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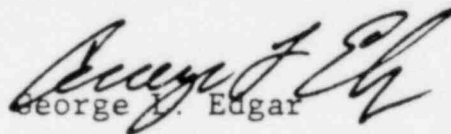
Thomas Cochran, Esq.
Natural Resources Defense Council
1725 Eye Street, N.W., Suite 600
Washington, D. C. 20006

Re: CRBRP (Docket No. 50-537)

Dear Tom:

I have enclosed the copies of Argonne National Laboratory memoranda which you requested after your inspection on June 30, 1982 in regard to Applicants' Supplemental Updated Response #1 to Natural Resources Defense Council, Inc. and Sierra Club Interrogatories (Second, Third, Fourth, Fifth and Sixth Sets), dated April 30, 1982; Applicants' Second Supplemental Updated Response #1 to Natural Resources Defense Council, Inc. and Sierra Club Interrogatories (Second, Third, Fourth, Fifth and Sixth Sets), dated May 24, 1982; and Applicants' Responses to Natural Resources Defense Council's 19th Set of Interrogatories to Applicants (No. 19 (III) (5)). An index of the documents provided has been developed from Applicants' original responses (documents provided are encircled), and attached hereto.

Very truly yours,


George L. Edgar

Enclosures

Attachment

cc (without Enclosures and
with Attachment):
Service List

GLE:lpg

April 29, 1982

Listing of Argonne National Laboratory Intra-Laboratory Memoranda generated by personnel in the Accident Analysis Section and other Sections that critique or otherwise evaluate the models and subroutines used in SAS3D, SAS3A, VENUS-II, and PLUTO. Note that files through 1978 are on microfiche. Those for 1979 are contained in six file boxes, clearly labeled. Those for 1980 and later are in standing files. Consequently, box numbers have been removed from the listings as they are no longer relevant.

This listing is submitted in response to Interrogatories I(A)(4), I(B)(3), and I(C)(4) of NRDC's Sixth Set of Interrogatories.

<u>Number</u>	<u>Memo Title</u>	<u>File Number</u>
1	A. B. Rothman/A. Watanabe/R. T. Purviance to C. E. Dickerman, "First Experiment on PFR Fuel in TREAT," February 23, 1970.	46906
2	W. R. Simmons to A. Amorosi, "Reactor Analysis & Safety Division's Contribution to Weekly Report," March 12, 1970.	46900
3	W. R. Simmons to A. Amorosi, "Transmittal of Preliminary 189," March 31, 1970.	46901
4	L. Baker, Jr. to W. R. Simmons, "Amorosi Comment on Overlap in Analytical Work Between STF Study and Accident Analysis Task (see Attachment 1)," April 22, 1970.	46901
5	R. Anderson to R. O. Ivins, "Progress Report on TREAT Sodium Impact Column Tests," April 24, 1970.	46906
6	L. Baker, Jr. to W. R. Simmons, "RAS Milestones for Fy 1971 to 1972," April 28, 1970.	A51
7	W. T. Sha to G. J. Fischer/P. R. Huebotter, "VENUS Report," April 30, 1970.	A53
8	C. E. Dickerman to W. R. Simmons, "May 28 Version of Fuel Dynamics Work Plan," June 1, 1970.	46906
9	W. R. Simmons to A. Amorosi, "Reactor Analysis & Safety Division's Contribution to Weekly Report," June 2, 1970.	46906
10	A. K. Agrawal to Distribution, "Effect of Radial Power Profile on Fast Fuel Pin Failure Experiments in TREAT," July 21, 1970.	A53
11	B. D. LaMar to R. O. Ivins, "Fuel Failure," July 27, 1970.	46905
12	A. K. Agrawal to Distribution, "Plastic Strain Calculations for Unirradiated PFR Pin (H-1 exp.) by Modified SASIA Code," August 18, 1970.	46906
13	J. C. Carter to C. E. Dickerman, "Pretest Calculations for Shot L-1," September 4, 1970.	46906

