

Enclosure 4

SEQUOYAH NUCLEAR POWER PLANT, UNITS 1- & 2
SAFETY EVALUATION REPORT FOR EMPLOYEE CONCERNS
ELEMENT REPORT OP 311.04 "HEALTH PHYSICS POLICIES, PRACTICES,
AND MANAGEMENT CONTROL"

I. Subject

Category: Operations

Subcategory: Health Physics

Element: Health Physics Policies, Practices, and Management Control

Employee Concerns:	SQP-86-009-001	XX-85-063-001
	SQP-86-009-002	XX-85-028-X02
	XX-85-084-001	XX-85-028-X03
	XX-85-066-001	XX-85-098-002
	XX-85-009-002	I-86-238-SQN
	WI-85-038-001	JLH-86-003
	XX-85-015-001	JMA-85-001
	XX-85-026-001	RII-85-A-0064

The bases for Element Report OP 311.04, dated October 21, 1986, are the following employee concerns:

Concern SQP-86-009-001: An incident at Sequoyah Nuclear Plant which resulted in employees being radioactively contaminated could have been prevented and reflects managements attitude toward radiation safety and personal safety of the employees.

Concern SQP-86-009-002: The transfer of responsibility for HP from Muscle Shoals to Sequoyah places the individual responsible for HP in a position where much pressure from plant management can be exerted and has caused compromises of previously established HP policy regarding personnel access during unit operation.

Concern XX-85-084-001: Questionable practices by HP at Sequoyah in 1982 led to possible overexposures. HP would respond to radiation alarms and unplug units.

Concern XX-85-066-001: Three years ago HP at Sequoyah was notified of higher-than-expected radiation levels in the Reactor Building. When notified by telephone, HP personnel speculated on the

reasons for the high radiation level, and did not respond immediately to investigate. CI feels that wasting time speculating on cause and not responding immediately is a concern for safety.

- Concern XX-85-009-002 There is no regard for personnel safety at operating plants. Management (known) directed that the oldest employees be assigned to "hot" work in order for them to reach their radiation levels first. A supervisor (known) made the statement that "older folks won't be long around."
- Concern XX-85-028-X02: RWP 02-2-00214 (sign-in sheet) contains falsified signatures.
- Concern XX-85-028-X033: RWPs are not being completed according to procedure requirements. RWP 02-2-00214 is an example.
- Concern XX-85-098-002: Radiation areas are not monitored often enough.
- Concern I-86-238-SQN: An anonymous individual mailed in a safety concern to (NSRS) requesting that emergency procedures be written to encompass all aspects of possible emergency situations in a C-Zone. Procedures should cover specific areas such as spread of contamination, possibility of injury, possibility of a fire, possibility of poor breathing atmosphere, etc.
- Concern JLH-86-003: According to TVA's General Employee Training (GET) classes and plant procedures, employees are to be frisked as soon as exiting a "C-Zone." Currently, an employee has to search for a frisker. In the process of looking for a frisker, an employee can contaminate doors and/or the floor. One of TVA's objectives is to keep down contamination, and the current process does not adequately control the spreading of contamination.

Example: When exiting pipe chase on elevations 690 and 669, one has to pass through closed doors to get to a frisker. On elevation 669 an employee has to hunt for a frisker as evidenced on December 12, 1985.

- Concern JMA-85-001: A high risk possibility of not securing ABSCE type breaches if a valid high-radiation condition occurs in the Auxiliary Building or during an announced evacuation or evacuation alarm sounded may cause persons to leave the Auxiliary Building before sealing penetration.
- Concern WI-85-038-001: The practice of persons entering the lower contaminated area of the reactor containment for nonemergency repairs while the reactor is operating should be reevaluated. Recent studies indicate the biological effects of personnel exposure to neutron flux are more serious than previously believed. This practice is in effect at Sequoyah and resulted in an accident around 1983/1984 and is planned to be implemented at Watts Bar.
- Concern XX-85-015-001: The practice of personnel entering the lower containment area of the reactor containment for nonemergency repairs while the reactor is operating should be reevaluated since recent studies indicate the biological effects of personnel exposure to neutron flux are more serious than previously believed. This practice caused an accident in the incore instrument probe room at Sequoyah in 1985 and is still continued.
- Concern XX-85-026-001: Inadequate upper management support provided the HP department to enforce an effective radiological safety program. No disciplinary action is taken when employees intentionally bypass monitors.
- Concern XX-85-063-001: Sequoyah Operators and Health Physics: Failure to know and verify the contents of a system.
- Example: HP gave go ahead to open a line in the Unit 2 Turbine Building, saying everything was okay and clean. After opening the line the next night, the entire area was roped off for contamination. This occurred in January/February 1984.
- Concern RII-85-A-0064: This allegation expressed concerns about the Sequoyah HP program. The concerns are summarized below:

