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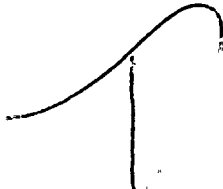
SUBJECT: Forwards comments on "Criteria for Util Mgt & Technical Competence." NRC should establish clear criteria to insure health & safety of public. Realistic timetable must be set up to implement requirements.

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March 12, 1980

Mr. Larry Crocker
Division of Project Management
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Crocker:

Attached are Pennsylvania Power & Light Company's comments on "Criteria for Utility Management and Technical Competence" which I hope will benefit the development of the document.

If you have any questions, please contact me.

Very truly yours,

J. T. KAUFFMAN

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Comments on "Criteria for Utility Management
and Technical Competence"

Item II.A.2.c Shift Technical Advisor

This item is inconsistent with ANS 3.2 (12/6/79). ANS 3.2 provides that the Shift Technical Advisor position may be fulfilled by a Shift Supervisor or Senior Operator upgraded to meet the requirements of ANS 3.1 Sections 4.3.1.1. and 4.3.1.2. respectively.

Comment

The suggested revision to resolve the above inconsistency is to add the following sentence to subsection II.A.2.c.

"The function of the Shift Technical Advisor may be discontinued when the Shift Supervision and senior operator personnel meet the requirements of ANS 3.1 subsections 4.3.1.1. and 4.3.1.2. respectively."

Item II.A.2.d (2) On-Shift Technical Requirements

This item requires that each shift crew collectively possess a combination of technical, academic and experience knowledge. The qualifications include; reactor physics, nuclear fuel, thermal hydraulics, transient analysis, instrumentation and control, mechanical and structural engineering, radiation control and health physics, electric power, chemistry and plant operation and maintenance.

Comment

The information contained in this subsection is not consistent with the third paragraph of Section 1 - Introduction. The third paragraph states that the document specifies minimum acceptable qualifications and does not address how these personnel are to be trained. The minimum acceptable qualifications for Plant Staff Personnel are specified by license requirements in subsection II.A.2.d.(1) - Numbers and License Requirements. The specification of technical requirements, independent of license requirements and ANSI/ANS 3.1 requirements is redundant, confusing and impractical. Without exception, the qualifications specified in subsection II.A.2.d.(2) are achieved through the training/experience programs for senior reactor operator license holders, reactor operator license holders or shift technical advisors.

It is not clear that an objective task analysis of on-shift duties, assignments and responsibilities, as defined in subsection II.A., would support the additional technical requirements of subsection II.A.2.d.(2). It is recommended that the intent of this subsection be achieved by substituting the following sentence for subsection II.A.2.d.(2).

"(2) On-Shift Technical Requirements

The necessary technical requirements for on-shift operations are achieved by the successful completion of training/experience programs required to obtain the senior reactor operator or reactor operator licenses that are mandated for reactor operation.

The technical requirements of a composite shift crew are the composite of qualifications contained in ANSI/ANS 3.1, Section 4 and more specifically subsections 4.3.1.1 Shift Supervisor, 4.3.1.2 Senior Operator, 4.4.8 Shift Technical Advisor, 4.5.1.1 Non-Licensed Operators and 4.5.1.2 Licensed Operators. Additional technical expertise is available to shift operations personnel through the shift technical advisor, plant staff supervision, plant staff technical personnel and off-site technical personnel."

Item B.2.b. On-Site Safety Review Group

This item specifies an on-site group independent of the plant staff to review operation activities.

Comment

The composition (1) and functions (2) of the On-Site Safety Review Group are nearly identical to the requirements of Section 4.3 Independent Review Program of ANSI N18.7 (ANS3.2) Administrative Controls and Quality Assurance of Nuclear Power Plants.

