



U.S. Department of Energy  
Office of Inspector General  
Office of Audit Services

# Audit Report

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The Federal Energy Regulatory  
Commission's Program to Oversee  
Hydroelectric Dams

DOE/IG-0750

December 2006




## Department of Energy

Washington, DC 20585

December 18, 2006

### MEMORANDUM FOR THE CHAIRMAN, FEDERAL ENERGY REGULATORY COMMISSION

FROM:

  
Gregory H. Friedman  
Inspector General

SUBJECT:

INFORMATION: Audit Report on "The Federal Energy Regulatory  
Commission's Program to Oversee Hydroelectric Dams"

### BACKGROUND

Pursuant to the Federal Power Act, the Federal Energy Regulatory Commission (FERC) regulates certain aspects of non-Federal hydroelectric dams. FERC is required to ensure the safety, stability, and integrity of these dams with the goal of protecting life, health, and property from, among other things, instances of sabotage and vandalism. To meet these requirements, FERC developed its Dam Safety and Security Programs to inspect and review safety and security efforts for about 2,600 dams. Of this number, over 900 are considered so significant or high hazard that if breached, loss of life and substantial economic and energy production disruption could result.

In a prior audit of the *Federal Energy Regulatory Commission's Dam Safety Program* (DOE/IG-0486, October 2000), we observed that improvements were needed in the review and the processing of internal reports related to the safety of the dams under FERC's jurisdictions. We conducted the current review to determine whether FERC had resolved previously identified issues related to its Dam Safety Program and had implemented an effective security program. Our decision to address this topic again was influenced by the national effort to enhance security in the post September 11, 2001, environment.

### RESULTS OF AUDIT

FERC had made a number of improvements to its Dam Safety Program. We noted, however, weaknesses in the program related to dam security inspection, analysis and review activities. In our judgment, these weaknesses adversely impacted the Commission's ability to oversee the security of dams within its jurisdiction. In particular, FERC had not:

- Captured, or tracked to resolution, needed dam security improvements;
- Ensured that its reviews of the adequacy of dam vulnerability and security assessments were documented and subjected to management or quality assurance review; and,
- Adequately documented its performance of security inspections.



Our audit focused on the 900 FERC-regulated dams which had been identified as high or significant hazard. Thus, our findings related to dam security were of concern.

The problems occurred, at least in part, because FERC had not placed sufficient emphasis on establishing or enforcing internal controls for its dam security inspection and assessment activities. In particular, we noted that FERC had not always required that these activities be documented and the results retained and subjected to management and quality assurance reviews. Controls were also inadequate to ensure that dam security weaknesses were identified and tracked to resolution. As a consequence, FERC cannot ensure, nor could we determine, whether needed improvements in dam security were identified and corrected. Absent essential program improvements, FERC can not ensure that dam owners are implementing measures to reduce the vulnerability of intentional or malicious damage to these facilities, and, in so doing, reduce the risk of loss of life and property and/or potential energy supply disruption.

FERC program officials indicated that efforts were underway to improve the Commission's ability to document the results of its security regulation activities and to help ensure that security related vulnerabilities were tracked to resolution. These officials also told us that they intended to take action to reinforce existing requirements for properly completing annual security checklists. While these are positive steps, additional action is necessary. In that connection, we made several recommendations designed to help strengthen the administration and effectiveness of FERC's security regulation of hydroelectric dams.

As noted previously, in contrast to its security program for hydroelectric dams, we found that FERC's Dam Safety Program, while still suffering from some processing delays, was relatively robust. Officials told us that they compensated for delays in the processing of annual safety inspection reports and reviews of consultant reports by performing preliminary reviews of all such reports to determine whether there are immediate safety issues. When such issues are found, FERC indicated that it reprioritizes its staff work loads to concentrate on resolving them. Our assessment of a sample of overdue inspection reports and reviews of independent consultant reports demonstrated the efficacy of this approach. Our testing also indicated that actions were being taken to address recommended corrective actions.

