TO: Gopal Patel
Contract Engineer – Supporting PSEG Nuclear LLC

FROM: Robert F. Yewdall (*Signed Original*)
Radiological Protection Support

SUBJECT: Design Input ARCON96 Meteorological Data
Calc H-1-ZZ-MDC-1979

DATE: April 9, 2001
NRP-01-015

The purpose of this memorandum is to provide the Technical Basis Design Document information for the meteorological data used in the Hope Creek Control Room radiological design basis dispersion calculation. The Technical Basis document 2001-02 is attached.

If you have any questions please call me (x2469)

Technical Basis ID __2001-02____	Title Design Input ARCON96 Met Data_ Rev _0___	Page _1_of _2_
Originator _Robert Yewdall_ Date _4/9/01 Reviewer __Lucius Clark ___ Date _4/9/01 Approved _Robert Gary__ _ Date _4/10/01	Reference: _Calc H-1-ZZ-MDC-1879_	Radiation Protection Correspondence ID _NRP-01-15___

Purpose

The purpose of this Technical Basis Document is to provide required documentation for the meteorological data used to perform design basis calculation for Hope Creek Control Room dose analysis. Meteorological data files identified below are used in the computer program ARCON96 to produce relative concentration calculations (i.e. dispersion factors -χ/Qs). The dispersion factors will be used to calculate activity concentration at the Hope Creek control room emergency air intake (identified as the receptor) from various source release points.

Method

A seven year meteorological database was used to perform dispersion calculations for Salem Unit 1 and Unit 2 control room design basis accident dose assessment. That analysis is identified as vendor calculation number 321035. The seven year period consists of meteorological data from 1988 through 1994. The same database is used for the Hope Creek calculation H-1-ZZ-MDC-1879.

The seven year database consists of seven separate files as follows:

CONMET88.MET
CONMET89.MET
CONMET90.MET
CONMET91.MET
CONMET92.MET
CONMET93.MET
CONMET94.MET

The file format is consistent with specification contained in NUREG/CR-6331, Rev 1, *Atmospheric Relative Concentrations in Building Wakes*. The above files consist of hourly data in the following format: (1x, A5, 3x, I3, I2, 2x, I3, I4, Ix, I2, 2x, I3, I4). The order of information in the record is the site ID, Julian day, hour of the day, wind direction @ 33', wind speed @ 33', stability class, wind direction @ 150' wind speed @ 150'. Wind data at 150' elevation is closest to the FRVS release point which is ~ 200'. As indicated in the above file format, all records are in integer values (e.g. wind speeds are times 10).

Wind speeds in the above files are in mile per hour (mph). The wind direction is from a bearing of north (i.e., 0 degrees are winds from the north).

Instrument levels on the on-site meteorological tower are: 33', 150' and 300'. Documentation for tower instrumentation is contained on drawing 75602-12, rev 0 (PSPB 147007) and the Hope Creek UFSAR, Section 2.3. The stability class is determined by delta temperature measurement between 300' and 33' using the P-G stability index found in Reg. Guides 1.21 and 1.23.

All meteorological data is collected and validated by approved Q'd procedures (i.e., ND.RS-TI.MET-1203(Q) Meteorological Monitoring System Data Collection, and ND.RS-TI.MET-1204(Q) Meteorological Monitoring System Data Validation.

While ARCON96 will accept as many as 10 years of data, the seven year database is sufficient. Seven years is more than the three to five years recommended in the draft NEI 99-03 document. The seven year DB is also identical to that used for the Salem Control Room analysis as discussed above.

References:

NEI 99-03, Control Room Habitability Assessment Guidance
NUREG/CR 6331, Rev 1, Atmospheric Relative Concentrations in Building Wakes
ND.RS-TI.MET-1203(Q) Meteorological Monitoring System Data Collection
ND.RS-TI.MET-1204(Q) Meteorological Monitoring System Data Validation
VTD 321035, Accident values At The Salem Generating Station Control Room Fresh Air Intakes, Exclusion Area Boundary And Low Population Zone, MES, 4/12/96