	General Characteristics			
1	Abstract of Model Capabilities	CONTAIN 1.2 is an integrated analysis tool used for estimating the physical, chemical, and radiological conditions inside a containment building following the release of radioactive material from the primary system in a severe reactor accident. It can also predict the source term to the environment. CONTAIN 1.2 is a highly flexible and modular code that can run problems that are either quite simple or highly complex.		
2	Sponsor and/or Developing Organization	Nuclear Regulatory Commission (NRC)		
3	Last Custodian/ Point of Contact	Mr. Richard Griffith Organization 6421; MS-0739 P.O. Box 5800 Sandia National Laboratory Albuquerque, NM 87185-0739 PHN: 505/844-8232		
4	Life-Cycle	CONTAIN Version 1.2 was developed from CONTAIN Version 1.1. Both versions of CONTAIN were developed by Sandia National Laboratory (SNL) for the NRC, for best estimate mechanistic containment analysis for severe accidents in nuclear reactors. Version 1.2 (the current version) was released in 1995. Although some maintenance continues, the NRC has released a position paper indicating that CONTAIN will not be developed further.		
5	Model Description Summary	CONTAIN 1.2 is made up of a series of models that estimates the source term from a severe reactor accident. It has ventilation system, room/tank/glove box submodels, coupled to turbulence, species diffusion, and aerosol submodels. If necessary, spray models can be invoked to address this type of release scenario.		
6	Application Limitation	See weaknesses.		
7	Strengths/ Limitations	 Strengths: Due to control volume approach, the code is fast-running and versatile. There is no limit to the number of flow path connections to a single control volume. Spray models are available if sprays are important to the analysis. Two-phase flow can be modeled if multi-phase flow is important to the analysis. The aerosol model, MAEROS, is a detailed mechanistic model. The code has been well assessed. Limitations: There is no multi-dimensional capability. Disk overhead is associated with multiphase flow and reactor models. All subroutines appear to be loaded independently, or whether or not the models are activated. Limited fan/blower or filter models are available. Momentum balance ignores spatial acceleration term. 		
8	Model References	 D.E. Carroll et al, "Integrated Analysis of Core Debris Interactions and Their Effects on Containment Integrity Using the CONTAIN Computer Code", Nuclear Engineering and Design, Volume 104, 1987. D.C. Williams et al, "Containment Loads due to Direct Containment Heating and Associated Hydrogen Behavior: Analysis and Calculations with the CONTAIN Code", NUREG/CR-4896, 1987. K.D. Bergeron and D.C. Williams, "CONTAIN Calculations of Containment Loading of Dry PWR's", SAND84-1233J, Nuclear Engineering and Design, Volume 90, 1985. 		
9	Input Data/Parameter Requirements	 Data and input parameters: Default gas properties are available for the following gas species: Hydrogen, Oxygen, Carbon Dioxide, Carbon Monoxide, Nitrogen, Methane, Helium, Argon, Deuterium, Iron vapor, Plutonium oxide vapor, Plutonium vapor, Sodium vapor, Uranium vapor, and Water vapor. Ventilation system components. Input is via a free-field, key word-driven format. Physical models are activated only by the presence of associated key words in the input stream and are otherwise inactive. Most models allow the user to specify individual physical parameters. However, default values are available to the User. 		
10	Output Summary	Two basic types of time-dependent output written to the main output file are long edits and short edits. The presence or absence of much of the long-edit output is controlled by output keywords. In addition, the user can include user-implemented output writes. The user may access either global or cell level variables through the user-implemented output writes. Plot files are written that may be post processed by the POSTCON and HISPLOT computer programs or another user-provided post-processor program.		
11	Applications	Applicable to any facility (i.e., buildings, tanks, single rooms, etc.) with and without ventilation systems for commercial industry nuclear reactors and DOE facility reactors. Applicable to multi-species gas mixing/transport problems, as well as aerosol transport problems.		