#### MANAGEMENT REACTION

FERC's comments and planned actions were responsive to our recommendations. Proposed actions, once completed, should help improve the effectiveness of its dam security regulatory process. In particular, FERC proposed a number of corrective actions aimed at strengthening its program such as working with other Federal agencies to determine whether documentation supporting its regulatory activities can be protected from public disclosure, enhancing data collection and tracking processes, and providing training. FERC's comments are presented in their entirety in Appendix 3.

Attachment

cc:

Executive Director, FERC  
Audit Liaison, FERC

# REPORT ON THE FEDERAL ENERGY REGULATORY COMMISSION'S PROGRAM TO OVERSEE HYDROELECTRIC DAMS

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## TABLE OF CONTENTS

### Security Regulation of Hydroelectric Dams

Details of Finding .....	1
Recommendations and Comments.....	5

### Appendices

1. Images of Regulated Dams .....	7
2. Objective, Scope, and Methodology .....	8
3. Prior Audit Report.....	10
4. Management Comments .....	11

## SECURITY REGULATION OF HYDROELECTRIC DAMS

### **Security Inspection, Review and Analysis**

Our review revealed opportunities to improve the oversight of security at high and significant hazard dams regulated by The Federal Regulatory Commission (FERC). In particular, we learned that while security-related inspections and analyses were taking place, program officials did not adequately document the results of their activities and could not demonstrate that their work had been subjected to management or quality assurance reviews. Similarly, inspectors and program officials did not specifically identify or track to resolution needed security corrective measures. In contrast, other agencies' review and analyses of security conditions at federally-owned dams were more comprehensive.

#### Licensee Assessments

As part of its overall security program, FERC requires hydroelectric dam licensees to perform vulnerability and security assessments of their facilities. These assessments provide essential information on security weaknesses and potential threats to a facility. They also provide information on the appropriateness and effectiveness of the facility's security system and describe what actions should be taken to address security weaknesses. While FERC officials told us that inspectors routinely performed the required analyses of licensee security and vulnerability assessments, we learned that they did not document the results of their work in this area.

Inspectors did not prepare a comprehensive analysis of the adequacy of the licensees' vulnerability and security assessments and did not subject the results of such analysis to management or quality assurance reviews. Although one official told us that FERC's Regional Engineers were briefed regarding findings of significant hazards, documentation was not available to support that assertion. The responsible program official was also unable to provide specifics as to what information was provided during briefings and action taken with regard to individual weaknesses or licensees. FERC officials told us that they do document the results of risk assessments they perform on regulated dams and their critical components. We observed, however, that these assessments also did not always document specifics of security features or their effectiveness and did not address needed corrective measures or vulnerabilities identified by licensees. (See Appendix I for images of regulated dams.)

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## Security Inspections

Concurrent with the assessment process detailed above, FERC is also required to perform annual inspections of all high and significant hazard dams within its purview. Inspections are performed by civil engineers from FERC's five regional offices and cover all aspects of the licensees' security program. Inspectors are required to document the results of their annual inspections by completing a security checklist that provides yes, no, or not applicable answers to a series of questions regarding protective measures. Once completed, inspectors' checklists are to be maintained at FERC's regional offices and, consistent with program guidance, are not forwarded to Headquarters for review or approval.

Contrary to program guidance, we determined that FERC inspectors did not always adequately document the results of their security inspections of licensees' dams. Specifically, for 7 of 65 inspections we sampled, we noted that inspectors did not document the results of their work by completing a new checklist describing current year conditions. Some of the security checklists in our sample also contained vague comments such as "fence" and "vandals" that could not be traced to specific protective measures or weaknesses, and none contained recommendations for correction of weaknesses or for upgrades to security. Security program management officials told us that they were unaware that checklists were not being properly completed. They acknowledged that such practice was contrary to existing guidance and pledged to take appropriate steps to reinforce the importance of properly completing security checklists.

### Identifying and Monitoring Security Weaknesses

Although aware of details regarding security weaknesses, FERC also did not capture or adequately detail improvements needed at licensee dams. Security program guidance indicates that information gathered through inspections and analyses of the security and vulnerability assessments prepared by dam licensees form the basis for the development of specific recommendations to enhance security. We learned, however, that those who performed inspections and analysis often became aware of but did not document needed improvements.

