

INSTITUTIONAL PLAN



INSTITUTE OF NUCLEAR POWER OPERATIONS

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Preface

The U.S. nuclear electric utility industry established the Institute of Nuclear Power Operations (INPO) in 1979 to promote the highest levels of safety and reliability—to promote excellence—in the operation of its nuclear plants.

In forming INPO, the nuclear utility industry took an unusual step. The industry placed itself in the role of overseeing INPO activities, while at the same time endowed INPO with ample authority to bring pressure for change on individual members. That feature makes INPO unique. By committing to meet INPO's performance objectives and criteria and to implement improvements in response to INPO recommendations, the industry clearly established and accepted a form of self-regulation by peer review. The industry's recognition that all nuclear utilities are affected by the action of any one utility served as a principal motivation for its commitment to and support of INPO.

Each individual member is responsible for the safe operation of its nuclear plant(s). The U.S. Nuclear Regulatory Commission (NRC) has statutory responsibility for overseeing the licensees and verifying that each licensee operates its facility in compliance with federal regulations. Compliance with regulations alone, however, does not necessarily result in the best possible performance. INPO's role is to promote excellence in the operation of its members' nuclear power plants, and the nuclear industry's commitment to continually strive for excellence has resulted in steady performance improvements.

After its formation, the Institute grew from a handful of on-loan personnel in late 1979 to an established work force of about 390 permanent and on-loan personnel. INPO's early years were marked by growth and evolution of its programs and organization. The Institute now focuses primarily on the effectiveness and enhancement of established programs and activities.

For INPO to carry out its role, it must have the support of its members and participants and a cooperative but independent relationship with the NRC. A basis for that support and cooperation is an understanding of INPO's role. This Institutional Plan is intended to provide that understanding by defining the Institute's role and its major programs. This plan considers the existing and projected needs of the industry and the overall environment in which INPO and its members and participants operate.

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I.

Purpose

The purpose of this Institutional Plan is to describe INPO programs and provide a foundation for carrying out those programs. This plan accomplishes the following:

- Sets forth the Institute's mission and philosophy of operations.
- Sets forth the obligations for INPO membership.
- Defines the Institute's role in the industry and its relationship with its members and participants, other industry organizations, and government agencies.
- Describes the Institute's key organizational elements.
- Describes the programs the Institute is expected to carry out, including objectives of each program.
- Updates and supersedes previous institutional plans and the original organization plan, incorporating policy decisions by the Board of Directors since the original organization plan was issued in September 1979.

II. Background

The Institute of Nuclear Power Operations was established in 1979. An organization plan and a charter were developed with the assistance of several industry groups formed for that purpose. This original organization plan and charter were issued by INPO's founders in September 1979. U.S. utilities with operating licenses or construction permits for nuclear plants were involved in INPO's development, and all became members soon after the Institute was formed.

Since that time, all organizations having direct responsibility and legal authority to operate or construct commercial nuclear electric generating plants in the United States have maintained continuous membership in the Institute. Many organizations that jointly own these nuclear power plants are associate members. A number of international utility organizations and major supplier organizations also participate in the Institute.

The Institute was incorporated as a nonprofit corporation in the State of Delaware on October 12, 1979, and began operation in Atlanta, Georgia, on December 3, 1979. INPO developed rapidly as it endeavored to implement the organization plan and carry out the safety and reliability mission established by the founders.

The post-TMI (Three Mile Island) period was one of rapid change for the industry, requiring INPO to undertake additional initiatives. Over the Institute's first few years, its role evolved to accommodate changing requirements in the industry and to build on the experience gained. Significant changes were made to the original organization, and new programs and activities were added to best achieve the Institute's mission. Nuclear operating organizations from countries outside the United States and supplier companies from the United States and other countries helped broaden the Institute's role. This period of development was guided by INPO's Board of Directors, with the advice of its Advisory Council, and by INPO management, with the advice and counsel of Industry Review Groups.

After three years of continued growth, the Institute entered a phase of consolidation. Emphasis was no longer on growth; improvements in and refinements to established programs became the Institute's focus, and INPO's emerging role was defined in its Institutional Plan first issued in May 1983 and updated periodically since then. By 1987, at seven years of age, the Institute's role and programs were well-defined. While strong emphasis on improving established programs and on refining methods and products continues, INPO and its Board of Directors stay abreast of issues affecting the nuclear utility industry.

II. Background

In 1993, in light of the increasingly competitive environment its member utilities were facing, INPO undertook an extensive review of its mission and Institutional Plan. The INPO staff, the Advisory Council, and the Board of Directors were involved in this examination of INPO's role in the industry. As a result of that review, INPO's mission was not changed—the Institute retained its strong focus on excellence in nuclear power plant operational safety and reliability.

III.

Organization

The Institute's organization is similar in many ways to a typical U.S. corporation. A board of directors, elected by INPO's members, provides overall direction for the operations and activities of the Institute. The president of the Institute is elected by and reports to the Board of Directors.

An Advisory Council of 12 to 18 professionals from outside INPO's membership meets periodically to review Institute activities and provide advice on broad objectives and methods to the Board of Directors. The Advisory Council is comprised of distinguished professionals in areas related to the Institute's activities and includes prominent educators, scientists, engineers, industrialists, and health specialists.

The Institute's activities to enhance nuclear plant safety and reliability are reflected primarily in its cornerstone programs that include on-site evaluations of each nuclear plant, training and accreditation, events analysis and information exchange, and assistance as described in Appendix A. Nuclear technical divisions are organized to carry out the cornerstone functions. Administrative, government relations, communications, and information systems divisions support the nuclear technical divisions as well as the Institute's overall mission.