<u>Number</u>	<u>Memo Title</u>	<u>File Number</u>
14	C. E. Dickerman to E. N. Pettit, "Paper Prepared for Fast Reactor Fuel Technology Topical Meeting," September 15, 1970.	A54
15	A. K. Agrawal to Distribution, "Pretransient SAS1A-ASH Calculations for D-1 Experiment," September 16, 1970.	46906
16	A. H. Judd to R. Sevy, "Fault Trees for Pin-to-Pin Failure Propagation," October 15, 1970.	46901
17	A. K. Agrawal to E. N. Pettitt, "Paper Prepared for 'New Developments in Reactor Mathematics and Applications' Topical Meeting," October 15, 1970.	46906
18	R. E. Johnson to W. R. Simmons, "GAO Audit of our Accident Analysis & Safety Evaluation Account No. 46901," October 16, 1970.	46901
19	A. B. Rothman to Distribution, "H2 Experimental Results," October 27, 1970.	46906
20	W. R. Simmons to R. V. Laney, "Nuclear Safety Program Fiscal 71 Midyear Additional Funds Request," December 22, 1970.	46900
21	R. C. Doerner/A. B. Rothman to Distribution, "SAS1A Calculations for Fuel Dynamics Experiments," January 14, 1971.	46906
22	W. R. Bohl to G. Fischer, "Fuel-Clad Heat Transfer in Fast Reactor Pins," February 3, 1971.	46901
23	R. H. Sevy to W. R. Simmons, "FFTF Flow Coastdown Analysis," June 23, 1971.	46901
24	F. E. Dunn to Distribution, "Treatment of Film Dryout and Film Draining in Voided Regions in the SAS2A Code," March 6, 1972.	A78
25	C. E. Dickerman/R. C. Doerner/A. B. Rothman/M. G. Stevenson/L. L. Smith to W. R. Simmons, "Meeting to Discuss Future Fuel Dynamics H and E Series Tests," March 17, 1972.	46901 (47200)
26	R. P. Stein to Distribution, "Modes for Coolant Voiding in SAS2A," May 8, 1972.	46901 (47200)

<u>Number</u>	<u>Memo Title</u>	<u>File Number</u>
27	G. Hoppner to Distribution, "SAS2A Calculations of the TREAT-L2 Experiments," May 16, 1972.	46901 (47200)
28	F. E. Dunn/G. Hoppner to Distribution, "Memo to R. P. Stein titled 'Models for Coolant Voiding in SAS2A'," June 8, 1972.	46901 (47200)
29	W. A. Bezella to D. H. Lennox, "SAS2A Analysis of FEFPL Total Loss of ALIP Power and Test Section Inlet Flow Blockage Accidents," July 13, 1972.	46905
30	G. J. Fischer to W. R. Simmons, "Impact of Review of FEFPL SAR on Other Accident Analysis Work," July 28, 1972.	46901 (47200)
31	W. A. Bezella to D. H. Lennox, "Effect of ETR Scram Delay on Loss of ALIP Power Accident," August 7, 1972.	46905
32	W. A. Bezella to D. H. Lennox, "Recent SAS2A FEFPL Accident Results Pertinent to the MFCI Problem," August 7, 1972.	46905
33	A. Padilla to R. M. Crawford, "Preliminary Analysis of a Local Molten Fuel-Coolant Interaction," August 8, 1972.	46905
34	M. G. Stevenson/G. J. Fischer to Distribution, "Analytical Modeling Based on Experiments," August 31, 1972.	46901 (47200)
35	R. M. Crawford to D. Rose, "Contribution to the LMFBR Program Plan," August 31, 1972.	46905
36	F. E. Dunn/G. Hoppner to G. J. Fischer, "Results of Pipe Rupture Study (Peak Pin, Four-inch Displacement) Requested by ARD," October 3, 1972.	46901 (47200)
37	A. Padilla/R. Crawford to B. D. LaMar, "Local MFCI - Uncertainties and Needs," October 11, 1972.	46905
38	R. M. Crawford/W. R. Bohl to D. H. Lennox, "Review of Test Requirements for the FEFP In-Pile Experiment P2," October 18, 1972.	46905
39	G. J. Fischer to W. R. Simmons, "Accident Analysis Review of Experiment Plan Part I, Expulsion and Reentry Tests--In-Pile TREAT R-Series," November 3, 1972.	46901 (47200)

