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Florida Power
CORPORATION

BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 970261-EI

In Re: Review of Nuclear Outage
at Florida Power Corporation's
Crystal River Unit No. 3

DIRECT TESTIMONY AND EXHIBITS OF

JAMES H. SNIEZEK

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FLORIDA POWER CORPORATION

DOCKET NO. 970261-EI

DIRECT TESTIMONY OF

JAMES H. SNIEZEK

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND YOUR BUSINESS ADDRESS.

A. My name is James H. Sniezek. My business address is 14601 Layhill Road, Silver Spring, MD 20906-1918.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am a self-employed Nuclear Management Consultant. I have been retained by SCIENTECH, Inc., a contractor to FPC, to provide expert testimony regarding the hearing before the Florida Public Service Commission Re: Review of Nuclear Outage at Florida Power Corporation's Crystal River Unit #3 (Docket # 970261-EI).

Q. WHAT ARE THE PURPOSES OF YOUR TESTIMONY?

A. The purposes of my testimony are to: describe the role of NRC regulation, provide a perspective on the NRC regulation of nuclear power plants from the safety standpoint, describe the rising standards of the NRC and their impact on documented nuclear power plant performance, point out differences between the NRC safety standard

and a prudence standard of reasonableness, and explain why the results of NRC inspections and evaluations should not be used in determining whether the performance of nuclear power plant management has been prudent.

II. PROFESSIONAL QUALIFICATIONS

Q. PLEASE SUMMARIZE YOUR PROFESSIONAL EDUCATION, QUALIFICATIONS, AND EXPERIENCE.

A. I am an independent consultant providing management services related to the safety and operation of nuclear power plants. I am an engineer by education and training and a registered professional engineer in the nuclear discipline. I graduated from the U.S. Naval Academy in 1961. I have spent 25 years regulating the safety of nuclear power plants for the U.S. government. I served with the federal government agencies responsible for overseeing the safety of nuclear power plants; the U.S. Atomic Energy Commission (AEC) and its successor, the U.S. Nuclear Regulatory Commission (NRC), from October 1969 through January 1994. Prior to joining the Atomic Energy Commission, I was an Officer in the U.S. Navy and was qualified to operate and maintain the nuclear propulsion plant on submarines.

I began my career with the Atomic Energy Commission as a Reactor Inspector in the AEC Region 3 office located in Chicago. In that position I was responsible for the safety inspection of eight nuclear power units at six different sites. The inspections covered all phases of

regulatory activities, including construction, pre-operational testing, operations and decommissioning. During my last three years with the NRC, I was the Deputy Executive Director for Nuclear Reactor Regulation, Regional Operations, and Research in NRC headquarters. In that position, I provided executive-level leadership and direction for the total NRC program for assessing the operational safety of nuclear reactor facilities.

During my entire 25 years of service with the AEC and the NRC in various staff and management positions, I was deeply involved with assessing the overall safety of nuclear power plants.

As the Chief of the Light Water Reactor Branch between 1975-1977, I developed the first formalized NRC Inspection Program. During this same time period I initiated the program of Resident Inspectors of nuclear power plants, which is utilized by the NRC today. In subsequent mid-level management positions, as the Assistant Director for Field Coordination and the Director, Division of Resident and Regional Reactor Inspection Programs, I was responsible for coordinating and evaluating the operational safety inspections conducted by the NRC's five Regional Offices.

In the senior management positions I held at the NRC, I was personally involved with establishing the direction of, and implementing, NRC programs for inspection and evaluation of

nuclear power plant safety performance. As the Deputy Director, Office of Inspection and Enforcement, I managed the agency's overall program for reactor operational safety oversight and enforcement. As Deputy Director, Office of Nuclear Reactor Regulation, I provided day-to-day direction to the headquarters staff and the Regional Administrators regarding the NRC program of safety evaluation, licensing and inspection. In these positions I reviewed the operations and safety performance of every nuclear power plant in the U.S.

I have first-hand knowledge and experience with the development and implementation of the NRC's safety evaluation programs such as the Resident and Regional Reactor Inspection Program, Augmented Inspection Teams (AIT), Incident Investigation Teams (IIT), Performance Indicator Program (PI), Diagnostic Evaluation Team Program (DET), Senior Management Meeting Process (SMM), NRC Watch List Determination Process (WL) and the Enforcement Program.

I personally participated in every Senior Management Meeting from its inception in 1986 until my retirement from the NRC in 1994 and was deeply involved in the decisions regarding which plants would receive a DET or be placed on the Watch List or the Good Performers List. I have observed and experienced first-hand the NRC's rising regulatory standards and expectations for nuclear power plant operation.

Since approximately 1985, I was the agency focal point for interface and coordination with industry organizations including the Institute for Nuclear Power Operations (INPO) and the Nuclear Energy Institute (NEI) (formerly Nuclear Management and Resources Council - NUMARC).

Since leaving the NRC, I have been actively involved in advising nuclear power plant management regarding the safe operation of their facilities. I am currently a member of the Nuclear Review and Audit Committees for five nuclear utilities involving 12 nuclear units at 6 different sites. During 1994, I was a member of the INPO Special Review Committee on Human Performance.

III. DESCRIPTION OF NRC REGULATION OF NUCLEAR POWER PLANTS

Q. PLEASE PROVIDE A BRIEF DESCRIPTION OF THE HISTORY OF REGULATION OF NUCLEAR POWER PLANTS SINCE 1946, DESCRIBING ANY SIGNIFICANT PHASES OR PERIODS OF REGULATION.

A. The first laws governing atomic energy were put into place in 1946, as the Atomic Energy Act of 1946. The Act placed primary emphasis on the technology associated with nuclear weapons and did not allow for private, commercial application of atomic energy. The Act established the five-member Atomic Energy Commission (AEC) to manage the country's atomic energy programs.

In the early 1950s, it was projected that nuclear power would play an important role in fulfilling the nation's future energy needs. By 1954, the country's leaders viewed the development of nuclear energy for civilian purposes as a vital national goal. Consequently, in 1954 the Atomic Energy Act was amended to allow the commercial application of atomic energy for peaceful purposes. It went on to instruct the AEC to develop regulations that would protect the public from any radiation hazards that could result from the commercial application of nuclear power.

The AEC's regulatory staff was created soon after passage of the 1954 Atomic Energy Act. It undertook the task of writing regulations and developing licensing procedures conservative enough to ensure public safety yet flexible enough to permit changes in an evolving technology. As a result of the government's power reactor demonstration project and the expectation that generating electrical power using nuclear energy was financially viable, the 1960s and early 1970s saw a rapid growth in the number of applications to construct and operate commercial nuclear power plants.

During the late 1960s and early 1970s there was increasing public debate regarding the environmental and radiological safety of nuclear power. This debate was spurred to some extent by the dual role of the AEC in developing and regulating nuclear power. In 1974, Congress divided

the AEC into the Energy Research and Development Administration (ERDA) and the Nuclear Regulatory Commission (NRC). The 1974 Energy Reorganization Act and the 1954 Atomic Energy Act established the statutory basis for the NRC. The NRC was given the sole authority and responsibility to ensure the safety of commercial nuclear power.

In 1979, the accident at Three Mile Island (TMI), Unit 2, caused the NRC to place increased emphasis on the operation of nuclear power plants. Up until this time, construction and licensing requirements were the dominant focus of the NRC. The fledgling program of NRC resident inspectors which was initiated in the mid-1970s was rapidly expanded so that a minimum of two NRC inspectors were stationed at every power reactor site.

The increased emphasis on safety of operations, qualifications and training of operating staff, maintenance of the plants, and emergency preparedness was a direct outgrowth of the TMI accident and the NRC's response to the accident. Likewise, as a result of TMI, the industry recognized that it too must take steps to promote excellence in operation of the nuclear power plants. Consequently, INPO was founded by the utility industry to promote the continued improvement in plant operations.