The National Academy for Nuclear Training operates under the auspices of INPO and integrates the training efforts of all U.S. nuclear utilities, the activities of the National Nuclear Accrediting Board, and the training-related activities of the Institute. An INPO executive normally serves as the executive director of the Academy.

The Atlanta Center of the World Association of Nuclear Operators (WANO) is co-located with the Institute. WANO was formed by the international nuclear community to promote worldwide improvements in the quality of nuclear plant operations. WANO's mission is to maximize the safety and reliability of the operation of nuclear power plants by exchanging information and encouraging communication, comparison, and evaluation among its members. INPO provides operational support and facilities for the Atlanta Center and represents the U.S. nuclear utilities' membership in WANO. An INPO executive serves as the director of the WANO-Atlanta Center.

Non-U.S. nuclear utility organizations participate in the Institute's International Participant Program, normally through, or in coordination with, the WANO-Atlanta Center. This program involves active exchange of information on nuclear plant operations among utility organizations around the world. Each of the Institute's international participant organizations is represented on an advisory committee that provides advice on the operation of this program as well as input on other Institute programs as appropriate.

III. Organization

Organizations engaged in the provision of commercial design, engineering, or other services directly related to the construction, operation, or support of nuclear electric generating plants also participate in INPO through the Supplier Participant Program. This program allows the experience and expertise of the supplier organizations to be shared with the Institute's members and provides a means to feed back operational experience to the suppliers. An advisory committee, made up of representatives from all supplier participants, provides advice on the operation of the program as well as on other Institute programs.

The Institute encourages members and participants to actively participate in its programs. Representatives from member utilities serve on Industry Review Groups and Councils. Industry Review Groups advise INPO management on the programs and products in the various technical areas. An Academy Council provides advice in the areas of training and accreditation, and an Industry Communications Council provides advice on effective communication of INPO programs and activities. Ad hoc industry groups are also frequently established to provide input on specific initiatives.

The Institute's permanent staff is augmented extensively by industry professionals who serve as loaned employees or international liaison engineers on long-term assignments. The Institute's resources and capability are further leveraged by the extensive use of U.S. industry and international utility peers. These peers participate in a wide range of short-term activities, and especially on teams that visit nuclear plants and training centers.

IV.

Mission and Philosophy of Operation

The mission of the Institute is to promote the highest levels of safety and reliability—to promote excellence—in the operation of nuclear electric generating plants.

In carrying out this mission, the Institute strives to apply the following principles:

1. Encourage excellence in all phases of nuclear power plant operations.¹
2. Promote improved management and leadership development in the industry, including activities such as educational assistance and enhanced selection, training, development, and retention of key personnel.
3. Promote the highest levels of professionalism among all personnel involved in nuclear technology, including a strong emphasis on safety culture and conservative decision-making.
4. Assist members in implementing their own improvements, rather than attempting to preempt their management responsibility or prerogatives.
5. Assist members in achieving and maintaining accreditation of performance-based training programs at their facilities. Provide guidance for use by members in training and qualifying personnel to operate, maintain, and support their nuclear plants.
6. Analyze events that occur in the operation of nuclear plants worldwide to identify possible precursors of more serious events and disseminate the lessons learned. Facilitate understanding and application of the lessons learned to prevent recurrence.
7. Assist members in identifying human performance and equipment problems and their root causes, and provide information and techniques that can assist plants in achieving effective preventive and corrective actions. Enhance the diagnostic abilities of nuclear plant operators.
8. Promote exchange of information through the development of good practices and effective work processes that assist in achieving safe, reliable, and efficient operation of nuclear electric generating plants; recognize the importance of improving or refining existing utility practices, rather than supplanting them.

¹ Operations is used in a broad context in this document and includes the activities that support the operation of the plant (maintenance, training, engineering support, etc.).

IV. Mission and Philosophy of Operation

9. Assist members in specific areas where efficiency and the effective use of resources are complementary to the safe and reliable operation of nuclear electric generating plants.
10. Involve personnel from members and participants in INPO work to promote information exchange and to ensure INPO programs meet the current needs of members and participants.
11. Use expertise and experience from outside the U.S. nuclear utility industry to provide industry access to the best methods and technologies available, including information exchange through the World Association of Nuclear Operators.
12. Encourage members, through such means as the annual CEO Conference, to hold each other accountable for the performance of their nuclear plants and to hold INPO accountable for its mission.

INPO strives to apply these same principles related to excellence and professionalism in its internal programs and activities. Programs to carry out the Institute's mission and to implement its philosophy of operation are described in general terms in the next section.

V.

Programs and Activities— Overview

INPO's cornerstone technical programs are described in detail in Appendix A. The following provides an overview of the Institute's major activities.

A. CORNERSTONE TECHNICAL PROGRAMS

1. Evaluation Programs

Evaluations are conducted regularly of nuclear plants operated by member utilities. Corporate support of operating plants is also periodically evaluated. In these evaluations, the INPO teams use standards of excellence based on experience and best practices. Written performance objectives and criteria are used to guide the evaluation process.

2. Training and Accreditation Programs

INPO interacts with all members in preparing for, achieving, and maintaining accreditation of training programs for personnel involved in the operation, maintenance, and technical support of nuclear plants. These interactions include evaluations of accredited training programs, activities to verify that the standards for accreditation are maintained, and assistance at the request of member utilities. Written objectives and criteria are used to guide the accreditation process.

The National Academy for Nuclear Training operates under the auspices of INPO. The Academy was formed to focus and unify industry efforts to ensure high standards in training and qualification and to promote professionalism of nuclear plant personnel. The Academy integrates the training-related activities of all members, the independent National Nuclear Accrediting Board, and the Institute. Through INPO, the Academy conducts seminars and courses for utility personnel.