<u>Number</u>	<u>Memo Title</u>	<u>File Number</u>
40	E. L. Martinez to W. R. Simmons, "Audit of RAS-PPM, Sections 3.6 and 4.6, Concerning Critical Reviews and Interactions Between Groups," November 10, 1972.	46901 (47200)
41	R. H. Sevy to Distribution, "Review of Document Entitled 'Experimental Needs for LOF Analysis Support' by M. G. Stevenson," December 13, 1972.	46901 (47200)
42	L. Baker, Jr. to Distribution, "Core Conditions Immediately after the HCDA: Comments on Postburst Analysis by Jackson and Boudreau (December 1972)," January 29, 1973.	46911 (47401)
43	T. J. Heames to G. J. Fischer, "Status of SAS2A at UCLA," March 5, 1973.	46901 (47200)
44	F. E. Dunn to W. R. Simmons, "Interfaces Between Accident Analysis Codes and Space-Dependent Kinetics," March 6, 1973.	46901 (47200)
45	W. R. Bohl to J. J. Dutton, "Paper for ANS Topical Conference," March 8, 1973.	46901 (47200)
46	G. J. Fischer to Distribution, "Recommendations for Near-term F- and EOS-Series Tests," March 9, 1973.	46901 (47200)
47	L. L. Smith to J. J. Dutton, "Paper for ANS Topical Meeting," March 9, 1973.	46901 (47200)
48	F. E. Dunn to G. J. Fischer, "Accuracy of SAS and IANUS Coolant Temperature Calculations in a Simple Case," March 12, 1973.	46901 (47200)
49	M. G. Stevenson/W. R. Bohl/L. L. Smith to G. J. Fischer, "Working Information on Post-first-burst Conditions for EOEC-FTR-LOF Analysis," March 29, 1973.	46901 (47200)
50	A. Watanabe to Distribution, "Preliminary Analysis of H5 TREAT Test by SAS2A-DEFORM II," April 3, 1973.	46901 (47200)
51	R. M. Singer to H. K. Fauske, "Comparison of OPERA-1 Experiment with SAS-2A Predictions," April 4, 1973.	46903 (47200)
52	G. Hoppner to G. J. Fischer, "Sodium Film Motion Module of SAS--Part 1, Physical Model and Mathematical Treatment," April 10, 1973.	46901 (47200)

<u>Number</u>	<u>Memo Title</u>	<u>File Number</u>
53	L. L. Smith to G. J. Fischer/ M. G. Stevenson, "Accident Analysis Capability to Analyze Overpower Accidents," April 10, 1973.	46901 (47200)
54	Meeting Report, RAS-M-206, R. J. Silvestrini, "March 5-7, 1973 at ANL/E," April 13, 1973.	46900
55	F. E. Dunn to Distribution, "A Simple, Near-term Multiple-pin Voiding Model for SAS," April 13, 1973.	46901 (47200)
56	W. R. Bohl to M. G. Stevenson, "Clad Motion in the LOF Accident," May 8, 1973.	46901 (47200)
57	M. G. Stevenson to C. E. Dickerman, "DEFORM-II Fuel Mechanics Module," May 15, 1973.	46901 (47200)
58	Report, F. E. Dunn, "Treatment of Coolant Flow Area Changes in the Lower and Upper Reflectors in SAS," May 31, 1973.	46901 (47200)
59	W. L. Woodruff/F. E. Dunn to Distribution, "Decay Heating Power in the SAS2A Code," June 11, 1973.	46901 (47200)
60	G. Hoppner to M. G. Stevenson, "Sodium Film Motion Module of SAS," June 12, 1973.	46901 (47200)
61	L. L. Smith to Distribution, "FTR-LOF-1: FTR-BOL Base Case Core Model," June 14, 1973.	46901 (47200)
62	L. L. Smith to Distribution, "FTR-LOF-2: FTR-BOC-4 Base Case Core Model," June 21, 1973.	46901 (47200)
63	L. L. Smith to Distribution, "FTR-LOF-3: FTR-EOC-4 Base Case Core Model," June 26, 1973.	46901 (47200)
64	L. L. Smith to Distribution, "FTR-LOF-4: Axial Mesh Spacing for the SAS3A FFTF-LOF Calculations," June 27, 1973.	46901 (47200)