Because there is no reference to ANSI N18.7 (ANS3.2) it is not clear whether the On-Site Safety Review Group is instead of or in addition to the normal Independent Review Program required by ANSI N18.7. If the On-Site Safety Review Group is in addition to the normal Independent Review Program, the result of such a redundant program would be counter productive to safety and good management practice and would result in a dilution of limited resources. If it is intended that additional requirements be added to the normal Independent Review Program, such an intention should be clarified.

In addition to the foregoing general comment the following specific comments are applicable.

- o The mission of the On-Site Safety (emphasis added) Review Group is "to perform independent reviews of plant operational (emphasis added) activities". In power plant terminology these review functions are separate. Although management has the dual responsibility for operational and safety performance, the On-Site Safety Review Group should be charged with review of safety related matters. To do otherwise is to dilute the safety function and duplicate the plant management function and would divert the attention of such a safety review group.

- o The listed functions of the Safety Review Group which clearly are outside of purview of a Safety Review charter are the following:
 - Evaluation of the effectiveness of the quality assurance programs - The effectiveness of an operational quality assurance program is to be judged by management (as noted in subsection II.A.2.a., page 18) and the Manager of Quality Assurance.
 - Evaluation of the operating experience of the plant and plants of similar design - This type of evaluation is assigned to the Technical Manager of the Plant Staff and the Off-Site Technical Support Group. Additional evaluation by an independent Safety Review Group is redundant and counterproductive.
 - Evaluation of personnel changes in key management positions and evaluation of changes in plant organizational structure. These evaluations are the proper function of management (as noted in Subsection II.A.2.a, page 17) and should not be duplicated in a subsidiary Safety Review Group.
- o As described in II.B.2.b. the On-Site Safety Review Group represents an additional "layer" of highly qualified personnel who are probing, investigating, evaluating, reporting and assessing nearly every facet of plant activities. This activity is in addition to normal plant management, off-site technical and administrative support, state and federal regulatory agencies, the Institute for Nuclear Power Operations and the Independent Review Program established by ANSI N18.7/ANS 3.2 Section 4.3. Given that the managerial, technical and operational competence of the plant staff is to be improved by training, experience and higher qualifications, it is highly questionable whether safety, productivity or reliability will be improved by a proliferation of independent review functions of all aspects of plant activities. The positive benefits of establishing clear lines of authority and responsibility are severely diminished by such multiple review functions. It is recommended that the On-Site Safety Review Group be deleted or its charter be revised such that it is not duplicating line management or other Safety Review Group functions.

Item II.B.2.c Senior Management Oversight Group

This item defines a senior management group to meet monthly for the purpose of reviewing the work of other review groups.

Comment

Subsections II.B and II.B.1 established an integrated organizational arrangement which was to "provide for clear management control and effective lines of authority and communication.....". The multiplicity of Independent Review Programs (ANSI N18.7/ANS 3.2 Section 4.3), Operational

Quality Assurance Audits, On-Site Safety Review Groups and Senior Management Oversight Groups are factors which distract and interfere with clear management control and effective lines of authority and dilute the limited resources of the utility. It is acknowledged that suitable levels of safety review are appropriate and useful to management. Multiple, cross-purpose, review bodies are highly probable deterrents to problem recognition and active solution to safety questions. These deterrents are due to the division of responsibility and authority implicit in such interactions. For example, if the Vice President Nuclear Power cannot be depended upon to assure that corrective actions and recommendations of qualified operations, or technical personnel or those of the ANSI N18.7 Independent Review Program, are properly considered and acted upon, that individual should be replaced or the facility license revoked. It is recommended that emphasis be continued to improve the qualification and performance of the line management and technical support while limiting safety review functions to the ANSI N18.7 Independent Review Program, and delete the requirement for the Senior Management Oversight Group.

Item II.B.2.d Off-Site Technical Staff Resources

This item describes the functions and capabilities of the owner technical support staff.

