

Docket Nos.: 50-445
and 50-446

AUG 06 1985

Mr. W. G. Council
Executive Vice President
Texas Utilities Generating Company
400 N. Olive Street, L. B. 81
Dallas, Texas 75201

Dear Mr. Council:

Subject: NRC Staff Evaluation of CPSES Emergency Dose Assessment
Model (EDAM) Methodology

This is in response to your letter (TX-4452) dated March 29, 1985, transmitting your manual for the Emergency Dose Assessment Model (EDAM). We understand that you intend to replace your TI-59 based method with EDAM as the backup method for projecting offsite doses during a radiological emergency should your RM-21 Dose Assessment Computer be unavailable.

The staff has performed a detailed evaluation (copy enclosed) of your proposed change and determined that the methodology meets the requirements of 10 CFR 50.47(b)(9) and 10 CFR Part 50, Appendix E(V). The staff further finds that implementation of the proposed change will not degrade your capability to effectively respond to an emergency. The staff expects that the use of this change will be demonstrated during your next exercise.

Sincerely,

ORIGINAL SIGNED BY:

Vincent S. Noonan, Director
for Comanche Peak Project
Division of Licensing
Office of Nuclear Reactor Regulation

Enclosure:
Staff Evaluation of CPSES
EDAM Methodology

cc: See next page

DISTRIBUTION:

<u>Docket File</u>	SBurwell	DRohrer	JCalvo
NRC PDR	OELD	DMatthews	
LPDR	ACRS (16)	RVollmer	
NSIC	EJordan	BGrimes	
PRC System	JPartlow	CTrammell	
LB#1 R/F	BGrimes	AVietti	
MRushbrook	VNoonan R/F	LShao	

SBurwell
LB#1:DL
SBurwell:kab
07/19/85

BJYoungblood
LB#1:DL
BJYoungblood
07/19/85

CTrammell
CP:TRT:DL
CTrammell
07/19/85

VNoonan
CP:TRT:DL
VNoonan
07/15/85

AUG 06 1985

W. G. Council
Texas Utilities Generating Company

Comanche Peak Steam Electric Station
Units 1 and 2

cc:

Nicholas S. Reynolds, Esq.
Bishop, Liberman, Cook,
Purcell & Reynolds
1200 Seventeenth Street, NW
Washington, D.C. 20036

Resident Inspector/Comanche Peak
Nuclear Power Station
c/o U.S. Nuclear Regulatory Commission
P. O. Box 38
Glen Rose, Texas 76043

Robert A. Wooldridge, Esq.
Worsham, Forsythe, Sampels &
Wooldridge
2001 Bryan Tower, Suite 2500
Dallas, Texas 75201

Regional Administrator, Region IV
U.S. Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 1000
Arlington, Texas 76011

Mr. Homer C. Schmidt
Manager - Nuclear Services
Texas Utilities Generating Company
Skyway Tower
400 North Olive Street, L.B. 81
Dallas, Texas 75201

Larry A. Sinkin
3022 Porter Street, NW #304
Washington, D.C. 20008

Mr. Robert E. Ballard, Jr.
Director of Projects
Gibbs and Hill, Inc.
11 Pen Plaza
New York, New York 10001

Ms. Billie Pirner Garde
Citizens Clinic Director
Government Accountability Project
1901 Que Street, NW
Washington, D.C. 20009

Mr. A. T. Parker
Westinghouse Electric Corporation
P. O. Box 355
Pittsburgh, Pennsylvania 15230

David R. Pigott, Esq.
Orrick, Herrington & Sutcliffe
600 Montgomery Street
San Francisco, California 94111

Renea Hicks, Esq.
Assistant Attorney General
Environmental Protection Division
P. O. Box 12548, Capitol Station
Austin, Texas 78711

Anthony Z. Roisman, Esq.
Trial Lawyers for Public Justice
2000 P. Street, NW
Suite 611
Washington, D.C. 20036

Mrs. Juanita Ellis, President
Citizens Association for Sound Energy
1426 South Polk
Dallas, Texas 75224

Nancy E. Wiegiers
Spiegel & McDiarmed
1350 New York Avenue, NW
Washington, D.C. 20005-4798

Ms. Nancy H. Williams
CYGNA
101 California Street
San Francisco, California 94111

AUG 0 6 1985

Texas Utilities Electric Company - 2 - Comanche Peak Electric Station
Units 1 and 2

cc:
Resident Inspector - Comanche Peak
c/o U.S. Nuclear Regulatory Commission
P. O. Box 1029
Granbury, Texas 76048