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65	W. R. Bohl to M. G. Stevenson, "SLUMPY Input and Model Status," June 29, 1973.	47200
66	L. L. Smith to Distribution, "Summary for San Francisco ANS Meeting, July 7, 1973.	47200
67	G. J. Fischer to Distribution, "Effects of Radial Expansion Reactivity Feedback During a Hypothetical Unprotected Flow-Coastdown Accident in the FFTF Reactor," July 9, 1973.	47200
68	W. R. Bohl to L. W. Deitrich, "Clad Motion in the L-2 Experiment," July 23, 1973.	47200
69	E. E. Gruber to E. W. Barts, "Role of Fission Gas in Experimentally Observed Fuel Motion," July 24, 1973.	47200
70	L. L. Smith/A. Watanabe to Distribution, "FTR-LOF-5: Reactor Physics Data for the FTR-BOL Base Case Model," July 27, 1973.	47200
71	W. R. Bohl to M. G. Stevenson, "Channel to Channel Heat Transport," August 10, 1973.	47200
72	G. Hoppner to M. G. Stevenson/M. A. Grolmes, "SAS2A Calculations for R-3 Experiment," August 13, 1973.	47200
73	M. G. Stevenson to Distribution, "Pin Failure Criteria for Transient Overpower HCDA Analysis," August 13, 1973.	47200
74	W. R. Bohl to Distribution, "A Clad Motion Plotting Package for SAS2B," August 20, 1973.	47200
75	M. G. Stevenson to J. F. Marchaterre, "FTR Nominal Radial Expansion During LOF," August 21, 1973.	47200
76	L. L. Smith to L. Leibowitz, "SAS3A Output," August 24, 1973.	47200
77	M. G. Stevenson to J. F. Marchaterre, "Release of SAS2B (Berkeley Version) to HEDL, August 30, 1973.	47200

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79	W. R. Bohl to C. E. Dickerman, "Axial Power Distribution for L-5," September 6, 1973.	47200
80	W. A. Bezella to D. H. Lennox, "SAS2A Analysis of FEFPL Reference Experiment," September 10, 1973.	46922
81	W. A. Bezella to D. H. Lennox, "SAS2A Analysis of FEFPL Test Section Response to ETR Design Basis Reactivity Accident," September 24, 1973.	46922
82	R. W. Ostensen to J. F. Jackson, "Boiling Pool Model for Core Experiment," October 9, 1973.	47200
83	L. L. Smith to Distribution, "FTR-LOF-8: SAS3A Structure and Reflector Characteristics for the FFTF-LOF," October 10, 1973.	47200
84	L. L. Smith to M. G. Stevenson, "Time Dependent Reactor Physics Calculations Using SAS3A and FX2," October 11, 1973.	47200
85	L. L. Smith to SAS3A Users Group, "Primary Loop Model Modifications," October 11, 1973.	47200
86	C. E. Dickerman to Distribution, "Draft Material on LOF Extended Fuel Motion and Coolability Data from Transient Tests," October 11, 1973.	47200
87	W. R. Bohl to M. G. Stevenson, "SLUMPY Progress," October 22, 1973.	47200
88	J. F. Jackson/R. W. Ostensen to Distribution, "Mechanical Disassembly of FFTF Reactor," October 25, 1973.	47200
89	M. G. Stevenson/J. F. Jackson to A. J. Goldman, "Contribution for C. Kelber," October 25, 1973.	47200
90	F. E. Dunn to Distribution, "Incoherent (Multiple-Pin) Boiling Within a Subassembly--A Near-Term SAS Model with Heat Flow Between Subchannels," October 29, 1973.	47200