The current NRC attention to operations, maintenance, and engineering was prompted by several significant industry events in the

mid 1980s, including the loss of feedwater at Davis-Besse in 1985, failure of the integrated control system at Rancho Seco in 1985, an early criticality at Fermi-2 in 1985, and discovery of sleeping reactor operators at Peach Bottom in 1987.

Although operational safety remains a primary focus of the NRC, in 1996, the adequacy of facility design and plant operation consistent with the design, and plant consistency with the Safety Analysis Report began to receive significant NRC attention as a result of deficiencies identified at the Millstone and Maine Yankee stations. Currently, the NRC is focusing intense regulatory attention on design and design configuration control across all nuclear utilities.

Q. PLEASE DESCRIBE THE NUCLEAR REGULATORY COMMISSION'S RESPONSIBILITIES.

A. The NRC, which was established as an independent agency of the Federal government under the Energy Reorganization Act of 1974, is charged with protecting the health and safety of the public and the environment by licensing and regulating the commercial use of nuclear reactors and radioactive materials.

The NRC promulgates regulations and other regulatory requirements and guidance governing its licensees conducts frequent inspections, and imposes enforcement sanctions to ensure nuclear power plant

licensees operate safely and in compliance with applicable safety standards.

Q. **PLEASE PROVIDE A BRIEF SUMMARY OF KEY PORTIONS OF THE NRC'S ORGANIZATIONAL STRUCTURE.**

A. The following is a general description of the NRC organization, focusing on those elements of the organization that are most relevant to this proceeding. Exhibit JHS-1, attached to this prefiled testimony, is an organization chart of the NRC, highlighting the elements discussed here.

1. Nuclear Regulatory Commission

The five members of the Commission are appointed by the President and confirmed by the Senate. The Chairman of the Commission, selected by the President, is the principal executive officer and the official spokesperson of the Commission. The Commission sets regulations and policy relative to safety and licensing of nuclear facilities.

2. Executive Director for Operations

The activities of NRC's program and support staff offices are conducted under the direction of the Executive Director for Operations (EDO). The EDO, who reports to the Chairman of the NRC, is also responsible for the development of policy options for Commission consideration. Personnel managed by the EDO are generally referred to as NRC Staff.

The EDO has two Deputies. The Deputy Executive Director for Nuclear Materials Safety, Safeguards and Operations Support is responsible for the conduct of the regulatory program pertaining to the regulation of nuclear material licensees (hospitals, radiographers, etc.) and agency administration. The Deputy Executive Director for Nuclear Reactor Regulation, Regional Operations, and Research (DEDR) is responsible for executing programs in nuclear power plant safety regulation. In January 1997, the Office of the EDO was restructured to establish an additional Deputy Position and to realign programmatic responsibilities.

The DEDR carries out the day-to-day supervision, guidance, direction and coordination of the Director, Office of Nuclear Reactor Regulation, Regional Administrators, and the Director, Office of Nuclear Regulatory Research. I occupied this position for three years, from mid-1990 to early 1994. The DEDR is responsible for supervising and coordinating policy development and operational activities, and implementing Commission policy directives as they relate to nuclear power plants. Programs under the purview of this office include licensing, inspection, research, regulation and guidance development, and enforcement. In this role, the DEDR touches on virtually every aspect of the development, monitoring and enforcement of NRC regulations for nuclear reactors.

3. Nuclear Reactor Regulation

The Office of Nuclear Reactor Regulation (NRR), the licensing and inspection branch of NRC, monitors nuclear power plants and their operations from initial licensing to decommissioning. Responsibilities of NRR include: implementing regulations, issuing guidance to licensees, licensing, inspection, identifying violations, and assessing overall licensee performance. I was the Deputy Director of this Office from 1987 to 1990.

4. Regional Offices

The NRC maintains four Regional Offices, which are located in or near Philadelphia, Atlanta, Chicago, and Dallas. The Regional Offices are the field inspection and enforcement arm of the NRC. Over the years, Regional Office responsibilities have been expanded to include assistance to NRR in facility licensing, operator licensing, and emergency response.

5. Other Offices

a. Office of Enforcement

NRC's enforcement program is conducted under the overall direction of the Office of Enforcement, which reports, for reactors, to the Deputy Executive Director for Nuclear Reactor Regulation, Regional Operations, and Research. This Office is responsible for the development of programs and policies for the enforcement of NRC

requirements. The Office of Enforcement manages enforcement actions and evaluates regional enforcement activity to assess effectiveness and uniformity.

b. The Office for Analysis and Evaluation of Operational Data

The Office for Analysis and Evaluation of Op. :ational Data (AEOD), which reports to the EDO, is responsible for the processing and evaluation of operational safety data in order to determine the need for NRC or industry action and to promptly relay this information to appropriate parties. AEOD is responsible for conducting Diagnostic Evaluation Team (DET) assessments.

Q. PLEASE DESCRIBE BRIEFLY HOW THE NRC REGULATES OPERATING NUCLEAR POWER PLANTS.

A. Most day-to-day NRC regulation of operating nuclear power plants is performed through the inspection and enforcement programs. In addition to regulations, licenses, technical specifications and Regulatory Guides, NRC requirements and guidance are communicated to licensees through Inspection Reports, Generic Letters, Bulletins, Information Notices, and Systematic Assessment of Licensee Performance (SALP) reports. The interpretations of these informally promulgated requirements are not always known until after the fact and can change over time.

The purpose of the NRC's regulatory activities is to determine if there is adequate assurance that nuclear power plants are being operated safely and in compliance with NRC requirements. This is a standard by which the NRC judges utility management decisions. The intent of NRC inspections is to find deviations, violations, or failures which could be forerunners of more serious events. Inspections focus on problems, weaknesses, and shortcomings. When the NRC inspects a plant it is usually looking for optimal safety performance. When, from its perspective, it does not find optimal safety performance, the NRC expects the licensee to examine the matter to determine what, if any, changes should be made by the licensee which would provide for optimal safety performance in the future. As a result, many inspection reports are negative in tone.

The enforcement program is designed to ensure compliance with NRC regulations and license conditions; obtain prompt correction of noncompliance; deter future noncompliance; and encourage improvement of licensee performance.

Q. WHAT STANDARDS DOES THE NRC APPLY WHEN IT REGULATES THE SAFETY OF NUCLEAR POWER PLANTS?

A. The overarching standard that the NRC uses is a judgment whether or not there is adequate assurance that the plant is being operated safely. This standard is derived from the Atomic Energy Act and manifested in the NRC formal requirements set forth in regulations and license

conditions, including Technical Specifications. In arriving at its judgments the NRC also uses informal standards and guidance, some of which are written and others which are not written. As written, most formal requirements appear to be quite clear and understandable; however, they are subject to various interpretations by the members of the NRC staff during conduct of their regulatory activities.

Informal written requirements (actually it is more in the form of guidance or suggestions) include Standard Review Plans, Regulatory Guides, Generic Letters, Bulletins, Information Notices, and NRC Inspection Procedures. These documents are not subject to the same level of internal and public review as are the formal requirements.

The guidance in the Standard Review Plans and Regulatory Guides is meant to apply to the NRC staff and licensees, respectively. These documents discuss acceptable ways for licensees to meet the formal requirements and reflect NRC experience accumulated during the licensing of nuclear power plants. They often incorporate industry consensus standards regarding improvements of programs and processes inherent in the operation of a nuclear power plant. In practice, these guidance documents go beyond the formal requirements and, as used by the NRC staff, often impose requirements upon licensees which are not mandated by the NRC formal requirements.

Generic Letters and Bulletins were developed as a means of informing licensees of deficiencies discovered at other plants and to suggest solutions. Licensees are normally required to provide a written reply to the NRC indicating what actions they intend to take regarding the matters discussed in the Generic Letter or Bulletin. NRC staff has used these documents as a means of imposing more stringent requirements than mandated by the NRC formal requirements.

