

Room Heatup, EQ, and HVAC SERs

ADAMS Doc #	Sites	Utility/Org.	GOTHIC Vers.	Date of Approval	Title	Description
ML061600132	Arkansas Nuclear One 1	Entergy Nuclear Operations	Not Stated	30-Mar-06	10 CFR 50.59 Summary Report and Commitment Change Summary Report	10 CFR 50.59 Summary Report documenting use of GOTHIC for heatup analysis of environmental conditions following a service water failure or Loss of Offsite Power (LOOP).
ML13298A477	Byron 1&2 Braidwood 1&2	Exelon Generation Co., LLC	Not Stated	24-Oct-13	Supplemental Response to NRC HELB Audit Request for Information Supporting Request for License Amendment Regarding Measurement Uncertainty Recapture Power Uprate	Supplemental Response for License Amendment documenting use of GOTHIC models for Turbine Building High Energy Line Break (HELB) environmental analysis.
ML14349A657	Braidwood 1&2	Exelon Generation Co., LLC	7.2a	15-Dec-14	10 CFR 50.59 Summary Report	10 CFR 50.59 Summary Report documenting use of GOTHIC for analysis of environmental conditions following a High Energy Line Break event (HELB).
ML060540205	Brunswick 1&2	Duke Energy	Not Stated	2-Mar-06	Issuance of Amendment RE: Main Steam Isolation Valve Leakage Limit (TAC Nos. MC8106 and MC8107)	License Amendment using GOTHIC to analyze the temperature profile of the Main Steam Lines (MSL) under post-Loss of Coolant Accident (LOCA) conditions.
ML113070679	Callaway	Ameren UE	7.2a	3-Nov-11	Facility Operating License NPF-30, New Technical Specification 3.7.20	Amendment Request using GOTHIC for Class 1E Electrical Equipment A/C System analysis.
ML022550447	Columbia Generating Station	Energy Northwest	Not Stated	29-Aug-02	License Amendment Request - Alternative Source Term Response to RAI	License Amendment Request referencing previous use of GOTHIC to justify a 40% mixing credit in containment and the applicability for use in AST analyses.
ML042930637	Cooper	Nebraska Public Power District (NPPD)	7.0	14-Oct-04	10CFR50.59(d)(2) Summary Report	10 CFR 50.59 Summary Report for use of GOTHIC for Reactor Building HELB and Post-LOCA Heatup (PLHU) analyses resulting in new temperature and pressure profiles for Equipment Qualification (EQ) purposes.
ML032230339	Davis-Besse	FirstEnergy Nuclear Operating Co.	Not Stated	5-Aug-03	NRC Special Inspection - Containment Integrated Leak Rate Test	NRC Special Inspection Report mentioning the use of GOTHIC for Design Bases (DB) containment response.
ML061740391	Davis-Besse	FirstEnergy Nuclear Operating Co.	7.0	21-Jun-06	10 CFR 50.59 Report of Facility Changes, Tests and Experiments	10 CFR 50.59 Summary Report for use of GOTHIC for analyzing compartment pressure response to High Energy Line Breaks (HELBs) outside containment.
ML033010437	Duane Arnold	NextEra Energy Duane Arnold, LLC	Not Stated	20-Oct-03	Report of Facility Changes, Tests and Experiments, Fire Plan Changes and Commitment Changes	Report of Facility Change documenting use of GOTHIC for High Energy Line Break (HELB) both inside and outside containment and Loss of Coolant Accident (LOCA) as part of the Environmental Qualification (EQ) Program and Extended Power Uprate (EPU).
ML003675775	Farley 1&2	Southern Nuclear Operating Co.	Not Stated	29-Dec-99	Safety Evaluation Related to Amendment Nos. 147 and 138	Safety Evaluation Report discussing the use of GOTHIC for Extended Power Uprate (EPU) analyses, and approving use of GOTHIC for containment pressure and temperature response to Loss of Coolant Accident (LOCA) and Main Steam Line Breaks (MSLB). Short-term subcompartment analyses were also completed with GOTHIC.
