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SCHWENCER,A. Licensing Branch 2

SUBJECT: Forwards explanation of dose assessment procedure,offsite monitoring & radiological assessment re onsite emergency organization.Detailed calculational techniques included in emergency plan implementing procedure.

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Norman W. Curtis
Vice President-Engineering & Construction-Nuclear
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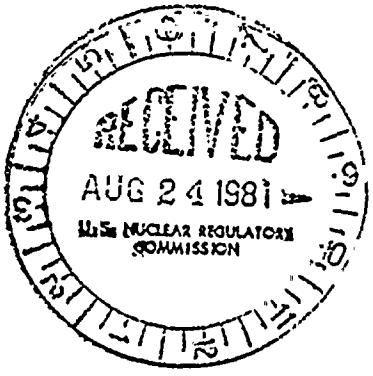
August 19, 1981



Mr. A. Schwencer, Chief
Licensing Branch No. 2
Division of Project Management
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

SUSQUEHANNA STEAM ELECTRIC STATION
DOSE ASSESSMENT PROCEDURES
ER 100450 FILE 841-2
PLA-910

DOCKET NOS. 50-387
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Dear Mr. Schwencer:

Attached is an explanation of the dose assessment procedure planned for Susquehanna SES. This information supplements our previous letter, PLA-887.

Very truly yours,

N. W. Curtis
Vice President-Engineering & Construction-Nuclear

WEB/mks

Attachment

cc: R. M. Stark - USNRC
S. Chestnut - USNRC

B029
S1/1

Radiological Assessment and Off-Site Monitoring

Prior to the activation of the entire On-site Emergency Organization, the Emergency Director may dispatch off-site radiological monitoring teams. These teams will consist of two persons per team, trained in the use of portable radiation monitoring equipment. When dispatched, the teams will proceed to the Emergency Operations Facility where they will pick up emergency kits containing portable monitoring equipment and portable radios. After an operatinal check of the equipment including a radio operations check, they will pick up an emergency vehicle and proceed to their first monitoring location. They will be controlled by the Radiation Support Manager and will report all readings to him. The plant has capability to dispatch two radiation monitoring teams within 30-60 minutes of the emergency declaration if necessary.

For gaseous releases, the first step in the assessment process is to estimate the noble gas and iodine source release terms in microcuries per second. These source release terms are input to the SSES computerized Emergency Radiation Dose Projection Service (RADOSE) or to a Manual backup system if the automatic system fails. Effluent monitor readings are in μCi/sec, μCi/10 minutes, or μCi/hour. The SSES RADOSE operator receives μCi/10 minute values for each of the five SSES vents and converts these values to Ci/minute for input to the computer system. Ten minute averaged meteorological data is automatically input to the computer from the primary meteorological tower. Switchover to the backup meteorological tower is automatic in cases of primary tower failure. The RADOSE system output consists of whole body and thyroid dose rates at 9 distances along the centerline of each of the 16 Susquehanna EPZ sectors and at points corresponding to population centers in the Susquehanna area. Up to 15 additional distances and up to 21 points for dose calculation can be selected by the operator.

The RADOSE system outputs dose rate at a given time and accumulates doses when repeated RADOSE runs are made. In addition, the code calculates and displays the time to reach Protective Action Guide levels at the calculated dose rates, plume dimensions, and travel times for the plume to reach specified locations.

RADOSE is programmed to repeat dose calculation runs automatically at frequencies not to exceed once every 10 minutes. Real-time meteorological data is input for each separate run. Radioactivity release rates are assumed to be constant until new values are substituted by the operator.

Once dose projections are made, the radiation monitoring teams can be directed to locations of interest to take readings and confirm the projections. The RADOSE code and its backup manual system have the capability to back-calculate from offsite monitoring team readings to verify or update estimated source release terms. This iterative process is continued in order to determine the actual source release terms as accurately as possible.

If the instrumentation used for radiological assessment is off-scale or inoperative, the Radiation Support Manager must utilize contingency dose calculation procedures. These conservative calculational methods utilize dose release factors which are based upon the expected plant source release terms for several accident classifications. The Radiation Support Manager must first select the accident class which most closely fits the current plant conditions He must then input these expected

plant source release terms into the RADOSE or manual dose projection systems to project whole body or thyroid doses.

Concurrently, radiation monitoring teams are sent to those locations of interest to take actual field measurements in order to refine the projections and to correlate projected versus actual results. These detailed calculational techniques are included in an Emergency Plan Implementing Procedure.