Information Notices are intended to only provide information to licensees regarding issues identified at other plants. As stated in the Information Notices, licensees are not required to take any specific action as a result of the Information Notice nor are they required to respond to the NRC. In practice, NRC Inspectors frequently review the licensee activities in response to the Notices and treat them as if they were additional requirements.

Informal written guidance is provided to NRC Inspectors via the NRC Inspection Procedures. The guidance identifies concepts, behaviors, parameters and processes the Inspectors should consider when determining whether or not the licensee is safely operating the plant. This guidance frequently goes well beyond the NRC formal requirements and licensees are often compelled to operate consistent with this informal guidance.

Every Inspector also brings to his or her position an interpretation of what is necessary to comply with NRC standards. This interpretation often varies from Inspector to Inspector and is based upon the technical and regulatory background and experience of the individual Inspector. It is this interpretation which to a large degree dictates whether the Inspector will find that the plant is being operated safely. These interpretations usually result in the licensee having to meet a higher standard than that expressed in NRC requirements. Consequently, licensees experience difficulty in predicting the NRC expected level of performance. This is a recognized problem within the NRC, as documented in NUREG-1395, "Industry Perceptions of the Impact of the U.S. Nuclear Regulatory Commission on Nuclear Power Plant Activities," dated March 1990, and NUREG-0839, "A Survey by Senior NRC Management to Obtain Viewpoints on the Safety Impact of Regulatory Activities from Representative Utilities Operating and Constructing Nuclear Power Plants," dated August 1981.

In summary, the NRC safety standard is a compilation of many formal and informal written requirements and guidance documents as modified by the experience and expertise of the individual Reviewers and Inspectors. It is a judgment call as to whether or not there is adequate assurance that the licensee is operating the plant safely; i.e., in such a manner as to protect the health and safety of the public and the environment.

IV. NRC'S RISING STANDARD FOR MEASURING LICENSEE REGULATORY PERFORMANCE

Q. HAVE THE NRC'S STANDARDS OF PERFORMANCE BEEN RISING?

A. Yes. Application of NRC regulatory initiatives to operating plants has resulted in rising standards of performance, exceeding the performance levels necessary to comply with NRC's formally established requirements for operation. These higher standards are a matter of choice by NRC, not chance. In a speech entitled "Quest for Excellence: A Regulator's Perspective," to an Institute of Nuclear Power Operations (INPO) Conference in November 1988, Retired Admiral Lando Zech, NRC Chairman at that time, said:

> Through leadership by industry management, vigilance in maintaining progress in the interest of safety and a 'do it right the first time' attitude, continued improvement in plant safety and availability is achievable . . . . We will continue to urge that utilities continue to improve their operational performance and to improve safety margins . . . . It is my firm conviction that those licensees who are fully committed to excellence and safety are acting in the public interest and in their own best interest as well. Safe plants are reliable plants. Reliable plants produce electricity economically. Safety and reliability are the cornerstones of success in this demanding technology.

As nuclear power plant operating experience has accumulated, NRC's standards for measuring performance of its licensees have risen in light of that operating experience. These rising standards are implicit in the regulatory process rather than being explicitly defined. The specific standards of performance against which a licensee will be

measured cannot generally be anticipated in advance. Even licensees with superior performance are exhorted to further improvement. How, when, and the degree to which the performance standards rise are shaped by nuclear power plant operating experience; the reaction of NRC, the Congress, and the industry to that experience; and the personalities and career experiences of the senior regulators and staff overseeing individual facilities. For example, many NRC inspectors transferred to the licensing office in the mid-1980s and early-1990s. They brought with them a detailed knowledge of operations, methods, and ideas for improving safety, which is reflected in rising expectations by NRC.

There are two components to NRC's rising standards of performance. One component relates to the body of formally established regulatory requirements that must be complied with to provide adequate assurance of protection of the public health and safety. These requirements are to be found largely in Title 10 of the Code of Federal Regulations (10 CFR) or in the terms and conditions of the operating license, including Technical Specifications, for a given nuclear plant. These formally established requirements are written down in advance of their utilization, and they are issued through the rulemaking and licensing processes.

There is a significant body of regulatory experience and interpretations concerning the formally established requirements which limits, but

does not eliminate, uncertainty or differences in their application among the NRC regions or among the individual plants within a region. Furthermore, NRC can and does change the way it interprets such formal requirements.

NRC vigorously enforces its formal regulatory requirements through the issuance of Notices of Violation, Civil Penalties, and other enforcement actions. NRC identifies explicitly any noncompliance with regulatory requirements. However, the standard for providing adequate assurance for the protection of public health and safety does not require error-free operation. Licensees may receive Notices of Violation and Civil Penalties and still be allowed to operate. In the extreme, where a licensee's level of compliance with the formally established requirements does not meet the adequate assurance standard, NRC will take enforcement action to shut the plant down, normally by Order.

The other component of the rising standards is less formal and more uncertain. It is largely shaped by day-to-day interactions between licensees and NRC through the resident and regional inspection processes, the operating license amendment process, the SALP process, and the enforcement process. Performance evaluation techniques that did not exist prior to the mid-1980s, such as performance indicators and special team inspections, have provided new opportunities for NRC to identify areas of concern and to exhort improvement by licensees.

Q. HOW DOES THE NRC INFORM LICENSEES OF NUCLEAR POWER PLANTS ABOUT NRC'S REQUIREMENTS AND STANDARDS AND ITS RISING STANDARDS OF PERFORMANCE?

A. NRC's official requirements and standards are promulgated in writing. The NRC communicates rising standards of performance in two significantly different ways. The first is in the form of new or revised formal requirements that are communicated via regulations and license conditions. The second and more common form is through the use of interactions and communications that are inherently ad hoc and iterative in nature and are most often implicit in the regulatory process rather than being explicitly defined. These communications frequently exhort licensees to improve performance beyond what was formerly acceptable. Examples of these communications include inspection reports, Notices of Violation, enforcement conferences, Civil Penalties, Regional and Resident Inspector exit meetings, the SALP process, Watch List process, and regulatory meetings and workshops.

Consequently, licensee responsiveness to these rising standards is necessarily largely reactive rather than anticipatory in such circumstances; the records of such interactions typically exhibit a critical tone on the part of NRC and a self-critical tone by licensees, with weaknesses emphasized more than strengths. The topics reported in these interactions can be expected to change over time as emphasis shifts within NRC. In the operational performance period since 1988,

NRC initiatives in the areas of operations, maintenance, engineering support, and self-assessments have emerged from this type of NRC safety regulation. More recently, design documentation and configuration control have received significantly increased NRC attention. Over time, the NRC has raised the standards for performance in these areas, over and above its formal requirements.

Q. HOW HAVE THE RISING STANDARDS OF PERFORMANCE AFFECTED OPERATING PLANTS?

A. The rising standards of performance affect operating plants in several ways. First, operating plants must perform better to receive the same SALP rating in a current rating period as the rating received during the previous period. Just as one example, and there are others, the NRC in a 1988 SALP report at Surry nuclear power plant in Virginia, lowered the performance rating in the Plant Operations functional area from Category 1 (superior) to Category 2 (good). In explaining the reasons for the lower rating, the report stated:

> The board noted that the effectiveness of the licensee's reactor trip reduction program continued to provide good results. However, the board concluded that an overall lack of attention to detail in the plant operations area in conjunction with a rising standard resulted in a lower evaluation in this area.

Regardless of how well plants perform, the NRC still expects continuous improvement. In the cover letter for the September 19, 1991 SALP report on the Shearon Harris plant in North Carolina, which had received six Category 1 and one Category 2 ratings, NRC

acknowledged the licensee's "superior" performance and went on to state, "Your continued commitment to improve overall performance should lead to continued superior performance."

Q. WHAT IS YOUR UNDERSTANDING OF THE STANDARD TO BE USED IN DETERMINING THE REASONABLENESS OF FLORIDA POWER CORPORATION MANAGEMENT?