12 User-Friendliness With the limited capability to model blowersfares and filters, it will be difficult to use CONTAIN to simulate a typical bazardous material release within a typical DOE facility. 13 Hardware-Software interface Constraints/ Requirements CONTAIN is supported on the following platforms: interface Constraints/ Requirements 14 Opprational parameters No information provided. 15 Surery Considerations Quality Assurance: Software Development Plan & Requirements - 'Quality Assurance' Procedures for the CONTAIN Severe Reactor Accident Computer Code', Sandia National Laboratories Report SANDBO-101, NUREG/CR-SS18, January 1991. 16 Surery Considerations Quality Assurance: Manual for CONTAIN 1: A Computer Code for Severe Nuclear Reactor Accident Containment Analysis', Sandia National Laboratories Report SANDBO-101, NUREG/CR-SS18, January 1991. 18 Runtime Characteristics Typical execution time: The ratio of real time to run time can vary from 0.5 to 100, depending on the modalization. Specific Characteristics Paration with the Consequence Submodel Type Al For Radiological Consequence Gaseous releases: w_ noble gases _ iodines _ other non-reactive gases Aerosol releases: Yes. Chemistry _ isotopic exchange _ Physical properties capability Part : Bispersion Submodel Type (Not Applicable) Part : Hother Consequence Submodel Type (Not Information Provided.) <td col<="" th=""><th></th><th></th><th></th></td>	<th></th> <th></th> <th></th>			
Interface Constraints/ Requirements CRAY and UNIX Workstations (i.e., SUN, HP, IBM, and DEC). 14 Operational Parameters No information provided. 15 Surety Considerations Quality Assurance: Software Development Plan & Requirements - "Quality Assurance Procedures for the CONTAIN Severe Reactor Accident Computer Code," Sandia National Laboratories Report SAND90-011, NUREG/CR-5518, January 1991. 15 Surety Considerations Quality Assurance: Software Development Plan & Requirements - "Quality Assurance Procedures for the CONTAIN Severe Reactor Accident Computer Code," Sandia National Laboratories Report SAND80-011, NUREG/CR-5518, January 1991. 16 K.K. Murata et al, "CONTAIN Independent Peer Review", Los Alamos National Laboratory Report LA-12866, January, 1995. 1. J. Diensbier, "CUBE 1000: Benchmarking of CONTAIN, JERICO and MELCOR Codes Against Simple Themal Hydraulie Problems", Nuclear Research Institute Rez, plc. Document UJV Z 13-T, August, 1994. 16 Runtime Characteristics Typical execution time: The ratio of real time to run time can vary from 0.5 to 100, depending on the modalization. Specific Characteristics 7 Source Term Algorithm? Qases noble gases indines other non-reactive gases 7 Gaseous releases: Yes. Chemistry Isotopic exchange Physical properties capability Part B: Dispersion Submodel Type (Not Applicable) Part E: Free Submodel Type (Not Applicable) Part E:	12	User-Friendliness		
Requirements CRAY and UNIX Workstations (i.e., SUN, HP, IBM, and DEC). 14 Operational Parameters No information provided. 15 Surety Considerations Quality Assurance: Software Development Plan & Requirements -: "Quality Assurance: Proceedures for the CONTAIN Severe Reactor Accident Computer Code", Sandia National Laboratories Report SAND90-011, NUREGOR-5618, January 1991. 15 Surety Considerations Quality Assurance: Advance Contrains Report SAND90-011, NUREGOR-5618, January 1991. 16 Reactor Accident Containment Analysis", Sandia National Laboratories Report SAND87-2309, April 1993. Be.E. Boyack et al., "CONTAIN Independent Peer Review", Los Alamos National Laboratory Report LA-12866, January, 1995. 10 Runtime Characteristics Typical execution time: The ratio of real time to run time can vary from 0.5 to 100, depending on the modalization. Specific Characteristics Part A: Source Term Subod=UType A1 Source Term Additionation Provided. Age: the ratio of real time to run time can vary from 0.5 to 100, depending on the modalization. Specific Characteristics April 1993. A1 Source Term Additionation Provided. Part Adiological Consequence Assessment Models Gaseous releases: Yes. Chemistry	13		CONTAIN is supported on the following platforms:	