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Program officials at Headquarters told us that current guidance does not require tracking of security weaknesses, and it is their view that licensees would ensure that needed corrective actions were taken. However, since FERC did not track recommendations to resolution, they were unable to determine whether appropriate corrective actions had been taken. While they did not identify specific sites or particular inspections, in response to our inquiry, inspectors recalled that weaknesses identified during assessments and inspections related to needed security enhancements in areas such as guards, intrusion alarms and motion detectors, and increased cyber security.

#### Benchmark Dam Security Programs

In contrast to FERC's regulation of security for hydroelectric dams, other agencies' dam security programs were more robust and allowed them better control over corrective actions. For example, the Department of Interior, Bureau of Reclamation's dam security program, which also requires vulnerability assessments at its high and significant hazard Federal dams, includes provisions to document the results of these assessments; review and approve recommendations to ensure that they are adequate, consistent and cost effective; and, track corrective actions. Similarly, the U.S. Army Corps of Engineers informed us that recommendations made as a result of its dam security inspections are binding and annotated as a recurring deficiency until the recommended security upgrade is implemented. FERC officials indicated that they did not believe they should be compared to these Federal agencies because those agencies owned their dams and did not have to share their security information with external agencies.

#### **Control and Documentation Issues**

These problems occurred, at least in part, because FERC did not place sufficient emphasis on establishing or enforcing internal control for its dam security-related inspection and assessment activities. In particular, FERC did not always require that significant activities be documented, the results retained, and subjected to management and quality assurance reviews. Controls were also inadequate to ensure that dam security weaknesses were identified and tracked to resolution. Where documentation controls had been established, program officials did not ensure that inspectors adhered to existing guidance and had not established mechanisms to transport or maintain sensitive information related to security vulnerabilities.

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FERC is required to ensure the security of non-Federal hydroelectric dams; however, its program guidance did not require that inspectors and management officials adequately document the results of its reviews of licensee security and vulnerability assessments or to track weaknesses to resolution. FERC officials told us that it did not require its inspectors to document detailed security information – and was, therefore, unable to track recommendations – because they believed they did not have authority to maintain sensitive critical energy infrastructure information. FERC officials indicated that they initially took this path because licensees were concerned that they would not be able to adequately safeguard their information from public disclosure. Program officials responded to this concern by not accumulating detailed security information on licensees' facilities. While FERC officials told us that they had consulted with Department of Energy officials regarding establishing a facility to securely store such data, we noted that such a facility was not in place as of October 2006 and little progress had been made in accumulating supporting information since the program was initiated in July 2002.

Problems with the proper completion of annual security checklists could also be associated with FERC's policy of not maintaining what it believed to be critical infrastructure-related data. Because of this policy, checklists were not forwarded to Headquarters for management review and were not subject to any other quality assurance or review procedures. Although program guidance requires inspectors to discuss the results of their efforts with FERC Regional Engineers located at various field offices, the guidance does not specifically require that inspection checklists be approved by those officials.

### **Dam Security Risk**

The increased risk to the public arising from the consequences of attacks against the nation's energy infrastructure, which include hydroelectric dams, is a prominent concern today. The destruction from an attack on a hydroelectric dam could be significant considering the Department of Homeland Security's conclusion that a dam has the potential to be used as a weapon of mass destruction. Many individual features of a dam as well as the dam structure itself could be vulnerable to threats and/or attack scenarios that could result in adverse consequences such as great economic losses to water supplies and energy production, severe downstream environmental damage, and



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loss of human life. Therefore, documented analysis and management review of dam security conditions is, in our opinion, essential to ensuring that the inspectors' analyses are sound and that all of the reviewed facilities' security deficiencies are being adequately addressed. Absent an effective security program with improvements in processes for collecting and analyses of detailed security information and tracking remedial actions, FERC cannot ensure that it will meet its mandate to facilitate the protection of life, health and property from instances of sabotage and vandalism at non-Federal hydroelectric dams.

## **RECOMMENDATIONS**

We recommend that the Chairman, Federal Energy Regulatory Commission, require the Director, Office of Energy Projects, to ensure that the Division of Dam Safety and Inspection:

1. Revises the Security Program for Hydropower Projects guidance to include requirements to:
  - a. document its analysis and perform management and quality assurance review of the detailed results of licensees' vulnerability and security assessments, and ensure the adequacy of recommended security upgrades for high and significant hazard dams;
  - b. track recommended security upgrades resulting from annual inspections and vulnerability and security assessments and ensure that they are properly implemented; and,
2. Reinforces requirements for regional office inspectors to prepare complete security checklists following each annual inspection and document their results with clear and understandable entries.

