complete the FERC Security Checklist as the inspection progresses (a blank copy of the FERC Security Checklist is provided in Appendix A). Further details about the FERC Security Checklist are shown in the next section (3.4.3.2).
- Complete, or verify, the DAMSVR analysis. Using the DAMSVR method prior to the site inspection will facilitate the inspection. Further details about DAMSVR are shown in the next section (3.4.3.3).
- Review upgraded security elements and their impacts on license articles, especially relating to environmental concerns and recreation. Any closures of facilities, such as for recreational areas or roads, exceeding 30 days may need to proceed through the license amendment process. Permanent closure of license-required facilities must not proceed without a determination of the need for a license amendment. **In addition, requests for permanent facility closures require the completion of a Vulnerability Assessment (even if the dam is classified as a Security Group 2 or 3 Dam) demonstrating how the particular requested closure mitigates a vulnerability that can be exploited. This**

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**information will be used to evaluate the current situation and determine the validity of such an action.**

Review all your observations with the licensee/exemptee representatives. If there are no written plans for a Security Group 1 or 2 Dam, request a plan and schedule for their completion and ask the operator how their organization determines and judges the effectiveness of their security response in the interim.

Review all prepared items completed during the inspection, including the Security Checklist and personal observations, and compare observations with the DAMSVR analysis conducted prior/during the site inspection. The Engineer is to review the security program in its entirety with consideration of the level of known threat demonstrated by the licensee/exemptee. The completed Security Checklist and DAMSVR sheets while in the field must not contain any specifics that could be used to locate and or identify the specific project. (If an electronic file of the Checklist is made outside of the FERC Network, the document is to be scrubbed of any specific names, locations, and descriptions that could identify a specific project/licensee.)

A copy of these completed forms (the Security Checklist and DAMSVR results only) may be provided to the licensee/exemptee upon request; however the FERC Project Security Memorandum cannot be provided to outside organizations and still remain a decisional (non-public) document (refer to section 3.4.3).

### **3.4.3 FERC Dam Safety Inspection Documentation and Follow-up**

#### **3.4.3.1 FERC Project Security Memorandum**

The observations and conclusions of the security portion of the Dam Safety Inspection are recorded in the FERC Project Security Memorandum. Included as appendices of the Security Memo are the Security Checklist (see section 3.4.3.2), and the summary of the latest DAMSVR analysis (see section 3.4.3.3). This Security Memo is an internal decisional memorandum, and is considered as Privileged (non-public) working notes that are not submitted to the Commission's eLibrary system. This memorandum addresses the security posture of the project in generalized terms only, while omitting specific security details. In order to remain as a decisional memorandum, the working copy written from the inspection cannot be shared with the licensee/exemptee; however, for licensee/exemptee information the format (scope) of the FERC Project Security Memorandum is shown in Appendix B.

A FERC Project Security Memorandum is completed annually for all Security Group 1



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Dams and every five years for all Security Group 2 Dams.

**3.4.3.2 Security Checklist (attached as Appendix 1 of the FERC Project Security Memo)**

Observations and responses to security are to be recorded by the FERC Engineer conducting the inspection (using the Security Checklist as a guide) and discussed with the site personnel. As much as possible, comments are fully discussed with the on-site personnel to provide them the opportunity for interactive feedback. Security recommendations made in the field should be of a generic nature. This checklist will help organize thoughts and observations, and is used to capture results of the security inspection. The Checklist is designed in the logical progression of “detect, assess, delay, and respond” while evaluating security. The Security Checklist can provide the framework to ask effective questions in the absence of a written plan and help document observations.

During the inspection, fill out the FERC Hydro Security Checklist in full and provide supporting data in detail for any outstanding concerns or negative checklist responses. New documentation must be entered each time a new security inspection is made (do not utilize the previous forms), although the results from the previous documentation are to be compared to determine if any changes were observed (record any observed changes in detail on the supplemental sheet of the FERC Hydro Security Checklist). All issues identified during the inspection must be discussed in detail on the supplemental sheet of the checklist.

The Checklist must be completed in full during each annual inspection of Security Group 1 and Security Group 2 Dams. When a FERC Project Security Memorandum is completed (see section 3.4.3.1), the checklist is attached as Appendix 1 of the memo. In the off-years for Security Group 2 dams, it is retained separately in the FERC security files.

**3.4.3.3 DAMSVR Analysis (summary attached as Appendix 2 of the FERC Project Security Memo)**

Completing a DAMSVR analysis allows for the evaluation of the following project and asset values: Consequence (C), Vulnerability (V), Likelihood of Attack (L), Threat (T), and Security System Effectiveness (S). These parameters are then used in the DAMSVR formula to determine comparative risk. The analysis can also be used by FERC Engineers to verify self assessments that were made by licensees/exemptees, and also assists Engineers prepare for the security inspection. A DAMSVR analysis of the project (the dam itself and all associated structures) should be completed prior to the inspection of all Group 1 and Group 2 dams, and will be accomplished according to the following schedule:

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- The roll-out date of Version 2 of DAMSVR is 2009, therefore a new DAMSVR analysis for all Security Group 1 and 2 dams is set for 2009.
- Every five years thereafter, or
- The first year a new FERC Engineer is assigned to the project, or
- Whenever any of the following changes to the project are made:
  - Physical security
  - Procedural operations (regarding security, personnel, etc.)
  - Cyber/SCADA modifications
  - Addition of new project features, significant project modifications, or changes to downstream conditions
  - Local, regional, or national threat level changes that could affect the project
  - Current Dam Safety Inspection indicates that new information is warranted.

The FERC Engineer must review the existing DAMSVR analysis during the security inspection and should discuss the results of the DAMSVR analysis with the licensee/exemptee to arrive at mutually-agreed-upon values, if possible. The two main purposes of developing the DAMSVR data are to assist in the proper classification of security groupings and to serve as a cross-check to the Vulnerability and Security Assessments completed by the licensee/exemptee. When a FERC Project Security Memorandum is completed (see section 3.4.3.1), the Summary Asset Worksheet (SAW) page of the DAMSVR analysis is attached as Appendix 2 of the memo. The entire DAMSVR analysis for all Group 1 and 2 dams are retained separately in the FERC security files.

#### **3.4.3.4 Requests for Additional Security Information**

Any requests for additional details regarding security or procedures must not become part of the Dam Safety Inspection Report. Rather, instruct the dam owner that the requested data are needed and that a follow-on telephone request will be made. Record all details about the request in Question 24 of the Checklist (and on the supplemental sheet, if additional space is necessary). Provide a deadline of 30 days from the date of the inspection for a plan and schedule to accomplish the recommendations. The telephone request should be made within five working days of the inspection. The dam owner is to be instructed to provide the information directly to the FERC Regional Office via FedEx delivery, and is to be forwarded to D2SI-HQ via FedEx. Such submittals to the FERC will not be submitted to eLibrary. Even so, the licensee/exemptee should refrain from including detailed security data within the submittal to the greatest extent possible. All data supplied by the dam owner in this fashion is to be marked as follows:

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**“Privileged—Security Sensitive Material.”**

Upon return to the office, the FERC Engineer completes the FERC Project Security Memorandum (if due: annually for Group 1 and five-years for Group 2; see section 3.4.3.1), with the Security Checklist and DAMSVR summary page as appendices. If the memo is not due, then prepare other materials as necessary, such as the annual Checklist or the review of the latest DAMSVR analysis. Each year, discuss the results of the security inspection (observations, Memos, and/or Checklists and DAMSVR data) with the Lead Engineer and Deputy Regional Engineer. If recommendations or comments are necessary for a Security Group 1 Dam, FERC Regional Office and HQ will review the FERC recommendations to ensure that national consistency is maintained. Any necessary follow-up actions will be communicated to the licensee/exemptee by direct communication via telephone and recorded in a telephone memo that will be included with the checklist. If the security measures do not require comment for the level of known threat then the FERC Project Security Memorandum will so be annotated.

Electronic versions of any materials produced by D2SI Engineers containing security matters for a specific project will only be retained on computers connected to the FERC network and will be erased from computer hard drives unconnected to the network immediately after preparation. Any work conducted by computer tied to the Internet outside the FERC office will be completed only through the FERC CITRIX manager. Only two paper copies will be retained (refer to the next paragraph for retention details).

All FERC working notes of all security issues are placed in a project folder and filed in a secure location (locked file or safe) with the Regional Engineer, separate from the general files. An additional copy is stored in the FERC HQ building in Washington, DC in a DOE-approved exclusion room. This folder contains the security response correspondence received from the respective licensee/exemptee, the most recent FERC Project Security Memorandum (and attached Security Checklist/DAMSVR), and any subsequently related correspondence or telephone memos, and pertinent field notes. Specific details about the security measures at a facility are not to be conveyed by the FERC Dam Safety staff via e-mail. Details about the security measures at a facility are not to be recorded by FERC D2SI staff by any means other than by the FERC Project Security Memorandum (and attached Security Checklist/DAMSVR). No copies of FERC-generated data arising from the FERC Security Program will be sent to eLibrary.

The Dam Safety Inspection Report includes a statement that security has been discussed and reviewed by the FERC Engineer. No additional details are provided in the Dam Safety Inspection Report. Suggested wording for the Dam Safety Inspection Report is as follows:

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"Project security was discussed during the current Dam Safety Inspection and any follow-up was provided as needed."

These instructions should be conveyed to the licensee/exemptee personnel during the inspection so that they have an understanding of how the data will be treated.

#### **3.4.4 FERC Engineer Review of Security Submissions**

In addition to the FERC responsibilities during inspections, the Regional Offices may periodically receive telephonic or written requests to review or approve upgraded security systems, such as fencing, surveillance hardware, etc. The FERC Engineer must request from the licensee/exemptee an assurance that those additional systems do not conflict with existing license articles or requirements. If there could be a conflict (such as recreational restrictions or conflict) the details of the request are to be reviewed on a case-by-case basis. However, a thorough analysis of the request will be made and coordination with the Division of Hydropower Administration and Compliance (DHAC) may be necessary depending on the scope of the request. All proposed FERC refusals or alterations to security upgrade requests must be coordinated with the FERC-HQ.

#### **3.4.5 FERC Engineer Training**

FERC D2SI personnel will be trained with state-of-the-art vulnerability assessment/threat assessment/alert technology relating to hydropower facilities. Periodic in-house guidance from DS2I HQ will be provided as necessary. When feasible, annual workshops will be held for the FERC and licensee/exemptee personnel to discuss the progress of the security program, with individual input from licensees/exemptees. As part of the learning and information-sharing process, the FERC actively interacts and coordinates with other entities having similar security and dam safety programs, such as the Edison Electric Institute, National Dam Safety Review Board, Association of State Dam Safety Officials, National Hydropower Association, Electric Power Research Institute, US Bureau of Reclamation, Tennessee Valley Authority, US Army Corps of Engineers, DHS Dams Sector Councils, etc.