Parameters Parameters 15 Surety Considerations Quality Assurance: Software Development Plan & Requirements - "Quality Assurance Procedures for the CONTAIN Severe Reactor Accident Computer Code", Sanda National Laboratories Report SANDB0-011, NUREG/CR-5518, January 1991. 16 Runtime Code", Sanda National Laboratories Report SANDB7-2309, April 1993. Benchmarking and V & V: B.E. Boyack et al, "CONTAIN Independent Peer Review", Los Alamos National Laboratory Report LA-12866, January, 1995. 16 Runtime Characteristics Typical execution time: The ratio of real time to run time can vary from 0.5 to 100, depending on the modalization. 17 Source Term Algorithm? ✓ YES			CRAY and UNIX Workstations (i.e., SUN, HP, IBM, and DEC).	
Procedures for the CONTAIN Severe Reador Acident Computer Code", Sandia National Laboratories Report SAND90-011, NUREG(CR-5518, January 1991. K.K. Murata et al, "User's Manual for CONTAIN 1.1: A Computer Code for Severe Nuclear Reactor Accident Containment Analysis", Sandia National Laboratories Report SAND87-2309, April 1993. Benchmarking and V & V: B.E. Boyack et al. "CONTAIN Independent Peer Review", Los Alamos National Laboratory Report LA-12866, January, 1995. J. Dienstbier, "CUBE 1000: Benchmarking of CONTAIN, JERICO and MELCOR Codes Against. Simple Thermal Hydraulic Problems", Nuclear Research Institute Rez, plc. Document UJV Z 13-T, August, 1994. 16 Runtime Characteristics The ratio of real time to run time can vary from 0.5 to 100, depending on the modalization. Specific Characteristics Part A: Source Term Submodel Type A1 Source Term Submodel Type A1 Source Term Galoogical Gaseous releases: Yes. Chemistry Isotopic exchange Physical properties capability Part C: Transport Submodel Type (Not Applicable) Part D: Eire Submodel Type (Not Applicable) Part B: Energetic Events Submodel Type (Not Applicable) Part B: Energetic Events Submodel Type (Not Applicable) Part D: Fire Submodel Type (Not Applicable) Part B: Proved Submodel Type (Not Applicable) Part B: Health Consequence Submodel Type (Not Applicable)	14		No information provided.	
Reactor Accident Containment Analysis", Sandia National Laboratories Report SAND87-2309, April 1993. Benchmarking and V & V: Benchmarking and V & V: B.E. Boyack et al, "CONTAIN Independent Peer Review", Los Alamos National Laboratory Report LA-12866, January, 1995. J. Dienstbier, "CUBE 1000: Benchmarking of CONTAIN, JERICO and MELCOR Codes Against Simple Thermal Hydraulic Problems", Nuclear Research Institute Rez, plc. Document UJV Z 13-T, August, 1994. 16 Runtime Characteristics The ratio of real time to run time can vary from 0.5 to 100, depending on the modalization. Specific Characteristics Part A: Source Term Algorithm? A1 Source Term Submodel Type A1 Source Term Models Gensequence Assessment Models Gaseous releases: Yes. Chemistry ✓ Isotopic exchange ✓ Physical properties capability Part C: Transport Submodel Type (Not Applicable) Entremation Provided.) Part F: Health Consequence Submodel Type (Not Applicable) Part F: Health Consequence Submodel Type (Not Applicable) Part H: Physical Features of Model (No Information Provided.) Part H: Physical Features of Model (No Information Provided.) Part H: Hotel Consequence of Nuclei Type (Not Applicable) Entremation Provided.) Part J: Model Output Capabilities (See Item 9.) J10 Other	15	Surety Considerations	Procedures for the CONTAIN Severe Reactor Accident Computer Code", Sandia National	