3. Events Analysis and Information Exchange Programs

The events analysis program is designed to identify precursors of potentially more serious events and the root causes of these events. Off-normal events that occur in the operation of nuclear plants are analyzed by INPO. On-site reviews of selected events are conducted at the nuclear plant sites. Lessons learned are disseminated to members and participants. Nuclear station responses to the recommendations that result from this program are reviewed as part of the plant evaluation process.

INPO operates extensive computer databases to provide members and participants access to an electronic information exchange system. These databases include information on plant performance, operating experience, and equipment reliability.

NUCLEAR NETWORK®, a worldwide computerized communication system, is used by INPO and its members and participants for the exchange of information on the operation of nuclear plants. The World Association of Nuclear Operators also uses NUCLEAR NETWORK as one of its primary means for communication and operating experience information exchange among its members and regional centers.

WANO collects and monitors worldwide nuclear plant performance indicator data and shares this information with INPO members and participants. Periodic reports are provided to the industry. Nuclear utilities are encouraged to use these indicators to monitor the performance of their nuclear plants and to emulate best practices that contribute to highest levels of performance.

4. Assistance Programs

Visits to member or participant utilities by INPO personnel and industry peers in response to utility requests are one of the most important modes of assistance. This assistance is aimed at dealing with specific technical concerns, as well as broader management and organizational issues.

INPO assists members to reduce the number and severity of events caused by human performance problems. This assistance places emphasis on organizational, individual, and leadership behaviors and includes assistance visits that facilitate the use of utility self-assessments. These activities also focus on investigating human performance problems and identifying actions that correct root causes.

Technical documents describing effective work processes and good practices are provided to assist member utilities. Utilities are encouraged to selectively use these documents in developing or improving programs applicable to their plants. These documents can be used in whole or in part, as furnished, or modified to meet the specific needs of the plant involved.

Workshops, seminars, working meetings, and other activities are also conducted to assist in the exchange of information among members.

B. SUPPORTING PROGRAMS

1. Loaned Employee and Liaison Engineer Programs

To augment its professional staff, INPO uses the expertise of loaned employees from members and participants. This program is designed to provide a continuing source of personnel with recent nuclear plant experience to augment the INPO staff. It also provides loaned personnel with an opportunity to gain broader industry experience.

International participants and international supplier participants are eligible to assign liaison engineers to the INPO staff. This program is intended to provide ongoing liaison with these international organizations and to provide INPO staff support.

2. Reverse Loaned Employee Program

As a means of furthering industry experience and management development opportunities as well as in response to specific utility requests, INPO conducts a reverse loaned employee program in which, under special circumstances, INPO employees are loaned to member or participant organizations.

3. Peer Evaluator Programs

Industry peers augment INPO field and other activities. Each plant evaluation team includes senior reactor operators and other peer evaluators from selected plant functional areas. The peers generally are from operating plants similar to the one being evaluated, and they assist the INPO evaluators in reviewing plant performance. In a similar fashion, INPO accreditation teams are augmented by peers from utility training organizations. Senior executives from member utilities serve as advisors on the Institute's corporate evaluation teams and as mentors in INPO courses. Peers are also used extensively on assistance, review, and international technical exchange visits. Most field visits involve a host peer evaluator from the plant being visited.

4. Support to Special Industry Committees or Organizations

INPO provides staff support on a case basis to specially formed industry committees or industry organizations/associations.

C. INTERNATIONAL PROGRAMS

1. The World Association of Nuclear Operators (WANO)

WANO is an international organization formed in 1989. Originally modeled after INPO, WANO facilitates the worldwide exchange of nuclear plant operational information. WANO's mission is to maximize the safety and reliability of the operation of nuclear power plants by exchanging information and encouraging communication, comparison, and emulation among its members.

The association operates through regional centers in Atlanta, Moscow, Paris, and Tokyo, and a small coordinating center in London. Operating nuclear power plants from around the world are members of WANO.

INPO represents the U.S. utilities in WANO and provides services and coordinates information exchange through its support and operation of the WANO-Atlanta Center.

INPO supports a range of WANO programs and activities and facilitates contact among U.S. and non-U.S. utilities. Such programs and activities include:

- Voluntary Peer Reviews—conducted at the request of members by teams of international peers who identify strengths and areas for improvement associated with operational reactor safety and reliability
- WANO Event Analysis Reports—detailed descriptions of events and lessons learned that are distributed to member utilities
- NUCLEAR NETWORK®—an international computerized communication system used by WANO members and regional centers to rapidly exchange operational information on a wide variety of topics
- WANO Performance Indicator Program—the collection, trending, and dissemination of quantitative nuclear plant performance data designed to facilitate goal-setting, performance trending, and monitoring and to encourage emulation of the best industry performance
- Exchange Visits—a method for the direct sharing of plant operating experience and ideas for improvement through on-site visits between nuclear power plants around the world
- WANO Good Practices—a collection of techniques or practices that have been proven to be effective in enhancing safety and reliability

2. International Participant Program

A number of nuclear power operating organizations in other countries have become participants in INPO. These organizations normally participate in INPO programs through, or in coordination with, the WANO-Atlanta Center. This self-supporting program is intended to facilitate exchange of information and experience, thereby promoting safe and reliable nuclear plant operation worldwide. International participants receive many INPO products and services that are provided to domestic members and are invited to INPO workshops. In addition, international technical exchange visits are conducted both in the United States and abroad to further enhance information exchange and emulation of best practices. International participants have access to INPO experience and can adopt INPO methods, as desired, in areas such as plant evaluations, training program accreditation, training courses, and operating experience analysis.

