Progress Energy

Serial: RNP-RA/05-0039

MAY 2 6 2005

United States Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261/LICENSE NO. DPR-23

RESPONSE TO NRC REQUEST FOR ADDITIONAL INFORMATION REGARDING
LOSS OF COOLANT ACCIDENT ALTERNATIVE SOURCE TERM DOSE ANALYSIS

Ladies and Gentlemen:

In a letter dated January 21, 2005, Progress Energy Carolinas, Inc. (PEC), also known as Carolina Power and Light Company, requested NRC review and approval of a change to the Alternative Source Term (AST) methodology for the Loss of Coolant Accident (LOCA) dose analysis for H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2. In a facsimile dated March 28, 2005, the NRC provided PEC with a Request for Additional Information (RAI) related to the revised dose analysis. Attachment II provides the required response to the RAI. As discussed in Attachment II, some of the information is provided in the form of computer files. These files are provided on the enclosed Compact Disc (CD). Attachment III provides a description of the methodology employed in one of the Excel files on the CD.

PEC requests that specific information be withheld from public disclosure in accordance with 10 CFR 2.390 for proprietary reasons. This includes the four RADTRAD code input files provided on the enclosed CD. These files were originally developed by Applied Analysis Corp. (AAC). Attachment IV provides an affidavit from AAC providing the basis for the public non-disclosure of these files. Additionally, select information in the response to Question 5, as identified by large brackets in the margins, as well as the Excel file 'DPh Locked Steam Values.xls' on the enclosed CD, are considered proprietary by Stone and Webster, Inc. (S&W). Attachment V provides an affidavit from S&W providing the basis for the public non-disclosure of this information. Attachment VI provides a non-proprietary version of the RAI responses in Attachment II by removing the proprietary information.

Attachment I provides an Affirmation in accordance with the provisions of Section 182a of the Atomic Energy Act of 1954, as amended, and 10 CFR 50.54(f).

If you have any questions concerning this matter, please contact Mr. C. T. Baucom at (843) 857-1253.

A001

Progress Energy Carolinas, Inc.
Robinson Nuclear Plant
3581 West Entrance Road
Hartsville, SC 29550

Sincerely,

Jan F. Lucas
Manager – Support Services – Nuclear

RAC/rac

Attachments: I. Affirmation
II. Response to NRC Request for Additional Information Regarding Loss of Coolant Accident Alternative Source Term Dose Analysis (with proprietary information)
III. Containment Properties Spreadsheet Formula Explanation
IV. Applied Analysis Corp. Proprietary Affidavit
V. Stone & Webster, Inc. Proprietary Affidavit
VI. Response to NRC Request for Additional Information Regarding Loss of Coolant Accident Alternative Source Term Dose Analysis (without proprietary information)

Enclosure: Compact Disc containing proprietary files

c: Dr. W. D. Travers, NRC, Region II (w/o enclosure)
Mr. C. P. Patel, NRC, NRR
NRC Resident Inspector (w/o enclosure)

AFFIRMATION

The information contained in letter RNP-RA/05-0039 is true and correct to the best of my information, knowledge and belief; and the sources of my information are officers, employees, contractors, and agents of Progress Energy Carolinas, Inc., also known as Carolina Power and Light Company. I declare under penalty of perjury that the foregoing is true and correct.

Executed On: 26 May 2005

J. W. Moyer
Vice President
H. B. Robinson Steam Electric Plant, Unit No. 2

United States Nuclear Regulatory Commission
Attachment IV to Serial: RNP-RA/05-0039
5 pages including cover page

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

RESPONSE TO NRC REQUEST FOR ADDITIONAL INFORMATION REGARDING LOSS OF COOLANT ACCIDENT ALTERNATIVE SOURCE TERM DOSE ANALYSIS

APPLIED ANALYSIS CORP.
PROPRIETARY AFFIDAVIT

APPLIED ANALYSIS CORP.

AFFIDAVIT

I, Juan M. Cajigas, being duly sworn, depose and state as follows:

1) I am the President of Applied Analysis Corp. ("AAC") and have reviewed the information described in paragraph (2) and sought to be withheld.

2) The information sought to be withheld is contained in the AAC proprietary calculations listed in Attachment A.

