Attachment 1 Fairewinds
Gundersen CV
SACE re: TVA Bellefonte Unit 1

CURRICULUM VITAE

Arnold Gundersen
Chief Engineer, Fairewinds Associates, Inc
July 2011

Education and Training

ME NE	Master of Engineering Nuclear Engineering Rensselaer Polytechnic Institute, 1972 U.S. Atomic Energy Commission Fellowship Thesis: Cooling Tower Plume Rise
BS NE	Bachelor of Science Nuclear Engineering Rensselaer Polytechnic Institute, Cum Laude, 1971 James J. Kerrigan Scholar
RO	Licensed Reactor Operator, U.S. Atomic Energy Commission License # OP-3014

Qualifications – including and not limited to:

- Chief Engineer, Fairewinds Associates, Inc
- Nuclear Engineering, Safety, and Reliability Expert
- Federal and Congressional hearing testimony and Expert Witness testimony
- Former Senior Vice President Nuclear Licensee
- Former Licensed Reactor Operator
- 39-years of nuclear industry experience and oversight
    - Nuclear engineering management assessment and prudency assessment
    - Nuclear power plant licensing and permitting – assessment and review
    - Nuclear safety assessments, source term reconstructions, dose assessments, criticality analysis, and thermohydraulics
    - Contract administration, assessment and review
    - Systems engineering and structural engineering assessments
    - Cooling tower operation, cooling tower plumes, thermal discharge assessment, and consumptive water use
    - Nuclear fuel rack design and manufacturing, nuclear equipment design and manufacturing, and technical patents
    - Radioactive waste processes, storage issue assessment, waste disposal and decommissioning experience
    - Reliability engineering and aging plant management assessments, in-service inspection
    - Employee awareness programs, whistleblower protection, and public communications
    - Quality Assurance (QA) & records

Publications

Co-author — *Fairewinds Associates 2009-2010 Summary to JFC, July 26, 2010* State of Vermont, Joint Fiscal Office, (http://www.leg.state.vt.us/jfo/envy.aspx).

Co-author — *Supplemental Report of the Public Oversight Panel Regarding the Comprehensive Reliability Assessment of the Vermont Yankee Nuclear Power Plant July 20, 2010,* to the Vermont State Legislature by the Vermont Yankee Public Oversight Panel.

Co-author — The Second Quarterly Report by Fairewinds Associates, Inc to the Joint Legislative Committee regarding buried pipe and tank issues at Entergy Nuclear Vermont Yankee and Entergy proposed Enexus spinoff. See two reports: *Fairewinds Associates 2nd Quarterly Report to JFC* and *Enexus Review by Fairewinds Associates.*

Author — Fairewinds Associates, Inc *First Quarterly Report to the Joint Legislative Committee*, October 19, 2009.

Co-author — *Report of the Public Oversight Panel Regarding the Comprehensive Reliability Assessment of the Vermont Yankee Nuclear Power Plant*, March 17, 2009, to the Vermont State Legislature by the Vermont Yankee Public Oversight Panel.

Co-author — *Vermont Yankee Comprehensive Vertical Audit – VYCVA – Recommended Methodology to Thoroughly Assess Reliability and Safety Issues at Entergy Nuclear Vermont Yankee, January 30, 2008 Testimony to Finance Committee Vermont Senate.*

Co-author — *Decommissioning Vermont Yankee – Stage 2 Analysis of the Vermont Yankee Decommissioning Fund – The Decommissioning Fund Gap*, December 2007, Fairewinds Associates, Inc. Presented to Vermont State Senators and Legislators.

Co-author — *Decommissioning the Vermont Yankee Nuclear Power Plant: An Analysis of Vermont Yankee's Decommissioning Fund and Its Projected Decommissioning Costs*, November 2007, Fairewinds Associates, Inc.

Co-author — *DOE Decommissioning Handbook, First Edition*, 1981-1982, invited author.

Presentations & Media

Fairewinds Energy Education Corp 501c3 presentations at the University of Vermont (2), Boston Library (6/16/11), Duxbury Emergency Management (6/15/11), Vermont State Nuclear Advisory Panel (VSNAP), Elder Education Enrichment, New Jersey Environmental Federation (5/14/11), Quaker Meeting House, Press Conference for Physicians for Social Responsibility (5/19/11), St. Johnsbury Academy – Nuclear Power 101.

Educational videos on nuclear safety, reliability and engineering particularly Fukushima issues. Videos may be viewed @ fairewinds.com 24 videos (July 21, 2011).

Expert commentary: CNN (6), The John King Show (14), BBC, CBC, Russia Today, VPR, WPTZ, WCAX, WBAI, NECN, Pacifica, Democracy Now, *Washington Post*, *New York Times*, *The Guardian*, *Bloomberg* (print & TV), *Reuters*, *Associated Press*, *The Global Post*, *Miami Herald*, *Al Jazeera, The Tennessean*, The Chris Martinson Show, *Mainichi News*, *Gendai Magazine*, NHK television, *Scientific American*. *Huffington Post* (Paris) named Fairewinds.com the best go to site for Fukushima information (5/9/11).

Patents

Energy Absorbing Turbine Missile Shield – U.S. Patent # 4,397,608 – 8/9/1983

Committee Memberships

Vermont Yankee Public Oversight Panel, appointed 2008 by President Pro-Tem Vermont Senate
National Nuclear Safety Network – Founding Board Member
Three Rivers Community College – Nuclear Academic Advisory Board
Connecticut Low Level Radioactive Waste Advisory Committee – 10 years, founding member
Radiation Safety Committee, NRC Licensee – founding member
ANSI N-198, Solid Radioactive Waste Processing Systems

Honors

U.S. Atomic Energy Commission Fellowship, 1972
B.S. Degree, Cum Laude, RPI, 1971, 1st in nuclear engineering class
Tau Beta Pi (Engineering Honor Society), RPI, 1969 – 1 of 5 in sophomore class of 700
James J. Kerrigan Scholar 1967–1971
Teacher of the Year – 2000, Marvelwood School
Publicly commended to U.S. Senate by NRC Chairman, Ivan Selin, in May 1993 – "It is true...everything Mr. Gundersen said was absolutely right; he performed quite a service."

Expert Witness Testimony and Nuclear Engineering Analysis and Consulting

Nuclear Regulatory Commission – May 10, 2011
Comment to the proposed rule on the AP1000 Design Certification Amendment Docket ID NRC-2010-0131 As noticed in the Federal Register on February 24, 2011 Retained by Friends of the Earth as Expert Witness.

NRC Advisory Committee on Reactor Safeguards (ACRS) – May 26, 2011
Lessons learned from Fukushima and Containment Integrity on the AP1000.

Vermont Energy Cooperative (VEC) – April 26, 2011
Vermont Yankee – Is It Reliable for 20 more years?

Vermont State Nuclear Advisory Panel (VSNAP) – February 22, 2011
Testimony and presentation entitled the *Vermont Yankee Public Oversight Panel Supplemental Report* regarding management issues at the Vermont Yankee Nuclear Power Plant to the reconvened Vermont State Nuclear Advisory Panel.

Vermont State Legislature Senate Committee On Natural Resources And Energy
February 8, 2011. Testimony: *Vermont Yankee Leaks and Implications*.
(http://www.leg.state.vt.us/jfo/envy.aspx)

Vermont State Legislature – January 26, 2011
House Committee On Natural Resources And Energy, and
Senate Committee On Natural Resources And Energy
Testimony regarding Fairewinds Associates, Inc's report: *Decommissioning the Vermont Yankee Nuclear Power Plant and Storing Its Radioactive Waste*
(http://www.leg.state.vt.us/jfo/envy.aspx). Additional testimony was also given regarding the newest radioactive isotopic leak at the Vermont Yankee nuclear power plant.

Vermont State Legislature Joint Fiscal Committee Legislative Consultant Regarding Entergy Nuclear Vermont Yankee *Decommissioning the Vermont Yankee Nuclear Power Plant and Storing Its Radioactive Waste* January 2011. (http://www.leg.state.vt.us/jfo/envy.aspx).

U.S. Nuclear Regulatory Commission Advisory Committee on Reactor Safeguards (NRC-ACRS) AP1000 Sub-Committee
Nuclear Containment Failures: Ramifications for the AP1000 Containment Design,
Supplemental Report submitted December 21, 2010. (http://fairewinds.com/reports)

Vermont State Legislature Joint Fiscal Committee Legislative Consultant Regarding Entergy Nuclear Vermont Yankee *Reliability Oversight Entergy Nuclear Vermont Yankee, December 6, 2010.* Discussion regarding the leaks at Vermont Yankee and the ongoing monitoring of those leaks and ENVY's progress addressing the 90-items identified in Act 189 that require remediation. (http://www.leg.state.vt.us/jfo/envy.aspx).

U.S. Nuclear Regulatory Commission Atomic Safety and Licensing Board (NRC-ASLB) *Declaration Of Arnold Gundersen Supporting Blue Ridge Environmental Defense League's Contention Regarding Consumptive Water Use At Dominion Power's Newly Proposed North Anna Unit 3 Pressurized Water Reactor* in the matter of Dominion Virginia Power North Anna Power Station Unit 3 Docket No. 52-017 Combined License Application ASLBP#08-863-01-COL, October 2, 2010.

U.S. Nuclear Regulatory Commission Atomic Safety and Licensing Board (NRC-ASLB) *Declaration Of Arnold Gundersen Supporting Blue Ridge Environmental Defense League's New Contention Regarding AP1000 Containment Integrity On The Vogtle Nuclear Power Plant Units 3 And 4* in the matter of the Southern Nuclear Operating Company Vogtle Electric Generating Plant, Units 3&4 Combined License Application, Docket Nos. 52-025-COL and 52-026-COL and ASLB No. 09-873-01-COL-BD01, August 13, 2010.

Vermont State Legislature Joint Fiscal Committee Legislative Consultant Regarding Entergy Nuclear Vermont Yankee – July 26, 2010
Summation for 2009 to 2010 Legislative Year For the Joint Fiscal Committee Reliability Oversight Entergy Nuclear Vermont Yankee (ENVY) Fairewinds Associates 2009-2010. This summary includes an assessment of ENVY's progress (as of July 1, 2010) toward meeting the milestones outlined by the Act 189 Vermont Yankee Public Oversight Panel in its March 2009 report to the Legislature, the new milestones that have been added since the incident with the tritium leak and buried underground pipes, and the new reliability challenges facing ENVY, Entergy, and the State of Vermont. (http://www.leg.state.vt.us/jfo/envy.aspx)

U.S. Nuclear Regulatory Commission Atomic Safety and Licensing Board (NRC-ASLB) *Declaration Of Arnold Gundersen Supporting Blue Ridge Environmental Defense League's Contentions* in the matter of Dominion Virginia Power North Anna Station Unit 3 Combined License Application, Docket No. 52-017, ASLBP#08-863-01-COL, July 23, 2010.

Florida Public Service Commission (FPSC)
Licensing and construction delays due to problems with the newly designed Westinghouse AP1000 reactors in *Direct Testimony In Re: Nuclear Plant Cost Recovery Clause By The Southern Alliance For Clean Energy (SACE)*, FPSC Docket No. 100009-EI, July 8, 2010.

U.S. Nuclear Regulatory Commission Advisory Committee on Reactor Safeguards (NRC-ACRS) AP1000 Sub-Committee
Presentation to ACRS regarding design flaw in AP1000 Containment – June 25, 2010
Power Point Presentation: http://fairewinds.com/content/ap1000-nuclear-design-flaw-addressed-to-nrc-acrs.

U.S. Nuclear Regulatory Commission Atomic Safety and Licensing Board (NRC-ASLB)
Second Declaration Of Arnold Gundersen Supporting Supplemental Petition Of Intervenors Contention 15: DTE COLA Lacks Statutorily Required Cohesive QA Program – June 8, 2010.

NRC Chairman Gregory Jaczko, ACRS, Secretary of Energy Chu, and the White House Office of Management and Budget
AP1000 Containment Leakage Report Fairewinds Associates - Gundersen, Hausler, 4-21-2010.
This report, commissioned by the AP1000 Oversight Group, analyzes a potential flaw in the containment of the AP1000 reactor design.

Vermont State Legislature House Committee On Natural Resources And Energy – April 5, 2010
Testified to the House Committee On Natural Resources And Energy regarding discrepancies in Entergy's TLG Services decommissioning analysis. See *Fairewinds Cost Comparison TLG Decommissioning* (http://www.leg.state.vt.us/jfo/envy.aspx).

Vermont State Legislature Joint Fiscal Committee Legislative Consultant Regarding Entergy Nuclear Vermont Yankee – February 22, 2010
The Second Quarterly Report by Fairewinds Associates, Inc to the Joint Legislative Committee regarding buried pipe and tank issues at Entergy Nuclear Vermont Yankee and Entergy proposed Enexus spinoff. See two reports: *Fairewinds Associates 2nd Quarterly Report to JFC* and *Enexus Review by Fairewinds Associates*. (http://www.leg.state.vt.us/jfo/envy.aspx).

Vermont State Legislature Senate Natural Resources – February 16, 2010
Testified to Senate Natural Resources Committee regarding causes and severity of tritium leak in unreported buried underground pipes, status of Enexus spinoff proposal, and health effects of tritium.

Vermont State Legislature Senate Natural Resources – February 10, 2010
Testified to Senate Natural Resources Committee regarding causes and severity of tritium leak in unreported buried underground pipes. http://www.youtube.com/watch?v=36HJiBrJSxE

Vermont State Legislature Senate Finance – February 10, 2010
Testified to Senate Finance Committee regarding *A Chronicle of Issues Regarding Buried Tanks and Underground Piping at VT Yankee.* (http://www.leg.state.vt.us/jfo/envy.aspx).

Vermont State Legislature House Committee On Natural Resources And Energy – January 27, 2010 *A Chronicle of Issues Regarding Buried Tanks and Underground Piping at VT Yankee*. (http://www.leg.state.vt.us/jfo/envy.aspx).

Submittal to Susquehanna River Basin Commission, by Eric Epstein – January 5, 2010
Expert Witness Report Of Arnold Gundersen Regarding Consumptive Water Use Of The Susquehanna River By The Proposed PPL Bell Bend Nuclear Power Plant In the Matter of RE: Bell Bend Nuclear Power Plant Application for Groundwater Withdrawal Application for Consumptive Use BNP-2009-073.

U.S. Nuclear Regulatory Commission Atomic Safety and Licensing Board (NRC-ASLB)
Declaration of Arnold Gundersen Supporting Supplemental Petition of Intervenors Contention 15: Detroit Edison COLA Lacks Statutorily Required Cohesive QA Program, December 8, 2009.

U.S. NRC Region III Allegation Filed by Missouri Coalition for the Environment
Expert Witness Report entitled: *Comments on the Callaway Special Inspection by NRC Regarding the May 25, 2009 Failure of its Auxiliary Feedwater System,* November 9, 2009.

Vermont State Legislature Joint Fiscal Committee Legislative Consultant Regarding Entergy Nuclear Vermont Yankee
Oral testimony given to the Vermont State Legislature Joint Fiscal Committee October 28, 2009.
See report: *Quarterly Status Report - ENVY Reliability Oversight for JFO*
(http://www.leg.state.vt.us/jfo/envy.aspx).

Vermont State Legislature Joint Fiscal Committee Legislative Consultant Regarding Entergy Nuclear Vermont Yankee
The First Quarterly Report by Fairewinds Associates, Inc to the Joint Legislative Committee regarding reliability issues at Entergy Nuclear Vermont Yankee, issued October 19, 2009.
See report: *Quarterly Status Report - ENVY Reliability Oversight for JFO*
(http://www.leg.state.vt.us/jfo/envy.aspx).

Florida Public Service Commission (FPSC)
Gave direct oral testimony to the FPSC in hearings in Tallahassee, FL, September 8 and 10, 2009 in support of Southern Alliance for Clean Energy (SACE) contention of anticipated licensing and construction delays in newly designed Westinghouse AP 1000 reactors proposed by Progress Energy Florida and Florida Power and Light (FPL).

Florida Public Service Commission (FPSC)
NRC announced delays confirming my original testimony to FPSC detailed below. My supplemental testimony alerted FPSC to NRC confirmation of my original testimony regarding licensing and construction delays due to problems with the newly designed Westinghouse AP 1000 reactors in *Supplemental Testimony In Re: Nuclear Plant Cost Recovery Clause By The Southern Alliance For Clean Energy*, FPSC Docket No. 090009-EI, August 12, 2009.

Florida Public Service Commission (FPSC)
Licensing and construction delays due to problems with the newly designed Westinghouse AP 1000 reactors in *Direct Testimony In Re: Nuclear Plant Cost Recovery Clause By The Southern Alliance For Clean Energy (SACE)*, FPSC Docket No. 090009-EI, July 15, 2009.