B.E. Boyack et al, "CONTAIN Independent Peer Review", Los Alamos National Laboratory Report LA-12866, January, 1995. J. Dienstbier, "CUBE 1000: Benchmarking of CONTAIN, JERICO and MELCOR Codes Against Simple Thermal Hydraulic Problems", Nuclear Research Institute Rez, plc. Document UJV Z 13-T, August, 1994. 16 Runtime Characteristics Typical execution time: The ratio of real time to run time can vary from 0.5 to 100, depending on the modalization. Specific Characteristics Part A: Source Term Submodel Type A1 Source Term Submodel Type A2 For Radiological Consequence Assessment Models Gaseous releases: noble gases iodines other non-reactive gases A2 For Radiological Consequence Assessment Models Gaseous releases: Yes. Chemistry Isotopic exchange Physical properties capability Part B: Dispersion Submodel Type (Not Applicable) Part D: Fire Submodel Type (Not Applicable) Part D: Fire Submodel Type (Not Applicable) Part F: Health Consequence Submodel Type (Not Applicable) Part F: Health Consequence Submodel Type (No Information Provided.) Part I: Model Input Requirements (See Item 3.) Part I: Model Input Requirements (See Item 3.) Part J: Model Output Capabilities J10 Other Two basic types of time-dependent output writen to the main output tile are long edits and short dits. The presence or absence or much of the long-edit output writes. The user m			Reactor Accident Containment Analysis", Sandia National Laboratories Report SAND87-2309,	
LA-12866, January, 1995. J. Dienstbier, "CUBE 1000: Benchmarking of CONTAIN, JERICO and MELCOR Codes Against Simple Thermal Hydraulic Problems", Nuclear Research Institute Rez, plc. Document UJV Z 13-T, August, 1994. 16 Runtime Characteristics Typical execution time: The ratio of real time to run time can vary from 0.5 to 100, depending on the modalization. Source Term Submodel Type A1 Source Term Algorithm? Algorithm? ✓ YESNO A3 For Radiological Consequence Assessment Models Acrosol releases: ✓ noble gases Aerosol releases: ✓ noble gases Are Dispersion Submodel Type (Not Applicable) Part B: Dispersion Submodel Type (Not Applicable) Part D: Fire Submodel Type (Not Applicable) Part E: Energetic Events Submodel Type (Not Information Provided.) Part F: Health Consequences Submodel Type (No Information Provided.) Part H: Hotel Input Requirements (See Item 9.) Part I: Model Output Capabilities J10 Other Two basic types of time-dependent output writes. The user may access either global or cell level variables through the user-implemented output writes. The user may access either global or cell evel variables through the user-implemented output writes. The user may access either global or cell evel variables through the user-implemented output writes. The user write			Benchmarking and V & V:	
Simple Thermal Hydraulic Problems", Nuclear Research Institute Rez, plc. Document UJV ⁷ Z 13-T, August, 1994. 16 Runtime Characteristics Typical execution time: The ratio of real time to run time can vary from 0.5 to 100, depending on the modalization. Specific Characteristics Part A: Source Term Submodel Type A1 Source Term Algorithm? ✓ YES				
Characteristics The ratio of real time to run time can vary from 0.5 to 100, depending on the modalization. Specific Characteristics Part A: Source Term Submodel Type A1 Source Term Submodel Type YESNO A3 For Radiological Consequence Assessment Models Gaseous releases: noble gases other non-reactive gases other non-reactive gases Aerosol releases: Yes. Chemistry Isotopic exchange Physical properties capability Part B: Dispersion Submodel Type (Not Applicable) Part C: Transport Submodel Type (Not Applicable) Part E: Energetic Events Submodel Type (Not Applicable) Part E: For Radio Counterreasures Submodel Type (No Information Provided.) Part G: Effects and Counterreasures Submodel Type (No Information Provided.) Part H: Physical Features of Model (No Information Provided.) Part 1: Model Output Capabilities J0 Other Two basic types of time-dependent output written to the main output file are long edits and short edits. The presence or absence of much of the long-edit output scintrolled by output keywords. In addition, the user can include user-implemented output writes. Plot files are written that may be post proccessed by the POSTCON and HISPLOT computer pro			Simple Thermal Hydraulic Problems", Nuclear Research Institute Rez, plc. Document UJV Z 13-T,	