3) In making this application for withholding of proprietary information, AAC relies upon the exemption from disclosure set forth in the Freedom of Information Act ("FOIA"), 5 USC Sec. 552(b)(4), and the Trade Secrets Act, 18 USC Sec. 1905, and NRC regulations 10 CFR 9. 17(a)(4), 2.790(a)(4), and 2. 790(d)(1) for "trade secrets and commercial or financial information obtained from a person and privileged or confidential" (Exemption 4). The material for which exemption from disclosure is here sought is all "confidential commercial information", and some portions also qualify under the narrower definition of "trade secret", within the meanings assigned to those terms for purposes of FOIA Exemption 4 in, respectively, Critical Mass Energy Project v. Nuclear Regulatory Commission. 975F2d871 (DC Cir. 1992), and Public Citizen Health Research *Group* v. FDA, 704F2d1280 (DC Cir. 1983).

4) Some examples of categories of information which fit into the definition of proprietary information are:

   a) Information that discloses a process, method, or apparatus, including supporting data and analyses, where prevention of its use by AAC competitors without license from AAC constitutes a competitive economic advantage over other companies;

   b) Information which, if used by a competitor, would reduce his expenditure of resources or improve his competitive position in the design, preparation, assurance of quality, or licensing of a similar service;

   c) Information which reveals cost or price information, production capacities, budget levels, or commercial strategies of AAC, its customers, or its suppliers;

   d) Information which reveals aspects of past, present, or future AAC customer-funded development plans and programs, of potential commercial value to AAC;

   e) Information which discloses patentable subject matter for which it may be desirable to obtain patent protection.

   The information sought to be withheld is considered to be proprietary for the reasons set forth in both paragraphs (4)a and (4)b, above.

5) The information sought to be withheld is being submitted to NRC in confidence. The information is of a sort customarily held in confidence by AAC, and is in fact so held. The information sought to be withheld has, to the best of my knowledge and belief, consistently been held in confidence by AAC, no public disclosure has been made, and it is not available in public sources. All disclosures to third parties including any required transmittals to NRC, have been made, or must be made, pursuant to regulatory provisions or proprietary

agreements which provide for maintenance of the information in confidence. Its initial designation as proprietary information, and the subsequent steps taken to prevent its unauthorized disclosure, are as set forth in paragraphs (6) and (7) following.

6) Initial approval of proprietary treatment of a document is made by the manager of the originating component, the person most likely to be acquainted with the value and sensitivity of the information in relation to industry knowledge. Access to such documents within AAC is limited on a "need to know" basis.

7) The procedure for approval of external release of such a document typically requires review by the staff manager, project manager, principal scientist or other equivalent authority, by the manager of the cognizant marketing function (or his delegate), and by the Legal Operation, for technical content, competitive effect, and determination of the accuracy of the proprietary designation. Disclosures outside AAC are limited to regulatory bodies, customers, and potential customers, and their agents, suppliers, and licensees, and others with a legitimate need for the information, and then only in accordance with appropriate regulatory provisions or proprietary agreements.

8) The information identified in paragraph (2), above, is classified as proprietary because it contains detailed methods and processes, which AAC has developed for the preparation of detailed safety analyses in support of the design and licensing of nuclear facilities.

   The development of these methods and processes was achieved at a significant cost to AAC and derived from company experience that constitutes a major AAC asset.

9) Public disclosure of the information sought to be withheld is likely to cause substantial harm to AAC's competitive position and foreclose or reduce the availability of profit-making opportunities. The information is part of AAC's nuclear safety analysis and technology base, and its commercial value includes development of the expertise to determine and apply the appropriate evaluation processes.

   The precise value of the expertise to devise an evaluation process and apply the correct analytical methodology is difficult to quantify, but it clearly is substantial.

   AAC's competitive advantage will be lost if its competitors are able to use the results of the AAC experience to normalize or verify their own process or if they are able to claim an equivalent understanding by demonstrating that they can arrive at the same or similar results and conclusions.

   The value of this information to AAC would be lost if the information were disclosed to the public. Making such information available to competitors without their having been required to undertake a similar expenditure of resources would unfairly provide competitors with a windfall, and deprive AAC of the opportunity to exercise its competitive advantage to seek an adequate return on its investment in developing these analytical processes.

STATE OF PENNSYLVANIA)
) ss:
COUNTY OF BERKS)

Juan M. Cajigas, being duly sworn, deposes and says:

That he has read the foregoing affidavit and the matters stated therein are true and correct to the best of his knowledge, information, and belief.