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#### **4.0 THREAT NOTIFICATION AND COMMUNICATIONS**

##### **4.1 FERC Staff Communications**

In addition to threat alerts issued by the Office of Homeland Security or the National Infrastructure Protection Center (NIPC), appropriate threat notifications and other security communication matters will be provided to licensees/exemptees by the Regional Office with guidance from the FERC-HQ for national consistency. Special e-mail groups have been established in each FERC Regional and HQ Office. Communication will be handled primarily through the use of e-mail for those licensees/exemptees with e-mail addresses, and via fax or telephone for those without e-mail or those who request multiple communication mechanisms. Follow-up telephone calls to Security Group 1 Dam owners may be appropriate, depending on the urgency of the notification. This is currently the best system for contacting all licensees, particularly for those who do not have access to the National Electric Reliability Council (NERC) alert, or similar, systems. Threat/suspicious activity notifications will be as specific as possible, and all licensees/exemptees in the affected area will receive the notification regardless of the security grouping of their facilities. The standard format for the notification is as follows:

*“Please respond back via E-mail reply that you have received this message:*

*Security Threat Notification:*

*The (organization) has issued the following security notice on (date/time):*

*...message...*

*Considering the information in our letter to you dated November 21, 2001 please take notice of this message and evaluate the current status of your security at all your hydro-related facilities in accordance with their Security Group established in that letter and ensure that the level of security at these facilities is appropriate for this security notification.”*

##### **4.2 Licensee/Exemptee Communications**

Unless specifically restricted to do so by law enforcement agencies (such as for a Law Enforcement Sensitive ongoing investigation), licensees/exemptees are to report any suspicious activity or security incidents to their FERC Regional Office. The FERC Regional Office will report those security incidents to DS2I HQ, who will report, as appropriate, to other FERC Regions, other licensees (especially in the immediate area of the incident), and other entities with similar security and dam safety concerns (currently to the Intel Section of the US Army Corps of Engineers). It is critical that national dam sector trend analysis be as all-inclusive as possible. As

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a result, it is imperative that all suspicious activity or incidents be reported up to the national dam database, regardless of the apparent insignificance of the activity, where intelligence experts will evaluate the data. D2SI is willing to act as an intermediary between FERC dam owners and national reporting until such time as an accessible database becomes directly available to private dam owners. If any trends are observed from this reporting, they will be pushed down to our dam owners, as appropriate using the procedures contained in section 4.1, above.

Licensees/exemptees are to maintain very close communication and cooperation with other dam owners in their drainage basin. If a security situation arises at their facility that could affect other dam owners, then those affected dam owners are to be notified as quickly as possible by the licensee/exemptee to provide a coordinated emergency response and/or to protect other facilities. Dam operators are to inform local law enforcement personnel that security-critical information obtained from one facility is to be passed on to other dam owners in the area, and educate them as to the potential negative implications of not informing upstream or downstream facilities of local emergencies. The licensee/exemptee is to offer to assist local law enforcement in this matter.

Procedures for communication must be established between the dam operator and local law enforcement agencies. Telephone numbers are to be posted in conspicuous locations to ensure that the time taken to respond to an emergency is minimized. Face-to-face meetings are strongly suggested, and an on-site orientation of project facilities for local law enforcement personnel may be very beneficial to the overall emergency response. Additional information is contained in section 7.4 (Internal Emergency Response and Rapid Recovery).

#### **4.3 National Threat Alerts and Example Licensee/Exemptee Response Actions**

On March 11, 2002 the Office of Homeland Security issued a National Threat Warning System (Homeland Security Presidential Directive-3) with five Threat Conditions, each identified by a description and corresponding color, ranging from lowest to highest as:

Low	=	Green
Guarded	=	Blue
Elevated	=	Yellow
High	=	Orange
Severe	=	Red

The response actions listed in Appendix C provides examples to licensees/exemptees for their consideration to implement as based upon the current Threat Condition. These examples are

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not meant to supersede any existing procedures contained in specific Project Security Plans, but rather serve as examples of what could be implemented to enhance these plans.

## **5.0 VULNERABILITY ASSESSMENTS**

### **5.1 Definition of a Vulnerability Assessment**

A Vulnerability Assessment (VA) is a formal document and is an analysis of the factors that define full Security Risk. This assessment ultimately leads to recommended changes to physical security or operational procedures that will serve to decrease overall risk. Traditional risk analysis is defined as (Impact x Threat x Vulnerability). If Risk Analysis is desired by the licensee/exemptee, a suggested general comparative risk equation that is currently being used by the FERC is provided below, although any method is acceptable (source: DAMSVR; refer to Appendix D):

$$\text{Relative Risk} = \{[C * (V + L + T)] \div S\} \div 300$$

Where,

**C = Consequence (scale of 1 - 10)**

**V = Vulnerability (scale of 1 - 10)**

**L = Likelihood of Attack (scale of 1 - 10)**

**T = Threat (scale of 1 - 10)**

**S = Security (scale of 10 - 1)**

Hence, the VA must contain a discussion of the following factors:

- Determine consequences arising from the implementation of undesirable events (C).
- Identify vulnerable facilities and features (assets) of a project (V).
- Identify and assess the potential threats (likelihood of attack and adversary types) (L and V).
- Evaluate the effectiveness of the system to thwart undesired events and adversary types (security system effectiveness) (S).

These factors are discussed in greater detail in section 5.3, below.

### **5.2 Suggested General Outline for a Vulnerability Assessment**

The format, scope, and details of the VA are to be determined by the licensee/exemptee,

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but must be sufficient to address the pertinent vulnerabilities of the project. A suggested general outline for a VA is provided below for guidance:

- Introduction/Scope/Methodology Used/Assumptions.
- List of Critical Assets (dam structures and appurtenant structures).
- Consequences for each identified asset that is damaged and/or destroyed.
- Vulnerability of each identified asset.
- Inherent accessibility, visibility (attractiveness) of each identified asset.
- Threat climate and range of potential threats each asset may be subjected to, and how each identified asset is vulnerable to those levels of threat under consideration.
- Effectiveness of the security system/procedures/response to mitigate identified vulnerabilities and resultant consequences.
- Risk management decisions.
- Recommendations (if necessary) to improve the security posture of the facility, including a Plan and Schedule to address all recommendations.

### **5.3 Details of the Vulnerability Assessment**

A multi-person team approach, consisting of several technical disciplines, the dam operator, and a security expert, has been found to be the best way to complete a VA at a dam. The VA must address four important factors: Consequence, Vulnerability, Threat, and Security Effectiveness.

The first factor to address is the consequences of an attack. The consequences of an attack on the facility are to include the potential for loss of life (related to the population at risk), damages that occur downstream (and on-site) of the attack (usually in terms of US dollars), and disruption of the services provided by the facility, such as for power generation, water supply, etc. Consequences are to be considered for failure of the dam and for failure of individual vulnerable project assets, such as spillway gates, turbines, penstocks, etc. If all potential consequences arising from realistic attack scenarios are low, then the resulting security response will not be as significant as for a project with medium or high consequences. Note that the Consequences resulting from complete dam failure (which are often shown in the EAP for the sunny day and flood condition) will be greater than the Consequences arising from the loss of individual assets, such as the loss of one spillway gate. For security risk, consequences from a dam breach are determined from the sunny day, or normal reservoir pool elevation, case.

The second factor to address is the identification of the "weak points" or vulnerable project features (assets) at a facility. It is important to not only assess the vulnerability of the



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entire dam and powerhouse, but to also assess vulnerabilities of specific project assets, such as spillway gates, turbines, etc. The overall effectiveness of the on-site security system can more intelligently be developed and possibly enhanced by identifying all vulnerable assets so that a coordinated and comprehensive security system is designed. This also assists planners in determining what is being protected and how well those (critical) assets are being protected. It is important to keep in mind that an asset may be vulnerable to a certain level of potential threat, but not vulnerable to a lesser-level threat.

A third factor to assess in a VA is the potential threat to a facility as based on organizations or people (including locals) who may wish to cause harm to the facility. Along with assessing the likelihood that these groups or individuals actually have intent to attack a facility, the capabilities of the groups are to be considered to determine if a successful attack is actually feasible. The advantage of assessing the likelihood of attack is that resources may not be needed if the threat is really not present, or that less detailed security enhancements may be appropriate if the threat is not as sophisticated. When assessing threat, a history of security/criminal/vandalism incidents specific to the site, and information received from the FBI or other law enforcement agencies specific to the area is essential. It should be noted that threat needs to be evaluated first on its presence, and if present or suspected, on the groups' capability to successfully exploit a known vulnerability. A good assessment of threat is helpful in that the planner can then determine to what level an asset must be protected against. The threat assessment portion of the VA must be updated annually as part of the annual VA update (refer to section 5.4).

The fourth factor to consider evaluates the effectiveness of the site security system against the anticipated adversary attack scenarios. This subcomponent of the VA comprises the 'Security Assessment' requirement for Security Group 2 Dams. This helps to determine if the current security system provides adequate protection and/or warning. The following security items are to be addressed: 1) the ability to detect an intruder; 2) the capability to assess the detection to determine if the detection is a real threat; 3) the ability of the security system to delay the intruder, and; 4) the time taken for law enforcement to respond to the intruder. If the security system is judged to be deficient, then recommended enhancements to security are to be made as a function of the overall risk arising from the attack. These recommendations are to be implemented and incorporated into the Security Plan (refer to section 7.0). The recommendations to security enhancement must be made within the VA, with the dam owner preparing a plan and schedule to address all listed recommendations.

Hence, the VA results in a matrix of paired variables, with specific consequences aligned with specific vulnerabilities, resulting from specific threats, as measured against specific security

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features. Note that each variable will change as other variables are adjusted. These above factors are to be addressed with a fair degree of confidence, with some supportive documentation to substantiate the assumptions. The VA is beneficial in that the existing security can be compared to an assumed 'baseline' threat, where the implications of experiencing various magnitudes of potential threat can be accurately assessed. At a minimum, the licensee/exemptee must evaluate their on-site conditions against the following levels of threat (this does not imply that such a level of threat is present, but rather provides a wide spectrum to which the security effectiveness can be measured); site-specific threats should always also be evaluated:

- Insider.
- Vandalism/Theft.
- Local group of 3-5 individuals with small arms and explosives up to 50 pounds TNT equivalent.
- Dedicated group of 3-5 individuals with small arms, vehicles (land and water), and explosives up to 20,000 pounds TNT equivalent.
- Cyber attack.
- Any identified local/regional/national/transnational threat groups that are appropriate to the site.

It should be noted that the dam owner does not necessarily concede that a certain threat scenario is anticipated to occur, is feasible for the site conditions, or that the dam owner can successfully protect against such a scenario if it is evaluated for purposes of this assessment. In most cases the dam owner relies on a responding agency, such as local law enforcement, to respond to the adversary. As long as the incident is properly reported to the responding agency, it is irrelevant what caused it. The cause will be discovered during the subsequent response or investigation, but the important actions needed to be taken by the dam owner are reporting the incident and recovery. The suggested threat scenarios (above) simply allow the existing security system and procedures to be compared to a wide spectrum of possibilities so that informed decisions can be considered in a changing threat environment and to educate the dam owner as to what would result if that level of threat were applied against them. This is why multiple threat scenarios should be reviewed and considered for evaluation in the VA. It also informs the dam owner about potential deficiencies if future threat levels were to increase, and how to temporarily address increased threat postures. The dam owner is allowed, if desired, to footnote any evaluated scenario with a clause such as "... there is no present evidence to indicate that this level of threat exists in this area ...."

A good standard to measure security against is provided in the For Official Use Only publication, "Dams Sector Protective Measures Handbook - A guide for Owners and Operators".