Comment

All aspects of this item appear appropriate except subsection (3) which implies that at least one individual is to be assigned to each of the eight (8) areas. It is recommended that the first sentence of subsection (3) be revised to read:

"(3) Staffing level shall be such that the technical capabilities noted in (2) above are included in the Off-Site Technical Support Staff."

Item II.B.2.e. Training

This item describes the purpose and subject matter appropriate for the Off-Site Technical Support Staff. Such training is not covered in ANS 3.1.

Comment

It is suggested that the following subjects be added to the required areas of training:

- familiarization with reactor physics and reactor control
- familiarization with plant systems and plant emergency conditions

Item III Criteria for Accident Conditions

The last sentence of the second paragraph on page 28 specifies that when the Shift Supervisor declares an "Alert" emergency action level, all of the responses and actions detailed in the subsequent criteria are to be initiated.

Comment

If all of the responses and actions prescribed by the criteria are to be initiated for an "Alert", which is only the second stage of the four (4) Emergency Action Levels, there is no need for identifying other action levels, i.e. Site Emergency and General Emergency. The actions in response to Emergency Action Levels are prescribed in the Emergency Plan. The responses prescribed here are in conflict with present guidance for Emergency Plans and therefore should be deleted from this document.

Item III.A.2 Technical Support Center

This subsection describes the general purpose and function of the Technical Support Center (TSC). The last sentence in the last full paragraph of page 31 prescribes that the personnel assigned to the TSC shall be available continuously for the duration of the accident condition. The subsection further specifies that these individuals fully man the TSC in less than an hour, and prescribes personnel and qualifications of individuals to staff the TSC.

Comment

The personnel prescribed to man the TSC are the individuals who comprise the senior management of the Plant Staff. It is implied that these seven (7) managers will "man", i.e. be physically present, the TSC for the duration of the accident condition (up to a week). Considering the wide range of situations that could exist in an emergency condition and the unlikely probability that all management/technical expertise of the station will be needed continuously in a single location, it is recommended that the Plant Manager be assigned the latitude to exercise judgement concerning the need for management/technical personnel and their assigned locations. It is neither prudent nor productive to unnecessarily restrict the Plant Manager in the assignment of vital personnel resources during unstable conditions.

In actual practice, power plant emergency situations are best coped with by involving the minimum number of people and limiting those people to the ones who have the authority, knowledge and inclination to solve the problems. To impose criteria, practices and procedures which confuse, inhibit, or constrain this principle is counterproductive. When the owner and the NRC are satisfied that the facility staff is qualified and competent, that staff should be given the widest possible latitude and discretion on the application of its resources to the resolution of the

Near Term problem (Criteria for Accident Conditions). The specific provisions and limitations of Item II.A.2. Technical Support Center are in conflict with the basic premise prescribed by Item II.A On-Site Resources and Activities. Specifically the sentence, "This post accident organization shall use existing on-site organizational structure to the greatest extent practical to take advantage of established lines of communication and responsibility." To resolve the unrealistic provisions described above it is recommended that the following paragraph replace the paragraph b. on page 31 commencing with the words "sufficient personnel...." and ending with...."shall consist of:" on page 32.

"As rapidly as possible following the declaration of an Alert or Emergency Condition the Plant Manager, or his designee, shall man and activate the Technical Support Center. Based on the type of emergency, anticipated circumstances, the availability and accuracy of information and the need for personnel action and expertise, the Plant Manager shall take the following steps in addition to directing actions dealing with the emergency:

- o Assign managers of the Plant Staff to the TSC, their normal work area, or other location as appropriate, to perform assignments as directed by the Plant Manager or as prescribed by emergency plans or procedures.
- o Assign managers of the Plant Staff to standby or on-call status to be prepared to perform assignments as subsequently required."

Sub item b. Near Term specifies that the TSC be fully manned in less than an hour following declaration of an Alert. Site Emergency or General Emergency. Although the individuals prescribed to man the TSC can be assumed to be dedicated, responsible individuals, who would respond to an emergency as rapidly as possible, it is not reasonable or proper to operate, engineer or staff a power station on the basis that the entire management staff can be present at the TSC in less than an hour. It is suggested that the following be added to the previously recommended change.