A. My understanding of the standard to be applied in determining the reasonableness of Florida Power Corporation management is based upon the following concept of prudence:

> The exercise of that judgment and the choosing of one of that select range of options which a reasonable utility manager would exercise or choose in the same or similar circumstances given the information or alternatives available at the point in time such judgment is exercised or option is chosen.

This concept emphasizes that there is not a unique solution but, in fact, there is a range of reasonable options available to utility management. The concept accepts that different utility managers might choose different alternatives from among a set of reasonable options. Under this concept, favorable results are not required to demonstrate the prudence of management decisions. Also, prudence is assessed with respect to information that was available at the time, rather than information obtained with the benefit of hindsight.

Q. IS THIS THE SAME STANDARD FOR MANAGEMENT PERFORMANCE THAT IS APPLIED BY THE NRC?

A. No. The NRC assesses the results achieved by management retrospectively. Favorable results are required by NRC's standards, yet those standards for management performance are not always written and are subject to differing interpretation by regional administrators, inspectors and senior management personnel of NRC.

The NRC is concerned that licensees are in compliance with its requirements for safe operation of nuclear power plants. It does not matter to the NRC whether a licensee is prudent or imprudent, by the standard applied by a Public Service Commission. Conversely, a utility may be prudent in decisions it makes in light of current knowledge and yet fail to meet the performance standard of the NRC which is results oriented and evaluated with the use of hindsight.

It is NRC's practice to continue to raise its already demanding performance expectations. These changes by the NRC result in a moving target for management performance, including the time leading up to and during the current shutdown of Crystal River Unit 3.

Q. DOES THE NRC'S STANDARD FOR MEASURING MANAGEMENT PERFORMANCE USE HINDSIGHT?

A. Yes, the NRC, in effect, evaluates the results of plant management decisions primarily based on hindsight and causal factor analysis. In evaluating events that occur at nuclear power plants, the NRC utilizes its knowledge of the outcome and analysis that can only be performed

with the benefit of hindsight in determining the safety implications of the event.

In evaluating licensee regulatory performance, the NRC also uses hindsight.

For example, performance indicators are evaluated retrospectively by NRC senior managers in placing plants on the NRC Watch List. The indicators don't focus on management prudence. The consideration of the alternatives facing plant management and the quality of the decision-making in light of the knowledge available at the time is not relevant to NRC's evaluation of licensee performance. During their semi-annual meetings NRC senior managers do not focus on the reasonableness of decisions made by plant management. Rather, they focus on the results and performance achieved by plant management. Whether a plant's management had made a prudent decision in choosing a reasonable approach to resolving safety issues that had not achieved the desired objectives is not a mitigating factor in reaching conclusions about the licensee's regulatory performance.

Q. DO THE NRC'S RISING STANDARDS OF PERFORMANCE AFFECT THE WAY IT ASSESSES MANAGEMENT PERFORMANCE?

A. Yes. In order to maintain a consistent NRC performance rating, licensee performance must continue to improve as measured against the NRC's rising expectations. As a result, the NRC often concludes that a licensee's performance has weaknesses or deficiencies, even

though the performance may be consistent with officially promulgated NRC requirements and standards.

V. NRC INSPECTION, ENFORCEMENT, AND ASSESSMENT PROGRAMS

Q. WHAT IS THE PURPOSE OF NRC INSPECTION REPORTS?

A. NRC Inspection Reports have three fundamental purposes. First, and most important, the reports provide the formal documented results of the NRC inspections to the licensee so that the licensee is clearly cognizant of NRC findings and may take appropriate corrective action when warranted. These reports also are used to communicate the inspection results to NRC management and to the public. Additionally, they constitute the NRC conclusions regarding licensee regulatory and safety performance in the areas examined.

Q DOES THE NRC USE HINDSIGHT WHEN PREPARING INSPECTION REPORTS?

A. Yes, the NRC judges plant performance based on results regardless of the reasonableness of actions taken by licensees utilizing information available at the time the actions were taken. These after-the-fact judgments by the NRC are reflected in the inspection reports.

Q. IS IT USUAL FOR NRC INSPECTION REPORTS TO CONTAIN CRITICISM OF UTILITIES OR THEIR MANAGEMENT?

A. Yes. NRC inspection reports normally contain criticism of some aspect of licensee management or plant performance. This is consistent with the NRC's expectation of continual performance improvement by the licensee. It is not uncommon for inspection reports to find good overall performance in a functional area consistent with established NRC requirements yet, at the same time, point out weaknesses in that functional area. Similarly, NRC may find overall performance to be acceptable even though it has issued violations against a licensee.

Q. DOES CRITICISM OF A UTILITY COMPANY OR ITS MANAGEMENT IN AN NRC INSPECTION REPORT MEAN THAT THE UTILITY HAS BEEN UNREASONABLE?

A. No. The primary purpose of NRC's regulatory activities is to determine if there is adequate assurance that nuclear power plants are being operated safely and in accordance with NRC requirements. NRC activities do not evaluate the reasonableness of management actions. The intent of an inspection is to identify deviations, violations, or failures which could be forerunners of more serious events. Inspection reports focus on problems, weaknesses, and shortcomings that are identified during the inspection. As a result, inspection reports, at all plants, are generally negative in tone.

Q. PLEASE DESCRIBE THE NRC'S ENFORCEMENT PROCESS.

A. The NRC has a multi-faceted enforcement program under the direction of the Office of Enforcement. It is designed to ensure

compliance with NRC regulations and license conditions, obtain prompt correction when licensees are in noncompliance, deter future noncompliance, and encourage improvement in licensee performance both at the instant plant and generically across the industry.

The enforcement program includes a variety of actions which the NRC takes to ensure that a licensee complies with NRC requirements. The actions include in order of increasing severity; Notices of Violation (NOV), Civil Penalties, Show Cause Orders, Orders to Modify a License, Orders to Suspend a License, and Orders to Revoke a License.

Notices of Violation are classified according to the safety significance of the violation, ranging from Severity Level I (most significant) to Severity Level IV (least significant). It should be noted that until recently there was a Severity V level of violation; however, they were of such minimal significance that issuance of NOVs are no longer considered for these violations. Instead, the NRC established a category of "Non-cited Violations" for those violations of NRC requirements having minimal safety significance which are identified by the licensee and for which corrective action has been taken.

The NOV is the most common enforcement action taken by the NRC. Licensees that receive a NOV are required to provide a written reply indicating their plans to bring the plant into compliance and prevent recurrence, and the anticipated completion date for the corrective

action. During a subsequent inspection the NRC reviews the corrective action and its effectiveness.

Civil Penalties and Orders are classified as Escalated Enforcement Actions. Prior to initiating such actions the NRC normally holds a pre-decisional enforcement conference with the licensee. The purpose of the enforcement conference is to discuss the significance and causes of the violation, and corrective action taken by the licensee; determine whether there are aggravating or mitigating circumstances; and obtain other information which would be helpful in determining the appropriate enforcement action.

Civil Penalties are proposed for violations designated as Severity Level I or II unless there are mitigating circumstances, and they are usually issued for Severity Level III violations. Occasionally a civil penalty may also be issued for multiple Severity Level IV violations, generally in cases where the NRC determines that prior corrective action for similar violations was unsatisfactory.

The amount of the civil penalty is determined after consideration of various factors such as the licensee's previous performance, whether the violation was licensee identified or NRC identified, whether the licensee reported the violation, significance of the violation, corrective action already taken by the licensee, and duration of the violation.

Orders are used by the NRC to modify, suspend, or revoke a license; halt a specific practice or activity; and to confirm an action taken by a licensee. License Modification Orders are issued when some change in licensee equipment, procedures, personnel, or management controls is necessary and the NRC believes it is appropriate to accomplish this through the formal process of issuing an order. If the licensee has already made the appropriate changes, the NRC will usually issue an Order Confirming the licensee's actions. Suspension Orders are issued for all or part of licensed activities when it is necessary to remove a specific threat to public health and safety or the environment. Revocation Orders are issued when a licensee is found to be unable or unwilling to comply with NRC requirements. Cease and Desist Orders are issued to stop an unauthorized activity that has continued after notification by the NRC that the activity is not authorized.