Executed at Reading, Pennsylvania, this 25th day of July 2002.

Juan M. Cajigas
Applied Analysis Corp.

Subscribed and sworn before me this 25th day of July 2002.

Notary Public, State of Pennsylvania

Notarial Seal
Gregory J. Lewis, Notary Public
Cumru Twp., Berks County
My Commission Expires Apr. 30, 2006
Member, Pennsylvania Association of Notaries

ATTACHMENT A

RNP-M/MECH-1732	Radiological Consequence Analysis of the Fuel Handling Accident With AST Implementation
RNP-M/MECH-1733	Calculation of Onsite Atmospheric Dispersion Factors for AST Implementation
RNP-M/MECH-1735	Radiological Consequence Analysis of the Waste Gas Decay Tank Rupture With AST Implementation
RNP-M/MECH-1736	Radiological Consequence Analysis of the Locked Rotor Accident With AST Implementation
RNP-M/MECH-1737	Radiological Consequence Analysis of the Single RCCA Withdrawal Accident With AST Implementation
RNP-M/MECH-1738	Radiological Consequence Analysis of the Main Steam Line Break Accident With AST Implementation
RNP-M/MECH-1739	Radiological Consequence Analysis of the Steam Generator Tube Rupture Accident With AST Implementation
RNP-M/MECH-1740	Radiological Consequence Analysis of the Loss of Coolant Accident With AST Implementation

United States Nuclear Regulatory Commission
Attachment V to Serial: RNP-RA/05-0039
2 pages including cover page

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

RESPONSE TO NRC REQUEST FOR ADDITIONAL INFORMATION REGARDING LOSS OF COOLANT ACCIDENT ALTERNATIVE SOURCE TERM DOSE ANALYSIS

STONE & WEBSTER, INC.
PROPRIETARY AFFIDAVIT

COMMONWEALTH OF MASSACHUSETTS
COUNTY OF NORFOLK

AFFIDAVIT OF CHARLES E. CRONAN IN SUPPORT OF APPLICATION FOR WITHHOLDING PURSUANT TO 10 C.F.R. PART 9, SECTION 9.17 (a)(4), 1/1/05 Edition

Charles E. Cronan, being duly sworn, does hereby depose and state:

1. I hold the position of Vice President & Manager of Projects of Stone & Webster Inc, and I am authorized to make the request for withholding from Public Record the information accompanying this affidavit.

2. The work underlying the information in question was performed under my authority, and I am responsible for the engineering divisions (s) performing the work.

3. The information that we request be withheld are the responses or portions of responses to NRC Request for Additional Information (RAI) in relation to the H.B. Robinson Alternative Source Term (AST) Application for the Loss-of-Coolant Accident (LOCA), which summarize the methodology, evaluations and analytical methods documented in Stone & Webster Calculation 11114801-UR(B)-001, Revision 0, and used to develop the bounding removal lambda for the diffusiophoretic mechanism following a LOCA at H. B. Robinson Plant.

4. Stone & Webster Calculation 11114801-UR(B)-001, Revision 0, determines the bounding removal lambda for the diffusiophoretic mechanism following a LOCA at H. B. Robinson Plant (HBNP), and is intended for use in the HBNP LOCA dose consequence analysis based on (AST) methodology. In addition to the results, Calculation 11114801-UR(B)-001, Revision 0, outlines the methodology, the evaluations and analytical methods employed by S&W to develop the diffusiophoretic coefficients during the event as well as the basis for determining a bounding value that could be added to the spray's particulate removal coefficient. This evaluation approach has been developed by S&W and applied in its aerosol transport codes. Proper application of this and associated technologies has involved the development of expertise in these areas to determine approach and reasonableness of application, and includes lessons learned from similar projects over the last 25 years. The above constitutes a source of competitive advantage for our company in the competition and performance of such work within the industry. Public disclosure of the proprietary information is likely to cause harm to S&W's competitive position and foreclose or reduce the availability of profit-making opportunities.

Further affiant sayeth not.

C E Cronan

Charles E. Cronan, Vice President
Stone & Webster Inc.

Signed and sworn before me this 4th day of April, 2005

Susan E Vigorito

Notary Public

SUSAN E. VIGORITO
Notary Public
My Commission Expires October 2, 2009

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

RESPONSE TO NRC REQUEST FOR ADDITIONAL INFORMATION REGARDING LOSS OF COOLANT ACCIDENT ALTERNATIVE SOURCE TERM DOSE ANALYSIS
(without proprietary information)

NRC Question 1

Please provide the input to the RADTRAD code.