D. SUPPLIER PARTICIPANT PROGRAM

Organizations that are engaged in the provision of commercial design, engineering, or other services directly related to the construction, operation, or support of nuclear electric generating plants are eligible to participate in INPO. The Supplier Participant Program is intended to promote exchange of technical information and incorporation of plant operating experience into supplier participant activities that support the operation of nuclear power plants.

Supplier participants interact with INPO to share experience and can use INPO practices, as appropriate, in support of their efforts. Supplier participant experience and expertise also are requested by INPO to support the Institute's programs and activities. To facilitate this interaction, supplier participants receive most INPO documents and data that are provided to domestic members and are invited to most INPO workshops and working meetings.

VI.

INPO's Relationship With Members, Participants, and Other Organizations

In carrying out its mission, INPO depends on the support of its members and participants and the cooperation of other industry organizations and federal agencies, particularly the Nuclear Regulatory Commission (NRC).

To ensure credibility with its members and with the federal government, INPO must maintain its independence with respect to any individual member and with respect to government agencies. At the same time, INPO must be responsive to the collective needs of its members and to their requests for assistance. INPO also coordinates its activities with other industry and government organizations.

The following principles and assumptions provide for coordination, support, and implementation of INPO programs:

1. Members are expected to establish a nuclear line organization that has clearly defined lines of responsibility and accountability for nuclear plant operation, maintenance, training, engineering support, and other activities necessary to ensure safe and reliable plant operation. The senior nuclear executive in the nuclear line organization shall be accountable in an unambiguous way to the organizational entity that holds federal authority (is licensed) to operate the nuclear facility.
2. Members are expected to strive to meet INPO performance objectives and to meet the intent of INPO guidelines.
3. Members are expected to be responsive to INPO-identified findings and recommendations made in conjunction with evaluation, accreditation, and events analysis programs.
4. Members are expected to achieve and maintain accreditation of their training programs for personnel who operate, maintain, and support their nuclear plants.
5. Members are expected to fully participate in other generic INPO programs designed to enhance nuclear plant safety and reliability. The WANO Performance Indicator Program is an example of such a program.
6. Members and participants are expected to use information provided by the Institute to improve their own nuclear operations and not for other purposes, such as to gain commercial advantage.
7. Members and participants are expected to avoid involving INPO or INPO documents in litigation.

8. INPO is expected by its members to provide written reports describing results from evaluation, accreditation, and review visits and to follow up and verify that effective corrective actions are implemented. INPO reports are maintained confidential and the interactions between INPO and its members are considered private.
9. INPO is expected to ensure that appropriate Industry Review Groups and Councils are provided an opportunity to review and comment on performance objectives, criteria, guidelines, and other INPO or Academy documents.
10. In matters relating to INPO's technical programs, INPO interacts with the member holding the operating license and having direct line responsibility for plant operation. This policy is necessary to maintain the responsibility for safe and reliable operation of the nuclear plant with the line organization. INPO expects its members to coordinate such matters with any joint owners. The Institute maintains a cooperative relationship with the Nuclear Non-Operating Owners Group.
11. INPO assists its members in maintaining an environment that reinforces line management authority and responsibility in matters related to nuclear safety and reliability and that provides flexibility for self-improvement initiatives. In this regard, INPO performance objectives and criteria are written without regard to constraints or agreements an individual member may have. Because the performance objectives and criteria and associated evaluation findings or recommendations involve reactor safety and public health and safety, each member is expected to resolve any impediments to their implementation that may be imposed by outside organizations. Examples of such impediments may include bargaining unit agreements or regulatory interactions.
12. A special procedure, approved by the INPO Board of Directors, provides guidance in the event a member is not responsive to INPO programs, is unwilling to take action to resolve a significant safety issue, or has accreditation for its training programs withdrawn by the National Nuclear Accrediting Board. The procedure calls for INPO and the member's management to work to resolve any issues in contention. Should resolution not be satisfactory, the procedure calls for specific interactions between INPO's chief executive officer and the member's chief executive officer and, ultimately, the member's board of directors. The procedure gives INPO the authority to suspend the organization from membership if it continues to be unresponsive.

VI. INPO's Relationship With Members, Participants, and Other Organizations

13. INPO members who also are members of Nuclear Electric Insurance Limited (NEIL) have authorized and instructed INPO to make available to NEIL at the Institute's office copies of INPO evaluation reports and other data. NEIL reviews these reports and data for items that could affect the insurability of its members.
14. INPO members and participants limit their requests for assistance from INPO to areas or activities that are within the scope of this plan.
15. INPO does not become involved in nor conduct assistance visits related to a specific regulatory issue in which a member becomes involved. This could result in INPO involvement in legal or enforcement proceedings and could impact its independent status.
16. INPO does not engage in public, media, or legislative activities to promote nuclear power. Such activities would undermine INPO's credibility and objectivity.

To best serve its members and participants, INPO coordinates its activities with various domestic and international nuclear industry support organizations, and nuclear steam supplier owners groups. A mutually supportive relationship is cultivated with these organizations since they often perform related activities in helping to achieve nuclear safety and reliability goals. Effective coordination of activities among these groups also helps make efficient use of utility resources.

INPO has designated points of contacts with these groups to facilitate information exchange and coordination. This includes serving on each other's advisory bodies and working groups, or attending each other's workshops and conferences on issues of mutual interest. Each organization also supplements its technical expertise by soliciting input from one another.

INPO, the Electric Power Research Institute (EPRI), and the Nuclear Energy Institute (NEI) have a mutually supportive and cooperative relationship that is set out in a formal memorandum of agreement. The three organizations' activities are often interrelated because many industry issues include elements of plant performance; research and development; and regulatory, political, or public interaction. To achieve the benefits of collaboration and unified approaches, it is important that nuclear utilities and industry support organizations coordinate their activities.

