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SUBJECT: OBSERVATION OF INPO ACCREDITATION TEAM
VISIT AT FARLEY NUCLEAR POWER STATION

On June 18, 19, and 20, Jennifer Koontz and Joseph Buzy observed members of the INPO Accreditation Team at Farley Nuclear Station near Dothan, Alabama. The purpose of the visit was to evaluate the adequacy of the INPO Accreditation process as a means of meeting the intent of requirements for implementation of a systems approach to training (SAT) in the commercial nuclear power industry.

I. Accreditation Process

The Accreditation Process as implemented by the Accreditation of Training in the Nuclear Power Industry, INPO 82-011, May 1982 generally occurs in several phases. During a preliminary visit to the utility, INPO provides information on how to prepare the Self-Evaluation Report (SER). Once a draft SER is prepared, INPO makes an accreditation assistance visit to discuss the SER and suggest revisions as appropriate. Upon receipt of the final SER, INPO conducts a review and decides on the schedule for the accreditation team to visit the utility. The accreditation team visit, which lasts for one week onsite, results in a report which identifies training program strengths and weaknesses related to INPO's accreditation criteria. Further resolution of identified problems may be necessary prior to a decision by the INPO Accreditation Board.

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Recommendations reported to the utility as a result of the accreditation team visit require a written response by the utility, including a commitment to take action to resolve the identified problems, a plan for resolution, and initial implementation of the plan.

The INPO Accreditation Team at Farley consisted of peer evaluators from INPO member utilities and personnel from INPO's Accreditation and Training Assistance Departments (see Enclosure 1). The team was organized in two subgroups to review the training program (i.e., content) and training process, with each team member responsible for a specific topical area.

Farley has proposed four training programs for accreditation at this time. These are non-licensed operator, licensed operator, licensed operator requalification, and shift technical advisor. Responsibility for review of the various training programs was divided among INPO review team members.

Farley began preparing the SER on January 21, 1984, and made a submittal to INPO on May 7, 1984. The SER was reviewed by the INPO staff and assignments were completed by June 1984. At this time, we have not made inquiry as to the labor involved in the preparation of the SER, review by the INPO staff, developing and assembling assignments, the evaluation process and preparation of the INPO team findings. Regarding the size of the accreditation team, we observed that 14 individual man-weeks were involved solely in the evaluation process and probably 6-8 man weeks in developing the team report which will be presented to the accreditation board.

The NRC team concludes that the accreditation process requires extensive use of trained and experienced personnel to prepare and carry out the review process. We hope to obtain additional information when we visit the INPO Offices and review the Farley report.

Evaluation of training programs

The stated purpose of the accreditation team visit is to gather facts related to verification of information contained in the utility's Self Evaluation Report (SER) and to compare training programs to INPO's accreditation criteria (from The Accreditation of Training in the Nuclear Power Industry, INPO 32-011, May 1982). To facilitate evaluation, each team member uses questions cross-referenced to INPO criteria related to a specific topical area and a list of indicators for each question. For example, for evaluating training program development and implementation:

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Learning Objectives (III.c.2.b)

Question - Are behavioral learning objectives (which specify what the trainee not the instructor is supposed to do) developed from an analysis of job performance? Are the objectives written with conditions-actions-standards?

Indicators - JTA task list
training objectives-matching tasks
conditions-actions-standards

Interviews are used to gather information and to obtain answers to the questions for each topical area. Evaluators look for supporting documentation and examples that meet and do not meet the INPO criteria. Documents and reference materials (e.g., lesson plans, job analysis data, training center procedures, course descriptions) are reviewed against INPO criteria. Review of the problems identified in the SER by the INPO Team and method(s) to solve those problems is one part of the review process. The team evaluates the efforts identified to solve the problems, resources available, accomplishments to date and makes preliminary evaluations of whether the facility can meet commitments. Preliminary problem identification is made using the SER. Further problems or concerns are identified individually by team members and documented with examples and checklists daily. Group and team meetings are held each day to share information, summarize concerns, identify follow-up items and discuss problems.

Each day principal members of the team meet with the utility's staff and inform them of the team's progress and any problems identified during the previous day. The utility may provide additional information to the individual team members based on these comments.

During our visit we were able to observe one meeting with the facility staff and two meetings of the combined team members. We did not attend the final meeting of the team or the exit meeting with the team and the Farley staff.

The breakdown of individual topical areas for review facilitates coverage of a wide range of subject matter. Sharing of concerns in group and team meetings ensures further coverage so that problem areas are identified and followed up as necessary. All problems or concerns, however, must be directly related to INPO's criteria used for evaluation. Problems that are identified which do not relate the INPO's criteria are not formally pursued. Identified concerns are aggregated so that final problem documentation is at the topical level (i.e., the level of the accreditation criteria).