Response 1

The following RADTRAD code input files are provided on the enclosed Compact Disc, entitled Robinson LOCA Dose Analysis Files. These files were originally developed by Applied Analysis Corp. under proprietary non-disclosure conditions. An affidavit supporting non-disclosure is provided in Attachment IV to this letter.

CR-Containment Release 170 Inleak – A train –DF Adder- Rev 6.psf
CR-Containment Release 170 Inleak – B train –DF Adder- Rev 6.psf
Cont.nif
Pwr_dba.rft

These files provide the inputs for the containment release portion of the Control Room (CR) and offsite doses for the Loss of Coolant Accident (LOCA). These files were developed using Version 3.02 of the RADTRAD code.

NRC Question 2

Section 4: the used definition of diffusiophoresis (DPh) includes (a) steam condensation onto particles, (b) steam condensation onto passive heat sinks, and (c) aerosol removal by active Engineered Safety Features (ESF) or condensation onto spray. Technically, DPh includes only (b) and possibly condensation onto spray. However, one can use the above definition of "DPh" as a convenient substitute for the net result of the various removal mechanisms. Please (i) confirm our understanding of the above use of "DPh", and (ii) provide the physical models and quantitative estimates of each of the removal mechanisms.

Response 2

Part i – The NRC understanding is correct. Progress Energy Carolinas, Inc. (PEC) used the "convenient substitute" definition to evaluate the net or overall result of various steam condensation mechanisms. Direct vapor condensation onto aerosols, item (a) in the above definition, is not included in the PEC specific derivation of DPh removal lambdas. Items (b) and (c) in the definition are the only mechanisms that contribute to aerosol removal in the PEC DPh lambda calculation model. For item (c), removal by condensation due to both active heat removal systems (containment spray and containment ventilation) is modeled.

Part ii – The physical models and quantitative estimates of the net, or overall, results of steam condensation are contained in the response to answer Question 5. Application of diffusiophoretic removal was conservatively applied only to the sprayed region, where the DPh component is a small fraction of the region's total particulate removal mechanisms.

The spreadsheet provided in the answer to Question 4 provides the details of how the steam/vapor production (by the Reactor Coolant System fluid leaving the break) was balanced against the following condensation mechanisms:

1) Mechanical fan cooler condensation was modeled by evaluating the forced HVAC cooling effects described in the WCAP-15304 containment analysis (Reference 1). This aerosol removal effect is included in our definition of net or overall steam condensation removal mechanisms, since the forced HVAC air movement across the cooling coils is similar in effect to the diffusiophoretic air currents set up near condensing surfaces in non-forced air current situations that drive aerosols to the surfaces where they are removed from the population of airborne particulates.
2) Spray cooling condensation of containment atmospheric vapor onto spray droplets was assumed to occur based on the subcooled energy available from the 100 degree F water from the Refueling Water Storage Tank being sprayed into the saturated containment. No credit was given to the Residual Heat Removal system coolers that cool the recirculating sump fluid before it is sprayed back into containment. This condensation is assumed to remove particulates in the same manner as any other condensation onto walls, structures, or HVAC cooling coils.
3) The condensation of vapor onto containment walls and other structures will draw particulates out of the atmosphere in the same manner as the forced condensation onto the fan cooler coils, and onto cool containment spray droplets. There is no simple model of containment structures to mechanistically evaluate this component, so it was derived from the containment properties spreadsheet provided in the response to Question 4. A fundamental assumption was made that during times of slowly changing containment conditions, the steam production rate had to balance with the total steam condensation rate.

Although the spreadsheet in the response to Question 4 provides condensation rates for the separate removal mechanisms, the DPh removal coefficient used by PEC was evaluated only for the total condensation rate expected to occur in containment. Thus, it is not possible (without additional work) to answer Question 2.ii exactly as stated, as no removal lambda or particulate removal rate was evaluated for the separate, individual components of the total condensation/diffusiophoresis based removal mechanism.