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This document was prepared under the auspices of the U.S. Department of Homeland Security and is available on the Homeland Security Information Network (HSIN) Dams Portal. For additional distribution information and access requirements for HSIN, contact dams@dhs.gov.

#### **5.4 Vulnerability Assessment Documentation**

All assumptions must be well documented within the VA, including estimates of critical factors (consequences, vulnerabilities, threat, and security). Recommendations (suggested changes to site security) arising from the study must also be clearly defined within the document. A VA must specifically address each Group 1 Dam and must be reprinted (redone) on a five year cycle, beginning on December 31, 2010 (existing VA documentation from the September 30, 2003 closing date will apply in the interim). In addition to the five-year reprint cycle, each VA must be updated annually, with changes to parameters and conclusions highlighted from the previous year. Any changes or modification can be inserted to the existing VA as attachments. In particular, variations in threat level must be addressed in the update as well as changes arising from on-site modifications to security systems/procedures (which may affect security effectiveness) or downstream conditions (which may affect consequences). Hence, a new threat analysis must be completed annually as part of the annual VA update and should be coordinated through local law enforcement agencies. In this way, the dam owner can verify that the VA has been reviewed and assessed based on the current known threats.

The annual VA update and 5-year reprint is required whether as a result of being a Security Group 1 Dam, or as a result of a proposed modification to the license requirements of a Security Group 1, 2 or 3 Dam.

A VA must be completed for all Security Group 1 Dams. A VA is also required for any dams where there is a request to permanently (in excess of 30 days) close permanent recreational or other licensed facilities (e.g., recreation or roads) within project lands for security reasons. A Vulnerability Assessment is suggested for all dams, regardless of Security Grouping, as it greatly assists in evaluating the effectiveness of security for site-specific conditions using a risk-based approach. The Security Assessment (refer to section 6.0) must be incorporated within, and as part of, a detailed VA.

Licenses/exemtees do not submit their VA to the FERC; however they must make the document available for review during each Dam Safety Inspection (exceptions to this request will not be entertained). In lieu of document submittal to the FERC, licensees/exemtees must submit an annual letter to their FERC Regional Office by December 31 of each year, certifying compliance with the requirements for Vulnerability Assessments of their Group 1 Dams (refer to

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section 8.0). For licensees/exemptees with multiple dams, a single annual letter may include detailed compliance certification for all their VA, SA, and SP security requirements, as appropriate.

## **6.0 SECURITY ASSESSMENTS**

### **6.1 Definition of a Security Assessment**

A Security Assessment (SA) is a formal document and is an abbreviated evaluation of the security procedures and features at the dam without fully accounting for attack Consequences, Vulnerabilities, or Threat. Hence, although the VA fully evaluates the four factors discussed in section 5.0, above (C, V, T, and S), the SA - as the name implies - only addresses an evaluation of Security. For this reason, a full risk assessment cannot be made from an SA alone.

The Security Assessment is discussed in greater detail in section 6.3, below.

### **6.2 Suggested General Outline for a Security Assessment**

The format, scope, and details of the SA are to be determined by the licensee/exemptee, but must be sufficient to address the current state of security for the project. A suggested general outline for an SA is provided below for guidance:

- Introduction/Scope/Methodology Used/Assumptions.
- List of Critical Assets (dam structures and appurtenant structures).
- Inherent accessibility and visibility of each identified asset.
- Effectiveness of the security system/procedures/response to address anticipated adversaries; always consider known local adversaries, but at a minimum consider how a “generic” intruder (on foot) with no specialized tools, equipment, or weapons could gain access to all identified assets.
- Recommendations (if necessary) to improve the security posture of the facility, including a Plan and Schedule to address all recommendations.

### **6.3 Details of the Security Assessment**

A Security Assessment must be completed for all Security Group 2 Dams, and is an integral part of the VA of a Security Group 1 Dam. The Security Assessment (SA) is an evaluation of the current state and appropriateness of the on-site security system/procedures and

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what needs to be done at a project or facility to address concerns regarding security, such as installation of fences, gates, cameras, increased guards, etc. This assessment identifies if any security enhancements are needed, and specifically what those enhancements consist of. The SA must also address the state of maintenance and readiness of the existing security systems/procedures. The recommendations made from the Security Assessment lead to improved security measures and are to be incorporated into the Security Plan (refer to section 7.0). The recommendations to security enhancement must be made within the SA, with the dam owner preparing a plan and schedule to address all listed recommendations.

The level of response is highly dependent upon several factors, such as site-specific characteristics of the project, and ideally should consider anticipated threat, changing level of local, regional, or national threat alerts, etc. A Security Assessment is often preceded by, or incorporated within, a comprehensive Vulnerability Assessment. Factors determined from a Vulnerability Assessment (refer to section 5.0, above) greatly assist with the proper evaluation of site security, and often lead to a more-informed security assessment decision. Without knowledge of the factors evaluated in a full Vulnerability Assessment, there is a greater risk of not identifying all vulnerable features, or of recommending security enhancements that are not comprehensively integrated with the entire project site. A Security Assessment is a stand-alone document or can be incorporated within a more detailed Vulnerability Assessment. The main difference between a Security Assessment and a Vulnerability Assessment as defined in this guidance is that the Vulnerability Assessment provides a detailed decision-making process leading to what needs to be protected, what threat it is to be protected against, how effective the security system currently is, and what the consequences of an attack against the facility will be, whereas the Security Assessment evaluates the current security system and recommends if and how the security system can be enhanced in more generalized terms (in a vacuum). The only advantage of completing an SA instead of the more detailed VA is that the SA can potentially be completed with fewer resources and at a reduced effort. By definition, though, the anticipated risk from an incident occurring at a Security Group 2 Dam is significantly less severe than for a Security Group 1 Dam, and thus the level of evaluation detail is not as stringent. Thus, although completion of a VA is encouraged to produce a more-informed decision-making process, the SA does not need to address specific Consequences, Vulnerabilities, or levels of Threat.

Although the SA does not need to fully evaluate Threat - as does a full VA - a security system cannot be evaluated unless it is measured against some level of threat. As a result and for consistency across FERC dams, the SA for a Group 2 Dam must (at a minimum) measure security against a “generic” intruder (on foot) with no specialized tools, equipment, or weapons. However, the licensee/exemptee should always evaluate to the largest perceived threat pertinent to their facility, if it is known or suspected.

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## **6.4 Security Assessment Documentation**

All assumptions must be well documented within the SA. Recommendations (suggested changes to site security) arising from the study must also be clearly defined within the document. An SA must specifically address each Group 2 Dam and must be reprinted (redone) by December 31, 2010 (existing SA documentation from the September 30, 2003 closing date will apply in the interim). In addition, each SA must be updated annually, with changes to parameters and conclusions highlighted from the previous year. Any changes or modification can be inserted to the existing SA as attachments. In particular, variations arising from on-site modifications to security systems/procedures must be addressed.

Licenses/exemtees do not submit their SA to the FERC; however they must make the document available for review during each Dam Safety Inspection (exceptions to this request will not be entertained). In lieu of document submittal to the FERC, licenses/exemtees must submit an annual letter to their FERC Regional Office by December 31 of each year, certifying compliance with the requirements for Security Assessments of their Group 2 Dams (refer to section 8.0). For licenses/exemtees with multiple dams, a single annual letter may include detailed compliance certification for all their VA, SA, and SP requirements, as appropriate.

## **7.0 SECURITY PLANS**

### **7.1 Definition of a Security Plan**

A Security Plan (SP) is a formal document (or set of documents) and constitutes the “Standard Operating Procedures” for the operation of all security concerns (physical, cyber, and procedural) at the dam and the project. The plan may be a single document, or a collection of individual plans that address divergent aspects of security management. In any event, the Security Plan must be comprehensive and usable to the security personnel and also to the operators at the dam. The operators at the dam are often the “eyes and ears” of security and must be aware of, and able to initiate reactions to, security concerns.

The Security Plan is discussed in greater detail in section 7.3, below.

### **7.2 Suggested General Outline for a Security Plan**

The format, scope, and details of the SP are to be determined by the licensee/exemtee,

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but must be sufficient to address the current state of security for the project. As stated above, the Security Plan may be one individual plan, or an organized collection of plans that address different security needs. (Hereafter, this item will be referred to as the “Security Plan”, whether it is one comprehensive document or an organized collection of plans.) A suggested general outline for an SP is provided below for guidance:

- Lists of Restricted Areas.
- Lists of Critical Assets.
- Physical Security Description/Layout/Inventory.
- Security Operational Procedures (employee duties/education/document control).
- Procedures to address site access and key control (employees and visitors).
- Procedures for Civil Disturbance (such as coordination with on-site protests, etc.).
- Response to Bomb Threats.
- Procedures for Temporary Project Closure.
- Threat Level Contingency Planning (actions to adjust security posture rapidly).
- Communication Procedures and Redundancies.
- Information Technology/SCADA.
- Security Maintenance, Testing, and Resource (Operation and Maintenance).
- (NEW) Internal Emergency Response and Rapid Recovery (coordination with the Emergency Action Plan; see section 7.4, below, for details).

### **7.3 Details of the Security Plan**

A site-specific Security Plan is a formal document, and must be available to the dam operator at the site, for all Security Group 1 and 2 Dams. Security Plans are to be kept on-site either in a hard copy or secured electronic form. The dam owner may offer reviews of the SP to designated representatives of outside agencies with a “need-to-know”, but at no time should hard copies of the site SP be requested or retained by any outside agency or non-owner. The SP documentation includes a description of security hardware and operational procedures to security concerns at a project or facility. The SP includes specific features of the project security program, such as fences, surveillance cameras, etc. and company procedures to follow based upon changing threat conditions or situations, as well as procedures to follow and personnel roles and responsibilities. The complexity of the SP is dependent on the specifics of the site and the potential threats to the facility. It should incorporate pre-planned changes to security that can be implemented rapidly for increasing or decreasing levels of threat. A separate Security Plan must be developed for each dam in an owner’s inventory to reflect the specific concerns at each site. The Security Plan is the “operating manual” that is used to manage security specific to each

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site (dam).

A licensee/exemptee will have previously completed detailed studies (VA or SA) to evaluate the effectiveness of their on-site security. Any recommendations from those assessments that have been implemented must be fully incorporated into the Security Plan. Therefore, the SP must be updated as site changes are made to reflect the most-current conditions and should not be allowed to become outdated. Procedures contained within the Security Plan for a Group 1 Dam must be tested (exercised) at least every five years to prove that the SP is workable and that the appropriate security and operational employees are knowledgeable of its contents. The exercise can be at the drill or tabletop level (refer to the FERC Engineering Guidelines, Chapter 6, EAP for details) and can be part of the regular Dam Safety Exercise program, if desired. SP exercising for Security Group 2 Dams is not required, but is strongly encouraged.

#### **7.4 Internal Emergency Response and Rapid Recovery**

**NOTE: This section replaces the concept of “Security Plans or procedures being fully integrated with the project Emergency Action Plan and Recovery Plan” of Revision 1 to the FERC Security Program for Hydropower Projects (previous section 7.0). Because this is a new section requirement to the Security Plan, this sub-element is treated with additional detail in this program guidance. The other sub-elements of the SP, as listed above, are not discussed in detail, but are equally important.**

The purpose of this sub-element is to strengthen the response for two major activities that the dam industry has noted as being commonly deficient: (1) Emergency (security) notification and communication; and, (2) rapid recovery (of essential services). In previous FERC guidance, this concept was equated to “integration with the EAP”. This created questions about whether security concerns should be placed in the Emergency Action Plan (EAP), which was not the intent. Further discussions with dam owners and regulators led to the conclusion that it would be preferable to include these procedures within the site Security Plan rather than the EAP.