"The following supervisors will be available to man the Technical Support Center. Of the ones listed, only the Technical Support Center Supervisor, Radiation Protection Manager, Technical Manager and Operations Manager are required to be available within one hour."

Sub item b. (8) refers to Table 1. Consistent with these comments, the qualifications and experience specified in this table would be available to the Technical Support Center as required by the Technical Support Center Supervisor (Plant Manager), but not necessarily within one hour.

Item III.A.2. Technical Support Center

This item prescribes specific duties that each member of the plant staff management will perform during the near-term (1 to 16 hour period) phase. The item specifies that key personnel (Plant Manager, Radiation Protection Manager, Technical Manager, Operations Manager and the Maintenance Manager) are to undergo specialized NSSS/BOP engineering training to be prescribed by the NRC. Sub Item 4 requires that the Plant Quality Assurance Manager ensure that during the near term stages of on-site emergency or general emergency that all operations and modifications conducted during the recovery effort comply with the plant quality assurance program.

Comment

Considering the nearly infinite combinations of conditions and circumstances that could exist during the near term period of an Alert, Site Emergency or General Emergency, it is presumptuous of any binding criteria document to specify individual duties. An example of such incongruity is the requirement that during the near term phase of an Alert, Site Emergency or General Emergency "all operations and modifications will comply with the plant quality assurance program." If conditions were such that all operations could be performed in accordance with normal procedures, practices and quality assurance programs it would be presumed that an emergency did not exist. Such duties must be assigned by the Plant Manager on the basis of circumstances, priorities and personnel available.

Comment

It is very difficult to envision background engineering information that should be administered to a select group of plant staff managers for unique application during the near term phase of an Alert, Site Emergency or General Emergency. It is considered that such information or training should be, or has been, included in the qualifications for those key positions, hence it is inappropriate to include such specific training information in the manning provision for the near term phase of an Alert, Site Emergency or General Emergency. As was noted in the Introduction, the criteria document is not to address how personnel are to be trained.

Sub Item III.A.2.b (8) Qualifications and Experience

This sub item requires that the composition of personnel manning the TSC shall collectively have the knowledge and experience specified in Table I. Table I is a tabulation of academic degrees, total experience and nuclear power experience for eight (8) engineering disciplines. The last sentence of this sub item requires that the eight or more personnel originally assigned to the TSC have a full complement of equivalent personnel available for relief.

Comment

It is believed that the intent of requiring such a roster of degrees and experience is to provide ready advice and assistance to the Plant Manager and his key managers. The actual implementation of such a requirement would be a nightmare of credential checking. For example, would it be declared that the Technical Support Center was non-functional until all credentials had been checked in? If an individual, who was the only possessor of a credential, was dispatched on an assignment during the near term phase require that he be replaced by another individual with that unique credential before the first individual could leave to perform the assignment? The imposition of "Qualifications and Experience" requirements on the senior management staff is redundant and illusionary. To require the presence of personnel to "fill out the roster" and meet the specifications of Table 1 is an impractical expenditure of talent and a contributor to overmanning and confusion. If particular talents or expertise are needed the Plant Manager has the authority to obtain the presence or services of such personnel.

Comment

The need for providing relief personnel in the Technical Support Center is a valid one. However, the requirement to supply a "full complement within eight hours" illustrates the futility of "manning to meet all eventualities" in the first place. If the entire "first team" is expended in the early hours, the number of qualified replacements "to replace them in kind" is severely limited. By not requiring specific numbers of people and leaving the manning of the Technical Support Center to the judgement of the Plant Manager, he and his key managers have more latitude in applying personnel resources to the near term situation and plan for relief and longer term manning. The requirement for eight hour full complement relief should be deleted.