In pursuing its objective of ensuring public health and safety, the NRC makes an extensive effort to identify all existing and potential problems. Since perfection is not possible, and since NRC s mission is, to the extent practicable, to prevent very low probability events, many hundreds of Notices of Violation are issued each year, most of which are for relatively minor violations. Even though the NRC recognizes that perfection is not possible, it requires licensees to strive to improve. Enforcement action is one technique used by the NRC to communicate this expectation to all of its li- nsees. Consequently, 10 to 20 violations

are normally identified every year at each nuclear power plant in the United States.

Likewise, the issuance of Civil Penalties is not uncommon. In fact, every nuclear power plant licensee has been issued a Civil Penalty by the NRC and paid a fine for violating NRC requirements.

Q. DOES THE NRC'S ISSUANCE OF A NOTICE OF VIOLATION INDICATE THAT A UTILITY COMPANY HAS BEEN UNREASONABLE?

A. No. As described earlier, the NRC does not evaluate management reasonableness, does not make findings regarding prudence, and does not issue Notices of Violations because it has determined that utility management has been imprudent. So the issuance of a Notice of Violation does not demonstrate that the utility company management has been imprudent. It should be noted that every nuclear power plant in the United States receives Notices of Violation from the NRC.

Q. DOES THE NRC'S ASSESSMENT OF A CIVIL PENALTY INDICATE THAT A UTILITY HAS BEEN UNREASONABLE?

A. No. As stated earlier, the NRC does not assess reasonableness in its regulatory activities, nor does it issue civil penalties based on a finding of unreasonableness. Every nuclear power plant in the United States has been issued a civil penalty for violating an NRC requirement, so

the issuance of a civil penalty doesn't demonstrate that utility management has been imprudent.

Q. ARE ALL VIOLATIONS OF NRC REQUIREMENTS A SAFETY ISSUE?

A. No, NRC requirements have a wide range of variability from the standpoint of safety. In fact, there are many NRC requirements that are administrative in nature and have no nexus to safety. For example, at some plants the NRC requires that minutes of Off-Site Review Committee meetings be prepared within a specific time frame (normally 14 days). This time frame has no nexus to safety and at some plants the NRC is silent regarding the time frame for preparation of such minutes.

The NRC completed a study of NRC requirements and reported the results in the "Regulatory Review Group Report," dated August 1993. One of the specific recommendations in the report is, "Information/data requirements without a clear nexus to safety and duplicate reporting requirements should be eliminated."

As early as 1983, the NRC recognized that NRC requirements set forth in facility Technical Specifications needed revision to better reflect an emphasis on safety (NUREG-1024). In February 1987, the Commission issued a draft policy statement on improvement of Technical Specifications and specified the criteria to be used to decide which requirements were to be retained in the Technical Specifications.

Application of this criteria resulted in the development of "Standard Technical Specifications" which resulted in elimination of about 25 percent of the requirements which had little or no nexus to safety. Currently, many licensees (including CR-3) have either adopted or are in the process of adopting the version of the Standard Technical Specifications applicable to their NSSS product line.

Q. **WHAT IS A CONFIRMATORY ACTION LETTER?**

A. A Confirmatory Action Letter (CAL) is an administrative action by the NRC which confirms an agreement between NRC and the licensee that the licensee will take certain actions. This option is used when the matter is not of sufficient significance to warrant the formality of an enforcement sanction. The issuance of CALs by the NRC is not an unusual form of administrative action, and in fact over 250 CALs have been issued by the NRC since 1981.

Q. **WHAT IS THE SALP PROGRAM?**

A. The SALP Program is the process used by the NRC to compile historical performance information in a report called a SALP Report. The SALP program is used by the NRC to provide a retrospective view of the relative overall strengths and weaknesses of a licensee's performance and to identify common themes for feedback to the licensee. The NRC also utilizes the results of the SALP program to assist in determining how to allocate its inspection resources. A SALP review is performed for each power reactor licensee at approximately 18 month intervals.

There are three categories used to rate the licensee's performance in various functional areas associated with nuclear power plant operation. The highest rating is category 1, which indicates that the NRC considers the licensee's performance to be SUPERIOR. A category 2 rating indicates GOOD performance. A category 3 rating indicates ADEQUATE performance. In the event the licensee performance is less than adequate, the SALP process would be suspended and the plant would be required to shutdown or remain shutdown, normally by NRC Order or, as discussed below, by placement in Category 3 of the NRC's Watch List.

Q. **WHAT AREAS ARE EVALUATED IN SALP REPORTS?**

A. The number of functional areas evaluated in SALP reports has evolved over the years as the SALP process has matured and the regulatory process has shifted its emphasis to focus more on performance-based criteria. Likewise, the criteria used to evaluate the licensee performance in each functional area have been revised consistent with the NRC rising performance expectations.

During its development and maturation in the early and mid-1980s there were normally 10-12 discrete functional areas examined as part of the SALP process. By 1988 the NRC had focused on seven functional areas for evaluation; Plant Operations, Radiological Controls, Maintenance/Surveillance, Emergency Preparedness, Security,

Engineering/Technical Support, and Safety Assessment/Quality Verification. These seven areas were used until 1993, when several of the areas were combined to give more balance to the aggregate of the SALP ratings. From 1993 until the present, the NRC has used four broad functional areas in evaluating the licensee's overall performance in SALP reports. The four areas are Plant Operations, Maintenance, Engineering, and Plant Support.

Q. DOES A CATEGORY 3 RATING IN A SALP REPORT ISSUED BEFORE 1993 INDICATE THAT A UTILITY COMPANY HAS BEEN UNREASONABLE?

A. No. For the reasons I have stated earlier, the NRC's assignment of a SALP score doesn't provide a basis to conclude that utility company management has been imprudent. The NRC does not evaluate prudence. Further, the NRC's own definition for a category 3 SALP rating states that the performance assigned that rating is acceptable, under the NRC's demanding standards.

Q. DID THE REVISIONS TO THE SALP PROGRAM INDICATE A SHIFT IN REGULATORY EMPHASIS?

A. Yes, there were many relatively significant changes in the SALP program in 1993 which represented a change in NRC emphasis. NRC Management Directive 8.6 promulgated the revised SALP program in July 1993. As indicated in Directive 8.6, the objectives of the SALP program are to:

Conduct an integrated assessment of licensee safety performance that focuses on the safety significance of the NRC findings and conclusions during an assessment period.

Provide a vehicle for meaningful dialogue with the licensee regarding its safety performance based on the insights gained from synthesis of NRC observations.

Assist NRC management in making sound decisions regarding allocation of NRC resources used to oversee, inspect, and assess licensee performance.

Provide a method for informing the public of the NRC's assessment of licensee performance.

The functional areas evaluated as a result of the 1993 SALP program revision were consolidated from seven to four areas; Plant Operations, Maintenance, Engineering, and Plant Support. The Plant Support area encompasses the previous functional areas of Security, Radiological Controls, and Emergency Preparedness. This consolidation resulted in a more equal distribution of regulatory and safety importance between the functional areas to be evaluated.

Other significant changes were made to make the performance category ratings more descriptive than before by focusing on the ability of licensees to identify problem areas and root causes, and the effectiveness of licensee corrective action.

These changes in the current SALP program reflect the increasing focus of NRC on plant operational safety and the importance of management attention in identifying and resolving safety issues of concern. The

changes also reinforce the long standing NRC position that even a Category 3 rating indicates acceptable safety performance. In the event the licensee performance is less than adequate, the SALP process would be suspended and the plant would be required to shutdown, normally by NRC Order or by placement in Category 3 of the NRC's Watch List.

Q. DOES A CATEGORY 3 RATING IN A SALP REPORT ISSUED AFTER THE 1993 CHANGES STILL MEAN THAT THE UTILITY IS PERFORMING AT AN ACCEPTABLE LEVEL?