##### **7.4.1 Emergency Notification and Communications during a Security Event**

A critical step that needs to be well-rehearsed and thought-out is the pass-off between learning of a serious security incident and the: (a) notification to the local responding force (law enforcement) that deals with the adversary, and (b) the notification of the emergency response personnel (EMA) having the responsibility of notifying and evacuating the public to get them out of harm’s way. Any transition between security management and emergency response will often



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involve separate departments within an organization and the processes to follow must be well coordinated. This includes actions contained in various plans, including all those from the Security Plan through the Emergency Action Plan. The problem arises where there may be a disconnection between on-site security forces and personnel responsible for emergency response. Therefore, documentation is needed to link these actions seamlessly.

An Emergency Action Plan (EAP) is a document describing the actions a dam owner/operator takes if a problem exists at a dam, whether due to natural causes or sabotage. Actions include identifying and assessing the problem, mitigating the problem if possible, and notifying the emergency management system to protect human life and property. Inundation studies and notification call charts are included in the EAP. But the EAP does not include plans or procedures for the law enforcement agencies that are trying to stop an attack or coordinate the efforts in the investigation and resolution of the attack. Unless all actions are preplanned and coordinated, the law enforcement component and the emergency response component may conflict at the worst-possible time. It is also critical that the (law) responding force be notified as quickly as the incident is observed to obtain the best chance of thwarting the attack. The dam owner will find that the Emergency Management Agencies (EMA) will also need to be contacted immediately after the incident is discovered to maximize saving lives downstream of the dam. Hence, the dam owner will need to coordinate two simultaneous actions with agencies having separate goals (law enforcement and emergency management) to get word out efficiently in a timely fashion.

Procedures for Internal Emergency Response are to be included with the Security Plan to ensure that there is continuity between the many company documents that may exist, such as Security Plans, COOP Plans, and Emergency Action Plans. Emergency and response actions arising from procedures contained in company documents are to be internally consistent, with few if any procedural conflicts. Authors and administrators of documents within a company are to ensure that proper coordination has been achieved and, as an example, the security personnel understand the procedures contained in the EAP and vice versa. "Integration" does not mean that security information must be incorporated into an EAP, which would have a wider distribution than a Security Plan. Specifics regarding security protocol or on-site security features are not to be included within the EAP document; however operating personnel must be fully aware that any dam safety emergency arising from a security concern is to be addressed through the procedures for notification contained within the EAP. For purposes of document control, it would be preferable not to include Security Plan details within the EAP, but rather to include any pertinent details from the EAP into the project Security Plan (which has tighter document control). The transition from security concern to EAP implementation must be smooth. If the licensee/exemptee has a dedicated security officer, that person must be made aware of the EAP

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procedures and must provide comments to the EAP coordinator. This is especially important if any response procedures could conflict with security protocols. All conflicts must be resolved before they surface in an actual situation.

The Internal Emergency Response sub-element of the SP must be updated annually with the SP; especially all contact information with law enforcement agencies.

#### **7.4.2 Rapid Recovery of Essential Services**

One of the effects an adversary may be trying to achieve as a result of an attack is the interruption of essential services, such as power generation, water supply, etc. The Consequences of an attack plays a large role in determining Security Risk, therefore any means of decreasing Consequences will decrease the resulting Risk. As a result, mitigating Consequences is a very cost-effective means of decreasing Risk and improving the overall security response to an attack. There will be a definite benefit to the public (services) and the utility company (economics) if the services that were interrupted at the dam are recovered as quickly as possible.

The Rapid Recovery of Essential Services sub-element of the SP documents the actions an organization takes to recover from a disaster. The disaster can be natural or caused by criminal activity. The Rapid Recovery in this program refers to the pre-planned actions allowing a utility to continue, or quickly restore, generation of power, or otherwise function in its intended purpose. This sub-element is sometimes associated with the Utility Recovery Plan, Continuity of Operation Plan, etc., however those plans are usually at the company level, whereas the Rapid Recovery portion of the SP is intended to bring a specific facility back in operation as efficiently as possible. The Rapid Recovery must also address security, with a discussion of what it would take to bring a project back on-line for power generation, including but not limited to stockpiles of materials, location of heavy equipment, warehousing critical spare parts, etc. Interruptions to transmission lines and switch yards should also to be considered.

Further discussions about Emergency Action Plans, Recovery Plans, and Continuity Plans, including suggested formats, are included in the DHS publication: “Dams Sector Crisis Management Handbook”, 2008. This document can be downloaded from the Internet at:

[www.damsafety.org/media/document/security/damsectorcrisismanagementhandbook.pdf](http://www.damsafety.org/media/document/security/damsectorcrisismanagementhandbook.pdf).

A suggested (abbreviated) format for the Internal Emergency Response and Rapid Recovery sub-element of the SP is shown below (refer to the DHS “Dams Sector Crisis Management Handbook” for further details).

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- Applicable Emergency Scenarios with Rapid Recovery Recommendations
- Incident Command System and Company Internal Assignments/Responsibilities
- Coordination with Local Authorities
- Communications, Maps, and Drawings
- Vehicles, Equipment, Materials and Contractors
- Response Time and Geographical Limitations
- Meals and Lodging
- Internal Maintenance of Plan (including employee training)

A pre-publication version from the DHS document regarding Internal Emergency Response and Rapid Recovery planning is also shown in Appendix E.

### **7.5 Security Plan Documentation**

All plans, procedures, and hardware relevant to on-site security must be well documented within the SP. An SP must specifically address each Group 1 and 2 Dam and must be reprinted (redone) by December 31, 2010 (existing SP documentation from the September 30, 2003 closing date will apply in the interim). In addition, each SP must be updated annually, with changes to parameters, hardware, and procedures highlighted from the previous year. Any changes or modification can be inserted to the existing SP as attachments or replacements. In particular, variations arising from on-site modifications to security systems/procedures must be addressed. As stated in 7.4, above, an Internal Emergency Response and Rapid Recovery sub-element must be part of the Security Plan.

Licensees/exemptees do not submit their SP to the FERC; however they must make the document available for review during each Dam Safety Inspection (exceptions to this request will not be entertained). In lieu of document submittal to the FERC, licensees/exemptees must submit an annual letter to their FERC Regional Office by December 31 of each year, certifying compliance with the requirements of Security Plans of their Group 1 and 2 Dams, and the exercise status for Group 1 Dams (refer to section 8.0). For licensees/exemptees with multiple dams, a single annual letter may include detailed compliance certification for all their VA, SA, and SP requirements, as appropriate.

### **8.0 ANNUAL SECURITY COMPLIANCE CERTIFICATION LETTER**

Licensees/exemptees are asked not to submit security documents directly to the FERC due to the uncertainties of interpreting the Freedom of Information Act (FOIA). FERC D2SI

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believes that security-specific documents can be successfully protected from public release; however it appears that the issue will remain uncertain into the foreseeable future. Specific exemptions to FOIA related to security documents are currently being proposed, but they appear to be far from finalized.

Instead of security document submittal, D2SI Engineers capture necessary details during the Dam Safety Inspection and are recorded only in FERC decisional memos (refer to sections 3.4.3.1 through 3.4.3.4 for details).

In addition, the licensee/exemptee must submit an annual letter to their FERC Regional Office by December 31 of each year that certifies compliance with all the requirements of the FERC Security Program for Hydropower Projects. To be included in the annual letter is detailed information stating the following (as applicable for the Dam Security Groups):

- Compliance with Vulnerability Assessment (VA) requirements, including reprinting (date of last assessment, which must be within five years of the date of the annual letter).
- Compliance with VA updating for the current year (if not a reprinting year).
- Compliance with Security Assessment (SA) requirements and completion (date).
- Compliance with SA updating for the current year.
- Compliance with Security Plan (SP) requirements and annual updating.
- Compliance with the Internal Emergency Response and Rapid Recovery sub-element of the SP, with confirmation that all contact information contained within the sub-element has been verified for the current year.
- The last date of Security Plan exercise testing for all Security Group 1 Dams (within five years of the date of the annual letter).
- Confirmation of the designated security contact. Include his/her telephone number, mailing address, and e-mail address. This contact should include the e-mail address that D2SI will use in any future security notices (refer to section 4.1).

Sufficient detail to certify program requirements for each Group 1 and 2 Dam owned by the licensee/exemptee must be included in the annual letter (all dams owned by a licensee/exemptee may be included in one letter, if desired).

Mark all annual security compliance certification letters as follows:

**“Privileged—Security Sensitive Material.”**

The requirement for the annual security compliance certification letter will become

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effective on December 31, 2010, and thereafter.

## **9.0 COMPUTER SECURITY AND SCADA**

During the Dam Safety Inspections, the FERC Engineer inquires about measures taken by the licensee/exemptee regarding computer security, communications, and remote operation of project facilities. Discussions are to be made to ensure that proper coordination has been made with authorities, such as the FBI Infragard Program. The FBI maintains an incident database and works with those that depend on computer-controlled systems for operations and coordinates activities and technical needs to protect such systems. Therefore, computer-controlled systems are to be updated consistent with state-of-the-art practice.

The FERC Office of Electric Reliability also requires adherence to the North American Electric Reliability Council's (NERC) Standards and WECC Reliability Standards, Critical Infrastructure Protection, CIP-002-1 through CIP-009-1 which are outside the purview of the D2SI program. These standards are to be incorporated into the security plans as they pertain to the hydropower project in general, and to SCADA protection in detail. Information about the standards can be found at the FERC website ([www.ferc.gov](http://www.ferc.gov)) at:

<http://www.ferc.gov/industries/electric/indus-act/reliability/standards.asp>

Listings of the approved, pending, and withdrawn standards as of January 2009 are provided in Appendix E.