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91	A. Watanabe to Initiating Accident Analysis Section/Postburst Analysis Section, "Sending SAS2A/DEFORM-II to an Outside User," October 30, 1973.	47200
92	M. G. Stevenson/J. F. Jackson to E. L. Martinec, "Budget for Activities 47200 and 43404," October 31, 1973.	47200
93	M. G. Stevenson/F. E. Dunn to P. R. Huebotter, "Review of GE Specification for a Core Restraint Transient Analysis Code," November 15, 1973.	47200
94	Meeting Report, November 14-15, 1973, Agreements and Commitments LOF-HCDA Meeting.	47200
95	C. H. Gartside to D. H. Lennox, "Coolant Boiling," November 21, 1973.	46922
96	B. D. La Mar to Distribution, "Coolant Boiling," November 29, 1973.	46922
97	W. A. Bezella to D. H. Lennox, "ANC Comments on MFCI Model Inadequacies as Presented in FEPPL-SAR," November 30, 1973.	46922
98	C. C. Meek to L. W. Deitrich, "SAS Modeling of Incoherence in L-Series Tests," December 10, 1973.	46906
99	W. R. Bohl to M. G. Stevenson, "Channel to Channel Heat Transport," December 12, 1973.	47200
100	A. Watanabe to DEFORM-II Users, "SAS/DEFORM Data Set Management, Serial-10," December 12, 1973.	47200
101	F. E. Dunn to Distribution, "SAS Code Development for Incoherent Voiding Within a Subassembly--an Overview," December 13, 1973.	47200
102	M. A. Grolmes to R. A. Noland/J. P. Burelbach, "Response to Memo of November 28, 1973, from R. A. Noland and J. P. Burelbach to Distribution," (TREAT Drawing Number System Comment) December, 14, 1973.	46903

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103	W. R. Bohl to M. G. Stevenson, "F-series Justification," January 8, 1974.	47200
104	G. Hoppner to M. G. Stevenson, "Comparison of SAS-Film Motion with SAS-Static Film," January 10, 1974.	47200
105	F. E. Dunn to Distribution, "Generation of the Variable Channel SAS2D Code from the Ten-Channel SAS2A Code," January 15, 1974.	47200
106	F. E. Dunn to D. H. Jacobsohn, "Benefits to RAS from More Central Memory on the ANL IBM 360-195 Computer," January 28, 1974.	47200
106	M. G. Stevenson and J. F. Jackson to Distribution, "Philadelphia ANS Meeting," January 30, 1974.	47200
107	W. A. Bezella to D. H. Lennox, "Predictions of MFCI Conditions for ANC Control Stability Study," January 30, 1974.	46922
108	F. E. Dunn to Distribution, "Time-Dependent Coolant Inlet Temperature and Coolant Exit Pressure in PRIMAR-I, the Primary Loop Routine in SAS2A," February 7, 1974.	47200
109	A. Watanabe to Distribution, "The ARCH (for ARCHive) System: An Arboreal Approach for SAS-LOF Data Set Migration," February 12, 1974.	47200
110	J. B. Van Erp to L. F. Epstein/P. R. Huebotter/W. Y. Kato/J. F. Schumar, S. Z. Zielinski, "FFTF Loss-of-Flow Data for Inherent Shutdown Assembly," February 14, 1974.	47200
111	W. R. Bohl to J. F. Jackson, "Further SAS Computation on the BOC-4 Case," February 19, 1974.	47200
112	R. H. Land to R. Simms, "TREAT Power-Transient for L5 Experiment," March 7, 1974.	46906
113	L. L. Smith to SAS3A Users Group, "Compressible Inlet Plenum for the SAS3A Primary Loop Model," March 12, 1974.	47200
114	R. W. Ostensen/R. J. Henninger/H. U. Wider to J. F. Jackson, "Boiling Pool Model for Core Meltdown Studies," April 8, 1974.	47200