1. TVA does not have the ability to run an HP operation.
2. An individual lost a radioactive source at the site and never reported the loss to management.
3. The location of radiation monitors are not as indicated on the ASIL-3 procedure.
4. Smears are taken into the HP office to count and are then thrown into the trash.
5. The smear counting area in the HP office was contaminated. This "contaminated area" was used as an eating area.
6. Air samples are taken improperly, e.g., floor level. Respirators were not worn by workers in high contamination areas (areas with surface contamination greater than ten thousand dpm).
7. The individual claims he was dismissed from employment as a result of a conspiracy and that he was not treated fairly during his training period. (This item is being handled solely by the Intimidation and Harassment Category.)
8. HP technician did not cover the head and filters of air sampling monitors before and after exiting areas to be monitored.

II. Summary of Issue

- A. SQP-86-009-001. Personnel at Sequoyah were contaminated and the incident, which was preventable, reflected poor management attitudes regarding radiological and personal safety. No details of the event are known.
- B. SQP-86-009-002. Decentralization of the TVA HP program allows plant management to exert more pressure to compromise radiological safety. Plant policy on containment power entries is given as an example.
- C. XX-85-084-001. Possible overexposure in 1982 due to questionable practices by HP. HP would unplug radiation monitors when responding to alarms.

- D. XX-85-066-001. Three years ago, HP was notified by telephone of high radiation levels in the Reactor Building. HP did not immediately respond.
- E. XX-85-009-002. High exposure work was assigned to older workers first by the direction of plant management.
- F. XX-85-028-X02. A radiation work permit sign-in sheet contained falsified signatures.
- G. XX-85-028-X03. Radiation work permits are not being completed in accordance with licensee procedures.
- H. XX-85-098-002. Frequency of radiological surveys in radiation areas is not adequate.
- I. I-86-238-SQN. A procedure for emergency actions in a contaminated area is needed.
- J. JLH-86-003. Personnel contamination survey instruments are not conveniently located in the proximity of contamination zone exits. Contamination may be unnecessarily spread as a result.
- K. JMA-85-001. Possibility that Auxiliary Building Secondary Containment Enclosure (ABSCE) breaches may not be secured by personnel evacuating during an emergency.
- L. WI-85-038-001. Concern about nonemergency containment power entries and hazards of neutron exposure. This practice also has caused an accident (most likely referring to the thimble tube ejection).
- M. XX-85-015-001. Same concern as WI-85-038-001.
- N. XX-85-026-001. Lack of management support for health physics program. No disciplinary action is taken when employees intentionally bypass contamination monitors.
- O. XX-85-063-001. Operations and health physics personnel are not knowledgeable of system status before allowing work to be performed.
- P. RII-85-A-0064. Numerous concerns about the adequacy of the health physics program.

III. Evaluation

- A. SQP-86-009-001. TVA could not evaluate the specific alleged incident due to a lack of details. Therefore TVA evaluated the adequacy of the personnel contamination prevention program and licensee responses to documented contamination events. No deficiencies in the program were identified, nor was there any evidence that a personnel contamination

event had occurred as a result of poor management attitude toward radiological safety.

- B. SQP-86-009-002. The transfer of HP responsibilities from Muscle Shoals to the Division of Nuclear Power was effective on June 1, 1982. Licensee PORC approved procedures for containment power entries had been initially approved on January 26, 1977 and had not been substantially changed since then. TVA concluded that the organizational changes had not resulted in any changes in containment power entry criteria that would affect worker safety.
- C. XX-85-084-001. TVA interviewed personnel and reviewed various circumstances where HP personnel might have occasion to deactivate monitoring equipment, such as relocating friskers due to increased radiation background levels. No evidence could be found that these actions were improper. There have been no exposures at Sequoyah in excess of regulatory limits.
- D. XX-85-066-001. TVA investigation of the concern did not reveal any situation involving lack of timely response by HP to an emergency. TVA concluded that a deliberate and cautious response may have been misinterpreted.
- E. XX-85-009-002. TVA reviewed personnel radiation exposure records and could not identify any pattern of workers being assigned high exposure jobs based on age. Crafts management was interviewed and no one could substantiate that there had ever been a management policy regarding exposure to older workers.
- F. XX-85-028-X02. TVA investigations revealed several discrepancies on radiation work permit sign-in sheets, such as voiding of entries and reproducing signatures when a sheet was recopied. It could not be determined that the signatures were actually falsified. TVA committed to clarify their QA requirements and worker awareness in this area.
- G. XX-85-028-X03. TVA identified numerous discrepancies in the administration of radiation work permits. No safety significant consequence of these discrepancies, such as failure to assign personnel proper exposure values, was identified. TVA subsequently revised and clarified their RWP procedures.
- H. XX-85-098-002. TVA reviewed licensee procedural and regulatory requirements for surveys. Records were reviewed to verify that these surveys were being performed. TVA concluded that surveys were being performed at an acceptable frequency to monitor changing radiological conditions and keep workers informed consistent with maintaining exposures to personnel performing the surveys ALARA.
- I. I-86-238-SQN. TVA reviewed licensee radiation protection procedures, emergency procedures and employee training programs. general training given to each employee covers their initial response to an emergency.