A pilot review of job analysis data was conducted by one INPO team member at Farley. The review consisted of a cross-check for

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completeness of a sample of INPO job analysis data against the documented job analysis at Farley. The INPO knowledge taxonomy was also cross-checked against utility lesson plans to see if knowledges, skills and abilities appeared in instructional materials. The purpose of the review was to evaluate the potential usability of the INPO job and task analysis data for training evaluation and accreditation purposes.

II. Observations at Farley

Interviews

Interviews of utility personnel constitute the major data gathering method employed by the accreditation team. The depth of interview coverage varied among evaluators. While some accreditation team members interviewed a range of utility personnel, including supervisors, program development staff, instructors, shift personnel and trainees, not all team members interviewed trainees and shift personnel. The interviews of plant and operations personnel regarding training benefits and problems is an important source of information which should not be overlooked by any evaluator.

Interviews of training staff members by program and process team members was often performed on an individual basis thereby requiring the training staff members to be available for extended periods of time and often requiring INPO team members to wait or be on call until the interviews were completed. We believe that teams of program and process members could have performed the interviews in a shorter period of time and probably have obtained more information for each of the evaluation groups. Consistency among evaluators in application of INPO criteria may be enhanced by training of process and program evaluators and reduce redundancy in interviews of key utility training staff.

Interviews of operators and senior operators were conducted in the control room using INPO evaluation workbook items during normal operation of the units. The evaluators were required to identify by position and interview specific members of the crews. Although the operators had back-up personnel available, interviews in the control room for any period of time may distract personnel from performance of duties and probably reduces the free dialogue that could occur in another setting. Interviews with operators on only one shift results in a relatively small sample of the operating crews. Interviews with a larger number of personnel (two shifts) in each position and a different setting could produce more valid information and reduce the possible distraction of the crews.

INPO criteria on evaluation workbook items may not be consistently used by team members. Some more skilled interviewers do not follow a fixed question and answer format. Subtle differences among interviewers results in some variability in depth and scope of topic coverage. Some

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interviewers consistently follow written interview protocols with relatively little probing or followup. While written criteria facilitate reliability (i.e., consistency) among evaluators, successful information gathering may depend on flexibility and interviewing expertise.

Specific Comments

Our view of the licensed operator data sheet which was furnished to the accreditation team indicates that operator's licenses were originally issued in March 1978. A total of 73 licensed operators and senior operators are on the staff and some 26% of the licenses are effective for only one of the two units. Although the accreditation process reviews programs for licensed personnel, we did not observe a system which evaluates the differences in training between units or method(s) to obtain licenses on both units.

Review of four training tasks by one peer evaluator took over two hours to identify lesson plans and develop findings. Only one task was readily identified and evaluated. While the other three tasks were related to operator responsibility, they were located in subsections of procedures and required extensive searching by the licensee's instructors and the peer reviewer. We could not determine if the students were required to perform or walk-thru each task. Interviews with operators did not determine if these tasks were performed as part of the on-the-job training requirements for initial licensing or during the requalification of operators. The labor intensive verification of specific training content is dependent on the judgment and expertise of the reviewers rather than on specific evaluation criteria.

We did not observe if INPO evaluators were required to review lesson plans before attending a training session in the classroom or for simulator exercises. During the LQB training assessment audits conducted in 1983 and recent TMI-1 training at B&W, we found that prior review of lesson plans and student handouts provided the evaluators a preview of material to be covered in the class and enabled the evaluator to concentrate on the instructor's presentation, participation by students, and the overall effectiveness of the training session. Although most of the classroom training is contained in lesson plans, simulator training lesson plans at Farley are in the development stages.

The on-the-job training (OJT) checklist at Farley is used by operator, upgrade, and Shift Supervisor candidates. There is no distinction between classification of operators as to performance or requirements by the evaluators. We did not notice if OJT was included as a deficiency in the Farley SER; however, it was noted by the peer reviewers. Interviews with licensed personnel who are required to evaluate the trainees reveal that operators and senior operators have distinct levels

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of requirements. Unfortunately, these requirements are not documented in the utility's training evaluation process (SER). Review of the final INPO accreditation report to Farley will be necessary to determine whether these problems are documented as a result of the accreditation review.

Several inquiries were made by peer members and the NRC staff which addressed feedback of operating experience for training modifications. Although trainees and operating staff were aware of recent significant events, we did not determine if the accreditation process ensures that significant events are contained in lesson plans for classroom training or simulator exercises. Similarly, we are not sure that the accreditation process ensures feedback from operator performance for training program modifications.

We noted that Farley Unit 2 operated for some 380 consecutive days at power without a shutdown. During this period Unit 1 had several unscheduled shutdowns and a refueling outage. It appears that the operating staff and other licensed personnel had limited opportunity to perform reactivity manipulations or periodic practice at the console. We did not observe if the accreditation process ensures periodic training using actual plant operations or simulators for individuals or teams on a regular schedule.