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115	R. W. Ostensen/R. J. Henninger, "Preliminary Assessment of the Transition Phase of the FFTF LOF Accident for the BOC-4 Case," April 17, 1974.	47200
116	L. L. Smith to Distribution, "HOCUS-POCUS: SAS3A Routines for Analysis of Space-Dependent Reactor Kinetics," April 26, 1974.	47200
117	M. G. Stevenson to Distribution, "Code Description," May 13, 1974.	47200
118	MEETING REPORT: RAS-M-266, F. E. Dunn, May 13, 1974.	47200
119	G. Hoppner to F. E. Dunn, "Code Description, MGS Memo, 5-13-74," May 20, 1974.	47200
120	L. W. Person to Distribution, "Procedures for Code Conversion from IBM 360 to CDC 7600 Version of SAS Codes," May 21, 1974.	47200
121	F. E. Dunn to M. G. Stevenson, "A Pipe Rupture Analysis Code, SASRUP Initial Description," May 23, 1974.	47200
122	W. R. Bohl to M. G. Stevenson, "SLUMPY Parametric Cases in the FTR LOF HCDA," May 30, 1974.	47200
123	F. E. Dunn to M. G. Stevenson, "Comments on RRD Code Descriptions," May 31, 1974.	47200
124	C. C. Meek to L. W. Deitrich/E. W. Barts, "SAS Modeling of Incoherence in L-Series Tests," June 11, 1974.	46906
125	F. E. Dunn to E. G. Czuba, "Dialup Telephone Line for the New RAS Remote Batch Computer Terminal," June 13, 1974.	47200
126	M. G. Stevenson to J. F. Marchaterre, "Technology Transfer Meeting on SAS," June 14, 1974.	47200
127	T. J. Heames to Distribution, "Trip Report Sunnyvale, Berkely, 5/27- 6/4/74," June 26, 1974.	47200
128	G. Hoppner to M. G. Stevenson, "R7 Pretest Analysis," July 2, 1974.	47200

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129	W. R. Bohl to R. H. Sevy, "SASGAS Progress," July 15, 1974.	47200
130	R. J. Henniger to J. F. Jackson, "GCFR Core Disassembly Analysis," July 25, 1974.	47200
131	W. A. Bezella/I. T. Hwang to J. H. Tessier, "SAS2B Simulation of FTR Pipe Rupture using SLSF Pl Test Section," July 30, 1974.	46922
132	I. T. Hwang/W. A. Bezella to J. H. Tessier, "Steady State Temperature Profile Comparison between SAS and GAPCON," July 30, 1974.	46922
133	D. R. Ferguson to Accident Analysis Section, "SAS Tutorial Session for Staff of Accident Analysis Section," August 15, 1974.	47200
134	H. U. Wider to R. E. Holtz, "Safety Analysis Calculations with the PLUTO Code for the N-Series Test Vehicle," September 6, 1974.	47200
135	I. T. Hwang/W. A. Bezella to J. H. Tessier, "Effect of Over enriched Pin on Pl FTR Pipe Rupture Simulation," September 16, 1974.	46922
136	D. R. Ferguson to J. F. Marchaterre, "Meeting with GE and RRD on Application of SAS to CRBR Analysis, Germantown, Md., Sept. 12-13," September 20, 1974.	47200
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138	G. Hoppner to Distribution, "Paper on SAS3A Sodium Boiling," September 26, 1974.	47200
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141	C. H. Gartside to D. H. Lennox, "Loss-of-Flow Studies," October 4, 1974.	46922
142	W. R. Bohl to D. R. Ferguson, "Speculations on HCDA Needs Relative to the Advanced Fuels Program," October 7, 1974.	47200