ML15245A287	Fermi 2	DTE Electric Company	Not Stated	1-Oct-15	Report for the Audit Regarding Implementation of Mitigating Strategies and Reliable Spent Fuel Pool Instrumentation	NRC Audit Report documenting acceptance of GOTHIC analysis for environmental response (temperature, pressure, relative humidity, and flooding levels) and equipment operation for post Extended Loss of AC Power (ELAP). Also accepted GOTHIC analysis of hydrodynamic loading of Spent Fuel Pool level instrumentation.
ML030360205	Fort Calhoun	Omaha Public Power District (OPPD)	7.0	27-Jan-03	License Amendment Request, "Containment Pressure Analysis using the GOTHIC Computer Code"	License Amendment Request documenting use of GOTHIC for design basis containment analyses such as a Loss of Coolant Accident (LOCA) and Main Steam Line Break (MSLB) for Environmental Qualification (EQ) purposes as part of the steam generator replacement project.

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ML033100290	Fort Calhoun	Omaha Public Power District (OPPD)	7.0	5-Nov-03	Issuance of Amendment	Safety Evaluation and License Amendment for use of GOTHIC to perform containment analyses and to determine the bounding containment temperature profile for environmental equipment qualification.
ML081140390	Fort Calhoun	Omaha Public Power District (OPPD)	7.2a	2-May-08	Issuance of Amendment Re: Modification of Containment Spray Actuation Logic and Dampers in Containment Air Cooling and Filtering System	Issuance of Amendment documenting the use of GOTHIC for containment response to design-basis Main Steam Line Break (MSLB), Loss of Coolant Accident (LOCA) Mass and Energy (M&E), and Equipment Qualification (EQ).
ML061380249	GINNA	Constellation Energy	7.2	11-Jul-06	Safety Evaluation Related to Extended Power Uprate	Safety Evaluation approving the use of GOTHIC in Loss of Coolant Accident (LOCA) and High Energy Line Break (HELB) analyses for calculating pressure and temperature conditions within the containment.
ML041620616	Indian Point 3	Entergy Nuclear Operations	Not Stated	3-Jun-04	Stretch Power Uprate License Amendment Request Package	License Amendment Request using GOTHIC for analysis of a Main Steam Line Break (MSLB) outside containment.
ML003760486	Kewaunee (Retired)	Dominion Generation	6.0	12-Oct-00	Submittal of Topical Report WPSRSEM-NP "Reload Safety Evaluation Methods for Application to Kewaunee"	Topical Report noting the adoption of GOTHIC for containment analysis in response to Loss of Coolant Accidents (LOCAs) and Main Steam Line Breaks (MSLBs).
ML003770282	Kewaunee (Retired)	Dominion Generation	Not Stated	20-Nov-00	Completion of Follow-Up To Containment Analysis Methodology - Entrainment Assumptions in Updated Final Safety Analysis Report	Follow-Up to Topical Report noting the adoption of GOTHIC for containment analysis in response to Loss of Coolant Accidents (LOCAs) and Main Steam Line Breaks (MSLBs).
ML010230257	Kewaunee (Retired)	Dominion Generation	Not Stated	23-Jan-01	Request for Additional Information Related to Reload Safety Evaluation Methods Topical Report	RAI to Topical Report noting the adoption of GOTHIC for containment analysis in response to Loss of Coolant Accidents (LOCAs) and Main Steam Line Breaks (MSLBs).
ML010320469 (SER)	Kewaunee (Retired)	Dominion Generation	Not Stated	1-Feb-01	Request for Additional Information Related to Reload Safety Evaluation Methods Topical Report	RAI to Topical Report noting the adoption of GOTHIC for containment analysis in response to Loss of Coolant Accidents (LOCAs) and Main Steam Line Breaks (MSLBs).