INPO also maintains liaison with insurer groups such as American Nuclear Insurers, Nuclear Mutual Limited, and Nuclear Electric Insurance Limited.

VI. INPO's Relationship With Members, Participants, and Other Organizations

The Institute and the NRC have a formal memorandum of agreement that reflects both organizations' desire for a continuing and cooperative relationship in the exchange of experience, information, and data related to the safety of commercial nuclear power plants. Although the fundamental goals of INPO and the NRC are similar—safe and reliable operation of nuclear plants and the protection of the public—the roles, while complementary, are considerably different. Coordination of INPO activities with the NRC is described more fully in Appendix B.

INPO coordinates its activities with other federal government agencies as appropriate. For example, certain aspects of its international program are coordinated with the Departments of State and Energy. INPO also has a formal memorandum of agreement with the Department of Energy (DOE) through which the Institute shares its program methodologies, experience, and data with the DOE to assist in improving the safety of nuclear reactor facilities through selected operational safety initiatives.

During its ongoing interactions with members and participants, INPO may become aware of policies or actions by a federal or state agency (or its personnel) that potentially detract from nuclear plant safety. INPO recognizes that it has an obligation to make the responsible agency aware of such issues in an appropriate manner and to follow up to see that the issues are addressed.

Appendix A

Description of Major INPO Programs

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1. EVALUATION PROGRAMS

INPO conducts periodic evaluations to promote the highest levels of excellence in the operation, maintenance, and support of operating nuclear plants. All evaluation visits are as performance-oriented as practicable and are based on performance objectives and criteria developed by INPO, with industry review.

A. OPERATING PLANT EVALUATIONS

Teams of qualified and experienced personnel conduct evaluations of operating nuclear plants to assess the knowledge and performance of station personnel; the condition of systems and equipment; the quality of programs and procedures; use of operating experience; and the effectiveness of station management, with focus on plant safety and reliability. The evaluation teams are augmented by senior reactor operators, other peer evaluators from operating units similar to those at the station being evaluated, and host utility peer evaluators. Typically, the following areas are covered:

- organization and administration
- operations
- maintenance
- engineering
- training
- radiological protection
- chemistry

INPO evaluations also review cross-functional activities such as safety culture, human performance, self-evaluation, equipment performance and materiel condition, work management, configuration control, and training.

Performance of station operations and training personnel during simulator exercises is included as part of the evaluation. Also included where practicable are observations of plant startups, shutdowns, and major planned evolutions. Evaluations of each operating nuclear station are conducted at an average interval of 18 to 20 months.

Formal reports of findings and/or recommendations for improvement are provided to the utility. The utility's response to INPO findings and/or recommendations, with commitments to improve performance, are included with the final report. INPO follows up in subsequent evaluations to assess the effectiveness of actions taken to implement improvements.

Copies of the plant evaluation report are distributed according to a policy approved by the Institute's Board of Directors.

B. CORPORATE EVALUATION/REVIEW VISITS

INPO periodically conducts evaluations or review visits designed to promote improvements in its members' corporate support and monitoring of nuclear station activities. In most cases, these visits are conducted in conjunction with an operating plant evaluation.

C. REVIEW VISITS

INPO conducts review visits in selected areas to supplement the evaluation, accreditation, and events analysis programs. These visits are separate and distinct from assistance visits in that they are typically initiated by INPO and are evaluative in nature. The results of review visits are used as an input to the evaluation process, and the visits are also used to monitor utility progress on issues. Examples of review visits include the following:

- follow-up visits to determine progress in selected evaluation areas
- follow-up visits to determine the implications of observed performance deficiencies in accredited training programs
- event review visits to determine the causes of selected events and ensure timely and accurate development and dissemination of events analysis documents
- review visits in specific performance areas, for example, to review outage preparation and performance or to review steam generator inspection practices in pressurized water reactor units

2. TRAINING AND ACCREDITATION PROGRAMS

A. NATIONAL ACADEMY FOR NUCLEAR TRAINING

The National Academy for Nuclear Training was formed in 1985 to focus and unify industry efforts to continue improvements in training and qualification programs and to promote professionalism of nuclear plant personnel.

The Academy operates under the auspices of INPO and is comprised of three components as follows:

- nuclear utility training activities supported by the utilities' training centers, control room simulators, and training staffs
- activities of the independent National Nuclear Accrediting Board, comprised of eminent American scholars and executives
- training-related activities of the Institute

Plants with accredited training programs are branches of the Academy. A utility becomes a member of the Academy when all its operating plants have achieved accreditation for all applicable training programs.

The National Nuclear Accrediting Board examines the quality of utility training programs and makes all decisions with respect to accreditation. If training programs meet stringent accreditation standards, the Board awards or renews accreditation. If significant problems are identified, the Board may defer initial accreditation, place programs on probation, or withdraw accreditation. The National Nuclear Accrediting Board is formed and supported by INPO, but it is independent in its decision-making authority.

An INPO executive normally serves as the Academy's executive director.

The Academy conducts and supports workshops, meetings, training courses, seminars, and other programs, and produces documents designed to improve performance of nuclear plant personnel.

B. PERFORMANCE-BASED TRAINING SYSTEM

The Academy provides assistance to members in establishing and maintaining performance-based training and qualification programs so personnel have the knowledge and skills required for competent performance of their jobs. The Academy provides guidance and assistance to utilities on a systematic approach to training that is used to develop performance-based training programs.