Item III.A.3.b Operations Support Center Near Term Manning

This item prescribes the personnel to be made available to the Operations Support Center within one (1) hour, presumably for the duration of the near term phase (15 hours).

Comment

The concept of establishing a location for manpower assignment and assembly is a sound one. It is assumed that the Operations Support Center Supervisor will in effect be the individual who obtains and dispatches personnel as required by the control room shift supervisor or the Technical Support Center. However, the need to assemble approximately thirty (30) people of a pre-determined mix as specified on page 38 is questionable. The personnel assigned to the Operations Support Center should be based upon the existing and anticipated plant conditions and determined by the needs of the Technical Support Center. These needs

should include both the types and number of personnel required to perform essential tasks or to be in stand-by readiness. It is recommended that sub items III.A.3.b (2) thru (5) be replaced by the following sub item:

"(2) Staffing - The Operational Support Center Supervisor shall arrange for obtaining and assigning personnel as required by the Technical Support Center Supervisor. The types of personnel required may include operators, health physics technicians, instrument technicians, electricians, welders, mechanics, firemen, security personnel, medical personnel and laborers."

Sub item III.A.3.b (4) Health Physics; requires that the three two-man monitoring teams have the qualifications specified in ANSI/ANS 3.1 Section 4.5.2. In a situation such as a Site Emergency or General Emergency, judicious use should be made of personnel with particular qualifications which may be in high demand. In such circumstances it is recommended that monitoring teams, when required, be composed of one qualified individual and a helper or assistant who may be a clerk, laborer, auxiliary operator, etc.

Item III.A.5 Training

This item specified that the emergency procedures (Item III.A.4 Procedures) are to be implemented (emphasis added) for training by all on-site personnel. This item also specifies emergency drills every six (6) months for each shift.

Comment

It is assumed that the term "implementation of emergency procedures" is synonymous with drills or exercises as opposed to the classroom or self-study training. All on-site personnel would include the classifications identified in Section A., i.e. Shift Crews, Technical Support Center, and the Operations Support Center. Potentially this characterization includes every member of the Plant Staff. Hence the emergency procedures would be implemented at such frequency that each member of the plant staff would participate in emergency procedure implementation as training for a position was being conducted. Due to promotions and turnover it would be required that emergency procedures be implemented at a high frequency rate to meet training requirements. To meet requalification requirements additional implementations would be necessary. The training mandated by the first sentence of this item is not practical or feasible. It is suggested that the sentence be revised to read as follows:

"5. Training - Plant staff personnel whose position or classification may require their participation in accident mitigation and recovery activities will receive instruction in the performance of those activities and the related emergency procedures."

Comment

The second sentence of the item specifies that each shift conduct a drill every six months to confirm the response of personnel during the short term and near term phases up to eight (8) hours. Such drills mean that the Technical Support Center would be manned and the Operations Support Center would be manned initially and the relief control room crew would be mustered. This exercise would be a significant drill involving fifty (50) to sixty (60) professional and hourly personnel for up to eight (8) hours, including call-outs, travel, overtime and equipment use. Because most nuclear power stations are manned with six shift crews, it would be necessary to hold one drill every month so that each shift crew could be exercised once in a six month period. Such a high frequency rate of a major exercise is considered disruptive to operations and personnel and would not significantly contribute to improved performance. The following sentence is recommended to replace the second sentence of item III.A.5.

"On a semi annual basis the station will conduct a simulated Alert which will require the performance of accident mitigation and recovery activities in accordance with the emergency procedures prepared in accordance with item III.A.4 above."

Item III.B.1 Emergency Operations Facility (Near-Site)

This item specifies that the Emergency Operations Facility be established near the nuclear plant site, or at another location if better operation can be demonstrated.