The Farley staff requested INPO to provide more specific criteria for waiver of training requirements for experienced non-licensed and licensed personnel. Although INPO did not make any commitments that we are aware of, we should pursue this issue to ensure that criteria regarding waivers are compatible with the intent of current regulations and Section 5.2.1.7 of ANS/ANSI 3.1, 1981. INPO criteria do not appear to reference applicable codes and standards which currently cover such topics as testing in lieu of training.

General Comments

Daily summary meetings of the process and content subgroups provide for sharing of concerns and problems identified by the review team members. These group debriefings help to set goals for subsequent review activities and identify problem areas for review by other team members as appropriate. This promotes a more thorough review and focuses concerns on INPO criteria. The lead evaluators play a major role in aggregating and summarizing the subgroups' concerns. A full review team meeting at the end of each day helps to focus the review team activities for the subsequent day. Note that the NRC observers were not able to attend the final two days of the evaluation in order to observe the wrap-up of the week's activities.

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The participation of peer reviewers from other utilities is seen as a means of ensuring some consistency of the accreditation process. There appears to be a great deal of positive transfer of experience by peer reviewers to their home utilities as well as among peer participants themselves. Two of the peer reviewers had gone through the accreditation process at their home utility.

The utility training staff views the INPO accreditation process as an opportunity to obtain important and helpful feedback regarding their training development progress. The utility training staff also perceives the benefit of having training issues and problems brought to management attention by outside evaluators. Although the preparation and planning for the INPO accreditation visit is labor-intensive, the utility perceives the accreditation process as an important tool for training program development. The utility sees INPO accreditation as one means of being well prepared for any training regulation that may be promulgated by the NRC.

One peer reviewer from a utility which has received accreditation status perceives that the credibility of the accreditation process still needs to be established and maintained. For a utility going through the self evaluation prior to accreditation, INPO criteria may not provide enough guidance since they are open to interpretation. The problem of subjectivity is perceived as being common to accreditation of higher education; decisions must be made based on a set of criteria which are subject to interpretation.

An additional concern developed during the process of assembling this report. We did not observe if the accreditation process will review JTA for new tasks which are not identified in current training programs for nonlicensed and licensed personnel. The new tasks, once identified, should be included in retraining or requalification programs with a set priority and schedule.

The variability among utility training programs and training development activities is perceived to be a potential problem for consistent application of INPO's criteria. For example, the criteria are not intended to be applied to a comparison of training development activities (e.g., task analysis) between utilities. The President of INPO states that industry variability is a challenge to accreditation. There is a need for flexibility and approaches which allow for plant differences without lowering the standards by which acceptability is determined.

A conclusion of the NRC observers after these days of observation was that the INPO accreditation visit at Farley was premature. The training development activities utilizing SAT at Farley are still in their infancy. Monitoring of the utility's progress will be necessary in order for INPO to make an informed assessment of training program status

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prior to a decision regarding accreditation. The methods for resolving "open items" prior to granting accreditation should be monitored by the NRC.

A major problem identified by the staff evaluation of the INPO accreditation process is the lack of decision method for determining a utility's compliance with INPO criteria. There is no procedure to describe how the concerns and problems identified from the application of INPO's criteria are combined in order to determine eligibility for accreditation status. INPO does not use a weighting scheme or method of determining the relative importance of the various criteria or identified problems. The criteria used by INPO appear to be heavily weighted toward assessment of learning objectives as the basis for training. A stated criterion for making a recommendation to the utility in the accreditation report is whether an identified problem affects training effectiveness. The accreditation criteria must be sufficiently rooted in conditions and standards to allow a reliable decision about accrediting utility training.

III. Recommendations

As a result of the preliminary evaluation of the INPO accreditation process as implemented at Farley, several actions are recommended.

- ° The NRC should develop an objective method by which to assess, document and evaluate both the process and the results of INPO accreditation at a sample of nuclear plants.
- ° The evaluation should include a review of the preparatory activities of the utility seeking accreditation (i.e., the Self Evaluation Report), the methods applied and the results obtained by the INPO accreditation team visit, the report of the INPO accreditation team, and the accreditation board review process and decision.
- ° Since INPO accreditation is as yet an unvalidated process, it is important to monitor the process as it matures, including a comparison among nuclear utilities which were among the first to receive accreditation and those which may be undergoing accreditation in the near term. In particular, the summary evaluation reports are alleged to have changed significantly since the initial accreditation reviews by INPO and should be reviewed by NRC as part of a continuing NRC reliability check. The availability to NRC of written documentation of the INPO accreditation process may constrain direct evaluation.
- ° The NRC should continue to participate as observers during INPO accreditation activities in order to evaluate the process and results as means of ensuring implementation of an SAT by the licensees.

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- ° The feasibility of participation by the resident inspector or LQ3/Region Inspection Team at a utility undergoing accreditation should be investigated.
- ° Subsequent NRC evaluation activities should focus on both validity and reliability (i.e., consistency) of the process and the resultant recommendations among utilities.

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Enclosure:
As stated

cc: H. Thompson

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