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Dale E. James
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Arkansas Nuclear One

2CAN091002

September 16, 2010

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

SUBJECT: Request for Additional Information
Technical Specification Changes and Analyses Relating to
Use of Alternative Source Term
Arkansas Nuclear One, Unit 2
Docket No. 50-368
License No. NPF-6

- REFERENCES:**
1. Entergy letter to the NRC, dated March 31, 2010, "License Amendment Request Technical Specification Changes and Analyses Relating to Use of Alternative Source Term" (2CAN031001)
 2. Email from Kaly Kalyanam (NRC) to Robert W. Clark (Entergy), dated May 5, 2010, "Transmission of the Acceptance Review Result to Licensee and Request for Supplemental Information" (TAC No. ME3678)
 3. Email from Kaly Kalyanam (NRC) to Robert W. Clark (Entergy), dated May 25, 2010, "Request for Additional Information on the AST LAR - ME3678"
 4. Entergy letter to the NRC, dated June 23, 2010, "License Amendment Request Technical Specification Changes and Analyses Relating to Use of Alternative Source Term – Supplemental Information" (2CAN061004)
 5. Entergy letter to the NRC, dated June 24, 2010, "Request For Additional Information Technical Specification Changes and Analyses Relating to Use of Alternative Source Term" (2CAN061002)
 6. Email from Kaly Kalyanam (NRC) to David B. Bice (Entergy), dated July 15, 2010, "Request for Additional Information on the ANO-2 LAR to implement AST - ME3678"

REFERENCES (continued):

7. Entergy letter to the NRC, dated August 9, 2010, "Request For Additional Information Technical Specification Changes and Analyses Relating to Use of Alternative Source Term" (2CAN081001)
8. Email from Kaly Kalyanam (NRC) to David B. Bice (Entergy), dated August 19, 2010, "Request for Additional Information Regarding Technical Specification Changes and Analyses Relating to Use of Alternate Source Term" (TAC No. ME3678)

Dear Sir or Madam:

Entergy Operations, Inc. (Entergy) submitted a request to change the Technical Specifications for Arkansas Nuclear One, Unit 2 in support of the use of alternative source terms associated with accident offsite and control room dose consequences (Reference 1). Supplemental information was submitted to the NRC via References 4, 5, and 7 above.

During continued review of the material provided in Reference 1, the NRC determined that further information was required to complete the Staff's evaluation of the request (Reference 8). Attached to this submittal is the Reference 8 Request for Additional Information (RAI) along with Entergy's response.

This letter contains no new commitments.

If you have any questions or require additional information, please contact David Bice at 479-858-4710.

I declare under penalty of perjury that the foregoing is true and correct. Executed on September 16, 2010.

Sincerely,



DEJ/dbb

Attachment: Response to Request for Additional Information Related to the Use of Alternative Source Term (AST)

cc: Mr. Elmo E. Collins
Regional Administrator
U. S. Nuclear Regulatory Commission
Region IV
612 E. Lamar Blvd., Suite 400
Arlington, TX 76011-4125

NRC Senior Resident Inspector
Arkansas Nuclear One
P. O. Box 310
London, AR 72847

U. S. Nuclear Regulatory Commission
Attn: Mr. Kaly Kalyanam
MS O-8 B1
One White Flint North
11555 Rockville Pike
Rockville, MD 20852

Mr. Bernard R. Bevill
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Radiation Control Section
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Little Rock, AR 72205

Attachment to

2CAN091002

**Response to Request for Additional Information
Related to the Use of Alternative Source Term (AST)**

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Related to the Use of Alternative Source Term (AST)**