Mr. John W. Beck
Manager - Licensing
Texas Utilities Electric Company
Skyway Tower
400 N. Olive Street, LB#81
Dallas, Texas 75201

Mr. Jack Redding
Licensing
Texas Utilities Generating Company
4901 Fairmont Avenue
Bethesda, Maryland 20814

William A. Burchette, Esq.
Heron, Burchette, Ruckert & Rothwell
Suite 700
1025 Thomas Jefferson Street, NW
Washington, D.C. 20007

Mr. James McGaughy
Southern Engineering Company of Georgia
1800 Peachtree, Street, NW
Atlanta, Georgia 30367-8301

STAFF EVALUATION OF CPSES EDAM METHODOLOGY

Standard

Adequate methods for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition are in use.

Evaluation

A rapid, microcomputer based methodology for assessing the potential and actual consequences of a release of airborne radioactivity is described in the applicant's March 29, 1985 submittal of a program document entitled: "Emergency Dose Assessment Model (EDAM)." The applicant proposes to use this EDAM methodology, which is run on a KAYPRO portable microcomputer, as a back-up system to the primary systems which uses the General Atomic RM-21 computer. The applicant plans to replace the currently approved manual/back-up dose assessment methodologies described in Procedures No. EPP-300 (Rev. No. 2) and No. EPP-302 (Rev. No. 3) with the EDAM methodology. Another approved manual/backup procedure using overlays, nomograms, isopleths and manual calculation sheets will be left intact and available for use at appropriate emergency response facilities.

The KAYPRO system will be used to perform rapid dose assessments using the EDAM program if the RM-21 primary system is inoperable.

The EDAM program is essentially the NRC's Interactive Rapid Dose Assessment Model (IRDAM) program which has been modified to reflect Comanche Peak site specific data. The EDAM methodology calculates radiation dose rates and integrated doses for the total body and infant thyroid at four downwind receptor distances. The four downwind receptors are assumed to be at the exclusion area boundary (EAB) and at 2, 5 and 10 miles. These distances have been chosen because of their convenience for taking offsite survey data and also to aid protective action recommendation decisions such as sheltering or evacuation.

Various methods are provided for determining key parameter values for the dose calculations should certain information be unavailable. For example, four different methodologies for determining atmospheric stability class for meteorological dispersion calculations are available in EDAM. The plume dispersion calculations assume a ground level release because Comanche Peak's plant stacks is less than 2.5 times the height of the tallest structure. The atmospheric dispersion factors, X_u/Q , used in the EDAM program are based on a semi-infinite cloud geometry and were obtained from IRDAM Vol. 2 for the 2, 5, and 10 mile distances and were calculated for the various exclusion area boundary (EAB) distances surrounding CPSES. A table of the X_u/Q values used by EDAM is given in Appendix I of the EDAM document.

The EDAM program has three basic accident scenario options for determining radioactive effluent release rates: stack releases, containment leakage, and steam generator tube leaks. The "stack releases" are divided into two sub-options:

1) when available, the user may input specific isotopic release concentrations for up to twenty different radionuclides, including the ones listed in IRDAM; and 2) when only the gross noble gas or the gross iodine activity concentration is available, it may be used. The "containment leakage" pathway option assumes a specific leak rate from a uniformly dispersed source within confinement. The EDAM program uses either the containment monitor reading in R/hr or a default data option. The steam generator (S/G) tube leak pathway option calculates release rate in Ci/sec of both noble gases and iodines by simply multiplying the activity concentration Ci/cc by the (S/G) leak rate in cc/sec.

The EDAM program adjusts the source terms in each of the above three pathway options by first determining the iodine release fraction or the iodine to noble gas ratio and then, if the age of the released material is greater than one day, a noble gas and thyroid decay correction is applied to the release. The EDAM program assumes that the plume consists of only Xe-133 and I-131 and corrects for decay appropriately. For releases where an isotopic concentration is available, EDAM corrects for decay of each radionuclide independently.

Finding

The applicant's proposed EDAM methodology and its relationship to the applicant's existing methodology in their procedures EPP-300 through EPP-303 was evaluated against the standards in NUREG-0654 (Revision 1), Section II.I. The

applicant's proposed EDAM methodology meets the standards of NUREG-0654 (Revision 1) and is compatible with the currently approved manual/back-up methodologies for rapid dose assessment in Procedure Nos. 300 and 302. The staff finds that the applicant's dose assessment methods in the EDAM Program documentation submittal are adequate for planning purposes and may replace the existing method which uses the TI-59 calculator. The applicant's ability to implement the revised backup dose assessment techniques and methods should be demonstrated during the next emergency preparedness exercise.