A. Yes, the definition of a Category 3 SALP rating clearly states that from the regulatory and safety standpoint the licensee is performing in an acceptable manner.

Q. WHAT IS THE NRC WATCH LIST?

A. The NRC Watch List is a listing of nuclear power plants whose performance warrant NRC monitoring beyond that normally required by the inspection program. It is a product of semi-annual NRC Senior Management Meetings wherein the NRC evaluates the performance of a licensee with respect to its ability to comply with NRC requirements and achieve high levels of safety performance. The purpose of the Watch List is to identify plants that require additional NRC resources to assist in enhancing safety performance. It is also a management technique used by the NRC to clearly communicate the NRC perception of plant performance to senior licensee management.

Q. **PLEASE DESCRIBE THE PROCESS USED BY THE NRC TO DECIDE WHETHER TO PLACE A PLANT ON THE WATCH LIST.**

A. The decision whether to place a plant on the Watch List is made at the semi-annual meeting of NRC senior managers. This process began in 1986. In order to focus discussions on the plants most warranting NRC senior management attention, the Director, Office of Nuclear Reactor Regulation and his senior staff conduct pre-meetings with each of the Regional Administrators and their senior staff to review the performance of each nuclear power plant in the region to determine which plants should be discussed at the Senior Management Meeting. The pre-meetings typically identify 20-30 plants for discussion by the NRC senior managers.

The NRC senior managers participating in the discussion of plant performance at the Senior Management Meeting include the Executive Director for Operations and his Deputies; Director, Office of Nuclear Reactor Regulation, his Deputy and Associate Directors; Director, Office of Nuclear Regulatory Research; Director, Office of Nuclear Material Safety and Safeguards; Director, Office of Enforcement; Director, Office of Investigations; Director, Office for Analysis and Evaluation of Operational Data; Deputy General Counsels, and the Regional Administrators.

The senior managers examine the performance of the discussed licensees from a multi-disciplinary viewpoint, taking into account the

regulatory and safety performance of the plant. There are no specific criteria for determining when to place a plant on the Watch List. Rather, that decision is left to the collective judgment of the senior managers after discussion and evaluation of the licensee's performance.

Plants on, or to be placed on the Watch List, are designated in one of the three categories by the senior NRC managers. The three categories are defined as follows:

> CATEGORY 3--SHUTDOWN PLANTS REQUIRING NRC AUTHORIZATION TO START UP AND THAT THE NRC WILL MONITOR CLOSELY--Plants in this category are having or have had significant weaknesses that warrant maintaining the plant in a shutdown condition until the licensee can demonstrate to the NRC that adequate programs have both been established and implemented to ensure substantial improvement. Commission approval is required for restart of a plant in a Category 3 status.
>
> CATEGORY 2--PLANTS AUTHORIZED TO OPERATE THAT THE NRC WILL MONITOR CLOSELY--Although they are being operated in a manner that adequately protects public health and safety, plants in this category are having or have had weaknesses that warrant increased NRC attention from both headquarters and the associated regional office. A plant will remain in this category until the licensee either demonstrates a period of improved performance, or until a further deterioration of performance results in the plant being placed in Category 3.
>
> CATEGORY 1--PLANTS REMOVED FROM THE WATCH LIST--Plants in this category were previously designated as Category 2, and have taken effective action to correct identified weaknesses. No further NRC special attention

beyond the current level of monitoring is needed to verify that improvement continues.

Q. **WHAT CRITERIA ARE USED TO DETERMINE IF A PLANT SHOULD BE ON THE WATCH LIST?**

A. Since the inception of the Watch List concept in 1986 until 1994, there were no specific criteria used to determine if a plant should be placed on the Watch List. However; there were many topics discussed and evaluated by senior NRC management in arriving at the decision to place a plant on the Watch List. The topics of discussion focused on both management and hardware issues and included:

- Review of Inspection history and results
- Investigations and results
- Allegations and results
- Reactor trips
- Operator performance
- Procedure adequacy and adherence
- Number of licensed operators and senior operators
- Number and length of shifts
- Role of the Shift Technical Advisor
- Results of the operator requalification program
- Plant-specific design information
- Implementation of generic safety issues
- Plant-specific aging and hardware issues
- Risk insights from probabilistic risk assessments
- Potential accident initiating events

- Core damage precursor events
- Enforcement history
- SALP ratings and issues
- Safety System actuations
- Significant events
- Safety System failures
- Causes of reportable events
- Forced outage rates
- Radiation doses to plant staff
- Self-assessment and root cause analysis performance
- Organization structure and stability
- Corporate support and oversight
- Historical senior management performance
- Licensee resource allocation
- Other topics deemed appropriate by a senior NRC manager

The topics discussed by the NRC senior managers in deciding whether a plant should be placed on the Watch List were not made known to the licensees or public until mid-1994 when they were promulgated in a report from the NRC staff to the Commission (SECY-94-113). The report was released to the industry and public in May 1994.

It was recognized that the decision to place a plant on the Watch List was quite subjective and depended on NRC understanding of past events and operations at the plant. This understanding could change

over time due to changing plant conditions, the uncovering of new knowledge of plant performance by either the NRC or the licensee, and the NRC's perception of whether the licensee's performance is improving or declining in meeting the NRC rising standards.

Consequently, the Commission tasked the staff to develop more specific criteria for determining whether to place a plant on the Watch List, to develop additional structure that can be used to enhance the objectivity of problem plant identification, and to clearly communicate the overall plant evaluation process to the industry and the public. In a staff report to the Commission (SECY-96-093) dated May 1, 1996 the staff set forth a Senior Management Meeting Nuclear Power Plant Performance Evaluation Template for use in determining whether to place a plant on the Watch List. The Template addresses five broad areas and asks pertinent specific questions within each of the areas. The five broad areas and a few examples of questions, which are also largely subjective, within each area follows:

> EFFECTIVENESS OF LICENSEE SELF-ASSESSMENT--Does the licensee effectively document problems? Does the licensee effectively determine the root cause of identified deficiencies and the extent of degraded conditions? What is the trend of the plant's corrective action backlog?
>
> OPERATIONAL PERFORMANCE (FREQUENCY OF TRANSIENTS)--How effectively does the operations staff control plant activities? Does licensee management demonstrate awareness of day-to-day operational concerns? Does the licensee staff operate the plant in a conservative, safe, and professional manner?

HUMAN PERFORMANCE--To what extent have human performance problems contributed to reportable events? Are the licensee's procedures adequate and properly used? Is the licensee's staff appropriately qualified and properly trained?

MATERIAL CONDITION (SAFETY SYSTEM RELIABILITY/AVAILABILITY)-How do licensee performance indicators for safety system failures, safety system actuations, and significant events compare to industry averages and the plant's peer group? Are work activities prioritized with appropriate consideration of importance to safety?

ENGINEERING AND DESIGN--Do design, construction, and equipment deficiencies exist? Have human-system interfaces resulted in problems that challenge plant safety? Does the licensee's engineering function adequately address issues related to plant aging? Is the plants licensing-basis and design-basis documentation complete and accurate?

The Commission issued a memorandum to the NRC staff on June 28, 1996, requesting they evaluate the development of indicators that would provide a basis for judging whether a plant should be placed on or removed from the Watch List. The results of the evaluation to improve the consistency and objectivity of NRC judgment are contained in the Arthur Anderson Report dated December 30, 1996, and which was made public on January 29, 1997.

On that same day, the Commission was briefed by the staff about additions to the Watch List at the Senior Managers Meeting. These additions more than doubled the number of plants designated as Category 2 Watch List plants. The Commissioners expressed concern

about the abrupt change in status for several plants that were added to the list, including Crystal River 3. Commissioner Nils Diaz stated:

> Specifically, I have concerns how Maine Yankee, Zion and Crystal River were placed directly on the watch list when, a short time ago, they were considered good performers and, when one looks beyond an event, we find aggressive correction and remedial reaction programs that the staff have praised.