## **MANAGEMENT REACTION**

The Chairman, Federal Energy Regulatory Commission, agreed with the report's finding and recommendations and offered several proposed corrective actions aimed at strengthening its Security Program for Hydropower Projects. For instance, FERC will coordinate with other Federal agencies in its efforts to determine whether unclassified sensitive data contained in licensee vulnerability assessments

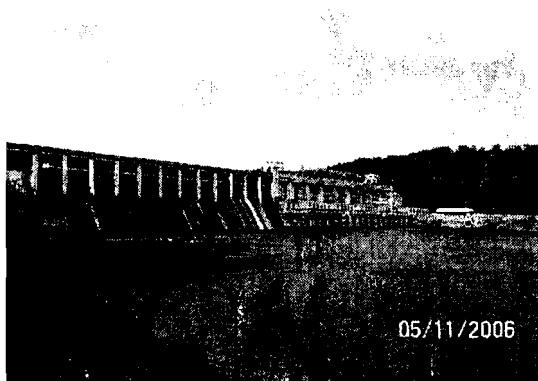
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can be protected from disclosure under the Freedom of Information Act (FOIA). Also, FERC will begin collecting and documenting all security changes made at its high and significant hazard dams since September 11, 2001, using licensee documents. Further, in order to track recommended security upgrades resulting from annual inspections and vulnerability and security assessments, FERC plans to collect additional security information in its Dams Database and will require that security checklists be sent to Headquarters for monitoring. Before the end of the year, FERC also plans to provide training to its inspectors to teach them to document the results of security inspections in detail.

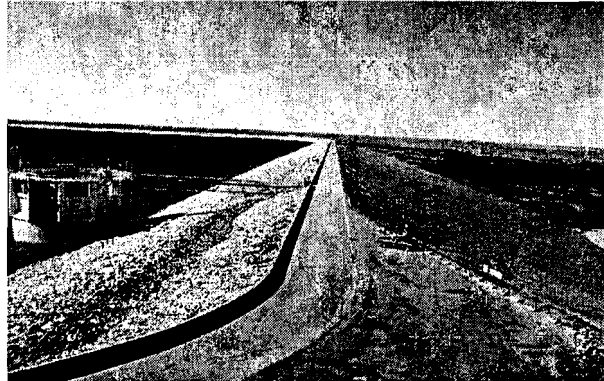
**AUDITOR  
COMMENTS**

FERC's comments to the draft report were generally responsive to our recommendations and its planned actions should improve the effectiveness of its Security Program for Hydropower Projects once they are completed. We acknowledge the challenges that FERC faces with protecting sensitive critical infrastructure information from public disclosure through FOIA. However, we believe that FERC should proactively pursue strategies and establish a timeframe for implementing remedial actions relative to the protection of such information. Once this issue is resolved, FERC can improve its documentation, analysis and management review of licensee vulnerability assessments and enhance its ability to ensure the adequacy of recommended security upgrades.