INPO accreditation teams evaluate each member's success in maintaining performance-based training and qualification. In addition, INPO follows up on accreditation issues and evaluates the effectiveness of utility training efforts during its periodic on-site plant evaluations.

C. ACCREDITATION PROGRAM

The National Academy for Nuclear Training manages the accreditation of utility training programs. The accreditation process is designed to identify strengths and weaknesses in training programs and to assist in making needed improvements. The process includes self-evaluations by members, with assistance provided by INPO staff; on-site evaluations by a team of INPO and industry personnel; and a decision by the independent National Nuclear Accrediting Board. Members are expected to seek and maintain accreditation of training programs for the following positions or skill areas:

- shift managers
- senior reactor operators
- reactor operators
- nonlicensed operators
- continuing training for licensed personnel
- shift technical advisors
- instrument and control technicians and supervisors
- electrical maintenance personnel and supervisors
- mechanical maintenance personnel and supervisors
- chemistry technicians
- radiological protection technicians
- engineering support personnel

Accreditation must be maintained on an ongoing basis and formally renewed for each of the above training programs every four years.

D. TRAINING AND QUALIFICATION GUIDELINES

The Academy develops and distributes training and qualification guidelines for operations, maintenance, and technical personnel. These guidelines are designed to assist the utility in developing quality training programs and in the selection of key personnel.

Training and qualification guidelines are revised and updated periodically to incorporate changes to address industry needs and to take into account lessons learned from other INPO programs, such as evaluations, accreditation, events analysis, working meetings, and workshops. These training and qualification guidelines provide a sound basis for utility training programs.

E. TRAINING COURSES AND SEMINARS

Through INPO, the National Academy responds to industry training needs by offering professional development opportunities geared specifically to managing the nuclear technology for various levels of management. Current courses include:

- Chief Executive Officer Seminar
- Reactor Technology Course for Utility Executives
- Senior Nuclear Executive Seminar
- Senior Nuclear Plant Management Course
- Shift Manager Professional Development Seminar
- Maintenance Supervisor Professional Development Seminar
- Engineering Supervisor Professional Development Seminar
- New Training Manager Seminar
- Risk-Informed Operational Decision Management Course
- Human Performance Fundamentals Course
- Event Investigation Training
- High Performance Team Training
- Control Room Teamwork Development Course
- Advanced Simulator Instructor Training

F. EDUCATIONAL ASSISTANCE

The National Academy manages an industry educational assistance program to provide undergraduate scholarships and graduate fellowships for students majoring in nuclear or nuclear-related engineering or power generation health physics programs. Scholarship and fellowship recipients are encouraged to pursue careers in the nuclear power industry.

3. EVENTS ANALYSIS AND INFORMATION EXCHANGE PROGRAMS

A. EVENTS ANALYSIS PROGRAM

INPO reviews and analyzes operating events from both domestic and non-U.S. nuclear plants. The program is designed to provide in-depth analysis of nuclear operating experience and to apply the lessons learned across the industry. Events are screened and analyzed for significance, and those with generic applicability are disseminated to the industry in one or more of the following forms:

- significant operating experience reports (SOERs)
- significant event reports (SERs)
- significant event notifications (SENs)
- operations and maintenance reminders (O&MRs)
- INPO special reports

The Institute conducts field reviews of selected events to determine root causes and provide accurate and timely dissemination of lessons learned to the industry to help prevent recurrence.

Members are expected to support the events analysis program by providing INPO with detailed and timely operating experience information. INPO members are expected to evaluate and take appropriate action on recommendations provided in SOERs. During its periodic on-site evaluations, INPO follows up on the effectiveness of each utility's actions in response to SOER recommendations.

INPO provides SENs, SERs, O&MRs, and other reports to members for action as appropriate. Unlike SOER recommendations, INPO does not follow up on the effectiveness of utility actions in response to these reports. INPO does evaluate the effectiveness of utility programs in extracting and applying lessons learned from industrywide as well as in-house operating experience.

B. EQUIPMENT PERFORMANCE DATA

The Institute has historically operated and maintained equipment performance information exchange databases, such as the Nuclear Plant Reliability Data System (NPRDS) and the Equipment Performance and Information Exchange (EPIX) system. INPO members are expected to report equipment performance information in accordance with established guidance to these computerized databases maintained by the Institute. INPO and member utilities use the data to identify and solve plant equipment performance problems with the goal of enhancing plant safety and reliability.

C. NUCLEAR NETWORK® SYSTEM

NUCLEAR NETWORK® is an international electronic information exchange system for sharing nuclear plant information. It is the major communication link for the Significant Event Evaluation and Information Network (SEE-IN) and the WANO event reporting system. Operating experience information, significant event reports, and other nuclear technical information are transmitted by the system. NETWORK also provides a vehicle for questions and other correspondence among INPO members and participants. Questions, for example, can be sent simultaneously to one, several, or all users.

The system includes a special dedicated topic for reporting plant emergency situations. This feature allows the affected utility to simultaneously provide U.S. industry, INPO's international and supplier participants, and WANO members with timely information. All NETWORK users can receive updates simultaneously.

D. PERFORMANCE DATA COLLECTION AND TRENDING

The Institute collects and analyzes data and information related to nuclear plant performance. Members provide data on a quarterly basis on quantitative performance indicators. This plant data is then consolidated for trending and analysis purposes. Industrywide data, plus trends developed from the data, are provided to member and participant utilities for a number of key operating plant performance indicators. These include the performance indicators used by WANO for worldwide nuclear plant performance comparisons. Members use this data in setting specific performance goals and in monitoring and assessing performance of their nuclear plants. INPO uses performance goals established by individual utilities to help establish industrywide performance goals for plants in the United States.