The ratio of real time to run time can vary from 0.5 to 100, depending on the modalization. Specific Characteristics Part A: Source Term Submodel Type A1 Source Term Algorithm?	16		Typical execution time:	
Part A: Source Term Submodel Type A1 Source Term Algorithm? A3 For Radiological Consequence Assessment Models Gaseous releases: ves. A3 For Radiological Consequence Assessment Models Gaseous releases: ves. Chemistry vestication Physical properties capability Part B: Dispersion Submodel Type (Not Applicable) Part C: Transport Submodel Type (Not Applicable) Part D: Fire Submodel Type (Not Applicable) Part E: Energetic Events Submodel Type (Not Applicable) Part B: Energetic Events Submodel Type (Not Applicable) Part B: Energetic Events Submodel Type (Not Applicable) Part B: Health Consequence Submodel Type (Not Information Provided.) Part B: Health Consequence Submodel Type (No Information Provided.) Part I: Model Input Requirements of Model (No Information Provided.) Part I: Model Input Requirements (See Item 9.) Part J: Model Output Capabilities J10 Other J10 Other Two basic types of time-dependent output writen to the main output file are long edits and short edits. The presence or absence of much of the long-edit output is controlled by output keywords. In addition, the user can include user-implemented output writes. Plot files are written that may be post processed by the POSTCON and HISPLOT computer programs or another user-provided post-processor program.		Characteristics	The ratio of real time to run time can vary from 0.5 to 100, depending on the modalization.	
Part A: Source Term Submodel Type A1 Source Term Algorithm? A3 For Radiological Consequence Assessment Models Gaseous releases: ves. A3 For Radiological Consequence Assessment Models Gaseous releases: ves. Chemistry vestication Physical properties capability Part B: Dispersion Submodel Type (Not Applicable) Part C: Transport Submodel Type (Not Applicable) Part D: Fire Submodel Type (Not Applicable) Part E: Energetic Events Submodel Type (Not Applicable) Part B: Energetic Events Submodel Type (Not Applicable) Part B: Energetic Events Submodel Type (Not Applicable) Part B: Health Consequence Submodel Type (Not Information Provided.) Part B: Health Consequence Submodel Type (No Information Provided.) Part I: Model Input Requirements (See Item 9.) Part 1: Model Output Capabilities J10 Other Two basic types of time-dependent output written to the main output file are long edits and short edits. The presence or absence of much of the long-edit output is controlled by output keywords. In addition, the user can include user-implemented output writes. Plot files are written that may be post processed by the POSTCON and HISPLOT computer programs or another user-provided post-processor program.			Specific Characteristics	
A1 Source Term Algorithm?	Part	A: Source Term Submo		
Consequence Assessment Models gases Aerosol releases: Yes. Chemistry Chemistry ✓ Isotopic exchange ✓ Physical properties capability Part B: Dispersion Submodel Type (Not Applicable) Part C: Transport Submodel Type (Not Applicable) Part C: Transport Submodel Type (Not Applicable) Part E: Energetic Events Submodel Type (Not Applicable) Part E: Energetic Events Submodel Type (Not Applicable) Part F: Health Consequence Submodel Type (Not Information Provided.) Part G: Effects and Countermeasures Submodel Type (No Information Provided.) Part H: Physical Features of Model (No Information Provided.) Part I: Model Input Requirements (See Item 9.) (See Item 9.) Part J: Model Output Capabilities J10 J10 Other Two basic types of time-dependent output written to the main output file are long edits and short edits. The presence or absence of much of the long-edit output writes. The user may access either global or cell level variables through the user-implemented output writes. Plot files are written that may be post processor program.	A1		YES NO	