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**APPENDIX A – FERC SECURITY CHECKLIST**

Field Observations: (Provide detailed supplemental information to the right)	Y	N	NA	Comments (Provide additional details – especially any “No” answers – here and separate sheets, if necessary. Indicate NA if not appropriate to site.)
<b>DETECTION AND ASSESSMENT</b>				
1. Is the site manned?      Dam?				Days/week _____ Hours/day _____.
Powerhouse?				Days/week _____ Hours/day _____.
2. Are there surveillance cameras in use?      Dam?				
Powerhouse?				
Other?				
How are they viewed/checked?				
3. Is the frequency of walking inspections appropriate (safety and/or security)?				Note the frequency of these inspections:
Personnel control/ID badges used?				
<b>DELAY</b>				
4. Is the dam site fenced with gates/doors locked (if appropriate to the site)?				
5. Is access restriction to the dam/facilities appropriate and in-place?      Foot?				
Vehicle?				
Boat?				
6. Are spillway/gate controls secured against unauthorized access?				
7. Are powerhouse doors/windows locked?				
Alarms/motion detection/cameras?				Specify details:

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Can systems be easily bypassed?				
8. Water conveyance system: Access restricted?				
Surveillance?				
9. Is critical performance monitoring equipment secured against tampering?				
<b>Field Observations</b>	<b>Y</b>	<b>N</b>	<b>NA</b>	<b>Comments</b>
<b>RESPONSE</b>				
10. Are law enforcement phone numbers posted?				
11. Are there redundant communications?				
12. How long it takes the operator if detected to respond to unauthorized access?	How is detection made?			
What is that response?				
13. Can law enforcement be quickly notified?				Identify enforcement agenc(ies): & capabilities:
Estimated time for arrival?				
<b>INTEGRATION &amp; RISK MANGMT.</b>				
14. Describe assessment of threats, vulnerable features and potential impacts. Include switchyards & transmission lines, etc. Also consider elements of operations that could be subject to cyber attack.	Last time consultation with law enforcement was made to determine threat:			
15. Steps taken to improve security: Past year:				
Long term plans:				
16a. Is there a Security Plan (Group 1 or 2 required by 9/30/03)				If "Yes" is it compliant?
Are there different site-specific response levels covered in the Security Plan for varying threat?				Is there a Response Plan component?
Are the measures on the day of inspection consistent with the current threat level?				Summarize levels/activities:
				If "no" explain:
16b. Has Security plan been revised since last field change?				When it was last exercised & what type?
17. Is there a Vulnerability Assessment? (Group 1 VA required by 9/30/03)				If "Yes" is it compliant?
18. Is there a Security Assessment?				If "Yes" is it compliant?

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(Group 1 or 2 SA required by 9/30/03)				
19. Are all actions an plans fully integrated? (Group 1 or 2 required immediately)				
20. Do any security measures conflict with any license requirements?				
21. Is there HAZMAT/fuel storage on-site? ----- If so, is access secured?			Describe:	
22. Computer security has been addressed and is being coordinated with authorities			Is SCADA used on-site? If so, to what level/type controls are used to limit access?	
23. Are critical drawings/plans/records secured from unauthorized access?				
24. We have no comments about the Security Measures observed: ----- If comments needed, follow-up actions will be made and tracked			If no comments, check "No"; if comments needed, check "Yes".	
			List potential remediation discussed:	

**FERC Security Checklist – Form 2**

Security Information	Comments (Provide detailed information on separate sheet, if necessary)
A. Number of security/surveillance incidents in past year.	Description (indicate if it was it reported to FERC)
B. Owner expressed specific security concerns or questions.	
C. Number (description) of data requests or site visits by DHS PSA or other assessment groups	
D. Changes made to security since ----- None made:	Indicate "None" by checking here: _____. Do previous studies show prior posture was adequate?(y/n)



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last inspection	.
Following changes were made to physical site security:	If so, describe changes:
Following changes made to procedural operations (incl. threat level increase additions, employee actions, etc.):	If so, describe changes:
Following changes/additions made to cyber/SCADA operations:	If so, describe changes:
Overall Risk to security reduced due to above modifications because of:	(Cite critical pre-modification ASR value(s) and show if modifications decreased the ASR Risk value.)

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**APPENDIX B – SAMPLE FERC PROJECT SECURITY MEMORANDUM**  
**(Marked as: “Privileged, – Security Sensitive Material”)**

DATE : [DATE]

MEMORANDUM TO : [NAME]  
Regional Engineer  
[LOCATION] Regional Office  
Division of Dam Safety and Inspections

THROUGH : [NAME]  
Deputy Regional Engineer

: [NAME]  
Supervisory Dam Safety Engineer

FROM : [NAME], Civil Engineer  
[LOCATION] Regional Office

SUBJECT : Review of security documents and procedures for [NAME]  
Project, FERC No. [NAME]

The Vulnerability Assessment, Security Assessment and Security Plan were reviewed during the field inspection on [DATE]. [OR STATE OTHERWISE, IF DONE EARLIER OR NOT] Security at the Project was reviewed and found to be in accordance with the Security Plan [OR STATE OTHERWISE, IF NOT]. A DAMSVR analysis of the Project was completed on [DATE]. There were no comments about security at the site [OR STATE THAT COMMENTS ARE SHOWN IN SECTION F, BELOW, IF NOT].

**A. Project Information**

A full description of the Project features is included in the Dam Safety Report for this Project. The Project includes the following Developments and Security Group listings:

- [NAME] Dam, Security Group 1.
- [NAME] Dam, Security Group 1.
- [NAME] Dam, Security Group 2.
- [NAME] Dam, Security Group 3.

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A Vulnerability Assessment (which includes a Security Assessment) and Security Plan are required for any Security Group 1 Dam, and a Security Assessment and a Security Plan are required for any Security Group 2 Dam. No specific documentation is required for any Security Group 3 Dam.

**B. Document Review**

The Security Plan (SP) was reviewed for the Project. Major headings for the plan include the following:

[SUMMARIZE THE TABLE OF CONTENTS HERE]

The SP [does or does not] include a description of all observed security features and devices at the site. [X, Y and Z FEATURES] were described in the Security Plan, and were [OR WERE NOT] observed at the site. In addition, the SP includes a description of all reasonable security plans, procedures, and responses (including a Response Plan) to be used at the site.

The SP [does or does not] include provisions for the licensee to follow altering procedures for changing threat conditions or situations. The measures observed on the day of the inspection were consistent with the current threat level.

Site security [does or does not] conflict with any license requirements.

[COMPLETE SECTION IF GROUP 1] The Vulnerability Assessment (VA) was reviewed for the Project. Major headings for the assessment include the following:

[SUMMARIZE THE TABLE OF CONTENTS HERE]

The VA includes [OR DOES NOT INCLUDE] a description of all ‘weak points’ or vulnerable features of the project and their potential consequences, if successfully attacked.

The following features were noted as potentially vulnerable in the VA:

- [feature 1; potential consequences]
- [feature 2; potential consequences] ...

In addition, the VA includes [OR DOES NOT INCLUDE] a description of all reasonable threats applicable for the site. The main threat considered for the project was ...[discuss how licensee addresses threat]

The VA includes [OR DOES NOT INCLUDE] how the on-site security features and procedures protect the vulnerable features of the project.

The overall security risk is addressed in the VA as... [QUANTIFY IT AS TO HOW THEY DO IT...low, high, other? Describe if not done].

The Security Assessment (SA) was reviewed for the Project. Major headings for the assessment include the following:

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[SUMMARIZE THE TABLE OF CONTENTS HERE]

[Describe the SA, or if appropriate state that the SA is incorporated in the full Vulnerability Assessment ...]

The VA and SA provide a list of Recommendations to be made at the site to increase the overall security. A full list of these Recommendations is shown below:

- Recommendation 1: [DESCRIBE]
- Recommendation 2: [DESCRIBE] ...list all...

The following Recommendations have been completed [LIST COMPLETED RECOMMENDATIONS].

The following Recommendations have been scheduled, with the Plan and Schedule as follows. [LIST AND DESCRIBE HOW THEY WILL BE ADDRESSED].

The following Recommendations have been described in the documents and have been rejected by the licensee as based on the following ... [LIST AND DESCRIBE].

The following Recommendations are outstanding, with completion needing to be coordinated with the licensee [OR STATE THAT ALL ARE ADDRESSED, AS APPROPRIATE].

**C. Security Field Inspection**

Security was reviewed during the field inspection and found to be in accordance with the Security Plan [OR OTHERWISE, IF NOT]. The FERC Hydro Security Inspection Form and the Project Security Summary Information sheet (enclosed) documents the observations made during the inspection.

The following changes to site security were noted from the previous inspection [OR CITE NO CHANGES, AS APPROPRIATE]:

- [change 1].
- [change 2].

The licensee discussed the following comments about security features and procedures during the inspection [IF ANY]. [ENGINEER SHOULD COMMENT OR HAVE NO COMMENTS, AS APPROPRIATE].

**D. Internal Emergency Response and Rapid Recovery**

[ENGINEER DISCUSSES HERE IF LICENSEE CLEARLY DISPLAYS THE ABILITY TO COORDINATE SECURITY AND EMERGENCY PROCEDURES. FIND OUT IF THERE IS A CLEAR RESPONSE BETWEEN FIRST LEARNING OF A SECURITY BREACH AND INACTING THE EAP IN A TIMELY AND EFFICIENT MANNER. ARE THERE CONFLICTS BETWEEN PLANS? IS THE PROCESS SMOOTH? DO SECURITY PERSONNEL TALK TO DAM SAEFTY PERSONNEL? IS LAW ENFORCEMENT CALLED QUICKLY?]

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[ENGINEER DISCUSSES IF LICENSEE CLEARLY DISPLAYS THE ABILITY TO RESPOND RAPIDLY TO LOST SERVICES IN A MANNER THAT IS AS RAPID AS FEASIBLE. ARE THERE PROCEDURES TO RECOVER RAPIDLY?]

Discuss if there is an Internal Emergency Response and Rapid Recovery sub-element of the Security Plan.

**E. DAMSVR Analysis**

A DAMSVR analysis was completed [OR CONFIRMED FROM PREVIOUS YEAR, AS APPROPRIATE] for the Project features, and is summarized in the attached Summary sheets. This analysis provides [OR DOES NOT PROVIDE] similar results as the licensee self assessment documents. [IF NOT, DESCRIBE THE DIFFERENCES].

**F. Conclusions and Recommendations**

State conclusions and or recommendations here. Indicate outstanding issues that need to be addressed with the licensee. [Or state that there are no comments.]

ATTACHMENTS: DAMSVR SAW, Inspection Forms.

cc: Frank Calcagno, D2SI, Washington  
D2SI, Security File  
[NAME]

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**APPENDIX C – EXAMPLES OF THREAT RESPONSE ACTIONS FOR  
LICENSEES/EXEMPTES**

**Green (Low) Alert**

Low risk of terrorist attacks. There is no credible evidence of a potential terrorist attack against a hydroelectric facility in the United States or regional area. The following protective measures can be considered:

**1. EMPLOYEES**

- Perform background checks (level of detail determined by the licensee/exemptee) on any employees who could affect hydropower operations.
- Keep personnel informed of alert levels and, at regular intervals, remind all personnel to report the following to appropriate law enforcement or security personnel.

A. Suspicious personnel observing, photographing, or asking questions about dam operations or security measures.

B. Unidentified vehicles parked or operated in a suspicious manner on, or in the vicinity, of Project facilities.

C. Suspicious parcels or packages.

D. Any other activity considered suspicious.

**2. PLANNING AND COORDINATION**

- Regularly review and modify security plans and recovery plans (if present), and EAPs. Keep emergency contact lists up to date, coordinate with local law enforcement and security agencies and ensure that they are familiar with facility locations and operations.

**3. SITE SECURITY**

- Maintain appropriate level of site security. Secure buildings, rooms, and storage areas not in regular use. Maintain a list of secured facilities and areas at the facility or activity level.
- Provide routine surveillance of visitors, tour groups, and other public users of Project facilities and lands.

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**Blue (Guarded) Alert**

Guarded risk of terrorist attacks. There is no credible information to suggest a potential terrorist attack against a hydroelectric facility in the United States or regional area, but a potential may exist. In addition to the previous measures, the following protective measures can be considered:

**1. EMPLOYEES**

- Communicate the alert level to employees; remind them more frequently to report all suspicious or unusual activities.