Vermont State Legislature Joint Fiscal Committee Expert Witness Oversight Role for Entergy Nuclear Vermont Yankee (ENVY)
Contracted by the Joint Fiscal Committee of the Vermont State Legislature as an expert witness to oversee the compliance of ENVY to reliability issues uncovered during the 2009 legislative session by the Vermont Yankee Public Oversight Panel of which I was appointed a member along with former NRC Commissioner Peter Bradford for one year from July 2008 to 2009. Entergy Nuclear Vermont Yankee (ENVY) is currently under review by Vermont State

Legislature to determine if it should receive a Certificate for Public Good (CPG) to extend its operational license for another 20-years. Vermont is the only state in the country that has legislatively created the CPG authorization for a nuclear power plant. Act 160 was passed to ascertain ENVY's ability to run reliably for an additional 20 years. Appointment from July 2009 to May 2010.

U.S. Nuclear Regulatory Commission
Expert Witness Declaration regarding Combined Operating License Application (COLA) at North Anna Unit 3 *Declaration of Arnold Gundersen Supporting Blue Ridge Environmental Defense League's Contentions* (June 26, 2009).

U.S. Nuclear Regulatory Commission
Expert Witness Declaration regarding Through-wall Penetration of Containment Liner and Inspection Techniques of the Containment Liner at Beaver Valley Unit 1 Nuclear Power Plant *Declaration of Arnold Gundersen Supporting Citizen Power's Petition* (May 25, 2009).

U.S. Nuclear Regulatory Commission
Expert Witness Declaration regarding Quality Assurance and Configuration Management at Bellefonte Nuclear Plant *Declaration of Arnold Gundersen Supporting Blue Ridge Environmental Defense League's Contentions in their Petition for Intervention and Request for Hearing*, May 6, 2009.

Pennsylvania Statehouse
Expert Witness Analysis presented in formal presentation at the Pennsylvania Statehouse, March 26, 2009 regarding actual releases from Three Mile Island Nuclear Accident. Presentation may be found at: http://www.tmia.com/march26

Vermont Legislative Testimony and Formal Report for 2009 Legislative Session
As a member of the Vermont Yankee Public Oversight Panel, I spent almost eight months examining the Vermont Yankee Nuclear Power Plant and the legislatively ordered Comprehensive Vertical Audit. Panel submitted Act 189 Public Oversight Panel Report March 17, 2009 and oral testimony to a joint hearing of the Senate Finance and House Committee On Natural Resources And Energy March 19, 2009. (See: http://www.leg.state.vt.us/JFO/Vermont%20Yankee.htm)

Finestone v FPL (11/2003 to 12/2008) Federal Court
Plaintiffs' Expert Witness for Federal Court Case with Attorney Nancy LaVista, from the firm Lytal, Reiter, Fountain, Clark, Williams, West Palm Beach, FL. This case involved two plaintiffs in cancer cluster of 40 families alleging that illegal radiation releases from nearby nuclear power plant caused children's cancers. Production request, discovery review, preparation of deposition questions and attendance at Defendant's experts for deposition, preparation of expert witness testimony, preparation for Daubert Hearings, ongoing technical oversight, source term reconstruction and appeal to Circuit Court.

U.S. Nuclear Regulatory Commission Advisory Committee Reactor Safeguards (NRC-ACRS)
Expert Witness providing oral testimony regarding Millstone Point Unit 3 (MP3) Containment issues in hearings regarding the Application to Uprate Power at MP3 by Dominion Nuclear, Washington, and DC. (July 8-9, 2008).

Appointed by President Pro-Tem of Vermont Senate to Legislatively Authorized Nuclear Reliability Public Oversight Panel
To oversee Comprehensive Vertical Audit of Entergy Nuclear Vermont Yankee (Act 189) and testify to State Legislature during 2009 session regarding operational reliability of ENVY in relation to its 20-year license extension application. (July 2, 2008 to present).

U.S. Nuclear Regulatory Commission Atomic Safety and Licensing Board (NRC-ASLB)
Expert Witness providing testimony regarding *Pilgrim Watch's Petition for Contention 1 Underground Pipes* (April 10, 2008).

U.S. Nuclear Regulatory Commission Atomic Safety and Licensing Board (NRC-ASLB)
Expert Witness supporting *Connecticut Coalition Against Millstone In Its Petition For Leave To Intervene, Request For Hearing, And Contentions Against Dominion Nuclear Connecticut Inc.'s Millstone Power Station Unit 3 License Amendment Request For Stretch Power Uprate* (March 15, 2008).

U.S. Nuclear Regulatory Commission Atomic Safety and Licensing Board (NRC-ASLB)
Expert Witness supporting *Pilgrim Watch's Petition For Contention 1*: *specific to issues regarding the integrity of Pilgrim Nuclear Power Station's underground pipes and the ability of Pilgrim's Aging Management Program to determine their integrity*. (January 26, 2008).

Vermont State House – 2008 Legislative Session
- House Committee on Natural Resources and Energy – Comprehensive Vertical Audit: *Why NRC Recommends a Vertical Audit for Aging Plants Like Entergy Nuclear Vermont Yankee (ENVY)*
- House Committee on Commerce – Decommissioning Testimony

Vermont State Senate – 2008 Legislative Session
- Senate Finance – testimony regarding Entergy Nuclear Vermont Yankee Decommissioning Fund
- Senate Finance – testimony on the necessity for a Comprehensive Vertical Audit (CVA) of Entergy Nuclear Vermont Yankee
- House Committee on Natural Resources and Energy – testimony regarding the placement of high-level nuclear fuel on the banks of the Connecticut River in Vernon, VT

U.S. Nuclear Regulatory Commission Atomic Safety and Licensing Board (NRC-ASLB)
MOX Limited Appearance Statement to Judges Michael C. Farrar (Chairman), Lawrence G. McDade, and Nicholas G. Trikouros for the "Petitioners": Nuclear Watch South, the Blue Ridge Environmental Defense League, and Nuclear Information & Resource Service in support of *Contention 2: Accidental Release of Radionuclides, requesting a hearing concerning faulty*

accident consequence assessments made for the MOX plutonium fuel factory proposed for the Savannah River Site. (September 14, 2007).

Appeal to the Vermont Supreme Court (March 2006 to 2007)
Expert Witness Testimony in support of *New England Coalition's Appeal to the Vermont Supreme Court Concerning: Degraded Reliability at Entergy Nuclear Vermont Yankee as a Result of the Power Uprate*. New England Coalition represented by Attorney Ron Shems of Burlington, VT.

State of Vermont Environmental Court (Docket 89-4-06-vtec 2007)
Expert witness retained by New England Coalition to review Entergy and Vermont Yankee's analysis of alternative methods to reduce the heat discharged by Vermont Yankee into the Connecticut River. Provided Vermont's Environmental Court with analysis of alternative methods systematically applied throughout the nuclear industry to reduce the heat discharged by nuclear power plants into nearby bodies of water and avoid consumptive water use. This report included a review of the condenser and cooling tower modifications.

U.S. Senator Bernie Sanders and Congressman Peter Welch (2007)
Briefed Senator Sanders, Congressman Welch and their staff members regarding technical and engineering issues, reliability and aging management concerns, regulatory compliance, waste storage, and nuclear power reactor safety issues confronting the U.S. nuclear energy industry.

State of Vermont Legislative Testimony to Senate Finance Committee (2006)
Testimony to the Senate Finance Committee regarding Vermont Yankee decommissioning costs, reliability issues, design life of the plant, and emergency planning issues.

U.S. Nuclear Regulatory Commission Atomic Safety and Licensing Board (NRC-ASLB)
Expert witness retained by New England Coalition to provide Atomic Safety and Licensing Board with an independent analysis of the integrity of the Vermont Yankee Nuclear Power Plant condenser (2006).

U.S. Senators Jeffords and Leahy (2003 to 2005)
Provided the Senators and their staffs with periodic overview regarding technical, reliability, compliance, and safety issues at Entergy Nuclear Vermont Yankee (ENVY).

10CFR 2.206 filed with the Nuclear Regulatory Commission (July 2004)
Filed 10CFR 2.206 petition with NRC requesting confirmation of Vermont Yankee's compliance with General Design Criteria.

State of Vermont Public Service Board (April 2003 to May 2004)
Expert witness retained by New England Coalition to testify to the Public Service Board on the reliability, safety, technical, and financial ramifications of a proposed increase in power (called an uprate) to 120% at Entergy's 31-year-old Vermont Yankee Nuclear Power Plant.

International Nuclear Safety Testimony
Worked for ten days with the President of the Czech Republic (Vaclav Havel) and the Czech Parliament on their energy policy for the 21st century.

Nuclear Regulatory Commission (NRC) Inspector General (IG)
Assisted the NRC Inspector General in investigating illegal gratuities paid to NRC Officials by Nuclear Energy Services (NES) Corporate Officers. In a second investigation, assisted the Inspector General in showing that material false statements (lies) by NES corporate president caused the NRC to overlook important violations by this licensee.

State of Connecticut Legislature
Assisted in the creation of State of Connecticut Whistleblower Protection legal statutes.

Federal Congressional Testimony
Publicly recognized by NRC Chairman, Ivan Selin, in May 1993 in his comments to U.S. Senate, "It is true...everything Mr. Gundersen said was absolutely right; he performed quite a service." Commended by U.S. Senator John Glenn for public testimony to Senator Glenn's NRC Oversight Committee.

PennCentral Litigation
Evaluated NRC license violations and material false statements made by management of this nuclear engineering and materials licensee.

Three Mile Island Litigation
Evaluated unmonitored releases to the environment after accident, including containment breach, letdown system and blowout. Proved releases were 15 times higher than government estimate and subsequent government report.

Western Atlas Litigation
Evaluated neutron exposure to employees and license violations at this nuclear materials licensee.

Commonwealth Edison
In depth review and analysis for Commonwealth Edison to analyze the efficiency and effectiveness of all Commonwealth Edison engineering organizations, which support the operation of all of its nuclear power plants.

Peach Bottom Reactor Litigation
Evaluated extended 28-month outage caused by management breakdown and deteriorating condition of plant.

***Special Remediation Expertise*:**
Director of Engineering, Vice President of Site Engineering, and the Senior Vice President of Engineering at Nuclear Energy Services (NES) Division of Penn Central Corporation (PCC)

- NES was a nuclear licensee that specialized in dismantlement and remediation of nuclear facilities and nuclear sites. Member of the radiation safety committee for this licensee.

- Department of Energy chose NES to write *DOE Decommissioning Handbook* because NES had a unique breadth and depth of nuclear engineers and nuclear physicists on staff.
- Personally wrote the "Small Bore Piping" chapter of the DOE's first edition Decommissioning Handbook, personnel on my staff authored other sections, and I reviewed the entire Decommissioning Handbook.
- Served on the Connecticut Low Level Radioactive Waste Advisory Committee for 10 years from its inception.
- Managed groups performing analyses on dozens of dismantlement sites to thoroughly remove radioactive material from nuclear plants and their surrounding environment.
- Managed groups assisting in decommissioning the Shippingport nuclear power reactor. Shippingport was the first large nuclear power plant ever decommissioned. The decommissioning of Shippingport included remediation of the site after decommissioning.
- Managed groups conducting site characterizations (preliminary radiation surveys prior to commencement of removal of radiation) at the radioactively contaminated West Valley site in upstate New York.
- Personnel reporting to me assessed dismantlement of the Princeton Avenue Plutonium Lab in New Brunswick, NJ. The lab's dismantlement assessment was stopped when we uncovered extremely toxic and carcinogenic underground radioactive contamination.
- Personnel reporting to me worked on decontaminating radioactive thorium at the Cleveland Avenue nuclear licensee in Ohio. The thorium had been used as an alloy in turbine blades. During that project, previously undetected extremely toxic and carcinogenic radioactive contamination was discovered below ground after an aboveground gamma survey had purported that no residual radiation remained on site.

Additional Education

Basic Mediation Certificate — Champlain College, Woodbury Institute
28-hour Basic Mediation Training September 2010

Teaching and Academic Administration Experience

Rensselaer Polytechnic Institute (RPI) – Advanced Nuclear Reactor Physics Lab
Community College of Vermont – Mathematics Professor – 2007 to present
Burlington High School
Mathematics Teacher – 2001 to June 2008
Physics Teacher – 2004 to 2006
The Marvelwood School – 1996 to 2000
Awarded Teacher of the Year – June 2000
Chairperson: Physics and Math Department
Mathematics and Physics Teacher, Faculty Council Member
Director of Marvelwood Residential Summer School
Director of Residential Life
The Forman School & St. Margaret's School – 1993 to 1995
Physics and Mathematics Teacher, Tennis Coach, Residential Living Faculty Member

Nuclear Engineering Work Experience 1970 to Present

Expert witness testimony in nuclear litigation and administrative hearings in federal, international, and state court and to Nuclear Regulatory Commission, including but not limited to: Three Mile Island, US Federal Court, US NRC, NRC ASLB & ACRS, Vermont State Legislature, Vermont State Public Service Board, Florida Public Service Board, Czech Senate, Connecticut State Legislature, Western Atlas Nuclear Litigation, U.S. Senate Nuclear Safety Hearings, Peach Bottom Nuclear Power Plant Litigation, and Office of the Inspector General NRC.

Nuclear Engineering, Safety, and Reliability Expert Witness 1990 to Present

- Fairewinds Associates, Inc – Chief Engineer, 2005 to Present
- Arnold Gundersen, Nuclear Safety Consultant and Energy Advisor, 1995 to 2005
- GMA – 1990 to 1995, including expert witness testimony regarding the accident at Three Mile Island.

Nuclear Energy Services, Division of PCC (Fortune 500 company) 1979 to 1990

Corporate Officer and Senior Vice President - Technical Services

Responsible for overall performance of the company's Inservice Inspection (ASME XI), Quality Assurance (SNTC 1A), and Staff Augmentation Business Units – up to 300 employees at various nuclear sites.

Senior Vice President of Engineering

Responsible for the overall performance of the company's Site Engineering, Boston Design Engineering and Engineered Products Business Units. Integrated the Danbury based, Boston based and site engineering functions to provide products such as fuel racks, nozzle dams, and transfer mechanisms and services such as materials management and procedure development.

Vice President of Engineering Services

Responsible for the overall performance of the company's field engineering, operations engineering, and engineered products services. Integrated the Danbury-based and field-based engineering functions to provide numerous products and services required by nuclear utilities, including patents for engineered products.

General Manager of Field Engineering

Managed and directed NES' multi-disciplined field engineering staff on location at various nuclear plant sites. Site activities included structural analysis, procedure development, technical specifications and training. Have personally applied for and received one patent.

Director of General Engineering

Managed and directed the Danbury based engineering staff. Staff disciplines included structural, nuclear, mechanical and systems engineering. Responsible for assignment of personnel as well as scheduling, cost performance, and technical assessment by staff on assigned projects. This staff provided major engineering support to the company's nuclear waste management, spent fuel storage racks, and engineering consulting programs.

New York State Electric and Gas Corporation (NYSE&G) — 1976 to 1979

Reliability Engineering Supervisor

Organized and supervised reliability engineers to upgrade performance levels on seven operating coal units and one that was under construction. Applied analytical techniques and good engineering judgments to improve capacity factors by reducing mean time to repair and by increasing mean time between failures.

Lead Power Systems Engineer

Supervised the preparation of proposals, bid evaluation, negotiation and administration of contracts for two 1300 MW NSSS Units including nuclear fuel, and solid-state control rooms. Represented corporation at numerous public forums including TV and radio on sensitive utility issues. Responsible for all nuclear and BOP portions of a PSAR, Environmental Report, and Early Site Review.

Northeast Utilities Service Corporation (NU) — 1972 to 1976

Engineer

Nuclear Engineer assigned to Millstone Unit 2 during start-up phase. Lead the high velocity flush and chemical cleaning of condensate and feedwater systems and obtained discharge permit for chemicals. Developed Quality Assurance Category 1 Material, Equipment and Parts List. Modified fuel pool cooling system at Connecticut Yankee, steam generator blowdown system and diesel generator lube oil system for Millstone. Evaluated Technical Specification Change Requests.

Associate Engineer

Nuclear Engineer assigned to Montague Units 1 & 2. Interface Engineer with NSSS vendor, performed containment leak rate analysis, assisted in preparation of PSAR and performed radiological health analysis of plant. Performed environmental radiation survey of Connecticut Yankee. Performed chloride intrusion transient analysis for Millstone Unit 1 feedwater system. Prepared Millstone Unit 1 off-gas modification licensing document and Environmental Report Amendments 1 & 2.

Rensselaer Polytechnic Institute (RPI) — 1971 to 1972

Critical Facility Reactor Operator, Instructor

Licensed AEC Reactor Operator instructing students and utility reactor operator trainees in start-up through full power operation of a reactor.

Public Service Electric and Gas (PSE&G) — 1970

Assistant Engineer

Performed shielding design of radwaste and auxiliary buildings for Newbold Island Units 1 & 2, including development of computer codes.