Incode Chemistry	A3	Consequence		
Part B: Dispersion Submodel Type (Not Applicable) Part C: Transport Submodel Type (Not Applicable) Part D: Fire Submodel Type (Not Applicable) Part E: Energetic Events Submodel Type (Not Applicable) Part F: Health Consequence Submodel Type (Not Information Provided.) Part G: Effects and Countermeasures Submodel Type (No Information Provided.) Part H: Physical Features of Model (No Information Provided.) Part I: Model Input Requirements (See Item 9.) Part J: Model Output Capabilities J10 Other Two basic types of time-dependent output written to the main output file are long edits and short edits. The presence or absence of much of the long-edit output si controlled by output keywords. In addition, the user can include user-implemented output writes. The user may access either global or cell level variables through the user-implemented output writes. Plot files are written that may be post processed by the POSTCON and HISPLOT computer programs or another user-provided post-processor program.		Models	Aerosol releases: Yes.	
Part C: Transport Submodel Type (No Information Provided.) Part D: Fire Submodel Type (Not Applicable) Part E: Energetic Events Submodel Type (Not Applicable) Part F: Health Consequence Submodel Type (No Information Provided.) Part G: Effects and Countermeasures Submodel Type (No Information Provided.) Part H: Physical Features of Model (No Information Provided.) Part I: Model Input Requirements (See Item 9.) Part J: Model Output Capabilities J10 Other Two basic types of time-dependent output written to the main output file are long edits and short edits. The presence or absence of much of the long-edit output s controlled by output keywords. In addition, the user can include user-implemented output writes. Plot files are written that may be post processed by the POSTCON and HISPLOT computer programs or another user-provided post-processor program.			Chemistry <u></u> Isotopic exchange <u></u> Physical properties capability	
Part D: Fire Submodel Type (Not Applicable) Part E: Energetic Events Submodel Type (Not Applicable) Part F: Health Consequence Submodel Type (No Information Provided.) Part G: Effects and Counterreasures Submodel Type (No Information Provided.) Part H: Physical Features of Model (No Information Provided.) Part I: Model Input Requirements (See Item 9.) Part J: Model Output Capabilities J10 Other Two basic types of time-dependent output written to the main output file are long edits and short edits. The presence or absence of much of the long-edit output is controlled by output keywords. In addition, the user can include user-implemented output writes. The user may access either global or cell level variables through the user-implemented output writes. Plot files are written that may be post processor program.	Part	B: Dispersion Submode	I Type (Not Applicable)	
Part E: Energetic Events Submodel Type (Not Applicable) Part F: Health Consequence Submodel Type (No Information Provided.) Part G: Effects and Countermeasures Submodel Type (No Information Provided.) Part H: Physical Features of Model (No Information Provided.) Part I: Model Input Requirements (See Item 9.) Part J: Model Output Capabilities J10 Other Two basic types of time-dependent output written to the main output file are long edits and short edits. The presence or absence of much of the long-edit output scontrolled by output keywords. In addition, the user can include user-implemented output writes. The user may access either global or cell level variables through the user-implemented output writes. Plot files are written that may be post processed by the POSTCON and HISPLOT computer programs or another user-provided post-processor program.	Part	C: Transport Submodel	Type (No Information Provided.)	