Commissioner Kenneth Rogers asked whether the large increase in Category 2 plants represented an abrupt deterioration at those plants, or a different way of looking at the plants by the NRC. In his response, the staff spokesman stated that the NRC's new emphasis on design basis issues contributed to the placement of Crystal River on the Watch List.

Q. **DOES THE NRC'S DECISION TO PLACE A PLANT ON THE WATCH LIST MEAN THAT THE UTILITY HAS BEEN UNREASONABLE?**

A. No. NRC evaluates the performance of a licensee's management with respect to management's ability to comply with NRC requirements and to achieve high levels of safety performance. In making its determinations regarding a licensee's management, NRC does not evaluate the reasonableness of actions taken by management. Instead, NRC focuses on the effectiveness of the actions. Accordingly, NRC placement of a plant on the Watch List is not indicative of whether management has been prudent in its actions, but reflects NRC's perception of the safety and regulatory performance of the plant,

regardless of the prudence of management actions. In short, a plant is placed on the Watch List not because management actions have been imprudent, but because the NRC has determined the licensee and NRC should focus additional attention on making improvements in its safety and regulatory-related activities.

The purpose of the Watch List is to identify plants that require additional NRC resources to assist in enhancing plant safety and regulatory performance. There are no precise criteria for deciding which plants are placed on the Watch List. Placement of a plant on the Watch List depends on NRC understanding of past events and operations at that plant. This understanding can change over time due to changing plant conditions, the uncovering of new knowledge of plant performance by either the licensee or the NRC, and the NRC's perception of whether a licensee's performance is improving or declining in meeting rising standards.

Q. HAS THE NRC EXPRESSED CONCERN ABOUT THE USE OF ITS FINDINGS, STATEMENTS AND RATINGS FOR OTHER PURPOSES AND IN OTHER CONTEXTS?

A. Yes, the NRC has expressed such concern on several occasions. For example, in NRC Management Directive 8.6 regarding the SALP program, the NRC Policy Statement included in the Directive states, "The NRC discourages use of SALP data for any purpose other than its intended objectives."

In its Policy Statement on POSSIBLE SAFETY IMPACTS OF ECONOMIC PERFORMANCE INCENTIVES, which was published in the Federal Register on July 24, 1991, the Commission set forth its concerns regarding the improper use of its findings, statements, and ratings for purposes other than which they were intended. The Policy Statement specifically addresses the Commission's concerns regarding the improper use of SALP scores, Performance Indicators, and corrective actions taken by licensees to improve their performance. It also provides several examples of improper use of NRC findings.

The Commission expresses a concern that if a utility is encouraged to maximize measured performance in the short term it may tend to keep a reactor on line when it would be safer to take it down for preventive or corrective maintenance. Likewise, by using shortcuts or compressed work schedules to minimize down time, the licensee could decrease the margin of safety.

The Commission expresses a concern about reliance on NRC's SALP scores and any reliance on a utility's corrective action following an incident to justify the disallowance of costs related to the incident. The Commission clearly states that SALP scores and ratings are not based on absolute quantitative considerations, and therefore produce scores that are of limited significance. The NRC expects licensees to focus on the facts in the SALP, the issues identified, and the apparent root cause

of problems. If a financial reward or punishment scheme is based on SALP scores, the Commission is concerned that licensees may focus on improving the numerical scores instead of addressing the underlying issues.

Likewise, the Commission expresses concern that undue emphasis on performance indicators in a financial reward or punishment scheme could prompt licensees to improve the scores by taking inappropriate actions rather than identifying and correcting underlying safety conditions.

Of special importance is the Commission's admonition against actions that may penalize a utility for taking voluntary action after an incident to improve its plant procedures or operating practices. The Commission expresses concern that if it is inferred that the utility's original procedures are deemed inadequate because of the utility's corrective actions and; therefore, the utility is penalized financially because of the inferred inadequacies, such action will discourage utilities from making worthwhile improvements and can be detrimental to the long-term safety of operations.

VI. LICENSEE ASSESSMENT RESPONSIBILITIES

Q. WHAT IS AN LER?

A. An LER (Licensee Event Report) is a written report from the licensee to the NRC which is required to be submitted on a wide range of events

that are identified in the NRC regulations. NRC regulation 10CFR50.73 identifies the specific events which must be reported to the NRC within 30 days after identification of the event. The regulation details the information required to be included in the report.

As part of the NRC routine inspection program, an NRC inspector reviews each LER and determines whether it meets NRC requirements. During this review special emphasis is placed on evaluating whether the licensee's corrective action will be effective in preventing recurrence of the event or similar events.

Q. **DOES THE NRC ENCOURAGE UTILITIES TG CONDUCT SELF-ASSESSMENTS?**

A. Yes, the NRC clearly encourages licensee self-assessments and highlights the importance of critical licensee self-assessments by various means. In NRC Management Directive 8.6, pertaining to the NRC SALP process, regarding the cover letter forwarding the SALP report to the licensee, it states, "The cover letter will include a specific reference to and assessment of the licensee's Safety Assessment and Quality Verification activities, including the licensee's effectiveness in discovering and correcting its own problems." Likewise, one of the five broad areas examined by the NRC senior managers in deciding whether a plant should be placed on the NRC Watch List is Effectiveness of Licensee Self-Assessment.

Additionally, during several of the annual NRC Regulatory Information Conferences with Senior Utility Managers, the importance of licensee self-assessment activities was stressed by senior NRC management. Senior NRC management attention to this issue is reflected in the NRC inspection program and the day-to-day inspection activities of the NRC inspectors. It is noted that 10CFR50, Appendix B, Criterion II, requires self assessments.

Q. IF A UTILITY COMPANY'S SELF-ASSESSMENT IS CRITICAL, DOES THAT MEAN THAT THE COMPANY HAS BEEN UNREASONABLE?

A. No. The NRC's increased emphasis on self-assessment, over time, has required all licensees to perform more performance-based assessments. Formal root cause analysis programs and continuing self-assessments are now receiving NRC attention at all plants. As with NRC inspections, the purpose of these self-assessments is to identify and correct weaknesses. Good self-assessments, at any plant, are inherently negative in tone since their overall objective is to improve performance. As such, negative findings as a result of self-assessments do not necessarily indicate imprudent management.

Q. WHEN UTILITIES MAKE PRESENTATIONS TO THE NRC, IS IT USUAL FOR THEM TO BE CRITICAL OF THEIR OWN ACTIONS, DECISIONS, OR OPERATIONS?

A. Yes, it is customary for utilities to be critical of their own actions, decisions, and operations when making presentations to the NRC.

This self-criticism usually stems from the results of self-assessments which are normally performed by licensees prior to their meeting with NRC regarding a problem or issue identified at the plant. It is imperative that self-assessments critically review plant performance for weaknesses so that appropriate corrective action may be initiated.

Q. IF A UTILITY COMPANY IS CRITICAL OF ITS OWN ACTIONS, DECISIONS OR OPERATIONS IN PRESENTATIONS TO THE NRC, DOES THAT MEAN THAT THE COMPANY HAS BEEN UNREASONABLE?

A. No.

Q. IS IT USUAL FOR UTILITIES TO EXPERIENCE ERRORS OR OTHER HUMAN PERFORMANCE FAILURES BY EMPLOYEES AT NUCLEAR STATIONS?

A. Yes. Human performance failures are a common occurrence at nuclear power plants. During 1994 and 1995, over 70 percent of violations of NRC requirements involved personnel errors.

Consequently, INPO established a Special Review Committee on Human Performance to identify actions needed to bring about improvement in human performance within the nuclear power industry. In early 1995, INPO issued the Review Committee Report, "Recommendations for Human Performance Improvement in the U.S. Nuclear Utility Industry." Based on the recommendations of the

Special Review Committee, in April 1995, INPO established a Special Utility Committee on Human Performance to translate the Review Committee recommendations into a document which would assist utilities to achieve excellent human performance. Consequently, the preliminary INPO publication, "Excellence in Human Performance" was issued in November 1995.