Public Service, Cultural, and Community Activities

2005 to Present – Public presentations and panel discussions on nuclear safety and reliability at University of Vermont, Vermont Law School, NRC hearings, Town and City Select Boards, Legal Panels, Local Schools, Television, and Radio.

2007-2008 – Created Concept of Solar Panels on Burlington High School; worked with Burlington Electric Department and Burlington Board of Education Technology Committee on Grant for installation of solar collectors for Burlington Electric peak summer use

Vermont State Legislature – Public Testimony to Legislative Committees

Certified Foster Parent State of Vermont – 2004 to 2007

Mentoring former students – 2000 to present – college application and employment application questions and encouragement

Tutoring Refugee Students – 2002 to 2006 – Lost Boys of the Sudan and others from educationally disadvantaged immigrant groups

Designed and Taught Special High School Math Course for ESOL Students – 2007 to 2008

Featured Nuclear Safety and Reliability Expert (1990 to present) for Television, Newspaper, Radio, & Internet – Including, and not limited to: CNN (Earth Matters), NECN, WPTZ VT, WTNH, VPTV, WCAX, Cable Channel 17, The Crusaders, Front Page, Mark Johnson Show, Steve West Show, Anthony Polina Show, WKVT, WDEV, WVPR, WZBG CT, Seven Days, AP News Service, Houston Chronicle, Christian Science Monitor, New York Times, Brattleboro Reformer, Rutland Herald, Times-Argus, Burlington Free Press, Litchfield County Times, The News Times, The New Milford Times, Hartford Current, New London Day, evacuationplans.org, Vermont Daily Briefing, Green Mountain Daily, and numerous other national and international blogs

NNSN – National Nuclear Safety Network, Founding Advisory Board Member, meetings with and testimony to the Nuclear Regulatory Commission Inspector General (NRC IG)

Berkshire School Parents Association, Co-Founder

Berkshire School Annual Appeal, Co-Chair

Sunday School Teacher, Christ Church, Roxbury, CT

Washington Montessori School Parents Association Member

Marriage Encounter National Presenting Team with wife Margaret
Provided weekend communication and dialogue workshops weekend retreats/seminars
Connecticut Marriage Encounter Administrative Team – 5 years

Northeast Utilities Representative Conducting Public Lectures on Nuclear Safety Issues

End

NRC FORM 757
NRC MD 10.158
(9-2008)

U.S. NUCLEAR REGULATORY COMMISSION

NON-CONCURRENCE PROCESS

Attachment 2 Fairewinds SACE re: TVA Bellefonte Unit 1

SECTION A - TO BE COMPLETED BY NON-CONCURRING INDIVIDUAL

TITLE OF DOCUMENT	ADAMS ACCESSION NO.
STAFF RECOMMENDATION RELATED TO REINSTATEMENT OF THE CONSTRUCTION...	ML083230895
DOCUMENT SPONSOR: R. W. Borchardt	SPONSOR PHONE NO.: 301-415-1700
NAME OF NON-CONCURRING INDIVIDUAL: Joseph F. Williams	PHONE NO.: 301-415-1470

☐ DOCUMENT AUTHOR ☐ DOCUMENT CONTRIBUTOR ☐ DOCUMENT REVIEWER ☑ ON CONCURRENCE

TITLE	ORGANIZATION
Senior Project Manager	NRR/DPR

REASONS FOR NON-CONCURRENCE

I do not concur in the Commission paper which forwards the staff's position regarding the licensing process to be followed to review the Tennessee Valley Authority's request to reinstate the construction permits for Bellfonte Nuclear Plant, Units 1 and 2.

A discussion of my dissenting view is provided for use as an attachment to the Commission paper. Detailed comments on the staff's paper are also provided based on a version of the paper provided to me on November 19, 2008.

☐ CONTINUED IN SECTION D

SIGNATURE	DATE
Joseph F. Williams	11/20/08

SUBMIT FORM TO DOCUMENT SPONSOR AND COPY TO YOUR IMMEDIATE SUPERVISOR

NON-CONCURRENCE BY JOSEPH WILLIAMS REGARDING STAFF APPROACH

TENNESSEE VALLEY AUTHORITY REQUEST TO REINSTATE CONSTRUCTION PERMITS

BELLEFONTE NUCLEAR PLANT, UNITS 1 AND 2

This attachment describes the basis for my non-concurrence on the staff's position regarding the August 26, 2008, request by the Tennessee Valley Authority (TVA) to reinstate the construction permits for the Bellefonte Nuclear Plant (BLN), Units 1 and 2. In raising these issues, an opinion is not expressed about whether or not construction permits can ultimately be granted or operating licenses eventually issued for these facilities. Rather, the issues are raised to ensure that the process NRC uses to take its actions is consistent with NRC regulations, policy, and strategic goals.

The issues discussed below do not reflect a comprehensive review of TVA's request by the NRC staff. It is proposed that such a review reflecting the full range of the staff's technical and regulatory expertise be conducted, as it is expected that effort could identify additional issues for consideration. By taking the time necessary to ensure a robust licensing process is identified and followed, and all issues are identified and resolved at appropriate points in that process, the NRC can ensure it is meeting its regulatory obligations.

SUMMARY

TVA's August 26, 2008, request to reinstate the BLN Unit 1 and 2 construction permits is an unprecedented regulatory action which raises Commission policy, safety and environmental issues, and questions about the regulatory process which will be used for evaluation of TVA's request. This attachment identifies issues and describes options for their resolution. The assessment of the options is guided by NRC's strategic goals for safety, environmental protection, and security; by the implementing goal of openness; and by review of existing Commission policies.

To issue construction permits, the NRC must confirm that the prospective licensee is capable of fulfilling all applicable regulatory requirements. TVA does not presently hold construction permits for BLN Units 1 and 2, since those permits were terminated at TVA's request in 2006. Therefore, the NRC must issue permits to fulfill TVA's request, which requires confirmation that all regulatory requirements are satisfied.

The most robust option identified for review of TVA's request is the 10 CFR Part 50 construction permit process, including a safety evaluation based on the applicant's Preliminary Safety Analysis Report (PSAR), an environmental impact statement (EIS), review by the Advisory Committee on Reactor Safeguards (ACRS), and a mandatory hearing. This process ensures a thorough review of all safety and environmental issues in accordance with clearly established regulatory standards, along with appropriate opportunities for public participation.

The staff may also be able to take advantage of previously-completed safety and environmental reviews, including the use of exemptions from the requirements in 10 CFR Part 50 and 10 CFR Part 51, as appropriate. Such an option should be thoroughly explored, as it may be the most efficient way to ensure all safety and environmental issues are addressed, while providing adequate opportunities for public participation.

Potential outcomes in either case range from denial of TVA's request to acceptance and reissuance of the permits.

To determine details of a regulatory process to reissue the construction permits, TVA and NRC can conduct a pre-application review. This review would be open to public scrutiny and input.

Reinstating the BLN Unit 1 and 2 construction permits using another, ad hoc, process is inconsistent with NRC's regulations, the agency's goals for assurance of safety and protection of the environment, and the agency's goal for openness. A different process does not ensure all safety and environmental issues are identified or resolved. In such a case, the NRC must also anticipate that public stakeholders will not understand the process being used, or what opportunities they have to provide comment or otherwise participate. It is also possible that the NRC could be perceived as taking the action in such a way that deliberately excludes or unduly limits public involvement.

This discussion includes information originally provided in memoranda dated September 4, 2008, (ADAMS accession number ML082470666) and October 27, 2008, (ADAMS accession number ML082690172). Many of these topics were also identified in informal and electronic mail communications during the period from May-August, 2008.

CURRENT LICENSE STATUS

The construction permits for BLN Units 1 and 2 were terminated on September 14, 2006, in response to TVA's request of April 6, 2006. Therefore, TVA does not currently hold construction permits for these units.

On October 30, 2007, TVA applied for combined licenses under 10 CFR Part 52 for two AP 1000 reactors, designated as BLN Units 3 and 4. The AP 1000 reactors are proposed for the same site as BLN Units 1 and 2, and make use of structures, systems, and components already installed for those units. Safety and environmental review of this application is being conducted by the Office of New Reactors.

LICENSING REVIEW STANDARDS AND COMMISSION POLICY

To reinstate the BLN construction permits, TVA must demonstrate that it will be in compliance with all regulatory requirements applicable to the permits at the time they are restored. TVA agrees with this expectation, stating in its August 26, 2008, letter that "Should the Construction Permits be reinstated, TVA will once again comply with all of the terms and conditions of the permits as required by NRC's regulations, including NRC's Deferred Plant Policy." If this is not TVA's intent, then clarification should be provided so that NRC has a clear understanding of TVA's point of view.

The Commission Policy Statement on Deferred Plants (52 FR 38077, October 14, 1987) provides guidance in regard to the NRC's review responsibilities when a plant is placed in deferred status. Section III.A.3 of the Policy Statement, "Maintenance, Preservation, and Documentation of Equipment," describes "requirements for verification of construction status, retention and protection of records, and maintenance and preservation of equipment and materials." This section anticipates that an existing permit holder (TVA does not hold permits for BLN Units 1 and 2) who is placing a project in deferred status will provide changes to the quality assurance program, and sets an expectation that the NRC will review, approve, and inspect this program.

NRC review of TVA's request would verify that all requirements have been identified, and that TVA has adequately demonstrated its ability to comply with those requirements. Consistent with the Policy Statement, NRC's review should include inspection of the tools TVA plans to use for this purpose, such as implementation of the Quality Assurance plan and maintenance

procedures. The staff should also review changes to the facility since the permits were terminated to determine their effect on any programs or procedures.

However, TVA's August 26, 2008, request is not consistent with the Commission Policy Statement on Deferred Plants, so the NRC staff needs to determine what additional requirements and standards should be applied in this case. Section III.B.2(b) of the Policy Statement addresses terminated plants, stating that if the licensee of a terminated plant wishes to maintain the option of plant reactivation, it should:

> Develop and implement a preservation and maintenance program for structures, systems, and components important to safety, as well as documentation substantially in accordance with section III.A.3 of this policy statement. If these provisions are implemented **throughout** [emphasis added] the period of termination, a terminated plant may be reactivated under the same provisions as a deferred plant.

Contrary to the Policy Statement expectations, TVA has not continued to implement the various requirements described in Section III.A.3 of the Policy Statement. Instead, TVA's August 26, 2008, letter describes "investment recovery" activities, including removal of steam generator tubing and sections of reactor coolant system piping. TVA has subsequently taken action "to inspect, clean, cap off, and stabilize those systems." These activities were not conducted in accordance with NRC-approved programs, and were not subject to NRC inspection. Further, TVA states that it is in the process of performing repairs to the site to eliminate water intrusion, indicating the facility has not been maintained in a manner that would prevent serious degradation. It appears that the activities TVA describes are within the scope of the definition of construction as given in 10 CFR 50.2,[1] but have not been conducted in accordance with NRC-approved programs. These activities are not consistent with section III.B.2(b) of the Policy Statement, and need to be evaluated before the construction permits can be reissued.

Anyone that holds a construction permit must comply with, amongst other things, 10 CFR 50.55(e). This regulation describes requirements for procedures to identification, evaluation, and reporting of construction defects. The regulation also includes requirements for reporting of "significant breakdown in any portion of the quality assurance program...which could have produced a defect in a basic component." Such quality assurance issues "are reportable whether or not the breakdown actually resulted in a defect in a design approved and released for construction, installation, or manufacture."

Also note that the applicability of the Policy Statement is limited to licensees, and that TVA does not presently hold NRC licenses for activities at Bellefonte Units 1 and 2. The staff has apparently interpreted "terminated plant" as equivalent to a terminated construction permit. While the text discusses how a licensee can reactivate a project, an entity that has had its permits terminated is no longer a licensee, so this portion of the Policy Statement is not clearly applicable to TVA's request.

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[1] The 10 CFR 50.2 definition reads: "*Construction or constructing* means, for the purposes of § 50.55(e), the analysis, design, manufacture, fabrication, quality assurance, placement, erection, installation, modification, inspection, or testing of a facility or activity which is subject to the regulations in this part and consulting services related to the facility or activity that are safety related."

Based on the discussion above, TVA has not conformed to the expectations described in the Commission Policy Statement on Deferred Plants, and has not clearly demonstrated how the Policy Statement is applicable to the specific circumstances for BLN Units 1 and 2.

Given that TVA has allowed the facility to degrade, has conducted other activities affecting the condition of the facility, and is obligated to demonstrate how it will comply with regulatory requirements, TVA should fully describe the changes to the facility since the construction permits were terminated, including TVA's investment recovery actions, stabilization efforts, degradation of the facility, and any other changes to the facility. It also appears that these changes are reportable under 10 CFR 50.55(e), and that TVA is obligated to complete an evaluation of these deviations from the approved design. Therefore, TVA must fully document how it will ensure compliance with all applicable regulatory requirements, if and when the construction permits are reissued. A commitment to document these issues in a corrective action program, as proposed in TVA's August 26, 2008, letter, is not sufficient, because it defers demonstration of compliance to some later date, and does not appear to be in compliance with 10 CFR 50.55(e).

SAFETY ISSUES

In issuing construction permits, the NRC is making a safety decision regarding the suitability of the site and adequacy of the proposed design, and the prospective permit holder's ability to conduct construction in a high quality manner. The NRC's findings are documented in a safety evaluation. Several safety issues have already been identified which need to be addressed before the NRC reissues the BLN Unit 1 and 2 construction permits, and are discussed below. Additional issues may be identified by a comprehensive review.

Indeterminate Site Flooding Vulnerability

One of the issues addressed in the safety evaluation for a construction permit is ability of the reactor design to withstand events such as floods or earthquakes, in accordance with 10 CFR 100.20 and 10 CFR Part 50 Appendix A, General Design Criterion 2. In the course of the Bellefonte Units 3 and 4 combined license review, the NRC staff has identified errors and quality control problems with the Tennessee Valley Authority's evaluation of the Bellefonte site hydrology. The NRC staff is concerned that the site may be vulnerable to flood levels higher than calculated by TVA, so the acceptability of the site and the adequacy of design features protecting the site have not yet been determined.

In an October 22, 2008, letter (ADAMS accession number ML082980029), TVA requested that NRC reschedule the BLN Unit 3 and 4 hydrology review to the first quarter of Fiscal Year 2010. TVA's letter describes an extensive effort to complete its evaluation of this issue for the Bellefonte site, including expenditure of approximately 50 staff years of effort. On October 29, 2008, (ADAMS accession number ML082810431) NRC replied to TVA's letter, indicating that the hydrology review would resume after TVA completes the actions described in its letter, and the NRC staff conducts a quality assurance review to verify that the hydrology analyses meet 10 CFR Part 50 Appendix B quality assurance requirements.

The BLN Units 1 and 2 sites are located very close to the proposed sites for Units 3 and 4, so the flooding potential for these units is probably similar. Therefore, the existing flooding analysis reviewed as part of the construction permit review of the Preliminary Safety Analysis Report in the early 1970s and the operating license application may not be conservative, which could lead to the need for design changes to mitigate the effects of higher flood levels.

Given that the BLN Unit 3 and 4 hydrology review calls into question the acceptability of the Bellefonte site, NRC should not reissue construction permits for BLN Units 1 and 2 until it confirms the site meets all applicable requirements. Clear definition of the results of the hydrology analysis and the impact on the BLN Unit 1 and 2 design should be understood by TVA before it makes a decision on completion of those reactors.

Undefined Quality Assurance Program

As discussed above, TVA must demonstrate it will be in compliance with all regulatory requirements at the time, if and when, the BLN Unit 1 and 2 construction permits are restored. The Commission Policy Statement on Deferred Plants includes an expectation that a permit holder submit changes to its quality assurance program, and that the NRC will review and approve this program. The Policy Statement describes expectations for content of the quality assurance program and NRC review as follows:

> The program should include a description of the planned activities; organizational responsibilities and procedural controls that apply to the verification of construction status, maintenance, and preservation of equipment and materials; retention and protection of quality assurance records. The program will be reviewed and approved by the NRC in accordance with 10 CFR 50.54(e)(3), 10 CFR Part 50, Appendix B, and inspection procedures, as appropriate.

Contrary to the Policy Statement expectations, TVA has not provided the information described. Rather, the August 26, 2008, letter states that "Upon reinstatement of the permits, a deferred plant equipment plan, as described in Appendix F of Revisions 13 through 16 of TVA's Nuclear Quality Assurance Plan, would be reinstituted for Bellefonte Units 1 and 2." However, TVA does not provide any justification that previous quality assurance plan revisions are adequate to address the specific circumstances for BLN Units 1 and 2. Furthermore, since TVA cites four different revisions of its quality assurance plan, it is not clear exactly what aspects of which plans TVA plans to implement. It is also unclear how TVA fulfills the various specific expectations described in the Policy Statement, or how TVA plans to address activities since the construction permits were terminated. Therefore, TVA has not provided information that demonstrates conformance with the Commission Policy Statement on Deferred Plants, or regulatory requirements for quality assurance.