ML063190467	Kewaunee (Retired) North Anna 1&2 Surry 1&2 Millstone 2&2	Dominion Generation	7.2dom	6-Nov-06	Approval of Dominion's Topical Report DOM-NAF-3 NP-A, GOTHIC Methodology for Analyzing the Response to Postulated Pipe Ruptures Inside Containment	Approved Topical Report DOM-NAF-3 NP-A: GOTHIC Methodology for Analyzing the Response to Postulated Pipe Ruptures Inside Containment
ML062420511	Kewaunee (Retired) North Anna 1&2 Surry 1&2 Millstone 2&3	Dominion Generation	7.2dom	30-Aug-06	Approval of Dominion's Topical Report DOM-NAF-3, GOTHIC Methodology for Analyzing the Response to Postulated Pipe Ruptures Inside Containment	Safety Evaluation that provides the basis for accepting the Topical Report DOM-NAF-3 NP-A: GOTHIC Methodology for Analyzing the Response to Postulated Pipe Ruptures Inside Containment
ML021130125	La Salle 1&2	Exelon Generation Co., LLC	Not Stated	4-Apr-96	Issuance of Amendments (TAC Nos. M94583 and M94779)	Safety Evaluation and License Amendment for use of GOTHIC calculations of main steam tunnel temperatures for a range of steam leaks.
ML013270088	McGuire 1&2	Duke Energy Power Company, LLC	Not Stated	25-Nov-97	Issuance of Amendments - TAC No. M99763 and M99764	Safety Evaluation and License Amendment for use of GOTHIC to analyze Large Break Loss of Coolant Accidents (LBLOCAs) in containment.
ML003733354	Millstone 1	Dominion Generation	Not Stated	30-Sep-99	Submittal of the Defueled Safety Analysis Report and the 10CFR50.59 Annual Report	Safety Analysis Report detailing use of GOTHIC for Loss of Fuel Pool Cooling analysis.
ML102920333	Nine Mile Point 2	Constellation Energy	7.2b	8-Oct-10	Supplmental Information Re: License Amendment Request for Extended Power Uprate (TAC No. ME 1476)	Supplemental LAR Information documenting the use of GOTHIC for Loss of Coolant Accident (LOCA) containment analysis.

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ML062090159	Oyster Creek	Exelon Generation Co., LLC	5.0e	25-Aug-06	Issuance of Amendment RE: Reactor Water Clean-up High Energy Line Break Detection and Isolation (TAC No. MC6046)	Approval of License Amendment citing GOTHIC for analysis of time until high energy line break (HELB) detection.
ML11123A168	Palisades	Entergy Nuclear Operations	7.2a	21-Apr-11	Final Safety Analysis Report Update - Revision 29	Update to Final Safety Analysis Report documenting use of GOTHIC for modeling containment air coolers and containment response to a Loss of Coolant Accident (LOCA).
ML13308C153	Palo Verde 1, 2, & 3	Arizona Pulfic Service Co.	8.0	25-Nov-13	Interim Staff Evaluation Relating to Overall Integrated Plan in Response to Order EA-12-049 - Mitigation Strategies	Staff Evaluation of Overall Integrated Plan in response to ELAP requirements that used GOTHIC to calculate room temperatures in the turbine driven AFW pump room, battery rooms, and control room.
ML041410607	Peach Bottom 2	Exelon Generation Co., LLC	7.0	16-Jun-04	Issuance of Amendment Re: Main Steam Tunnel Temperature High	Safety Evaluation and License Amendment for use of GOTHIC to calculate main steam tunnel temperatures for a range of steam leaks.
ML003690096	Perry 1	FirstEnergy Nuclear Operating Co.	Not Stated	1-Mar-00	Response to RAI Related to a License Amendment Requesting a Power Uprate	Response to RAI noting use of GOTHIC to evaluate high energy line breaks (HELBs) outside containment in conjunction with Power Uprate.
ML003724441	Perry 1	FirstEnergy Nuclear Operating Co.	Not Stated	1-Jun-00	Issuance of Amendment (TAC No. MA6459) - Power Uprate Submittal	Issuance of Amendment noting use of GOTHIC to evaluate high energy line breaks (HELBs) outside containment in conjunction with Power Uprate.