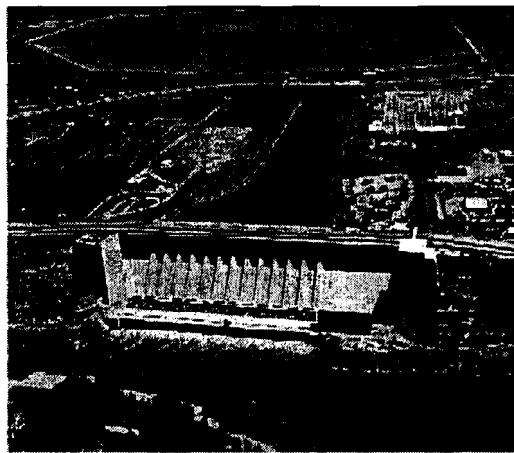
IMAGES OF REGULATED DAMS



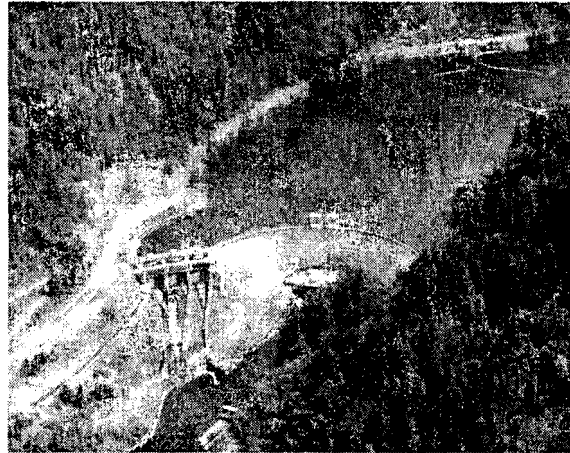
**Midwest Gravity Dam**



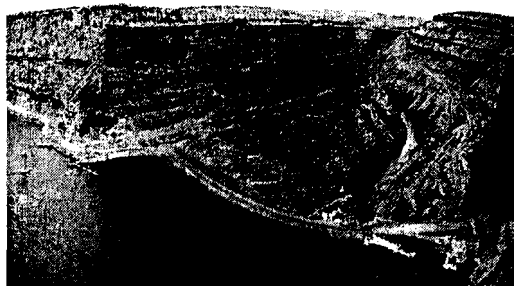
**Northwest Embankment Dam**



**Northeast Gravity Dam**



**Northwest Gravity Dam**



**Northwest Embankment Dam**



**Southeast Gravity Dam**

## Appendix 2

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<b>OBJECTIVE</b>	To determine whether The Federal Energy Regulatory Commission had resolved issues related to its Dam Safety Program and implemented an effective security program over high and significant hazard dams.
<b>SCOPE</b>	This audit was performed between December 2005 and April 2006 at the Federal Energy Regulatory Commission in Washington, DC, and the Chicago Regional Office, Chicago, Illinois.
<b>METHODOLOGY</b>	<p>To accomplish the audit, we:</p> <ul style="list-style-type: none"><li>• Obtained and reviewed applicable laws, regulations, policies and procedures;</li><li>• Interviewed officials at FERC Headquarters and the Chicago Regional Office to obtain background information, determine roles and responsibilities, and to clarify issues;</li><li>• Randomly selected 65 dams under Chicago Regional Office jurisdiction to ensure that annual safety inspection reports were prepared and 5-year independent consultant reports were reviewed between Fiscal Years (FY) 2003 through 2005 and annual security inspections were performed during FY 2005;</li><li>• Reviewed implementation of the Security Program for Hydropower Projects at one significant hazard dam under Chicago Regional Office jurisdiction;</li><li>• Reviewed the Bureau of Reclamation's Security Program and held discussions with the Corps of Engineers to gain an overview of their dam security program; and,</li><li>• Reviewed the Department of Homeland Security's National Infrastructure Protection Plan and Sector-Specific Plan for Dams.</li></ul>

The audit was performed in accordance with generally accepted Government auditing standards for performance audits and included tests of internal controls and compliance with laws and regulations to the extent necessary to satisfy the audit objective. We considered the establishment of performance measures in accordance with the *Government Performance and Results Act of 1993* as they related to the audit objective. We noted that in FY 2004, FERC had established a performance measure to update its Security Program for Hydropower Projects, but reported that no security program changes had been made. Because our review was limited, it would not necessarily have disclosed all internal control deficiencies that may have existed at the time of our audit. We did not rely on computer-generated information to accomplish our audit objective. An exit conference was waived.

### PRIOR AUDIT REPORT

- *Federal Energy Regulatory Commission's Dam Safety Program* (IG-0486, October 2000). The audit disclosed that The Federal Energy Regulatory Commission had not comprehensively reviewed over 70 independent consultant reports and had not prepared final reports of more than 300 internal inspections. Auditors concluded that delays in documenting results of internal inspections increased the risk that some details of the inspection could be lost or inaccurate and deprived the public of dam safety information. More importantly, historical information needed to develop trend analysis to identify and correct dam safety problems was not publicly available.