**2. PLANNING AND COORDINATION**

- Review all operations plans and orders, EAPs, Recovery Plans, and Standard Operating Procedures (SOPs) that pertain to implementation of Alert Levels Yellow, Orange, and Red.
- Increase liaison with local police, intelligence and security agencies to monitor the threat to Project personnel and facilities. Notify local law enforcement agencies concerning measures that, if implemented, could impact on their operations in the local community.
- Consider the use of emergency exercises and drills to enhance overall preparedness.

**3. SITE SECURITY**

- Regularly inspect all buildings, rooms, and storage areas not in regular use.

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**Yellow (Elevated) Alert**

Elevated risk of terrorist attacks. There is no credible information to suggest a potential terrorist attack against a hydroelectric facility in the US or regional area, but there is a general concern of terrorist activity. In addition to all the previous measures, the following protective measures can be considered:

**1. EMPLOYEES**

- Inform personnel of general threat. Frequently update personnel on changing conditions and inform them of unclassified threat information, if available, and stress the importance of vigilance.
- Consider the implementation of random identity checks (inspection of identification cards, security badges, and vehicle registration documents).

**2. PLANNING AND COORDINATION**

- Review provisions of all operations plans and orders, EAPs, Recovery Plans, and SOPs associated with implementation of Alert Levels Orange and Red.
- Notify all law enforcement personnel, guards, and security augmentation force personnel concerning the current situation.
- Increase liaison with local police, intelligence and security agencies to monitor the threat to Project personnel and facilities. Notify local police agencies of Alert Levels Orange and Red measures that, if implemented, could impact on their operations in the local community.
- Inform the public of any changes in public access to facilities, visitor centers, and recreation areas.

**3. SITE SECURITY**

- Reduce the number of access points for vehicles and personnel consistent with the requirement to maintain a reasonable flow of traffic.
- Consider limiting public access to some or all project areas. Consider screening all persons entering visitor centers.
- Consider implementation of 24/7 surveillance of all "critical" facilities (Security Group 1 or others) as necessary. This measure includes unarmed guard forces, armed guard forces and/or law enforcement personnel. Position guard force personnel and/or security patrols at all critical areas. (This measure is especially appropriate in response to specific threat information.)
- Move motor vehicles, heavy equipment, and objects such as trash containers and crates at least 75 feet from critical areas. If the configuration of the facility or area precludes implementation of this measure, take appropriate compensatory measures in accordance with local plans.
- Regularly inspect all buildings, rooms, and storage areas not in regular use.
- At the beginning and end of each workday and at frequent intervals, inspect the interior and exterior of buildings in regular use for suspicious activity or packages, or for signs of tampering, or indications of unauthorized entry.
- Implement screening procedures for all incoming deliveries and official mail to identify possible explosive or incendiary devices, or other dangerous material. (This measure is especially appropriate in response to specific threat information.)
- Install additional physical security measures (barricades, fences, cameras, etc.) as necessary.



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**Orange (High) Alert**

High risk of terrorist attacks. There is credible evidence of a potential terrorist attack against a hydroelectric facility in the United States or regional area. In addition to the previous measures, the following protective measures can be considered:

**1. EMPLOYEES**

- Provide employees with as much information as possible on threat conditions, update information frequently. Permit variations in work schedules.
- Verify the identity of all employees and authorized personnel entering Project facilities. Inspect identification cards, security badges or other forms of personal identification. Consider implementing a detailed inspection for all entering vehicles (trunk, undercarriage, glove boxes, etc.), suitcases, briefcases, and other containers.

**2. PLANNING AND COORDINATION**

- Maintain continuous liaison with local police, intelligence and security agencies to monitor the threat to Project personnel and facilities.
- Consult with local or State authorities about closing public roads and facilities that may make Project facilities more vulnerable to attacks. Keep public informed of restricted access and road closings.

**3. SITE SECURITY**

- Implement 24/7 surveillance of all "critical" facilities (Security Group 1). This measure includes unarmed and/or armed guard forces, and/or law enforcement personnel. Position guard force personnel and/or security patrols at all critical areas. This measure may be augmented by law enforcement agencies, particularly in otherwise unprotected areas.
- Erect barriers required to control direction of traffic flow and to protect facilities vulnerable to bomb attack by parked or moving vehicles.
- Reduce facility access points to an absolute minimum necessary for continued operation. Close all visitor centers and restrict public access to all Project facilities.
- Remove all motor vehicles and heavy equipment parked within 75 feet of critical areas and other sensitive activities specified in local plans. Implement centralized parking and shuttle bus service, where required.
- Where practicable, remove signs that identify the facility.
- Conduct unannounced security spot checks (inspection of personal identification; vehicle registration; and contents of vehicles, suitcases, briefcases and other containers) at access points for Project facilities.
- Cancel non-essential deliveries.
- Cancel non-essential maintenance/construction that utilizes non-company workers.

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**Red (Severe) Alert**

Severe risk of terrorist attacks. An actual attack has occurred against a hydroelectric facility or there is credible evidence that such an attack is imminent. In addition to the previous measures, the following protective measures can be considered:

**1. EMPLOYEES**

- Verify identity of all employees entering facility, conduct detailed inspections of their vehicles, briefcases, boxes and any other type of containers. Consider options of alternate work sites for essential employees where feasible.
- Keep personnel on duty fully informed of threat conditions, implement means to provide necessary information to employees not on duty.

**2. PLANNING AND COORDINATION**

- Continue all essential coordination efforts from previous alert levels. Inform public that all facilities are closed. Request that local authorities close those public roads and facilities in the vicinity of Project facilities that may facilitate execution of an attack.
- Contact armed forces for potential coordination efforts in event of attack.

**3. SITE SECURITY**

- Augment law enforcement and guard forces to provide 24/7 surveillance and ensure absolute control over access to the facility. Implement frequent inspections of the exterior of buildings (to include roof areas) and parking areas.
- Restrict public access to all facilities.
- Inventory and verify the identity of vehicles parked at a facility and move those that are not authorized.
- Thoroughly inspect all items (baggage, suitcases, packages, and briefcases) brought to the site for the presence of explosive or incendiary devices, or other dangerous items.

As the Threat Condition changes (upward or downward) the response at Project facilities can likewise change to meet the current conditions.

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**APPENDIX D - DAMSVR**

The Federal Energy Regulatory Commission (FERC) is the distribution center for the DAMSVR document, and all requests for copies of DAMSVR may be made to FERC as described below.

Any organization or person demonstrating a legitimate need to obtain a copy of DAMSVR will be provided a copy via electronic means. The FERC reserves the right to refuse distribution of DAMSVR to any organization and/or person if they cannot demonstrate a need to have the document (ref. Order No. 630, 630-A, Critical Energy Infrastructure Information at: <http://www.ferc.gov/legal/ceii-foia/ceii.asp>)<sup>3</sup>. An organization or person may request a copy by visiting the FERC website at:

<http://www.ferc.gov/industries/hydropower/safety/security.asp>

Follow the links for a “Request for DAMSVR” and complete the online forms. Only one person from an organization should request DAMSVR from FERC. Each organization or person requesting a copy of DAMSVR must designate this person as the single Point of Contact (POC), who will be responsible for requesting copies from FERC and for distribution of DAMSVR within his/her organization, and only to those employees with a need to have a copy. While requesting DAMSVR online, you will need to provide your name, organization, position, stated need for the document, and your intended use of the methodology. When the request is completed, your organization will be registered as a DAMSVR user. In most cases, a copy of DAMSVR will be sent within five working days of a request. The POC can distribute DAMSVR only to employees within his/her organization, and if asked to provide copies from personnel outside their organization, they should direct the requestor to the FERC website as noted above.

It is anticipated that DAMSVR will be continually reviewed in order to provide the best product possible. FERC will retain the most current version of DAMSVR. Each copy of DAMSVR contains a Revision/Date Number and FERC will make every attempt to provide currently registered users with the latest version. The current Revision/Date Number will be posted on the FERC website at:

<http://www.ferc.gov/industries/hydropower/safety/security.asp>

Users of DAMSVR are encouraged to refer to this site periodically to ensure that their copy is current. If your organization does not have the most current version of DAMSVR, your POC can request a revised copy via the same link described above. POCs are also encouraged to provide methodology feedback to FERC via the above link.

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<sup>3</sup> DAMSVR, although intended as a security assessment methodology, contains information and procedures that could potentially be used to plan an attack against a dam. As such, DAMSVR should be treated as a sensitive document and should only be provided to users demonstrating a need to have the document. Distribution of this document outside your organization is not authorized.

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**APPENDIX E - RECOVERY (RESPONSE) PLAN FORMAT (DRAFT)**

Below is a suggested Table of Contents for an Internal Emergency Recovery (Response) Plan. *This Internal Emergency Recovery Plan (IERP) is designed as a separate document which can supplement the primary Emergency Action Plan (EAP) and be part of a project's Security Plan. Whereas the primary EAP is designed to facilitate early warning and evacuation of potentially affected downstream areas, this document deals with MITIGATION AND EMERGENCY REPAIR OF AFFECTED COMPANY STRUCTURES AND PLANT FACILITIES. This plan should be utilized for any emergency arising at the site, whether from natural or manmade causes. The content of the Recovery Plan should avoid duplication of existing plans (such as the EAP) as much as possible. The Recovery Plan is intended for internal use and response only.*

**Sample Table of Contents:**

- I. Purpose of Internal Plan
- II. Applicable Emergency Scenarios (listed for each scenario is primary concerns, materials/equipment needed, & operating procedures)
  - a. Overtopping (including excessive inflow or reservoir displacement)
  - b. Earthquake Damage
  - c. Loss of Dam Crest Length
  - d. Slide on Upstream or Downstream Slope of Embankment
  - e. Slide on Underlying Potential Failure Plane
  - f. Excessive Settlement
  - g. Sinkhole Activity
  - h. Loss of Foundation or Abutment Material (such as landslide/rockfall)
  - i. Excessive Seepage/Piping through Embankment, Foundation, or Abutments
  - j. Failure of Appurtenant Structure Such as a Spillway Gate
  - k. Excessive Cracking in Concrete Section
  - l. Penstock Rupture/Failure
  - m. Turbine or Other Equipment Failure
  - n. Vandalism/Bomb Threat/Terrorism
  - o. Other
- III. Incident Command System (ICS) & Company Internal Assignments/Responsibilities
  - a. Incident Command System (ICS)
  - b. ICS Chart: Company Personnel Assignments
  - c. Incident Command Post and Alternate Command Post
  - d. Personnel at On-Site Incident Command Post
  - e. Main Headquarters Emergency Personnel

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- f. Media Contact (Public Information Officer)
  
- IV. Coordination with Local Authorities
  - a. Multiple-Jurisdiction Incident (Unified Command)
  - b. Safety/Clearance Issues & Authorization
  
- V. Communications, Maps, and Drawings
  - a. Communications Center
  - b. Alternate Communications Methods (cell phone, radios)
  - c. Drawings, Maps, Photographs
  
- VI. Vehicles, Equipment, Materials (e.g., sandbags, concrete, rip rap) & Contractors
  - a. Plant On-Site Inventory
  - b. Other Available Company Vehicles, Equipment, Materials, & Supplies
  - c. Non-Company Supplies/Materials (including helicopters if necessary)
  - d. Outside Contractors and Consultants
  
- VII. Response Times & Geographical Limitations
  - a. Call-out Procedure
  - b. Estimated Response Times
  - c. Primary & Secondary Access Roads & Alternatives
  - d. Staging Areas for Personnel & Equipment
  
- VIII. Meals & Lodging
  - a. Company Living Facilities
  - b. Local Restaurants & Motels
  
- IX. Internal Maintenance of Plan

**Appendices:**

- Appendix A: List of Company Response Personnel (internal call-out list of phone numbers)
- Appendix B: List of Contractors/Consultants (addresses and phone numbers)
- Appendix C: List of Equipment Suppliers (addresses and phone numbers)
- Appendix D: Local Restaurants & Motels (addresses and phone numbers)
- Appendix E: Other Utilities/Mutual Aid (phone numbers of key contacts)
- Appendix F: Federal/Governmental Assistance (phone numbers of key contacts)
- Appendix G: Engineering Key Drawing List (drawings are located in two secure, non-inundated areas near the facility)
- Appendix H: Highway Maps and Photos of Dam

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- Appendix I: Emergency Helicopter Rescue Numbers  
Appendix J: Bomb Threat Procedures  
Appendix K: EAP Flowcharts A and B (identical to those in the regular EAP)

Guidance for the Preparation of the Recovery Plan

Sections I through IX (not including appendices) could total less than 25 double-spaced pages. This document (like the Security Plan) is not required to be actually submitted to the FERC. FERC Engineers could ask to examine the plan during the annual inspections and comment on its acceptability. The FERC suggests that this document, when prepared, be marked as "CEII."