Part F: Health Consequence Submodel Type (No Information Provided.) Part G: Effects and Countermeasures Submodel Type (No Information Provided.) Part H: Physical Features of Model (No Information Provided.) Part I: Model Input Requirements (See Item 9.) Part J: Model Output Capabilities J10 Other Two basic types of time-dependent output written to the main output file are long edits and short edits. The presence or absence of much of the long-edit output is controlled by output keywords. In addition, the user can include user-implemented output writes. The user may access either global or cell level variables through the user-implemented output writes. Plot files are written that may be post processed by the POSTCON and HISPLOT computer programs or another user-provided post-processor program.	Part	D: Fire Submodel Type	(Not Applicable)	
Part G: Effects and Countermeasures Submodel Type (No Information Provided.) Part H: Physical Features of Model (No Information Provided.) Part I: Model Input Requirements (See Item 9.) Part J: Model Output Capabilities J10 Other Two basic types of time-dependent output written to the main output file are long edits and short edits. The presence or absence of much of the long-edit output is controlled by output keywords. In addition, the user can include user-implemented output writes. The user may access either global or cell level variables through the user-implemented output writes. Plot files are written that may be post processed by the POSTCON and HISPLOT computer programs or another user-provided post-processor program.	Part	E: Energetic Events Sub	omodel Type (Not Applicable)	
Part H: Physical Features of Model (No Information Provided.) Part I: Model Input Requirements (See Item 9.) Part J: Model Output Capabilities Other Two basic types of time-dependent output written to the main output file are long edits and short edits. The presence or absence of much of the long-edit output is controlled by output keywords. In addition, the user can include user-implemented output writes. The user may access either global or cell level variables through the user-implemented output writes. Plot files are written that may be post processed by the POSTCON and HISPLOT computer programs or another user-provided post-processor program.	Part	F: Health Consequence	Submodel Type (No Information Provided.)	
Part I: Model Input Requirements (See Item 9.) Part J: Model Output Capabilities J10 Other Two basic types of time-dependent output written to the main output file are long edits and short edits. The presence or absence of much of the long-edit output is controlled by output keywords. In addition, the user can include user-implemented output writes. The user may access either global or cell level variables through the user-implemented output writes. Plot files are written that may be post processed by the POSTCON and HISPLOT computer programs or another user-provided post-processor program.	Part	G: Effects and Counterr	neasures Submodel Type (No Information Provided.)	
Part J: Model Output Capabilities J10 Other Two basic types of time-dependent output written to the main output file are long edits and short edits. The presence or absence of much of the long-edit output is controlled by output keywords. In addition, the user can include user-implemented output writes. The user may access either global or cell level variables through the user-implemented output writes. Plot files are written that may be post processed by the POSTCON and HISPLOT computer programs or another user-provided post-processor program.	Part	H: Physical Features of	Model (No Information Provided.)	
J10 Other Two basic types of time-dependent output written to the main output file are long edits and short edits. The presence or absence of much of the long-edit output is controlled by output keywords. In addition, the user can include user-implemented output writes. The user may access either global or cell level variables through the user-implemented output writes. Plot files are written that may be post processed by the POSTCON and HISPLOT computer programs or another user-provided post-processor program.	Part	I: Model Input Requirem	ients (See Item 9.)	
edits. The presence or absence of much of the long-edit output is controlled by output keywords. In addition, the user can include user-implemented output writes. The user may access either global or cell level variables through the user-implemented output writes. Plot files are written that may be post processed by the POSTCON and HISPLOT computer programs or another user- provided post-processor program.	Part	J: Model Output Capabi	lities	
Part K: Model Usage Considerations (No Additional Information Provided.)	J10	Other	edits. The presence or absence of much of the long-edit output is controlled by output keywords. In addition, the user can include user-implemented output writes. The user may access either global or cell level variables through the user-implemented output writes. Plot files are written that may be post processed by the POSTCON and HISPLOT computer programs or another user-	
	Part	K: Model Usage Consid	erations (No Additional Information Provided.)	