FEDERAL ENERGY REGULATORY COMMISSION  
WASHINGTON, DC 20426

OFFICE OF THE CHAIRMAN

OCT 13 2006

Mr. Rickey R. Hass  
Assistant Inspector General for Financial, Technology,  
and Corporate Audits  
Room 5D031 (1G34)  
Department of Energy  
1000 Independence Ave., S.W.  
Washington, DC 20585

Dear Mr. Hass:

Thank you for submitting the draft report of the DOE IG audit of the FERC Dam Safety Program dated September 15, 2006. We have reviewed the draft report and we agree with the substance of its conclusions and the appropriateness of the recommendations.

The recommendations you made are summarized below and we offer the following proposals to address the highlighted recommendations of the draft report.

(1.a) Revise guidance to include requirements for documenting its analysis and management and quality assurance review of the detailed results of licensees' vulnerability assessments, and ensuring the adequacy of recommended security upgrades amongst high and significant hazard (potential) dams

- The FERC is developing an additional data requirement to collect and document at every inspection all security changes (physical and procedural) made at each High and Significant Hazard Potential project since 9/11/01 and in all subsequent years based on the results of the detailed Licensee's reports.
- Based on our understanding, sensitive but unclassified documents cannot be absolutely protected, thus leading to increased security risks at our jurisdictional projects if the FERC were to require their submission. In coordination with the other federal agencies, we will continue to investigate whether unclassified but sensitive material can be protected from disclosure under current FOIA regulations.

- FERC received classification authority for national security information through DOE in July 2006. We are evaluating how this authority will be used in the dam safety program. In addition, FERC is working with DOE to finalize the accreditation for the exclusion area in FERC, and specifically to develop a training program for classification authorities.

(1.b) Tracking recommended security upgrades resulting from annual inspections and vulnerability and security assessments, and ensuring that they are properly implemented

- The FERC will modify the Dams Database to include fields for the following items in order to track work accomplishment:
  - Acceptance and appropriateness of security and risk self-assessments
  - Acceptance of security plans and procedures
  - Improvements made to security post 9/11 and since last inspection
  - Verify that the results for each High and Significant Hazard Potential project have been reviewed by upper management
  - Verify that the security inspection at each High and Significant Hazard Potential project is adequate
  - A negative response to any data field will require a schedule for completion and confirmation that the schedule has been met (tracking of work accomplishment)

(2) Reinforce requirements for regional office inspectors to prepare complete security checklists following each annual inspection and document results with clear and understandable entries

- In addition to the new data requirement discussed above, the annual security checklist will be sent to HQ, retained in our new secure room, and will be used to monitor program accomplishment and risk reduction measures. A staff training effort will be completed before the end of the year in which our inspectors will be instructed to fill out the results of the security inspections in greater detail.

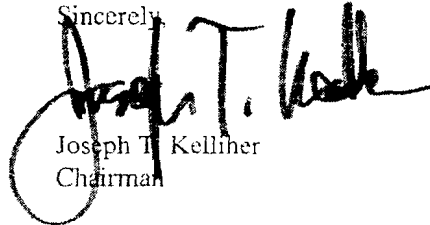
We appreciate the efforts taken by the audit team to review our program and provide recommendations for its improvement. Although the FERC is in agreement with observations made by the auditing team, there is one point of clarification, we would like to briefly address. The audit report states that the FERC had “sufficient time” to establish necessary (document) protective measures. In fact the entire Federal Government has been challenged by the right to public disclosure and need for not releasing security



3

related information and has yet to find a solution. We have been working diligently to find lawfully acceptable ways to exempt submitted documents from FOIA requirements. It is our understanding that an unclassified document cannot be absolutely protected from non-disclosure in a FOIA request unless it meets the specific exemptions of FOIA. These security documents would not meet the exemption requirements. Because of this concern, at this time, the risks to our energy production would be greater if the FERC were to accept sensitive documents. Understanding the value of having adequate records and documentation, we will continue to address this issue and develop ways to secure sensitive security information from disclosure.

Sincerely,

A handwritten signature in black ink, appearing to read "Joseph T. Kelliher". The signature is written in a cursive style with a large, looping initial "J".

Joseph T. Kelliher  
Chairman

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