The Recovery Plan is primarily developed for the benefit of the dam owner, but also will be beneficial to the region or country in rapidly reinstating essential project benefits. Having a comprehensive plan enables licensees to more quickly mitigate, recover, and "get back on line" following a serious structural incident at a facility. It makes good business sense for a licensee to formulate a Recovery Plan for those facilities that would (if they failed) most seriously impact the licensee's generating capability and/or bottom line economic benefits. Recovery Plans are not necessarily applicable for every High Hazard Potential facility. It is suggested that the Recovery Plan is optional for all facilities under a generating capacity of 50 MW.

The recovery phase should begin as soon as possible after the catastrophic event (dam failure, loss or damage to powerhouse, loss of main transmission line, etc.) and usually overlaps the "response phase" of the event. Planning and actions during the "response phase" should consider any actions which might be implemented to return the development to service. Recovery phases include "initial" (within one week) and "long-term" activities (recovery could continue for months), depending upon the magnitude of impact on hydroelectric facility operations, including dams, powerhouses, and water conveyance.

Section I. Purpose of Internal Plan

This Internal Emergency Recovery Plan (IERP) is designed as a separate document which can supplement the primary Emergency Action Plan (EAP). Whereas the primary EAP is designed to facilitate early warning and evacuation of potentially affected downstream areas, this document deals with mitigation and emergency repair of affected company structures and plant facilities. A Recovery Plan should be prepared on a site-specific basis in that different facilities (i.e., dams and associated structures) will require different considerations. This is not intended to be a company-wide Continuity of Operations Plan, but rather a plan to bring a specific facility back in operation as efficiently as possible. It is intended for internal use and response only.

Section II. Applicable Emergency Scenarios

Each "Applicable Emergency Scenario" need only be one page in length, including materials/equipment needed and operating procedures. A universe of potential emergency scenarios need not be listed for each facility, but rather should be tailored to the site-specifics of

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the facility. For example, “Overtopping” may be a minor concern for a facility designed to accommodate flows over the entire structure. A good start in developing applicable emergency scenarios is the Potential Failure Modes Analysis (PFMA) document prepared for the facility, although all applicable scenarios, such as terrorism, may not be covered in the PFMA.

Each critical component for the applicable scenario should be identified with the likely range of potential hazards and consequences. Predict the type and magnitude of damage, and develop a list of options to minimize the consequences, either by reducing initial damage, or by limiting progression of the initial damage, or by reducing the time needed to repair the damage. Results of this effort should be consolidated into a list of recommended actions that might include procurement, stockpiling, on-the-shelf designs, or general preparedness actions. An example of what a component analysis could entail is shown in Attachment 1.

### Section III. Incident Command System (ICS) & Company Internal Assignments/Responsibilities

The purpose of this section is to describe the emergency response structure the dam owner will operate within and briefly discuss the roles and responsibilities expected from personnel internal to the dam owner’s organization.

Another important consideration to address is the role and responsibility of the dam owner personnel to respond to the emergency, both in an initial and a long-term basis. Things to consider include (but are not necessarily limited to):

#### Initial Recovery

- If the Emergency Action Plan is still activated, determine appropriate time to terminate EAP and transition to Recovery phase. Define requirements for interim inspection and monitoring above and beyond the Standard Operating Procedures.
- Restore critical systems (generation facilities, dams, water conveyance systems, telecommunications, monitoring systems, controls, etc.) to stable and safe operations. Assure public safety and business continuity.
- Evaluate the need to continue the Emergency Management Organization (the Leadership team put in place by activation of the Emergency Action Plan), and transition back to normal organizational structure, roles and responsibilities as soon as feasible.
- Complete detailed condition assessment of all relevant facilities, equipment and operations.
- Coordination with other agencies for the mitigation of the emergency, especially for environmental concerns.
- Conduct after-event critiques and debriefings as soon as practical; provide incident reports to Company Management and Regulatory Agencies.
- Consider appointing a Recovery Team (members experienced with evaluation of structures, systems, equipment and operations; this team would develop the alternatives to be evaluated and approved for returning to normal operations) to plan and oversee the long-term recovery process.

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- Establish priorities for permanent repair, reconstruction, or replacement at existing or new locations.
- Complete an assessment of losses and an analysis of costs for repairs versus replacements.
- Review and define needs for additional specialized technical resources and temporary staff, including additional security staff if necessary, and initiate procurement/recruitment process.
- Arrange for orientation and training of any temporary staff.
- Determine approximate reimbursements from insurance and other sources of financial assistance, and identify alternatives for financing residual costs.

**Long-Term Recovery**

- Revise Operational Plans, Emergency Action Plans, and Disaster Recovery Plans and Manuals as appropriate.
- Identify any enhancements that should be made to hydroelectric facility components and/or operations, and establish strategy for long-term recovery and environmental restoration.
- Establish and maintain liaison with federal, state, and local government agencies for inspections, permits and reconstruction as necessary.
- Initiate permanent reconstruction of damaged facilities and replacement of damaged equipment.

**Section IV. Coordination with Local Authorities**

This section should briefly discuss what the dam owner needs to do to coordinate with the local law enforcement and emergency response personnel they will work with, and any special needs they have identified. The complete list of applicable agencies would be included in Appendix K, the EAP Flowcharts.

**Section V. Communications, Maps, and Drawings**

This section should list how communications will occur throughout the emergency, list alternate communication sources, and include a brief section with pertinent maps, drawings and photographs that would be useful to have during an emergency. Maps, drawings and photographs may be included in Appendices G and H.

**Section VI. Vehicles, Equipment, Materials (e.g., sandbags, concrete, rip rap) & Contractors**

This section should list all the vehicles, materials and equipment the dam owner would need to respond to the applicable emergency scenarios identified in Section II. A current list of contractors and support personnel that can be utilized during the emergency should also be listed in this section for easy reference.



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Section VII. Response Times & Geographical Limitations

Anticipated response times, call-out procedures and geographic limitations should be addressed in this section. Clearly defined directions to critical areas and other locations should be included in textural and graphical format. Staging areas and security exclusion zones should also be identified.

Section VIII. Meals & Lodging

Any logistical considerations for sustaining personnel detailed to temporary quarters should be identified in this section.

Section IX. Internal Maintenance of Plan

This section should address how the Recovery Plan is maintained (updated). Internal employee training of the procedures and information contained within the Plan should also be defined.

Appendices

The most critical section of the Plan is the Appendix section (the "nuts and bolts" that helps mitigate/recover from the emergency). The appendices could probably suffice by themselves as the "recovery" plan for most licensees. They contain information that most dam owners undoubtedly (and hopefully) already have on file somewhere to mitigate an emergency. This information is simply consolidated into a single document. Appendices should be designed so that critical information contained therein may easily be verified and updated on an annual basis.

**Attachment 1**

**Examples of Component Analysis**

**Component:** Switchyard transformer

**Likely type/magnitude of damage:** Ballistic damage to shell and windings

**Consequences of damage:** No immediate loss of hydropower transmission, due to availability of redundant transformer capacity. Less reliable system until transformer is replaced (normal 18 month replacement time); possible power loss would represent a very small percentage of regional capacity

**Options to minimize consequences:**

1. Rely on existing redundant transformer capacity
2. Install additional redundant capacity
3. Emergency procurement of new transformer (9 months)

**Recommended option:** #1, but this will limit system reliability until a new transformer is online

**Component:** Tainter gates

**Likely type/magnitude of damage:** Trunion pin failure deforms gate, making gate inoperable

**Consequences of damage:** Until gate is replaced (normal 14 month replacement time) loss of pool, reduction of recreation, loss of power production

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**Options to minimize consequences:**

1. Procure and store a spare gate (2 week recovery)
2. Emergency procurement of a new gate (9 months)
3. Procure and store a bulkhead to restore pool until new gate is installed

**Recommended option:** #3, bulkhead will be suitable for use at 5 company projects

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**APPENDIX F - NERC SECURITY BEST PRACTICE**

Electric Reliability: NERC Standards

**Disposition of Standards, Glossary and Regional Differences**

**Updated:** January 9, 2009

**Note:** Approved Reliability Standards are effective 60 days from the later of the date Congress receives the agency notice or the date the rule is published in the Federal Register.