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143	Letter, T. J. Heams to H. K. Fauske, "FFTF Pipe Rupture Calculations," October 21, 1974.	46928
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145	W. R. Bohl to Distribution, "Model Development," October 31, 1974.	47200
146	I. T. Hwang to J. H. Tessier, "Clad Motion in Inner Channel of Pl Test Section," November 18, 1974.	46922
147	K. O. Ott to D. R. Ferguson, "Work Probabilistic Safety Analysis at Purdue (189a 02112)," December 10, 1974.	47200
148	D. R. Ferguson to B. D. LaMar, "SAS User Assistance from Accident Analysis Section," December 11, 1974.	47200
149	D. R. Ferguson to J. F. Marchaterre, "Review of ANL Accident Analysis and Safety Evaluation Program (189a 02-112)," December 11, 1974.	47200
150	F. E. Dunn to D. R. Ferguson, "Optimization of SAS Codes for Minimum Computing Time ... of Various FORTRAN Compilers," December 12, 1974.	47200
151	I. T. Hwang to J. H. Tessier, "The Effect of Fuel Restructuring in Pl Test Section During a Pipe Rupture Transient," January 2, 1975.	46922
152	W. R. Bohl to D. R. Ferguson, "SAS/FCI Sample Problem," January 6, 1975.	47200
153	I. T. Hwang to J. H. Tessier, "Heat Transfer Through Pl HEX Shroud after Sodium Voiding," January 20, 1975.	46922
154	W. R. Bohl to D. R. Ferguson, "Use of SAS3A by GE in CRBR HCDA Analysis," January 21, 1975.	47200
155	R. W. Ostensen to D. Rose, "Slow Coastdown LOF Tests in SAREF," January 31, 1975.	47200

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156	R. W. Ostensen to D. R. Ferguson, "Problems to be Examined for Transition Phase Analysis of an LOF Accident in CRBR," March 6, 1975.	47200
157	W. L. Wang to W. R. Bohl/D. R. Ferguson, "Modification of Stainless Steel Type 316 Swelling Correlation in SAS/SSFUEL Module," April 9, 1975.	47200
158	I. T. Hwang to J. H. Tessier, "P2 Hexcan Thermal Condition After Sodium Voiding," April 15, 1975.	46922
159	F. E. Dunn to D. R. Ferguson, "Efficient In-Core Data Movement for SAS2D and SAS3D," May 19, 1975.	47200
160	I. T. Hwang to J. H. Tessier, "SAS2B Simulation of FTR Unprotected LOF Accident Using SLSF P2 Test Section," June 17, 1975.	46922
161	S. J. Hakim/R. W. Ostensen to D. R. Ferguson, "Effects of High Power Levels on Fuel Penetration of Axial Blankets," June 17, 1975.	47200
162	R. J. Henniger/R. W. Ostensen to D. R. Ferguson, "Generation of SAS-Neutronics Data for CRBR SAS Analysis," June 25, 1975.	47200
163	S. J. Hakim/R. W. Ostensen to D. R. Ferguson, "Effect of Molten Fuel between Pins on Pin Disruption During the Transition Phase," July 1, 1975.	47200
164	W. L. Wang to D. R. Ferguson, "Some Comparison of LIFE-III and SAS3A Code Correlations for CRBR Fuel Pins," July 21, 1975.	47200
165	I. T. Hwang to J. H. Tessier, "Predicted Non-boiling Sodium Temperature for the P1 LOPI Test," July 23, 1975.	46922
166	J. E. Cahalan to D. R. Ferguson, "Treatment of Reactivity Feedback from Axial Fuel Expansion in SAS," July 24, 1975.	47200
167	C. H. Bowers to D. Rose, "Parameters for Construction of SAS3A Model of an Advanced Design Core," July 29, 1975.	47200
168	I. T. Hwang to J. H. Tessier, "SAS3A Pretest Analysis of the P1 Test Section," July 31, 1975.	46922
169	W. R. Bohl to L. Leibowitz, "Material Properties for SAS3A," August 8, 1975.	47200

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171	J. M. Kyser/C. Mueller to M. A. Grolmes/D. R. Ferguson/W. R. Bohl, "Initial Efforts on a Fast-Running Accident Analysis Code," September 15, 1975.	47200
172	D. H. Thompson to Distribution, "DRAFT SECTIONS OF THE P1 PRETEST ANALYSIS DOCUMENT," September 23, 1975.	46922
173	S. J. Hakim/R. J. Henninger to J. M. Kennedy, "Establishing Critical Thickness for Hexcans at Which Structural Integrity is Lost," October 6, 1975.	47200
174	I. T. Hwang to J. H. Tessier, "Sodium Plenum Over-Pressurization," October 21, 1975.	46922
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270	O. Ozaki to D. H. Thompson, "PLUTO-2 Prediction for the P4 Two-rod Withdrawal Accident," July 9, 1980	46922
271	H. U. Wider to D. P. Weber, "Comments on "An Assessment of Unprotected Accident Energetics in the Clinch River Heterogeneous Reactor Core," GE Draft Report, 1980," July 30, 1980	46953