Q. HOW DOES NRC REGARD HUMAN PERFORMANCE FAILURES?

A. The NRC holds the utility licensee responsible for performance failures by members of the utility staff. When personnel errors occur, the NRC normally issues a Notice of Violation to the licensee. In certain instances, especially those involving an NRC Licensed Reactor Operator, the NRC may also issue a Notice of Violation to the Licensed Operator or take some other appropriate form of enforcement action.

Q. IS THIS THE SAME TREATMENT GIVEN TO PERSONNEL ERRORS DURING AN EVALUATION OF MANAGEMENT PRUDENCE AGAINST A REASONABLENESS STANDARD?

A. No. It is my understanding that in evaluating management prudence, it is the decisions and actions of management that are evaluated, rather than the actions or mistakes of individual employees.

Q. ARE LICENSEES REQUIRED TO HAVE A CORRECTIVE ACTION PROGRAM?

A. Yes, licensees are required to have Corrective Action Programs and take steps to correct performance deficiencies. This is a specific NRC requirement set forth in 10CFR50, Appendix B, Criterion XVI. The program is to identify the deficiency, the cause of the deficiency, and establish effective corrective action. The program and actions taken are required to be documented.

The NRC routinely evaluates the effectiveness of licensee actions in response to deficiencies and weaknesses. These evaluations are found in the routine NRC Inspection Reports, and are significant factors in the determination of SALP ratings .

Q. ARE INITIAL CORRECTIVE ACTION PLANS NORMALLY FULLY EFFECTIVE?

A. No, by its nature an improvement plan should stretch the capabilities of the organization to achieve all of the plan objectives. I have found that rarely does a utility achieve all of the plan objectives during the first try. Once initial performance improvement is achieved, the organizational performance tends to plateau at that improved level. Then another series of improvement steps has to be established to reach the next performance plateau. Improvement is not a destination, it is a journey, with revised improvement steps being the norm. The better a licensee becomes in operating the plant, the more in-depth and probing are the licensee's self-assessment activities. This, in turn, results in ever improving performance.

Q. **ONCE A NUCLEAR PLANT IS LICENSED TO OPERATE BY THE NRC, IS THE UTILITY ALLOWED TO MAKE CHANGES TO THE PLANT AND ITS OPERATION?**

A. Yes, the utility may make changes to the plant and its operation in accordance with the provisions of 10CFR50.59.

Q. **PLEASE EXPLAIN 10CFR50.59.**

A. 10CFR50.59 is the NRC regulation which allows the licensee to make changes to the plant and its operation (change procedures, and conduct tests and experiments) as described in the safety analysis report provided certain requirements regarding the change are met. The principal provisions of the regulation are:

1. The licensee may make changes to the plant and its operations provided that the changes do not involve a change in Technical Specification requirements or create an Unreviewed Safety Question (USQ).

2. An USQ is created if the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety evaluated in the safety analysis report may be increased; or if a possibility for an accident or malfunction of a different type than evaluated in the safety analysis report may be

created; or if the margin of safety as defined in the basis for any technical specification is reduced.

3. If an USQ is created or if a Technical Specification change is required, the licensee must receive NRC permission via a license amendment prior to making the change.

4. The licensee must maintain records regarding changes made pursuant to the provisions of 10CFR50.59, including a written safety evaluation which demonstrates that an USQ is not created by the change.

5. The licensee must make periodic reports to the NRC briefly describing the changes made pursuant to the provisions of 10CFR50.59.

Q. PLEASE EXPLAIN THE SIGNIFICANCE OF 10CFR50.59 IN THE REGULATORY PROCESS.

A. The NRC decision whether to issue an operating license to a nuclear power plant is to a large extent based on the contents of the Safety Analysis Report (SAR) which sets forth the safety design of the facility; a description of the structures, systems and components which affect the safe operation of the facility; the operational, quality, and administrative programs and processes to be used to operate and maintain the facility; and the results of accident analyses and actions to

preclude accidents and mitigate their consequences. Other matters are also described and discussed in the SAR.

The NRC recognized that in the course of operating a complex nuclear power plant the licensee would be required to make numerous changes in the plant and its operation to improve its overall operational effectiveness and to respond to weaknesses and deficiencies which would be encountered in day-to-day operations. On one hand, the NRC did not want to interfere with the ability of the licensee to make these adjustments to plant operation; but, on the other hand, the NRC did not want to allow the licensee to operate the plant outside of the SAR bounds which provided the rationale for NRC granting the Operating License to the utility. Consequently, the NRC established 10CFR50.59 which authorizes licensees to make certain changes to the plant and its operation without the need to seek prior NRC approval provided that certain criteria are met.

Q. DOES AN UNREVIEWED SAFETY QUESTION MEAN THE PLANT IS UNSAFE OR THAT A SAFETY ISSUE EXISTS?

A. No, as stated in the July 5, 1996 correspondence from the NRC's Executive Director for Operations to the NRC Commissioners (SECY-96-154), "It should be recognized that not every unreviewed safety question is necessarily a significant safety issue. However, until the question is reviewed and understood, there is uncertainty in the basis for the Commission's safety decision in licensing the plant." The paper

goes on to recognize that there are plant equipment, procedures, tests and experiments described in the SAR that would not reasonably have any impact on safety regardless of the change.

Q. HAS THERE BEEN ANY CONFUSION REGARDING THE INTERPRETATION OF 10CFR50.59 BY THE LICENSEES AND THE NRC?

A. Yes, the lack of a common understanding between the NRC and the licensees became apparent during the last 1-2 years. In 1995, based upon identification of certain 50.59 issues at the Millstone facility, the NRC initiated a review of the 50.59 process and identified that the utilities were experiencing difficulties with the day-to-day use of 10CFR50.59 because the meanings of the rule language are not clear. Therefore, the NRC staff and the licensees have different interpretations and different expectations for implementation of the rule.

The correspondence from the NRC Executive Director for Operations to the Commissioners dated February 12, 1997 (SECY-97-035) identifies the areas of confusion where additional NRC guidance is required. The principal areas requiring additional guidance are:

1. Application of 10CFR50.59 to the resolution of degraded and nonconforming conditions.

2. Clarification of what is meant by Reduction in Margin of Safety as defined in the basis of any technical specification.

3. Clarification of what is meant by Increase in Probability or Consequences.

4. Licensee practice of deleting information from the SAR.

5. Definition of Test or Experiment.

6. Clarification of what is meant by, "as described in the SAR".

7. Clarification of what is meant by, "accident previously evaluated in the SAR".

The NRC paper also address several other significant issues which need to be addressed in order to establish a consistent industry-wide and NRC application of 10CFR50.59 principles to changes being made in the operation of nuclear power plants.

Q. **HAS THE NRC TAKEN ANY OTHER ACTIONS IN RESPONSE TO 10CFR50.59 ISSUES?**

A. Yes. As a result of 50.59 concerns, the NRC has begun a series of special design inspections to verify that selected nuclear power plants are operating under the terms and conditions of their licenses and NRC

regulations. As of February 1997, three design inspections have been completed and findings associated with inadequate design controls were identified in all three inspections (St. Lucie, Three Mile Island 1, and Washington Nuclear Project 2). The NRC plans to continue performing design inspections over the next two years.

The NRC has also recently issued for review and comment a proposed Generic Letter requesting all licensees take specific actions to assure sufficient net positive suction head (NPSH) for emergency core cooling and containment heat removal pumps. This concern originated from recent NRC inspection findings, licensee notifications, and licensee event reports at several plants which indicated that the NPSH required for these pumps may not be adequate under all design-basis accident scenarios.

Q. **DOES THIS CONCLUDE YOUR PREFILED TESTIMONY?**

A. Yes.

EXHIBITS TO THE TESTIMONY OF JAMES H. SNIEZEK

EXHIBIT NO. ___ (JHS-1)

U.S. NRC ORGANIZATIONAL CHART

Exhibit JHS-1

U.S. NUCLEAR REGULATORY COMMISSION ORGANIZATION