ML041810686	Perry 1	FirstEnergy Nuclear Operating Co.	7.0	9-Jul-04	Issuance of Amendment (TAC No. MC0342)	Safety Evaluation and License Amendment for use of GOTHIC to perform analyses of main steam line leaks and resulting temperatures in the turbine building.
ML042360680	Perry 1	FirstEnergy Nuclear Operating Co.	7.0	26-Aug-04	Correction to Safety Evaluation Report (SER) in Support of License Amendment 130	Safety Evaluation Report documenting use of GOTHIC to perform analyses of Main Steam Line Leaks and Room Heatup in the Turbine Building.
ML060830611	Pilgrim 1	Entergy Nuclear Operations	3.4e	25-Jan-06	Applicant's Environmental Report Operating License Renewal Stage	Environmental Report describing use of GOTHIC for room heatup analyses in HPCI, RCIC, Core Spray, and RHR areas.
ML091250564	Point Beach 1&2	NextEra Energy Point Beach, LLC	7.2a	7-Apr-09	License Amendment Request 261, Extended Power Uprate	License Amendment Request for Extended Power Uprate (EPU) including use of GOTHIC for compartment response following a Loss of Coolant Accident (LOCA), Main Steam Line Break (MSLB) and High Energy Line Break (HELB) events.
ML052000046	Prairie Island 1&2	Xcel Energy	7.0 and 7.1 (Patch 1)	12-Aug-05	Issuance of Amendments Re: Request for Use of GOTHIC 7 in Containment Response Analyses	Amendment Approval discussing the use of GOTHIC for Loss of Coolant Accident (LOCA) and Main Steam Line Break (MSLB) containment pressure and temperature analysis.
ML130660A420	Quad Cities 1&2	Exelon Generation Co., LLC	Not Stated	28-Feb-13	Overall Integrated Plan for Mitigation Strategies for Beyond-Design-Basis External Events	Overall Integrated Plan (OIP) documenting use of GOTHIC to analyze RCIC and other room heatups under Extended Loss of AC Power (ELAP) and Station Blackout (SBO) conditions.
ML041410566	River Bend 1	Entergy Nuclear Operations	7.0	20-May-04	Issuance of Amendment RE: High Energy Line Break Analysis (TAC NO. MB5096)	Safety Evaluation and License Amendment for use of GOTHIC to perform subcompartment temperature and pressure analyses due to HELBs inside and outside the Containment Building, including environmental qualification considerations.
ML082682060	Saint Lucie 1	Florida Power & Light Co.	Not Stated	26-Nov-08	Unit 1 - Issuance of Amendment Regarding Alternative Source Term (TAC No. MD6173)	Amendment Approval stating acceptance for use of GOTHIC to analyze RWT heatup.
ML063280241	Shearon Harris 1	Duke Energy Power Company, LLC	7.2a	5-Oct-06	Calculation NAI-1282-001, "GOTHIC Charging Pump Room Heat up Analysis for Shearon Harris"	Calculation documenting GOTHIC for use in analyzing Charging Pump Room Heatup.

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ML063280176	Shearon Harris 1	Duke Energy Power Company, LLC	7.2a	3-Nov-06	Submittal of Requested Information Presented During Regulatory Conference Held on October 13, 2006	Requested Information transmitting the calculation documenting GOTHIC for use in analyzing Charging Pump Room Heatup.
ML11291A120	South Texas 1&2	STP Nuclear Operating Co.	Not Stated	10-Oct-11	10CFR50.59 Summary Report	10 CFR 50.59 Summary Report detailing use of GOTHIC for containment pressure and temperature analysis during Main Steam Line Break (MSLB) events.
ML003735387	Three Mile Island 1	Exelon Generation Co., LLC	Not Stated	26-Jul-00	NRC Inspection Report 05000289/2000-004	Inspection Report, in association with IR 50-289/96-201, detailing use of GOTHIC to assess the Auxiliary Building Environmental Qualification (EQ) from High Energy Line Breaks (HELB).