Reliability Standard	Title	Status	Approval date
BAL-001-0	Real Power Balancing Control Performance	Approved	March 15, 2007
BAL-002-0	Disturbance Control Performance	Approved; direct modification	March 15, 2007
BAL-003-0	Frequency Response and Bias	Approved; direct modification	March 15, 2007
BAL-004-0	Time Error Correction	Approved; direct modification	March 15, 2007
BAL-005-0	Automatic Generation Control	Approved; direct modification	March 15, 2007
BAL-006-1	Inadvertent Interchange	Approved; direct modification	March 15, 2007
CIP-001-1	Sabotage Reporting	Approved; direct modification	March 15, 2007
COM-001-1	Telecommunications	Approved; direct modification	March 15, 2007
COM-002-2	Communications and Coordination	Approved; direct modification	March 15, 2007
EOP-001-0	Emergency Operations Planning	Approved; direct modification	March 15, 2007
EOP-002-2	Capacity and Energy Emergencies	Approved; direct modification	March 15, 2007
EOP-003-1	Load Shedding Plans	Approved; direct modification	March 15, 2007
EOP-004-1	Disturbance Reporting	Approved; direct modification	March 15, 2007
EOP-005-1	System Restoration Plans	Approved; direct modification	March 15, 2007
EOP-006-1	Reliability Coordination - System Restoration	Approved; direct modification	March 15, 2007

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EOP-007-0	Establish, Maintain, and Document a Regional Blackstart Capability Plan	Pending	
EOP-008-0	Plans for Loss of Control Center Functionality	Approved; direct modification	March 15, 2007
EOP-009-0	Documentation of Blackstart Generating Unit Test Results	Approved	March 15, 2007
FAC-001-0	Facility Connection Requirements	Approved	March 15, 2007
FAC-010-2	System Operating Limits Methodology for the Planning Horizon	Pending	
FAC-002-0	Coordination of Plans for New Facilities	Approved; direct modification	March 15, 2007
FAC-003-1	Transmission Vegetation Management Program	Approved; direct modification	March 15, 2007
FAC-004-0	Methodologies for Determining Electrical Facility Ratings	Withdrawn	
FAC-005-0	Electrical Facility Ratings for System Modeling	Withdrawn	
FAC-008-1	Facility Ratings Methodology	Approved; direct modification	March 15, 2007
FAC-009-1	Establish and Communicate Facility Ratings	Approved	March 15, 2007
FAC-010-1	System Operating Limits Methodology for the Planning Horizon	Approved	December 20, 2007
FAC-011-1	System Operating Limits Methodology for the Operations Horizon	Approved; direct modification	December 20, 2007
FAC-011-2	System Operating Limits Methodology for the Operations Horizon	Pending	
FAC-012-1	Transfer Capabilities Methodology	Pending	
FAC-013-1	Establish and Communicate Transfer Capabilities	Approved; direct modification	March 15, 2007
FAC-014-1	Establish and Communicate System Operating Limits	Approved	December 20, 2007
FAC-014-2	Establish and Communicate System Operating Limits	Pending	
INT-001-3	Interchange Transaction Tagging	Approved; modified on July 21, 2008	March 15, 2007
INT-002-0	Interchange Transaction Tag	Withdrawn	

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Communication and Assessment			
INT-003-2	Interchange Transaction Implementation	Approved; modified on July 21, 2008	March 15, 2007
INT-004-2	Interchange Transaction Modifications	Approved; modified on July 21, 2008	March 15, 2007
INT-005-2	Interchange Authority Distributes Arranged Interchange	Approved; modified on July 21, 2008	March 15, 2007
INT-006-2	Response to Interchange Authority	Approved; modified on July 21, 2008	March 15, 2007
INT-007-1	Interchange Confirmation	Approved	March 15, 2007
INT-008-2	Interchange Authority Distributes Status	Approved; modified on July 21, 2008	March 15, 2007
INT-009-1	Implementation of Interchange	Approved	March 15, 2007
INT-010-1	Interchange Coordination Exceptions	Approved	March 15, 2007
IRO-001-1	Reliability Coordination – Responsibilities and Authorities	Approved; direct modification	March 15, 2007
IRO-002-1	Reliability Coordination – Facilities	Approved; direct modification	March 15, 2007
IRO-003-2	Reliability Coordination – Wide Area View	Approved; direct modification	March 15, 2007
IRO-004-1	Reliability Coordination - Operations Planning	Approved; direct modification	March 15, 2007
IRO-005-1	Reliability Coordination – Current Day Operations	Approved; direct modification	March 15, 2007
IRO-006-3	Reliability Coordination – Transmission Loading Relief	Approved; direct modification	March 15, 2007
IRO-014-1	Procedures, Processes, or Plans to Support Coordination Between Reliability Coordinators	Approved	March 15, 2007
IRO-015-1	Notifications and Information Exchange Between Reliability Coordinators	Approved	March 15, 2007
IRO-016-1	Coordination of Real-time Activities Between Reliability Coordinators	Approved	March 15, 2007
MOD-001-0	Documentation of TTC and ATC Calculation Methodologies	Pending	
MOD-002-0	Review of TTC and ATC Calculations and Results	Pending	
MOD-003-0	Procedure for Input on TTC and ATC Methodologies and Values	Pending	

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MOD-004-0	Documentation of Regional CBM Methodologies	Pending	
MOD-005-0	Procedure for Verifying CBM Values	Pending	
MOD-006-0	Procedures for Use of CBM Values	Approved; direct modification	March 15, 2007
MOD-007-0	Documentation of the Use of CBM	Approved; direct modification	March 15, 2007
MOD-008-0	Documentation and Content of Each Regional TRM Methodology	Pending	
MOD-009-0	Procedure for Verifying TRM Values	Pending	
MOD-010-0	Steady-State Data for Transmission System Modeling and Simulation	Approved; direct modification	March 15, 2007
MOD-011-0	Regional Steady-State Data Requirements and Reporting Procedures	Pending	
MOD-012-0	Dynamics Data for Transmission System Modeling and Simulation	Approved; direct modification	March 15, 2007
MOD-013-1	RRO Dynamics Data Requirements and Reporting Procedures	Pending; direct modification	
MOD-014-0	Development of Interconnection-Specific Steady State System Models	Pending	
MOD-015-0	Development of Interconnection-Specific Dynamics System Models	Pending	
MOD-016-1	Actual and Forecast Demands, Net Energy for Load, Controllable DSM	Approved; direct modification	March 15, 2007
MOD-017-0	Aggregated Actual and Forecast Demands and Net Energy for Load	Approved; direct modification	March 15, 2007
MOD-018-0	Reports of Actual and Forecast Demand Data	Approved	March 15, 2007
MOD-019-0	Forecasts of Interruptible Demands and DCLM Data	Approved; direct modification	March 15, 2007
MOD-020-0	Providing Interruptible Demands and DCLM Data	Approved; direct modification	March 15, 2007
MOD-021-0	Accounting Methodology for Effects of Controllable DSM in Forecasts	Approved; direct modification	March 15, 2007
MOD-024-1	Verification of Generator Gross and Net Real Power Capability	Pending	

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MOD-025-1	Verification of Generator Gross and Net Reactive Power Capability	Pending	
NUC-001-1	Nuclear Plant Interface Coordination	Approved	October 16, 2008
PER-001-0	Operating Personnel Responsibility and Authority	Approved	March 15, 2007
PER-002-0	Operating Personnel Training	Approved; direct modification	March 15, 2007
PER-003-0	Operating Personnel Credentials	Approved; direct modification	March 15, 2007
PER-004-1	Reliability Coordination – Staffing	Approved; direct modification	March 15, 2007
PRC-001-1	System Protection Coordination	Approved; direct modification	March 15, 2007
PRC-002-1	Define and Document Disturbance Monitoring Equipment Requirements	Pending	
PRC-003-1	Regional Requirements for Analysis of Misoperations of Transmission and Generation Protection Systems	Pending	
PRC-004-1	Analysis and Mitigation of Transmission and Generation Protection System Misoperations	Approved	March 15, 2007
PRC-005-1	Transmission and Generation Protection System Maintenance and Testing	Approved; direct modification	March 15, 2007
PRC-006-0	Development and Documentation of Regional UFLS Programs	Pending	
PRC-007-0	Assuring Consistency with Regional UFLS Program	Approved	March 15, 2007
PRC-008-0	Underfrequency Load Shedding Equipment Maintenance Programs	Approved; direct modification	March 15, 2007
PRC-009-0	UFLS Performance Following an Underfrequency Event	Approved	March 15, 2007
PRC-010-0	Assessment of the Design and Effectiveness of UVLS Program	Approved; direct modification	March 15, 2007
PRC-011-0	UVLS System Maintenance and Testing	Approved; direct modification	March 15, 2007
PRC-012-0	Special Protection System Review Procedure	Pending	
PRC-013-0	Special Protection System Database	Pending	

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PRC-014-0	Special Protection System Assessment	Pending	
PRC-015-0	Special Protection System Data and Documentation	Approved	March 15, 2007
PRC-016-0	Special Protection System Misoperations	Approved; direct modification	March 15, 2007
PRC-017-0	Special Protection System Maintenance and Testing	Approved; direct modification	March 15, 2007
PRC-018-1	Disturbance Monitoring Equipment Installation and Data Reporting	Approved	March 15, 2007
PRC-020-1	Under-Voltage Load Shedding Program Database	Pending	
PRC-021-1	Under-Voltage Load Shedding Program Data	Approved	March 15, 2007
PRC-022-1	Under-Voltage Load Shedding Program Performance	Approved	March 15, 2007
TOP-001-1	Reliability Responsibilities and Authorities	Approved; direct modification	March 15, 2007
TOP-002-2	Normal Operations Planning	Approved; direct modification	March 15, 2007
TOP-003-0	Planned Outage Coordination	Approved; direct modification	March 15, 2007
TOP-004-1	Transmission Operations	Approved; direct modification	March 15, 2007
TOP-005-1	Operational Reliability Information	Approved; direct modification	March 15, 2007
TOP-006-1	Monitoring System Conditions	Approved; direct modification	March 15, 2007
TOP-007-0	Reporting SOL and IROL Violations	Approved	March 15, 2007
TOP-008-1	Response to Transmission Limit Violations	Approved; direct modification	March 15, 2007
TPL-001-0	System Performance Under Normal Conditions	Approved; direct modification	March 15, 2007
TPL-002-0	System Performance Following Loss of a Single BES Element	Approved; direct modification	March 15, 2007
TPL-003-0	System Performance Following Loss of Two or More BES Elements	Approved; direct modification	March 15, 2007
TPL-004-0	System Performance Following Extreme BES Events	Approved; direct modification	March 15, 2007
TPL-005-0	Regional and Interregional Self-	Pending	



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	Assessment Reliability Reports		
TPL-006-0	Assessment Data from Regional Reliability Organizations	Pending	
VAR-001-1	Voltage and Reactive Control	Approved; direct modification	March 15, 2007
VAR-002-1	Generator Operations for Maintaining Network Voltage Schedules	Approved	March 15, 2007
Glossary	Glossary of Terms Used in Reliability Standards	Approved; direct modification	March 15, 2007
Regional Difference	BAL-001:ERCOT:CPS2	Approved; direct modification	March 15, 2007
Regional Difference	INT-001/4: WECC Tagging Dynamic Schedules and Inadvertent Payback	Withdrawn	
Regional Difference	BAL-006: MISO RTO inadvertent Interchange Accounting	Approved	March 15, 2007
Regional Difference	BAL-006: MISO/SPP Financial Inadvertent Settlement	Approved	March 15, 2007
Regional Difference	INT-003: MISO/SPP Scheduling Agent	Approved	March 15, 2007
Regional Difference	INT-003: MISO Enhanced Scheduling Agent	Approved	March 15, 2007
Regional Difference	INT-001/3:MISO Energy Flow Information	Approved	March 15, 2007
Regional Difference	IRO-006: PJM/MISO/SPP Enhanced Congestion Management	Pending	

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CIP Reliability Standards  
**Updated:** January 18, 2008

**Note:** Approved reliability standards are effective 60 days from the later of the date Congress receives the agency notice or the date the rule is published in the Federal Register.

<b>Reliability Standard</b>	<b>Title</b>	<b>Status</b>	<b>Approval date</b>
CIP-002-1	Critical Cyber Asset Identification	Approved	01/18/08
CIP-003-1	Security Management Controls	Approved	01/18/08
CIP-004-1	Personnel and Training	Approved	01/18/08
CIP-005-1	Electronic Security Perimeter(s)	Approved	01/18/08
CIP-006-1	Physical Security of Critical Cyber Assets	Approved	01/18/08
CIP-007-1	Systems Security Management	Approved	01/18/08
CIP-008-1	Incident Reporting and Response Planning	Approved	01/18/08
CIP-009-1	Recovery Plans for Critical Cyber Assets	Approved	01/18/08