Steam Generator Performance During Large-Break Loss of Coolant Accidents

BLN Units 1 and 2 are Babcock & Wilcox pressurized water reactors with once-through steam generators. The NRC staff has identified an issue with the performance of the tubes in this steam generator design during certain large-break loss of coolant accidents. The thermal stresses on the steam generator tubes during these design basis accidents may result in tube failures if there are large enough flaws in the tube, which is not in accordance with 10 CFR Part 50 Appendix A General Design Criterion 31. Tube leakage or failure can also create a release path that may result in offsite dose consequences in excess of those permitted by 10 CFR 100.

TVA's August 26, 2008, letter states that the tubes have been removed from the BLN Unit 1 and 2 steam generators. The letter also states that "Systems and components (equipment) that may have been affected in the course of investment recovery activities [including steam generator tube removal] would likewise be entered into TVA's Corrective Action Program and prohibited from being placed in service without a full evaluation, or having been restored or replaced as well."

Operating experience has improved the NRC's understanding of how nuclear reactor designs perform in real-world conditions. This improved understanding is reflected in changes in the regulations and staff guidance, such as NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants."

The NRC needs to define the regulatory standard that will be applied before TVA decides whether to complete BLN Units 1 and 2, so that TVA has adequate information to properly define the scope of corrective action and make an informed decision regarding completion of the projects. For example, the NRC staff may expect TVA to use different materials in the replacement steam generator tubes.

This situation is similar to pre-application discussions and reviews, where the NRC and prospective applicants discuss a proposed design and reach a common understanding of regulatory expectations at the earliest practical time to facilitate resolution in the final design. Consistent with this approach, the regulatory standard which will be applied to the BLN steam generators should be established before the construction permits are reissued, so that appropriate corrective action can be defined. The specific approach used by TVA to address that standard can be reviewed as part of the operating license review.

Definition of Inspection Criteria

Before reissuing the BLN Unit 1 and 2 construction permits, the staff needs to determine what inspection criteria and procedures are needed to verify TVA's compliance with regulatory requirements, with consideration of the unique circumstances in this case.

The Commission Policy Statement on Deferred Plants sets an expectation that the NRC staff will inspect the permit holder's quality assurance and maintenance activities, including measures taken for preservation of equipment and materials, before the facility is placed in deferred status. Inspection procedures controlling the staff's activities need to describe how the effectiveness of the permit holder's activities will be assessed.

The circumstances for Bellefonte Units 1 and 2 are unique; no other licensee has ever given up its construction permits, partially dismantled the plant and allowed the facility to degrade, then requested that the permits be reissued. The NRC must evaluate TVA's activities since the permits were terminated to determine their effect on the safety of structures, systems, and components before the permits are reissued. This evaluation must be completed so that the criteria for an effective inspection program can be determined and procedures developed so inspectors have the necessary tools in place for their work. The evaluation will also inform TVA and other stakeholders of the regulatory standard which must be met.

Deferring this evaluation and procedure development is not appropriate, because it creates the possibility that TVA could conduct work that is later determined to be inadequate, and does not provide adequate tools to support NRC inspections in a timely manner. Such an outcome can lead to unnecessary expenditure of resources by both TVA and NRC. Postponing this work is also inconsistent with the expectations of the Commission Policy Statement on Deferred Plants.

Interaction Between Units

The Commission Policy Statement on Deferred Plants did not anticipate a situation such as the interaction between TVA's request to reinstate the construction permits for BLN Units 1 and 2 and the ongoing review of TVA's combined license submittal for BLN Units 3 and 4. TVA's August 26, 2008, letter states that "Neither TVA's request nor NRC's approval of TVA's request to reinstate the construction permits for Bellefonte Units 1 and 2 affects, in any way, TVA's

ability or current plans to pursue a Combined License for Bellefonte Units 3 and 4 under 10 CFR Part 52."

However, it is my understanding that staff of the Office of New Reactors (NRO) believes TVA's request to reinstate the BLN Unit 1 and 2 construction permits affects the BLN Unit 3 and 4 combined license review. For example, TVA has not identified completing BLN Units 1 and 2 as a possible alternative in the environmental report submitted as part of the combined license application. The BLN Unit 3 and 4 application also assumes that those units will use structures, systems, and components (SSCs), including river intake structure, switchyard, and cooling towers, originally installed for Units 1 and 2. It appears that these SSCs could not support operation of four reactors. For example, the cooling towers can each only support operation of a single unit. In fact, the staff has information that suggests that if all four reactors are completed, it is likely that Units 3 and 4 would need to be relocated on the site.

The BLN Unit 3 and 4 application also does not discuss any potential safety interactions between the AP 1000 units and Units 1 and 2, such as effects of accidents at one unit on the other units, or the potential hazards of construction on any units that may be operating, as required by 10 CFR 52.79(a)(31) for the combined license applications. Depending on the decision made regarding the applicability of new regulations to BLN Units 1 and 2, it may be determined that it is appropriate to apply similar requirements in accordance with 10 CFR 50.34(a)(11).

Given the reliance of BLN Units 3 and 4 on SSCs originally installed for Units 1 and 2, and the need to address how accidents at one unit may affect the other units, it appears that conditions may need to be placed on the BLN Unit 1 and 2 construction permits and/or the Unit 3 and 4 combined licenses to ensure whatever plant configuration TVA may eventually build meets all regulatory standards.

There is also public confusion regarding the effect of reinstatement of the construction permits. For example, a September 1, 2008, editorial in the NE Mississippi Daily Journal states that TVA's request is ". . . creating the possibility of four additional units in the nuclear grid," and that "Four reactors at Bellefonte, each producing about 1,100 or more megawatts, could power millions of homes and businesses." Such statements clearly show that otherwise well-informed members of the public are likely to misunderstand the effect of any NRC action on TVA's request.

Before action is taken on TVA's request to reinstate the BLN Unit 1 and 2 construction permits, TVA should be asked to clarify the relationship between the two sets of projects at this site. NRC should use that information to determine if any restrictions should be placed on the permits and the combined licenses. NRC should also communicate clearly to stakeholders regarding the regulatory status of the two sets of projects.

Evaluation Required for Safety Issues

In informal discussions of issues such as flooding or quality assurance, it has been proposed that a decision on these issues can be deferred to a later date, such as during the operating license review, if and when TVA decides to complete BLN Units 1 and 2. Such deferral is not appropriate. Some issues, like quality assurance and inspection criteria, have an immediate effect once the permits are in place, so NRC decisions on these matters are necessary before permits are issued. Further, issuance of construction permits is, itself, a safety decision by the NRC. Such safety decisions are governed by NRC's regulations and guidance, which require evaluation of safety issues as part of a construction permit review, and cannot be deferred.

Applicable NRC requirements include 10 CFR 50.35, "Issuance of construction permits," which states, in part that "...the Commission may issue a construction permit if the Commission finds that . . . the proposed facility can be constructed and operated at the proposed location without undue risk to the health and safety of the public." Per this regulation, the NRC is making a safety decision regarding site suitability when construction permits are issued. Therefore, issues of site safety cannot be deferred to a later date.

Applicable regulations also include 10 CFR 50.40, "Common standards," which states:

> In determining that a construction permit or operating license in this part, or early site permit, combined license, or manufacturing license in part 52 of this chapter will be issued to an applicant, the Commission will be guided by the following considerations:
>
> (a) Except for an early site permit or manufacturing license, **the processes to be performed, the operating procedures, the facility and equipment, the use of the facility**, and other technical specifications, or the proposals, in regard to any of the foregoing collectively provide reasonable assurance that the applicant will comply with the regulations in this chapter, including the regulations in part 20 of this chapter, and that the health and safety of the public will not be endangered.
>
> (b) **The applicant for a construction permit, operating license, combined license, or manufacturing license is technically and financially qualified to engage in the proposed activities** in accordance with the regulations in this chapter. However, no consideration of financial qualification is necessary for an electric utility applicant for an operating license for a utilization facility of the type described in § 50.21(b) or § 50.22 or for an applicant for a manufacturing license.
>
> (c) **The issuance of a construction permit, operating license, early site permit, combined license, or manufacturing license to the applicant will not, in the opinion of the Commission, be inimical to the common defense and security or to the health and safety of the public.**
>
> (d) **Any applicable requirements of subpart A of 10 CFR part 51 have been satisfied. [emphasis added to pertinent text]**

The regulations described in 10 CFR 50.40 clearly demonstrate that the staff is expected to assess the applicant's capability to fulfill regulatory requirements before a construction permit is issued. However TVA has not described and the staff has not reviewed any substantial technical, financial, or environmental information which would satisfy these requirements.

TVA's August 26, 2008, letter did not identify a requested timeframe for an NRC decision on its request to reinstate the construction permits, so there does not appear to be any external factors that would limit the time required for careful consideration of the safety issues affecting this decision. In contrast, no clear benefit to deferring the decision in order to expedite reissuing the permits has been identified.

Construction permits should not be issued for Bellefonte Units 1 and 2 until after the NRC staff has reviewed the safety issues described above. The staff should conduct a thorough review to determine if any other safety issues may affect the suitability of the site and for the reactor design proposed by TVA, along with TVA's ability to safely maintain the site in deferred status, including its ability to comply with all applicable regulatory requirements.

ENVIRONMENTAL IMPACT STATEMENT

Reissuance of the BLN Unit 1 and 2 construction permits will also require environmental review. NRC regulations in 10 CFR Part 51 describe requirements for such reviews. For example, 10 CFR 51.20(b)(1) states that an EIS or supplement is required for "Issuance of a limited work authorization or a **permit to construct** [emphasis added] a nuclear power reactor, testing facility, or fuel reprocessing plant under part 50 of this chapter, or issuance of an early site permit under part 52 of this chapter." Presently, TVA does not hold permits for BLN Units 1 and 2. If NRC reissues the permits, an EIS appears to be required per this regulation before those permits could be issued to TVA.

The existing environmental review for BLN Units 1 and 2 does not include the possible alternative of completing advanced reactors of a different design; the AP 1000 and other designs currently being considered for deployment did not exist at the time that evaluation was completed. As stated in the August 26, 2008, letter, TVA has also conducted activities at the site, such dismantling some components and site structures, which may not be within the scope of the environmental review NRC completed for the construction permit. The existing environmental review was completed in the early 1970s, so it does not reflect any changes to the site environment over the past 30+ years. Therefore, reinstatement of the BLN Unit 1 and 2 construction permits as they previously existed would not reflect current information pertinent to the environment on or around the site. A similar issue has arisen in combined license applications under 10 CFR Part 52, where combined license applicants must provide any "new or significant information" pertinent to the environmental review even if an early site permit has been issued, in accordance with 10 CFR 51.50(c)(1)(iii).

APPLICABILITY OF NEW REQUIREMENTS AND GUIDANCE

Before the construction permits are reissued or new permits put in place, the NRC should determine what set of regulatory requirements and guidance should apply to the operating license review for BLN Units 1 and 2, given the current state of the facility. Clear definition of NRC's position on this issue can assist TVA in determining whether completing BLN Units 1 and 2 is viable before extensive resources are expended, and can inform other stakeholders regarding the licensing standard that will be applied to license the facility, should it be completed. TVA's August 26, 2008, request states that TVA will communicate with the NRC staff regarding the key regulatory assumptions for completing BLN Units 1 and 2 once the construction permits are reinstated. However, the regulatory requirements applicable to issuance of an operating license for these units should be resolved before the permits can be reissued.

In the case of Watts Bar Nuclear Plant (WBN) Unit 2, the Commission directed the staff to apply the WBN Unit 1 current licensing basis to WBN Unit 2; the Commission's decision was made prior to the decision by the TVA Board of Directors to resume construction. At least part of the basis for that exclusion is the fact that it will share a site with an operating reactor, so implementing some of the requirements was judged unduly burdensome because of the effect on the operating unit, or because applying the rule would create operational differences between the units.

Consistent with the Commission's direction, the NRC staff has explicitly excluded WBN Unit 2 from some pending regulatory requirements, such as the aircraft impact rule and certain changes to 10 CFR 73.55. Treating WBN Unit 2 in the same manner as WBN Unit 1 minimizes operational differences between the units, which can contribute to safety. However, such arguments are not relevant to BLN Units 1 and 2.

TVA's August 26, 2008, letter also describes degradation of plant equipment and structures, and TVA investment recovery actions. In order to place the facility in service, TVA would need to repair or replace these components in accordance with regulatory requirements.

The NRC considers cost and benefits when establishing a new regulatory requirement. A significant factor affecting cost is the effect on existing equipment; the cost of replacing or modifying this equipment can be sufficiently high that it exceeds the expected safety benefit. However, in the case of BLN Units 1 and 2, TVA has already identified that existing equipment and structures must be repaired or replaced, regardless, so the basis of the NRC staff's cost/benefit analysis for a new requirement based on a substantially complete or operating plant may not be valid in this case. Therefore, there may be cases where it is reasonable to apply current regulatory requirements to BLN Unit 1 and 2. For example, it seems reasonable that the replacement or repair of the BLN Unit 1 and 2 steam generators be conducted in accordance with current NRC regulatory requirements and guidance; this topic is discussed in additional detail below.

Because a clear understanding of the relevant regulatory requirements is an important consideration in any decision to complete the units, a decision on the applicability of new regulations and guidance cannot be deferred until after a decision on completion of the units is made. Therefore, if the construction permits for BLN Units 1 and 2 are reissued, it is recommended that TVA be informed at that time regarding the NRC's expectations regarding applicability of new requirements.

UNDESIRABLE PRECEDENTS

NRC's action on TVA's request can set undesirable precedents for other agency activities. The discussion here focuses on reactor projects, but could be pertinent to other agency licensing activities, as well.

Applicability to Other Terminated Projects

BLN Units 1 and 2 represent only two of dozens of terminated construction permits. NRC needs to consider what limits, if any, should be placed on any additional requests to reinstate a terminated construction permit or other power reactor project. Such a scenario is not speculative, since this issue has already arisen, as shown earlier this year, when the staff was asked to investigate how a permanently shutdown reactor could resume operation. It is possible that similar issues may arise in the future, either for revival of cancelled projects originally reviewed under 10 CFR Part 50, or for 10 CFR Part 52 projects that may be cancelled in the future.

TVA's August 26, 2008, request raises a question of the threshold that the staff would consider a request to reinstate a construction permit to be unviable. The letter describes dismantlement of some plant systems and equipment, but states that the affected equipment will be "...prohibited from being placed in service without a full evaluation, or having been restored or replaced as well." Conceptually, if NRC accepts TVA's assertion and reinstates the permits on the basis that removed or degraded equipment will be restored to its previous state, another utility could also request reinstatement for a facility more substantially or even completely dismantled, promising to similarly restore all equipment to its previous state. Reinstatement of a permit so a plant that has been completely dismantled can be restored is essentially equivalent to a completely new action by NRC.

Before reissuing the BLN Unit 1 and 2 construction permits, the NRC needs to carefully consider how that decision may be applied to other circumstances, and whether restrictions on

the application of that decision should be identified in advance. Following established regulatory processes is the best way to avoid unanticipated or inappropriate application of any precedent established by a different course of action.

Implications of Advanced Reactor Policy

On October 14, 2008, the Commission issued "Policy Statement on the Regulation of Advanced Reactors," (73 FR 60612), updating a Commission Policy originally issued on July 12, 1994 (59 FR 35461). Amongst other things, both Policy Statements described expectations that advanced reactors would provide enhanced margins of safety. When the first Policy Statement was issued, it was clearly anticipated that the next generation of reactors built would be such advanced reactors. BLN Units 1 and 2 represent circa 1970 reactor technology – they are not advanced reactors. If completed, BLN Units 1 and 2 would not fulfill the expectations of this Policy Statement, unless their design is modified, even though they would be completed contemporaneously with more modern advanced designs, and would operate for similar periods of time.

Before taking action on TVA's request, NRC should determine whether authorizing construction of a new power plant based on circa 1970 technology which is less robust than proposed advanced reactor projects is consistent with Commission policy.

OPTIONS FOR LICENSING APPROACH

Given the unique circumstances of this request, NRC should ensure all stakeholders are fully informed of the approach taken and their respective roles in the process, consistent with the NRC's openness goal.

The Office of Nuclear Reactor Regulation (NRR) should ensure that all internal NRC stakeholders are properly informed regarding plans for review of TVA's request. These stakeholders include the Office of New Reactors (NRO), the Office of Public Affairs (OPA), Region II, the Office of Nuclear Security and Incident Response (NSIR) and the Office of General Counsel (OGC). The Commissioners and senior agency management should be briefed on the staff's plans and activities.

If the NRC reviews TVA's request, one of the first actions that should be taken is issuance of a *Federal Register* notice providing a complete description of the process that will be followed, the regulatory standards that will be applied, and the opportunities for public participation and comment. In addition to describing the proposed licensing process or processes for reissuance of the construction permits, the notice should solicit public comments on the approach. Such comments are analogous to comments on proposed rules. A full description of the process to be used and consideration of stakeholder comments addresses one of the issues described above regarding the lack of a defined regulatory process and opportunities for public participation.