Comment

The location of the Emergency Operations Facility should consider the two (2) hour reporting time for the Off-Site Managers as well as the communications and resources available at the owner headquarters or near the headquarters. These factors become significant when the driving distance between headquarters and the plant approaches the two hour limit. For example, it appears that headquarters would be the best location for the Technical Support Manager's Staff. It would appear that these specialists with access to familiar documents, computers and consultants could function most effectively in their normal work location.

Item III.B.4.a. Technical Support Manager's Staff

This item prescribes that NSS Supplier, architect/engineer and constructor representatives are to be a portion of the Technical Support Manager's Staff. For long term shift staffing it was stated that staffing plans should provide for a minimum of forty-five (45) persons assigned to the Technical Support Manager.

Comment

The emphasis in assembling and assigning the Technical Support Manager's Staff is "...to organize the staff as necessary to respond to a given accident". This adaptability is most appropriate and provides for effective use of vital personnel resources. It is recommended that the first complete sentence on page 49 be revised to read as follows:

"Staffing plans shall demonstrate that personnel with expertise of the type and quality described on Table 2 are available for assignment on a shift basis or are available on-call as determined by the Technical Support Manager. The liaison representatives (NSSS A-E, Constructor) shall likewise be given shift assignment or on-call availability as deemed necessary by the Technical Support Manager; however, such representatives will not necessarily be available within 4 hours."

Item III.B.4.b. Site Support Manager

This item describes the type and quality of expertise needed to constitute the Site Support Manager's Staff, and references Table 3 which tabulates acceptable training and experience criteria.

Comment

As is appropriate and proper it is not stated or implied that each area of expertise on Table 3 must reside with separate individuals. As a matter of practice, considering the related subjects of chemical engineering, radiochemistry, waste management, decontamination and health physics, it is quite likely that some individuals will meet the criteria of multiple subjects. To be certain that such integrated expertise is not diluted or excluded, it is recommended that the last sentence in the Site Support Manager Staff paragraph (page 52) be revised to read as follows:

"Staffing plans shall demonstrate that personnel meeting the acceptance criteria in Table 3 are available for assignment on a shift basis or be available on call as determined by the Site Support Manager."

Item III.B.4.c. Radiological Emergency Manager's Staff

This item specifies that at least twenty (20) individuals per shift will be used for environmental monitoring and emergency plan coordination.

Comment

The estimate of twenty individuals per shift for this assignment is a reasonable one if it is assumed that the staff includes approximately ten (10) qualified health physics technicians (ANSI/ANS 3.1 Section 4.5.2) assisted by additional personnel to supervise and/or assist the technicians. To clarify this assignment it is recommended that the last sentence of this item (page 53) be revised to read as follows:

"The members of this staff shall be assigned as deemed necessary by the Radiological Emergency Manager. The individuals leading monitoring teams and similar work shall meet the qualification requirements for health physics technicians specified in ANSI/ANS 3.1 Section 4.5.2."

Item III.B.7 Procedures Required

This item describes the procedures to be developed for guiding the activities of the Off-Site Recovery Organization.

Comment

Throughout Section III of the criteria document all organization reference has been to the Off-Site Recovery Organization (for example, Figure 4). In this item the terminology has been changed to the "Accident Recovery Team". It is recommended that consistency be maintained by using the most prevalent term "Off-Site Recovery Organization" exclusively.

General

As is stated explicitly in many of the previous comments, this document is far too prescriptive. The intent of insuring the health and safety of the public would be better served by the NRC establishing clear criteria which must be met by the utility staff and procedures. The prescriptive requirements of this document guarantee neither competent personnel nor safe operation.

General

If it is decided to implement these requirements, must be accomplished on a realistic timetable. Efforts to require utilities to immediately meet these requirements will severely impact existing organizations. Thereby degrading safety rather than enhancing it.

General

The independent, redundant review groups are utilizing a large number of experienced people (who are already at a premium) to the extent that they are diminishing the number of qualified people available for operating the plants.

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