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L. L. Briggs/F. E. Dunn to Distribution, "Incorporating the SAS3D Boiling Model into SAS4A," September 30, 1980

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275	Foreign Trip Report, H. U. Wider, "Attend 14th Mtg. on Whole-core Accident Comparative Calculations being conducted by the Whole-core Accident Code (WAC) group at EEC, Brussels, Belgium, May 15, 1979," Report date July 17, 1979	A43
276	Foreign Trip Report, H. U. Wider, "15th Mtg. on Whole Core Accident Comparative Calculations Conducted by the Whole-core Accident Code (WAC) group, Brussels, Belgium, Sept. 19, 1979," Report date January 18, 1981	A43
277	Foreign Trip Report, J. Kramer, H. U. Wider, and W. L. Wang, "In Belgium - WAC - at Harwell - Pin Modeling Fission-gas Behavior and Whole Core Analysis, Harwell, England, Brussels, Belgium, January 15-18, 1980," Report date February 29, 1980	A43
278	Foreign Trip Report, H. U. Wider, J. Kramer, "EEC-WAC Group Ispra, Italy, June 18 - July 2, 1980," Report date September 15, 1980	A43
279	Foreign Trip Report, D. P. Weber, and K. J. Miles, "EEC Whole Core Comparative Calculation Mtg., Brussels, Belgium, Dec. 3-4, 1980," Report date February 4, 1981	A43
280	Foreign Trip Report, H. U. Wider, A. M. Tentner, "EEC Whole Core Comparative Calculation Mtg. and Winfrith Laboratory, Brussels, Belgium, April 4-14, 1981," Report date May 28, 1981	A43
281	Foreign Trip Report, H. U. Wider and A. M. Tentner, "EEC Whole Core Comparative Calculation Mtg., Brussels, Belgium, July 1-2, 1981," Report date September 17, 1981	A43
282	Foreign Trip Report, H. U. Wider, "EEC Whole Core Mtg., Brussels, Belgium, Dec. 2-3, 1981," Report date January 25, 1982	A43

Discovery responses will be updated if and when the code is used for licensing.

19 (III)(3)

The EPIC code has not been used by the Applicants nor are there any plans to use the code in the future. A comparison of EPIC with PLUTO 2 was carried out (Reference 25 of CRBRP-GEFR-00523) which showed that the codes show good agreement if several of the advanced PLUTO 2 features are not used.

19 (III)(4)

This question was answered in "Applicants Updated Response #1....," on page AA-126.

19 (III)(5)

This question was answered in "Applicants Updated Response #1....," on page AA-127, as supplemented in "Applicants Supplemental Updated Response #1....," dated April 30, 1982, and "Applicants Second Supplemental Updated Response #1....," dated May 24, 1982. One additional item should be added to the list of memoranda provided in the Supplemental Responses:

- (283) Foreign Trip Report, Hartmut U. Wider, "EEC Whole Core Accident Comparative Calculation (WAC) Meeting in Brussels, Belgium, March 23-24, 1982."

Contention 3

INTERROGATORY

20. Describe fully the programs and methods used by Applicant to ensure that the analyses of potential accident initiators, sequences,

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of
UNITED STATES DEPARTMENT OF ENERGY
PROJECT MANAGEMENT CORPORATION
TENNESSEE VALLEY AUTHORITY
(Clinch River Breeder Reactor Plant)

Docket No. 50-537

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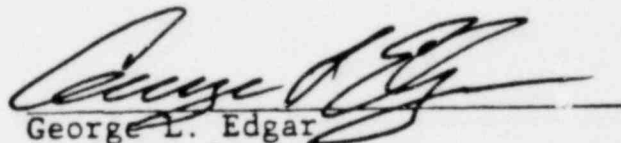
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