NRC should conduct a public outreach meeting in the vicinity of the Bellefonte site. The staff's presentation should include discussion of the licensing processes being followed and the relationship between the two sets of projects at the site, and should be coordinated between NRR, NRO, OGC, Region II, NSIR, and OPA. For many years, the agency has routinely conducted such meetings to inform the public around new reactor sites about NRC licensing processes, focusing on specific pending license requests, such as an early site permit, combined license, or, in the case of WBN Unit 2, a Part 50 operating license. Such meetings have already been held near the Bellefonte site; a meeting regarding NRC's review processes for the Bellefonte combined license application was held on September 11, 2007, and an

environmental scoping meeting was held on April 3, 2008. Those previous meetings did not address the possibility of completing BLN Units 1 and 2. A meeting regarding reissuance of the BLN Unit 1 and 2 construction permits can ensure interested members of the public have the information they need to understand TVA's plans for the site, and the NRC's licensing processes.

The NRC should also ensure that other governmental stakeholders are fully informed regarding the action being taken on TVA's request. Entities that should be notified include the State of Alabama, local governments in the vicinity of the Bellefonte site, and Federal agencies such as the Department of Energy, the Environmental Protection Agency, and the Department of Homeland Security (DHS). Local government officials, in particular, should clearly understand plans for the site and NRC's activities, so they can properly plan for the effects on the local population.

It should be noted that DHS is obligated to conduct a site vulnerability assessment in accordance with the Energy Policy Act of 2005 for any new reactor operating license. An assessment completed to support the BLN Unit 3 and 4 combined license review may not be fully applicable to BLN Units 1 and 2 due to differences in design and location on the Bellefonte site. It is also possible that the location of the AP 1000 reactors could change if TVA pursues completion of all four reactors; such a change could affect the DHS assessment. Therefore, clear communication with DHS is also necessary so they can fulfill their responsibilities.

TVA's Proposed Course of Action

TVA's August 26, 2008, letter describes what it sees as the basis for reinstating the permits, but does not specify a licensing approach or identify regulations applicable to its request. TVA believes its request is similar to an extension of the construction permit for Comanche Peak Unit 1 after it had expired, claiming that its request "is not materially different" from the Comanche Peak situation. Contrary to TVA's assertion, there are significant differences in circumstances between BLN Units 1 and 2 and Comanche Peak. Table 1 provides a summary comparison of the two situations. A detailed comparison is given below.

In the case of Comanche Peak Unit 1, the permit holder unintentionally allowed the construction permit to lapse. The permit holder continued construction with existing programs, continuously implementing NRC requirements during the period the construction permit lapsed. The NRC continued its oversight of the permit holder's activities, as well.

In contrast, in the case of BLN Units 1 and 2, TVA requested that the NRC terminate the construction permits, and ended its conformance with NRC requirements when they were terminated in September 2006. Correction of an unintentional oversight that allows a permit to lapse is not equivalent to a reversal of a conscious decision to terminate a permit.

In the Comanche Peak case, the Commission found that "Failure to make a timely application for an extension prior to the expiration date of a construction permit does not have the effect of causing a complete forfeiture of the permit..." Therefore, since the permit was not forfeited, the Comanche Peak permit holder retained expired permits. In that case, NRC's action was to extend the completion date, not issuing or reinstating permits.

In contrast, the BLN Unit 1 and 2 permits were terminated by NRC at the licensee's request, so TVA no longer has possession of the permits it once held. Therefore, to fulfill TVA's August 26, 2008, request, the NRC would have to issue or reinstate permits. This is an action distinct from the licensing approach endorsed by the Commission for Comanche Peak Unit 1.

TVA's August 26, 2008, letter claims that it is "maintaining the site in a stable condition." However, the letter also states that TVA has taken action to dismantle parts of the facility, and describes how TVA has taken action to end degradation of the facility, including repairs to eliminate water intrusion and to seal off equipment affected by its investment recovery efforts. Therefore, the meaning of TVA's statement regarding the stable condition of the facility is not clear. However, it is apparent that the facility has not been preserved in the same state it was when the construction permits were terminated. As noted, these activities were not conducted in a manner consistent with NRC regulations. Furthermore, as discussed above, these activities appear to be reportable in accordance with 10 CFR 50.55(e) in the event the construction permits are reissued; this regulation also obligates TVA to identify all such deficiencies and to assess their effects. This situation is unlike Comanche Peak Unit 1, because the licensee in that case was continually subject to the requirements of 10 CFR 50.55(e) and other regulations applicable to holders of construction permits.

As discussed above, TVA's proposal and handling of the facility since the construction permits were terminated is not consistent with the Commission Policy Statement on Deferred Plants, in that TVA did not continue its regulatory compliance throughout the period of termination, and TVA has not provided information needed to demonstrate compliance with regulatory requirements, as expected by the Policy Statement. In contrast, the permit holder for Comanche Peak Unit 1 continued to conduct construction, and to implement quality and maintenance programs in accordance with NRC requirements.

No new safety or policy issues were created when the Comanche Peak Unit 1 construction permit was extended in early 1986. In contrast, as discussed above, for BLN Units 1 and 2, there are a number of safety and policy issues that must be addressed. In addition, the NRC needs to determine what regulations and standards will apply to BLN Units 1 and 2 if the construction permits are reissued.

TVA's August 26, 2008, letter also states that "good cause exists to support TVA's request." By invoking "good cause," TVA appears to be applying a standard similar to 10 CFR 50.55(b), which pertains to extension of construction permits, as was done for Comanche Peak. However, TVA is requesting reinstatement of the BLN construction permits, not extension, so 10 CFR 50.55(b) does not apply. The regulations are silent on the regulatory standard to be applied to a request like TVA's.

Furthermore, extension of the Comanche Peak construction permit did not have any potential effect on other reactor projects being considered for that site, nor was there any question regarding the applicability of new regulations or guidance. These topics need to be resolved before the BLN Unit 1 and 2 construction permits can be reissued.

This discussion demonstrates that, contrary to TVA's claim, there are many reasons the Comanche Peak case does not provide a suitable precedent for BLN Units 1 and 2. Therefore, TVA has not described a licensing process that is relevant to fulfill its request to reinstate the BLN Unit 1 and 2 construction permits.

Denial of TVA's Request

TVA's request can be denied if the NRC determines that the proposal does not demonstrate compliance with the safety or environmental requirements applicable to construction permits. Such a denial would be similar to denial of an inadequate license amendment application. Denial on this basis is justified because TVA's August 26, 2008, letter does not provide any substantial information that addresses either safety or environmental issues. For example, BLN

Units 1 and 2 are outside the scope of TVA's current quality assurance program, which was submitted to the NRC on December 10, 2007 (ADAMS accession number ML073440041). TVA has not submitted a quality assurance program addressing the current status, such as the effects of its investment recovery or stabilization activities, or degradation of the facility due to lack of maintenance, for BLN Units 1 and 2 in accordance with the Commission Policy Statement on Deferred Plants. TVA has, also, not submitted information that can be used by NRC to develop an EIS, in accordance with 10 CFR 51.41. While TVA has provided a copy of the environmental assessment it completed, it does not satisfy requirements for an environmental report in accordance with 10 CFR 51.50, so much more information would be needed for completion of an EIS. TVA's failure to identify or address relevant regulatory requirements is an adequate basis to deny the request to reinstate the construction permits.

The Commission may also determine that it is undesirable to review TVA's request with the possibility of reinstating the permits as a matter of policy. For example, the Commission may determine that following the course of action proposed by TVA is undesirable due to the precedent created for other terminated projects, as discussed above.

Review of TVA's Request

If NRC decides to review TVA's request, TVA will need to demonstrate that it will comply with all requirements applicable to construction permit holders at the time the permits are reissued. TVA will also need to clearly describe the relationship between BLN Units 1 and 2, and BLN Units 3 and 4. TVA's compliance with those requirements must be confirmed by an NRC safety evaluation and inspections, and environmental review. The staff should determine if conditions or limitations on the BLN Unit 1 and 2 construction permits and Unit 3 and 4 combined licenses are needed to adequately control the final site configuration. Therefore, TVA needs to provide considerably more information to address safety and environmental issues than was given in their August 26, 2008, letter, regardless of the licensing process followed.

The most rigorous approach would be to follow the process for issuance of a construction permit in accordance with 10 CFR Part 50. If an entity does not have a construction permit (TVA does not have permits for BLN Units 1 and 2), 10 CFR Part 50 describes the requirements for obtaining one. Such an approach ensures compliance with all regulatory requirements and ensures appropriate opportunities for stakeholder participation. This approach also ensures fulfillment of strategic goals for safety and security.

TVA's August 26, 2008, request does not provide any substantial information to support a review in accordance with 10 CFR Part 50 or 10 CFR Part 51. Therefore, an extensive amount of information (e.g., PSAR and environmental report) would have to be provided by TVA to support this approach.

The regulatory product of this review would be a construction permit, issued in accordance with 10 CFR 50.35. The NRC safety evaluation supporting this product should confirm that TVA has demonstrated that it will comply with all regulatory requirements at the time the permits are reissued. The NRC must also complete an EIS, in accordance with 10 CFR 51.20(b)(1).

All other approaches described below introduce additional uncertainty into the licensing process, because of the unprecedented nature of TVA's request to reinstate the construction permits and the lack of regulations that explicitly address such a request.

The principal alternative to following the conventional construction permit review path is for TVA to seek an exemption from some or all of the requirements of the construction permit licensing requirements of 10 CFR Part 50 and/or 10 CFR Part 51. Any licensing approach that does not

fully conform to the regulations should be treated as an exemption. Such an approach could allow TVA to take credit for some portion of the previous construction permit review. However, a request for exemption from one or more requirements can introduce uncertainty into the licensing process, as the number and complexity of deviations from 10 CFR Part 50, 10 CFR Part 51, and other applicable regulations increases. TVA would need to determine what parts of the existing safety and environmental reviews it considers to remain valid, and to provide justifications for use of that information in lieu of a complete PSAR and environmental report, in accordance with 10 CFR 50.12 and 10 CFR 51.6. Regardless, TVA would be obligated to demonstrate compliance with applicable regulations, or demonstrate the adequacy of a proposed alternative. Therefore, this approach would also require an extensive amount of effort by TVA to review existing information and determine its adequacy, and submit a complete application for NRC review. Unless the staff is exempted from the requirements of 10 CFR 50.58, ACRS review would still be required. It also appears that a hearing would still be required for this approach, as well.

TVA's August 26, 2008, letter does not request any exemptions from NRC requirements.

The regulatory product for the alternative would be the same as for a full review (i.e., issuance of a construction permit in accordance with 10 CFR 50.35). The NRC safety evaluation supporting this product should fully document the adequacy of the alternatives proposed by TVA. If a full EIS is not prepared, the basis for an exemption from 10 CFR 50.20(b)(1) should be documented by the staff.

Other regulatory products, such as an Order, were initially considered, but do not seem to be appropriate in this case. The construction permits for BLN Units 1 and 2 were terminated, so TVA does not presently hold permits that can be modified by an Order or amendment.

Conceivably, TVA could also apply for a combined license using a custom design, in accordance with 10 CFR Part 52. This approach seems unlikely, given that this process assumes that a complete design is available, which is not believed to be the case for BLN Units 1 and 2. Completion of the design would require expenditure of resources TVA is unlikely to expend, absent a decision to actually complete the facility. It is also unclear how previous reviews completed in accordance with 10 CFR Part 50 in the 1970s and 1980s could be applied to a 10 CFR Part 52 process which references current requirements.

CONCLUSION AND SUMMARY OF RECOMMENDATIONS

Based on the discussion above, TVA's request for reinstatement of the construction permits for BLN Units 1 and 2 raises much more complex issues than has been suggested by TVA and the paper prepared by the staff. To ensure the NRC meets its obligations and stated goals, the agency must review TVA's request in a systematic manner in accordance with established regulations and guidance in order to ensure that all safety and environmental issues are identified and addressed, as necessary, before construction permits are issued. Failure to conduct such a systematic review opens up the possibility that an issue affecting public health and safety will not be identified. Deferring such reviews and assessments to the operating license review is inconsistent with the 10 CFR Part 50 licensing process. Even if issues are subsequently identified and resolved, late identification of these issues is likely to result in confusion and extra costs for both TVA and NRC.

Given the complexity of the issues and potential implications of a decision on this topic, I believe NRC should take the time necessary to ensure the agency is following a robust process that ensure safety and protects the environment, and provides proper opportunities for public observation and participation. As stated at the beginning of this discussion, no opinion is being expressed here regarding whether or not the construction permits can be eventually granted or operating licenses issued for BLN Units 1 and 2. If a suitable process is followed, satisfying NRC's regulations, policies, and strategic goals, then permits can be issued.

I believe the following options are available to the Commission:

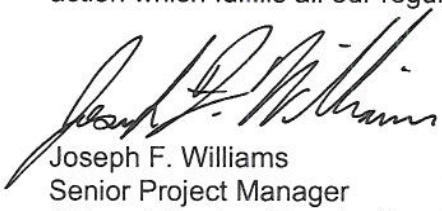
1. The most robust approach is the 10 CFR Part 50 construction permit process. This option ensures all safety and environmental issues relevant to the site are identified and resolved, and provides the greatest opportunities for public involvement.

2. A similar approach is exemptions from 10 CFR Parts 50 and 51, taking advantage of previously reviewed information. Such an approach would need to examine all site licensing issues in order to confirm the relevance of existing licensing information. Opportunities for public involvement are similar to the first option, though the scope of safety and environmental issues addressed may be smaller.

3. TVA's stated objective to establish the appropriate licensing basis can also be accomplished in a manner similar to pre-application discussions for other complex licensing efforts, such as combined license applications. A pre-application effort could provide clarity to NRC, TVA, and the public regarding the appropriate course of action, including better definition of the other options described above, or other options which may be identified.

4. The staff's proposed approach is to reinstate the construction permits based on a standard of "good cause," with environmental issues addressed by an environmental assessment. Only a limited opportunity for public involvement is provided in this case. This approach does not ensure all safety and environmental issues are identified and appropriately resolved.

Regardless, there is no compelling need for NRC to act rapidly on TVA's request. There is adequate time for all parties to discuss these issues and determine an appropriate course of action which fulfills all our regulatory responsibilities.



Joseph F. Williams
Senior Project Manager
Office of Nuclear Reactor Regulation
November 20, 2008

Table 1. Comparison of Comanche Peak Unit 1 and Bellefonte Unit 1 and 2 Construction Permit Requests

	Comanche Peak Unit 1	Bellefonte Units 1 and 2
Requested action	Extension of construction permit	Reinstatement of construction permits
Status at time of request	Permit expired without licensee knowledge Construction continued in accordance with NRC-approved programs, with NRC oversight	Permits terminated at licensee's request Facility partially dismantled and degraded outside scope of NRC-approved programs; no NRC inspection
Applicable regulation	10 CFR 50.55(b)	None
Regulatory standard	"good cause" "reasonable period of time"	Undefined
Site status	Construction continued in accordance with NRC-approved programs	Degradation (i.e., water intrusion) Investment recovery affecting safety-related systems Restoration and repair Outside NRC-approved programs
Safety and environmental issues associated with request	Environmental assessment for extension	Safety issues - Hydrology - Acceptability of quality assurance and maintenance - Definition of inspection criteria - Steam generator performance during large-break LOCA - Interaction with other projects Environmental impact statement required to issue permits Other issues may be identified by detailed review
Policy issues	Applicability to other expired permits	Applicability to other terminated projects Implications of Advanced Reactor Policy Statement Applicability of new regulatory requirements

Attachment 2 Fairewinds
SACE re: TVA Bellefonte Unit 1

NON-CONCURRENCE COMMENTS BY JOSEPH WILLIAMS
NOVEMBER 19, 2008

FOR: The Commissioners

FROM: William Borchardt
Executive Director for Operations

SUBJECT: STAFF RECOMMENDATION RELATED TO REINSTATEMENT OF THE CONSTRUCTION PERMITS FOR BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2

PURPOSE:

This memorandum provides the information requested by the Commission in its tasking memorandum dated October 30, 2008. The Commission requested the staff's views on whether the U.S. Nuclear Regulatory Commission (NRC) should approve or deny the Tennessee Valley Authority's (TVA's) request to reinstate the construction permits (CPs) for Bellefonte Nuclear Plant (BLN) Units 1 and 2. In considering the options, the staff has identified the environmental, design, safety, security, public participation, and regulatory basis that are relevant to the recommendation.

The staff seeks to obtain Commission approval of its recommendation pertaining to the reinstatement of CPs for BLN Units 1 and 2 and concurrent placement of the facility in a deferred plant status.