E. EVENT REPORT DATABASES

INPO maintains a licensee event report (LER) database on its computers, with more complete supplementary information on microfilm. This database is designed primarily to support INPO SEE-IN program activities and related efforts by members and participants. LERs are received by INPO directly from the utilities and entered into the database. The database is used for initial screening of LERs to identify potentially significant events, as well as for trending plant events.

INPO, as a member of WANO, also has access to the WANO database of international event reports. The WANO event reports are maintained on dedicated topics of NUCLEAR NETWORK®. The WANO event reports are also screened and used to support INPO's SEE-IN program activities.

4. ASSISTANCE PROGRAMS

INPO helps members improve in nuclear operations areas through assistance programs and activities that continually evolve to meet the changing needs of the nuclear industry. INPO facilitates information exchange among member utilities by identifying and cataloging information on a wide range of activities that stations are doing especially well. This information on effective programs and practices is shared with members upon request and through a number of other forums. This assistance fosters comparison and the exchange of, and emulation of, successful methods among members.

A. ASSISTANCE VISITS

INPO conducts assistance visits to members as requested and agreed to by the Institute. These visits provide assistance in specific nuclear operations areas identified by the requesting organization and are in areas in which INPO has experience or expertise.

These assistance visits are conducted by qualified INPO personnel, including permanent staff and on-loan personnel. To supplement its resources, INPO also calls on qualified personnel from member utilities (peers) to augment its assistance teams. For example, if a member requests assistance in some specific aspect of maintenance, INPO will identify a peer from another plant that handles that aspect of maintenance well. The peer is then invited to accompany INPO personnel on the assistance visit. Written reports that provide the results of assistance visits are provided only to the requesting utility.

B. DEVELOPMENT OF DOCUMENTS AND PRODUCTS

Several categories of documents and other products are designed and developed to assist member utilities and participants in their efforts to achieve excellence in operation, maintenance, training, and support of nuclear plants. Key categories of INPO documents and products are as follows:

1. Performance objectives and criteria and accreditation objectives and criteria documents provide a basis for INPO evaluation and accreditation programs. Members are expected to strive to meet the objectives set forth in these documents.
2. Guidelines establish the basis for sound programs in selected areas of plant operation, maintenance, training, and other areas of direct importance to the operation and support of nuclear stations. Guidelines assist members in meeting the objectives used in evaluations and accreditation. Member utilities are expected to strive to meet the intent of INPO guidelines.

3. Good practices, work processes descriptions, and other documents are provided to assist members. Typically, these documents are developed from programs of member utilities and INPO's collective experience and are synthesized into a document by the INPO staff, with industry input and review. In general, these documents define one method of meeting INPO performance objectives in specific areas. It is recognized that other programs or methods may be as good or better. Utilities are encouraged to selectively use these documents in developing or improving programs applicable to their plants. These documents can be used in whole or in part, as furnished, or modified to meet the specific needs of the plant involved.
4. Various other documents are produced, such as analysis reports and special studies, as needed. Assistance products include lesson materials, computer-based and interactive video materials, videotapes, and examination banks.

C. HUMAN RESOURCE MANAGEMENT

People and their professional capabilities are regarded as a nuclear organization's most valuable resource. With this in mind, the INPO staff, with assistance from several industry working groups, established *Principles for Enhancing Professionalism of Nuclear Personnel*. The principles define a nuclear professional as one who "is thoroughly imbued with a great respect and sense of responsibility for the reactor core—for reactor safety—and all his decisions and actions take this unique and grave responsibility into account." The principles address several human resource management areas focused on developing nuclear professionals, including personnel selection, training and qualification, and career development.

Two supplemental documents—*Management and Leadership Development* and *Excellence in Human Performance*—build on the *Principles for Enhancing Professionalism of Nuclear Personnel*. Utility executives use *Management and Leadership Development* as assistance to identify, develop, assess and select future senior managers. *Excellence in Human Performance* provides practical suggestions for enhancements in the work place that promote excellent human performance.

INPO now uses these documents, and the principles extracted from them, extensively in its evaluation and assistance activities.

D. INTERNATIONAL TECHNICAL EXCHANGE VISITS

INPO normally conducts technical exchange visits through the WANO-Atlanta Center to international participants' facilities. These visits have the dual purpose of identifying strengths at non-U.S. plants that can be shared with plants worldwide and noting opportunities for improvement at the host facilities. When requested by international participants, technical exchange visits are focused on specific areas of interest to the participant. Technical exchange visit teams are often augmented with experts provided by other international participants or U.S. members to further enhance the mutual benefits of the international technical exchange.

E. WORKSHOPS AND MEETINGS

INPO sponsors workshops and working meetings in specific technical areas to provide forums for information exchange for INPO and various levels of member and participant management. This information exchange provides an opportunity to share industry lessons learned and obtain industry feedback on INPO programs and activities. INPO-sponsored workshops and working meetings also allow individuals from members and participants to meet and exchange information with their counterparts.

F. EMERGENCY PREPAREDNESS PROGRAM

The Institute maintains an emergency response center to assist members in mobilizing the resources of the nuclear industry to meet the needs of an emergency and to provide other resources or assistance if needed.

Appendix B

INPO's Relationship With the NRC

This appendix provides background and sets forth principles necessary for INPO to support the industry within the existing regulatory framework.

The nuclear utility industry in the United States, like other industries that may impact the health and safety of the general public, is regulated by the federal government. This regulatory function is based principally on the Atomic Energy Act of 1954, as amended, and is carried out by the U.S. Nuclear Regulatory Commission (NRC). In 1979, following the accident at Three Mile Island (TMI), the President of the United States appointed a commission to investigate the accident. In its report, the commission, which came to be known as the Kemeny Commission, stated, "It is, of course, the responsibility of the Nuclear Regulatory Commission to issue regulations to assure the safety of nuclear power plants. However, we are convinced that regulations alone cannot assure safety."