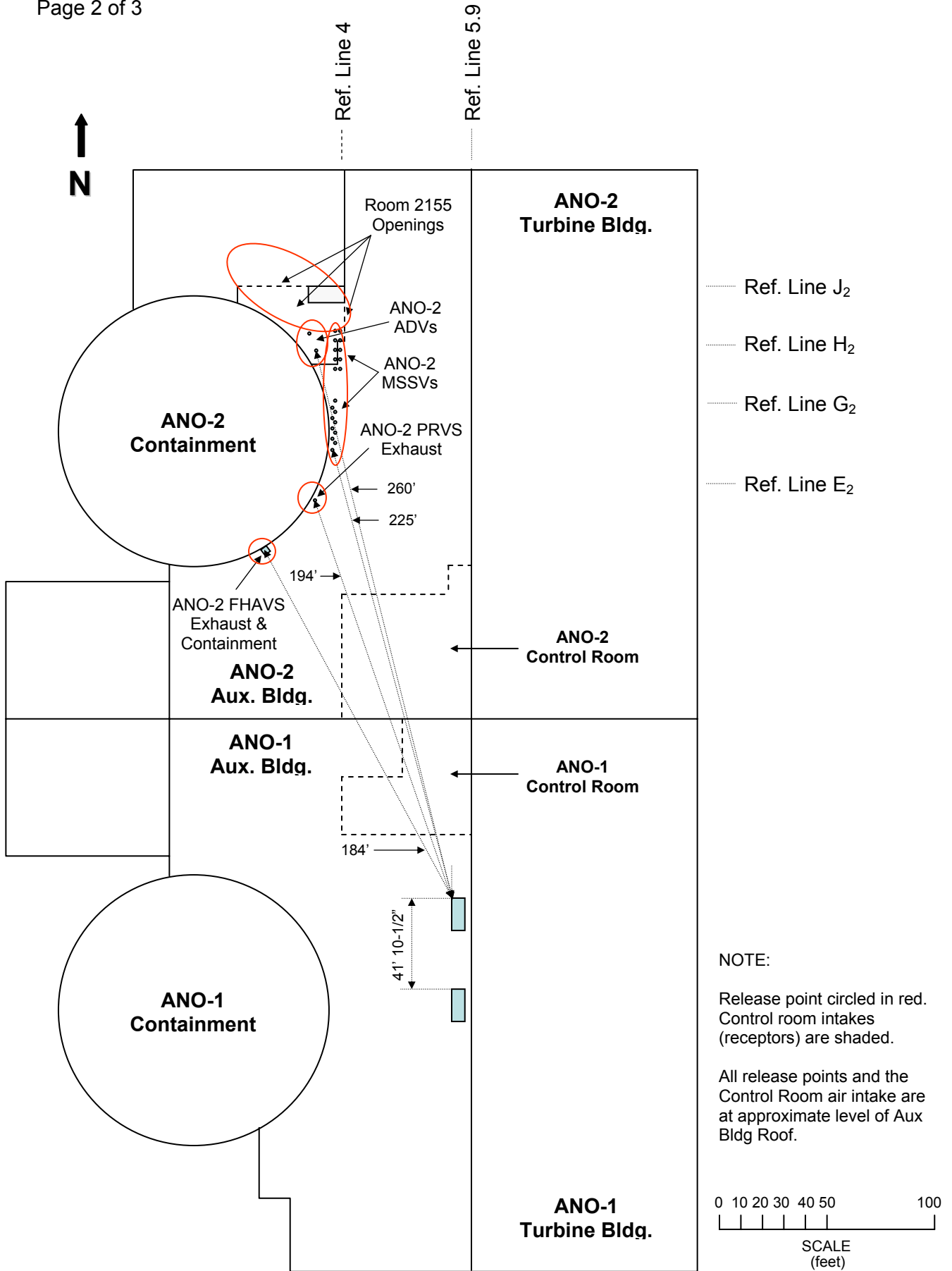
- 1. Assumption 4 on page 12 of Attachment 3 to the March 31, 2010, license amendment request (Agency Documents and Management System (ADAMS) Accession No. ML100910241) states that the stability index for the 1995 through 1999 meteorological data file was calculated using the methods discussed in Regulatory Guide (RG) 1.23, "Onsite Meteorological Programs." RG 1.23 presents two methods, one based on the standard deviation of horizontal wind direction fluctuation (σ_θ) and the other based on temperature change with height (ΔT). Please discuss the time periods and criteria used to determine when each method was used.**

Meteorological data was taken at 1-hour intervals for a period of five years. The stability class/category of all meteorological data was determined using the vertical temperature difference method (ΔT) of Section C.2.2 and Table 1 of RG 1.23.

- 2. Attachment 3 provides a series of figures showing the position of each postulated release location with respect to key plant structures and the control room intakes. The figures are very informative, but they do not appear to be drawn to scale. Please provide one scaled aerial-view drawing from which distance and direction inputs can be reasonably approximated. Indicate true north and provide the scale of the figure. Highlight all postulated sources and receptors and outline the location of the control room envelope.**

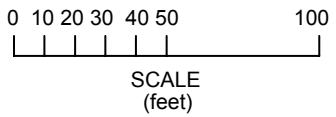
The following page contains a scaled overhead view of applicable release points in relation to key plant structures and the control room intakes. Distances between release points and the nearest control room intake are also approximated. Note that the illustrated distance between the Fuel Handling Area Ventilation (FHAV) exhaust and the Penetration Room Ventilation System (PRVS) exhaust with respect to the nearest control room intake are conservative, given at control room intake level; however, these systems actually exhaust more than 83 feet above the Auxiliary Building roof.

As requested, the illustration displays the direction of true north and postulated release points are circled. In addition, the control room envelope is also outlined.



NOTE:
Release point circled in red.
Control room intakes (receptors) are shaded.

All release points and the Control Room air intake are at approximate level of Aux Bldg Roof.



3. It appears that the containment release height value given in Table 1.8.1-2 of Attachment 3 is with respect to the auxiliary building, whereas, heights for the other release points are with respect to plant grade. Please revise Table 1.8.1-2 to use plant grade as the single reference elevation when calculating the heights of release for all postulated release points.

Response: Table 1.8.1-2 of Attachment 3 has been revised as requested.

**Table 1.8.1-2
Release-Receptor Combination Parameters
(Basis: Plant Design Drawings)**

Release Point	Receptor Point	Release Height (m)	Receptor Height (m)	Distance (m)	Direction with respect to true north
ADV	N CR Intake	30.56	28.62	79.77	346
ADV	S CR Intake	30.56	28.65	92.22	348
MSSV	N CR Intake	30.66	28.62	69.23	347
MSSV	S CR Intake	30.66	28.65	81.73	349
Steam Pipe	N CR Intake	21.74	28.62	82.69	350
Steam Pipe	S CR Intake	21.74	28.65	95.27	351
Fuel Handling Area	N CR Intake	54.53	28.62	56.50	332
Fuel Handling Area	S CR Intake	54.53	28.65	68.01	337
PRVS Exhaust	N CR Intake	55.63	28.62	59.50	341
PRVS Exhaust	S CR Intake	55.63	28.65	71.70	345
Containment ⁽¹⁾	N CR Intake	29.41	28.62	56.50	331
Containment ⁽¹⁾	S CR Intake	29.41	28.65	67.91	335

- (1) Containment assumed to be a diffuse area source with an initial vertical diffusion coefficient of 4.22 meters based on a containment height of 83 feet above the auxiliary building. The diffuse area width (containment diameter) is 123.5 feet for an initial horizontal diffusion coefficient of 6.27 meters.