SUMMARY:

The staff recommends that the NRC reinstate CPs for Bellefonte Units 1 and 2 and return the facility to a deferred plant status. Attachment 1 provides the staff's evaluation, comparison of the options, and the basis for its recommendation. The staff factored any environmental,

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design, safety, and public participation considerations, along with relative resource impacts, into the evaluation of each option considered when making its recommendation. The staff's recommendation reflects (a) the regulatory authority for CP reinstatement and (b) the regulatory process and licensing basis approach that would be followed by the staff in considering the acceptability of CP reinstatement. In its review, the staff considered the following two options: (1) reinstatement of the original CPs, and (2) denial of reinstatement. If the NRC denies the reinstatement, the TVA would have to file a new application to complete construction of the facilities.

Attachment 2 provides dissenting views by a staff member, along with the response to these views by the member's supervisor.

RECOMMENDATION:

The staff recommends that the Commission approve the policy option to review TVA's request for reinstatement of the CPs. Although there are no specific regulations describing the requirements for reinstatement of a CP, the staff finds that nothing exists that would purposely prohibit a CP from being reinstated, especially when the CP was not withdrawn or terminated for cause. Further, at the time that the CPs were withdrawn, the staff was silent on the status of the operating license application. As described in Attachment 1, the staff's recommendation is based on the following reasons:

1. The Commission Policy Statement on Deferred Plants, affirmatively asserts that "a terminated plant may be reactivated under the same provisions as a deferred plant."

2. There is precedent for CP reinstatement after expiration. The CP for Comanche Peak Unit 1 was reinstated and extended after the CP had expired.

3. Reinstatement does not alter any of the staff's determinations made in support of the original CP issuance. The regulatory requirements for CP issuance have not changed since 1970. New information, if any, that might be provided with a new application for CP should not result in different staff regulatory findings. Thus, requiring a new CP application would create an unnecessary burden without a compensating increase in quality or safety.

4. The process for reinstatement is analogous to CP extension under Section 50.55b of Part 50 of Title 10 of the *Code of Federal Regulations* (10 CFR) (i.e., evaluate "good cause shown" and "reasonableness for extension").

5. TVA's suspension of preservation and maintenance activities does not adversely affect the staff's prior findings. The Policy Statement on Deferred Plants recognizes that the applicant may not have been preserved and maintained structures, systems, and components (SSCs). These activities allow for an effective and efficient assessment of the extent of rework or replacement actions on SSCs that may be required if and when construction is reactivated. When construction resumes, the staff will do the following: (a) determine whether preservation and maintenance of SSCs require special NRC attention during reactivation; (b) verify design modifications and changes are done in

Comment [jfw1]: This is a selective and misleading quote from the Commission Policy Statement on Deferred Plants. The Policy Statement states that a licensee of a terminated plant that if the licensee of a terminated plant wishes to maintain the option of plant reactivation, it should:
Develop and implement a preservation and maintenance program for structures, systems, and components important to safety, as well as documentation substantially in accordance with section III.A.3 of this policy statement. If these provisions are implemented **throughout** [emphasis added] the period of termination, a terminated plant may be reactivated under the same provisions as a deferred plant.
The staff's text fails to fully describe the expectations of the Policy Statement, and fails to note that these expectations apply to licensees (i.e., permit holders), not to non-licensees. TVA does not hold NRC licenses or permits for Bellefonte Units 1 and 2.

Comment [jfw2]: Expiration of a permit is not equivalent to termination. There are also a number of significant differences between these two cases, as described in my September 4 and October 27, 2008, memoranda.

Comment [jfw3]: a.there are several safety issues which have been identified pertinent to this situation. For example, based on information arising out of the combined license review for Bellefonte Units 3 and 4, the NRC staff has reason to believe the Bellefonte site hydrology may be significantly different from what was reviewed for the original construction permits. Resolution of legitimate safety issues is not an "unnecessary burden."

Comment [jfw4]: The staff arbitrarily describes reinstatement as analogous to extension of a construction permit, due to the alleged similarity to Comanche Peak. This standard is equivalent to an ad hoc rulemaking, without appropriate opportunities for public involvement.

Comment [jfw5]: Based on the text quoted for item 1 above, the Policy Statement expects that SSCs will be preserved and maintained, not the contrary, as described here.

accordance with quality assurance program and (c) address the baseline inspection results.

6. The staff considers the reinstatement as an administrative action, which only rescinds the prior withdrawal, and not a major Federal action requiring an environmental report. The staff will prepare an environmental assessment and finding of no significant impact, which will be published in the *Federal Register* (FR).

7. The staff will issue an order and cite the FR notice of environmental assessment and finding of no significant impact to reinstate the CPs. The order will provide the public with a 60-day period of opportunity to request a hearing.

8. The order will have the following conditions:

   a. Upon issuance of this Order, TVA shall place BLN Units 1 and 2 in deferred plant status consistent with the Commission Policy Statement on Deferred Plants.

   b. TVA must submit for NRC staff review and approval its preservation and maintenance program and commit to comply with the program.

   c. If TVA decides to reactivate construction activities, it must fully comply with the actions stated in the Commission Policy Statement on Deferred Plants. In addition, TVA should prepare an environmental statement to support any request for reactivation of construction.

COMMITMENT:

If the Commission agrees with the staff's recommendation, the staff will evaluate TVA's request for reinstatement. If the staff finds the request acceptable, it will prepare an order, with conditions, an environmental assessment, and a supporting safety evaluation.

RESOURCE:

The proposed actions to accomplish the activities associated with reinstatement of the CPs do not require additional resources for implementation. Specifically, the current NRR budget for personnel resources and the overall schedule of other ongoing work can be adjusted to accomplish the activities. However, if and when TVA makes a decision to actually reactivate construction and continue with the technical and operating license review, NRR will need to determine the budget implications and develop its resource requirements. These actions and the resources will be assessed and requested through NRC's planning, budgeting and performance management process.

Comment [jfw6]: Administrative actions address topics such as schedules, planning, or editorial corrections, not safety and environmental issues. Regardless of one's point of view on this issue, there is no disagreement that the staff has to complete both a safety and an environmental review before action can be taken regarding Bellefonte Units 1 and 2. Therefore, this is not an administrative action. See also the discussion of the attachment, below.

Comment [jfw7]: As described in the attachment, the hearing opportunity is limited to environmental issues and "good cause." This limitation restricts the public's ability to address safety issues, and is inconsistent with NRC's goals of safety and openness.

Comment [jfw8]: These conditions are not consistent with the Commission Policy Statement on Deferred Plants. Specifically, Section III.A.1 of the Policy Statement describes expectations that a licensee planning to place a plant in deferred status provide "the plans for fulfilling the requirements of the CP, including maintenance, preservation, and documentation requirements as outlined in Section III.A.3 of this policy statement." Section III.A.3 describes expectations for NRC review and approval of these plans prior to placing the facility in deferred status.

Comment [jfw9]: As a Federal agency, TVA is obligated to do this, regardless, so the impact of this condition is nil.

Comment [jfw10]: This discussion does not address the need for inspection resources which will be required to verify TVA's compliance with regulatory requirements. Such inspections are also expected per the Commission Policy Statement on Deferred Plants.

Comment [jfw11]: Has the staff identified the necessary work, developed an estimate of the level of effort associated that work, and identified the other activities that will be affected? If not, there is no basis for this statement.

COORDINATION:

The Office of the General Counsel has no legal objection concerning this paper. The Office of the Chief Financial Officer has reviewed this paper for resource implications and has no objections.

Comment [jfw12]: The discussion of coordination does not include NRO, NSIR, or Region II. Only Region II is included on concurrence. However, all three organizations (and others), especially NRO, are affected to some degree. Additional discussion of this issue will be provided in my detailed non-concurrence attachment, and was previously addressed in my October 27, 2008, memorandum.

R. W. Borchardt
Executive Director
for Operations

Attachments:
1. Staff Evaluation of Options
2. Non-concurrence by Staff Member

COORDINATION:

The Office of the General Counsel has no legal objection concerning this paper. The Office of the Chief Financial Officer has reviewed this paper for resource implications and has no objections.

R. W. Borchardt
Executive Director
for Operations

Attachments:
1. Staff Evaluation of Options
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ADAMS ACCESSION NUMBER: ML083230895

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Staff Evaluation of Options and Basis for Recommendation

Regarding Proposed Reinstatement of Construction Permits

Bellefonte Nuclear Plant Units 1 and 2

INTRODUCTION:

On September 14, 2006, the U.S. Nuclear Regulatory Commission (NRC) had granted Tennessee Valley Authority's (TVA's) request to withdraw the construction permits (CPs) for Bellefonte Nuclear Plant (BLN) and to consider the facility terminated. In a letter dated August 26, 2008 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML082410087), TVA requested that the NRC reinstate the CPs for BLN Units 1 and 2.

TVA stated that reinstatement of the CPs would allow it to (1) return the units to deferred plant status, as described in NRC Generic Letter 87-15, "Policy Statement on Deferred Plants," and resume preservation and maintenance activities as appropriate under the policy statement, and (2) determine, with a relative degree of certainty, whether completion of construction and operation of the units is a viable option.

BACKGROUND:

On May 14, 1973, TVA filed an application to construct BLN Units 1 and 2 in Jackson County, AL. A notice announcing the receipt of the application for the CPs and opportunity for hearing was published in the *Federal Register* on August 3, 1973 (38 FR 20932). The Atomic Safety and Licensing Board conducted separate evidentiary hearings on environmental matters, as well as health and safety issues, in July and October 1974. Afterwards, the board issued its initial decision on site suitability and environmental matters. On December 24, 1974, the Atomic Energy Commission issued CP Nos. CPPR-122 and CPPR-123 to TVA, authorizing construction of BLN Units 1 and 2, respectively.

On February 1, 1978, TVA filed an application for operating licenses for BLN Units 1 and 2, which included a final safety analysis report (FSAR) and an operating license environmental report (ER). The notice announcing receipt of the operating license application and providing for an opportunity for a hearing was published in the *Federal Register* on July 17, 1978 (43 FR 30628). There were no requests for hearing or petitions to intervene filed in response.

In a letter to TVA dated September 17, 1985, the NRC requested information, pursuant to 10 CFR 50.54(f), and TVA's plans to address a number of deficiencies identified in the operating and construction activities at some of the TVA facilities. However, the NRC did not observe these construction deficiencies at the BLN site, and thus, TVA was not asked to prepare a site-specific nuclear performance plan for BLN.

TVA deferred construction at the BLN site in 1988 in part because of a lower than expected electrical load forecast within the TVA service area. However, in the early 1990s, TVA instituted a series of detailed engineering, construction, and licensing studies and strategies which concluded that completion of BLN as a nuclear plant was viable. This effort included the submittal of 14 position papers to the NRC describing licensing positions on key issues important to the completion of the plant. On March 23, 1993, TVA notified the NRC that it

planned to resume completion activities 120 days from the date of its letter. However, TVA first needed to conduct an integrated resource planning process to consider the lowest cost options for providing an adequate supply of electricity to its customers, following the provisions of the Energy Policy Act of 1992. The time required to conduct the resource planning process combined with the delay from the inactivity during the construction deferral meant that TVA was unable to complete construction before the original expiration dates of July 1, 1994, for Unit 1 and July 1, 1996, for Unit 2. In response to a request dated April 19, 1994, the NRC extended the construction permit expiration dates for BLN Units 1 and 2 to October 1, 2001, and October 1, 2004, respectively, in an order issued on June 27, 1994.

In a letter dated July 11, 2001, TVA requested another extension of the BLN CP expiration dates. TVA stated that the extension would help TVA to maintain a full scope of competitive energy production choices. TVA's integrated resource plan, Energy Vision 2020, identified the need for a flexible range of options and alternatives to meet, among other things, the region's new base-load power supply needs through the year 2020. In an order dated March 4, 2003, extending the CPs to October 1, 2011, for Unit 1 and October 1, 2014, for Unit 2, the NRC noted that there was renewed interest in completing at least BLN Unit 1, possibly with financial assistance from outside parties. NRC inspections had also verified that TVA was appropriately maintaining the units in a condition for continuation of construction and ultimate licensing for operation.

In a letter dated April 6, 2006, TVA requested the NRC withdraw the CPs, in part because of forecasts of lower power demand for the region. TVA also noted that it had previously informed the NRC, in December 2005, that the facility was in a terminated plant status, as defined by the NRC's Generic Letter 87-15, "Policy Statement on Deferred Plants," dated November 4, 1987, and published in the *Federal Register* on October 14, 1987 (52 FR 38077). In addition, TVA noted that project completion activities, including layup, had ceased after October 1, 2005, and that no quality-related activities were ongoing at the site. On September 14, 2006, the NRC granted the request and withdrew the CPs. Through the years when BLN Units 1 and 2 were in a deferred status, the NRC performed periodic inspections of the Bellefonte layup program and documented the inspection results in its inspection reports, which noted that TVA's program was effective and that preservation and lay up activities were being adequately performed.

Comment [jfw13]: This sentence appears to be redundant to the last sentence of the previous paragraph. This sentence should be deleted to avoid possible confusion, such as being interpreted this sentence as being relevant to NRC inspections after termination of the construction permits.

In letters dated August 26 and September 25, 2008, TVA requested that the NRC reinstate the CPs for BLN Units 1 and 2. In describing the reasons for its request, TVA indicated that reinstatement would allow TVA to evaluate whether completion of construction and operation of the units was a viable option. TVA stated that power generation economics have changed so that the completion and operation of BLN Units 1 and 2 may now be economically viable as well as providing a shorter schedule to the start of major safety-related construction and also avoiding procurement bottlenecks for heavy forgings and other large components. As a first step in its evaluation of possibly adding BLN Units 1 and 2 to its mix of base-load generating options, TVA requested reinstatement of the CPs. TVA stated that this will provide regulatory certainty for performing more detailed engineering and regulatory analyses and for establishing a regulatory framework and licensing basis that would be used in considering the viability of completing the units. Upon reinstatement of the CPs, TVA proposed to resume preservation and maintenance activities as described in the Commission's Policy Statement on Deferred Plants. Also, TVA committed to providing the appropriate advance notice to the NRC, as specified in the Commission's Policy Statement on Deferred Plants, to allow the NRC time to evaluate the acceptability of reactivation of construction activities.

TVA indicates that, at the time that construction was deferred, BLN Unit 1 was approximately 90% complete and Unit 2 was approximately 58% complete. The FSAR had progressed through Amendment No. 29. If the NRC reinstates the CPs, CPPR-122 for BLN Unit 1 would expire on October 1, 2011, and CPPR-123 for Unit 2 on October 1, 2014, unless extended pursuant to 10 CFR 50.55(b).

On October 30, 2007, TVA submitted an application for combined construction and operating license (COLA) for BLN Units 3 and 4 which is currently under staff review. TVA stated that the request to reinstate the CPs for BLN Units 1 and 2 does not affect, in any way, its ability or current plans to pursue a COLA for BLN Units 3 and 4 under 10 CFR Part 52. The purpose for reinstating the CPs would be to assist TVA in determining whether Units 1 and 2 should once again constitute a viable or reasonable alternative. Further, in a memorandum and order by the Atomic Safety and Licensing Board Panel on October 14, 2008, in the matter of BLN Units 3 and 4, the board panel stated that TVA's request that the NRC reinstate the CPs for BLN Units 1 and 2 does not constitute a "proposal" that is interdependent with the BLN Units 3 and 4 COL application that is before the agency.

DISCUSSION:

Regulatory Basis for Construction Permits

The regulations at 10 CFR 50.33, "Contents of applications; general information," and 10 CFR 50.34, "Contents of construction permit and operating license applications; technical information," describe the information that an applicant should submit with a CP application.

The regulations at 10 CFR 50.35, "Issuance of construction permits," specify the criteria for the issuance of a CP. The NRC determines whether a proposed facility can be constructed and operated at the proposed site without undue risk to the health and safety of the public. The NRC also determines whether there is reasonable assurance that all safety questions will be satisfactorily resolved before completion of construction of the proposed facility. The CP constitutes an authorization to the applicant to proceed with construction; however, it does not constitute Commission approval of the safety of any design feature or specification unless the applicant specifically requests such approval and such approval is incorporated in the permit. Any CP is subject to the limitation that the Commission will not issue a license authorizing operation of the facility until it completes its review of the FSAR and finds that the final design provides reasonable assurance that the health and safety of the public will not be endangered by operation of the facility in accordance with the requirements of the license and the regulations.

Furthermore, 10 CFR 50.40, "Common standards," states that in determining whether the agency will issue a CP, the Commission will be guided by the following considerations:

> (a) the processes to be performed, the operating procedures, the facility and equipment, the use of the facility, and other technical specifications, or the proposals, in regard to any of the foregoing collectively provide reasonable assurance that the applicant will comply with the regulations in this chapter, including the regulations in Part 20 of this chapter, and that the health and safety of the public will not be endangered.