As described above, this "convenient substitute" definition of DPh includes the net or overall effect of various steam condensation mechanisms, but excludes the mechanical interaction type spray removal mechanisms in the Standard Review Plan (SRP). The forced "impact removal" of the particulates that will occur as the highly turbulent HVAC air stream is forced through the cooling coils and attendant ductwork is neglected. Also, no particulate removal credit is assumed for any containment HVAC filters. Also excluded is the potential impact on the SRP spray removal effectiveness of any free air particulate condensation that might affect the particle size distribution, physical properties, or other aspects of the particulates being considered.

NRC Question 3

Section 4: the statement "since these mechanisms are separate, the removal coefficients for each can be combined into an effective total particulate removal coefficient" requires more detailed discussion and/or explanation. In general, the statement is incorrect in the sense that various removal mechanisms acting simultaneously "compete" for the particulates to be removed; i.e., a particulate removed by one mechanism cannot be removed by another. This effect is usually neglected only during a sufficiently short calculational time step. Such an analytical approximation is commonly accepted practice. After such an analysis is done, one can partition the final removal rate and assign an effective removal rate[s] to each of the acting removal mechanisms. Please, describe the used methodology and justify the choice of "0.5" value as an effective DPh removal rate.

Response 3

The "mechanisms are separate" language was intended to make the point that the containment spray aerosol removal by the SRP mechanism (a mechanical interaction between spray droplets and aerosol/particulates) is a separate mechanism from the steam condensation onto spray droplet effects that are being considered in the definition of DPh described in the response to Question 2.

Simplifications of the physical processes involved were made in order to reduce the complexity of the problem to one that is solvable, and suitably conservative to meet the intention of the analysis. The traditional simplification has been to ignore the steam condensation effects altogether, which results in the SRP 6.5.2 based spray lambda removal coefficient described in Attachment II, Item 3 of the January 21, 2005, letter. PEC is augmenting this spray removal lambda with an additional factor that accounts for various DPh effects, which are mechanistically different than the basis for the SRP lambda derivation. The precedents cited in the January 21, 2005, letter (Beaver Valley and Fort Calhoun) show that combining traditional spray removal and diffusiophoretic condensation based removal lambdas into a single effective net or total spray removal lambda in the sprayed region of containment is an acceptable approximation of the actual, highly complex and inter-related physical conditions being considered.

The specific formulas and methodology used by PEC for the diffusiophoretic removal lambdas are proprietary models developed by Stone & Webster, Inc., based on the reference cited (Reference 2 below) in the January 21, 2005, letter.

The choice of the 0.5 per hour for the DPh component of the total aerosol removal lambda is justified based on the following:

1. Conservative choices in modeling of the DPh phenomenon (low condensation rates, neglecting significant condensation during certain times).
2. Conservatively applying the resulting DPh factor only while sprays are on, and only in the sprayed region, ensures that the implied assumption of homogeneity in the sprayed region is met for the various steam condensation diffusiophoretic processes credited in the analysis.

3. Selection of a numerically small, constant, and bounding value for the DPh lambda relative to the time dependent results available.
4. Both the DPh mechanism and significantly higher DPh removal values have been approved by the NRC for application at other sites (references 3 and 4).

NRC Question 4

Describe the algorithm and provide the spreadsheet calculation on which the steam condensation figure is based on.

Response 4

The containment steam condensation determination algorithms are described in Attachment III, entitled "Containment Properties Spreadsheet Formula Explanation."

The spreadsheet calculations (upon which the steam condensation figure in the submittal is based) are contained in the file titled "Containment Properties Locked Steam Values.xls," on the enclosed Compact Disc (CD). For the spreadsheet actually used by PEC, there was a link to an EXCEL steam table add-in available on the PEC version of EXCEL. The data from the steam table link has been replaced with fixed values for the file enclosed on the CD to allow for use by the NRC.

NRC Question 5

Provide the calculations supporting the DPh removal rates of 2 per hour at 25 seconds, 4 per hour at 60 seconds, 1 per hour at 1200 seconds, and 0.55 per hour at 39,000 seconds.

Response 5

The response to this question contains commercial proprietary information to Stone and Webster (S&W), Inc. that is requested to be withheld from public disclosure. An S&W affidavit supporting non-disclosure is provided in Attachment V. The proprietary information is indicated by the large brackets in the right and left margins.