In addition, personnel responsible for reacting to the emergency are given specialized training. TVA concluded that their procedures and training were adequate.

- J. JLH-86-003. TVA reviewed licensee contamination control procedures, interviewed HP technicians and training supervisors and conducted field walk downs to verify placement of friskers. TVA verified there are instances where survey instruments are not in close proximity to contamination zone exits for valid reasons, such as high radiation background levels in the area. TVA determined that workers are trained in regard to locating survey instruments and actions they are to take if contamination is discovered.
- K. JMA-85-001. TVA determined that licensee procedure TI-77 established the responsibilities and procedures governing breaching of the ABSCE. The procedure requires that such breaches must be isolated within four minutes of receipt of an Auxiliary Building Isolation (ABI) or high radiation signal. TVA determined that operators were trained and knowledgeable of their responsibility to seal any ABSCE breaches before evacuating or leaving the area.
- L. WI-85-038-001. TVA reviewed records of radiation exposures received during containment power entries and determined that neutron radiation exposures were typically a factor of ten less than gamma radiation exposures. Exposures received during nonemergency containment power entries were controlled to levels below those that would warrant reevaluation of the policy. This policy, it is felt, did not contribute to the accident that was referred to.
- M. XX-85-026-001. TVA conducted interviews and reviewed records of plant initiated radiological incident reports (RIRs). It was concluded that management support of the health physics program was adequate. The allegation that no disciplinary action is taken when employees intentionally bypass contamination monitors could not be substantiated. The TVA review did identify some areas where improvements could be made in the administration of the RIR program.
- O. XX-85-063-001. TVA reviewed work plans, radiation work permits and radiological survey records of work performed in the area during the time period in question. No evidence could be found to indicate that problems were encountered during this work. Interviews with modifications and health physics personnel did not reveal any concerns with these groups regarding verification of system status before allowing work.
- P. RII-85-A-0064.
 - (1) TVA lacks ability to run an HP operation. TVA reviewed records of previous audits evaluations and inspections performed by NRC, INPO, TVA Quality Audit Branch and American Nuclear Insurers

- (ANI). No programmatic weaknesses in the health physics program was identified.
- (2) Unreported loss of radioactive source. TVA reviewed procedures for byproduct material source accountability and interviewed HP personnel responsible for accounting for byproduct material sources. No deficiencies in byproduct material source accounting were identified. Records of previous inventories were also reviewed and no discrepancies were noted.
 - (3) Smears thrown into trash; smear counting area used as an eating area. TVA interviewed HP personnel and reviewed applicable HP procedures. TVA determined that appropriate controls are in place regarding counting and disposal of smears and that the smear counting area is not used as an eating area.
 - (4) Air samples improperly taken; respirators not worn in contamination areas. TVA interviewed HP personnel, reviewed applicable regulations and licensee procedures and observed air sampling being performed. No deficiencies in the air sampling program was identified. A review of randomly selected radiation work permits also revealed that respiratory protection was specified based on contamination levels consistent with licensee procedures.
 - (5) Dismissed from employment as result of a conspiracy. This item was reassigned by TVA to the Intimidation and Harassment Category.
 - (6) Air sample heads not covered prior to or after sampling. TVA interviewed HP personnel and reviewed HP procedures. TVA determined that HP technicians are instructed to preclude cross contamination of air sampler filters, however there are no specified methods of accomplishing this. If the air sample filter was cross contaminated, there would be no compromise of worker safety since this would result in an overestimation of air activity and specification of conservative protection requirements.

IV. Conclusion

The NRC staff believes that TVA investigation of the concerns was adequate, and their resolution of the concerns as described in Element Report OP 311.04 is acceptable.