INPO was not created to supplant the regulatory role of the NRC, but to provide the means whereby the industry itself could, acting collectively, make its nuclear operations safer. It was envisioned that peer reviews and performance objectives and criteria based on excellence would be effective in bringing about improvements. In the broad sense, the ultimate goals of the NRC and INPO are the same in that both strive to protect the public; therefore, both review similar areas of nuclear power plant operations. How these goals are achieved is necessarily different. It was recognized that in establishing and meeting its goals and objectives, INPO would have to work closely with the NRC, while at the same time not becoming or appearing to become an extension of or an advisor to the NRC, or an advocacy agent for the utilities.

The conduct of evaluations is one of INPO's most important functions. It is also the INPO function that is closest to the role of a regulator. The NRC issues regulations and is required to determine that licensees consistently meet these regulatory requirements. INPO issues performance objectives and conducts evaluations to determine how well they are being met. While the two functions may appear very similar, there are significant differences. There are two basic differences between NRC regulations and INPO performance objectives. NRC regulations set limits or conditions that are intended to provide reasonable assurance of protection of the public health and safety. Therefore, it is important that they reflect a level of performance that is consistently achieved. INPO's performance objectives are broad statements of conditions that reflect striving for a higher level of overall plant performance—striving for excellence. These performance objectives by their very nature are difficult to consistently achieve. Regulations should be objective in nature, whereas INPO performance objectives usually are subjective.

Another difference relates to the purpose of an evaluation in contrast to a regulatory inspection. The former stresses striving to achieve excellence as reflected in a given performance objective, whereas the latter stresses the licensees' ability to consistently meet regulatory requirements. Both are considered necessary.

It is because of these differences that INPO and its members conclude there should be a clear separation between INPO evaluations and NRC inspections. The NRC takes the INPO cornerstone programs into account when determining the extent and focus of its regulatory activities. However, in making this determination, the NRC focuses on the performance of the industry as a whole and the results achieved by individual utilities rather than through monitoring INPO's activities or specific interactions with an individual member.

Entanglement of NRC activities and INPO programs would divert INPO and the NRC from their respective missions. NRC and INPO activities are independent, yet complementary. INPO's effectiveness would be seriously undermined if an NRC regulatory document or activity incorporated, or in effect codified, INPO programs, documents, or performance objectives.

In concept, the industry expects INPO to keep the NRC apprised of its generic activities, while INPO's interactions with an individual member are between that member and INPO (except where reportable occurrences are encountered, as discussed below.)

INPO recognizes the need for the NRC to assess the overall quality of INPO's products and the success of its programs. The NRC has independent and diverse methods to assess industry progress or results that might be derived in part from INPO programs. In addition, INPO expects to meet its obligations in this regard and to obtain recognition for the industry's self-improvement and self-regulation efforts by providing the NRC information on INPO programs and activities, including the following:

- copies of selected generic documents
- access to other performance information as described in specific agreements
- periodic coordination meetings and briefings
- observation of certain INPO field activities by NRC employees, with agreement from members
- observation of National Nuclear Accrediting Board sessions

INPO encourages member utilities to make their operating plant evaluation reports available to the NRC for review at each utility or site.

On the other hand, the NRC recognizes that audits of INPO activities or records are the responsibility of INPO's president and Board of Directors. Reviews or audits of INPO's technical activities are carried out by the Industry Review Groups and other ad hoc groups or organizations, as directed and approved by the President of INPO or the INPO Board of Directors. In view of this, while the industry expects and welcomes INPO exchange of information with the NRC and NRC review of INPO products and results, it would be inappropriate for the NRC staff or a contracted third party to audit or inspect INPO activities. In recognition of their different roles but common goals, the NRC and INPO have entered into a memorandum of agreement that includes coordination plans covering specific areas of mutual interest.

INPO performance objectives and recommendations are based on best practices and the industry's commitment to excellence, not on regulatory requirements. In addition, INPO follows up to verify members are responsive to INPO evaluation and accreditation findings and recommendations. Consequently, utilities should not have to answer to the NRC concerning INPO findings and recommendations, except as noted below.

INPO has implemented a policy and appropriate procedures with regard to handling of items that are potentially reportable to the NRC. INPO's policy is to inform appropriate utility management of such items during the normal course of business so that the utility can evaluate and report the item as appropriate. If INPO becomes aware of a defect or failure to comply that has been properly evaluated and requires a report under 10 CFR 21, INPO has an obligation to ensure that the item is reported.

INPO conducts private transactions with its members. For example, when a member recognizes it is experiencing difficulty in an area where INPO has expertise, INPO encourages that member to request an assistance visit. NRC participation in or requests for copies of correspondence concerning such visits could be a deterrent to future requests for these visits. Similarly, the exit meetings following INPO evaluations are more productive if there is open exchange of information between the INPO team and the utility. NRC presence in these meetings would be a deterrent to open dialogue.

The NRC does not use the routine proceedings between INPO and its members as a basis for actions against INPO's members. In this regard, INPO evaluation-related reports, SEE-IN reports, assistance reports, correspondence between INPO and its members, and other INPO technical documents are all integral parts of INPO's private, routine interactions with its members. Both INPO and its members believe it would be counterproductive for the NRC or any party to use information derived from routine INPO proceedings with its members in licensing proceedings or to determine the level or degree of actions that might be taken against a licensee. The NRC has consistently used its best efforts to protect the privacy of these materials. The NRC's regulatory process provides ample data from which to make enforcement decisions.

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