Comment [jfw14]: Statements regarding the degree of completion of the facility may be misleading. TVA describes the level of completion at the time the plants were deferred in 1988. Since that time, the facility has degraded as large number of SSCs were removed from preservation and maintenance programs, especially after termination of the construction permits. TVA has also partially dismantled the plant for "investment recovery." The paper should note that the current state of the plant and level of effort to complete the units is indeterminate.

Comment [jfw15]: The staff does not point out that TVA can conduct such an evaluation without construction permits.

Comment [jfw16]: Has NRO provided its point of view regarding the relationship between projects at the site, and the effect on the safety and environmental reviews for the COL application?

Comment [jfw17]: This statement acknowledges that issuance of construction permits is a safety decision, not an administrative action, as stated in the cover memo.

My non-concurrence identifies several safety issues which must be addressed in accordance with 10 CFR 50.35 before permits can be reissued. These issues cannot be "reasonably be left for later consideration" in accordance with 10 CFR 50.35(a). Some issues, like quality assurance and inspection criteria, have an immediate effect once the permits are in place, so NRC decisions on these matters are necessary before permits are issued. Further, issuance of construction permits is, as acknowledged by the staff, a safety decision by the NRC. Such safety decisions are governed by NRC's regulations and guidance, which require evaluation of site safety and design suitability issues as part of a construction permit review, and so cannot be deferred.

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(b) the applicant is technically and financially qualified to engage in the proposed activities in accordance with the regulations in this chapter. However, no consideration of financial qualification is necessary for an electric utility applicant for an operating license for a utilization facility of the type described in § 50.21(b).

(c) the issuance of a construction permit will not, in the opinion of the Commission, be inimical to the common defense and security or to the health and safety of the public.

(d) any applicable requirements of subpart A of 10 CFR Part 51 have been satisfied.

The regulations at 10 CFR 50.43(d) state that "[n]othing shall preclude any government agency, now or hereafter authorized by law to engage in the production, marketing, or distribution of electric energy, if otherwise qualified, from obtaining a construction permit or operating license under this part, or a combined license under part 52 of this chapter for a utilization facility for the primary purpose of producing electric energy for disposition for ultimate public consumption."

The regulations at 10 CFR 50.55, "Conditions of construction permits, early site permits, combined licenses, and manufacturing licenses," notes that each construction permit is subject to certain terms and conditions. In particular, 10 CFR 50.55 states that, at or about the time of completion of the construction of the facility, the applicant will file any additional information needed to bring the original application for license up to date, and will file an application for an operating license or an amendment to an application for a license to construct and operate the facility for the issuance of an operating license, as appropriate, as specified in 10 CFR 50.30(d). Section 50.55 also states that if the proposed construction of the facility is not completed by the latest completion date, the CP shall expire and all rights are forfeited. However, upon good cause shown, the Commission will extend the completion date for a reasonable period of time.

The regulations at 10 CFR 51.20, "Criteria for and Identification of Licensing and Regulatory Actions Requiring Environmental Impact Statements," require an environmental impact statement for a major Federal action significantly affecting the quality of the human environment.

In the section entitled "B. Terminated Plants," the Commission Policy Statement on Deferred Plants affirmatively asserts that "a terminated plant may be reactivated under the same provisions as a deferred plant."

Precedent for Reinstatement of CPs

The NRC has previously reinstated a CP after the applicant had allowed it to expire. In that situation, the applicant, Texas Utilities Electric Company (TUEC), failed to request an extension of the CP for Comanche Peak Unit 1 and the CP subsequently expired. The NRC determined that reapplication and issuance of a new CP was not required. [TUEC, CLI-86-4, 23 NRC 113 (1986), affirmed 821 F.2d 725 (DC Cir. 1987).] Assessing the current circumstances associated with BLN against those with Comanche Peak, the staff found that there are no material differences that would bear consideration. The fact remains that in both the Comanche Peak and BLN cases, the CPs were not in force when the staff was making a decision about reinstatement. The staff also notes that the withdrawal of the BLN CPs was not taken for cause but rather only at the request of TVA.

Comment [jfw18]: This discussion clearly demonstrates that the staff is expected to assess the applicant's capability to fulfill regulatory requirements before a construction permit is issued. However TVA has not described and the staff has not reviewed "the processes to be performed, the operating procedures, the facility and equipment, the use of the facility, and other technical specifications, or the proposals" demonstrating reasonable assurance of the applicant's capability (Item (a)). TVA has also not described and the staff has not reviewed TVA's technical and financial qualifications (Item (b)). Furthermore, the applicable requirements of 10 CFR 51, Subpart A have not been satisfied, because 10 CFR 51.20(b)(1) for completion of an environmental impact statement or supplemental environmental impact statement have not been fulfilled.

Comment [jfw19]: This regulation clearly states that an environmental impact statement is required when construction permits are issued.

Comment [jfw20]: This paragraph provides a selective and incomplete quote from the Commission Policy Statement on Deferred Plants. The incomplete quote can be misleading, because it does not describe the Policy Statement expectations for licensees which wish to place a terminated plant in deferred status. Again, note that the Policy Statement addressees licensees, not entities that do not hold NRC licenses, which is the situation with TVA for Bellefonte Units 1 and 2.

Comment [jfw21]: The staff did not reinstate the Comanche Peak Unit 1 permit. In fact, the staff extended an expired permit. See 23 NRC 113, March, 13, 1986.

Comment [jfw22]: This statement is contradicted by the extensive discussion of differences between the Comanche Peak Unit 1 case and TVA's request for Bellefonte Units 1 and 2 in my September 4, and October 27, 2008, memoranda, which were shared with staff and management before this Commission paper were prepared..

Comment [jfw23]: Per the staff's September 14, 2006 letter to TVA, the permits are considered to be terminated.

Comparison of Significant Differences between Reinstatement and Issuance of new CPs

General Information

The staff finds that there are no differences in the basis that would be used in making its conclusion about either the reinstatement or issuance of a CP. With each option, the requirements and criteria delineated at 10 CFR 50.35(a) would form the basis upon which the NRC staff would make a determination. This regulation in part states that the Commission may issue a CP if it finds that:

(1) the applicant has described the proposed design of the facility, and has identified the major features or components for the protection of the health and safety of the public;

(2) any technical or design information as may be required to complete the safety analysis, and which can reasonably be left for later consideration, will be supplied in the FSAR;

(3) safety features or components, if any, which require research and development have been described, identified, and will be conducted, to resolve any safety questions associated with such features or components; and

(4) on the basis of the foregoing, there is reasonable assurance that, (i) such safety questions will be satisfactorily resolved at or before the latest date stated in the application for completion of construction of the proposed facility, and (ii) taking into consideration the site criteria contained in 10 CFR Part 100, the proposed facility can be constructed and operated at the proposed location without undue risk to the health and safety of the public.

There have been no changes to these requirements since 1970.

Application of Prior Conclusions on BLN CPs

In its safety evaluation report dated May 24, 1974, and Supplement No. 1 dated August 30, 1974, supporting the granting of the original CPs for the BLN units, the Atomic Energy Commission staff summarized the results of its technical evaluation of BLN Units 1 and 2 and delineated the scope of the technical matters considered in evaluating the radiological safety aspects of the proposed facility. Based on its evaluation, the staff concluded that BLN Units 1 and 2 could be constructed and operated as proposed without endangering the health and safety of the public. In Section 21.0, "Conclusions," the staff detailed its specific findings in concluding that the provisions of 10 CFR Sections 50.35(a) and 2.104(b) were satisfied. In addition, the Advisory Committee on Reactor Safeguards (ACRS) reviewed TVA's application for CPs to construct the BLN site. In its letter dated July 16, 1974, the ACRS stated that certain items can be resolved during construction and that if due consideration is given to issues in its letter, BLN Units 1 and 2 can be constructed with reasonable assurance that it can be operated without undue risk to the health and safety of the public. These findings and conclusions are unaffected by reinstatement of the CPs.

Comment [jfw24]: The staff apparently acknowledges that reinstatement of the construction permits is a safety decision.

Furthermore, by invoking 10 CFR 50.35, the staff is addressing a regulatory requirement which was not pertinent to extension of the Comanche Peak Unit 1 construction permit, which illustrates the significant difference between the Comanche Peak action and TVA's Bellefonte request., and contradicting the staff's stated position regarding the similarity between the cases.

Comment [jfw25]: This statement could be misleading. While there has been no change to 10 CFR 50.35, many other regulations pertinent to the plant design and siting have changed.

Comment [jfw26]: I have not yet received a copy of this letter, as requested on November 18, 2008.

Comment [jfw27]: There are at least two safety issues which the NRC was unaware of at that time that are relevant: 1.) questions about the site hydrology and 2.) questions about steam generator performance during large break LOCAs. These and other safety issues are discussed in my non-concurrence.

Consideration of Prior Licensing Basis Information

Prior to withdrawal of the CPs, TVA had already begun to provide the technical and design information and to resolve issues identified by the staff. As part of this review, the staff evaluated the information presented in the preliminary safety evaluation report (PSAR) through amendment No. 12 and issued its safety evaluation report and supplement No.1. On February 1, 1978, TVA filed an application for OLs for BLN Units 1 and 2, which in part included an FSAR. Thus, with the submission of the PSAR and followed by the FSAR, sufficient information exists to satisfy the requirements in 10 CFR 50.35(a) for issuance of the CPs.

Information upon Reactivation of Construction

As noted in the letter of August 26, 2008, TVA "would; among other things, seek to establish the regulatory framework and licensing basis upon which the units could be completed should TVA later determine to do so." Because a CP only constitutes an authorization to proceed with construction but does not constitute Commission approval of the safety of any design feature or specification unless the applicant specifically requests such approval and such approval is incorporated in the CP, the NRC staff will review the detailed design information and resolution of any safety issues during the OL application review. This would be no different whether the application was for a new CP or reactivation of an original CP.

In addition to the above, 10 CFR 50.34(a) requires the submission of other documentation in addition to the PSAR, such as the quality assurance plan and preliminary plans for training and conduct of operation. TVA provided this documentation with its original application. Should the original CPs be reinstated, TVA would need to update these documents before proceeding with any activities governed by the applicable programs, plans, and procedures. This is consistent with the discussion in the Commission's Policy Statement on Deferred Plants about information to be submitted when reactivating. In particular, the policy statement clearly stresses that deferral, termination, and reactivation will be subject to all applicable current regulations, standards, policies, and guidance. Thus, although not occurring at the time of CP reinstatement, the staff would review the conformance with requirements during the OL application review. The staff does note that 10 CFR 50.34(a)(1)(ii)(D)(12) states that on or after January 10, 1997, stationary power reactor applicants who apply for a construction permit, as partial conformance to General Design Criterion 2 of Appendix A to Part 50, shall comply with the earthquake engineering criteria in Appendix S to Part 50, "Earthquake Engineering Criteria for Nuclear Power Plants." Because the original application occurred in 1973, the staff does not consider this requirement to apply for reinstatement.

Summary

In summary, the regulations in 10 CFR 50.35(a) would form the criteria and basis for acceptance of a new CP application as well as the acceptance for a request for reinstatement of a CP. The staff has not identified any issue that would cast doubt on whether the safety and regulatory findings supporting the original issuance of the CPs would continue to be met if the CPs were reinstated. In addition, the staff and the ACRS made similar conclusions supporting issuance of the original CPs.

The staff believes that the review of a new CP application would not result in new or different findings that could prevent issuance of a CP. The information that would be submitted with a

Comment [jfw28]: The discussion of TVA's efforts to provide technical and design information is completely unrelated to TVA's request for reinstatement of the construction permits. The staff appears to be referring to submittals received by NRC in the early 1990s as part of the operating license review when the construction permits were still active. There is no relationship between this information and TVA's August 26, 2008, request.

More importantly, TVA's August 26, 2008, letter did not propose that the information referred form any part of the basis for reinstatement of the permits. The information described here is much different than the standard proposed by the staff (i.e., good cause), and is also not consistent with the staff's positi ... [1]

Comment [jfw29]: In fact, TVA has already conducted, and may be continuing to conduct such activities. For example, the August 26, 2008, letter describes repairs TVA is making. These activities appear to be within the definition of construction and subject to the regulatory requirements, including 10 CFR 50.55(e), so it appears that TVA must demonstrate how it will comply with regulatory requirements at the ... [2]

Comment [jfw30]: The staff proposes to defer identification of these requirements until after TVA has decided to resume construction. However, knowledge of the applicable requirements should be included in TVA's evaluation, so identification of the requirements cannot be deferred.

Comment [jfw31]: This statement is contradicted by the identification of issues such as the site hydrology, as discussed in my October 16, 2008, non-concurrence in the Order which was being drafted to grant TVA's request for reinstatement. This issue is discussed further in my non-concurrence in this Commission paper.

Comment [jfw32]: The basis for this statement is unclear and apparently speculative. In fact, there are several issues where substantially different information could be expected. For example, TVA's evaluation of site hydrology is much different now than the information provided in the early 1970's, as demonstrated by the issues arising out of the Bellefonte combined license review.

new application probably would not be different from the information originally submitted. Thus, it is unlikely that the staff's prior conclusions would be different or materially impacted. Because a CP constitutes an authorization to proceed with construction but does not constitute Commission approval of the safety of any design feature or specification, the NRC staff will review the detailed design information and resolution of any safety issues during the OL application review. Since the complete FSAR is submitted to the NRC by amendment to the application before a license authorizing operation can be issued, the staff finds no basis to require TVA to update and submit the information before a CP can be reinstated. The provisions in the Commission Policy Statement on Deferred Plants would govern the submission of other information. Lastly, the staff continued to perform routine inspections at BLN equipment preservation and lay up program until TVA's decision to terminate construction in 2005. The NRC staff documented its inspections in about 15 reports in which the staff found that TVA's program was effective and that preservation and lay up activities were adequately performed.

Concerns Regarding Age or As-Found Condition of Systems, Structures, and Components

Further, TVA stated that reinstatement would allow it to return the units to deferred status and resume preservation and maintenance activities as appropriate under the Deferred Plant Policy. The policy statement notes that an applicant, if planning to maintain the option of plant reactivation, should develop a preservation and maintenance program. It also notes that, if these provisions are implemented throughout the period of termination, a terminated plant may be reactivated under the same provisions as a deferred plant. In the case of BLN, special NRC attention may be necessary on a case-by-case basis beyond these provisions. Because of its plan to place the facility into a deferred plant status, the need to update and provide certain information and implement other programs can be delayed until such time, as appropriate, that TVA has received the CPs and notifies the Commission of its intent to reactivate construction, pursuant to the policy statement.

As required by regulations in 10 CFR Part 50 and/or in the licensing basis commitments in the PSAR or FSAR, TVA will need to comply with the design requirements specified in the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) and other industry codes and standards. In particular, TVA would need to certify and obtain agreement from the underwriters' authorized nuclear inspector that the systems, structures, and components governed by the ASME Code meet all requirements. Further, the as-built condition of the facility will be the subject of NRC inspection for compliance with licensing basis requirements.

If TVA were to be required to submit a new CP application, the application would describe the proposed design of the facility, including, but not limited to, the principal architectural and engineering criteria for the design, and identify the major features or components incorporated therein for the protection of the health and safety of the public. Further technical or design information, which can reasonably be left for later consideration, will be supplied in the FSAR. Safety questions such as those dealing with the age or the condition of equipment and facilities will be satisfactorily resolved at or before the latest date stated in the application for completion of construction of the proposed facility. Thus, the NRC would not expect TVA to address these issues in detail if it were required to file a new application.

Comment [jfw33]: This statement is also speculative and is probably false, given that there is at least one issue (hydrology), where TVA uses much different methods than was the case in the early 1970's.

Comment [jfw34]: Again, speculative.

Comment [jfw35]: At the very least, TVA should be expected to submit information demonstrating its comprehensive understanding of the regulatory requirements which it will be subject to when it holds construction permits, and its ability to comply with those requirements. The staff's position does not ensure this outcome.

Comment [jfw36]: Actually, the regulations of 10 CFR 50 govern this activity. The Policy Statement provides additional guidance and expectations.

Comment [jfw37]: This information is useful, but does not address site activities since 2005, when degradation, dismantlement, and repairs were taking place. The current state of the site is indeterminate.

Comment [jfw38]: The Policy Statement actually refers to a licensee, not an applicant. TVA is not presently a licensee with regard to BLN Units 1 and 2.

Comment [jfw39]: The staff does not propose a process which would ensure that any such circumstances would be addressed. Without a thorough review prior to reissuing the permits, the staff cannot be confident any effect of such issues on the permits have been identified.

Comment [jfw40]: This statement does not ensure that TVA complies with all applicable regulatory requirements at the time the permits are reissued. TVA has already conducted, and may be continuing work which falls within the scope of construction as defined by 10 CFR 50.2. Therefore, all relevant programs, particularly quality assurance, must be submitted, reviewed, and approved by NRC to ensure compliance with regulations prior to issuing construction permits.