ML011650380	Vermont Yankee	Entergy Nuclear Operations	5.0e	28-Dec-98	Issuance of Amendment to Facility Operating License No. DPR-28	Amendment approving use of GOTHIC to analyze suppression pool heatup following various heat rejection load scenarios (based on DBA-LOCA).
ML060050028	Vermont Yankee	Entergy Nuclear Operations	7.0	2-Mar-06	Safety Evaluation Related to Amendment No. 229	Safety Evaluation and License Amendment for use of GOTHIC for containment conditions after Station Blackout and Appendix R fire events.
ML031600761	Vogtle 1&2	Southern Nuclear Operating Co.	Not Stated	4-Jun-03	Issuance of Amendments (TAC Nos. MB5046 and MB5047)	Safety Evaluation and License Amendment for use of GOTHIC for evaluating environmental conditions to ensure the environmental qualification of Class IE safety-related equipment; and evaluating temperature response to MSLBs in the MSIV area.
ML003762756	Waterford 3	Entergy Nuclear Operations	Not Stated	18-Oct-00	Licensee Event Report "Potential for Loss of Safe Shutdown Equipment by a Fire in Either of Two Separate Fire Areas"	Event Report detailing the use of GOTHIC for heatup analyses in the Switchgear Rooms.
ML003760500	Waterford 3	Entergy Nuclear Operations	Not Stated	6-Oct-00	Issuance of License Amendment No. 165, Reduction in Operable Containment Fan Coolers in the Containment Cooling System (TAC No. MA6997)	Amendment approving use of GOTHIC for evaluating containment pressure and temperature response after LOCA and MSLB accidents.
ML010320373	Waterford 3	Entergy Nuclear Operations	Not Stated	1-Feb-01	Issues Identified by Entergy Operations, Inc. in the Staff Safety Evaluation Issued with License Amendment No. 165, Reduction in Operable Containment Fan Coolers in the Containment Cooling System (TAC No. MA6997)	NRC Approval of use of GOTHIC for containment response to both LOCA and MSLB accidents.
ML051030068	Waterford 3	Entergy Nuclear Operations	7.0	15-Apr-05	Issuance of Amendment RE: Extended Power Uprate	Safety Evaluation and License Amendment for use of GOTHIC to calculate containment response for LOCA and MSLB events, in support of Extended Power Uprate (EPU).
ML021900076	Watts Bar 1	Tennessee Valley Authority	Not Stated	3-Jul-02	Licensee Event Report	Event Report describing the use of GOTHIC to assess environmental impacts of an AFWP Steam leak in the AB.
ML070800193	Wolf Creek 1	Wolf Creek Nuclear Operating Co.	7.2a	14-Mar-07	Revision to TS 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation," TS 3.7.2, "Main Steam Isolation Valves (MSIVs)," and TS 3.7.3, "Main Feedwater Isolation Valves (MFIVs)"	Technical Specification (TS) revision discussing the use of GOTHIC for updated containment pressure and temperature analyses during a postulated MSLB.
ML003780723	McGuire Nuclear Station and Catawba Nuclear Station	Duke Energy	4.0/DUKE	18-Dec-00	Mass and Energy Release and Containment Response Methodology	Topical Report documenting the use of GOTHIC to simulate the mass and energy releases (M&E) and containment response to Loss of Coolant Accidents (LOCA) and Main Steam Line Breaks (MSLB) with a non-uniform ice weight distribution in the ice condenser.

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ML050680191	PWR Dry Containments	Framatome ANP	7.0	7-Mar-05	Letter to NRC "Request for Approval of BAW-10252(P), Revision 0, 'Analysis of Containment Response to Postulated Pipe Ruptures Using GOTHIC' "	Letter requesting approval of TR BAW-10252 in which GOTHIC is used for containment response analysis during postulated pipe ruptures.