The PEC developed spreadsheet labeled "DPh Locked Steam Values.xls" is provided as an electronic file on the enclosed CD under proprietary non-disclosure conditions. Although the spreadsheet was developed by PEC, it contains formulas and methods covered by the S&W non-disclosure affidavit in Attachment V. For the spreadsheet actually used by PEC, there was a link to an EXCEL steam table add-in available on the PEC version of EXCEL. The data from the steam table link has been replaced with fixed values for the file enclosed on the CD to allow for use by the NRC. The S&W proprietary analysis for diffusiophoretic removal coefficients, as a function of time in the sprayed region, is based on PEC's analyses regarding containment thermodynamic conditions and condensation rates (see response to NRC Question 4). Details for the specific time points requested by NRC Question 5 are provided below.

The diffusiophoretic equation presented in the Reference 2 paper, when rearranged, provides a method for calculating diffusiophoretic removal coefficients based solely on condensation rates inside containment.

$$\frac{dm_p}{dt} = \frac{dm_s}{dt} * C_M * \frac{R}{\rho_s}$$

where

$\frac{dm_p}{dt}$ = the rate of change of aerosol mass due to diffusiophoresis

$\frac{dm_s}{dt}$ = the rate of change of steam mass resulting in diffusiophoresis

C_M = the mass concentration of aerosol in the volume $(\frac{m_p}{V})$

ρ_s = the steam density in the volume $(\frac{m_s}{V})$, and

R = the ratio of the aerosol deposition velocity to the steam deposition velocity.

For small particles in a gas, R is best given by:

$$R = \frac{\gamma_s\sqrt{M_s}}{\gamma_s\sqrt{M_s} + \gamma_a\sqrt{M_a}}$$

where

$\gamma_{s,a}$ = the molar fractions of steam and air, and

$M_{s,a}$ = the molecular weights of the steam and the air

[Proprietary information removed]

For the four times identified in Question 5 (25 secs, ~60 secs, ~ 1200 secs and ~39,000 secs), the thermal-hydraulic parameters are:

Time	Total Containment Pressure	Steam Temp	Total Condensation (Spray, Fan Cooler, and Wall)
(SEC)	(PSIG)	(DEG-F)	(GM/SEC)
25	35.3	257.80	48880.6
64.5	33.9	255.23	96454.1
1199.5	37.5	260.82	24781.8
39219	7.5	180.50	7833.8

and the containment and physical parameters are:

Molecular Weight (MW) air	29	
MW H2O	18	
Containment Volume	2.013E+06 ft^3	
Spray Train	A	B
Spray Coverage	82.90%	81.50%

Note that the maximum (un-flooded) containment volume is conservatively used for this evaluation, instead of the flooded containment free air volume reported in the January 21, 2005, submittal of general dose analysis input values.

[Proprietary information removed]

Note that during the preparation of this RAI response, a slight adjustment was made to the Design Input Parameter spreadsheet that had been provided to S&W. The revised values are as shown in the shaded cells in the containment properties spreadsheet on the enclosed CD. These changes affected the calculated DPh removal coefficient at 64.5 seconds. The revised value is no longer "more than 4 per hour" as stated on Page 4 of 5 of Attachment II to the January 21, 2005 letter, but is now 3.6 per hour. PEC has verified that this small correction does not affect the overall conclusion that the proposed 0.5 per hour diffusiophoresis lambda factor is acceptable to use in the LOCA dose consequence calculations.

References

1. WCAP-15304, H. B. Robinson Steam Electric Plant, Unit No. 2 LOCA Containment Integrity Analysis, Sept 1999 (basis document supporting Progress Energy's June 5, 2000, request for Tech Spec change regarding Ultimate Heat Sink, Letter Number RNP-RA/00-0053; and subsequent NRC SER and approval on August 9, 2001, TAC No. MA9303).
2. "Direct Measurement of Diffusiophoretic Deposition of Particles at Elevated Temperatures," Bunz, H., and Schrock, W., in *Aerosol: Science, Technology, and Industrial Applications of Airborne Particles, Proceedings of the First International Aerosol Conference* held September 17-21, 1984, Minneapolis Minnesota.
3. Beaver Valley Power Station, Unit Nos. 1 and 2 – Issuance of Amendment RE: Selective Implementation of Alternative Source Term and Control Room Habitability Technical Specification Changes (TAC Nos. MB5303 and MB5304), September 10, 2003.
4. Fort Calhoun Station, Unit No. 1 – Issuance of Amendment (TAC No MB1221), December 5, 2001.