Alternatives upon Denial of Reinstatement

If the Commission determines that a previously-approved CP cannot be reinstated after being formally withdrawn, an applicant desiring to complete construction would need to submit a new and complete application. Because of the state of engineering and construction of BLN Units 1 and 2 and its relationship to the development of the licensing basis, it is not practical for TVA, having originally filed an application under 10 CFR Part 50, to now file an application under 10 CFR Part 52. In particular, the duration of the NRC review period for the COLA would restrict TVA from reactivating construction unless the NRC should issue a limited work authorization.

A new application under 10 CFR Part 50 would not accomplish anything substantive beyond that already contemplated under reinstatement and reactivation in accordance with the Commission Policy Statement on Deferred Plants. The policy statement states that a listing of any new regulatory requirements applicable to the plant that have become effective since the plant was deferred must be identified. In addition, it would require a description of the applicant's proposed plans for compliance with these requirements or a commitment to submit such plans by a specified date. Because it might be impractical, or an extreme hardship, for TVA to implement a redesign of its facility in order to comply with certain new or current regulations, these considerations would be better addressed under a backfit rule determination.

Furthermore, requiring the submission of a new application would not provide a meaningful opportunity for public involvement on the CP consideration. As noted earlier, the major structures comprising the overall BLN facility have been completed. The majority of the remaining construction activities would occur within these buildings. Therefore, public opportunity to question the safety and environmental basis for issuing the CPs is moot because the facility already exists and the impacts have already occurred. The only consequential opportunity for public involvement would occur at the operating license stage.

Opportunities for Public Involvement

It should be noted that the original CP application in 1973 and the OL application in 1978 were noticed in the *Federal Register*. In response to these public notices, there were no requests for a hearing.

There are several steps in the process to accomplish the regulatory requirements that would allow for public involvement. These steps would be similar to the precedent that has been established for Watts Bar Nuclear Plant Unit 2 construction and operating license review reactivation. If the Commission should reinstate the CPs for BLN Units 1 and 2, the order effecting this decision would offer the public a limited opportunity for a hearing on the staff's environmental assessment and on whether good cause to reinstate the CPs had been demonstrated. If TVA decides to complete construction and reactivate its OL application, the Commission may choose to direct the staff, as was done for Watts Bar Unit 2, to offer another opportunity for hearing on the OL application. Under 10 CFR Parts 2 and 50, the public would, thus, have the ability to raise any admitted contentions during the OL application hearing. In particular, 10 CFR 50.43, "Additional standards and provisions affecting class 103 licenses and certifications for commercial power," states that the NRC will:

Comment [jfw41]: Actually, the permits were terminated. See NRC letter to TVA, September 14, 2006.

Comment [jfw42]: TVA would not be obligated submit a combined license application. The 10 CFR 50 process remains available, and is the most viable approach for BLN Units 1 and 2.

Comment [jfw43]: On the contrary, a detailed review of such an application would ensure all safety issues have been identified and appropriately resolved. Given that safety issues have already been identified by a cursory review, a comprehensive approach seems well-justified.

Comment [jfw44]: On the contrary, there is a mandatory hearing associated with a construction permit application. It is difficult to understand why such a hearing is not considered "meaningful," particularly given the unique circumstances of this request by TVA.

Comment [jfw45]: Public participation is not moot if legitimate safety issues are identified, such as the ability of the facility to withstand flooding, in accordance with NRC's siting requirements.

The apparent lack of interest in identification and resolution of safety issues is completely inconsistent with our most significant strategic goal.

Comment [jfw46]: Such limitations do not provide the public a meaningful opportunity to challenge the regulatory approach being followed by NRC. Following this course of action is essentially an ad hoc rulemaking which deliberately excludes the public, and appears to be inconsistent with NRC policy.

It should also be noted that by limiting the scope of hearing to good cause, the proposed scope is even more limited than that provided for a construction permit extension (i.e., good cause, reasonable period of time). This limitation is inconsistent with our goals of safety and openness.

(1) give notice in writing of each application to the regulatory agency or State as may have jurisdiction over the rates and services incident to the proposed activity;

(2) publish notice of the application in trade or news publications as it deems appropriate to give reasonable notice to municipalities, private utilities, public bodies, and cooperatives which might have a potential interest in the utilization or production facility; and

(3) publish notice of the application once each week for 4 consecutive weeks in the *Federal Register*.

Therefore, between these two hearing opportunities, the public is being afforded a sufficient prospect to have any contentions addressed.

It should also be noted that TVA has maintained the other State and local permits necessary to construction the facility. Also, if TVA decides to resume the OL application review process, information would need to be submitted to revise the ER to support plant operation following the requirements in 10 CFR 51.50, "Environmental report—construction permit, early site permit, or combined license stage."

If a new CP application would be required, the only difference would be the expanded scope of contentions on the construction permit. This provides little or no benefit to the public because of the advanced stage of design and construction.

RECOMMENDATION:

The staff recommends that the Commission approve the policy option to grant TVA's request for reinstatement of the CPs. Although there are no specific regulations delineating the requirements for reinstatement of a CP, the staff finds that nothing exists that would purposely prohibit a CP from being reinstated, especially when the CP was not terminated for cause. After reviewing the Comanche Peak precedent, the staff does not find it to be materially different from BLN. The staff also does not think the Comanche peak precedent raises issues that would preclude reinstatement for BLN.

In granting the original CPs for the BLN units, the NRC reached certain conclusions in its safety evaluation, dated May 24, 1974, which satisfied the requirements specified in 10 CFR 50.35(a) and 10 CFR 2.104(b). The staff does not find that reinstatement of CPs would change these conclusions. Even if the staff would review a new application for a CP, the staff is not aware of significant changes to the technical design information or to the NRC evaluation criteria that would reasonably create new safety findings that could prevent issuance of the CP. The review of a new application would require significant expenditure of resources for both the TVA and the NRC. This would be an inefficient use of these resources because there are no differences in the regulatory criteria to be met in reinstatement versus a new application. Furthermore, TVA has stated that its requests reinstatement as a first step in evaluating the viability of reactivating construction of BLN. It would not be cost effective for TVA to submit a new application just to accomplish this step. Therefore, the staff recommends that the Commission approve the approach allowing consideration of reinstatement of the CPs. In its review, the NRC staff would focus on the criteria of "common sense" and the "totality of circumstances" to determine whether

Comment [jfw47]: Taking action that is not described in the regulations is effectively an ad hoc rulemaking. The public hearing opportunities, as described, do not provide adequate opportunity for the public to raise issues regarding the adequacy of the regulatory process being followed.

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Comment [jfw48]: On the contrary, as discussed in my September 4, and October 27, 2008 memoranda, Comanche Peak Unit 1 is not similar to TVA's request regarding BLN Units 1 and 2.

Comment [jfw49]: On the contrary, safety issues pertinent to a site review have been identified, and should be resolved before permits are issued.

The staff statement cannot be supported if it has not conducted a comprehensive review. The staff is certainly unaware of the effect of any changes if it has not asked the necessary questions.

Comment [jfw50]: This statement is not accurate, because there are many differences between the current regulations and the regulations the plant was originally licensed to.

The staff also indicates that "good cause" is sufficient basis for reinstatement, which is inconsistent with this sentence.

It is also worth noting that the staff's argument is inconsistent with its position regarding the similarity to Comanche Peak. At no time did the NRC state for Comanche Peak that reinstatement met the same criteria as a new application. The NRC said that a new application was not necessary, not that reinstatement met the same criteria.

Comment [jfw51]: Determination of viability, including the regulatory process and standards can be accomplished by a pre-application review, without issuance of construction permits.

Comment [jfw52]: What is the origin of these criteria? That is, what is the regulatory basis for their application?

such reinstatement would affect the health and safety of the public or would result in adverse environmental consequences. This is consistent with the criterion used when reviewing the extension of the duration period for a CP in 10 CFR 50.55(b), which requires that good cause be shown.

In making this recommendation, the NRC staff considered the TVA suspension of preservation and maintenance activities after the CPs were withdrawn and TVA's investment recovery activities. TVA stated that, upon reinstatement of the CPs, it will implement its Nuclear Quality Assurance Plan relating to deferred plants. Equipment not subject to preventive maintenance under a layup program would be entered into the TVA Corrective Action Program. This equipment will be prohibited from being placed in service without further evaluation and appropriately fully restored or replaced. Systems and components that may have been affected in the course of investment recovery activities would also be entered into the TVA Corrective Action Program and prohibited from being placed in service without a full evaluation, or having been restored or replaced. The NRC staff believes that these commitments are consistent with the Commission Policy Statement on Deferred Plants. Prior to reactivating construction at BLN, TVA will need to comply with the noticing and the other requirements in the policy statement. Further, a CP constitutes only an authorization to proceed with construction and does not constitute Commission approval of the safety of any design feature.

The action to reinstate the CPs would offer an opportunity for the public to participate by requesting a hearing on whether the good cause to reinstate has been demonstrated. If TVA should submit a request to reactivate construction and the OL review, the staff contemplates renoticing the OL application to offer an additional opportunity for a hearing. Also, the process for supplementing the final environmental statement to take into account plant operation would offer opportunities for public comment.

If the Commission was to agree with the policy option to grant TVA's request for reinstatement of the CPs, the staff complete its evaluation of TVA's request for reinstatement and prepare an order, with conditions, environmental assessment, and supporting safety evaluation, if the request is found acceptable.

Staff Resource Impacts

If the NRC denies the request to reinstate the CPs, TVA would need to submit a new CP application. Although the staff has no concrete historical information on which to base a cost estimate for reinstatement, the staff believes that a reinstatement review would require about one-half of a full-time equivalent (FTE). In comparison, the staff estimates that the review of a new CP application would occur over approximately 1 year and would require about 5 FTE. For a new application, the staff would need to expend resources to develop new findings and conclusions or to reconfirm the continued validity of prior conclusions. All of this would be for a situation in which TVA has stated that completion of the plant is currently only an option under consideration.

If the NRC approves the reinstatement of the CPs and the immediate placement of BLN Units 1 and 2 into a deferred plant status, little technical review will be needed by the staff to support the conclusion.

Comment [jfw53]: The staff's proposal may be consistent with 10 CFR 50.55(b), but it is not justified by the "totality of circumstances" if known safety issues need to be addressed.

Comment [jfw54]: TVA has not submitted its QA plan as expected by the Commission Policy Statement on Deferred Plants, and has not demonstrated how it will comply with regulatory requirements such as 10 CFR 50.55(e).

Comment [jfw55]: It is not clear how this approach is in compliance with 10 CFR 50.55(e).

Comment [jfw56]: As discussed in previous comments, limiting the scope of a hearing in this way does not provide an adequate opportunity for public involvement..

Comment [jfw57]: Again, 10 CFR 51.20 requires an EIS for issuance of a construction permit.

Comment [jfw58]: This statement prejudges the outcome of the staff's review. Also, the policy issue is not whether to grant TVA's request. Rather, it is what process should the staff use to assess it.

Comment [jfw59]: The staff often expends resources for facilities where no firm commitment has been made for completion. For example, TVA has not committed to build BLN Units 3 and 4, even though considerable effort is being expended by both NRC and TVA for review of this combined license application.

Comment [jfw60]: The staff does not address inspection resources.

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The discussion of TVA's efforts to provide technical and design information is completely unrelated to TVA's request for reinstatement of the construction permits. The staff appears to be referring to submittals received by NRC in the early 1990s as part of the operating license review when the construction permits were still active. There is no relationship between this information and TVA's August 26, 2008, request.

More importantly, TVA's August 26, 2008, letter did not propose that the information referred form any part of the basis for reinstatement of the permits. The information described here is much different than the standard proposed by the staff (i.e., good cause), and is also not consistent with the staff's position regarding the relevance and similarity to Comanche Peak.

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In fact, TVA has already conducted, and may be continuing to conduct such activities. For example, the August 26, 2008, letter describes repairs TVA is making. These activities appear to be within the definition of construction and subject to the regulatory requirements, including 10 CFR 50.55(e), so it appears that TVA must demonstrate how it will comply with regulatory requirements at the instant the construction permits are put in place. NRC review TVA's ability to comply cannot be deferred.

NRC FORM 757
NRC MD 10.158
(9-2008)

U.S. NUCLEAR REGULATORY COMMISSION

Attachment 2 Fairewinds
SAGE re: TVA Bellefonte Unit 1

NON-CONCURRENCE PROCESS

TITLE OF DOCUMENT	ADAMS ACCESSION NO.

SECTION B - TO BE COMPLETED BY NON-CONCURRING INDIVIDUAL'S SUPERVISOR

NAME

TITLE	PHONE NO.

ORGANIZATION

COMMENTS FOR THE DOCUMENT SPONSOR TO CONSIDER

☐ I HAVE NO COMMENTS

☐ I HAVE THE FOLLOWING COMMENTS

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☐ CONTINUED IN SECTION D

SIGNATURE	DATE

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NRC FORM 757
NRC MD 10.158
(9-2008)

U.S. NUCLEAR REGULATORY COMMISSION

NON-CONCURRENCE PROCESS

Attachment 2 Fairewinds SACE re: TVA Bellefonte Unit 1

TITLE OF DOCUMENT – Staff Recommendation Related to Reinstatement of the Construction Permits for Bellefonte Nuclear Plant Units 1 and 2.	ADAMS ACCESSION NO. ML083230895

SECTION C - TO BE COMPLETED BY DOCUMENT SPONSOR

NAME
L. Raghavan

TITLE	PHONE NO.
Branch Chief	301-425-2429

ORGANIZATION
NRR / DORL / LP-WB

ACTIONS TAKEN TO ADDRESS NON-CONCURRENCE

Issue 1.Construction permit should not be reinstated. A new application is necessary to ensure a robust and appropriate safety and regulatory determination.

Response:

In the Commission paper the staff reflects consideration of design, safety, security, and environmental requirements relating to CP reinstatement. The staff concludes that the reinstatement of the CPs would not affect these aspects. In granting the original CPs for the BLN units, the NRC reached certain conclusions in its safety evaluation. The staff does not find that reinstatement of CPs would change these conclusions. The staff believes that the review of a new CP application would duplicate its previous review and even if the staff would review a new application for a CP, the staff is not aware of significant changes to the technical design information that would reasonably prevent issuance of the CP.

A new application for a CP is not necessary to ensure that these requirements are met.

Issue 2.The NRC needs to determine the applicability of new regulations, such as new security and aircraft impact requirements.

Response:

The essential difference in the dissenting and staff's view is related to the timing for addressing the new applicable regulatory requirements. The dissenting view is that they must be evaluated now. The staff's view is that they need not be addressed at this stage. If the Commission reinstates the CP, and TVA resumes reactivation from the deferred plant status, it would identify, consistent with the Commission Policy Statement on Deferred Plants, any new regulatory requirements applicable to the plant that have become effective since the plant was deferred. TVA would submit either proposed plans for compliance with these requirements or submit exemptions for NRC review and approval.

It is noted that the Commission is currently considering major changes to the requirements in 10 CFR Part 73 and new requirements relating to the potential effects of large commercial airplane impact on nuclear facilities. It is not known at this time if these future requirements would apply to the BLN facility; if they do, TVA will be required to comply with the new regulations or seek an exemption. This issue would be addressed during the review of the operating license application.

☑ CONTINUED IN SECTION D

SIGNATURE	DATE
L Raghavan	11/24/08

NON-CONCURRING INDIVIDUAL *(To be completed by document sponsor)*:

- ☐ CONCURS
- ☒ NON-CONCURS
- ☐ WITHDRAWS NON-CONCURRENCE (i.e., discontinues process)
- ☒ WANTS NCP FORM PUBLIC
- ☐ WANTS NCP FORM NON-PUBLIC

TITLE OF DOCUMENT	ADAMS ACCESSION NO.
- Staff Recommendation Related to Reinstatement of the Construction Permits for Bellefonte Nuclear Plant Units 1 and 2.	ML083230895

SECTION D: CONTINUATION PAGE

CONTINUATION OF SECTION ☐ A ☐ B ☑ C

Issue 3: CP reinstatement provides for only limited opportunity for public involvement.

Response:

It should be noted that the original CP application in 1973 and the OL application in 1978 were noticed in the Federal Register. A hearing was held on the CP application, with public participation. There are several steps in the regulatory process that would allow for further public involvement. If the Commission should reinstate the CPs for BLN Units 1 and 2, the order effecting this decision would offer the public a limited opportunity for a hearing on whether good cause to reinstate the CPs had been demonstrated. If TVA decides to complete construction and reactivate its OL application, the Commission may choose to direct the staff, as was done for Watts Bar Unit 2, to offer another opportunity for hearing on the OL application. This is adequate considering the advanced stage of design and construction.

Issue 4:The NRC should consider the impact on Bellefonte Units 3 and 4.

Response:

Yes. The Commission paper describes the impact of CP reinstatement on the staff's review of Combined Operating License Application Units 3 and 4. The Office of New Reactors has concurred with the Commission paper.

NOTE: All of the issues in Enclosure 2 of the SECY paper, including these 4, were assessed and factored into the discussions and recommendations in this SECY paper.